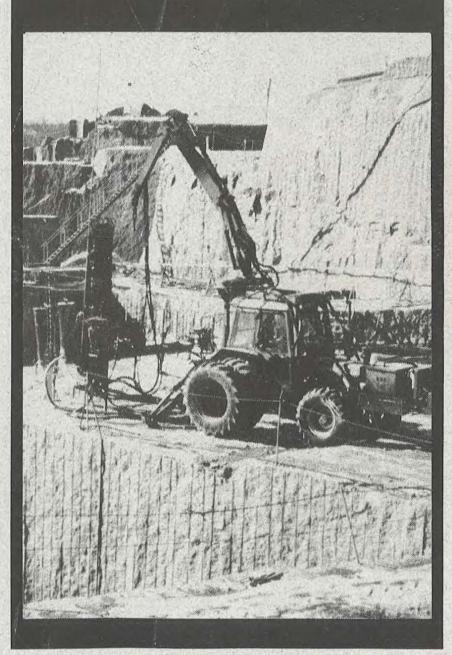
Industrial Minerals

Inventory of Industrial Mineral Pits and Quarries in Minnesota

DPM



1990 Report 282 Volume 1

Minnesota Department of Natural Resources

> Division of Minerals



Inventory of Industrial Mineral Pits and Quarries in Minnesota

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By

S. L. Nelson, M. W. Oberhelman, and D. J. Olson

1990

Report 282 Volume 1 of 2

Minnesota Department of Natural Resources Division of Minerals William C. Brice, Director (*) (*) (*) $\left(\begin{array}{c} 0 \\ 0 \\ 0 \end{array} \right)$ () () 1 () (U

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Abstract

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The Department of Natural Resources, Division of Minerals, completed a comprehensive inventory of current and past industrial mineral mining activity in Minnesota, exclusive of sand and gravel extraction. The inventory data summarizes geologic and industry information maintained in the public record for pits and quarries that are active, inactive, or of historical interest.

The compilers collected the data through a questionnaire sent to the industry, subsequent discussions with the producers, and a search of data files and literature from public agencies and academic institutions.

A synopsis of activity at individual pits and quarries is presented in a reference format. The records for each commodity are sorted alphabetically by county, and within the county, by U. S. Public Land Survey location. Information reported includes the producing company, past operators, geologic formation, description of the rock or mineral, commodity uses, and a list of references for each pit or quarry.

The records are presented in two volumes. Volume 1 contains records of active pits and quarries and a Producer Directory; Volume 2 consists of records of inactive pits and quarries. The Producer Directory contains names, addresses, and telephone numbers of industrial mineral producers in Minnesota.

Industrial mineral commodities inventoried include: clay/shale, feldspar, marl, mica, natural cement, natural mineral pigments, peat, salt, silica sand, tripoli, and stone. Abrasive, crushed, and dimension stone commodities include carbonate rock, granite, greenstone, quartzite, sandstone, schist, slate, and trap rock.

The inventory indentifies 188 active industrial mineral pits and quarries. The catalog of inactive pits and quarries contains 1,799 records, some of which refer to several pits or quarries within a general location.

Inventory results are summarized in table form, listing the number of active and inactive pits and quarries by commodity and county. A series of pagesized maps of Minnesota depict the distribution of pits and quarries by commodity throughout the state.

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Introduction

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This report presents the results of a comprehensive inventory of industrial mineral mining activity in Minnesota, exclusive of sand and gravel extraction. The report summarizes geologic and industry information maintained in the public record for pits and quarries that are active, inactive, or of historical interest.

The report has several uses for geologists, engineers, managers, and developers. First, it is a guide to the state's current industrial minerals industry, containing a synopsis of the mining activity at each site. Second, it provides a reference to inactive pits and quarries that may have current and future value due to emerging and changing processing technologies and market conditions. Third, it provides the reader with a list of references that contain additional information on each pit or quarry.

Methodology

The first phase of the project, which began in the Spring of 1988, consisted of gathering information that is pertinent to the state's industrial minerals industry. Data were collected by two means: 1) a questionnaire sent to the industry, followed by discussions with the owners and operators; and 2) a search of literature and data from federal and state agencies, academic institutions, and local units of government.

As the information was collected for each mining activity, it was cataloged by commodity and location to facilitate the compilation. Information was then reviewed and summarized, and this summary was input into a text database manager that allows automated text-sorting and data retrieval.

The information for individual activities is compiled as a single "record." Typically, there are numerous current and historical sources for the information in each record, all of which are cited.

Inherent in the design of the inventory are a number of limitations. First, because this is the initial attempt to compile synopses of all information in the public record into a comprehensive document, it is likely that some sources of information may have been overlooked. Second, the locations of sites were not field-checked. Third, the authors could not, in all cases, resolve the discrepancies in the literature or determine the accuracy of the information.

In addition, because the scope of the inventory was constrained by time and the budget, reported occurrences of industrial minerals in outcrops, test pits, drill holes, and prospects were not included in the inventory.

The compilers did not collect production data or other proprietary information from the producers.

Commodities Reported

Individual records within the report are grouped according to commodity rather than by a geological classification system. The use of industry nomenclature reflects the end-use of these commodities.

The commodities included in this report, their definitions if these are called for, and the rocks and minerals associated with them are listed below.

- Clay/Shale including catlinite (pipestone). The historical literature emphasizes brickyards and usually does not specifically mention the location of associated clay pits. Therefore, the compilers included brickyards in the inventory as a record of the general location of the associated clay or shale pits.
- Feldspar
- Marl
- Mica
- Mineral Pigments (Natural)
- Natural Cement
- Peat only active operations are included in this report. For the purpose of the report, the terminology pits and quarries is to include peat mining areas.
- Salt
- Silica Sand (Industrial Sand)

Stone:

• Carbonate Rock - limestone, dolomite (dolostone), dolomitic limestone, travertine, and variations (industry typically uses the term limestone when referring to the carbonate rocks).

- Granite granite, gabbro, syenite, monzonite, diorite, grandodiorite, anorthosite, amphibolite, and gneiss, i.e., rocks that are defined as granite by the stone industry
- Greenstone
- Quartzite
- Sandstone including graywacke
- Schist
- Slate
- Trap Rock basalt, diabase, and felsite
- Miscellaneous including mine tailings, etc.
- Tripoli

Other terms used in defining the stone commodities include:

"Abrasive" - natural stone used to grind, polish, abrade, scour, or clean. Abrasive stone includes quartzite and sandstone.

"Crushed" - crushed or broken stone used for physical or chemical applications. Crushed stone includes carbonate rock, granite, greenstone, mine tailings, quartzite, sandstone, schist, and trap rock.

"Dimension" - cut stone and all forms of natural building stone. Dimension stone includes carbonate rock, granite, quartzite, sandstone, schist, slate, and trap rock.

"Undifferentiated" - the term used by the compilers when the literature did not identify the end-use of the stone. Undifferentiated stone includes carbonate rock, granite, quartzite, sandstone, slate, and trap rock.

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The report consists of two volumes: 1) Volume 1 contains records of active pits and quarries and a Producer Directory; 2) Volume 2 contains records of inactive pits and quarries.

Active pits and quarries include those that were active, intermittently active, or temporarily inactive at the time of compilation. Inactive pits and quarries include those that are inactive or abandoned. Unless current sources identified a pit or quarry as active, it was listed as inactive.

There is a slight variation in the arrangement of the commodity groupings between the two volumes. In Volume 1, active pits and quarries, the stone commodities are grouped according to end-use, i.e., abrasive, crushed or dimension stone. In contrast, within Volume 2, inactive pits and quarries, the stone commodities are grouped by rock type, i.e., granite, quartzite, sandstone, etc. The reason for this grouping is that the references for inactive quarries did not always indicate an end-use of the commodity.

Within each commodity grouping, the data are arranged according to location. Data are first sorted alphabetically by county and then numerically within the county, by U.S. Public Land Survey location, i.e., by ascending township, range, and section numbers. If more than one commodity is produced at a pit or quarry, the record will be listed only under the main commodity produced.

The Producer Directory contains an alphabetical listing of the companies with addresses and telephone numbers. References to the Producer Directory are contained in the records of some inactive pits and quarries in those cases where a producing company formerly operated the pit or quarry. Producing companies are also listed in a company index following the records in Volumes 1 and 2.

Record Format

A set of standardized headings is employed to organize the data within individual records. These headings are referred to as "field headings." In cases in which information pertaining to a specific field was not available, either in the literature or from the producers, that particular field heading is not contained in the record.

Because the volume of information necessitated that only a synopsis of each mining activity be reported, extreme care was taken to prevent misinterpretation of original work. Comments and clarifications by the compilers are enclosed by parentheses (), in contrast to the reference material, which is quoted directly or summarized. When the date of the reference is needed to provide a frame of reference for the reader, that date is also enclosed in parentheses ().

The field headings, as they appear in the records, and the conventions employed in presenting the information are listed below. Where necessary, comments to clarify the scope of the headings are given.

- Company. Name of the company operating the pit or quarry (this does not necessarily indicate ownership). See the Producer Directory for company address.
- Main commodity.
- Other commodities.
- County.
- Quarry/pit name.
- Alternate name. Other name(s) associated with the pit or quarry, e.g., such as those used by past operators.
- Date opened.
- Status. Either active, intermittently active, temporarily inactive, inactive, or abandoned. Abandoned does not imply depleted.
- Past operator/owner. Former operator, owner, or lessee of the quarry or pit.
- MN/DOT source number. Crushed stone aggregate source number assigned to the quarry by the Aggregate Unit, Minnesota Department of Transportation.
- USGS quadrangle. Name of the USGS 7.5 minute quadrangle map on which the site is located.
- Township name.
- Location. Township (T), range (R), section (Sec), and section locators. In cases where the pit or quarry is located in more than one township or section, all locators that apply are listed. In cases where location discrepancies exists between the references, all locations are listed, referenced to their source. And, in those cases where the references specified only a community, the location is the same as that community.

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- Location comments. Additional comments concerning the location, such as a direction from the nearest community.
- Geologic age. Time interval (age) in which the rock formed, e.g., Ordovician, Middle Proterozoic, Archean, etc.; for chronology, please refer to "The Decade of North American Geology Geologic Time Scale", compiled by Palmer, 1983.
- Geologic formation. Geologic group (Gp.), formation (Fm.), or member (Mbr.) of the rock, as given in the reference (Note: The older references may include formation names that are not in current usage). If the compilers updated the nomenclature, the preferred usage is listed within parentheses ().
- Description. Description of the rock or mineral, including commercial names, rock type, color, variegation, texture, jointing, grain size, mineralogical composition, stratigraphic section, and lithological descriptions as given in the original references.
- Chemical analyses.

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- Physical test data.
- Extraction method.
- **Processing plant.** Address, plant contact, and telephone number of processing plant are listed if different than company office.
- Processing method.
- Uses of commodity. Includes current and past uses.
- Trade names. Names used by the producer in marketing its commodities.
- Marketing area. Geographic area in which the company distributes its commodities.
- Remarks. Additional remarks relating to the pit or quarry that are not included within other fields.
- **References.** References are cited in two places within each record. First, as a number within parentheses () immediately following the data in a field, and second, as an abbreviated citation at the end of the record. The complete citations are contained in the reference section, page 87.

Sources of Information

The following resources were used in compiling the data for this inventory: 1) a DNR questionnaire, including follow-up discussions with operators; 2) files on mining activities from public agencies, including the Aggregate Unit, Minnesota Department of Transportation (MN/DOT); the Mining Safety and Health Administration (MSHA), U. S. Department of Labor, Duluth District; and the U.S. Army Corps of Engineers, St. Paul and Detroit districts; 3) county offices, including county engineers, assessors, and zoning personnel; 4) historical societies and local historians; 5) field notes, maps, and publications of the Minnesota Geological Survey (MGS); 6) Mineral Industry Location System (MILS), U.S. Bureau of Mines (USBM); 7) brickyard information compiled by the Natural Resources Research Institute (NRRI); 8) academic theses and journal papers; and 9) other selected literature.

Summary

This report presents the results of a comprehensive inventory of active and inactive industrial mineral pits and quarries in Minnesota. Of the pits and quarries identified, 188 were active, intermittently active, or temporarily inactive at the time of compilation. This number reflects the overall responsiveness to this inventory by the industry, in which over 90% responded to the questionaire or to subsequent inquiries. The listing of inactive or abandoned pits and quarries contains 1,799 records. However, the catalog of inactive records contains more than the 1,799 pits and quarries because the historical literature is often not precise enough to identify each pit or quarry. In these cases the records refer to more than one pit or quarry.

Tables 1 through 4 summarize the results of the inventory by commodity and county. Table 1 summarizes the number of active pits and quarries. Table 2 summarizes the number of inactive industrial mineral pits and quarries excluding clay and stone. Table 3 summarizes the number of inactive clay and shale pits or brickyards, and Table 4 summarizes the number of inactive stone quarries.

Figures 1, 2, and 3 depict the locations of active pits and quarries in the state, and figures 4 through 10 depict the distribution of inactive pits and quarries throughout the state. The scale of these maps required that sites be plotted in the township in which they occur. As an aid in interpreting the mapped data, see the bedrock geologic map of Minnesota in the appendix.

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Table 1. Active Industrial Mineral Pits and Quarries

				Abrasive Stone		- ,- * <u></u> tut	Crushed Stone				Dimension Stone	
	Clay/ Shale	Peat	Silica Sand	Quartzite	Carbonate Rock	Granite	Quartzite	Schist	Trap Rock	Carbonate Rock	Granite	Quartzite
Aitkin	-	2	-	-	-	-	•		•	-	•	•
Anoka	-	1	•	-	-	-	-	-	-	-	-	-
Big Stone	-	•	-		-	1	-	-	-	-	1	
Blue Earth	-		-	-	2	•	-	-	-	3	-	-
Brown	2	-	-	-	-	-	-	-	-	-	-	-
Carlton	-	3	•	-		-	-	-	-	-	-	•
Cass	-	1	-	-	-	-	-	-	-	-	•	-
Dakota	-		-	-	6	-	-	•	-	-	-	-
Dodge	-	-	-	-	3	-	-	-	-		-	-
Fillmore	-		-	-	22	-	-	-	-	-	•	-
Goodhue	-	-	-	-	18	-	-	-	-	-	-	-
Hennepin	-	1		· -	-	-	-	-	-	-	-	-
Houston	-		-	-	24	-	-	•	-	-	-	-
Isanti	-	1	-	-	-	-	-	-	-	· ·	-	
Koochiching	-		-	-	-	-	-	1	-	-	-	-
Lac Qui Parle	-	-	-	-	-	-	-	-	-		1	-
Le Sueur	-	-	2	-		-	-	-	•	2	-	-
Mille Lacs	-	-	-	-		-	-	•	-		1	
Mower	-	•	-	-	2	-	-	-	-	-	-	-
Nicollet	-	-	-	-	-	-	1	-	-	-	-	-
Olmsted	-	-	-	-	13	-	-	-	-	-	-	-
Otter Tail	-	1	-	-	-	-	-	-	-	-	•	-
Redwood	3	-	-	-	-	-	-	-	-	-	-	-
Renville	-	•	-	-	-	•	-	•	-	-	1	· -
Rice	-	2	-	-	1	-	-	•	-	-	-	-
Rock	-	-	-	1	-	-	-	-	-	-	-	1
St. Louis	-	3	-	-		1	-	-	2	-	-	-
Scott		-	-	-	4	•	•	-	-	-	-	-
Stearns	-		•	-	•	1	-	-	-	-	5	-
Steele	-			-	1	-	-	-	-	-	•	-
Wabasha	-	-	-	-	18	-	-	-	• -	-	•	-
Washington	-		1	-	3	•		-	-	-	•	-
Winona	-	•	.	-	23	•	-	•	-	1	-	-
Yellow Medicine		- ·		-	-	1	-	-	-	-	-	-
Total	5	15	3	1	140	4	1	1	2	6	9	1

	Feldspar	Marl	Mica	Mineral Pigments	Natural Cement	Salt	Silica Sand	Tripoli	Miscellaneou Minerals
Aitkin	-	2	-	-	•		-	-	-
Anoka	-	2	-	-	-	-	1	-	-
Beltrami	-	1	-	-	-		-		-
Benton	-	2	-	-	•	•	-	-	-
Blue Earth	-	•	-	-	2		-	-	
Carlton	-	-	-	-	•	•	-	-	1
Cass	-	1	-	-	-	-	-	-	-
Chisago	-	1	· -	-	-	-	-	-	- 1
Crow Wing	-	9	-	-	•	-	-	-	-
Dakota	-		-	-	-	•	2	•	-
Goodhue		•	-		-	-	1	-	-
Hubbard	-	2	-	.	•	-	-		
Kittson	-	-	- 1		-	1	-		-
Lake	2	-	-		-	-	-	-	-
Lake of the Woods	1	1	-	-	-	-		- 1	-
Le Sueur	-	-	-	-	-		6		
Morrison	-	1	-	-	-	-	-	•	
Mower		•	-		1	- 1		-	
Pine	-	-	-	-	•	-	1	-	-
Ramsey		-			-	-	1	-	
Redwood	-	-		1	-	-	-		
St. Louis	1	-	1	-	-		-	-	
Scott	-	-	-	-	-	1	2	-	
Stearns		5	-	.	-	-	-	-	-
Todd	-	1	-	.	•	-	-	-	
Wadena		2	-		-	-	-	-	-
Washington	-	1	-	_	•	•	-	1	-
Total	4	31	1	1	3	2	14	1	1

Table 2. Inactive Industrial Mineral Pits and Quarries Excluding Clay and Stone

Aitkin Anoka Becker Beltrami Benton Blue Earth Brown	2 6 5 2 2 9 13	Mille Lacs Morrison Mower Nicollet Nobles Norman	4 6 7 7 1 1
Becker Beltrami Benton Blue Earth Brown	5 2 2 9 13	Mower Nicollet Nobles Norman	7 7 1
Beltrami Benton Blue Earth Brown	2 2 9 13	Nicollet Nobles Norman	7 1
Benton Blue Earth Brown	2 9 13	Nobles Norman	1
Blue Earth Brown	9 13	Norman	_
Brown	13		1
C alter		Olmsted	7
Carlton	19	Otter Tail	7
Carver	7	Pennington	1 _
Chippewa	3	Pine	1
Chisago	8	Pipestone	1
Clay	2	Polk	7
Cottonwood	4	Pope	1
Crow Wing	2	Ramsey	5
Dakota	5	Red Lake	1
Dodge	3	Redwood	6
Douglas	6	Renville	3
Faribault	6	Rice	4
Fillmore	15	Rock	1
Freeborn	6	Roseau	2
Goodhue	26	St. Louis	2
Grant	1	Scott	7
Hennepin	11	Sherburne	3
Houston	6	Sibley	2
Hubbard	2	Stearns	18
Isanti	5	Steele	3
Itasca	3	Stevens	1
Jackson	3	Swift	3
Kanabec	5	Todd	15
Kandiyohi	3	Wabasha	8
Le Sueur	5	Waseca	3
Lincoln	1	Washington	2
Lyon	2	Watonwan	3
McLeod	2	Wilkin	1
Marshall	- 1	Winona	8
Martin	2	Wright	12
Meeker	3	Yellow Medicine	4

Note: This table lists the number of records in each county - in many cases one record represents numerous pits or brickyards at the given record location.

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Table 4. Inactive Stone Quarries

		arbonate Ro			Granite		Greenstone		Quartzite D	U
A *41 *	*C	D	U	С	D	<u>U</u>	С	С	·······	U
Aitkin		-	•	-	-	1	-	-	1	
Anoka	1	•	-	•	-	-	-	-	-	•
Beltrami	-	-	•	1	-	-	-	-	•	•
Benton	-	-	-	1	15	5	-	•	•	•
Big Stone	-	•	•	2	2	7	-	-	-	-
Blue Earth	6	29	2	-	-	-	-	•	-	•
Brown	1	-	-	-	-	-	-	-	•	-
Cariton	-	• •	-	-	-	-	-	-	-	•
Carver	1	-	-	-	-	-	-	•	-	-
Cass	-	-	-	-	1	-	-	-	-	-
Chippewa	1	-	-	2	3	1	-	-	-	
Chisago	1	-	-	- 1	-	-	-	•	-	-
Cook	-	-	-	1	-	-	-		-	
Cottonwood		-	-	-		-	-	1	6	-
Crow Wing		-	-		-	-		-	-	-
Dakota	11	16	11		_	_		_	_	
Dodge	15	10	2	_	-	-		-	-	-
				-	•	-		-	-	•
Fillmore	120	23	41	-	-	-	-	-	•	-
Freeborn	-	-	-	•	-	-	-	1	-	•
Goodhue	43	42	12	-	•		-	-	•	•
Hennepin	7	16	3		-	•	-	•	-	•
Houston	76	20	3	-	-	•	-	-	-	•
ltasca	-	-	•	-	-	1	-	-	-	-
Kanabec	-	-	-	•	3	•	-	-	-	-
Lac Qui Parle	•	•	-	-	3	7	-	-	•	-
Lake	-	-	-	3	2	5	-	-	-	•
Le Sueur	9	12	8	-	-	-	-	•	-	•
Lincoln	-	-	-		-	-	-	-	-	-
Mille Lacs	-	-	-	-	1	-	-	-	•	-
Morrison		-	-	-	6	3	-	-	-	
Mower	18	18	10	-	•	-		-	-	-
Nicollet	1	6	-	_	1	2		1	2	1
Oimsted	57	12	23		1	2		-	-	-
Pine		12	2.5		-	-		-	-	-
	-	-	-	-	-	-	-	•	-	- 7
Pipestone	-	•	•	-	-	•	-	2	2	'
Ramsey	3	9	2	-	-	•	-	-	•	-
Redwood	-	•	•	•	5	20	-	•	-	-
Renville	-	•	-	1	9	5	-	-	-	•
Rice	7	17	2	•	-	•	-	-	-	•
Rock	-	-	-	-	-	-	•	1	6	3
St. Louis	-	-	-	4	8	14	2	1	-	-
Scott	9	2	1	•	-	-	-	-	-	-
Sherburne		•	-	-	6	1	-	•	-	-
Sibley	4	-	-	-	-	-	-	-	-	-
Stearns	-	-	-	1	91	17	· ·	-	-	-
Steele	3	2	-		-	-	_	-	-	-
Wabasha	37	8	5	-	-	-	.	-	-	4
Washington	10	16	24		-	•	.	-	-	-
Watonwan	10	-	-		_	-		-	-	_
	1				-	-	, - I	-	-	-
Winona	66	22	6		-	-		-	•	•
Yellow Medicine		-			4	9			-	•
Total	508	281	155	16	160	98	2	7	17	11

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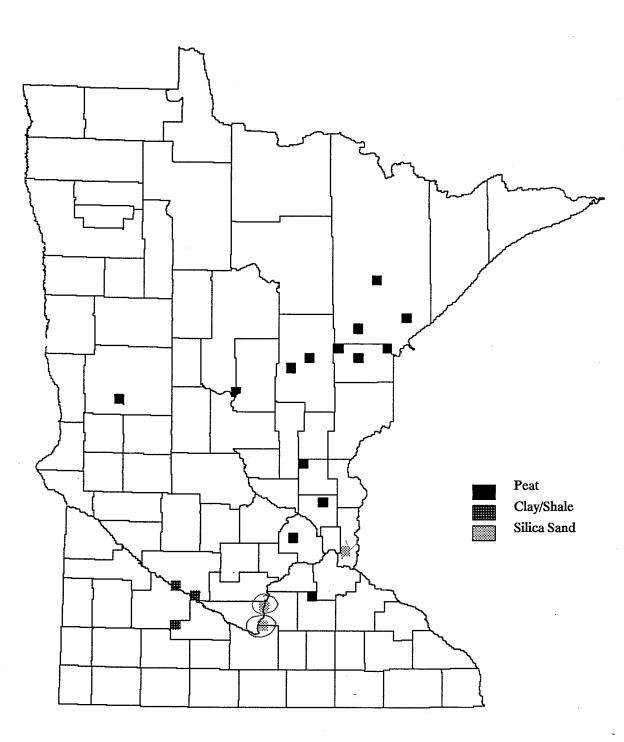
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Table 4. continued

		Sands			Schist	Sla			Trap Rock	Miscellaneous		
	Α	С	D	U	D	D	U	С	D	U	С	U
Aitkin	-	-	-	-	-	-	-	-	-	•	-	-
Anoka		-	-	-	-	-	-	-	•	-	-	-
Beltrami	-	- '	-	-	-	-	-	1	-	-	-	-
Benton	-	-	-	-	-	-	-	- ·	-	•	-	-
Big Stone	-	-	-	-	-	-	-	-	• .	-	-	-
Blue Earth	-	-	-	-	- I	-	-	1 -		-	-	-
Brown	_	_	1	-		_	_		-	-		-
Carlton	-	-				7	2			-		_
	•	-	-	-	-	'		-	-			_
Carver	•	•	-	•	-	-	-	-	-	•	-	-
Cass	-	-	•	-	-	-	-	-	-	•	-	-
Chippewa	•	-	-	-	-	-	-	-	•	-	-	-
Chisago	-	-	2	-	-	-	•	1	1	-	-	•
Cook	-	-	-	1	- 1	-	-	4	-	-	-	-
Cottonwood	-	-	-	-	-	-	•	•	•	-	-	-
Crow Wing	-	-	-	-	-	-	-	-	-	•	1	-
Dakota	-	-	3	2	-	-	-	-	-	-	-	-
Dodge	-	-	-	-	-	-	-] -	•	-	-	-
Fillmore	-	4	1	-	-	-	-	-	-	· •	-	-
Freeborn	-	-	•	-		-	-	-	-	-	-	•
Goodhue	-	1	-	3		-	-	-	-	-	-	-
	-	•					-		-	-	_	_
Hennepin	-	-	-	-	-	-	-		-	-	-	-
Houston	-	3	2	-	-	-	•	-	•	-	-	-
Itasca	-	-	-	-	-	-	-		-	•	1	-
Kanabec	-	-	-	-	-	-	-	-	-	-	-	
Lac Qui Parle	-	-	-	-	-	-	-	-	•	•	•	
Lake	-	-	-	-	-	-	-	15	-	-	-	-
Le Sueur	-	•	-	-	-	-	•	-	•	-	-	-
Lincoln	•	-	1	-	-	-	-	-	-	-	-	-
Mille Lacs	-	-	-	-	-	-	-	-	-	-	-	-
Morrison	-	-		-	2	1	-	-	-	-	-	-
Mower	_	-	1	-		-	-			-		-
Nicollet	-	-	2	•					_	_		_
Olmsted	-	-		-	-	-	-		-	-		-
1	-	-	•	1	-	-	-	-	-	•	-	-
Pine	1	•	6	2	-	-	-	-	•	-	-	-
Pipestone	-	•	-	•	-	-	-	-	-	-	-	-
Ramsey	-	-	-	1	-	-	-	-	-	-	-	-
Redwood	•	-	•	-	-	-	-	-	•	-	-	-
Renville	-	-	-	•	-	-	•	-	-	•	-	-
Rice	-	1	-	-	1	-	-	-	-	-	-	-
Rock	-	-	-	•	-	-	-	-	-	-	-	-
St. Louis	-	-	3	1	-	-	-	9	-	3	2	1
Scott	-	1	1	1	-	-	-	-	-	-	-	-
Sherburne	-	-	-	-	-	- 1	-	-	-	-	-	-
Sibley	-	-	-	-	_	-	-		-	-	-	-
Stearns	-	-	-	-		_	-	_	-	-		_
Steele	-	•	-			-			-	-		
1	-	-	-	-	•	-	-	-	-			-
Wabasha	-	-	1	-	-	-	-	•	-	•] -	-
Washington	-	-	-	4	-	-	-	-	•	•	-	-
Watonwan	•	-	-	-		-	-	-	•	-	-	-
Winona	-	5	2	2	-	-	-	-	-	-	-	-
Yellow Medicine	-	-	-	-	-	-	-		•	-	-	-
Total [*]	1	15	26	18	3	8	2	30	1	3	4	1

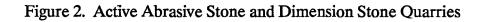
Note: This table lists the number of records in each county - occasionally one record represents several quarries.





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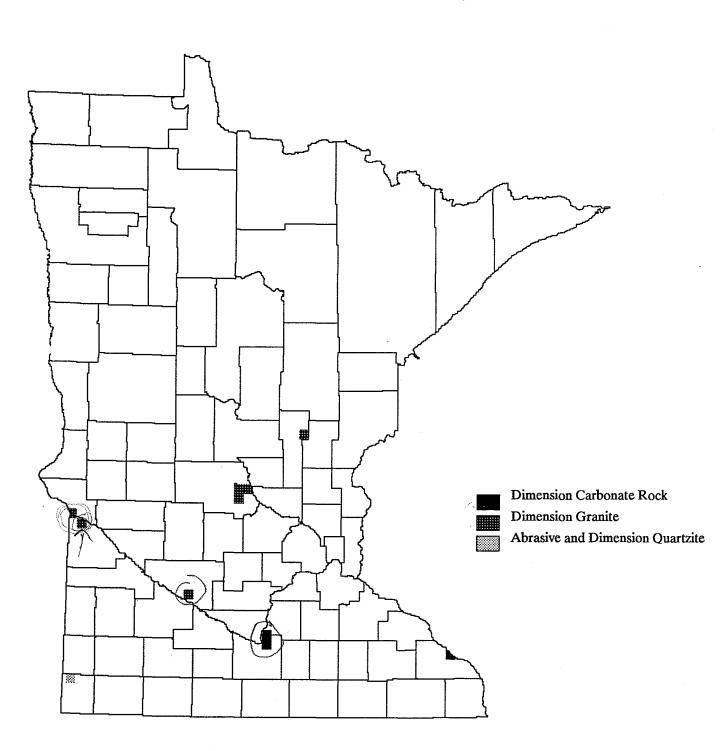
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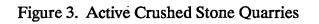
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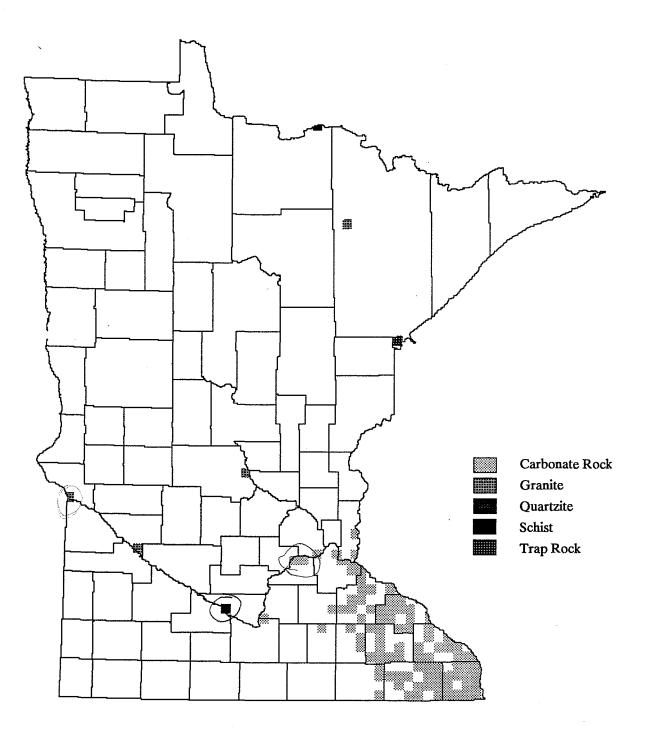
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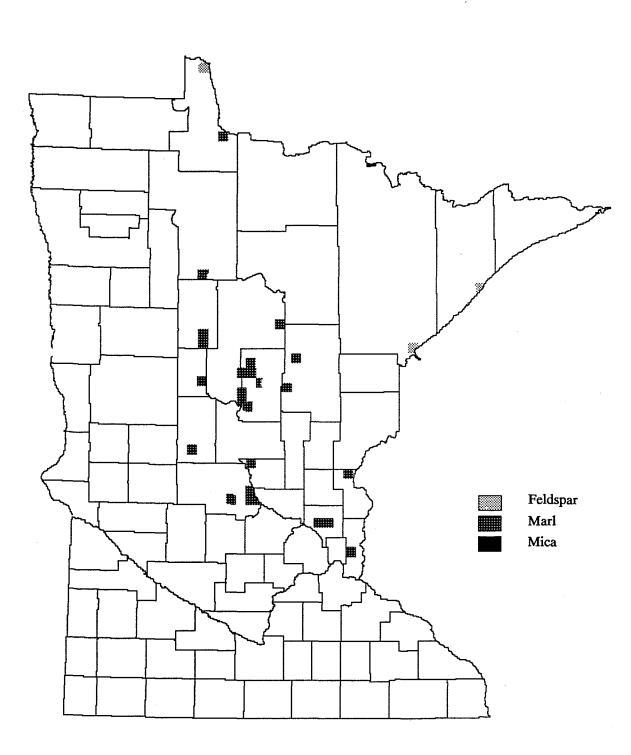


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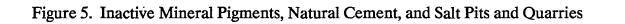


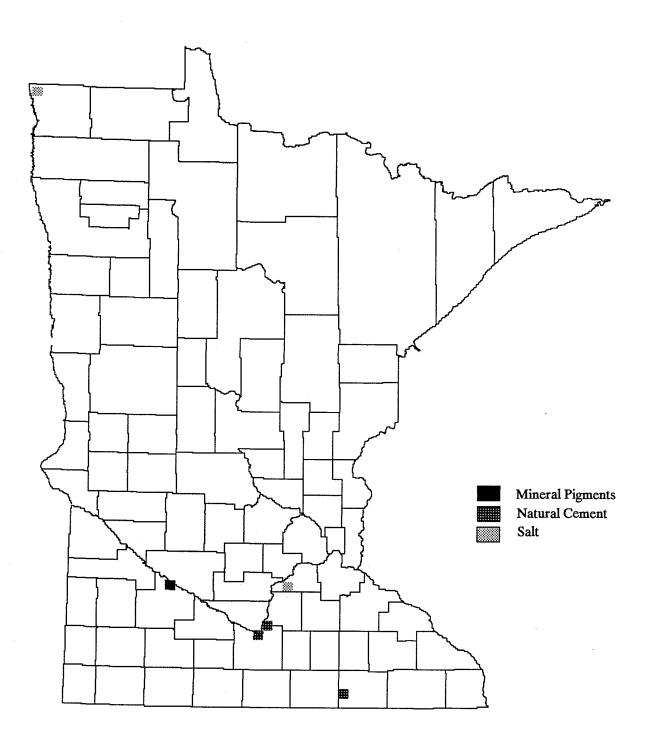


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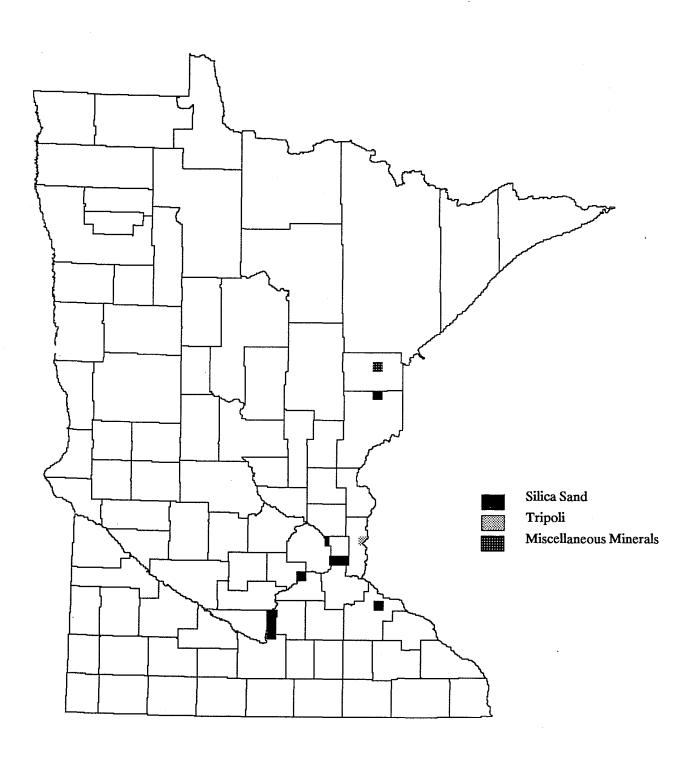
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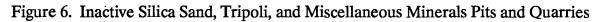
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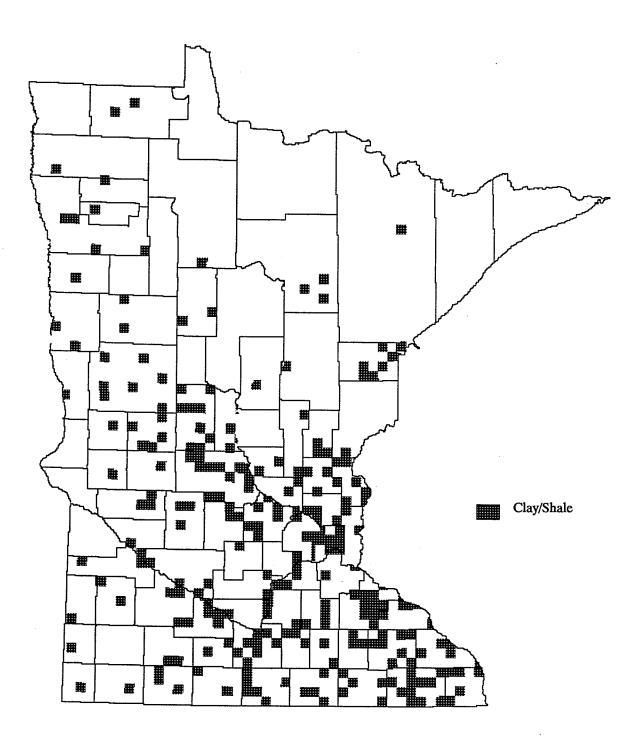
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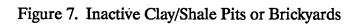
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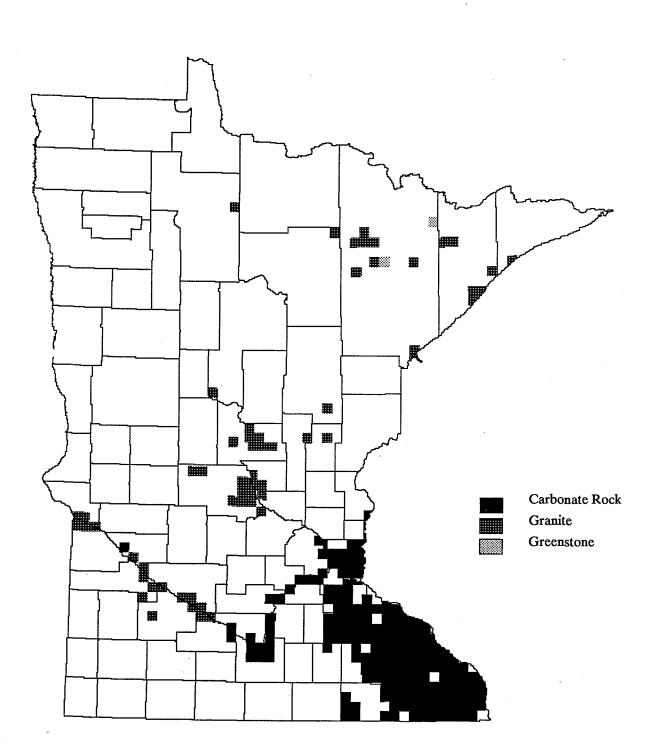
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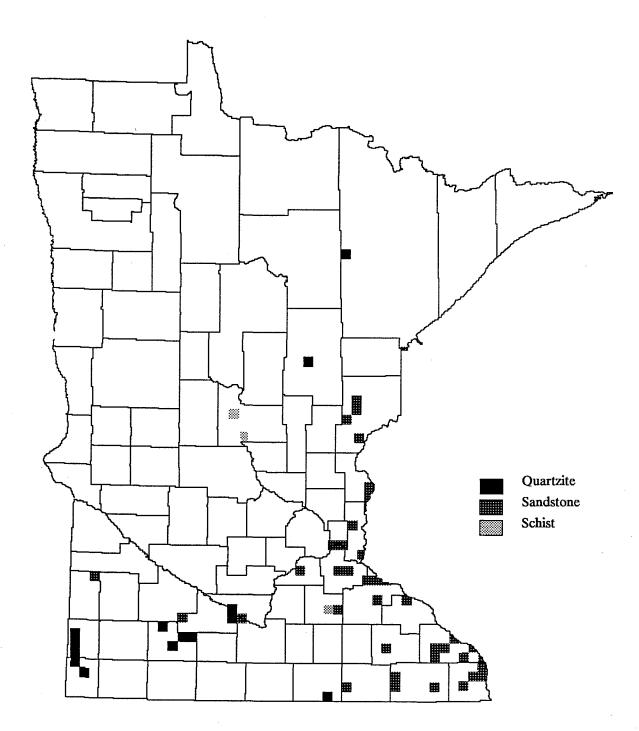
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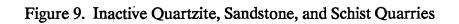
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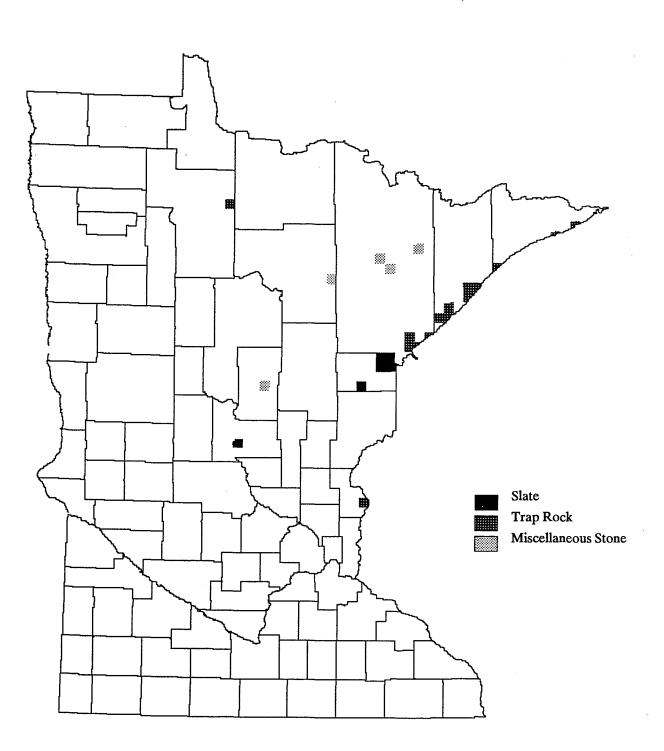
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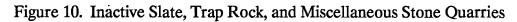
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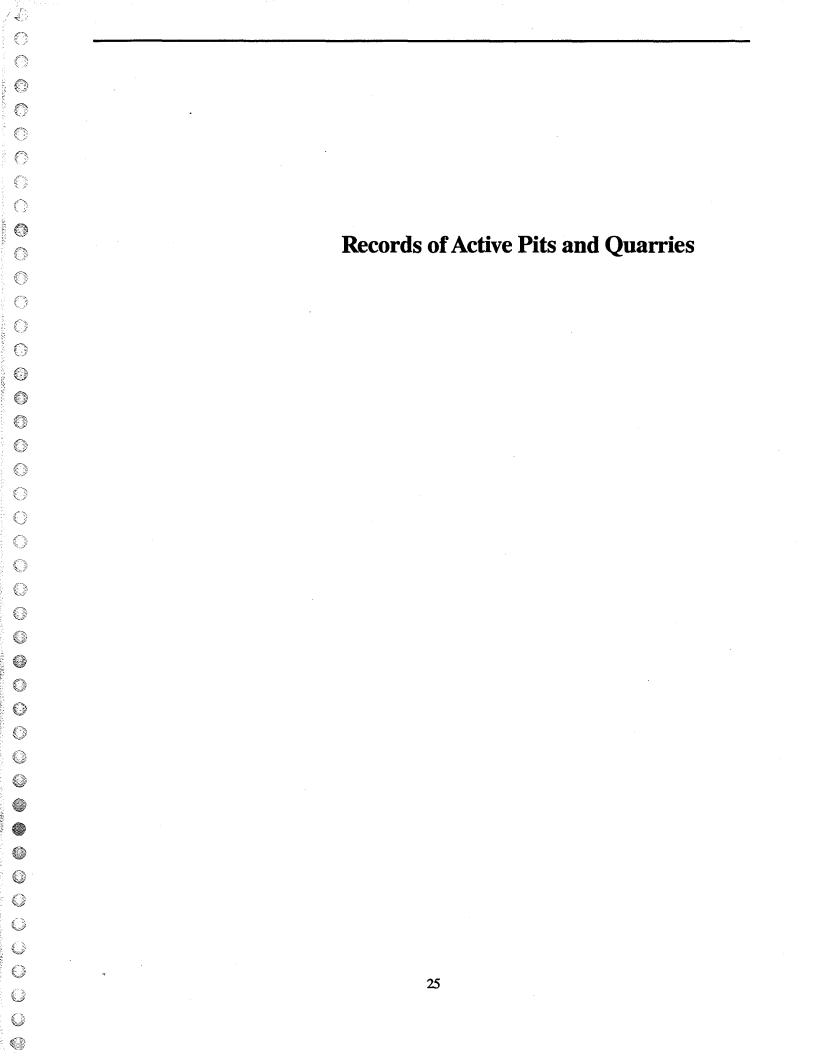
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Acknowledgements

The authors would first like to express their appreciation to Minnesota's industrial minerals industry for providing the information for this inventory, without which would have made the inventory impossible. The authors would also like to acknowledge the following public agencies for providing access to their files, field notes, and unpublished maps: the Minnesota Department of Transportation; the Minnesota Geological Survey; the Natural Resources Research Institute; the U.S. Bureau of Mines; the Mining Safety and Health Administration, U.S. Department of Labor; and the U.S. Army Corps of Engineers. Finally, the authors would like to thank the local units of government as well as the many other individuals, whose cooperation allowed us to complete this inventory.

Additions, corrections, and comments are encouraged from the reader and will be incorporated into the division's database. Please contact the Division of Minerals, Department of Natural Resources, at (218) 262-6767, with your comments.

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Clay/Shale

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Company:	Ochs Brick & Tile Co. (1)	Marketing area:	Raw material now shipped to lowa to a cement manufacturer (1)
Main commodity:	Clay/Shale	Remarks:	Northern Con-Agg plans to open two new pits
County:	Brown		near this area soon (1989) (1); Lester Frohrip owns pit (1989) (1)
Quarry/pit name:	Springfield Red Pit (1)	References:	1) Northern Con-Agg 1989, personal
lternate name:	Springfield Pit (11)	neicicies.	communication
Date opened:	1956? (1)		2) Brown County Zoning and Planning. 1989,
Status:	Active (1)		personal communication 3) NRRI. clay sample site
Location:	T 109 R 35 W Sec 26 SE1/4 NE1/4 (1,16)		_,,
	T 109 R 35 W Sec 26 NE1/4 NE1/4 (2,11-13,16)	Company:	Nova Natural Resources (1)
ocation comments:	Near Springfield (1-10,12-17)	Main commodity:	Clay/Shale
Geologic age:	Cretaceous	County:	Redwood
Description:	Clay and shale (1); see Refs. 2-4 and 7-9 for	Date opened:	1988 (1)
Novele of the states	lithologic section descriptions	Status:	Active (1)
Physical test data:	See Refs. 4, 5, 10, and 17 for test data	Township name:	Honner
Extraction method:	Strip pit - backhoe (1) Processing plant at office leastion (1)	Location:	T 113 R 35 W Sec 33 PART OF SE1/4 NW1/4
Processing plant:	Processing plant at office location (1)		AND
Processing method:	Hammer mills and vibrating screens (1)		T 113 R 35 W Sec 33 NE1/4 SW1/4 (1-3)
lses of commodity:	Face brick (1)		T 113 R 35 W Sec 33 SW1/4 NW1/4 (3)
Aarketing area:	Midwest and upper tiers of states to coasts (1)	Location comments:	Near Redwood Falls (1)
Remarks:	This pit was studied by NRRI (1)	Description:	Kaolin, light gray, gray-green to blue (1)
References:	1) Ochs Brick & Tile Co. 1988, MN/DNR questionnaire 2) Parham. 1970, p. 18, 20, 95	Extraction method:	Open pit, bulldozer, front end loader to truck of railroad (1)
	3) Stauffer. [1948?], p. 11	Uses of commodity:	Cement (1)
	4) Bradley. 1949, p. 13-34 5) Grout. 1919, p. 132, 133 6) Emmons; Grout. 1943, p. 94-96	Marketing area:	Raw kaolin material shipped to cement manufacturer in Mason City, Iowa (NW Portland and Lehigh) (1)
	7) Sloan. 1964, p. 21, 22, 49	Remarks:	Kaolin utilized in cement without processing (1
	8) Humphrey. 1958, p. 46, 54 9) Thiel. 1944, p. 119	References:	1) Nova Natural Resources 1988, MN/DNR
	10) Prokopovich; Schwartz. 1957, p. 58		questionnaire
	11) USBM. [1979], MILS		2) Redwood County Zoning. 1989, personal communication
	12) Hogberg. 1969, p. 3 13) Hogberg. 1966, p. 3		3) NRRI. clay sample site
	14) Hogberg. 1964, p. 2		, , ,
	15) Grout. 1947, p. 3		
	16) NRRI. clay sample site 17) Grout; Soper. 1914, p. 78, 79	Company:	Northwestern States Portland Cement Co. (1)
		Main commodity:	Clay/Shale
		County:	Redwood
company:	Northern Con-Agg (1)	Quarry/pit name:	Redwood Falls Kaolin Mine (1)
lain commodity:	Clay/Shale	Date opened:	1984 (1)
county:	Brown	Status:	Active (1)
Quarry/pit name:	Northern Con-Agg Kaolin Clay Pit (1)	Location:	T 113 R 35 W Sec 33 (1)
Iternate name:	Lester Frohrip Pit (1)		T 113 R 35 W Sec 33 SE1/4 NW1/4 (2-4)
ate opened:	1988 (1)	Location comments:	Near Redwood Falls (1)
tatus: ocation:	Active (1) T 112 R 33 W Sec 33 LOT 2, NE1/4 (1)	Description:	Kaolinitic clay, blue white, fine to medium XLN (1)
	T 112 R 33 W Sec 33 NE1/4 SE1/4 (3)	Chemical analyses:	39.5% Al2O3, 46.5% SiO2, and 14% H2O (1)
ocation comments:	Near Sleepy Eye (1)	Extraction method:	Open pit (1)
Description:	Kaolin clay, light gray (1)	Processing plant:	Processing plant at lowa office location (1)
escription.	Backhoe (1)	Processing method:	Drying plant (1)
		Uses of commodity:	Portland cement; Type I, II, IA, Mason, M, N, S,
lses of commodity:	Cement products (1)	-	and type III cements (1)

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Marketing area:	Iowa, Minnesota, Wisconsin, and South Dakota (1)	Geologic age: Description:	Cretaceous Pisolitic kaolinite clay (1); see Refs. 2 and 3 for
References:	 Northwestern States Portland Cement Co. 1988, MN/DNR questionnaire Dale Setterholm, MGS. 1989, personal communication NRRI. clay sample site Redwood County Zoning. 1989, personal communication 	Physical test data: Extraction method: Processing plant: Processing method: Uses of commodity: Marketing area:	further descriptions See Ref. 2 for test data Strip pit - backhoe and dozers (1) Processing plant at office location (1) Hammer mills, vibrating screens (1) Face brick (1) Midwest and upper tiers of states to coasts (1)
Company: Main commodity: County: Quarry/pit name: Alternate name: Status: Location: Location:	Ochs Brick & Tile Co. (1-9) Clay/Shale Redwood Morton Buff Pit (1) Morton Clay Pit (2,3) Active (1) T 113 R 35 W Sec 35 SW1/4 SW1/4 (1,4) T 113 R 35 W Sec 35 SE1/4 SW1/4 (2,3,5-8) T 113 R 35 W Sec 35 Part of SE1/4 (9) Near Redwood Falls (1); near Morton (3,7,8)	References:	This pit studied by NRRI (1) 1) Ochs Brick & Tile Co. 1988, MN/DNR questionnaire 2) Parham; Hogberg. 1964, p. 8, 10, 25 3) Parham. 1970, p. 12, 18, 25, 42, 75 4) Grosh; Hamlin. 1963, p. 10-13 5) USBM. [1979], MILS 6) NRRI. clay sample site 7) Hogberg. 1969, p. 3 8) Hogberg. 1966, p. 3 9) Redwood County Zoning. 1989, personal communication

Peat

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Company:	Peat Associates of America (1,2)	Location:	T 33 R 23 W Sec 15 SW1/4 (1)	
Main commodity:	Peat	Location comments:	206th and County Road 15 (1)	
County:	Aitkin	Description:	Blackdirt peat (1)	
-	· · · · · · · · · · · · · · · · · · ·	Uses of commodity:	Blackdirt (1)	
Date opened:	1987 (1)	Marketing area:	Local (1)	
Status:	Active (1)	References:	1) Renollett Trucking, Inc. 1989, MN/DNR pe	
Past operator/owner:	Fran Nuytten - Peat Minnesota (1)		producers questionnaire	
JSGS quadrangle:	Hassman			
ownship name:		Company:	Solwold Peat (1)	
ocation:	T 47 R 26 W Sec 22 NE1/4 SW1/4 AND	Main commodity:	Peat	
	T 47 R 26 W Sec 22 E1/2 NW1/4 AND	County:	Carlton	
· .	T 47 R 26 W Sec 22 NW1/4 SE1/4 AND	Date opened:	1982 (1)	
	T 47 R 26 W Sec 22 W1/2 NE1/4 (2)	Status:	Active (1)	
escription:	Bryales (brown moss) peat (2)	USGS quadrangle:	Esko	
xtraction method:	Vacuum harvest; extruded sods (1)			
rocessing method:	Air dry (1)	Township name:	Thompson	
lses of commodity:	Horticultural uses, carrier in animal feed, turkey	Location:	T 49 R 16 W Sec 22 (1)	
	litter (1)	Location comments:	53 Church Rd., Esko (1)	
Marketing area:	Minnesota (1)	Description:	Reed-sedge peat (1)	
References:	1) Dave Hasskamp, Aitkin County Growth, Inc.	Uses of commodity:	Horticultural - bulk product (1)	
	1989, personal communication 2) MN/DNR. 1987, Peat Associates of America,	Marketing area:	Local greenhouses and growers (1)	
	Peatland Reclamation Permit	References:	 Solwold Peat. 1989, MN/DNR peat product questionnaire 	
company:	Aitkin Agri-Peat (1,2)	Company:	Michigan Peat Co. (1-3)	
lain commodity:	Peat	Main commodity:	Peat	
county:	Aitkin	County:	Cariton	
ate opened:	1986 (1)	-	i	
status:	Active (1)	Date opened:	1958 (1) Active (0)	
ISGS quadrangle:	Minnewawa	Status:	Active (2)	
ownship name:	Jevne	Township name:	Corona	
ocation:	T 48 R 24 W Sec 13 S1/2 NE1/4 AND	Location:	T 48 R 19 W Sec 4 AND	
	T 48 R 24 W Sec 13 N1/2 SE1/4 (1)		T 48 R 19 W Sec 3 AND	
Description:	Reed-sedge peat (1)		T 49 R 19 W Sec 33 (3)	
Extraction method:	Bulldozer (2)	Location comments:	Mining operation located five miles east of	
Processing plant:	Located 2 miles north of McGregor on Hwy. 65 (1)		Cromwell on Hwy. 200 (2); (active fields lie within sections listed above); inactive, open fields lie within T. 48, R. 19 W., Secs. 5, 8, and	
Processing method:	Air dry (2)		(3)	
lses of commodity:	Horticultural product sold in bulk (1)	Description:	Sphagnum peat and reed-sedge peat (2)	
References:	1) Aitkin Agri-Peat. 1989, MN/DNR peat	Extraction method:	Vacuum harvest (1)	
	producers questionnaire	Processing plant:	Located at mining operation site (2)	
	2) Harold Kosbau, Aitkin Agri-Peat. 1986, personal communication	Processing method:	Air dry, screen, compressed/baled or value added and bagged (1)	
	Peoplett Trucking Inc. (1)	Uses of commodity:	Horticultural: compressed, baled sphagnun potting soil; peat/manure; peat/sand (2)	
company: Join commodity:	Renollett Trucking, Inc. (1)	Marketing area:	Nationwide (1)	
lain commodity:	Peat	References:	1) Ted Tower, Michigan Peat Co. 1988,	
county:	Anoka		personal communication	
ate opened:	1988 (1)		2) Michigan Peat Co. 1989, MN/DNR peat producers questionnaire	
itatus:	Active (1)		3) MN/DNR. 1986, Michigan Peat Co., Peatla	
JSGS quadrangle:	Coon Lake Beach		Reclamation Permit	
Township name:	East Bethel	1		

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			Peet
Company:	Peatrex, Ltd. (1)	Main commodity: County:	Peat Isanti
Main commodity:	Peat		
County:	Carlton	Date opened:	1989 (1)
Date opened:	1987 (1)	Status:	Active (1)
Status:	Active (1)	USGS quadrangle:	Dalbo
Past operator/owner:	Vapo Oy (2)	Township name:	Dalbo
USGS quadrangle:	Cromwell West	Location:	T 37 R 25 W Sec 3 W1/2 SW1/4 AND
Township name:	Beseman		T 37 R 25 W Sec 4 SE1/4 (1)
Location:	T 49 R 21 W Sec 24 S1/2 NE1/4 AND	Description:	Hypnum peat (1)
	T 49 R 20 W Sec 19 NW1/4 AND	Extraction method:	Bulldozer (2)
	T 49 R 21 W Sec 24 N1/2 SE1/4 (3)	Processing method:	Air dry (2)
Location comments:	Five miles northwest of Cromwell (1)	Uses of commodity:	Horticultural - bulk product (1)
Description:	Sphagnum peat (1)	Marketing area:	Local (2)
Extraction method:	Vacuum harvest (1)	References:	1) Quostar Productions, Inc. 1989, MN/DNR
	.,		peat producers questionnaire 2) Tony Sandier, Quostar Productions, Inc.
Processing plant:	Located 2 miles west of Cromwell (1)		1986, personal communication
Processing method:	Air dry, screen, compressed/baled (2)		
Uses of commodity:	Horticultural: compressed bales, grower's mixes (1)		<u></u>
Trade names:	"For Peat's Sake" (1)	Company:	Tamarack Peat Moss (1)
Marketing area:	Nationwide	Main commodity:	Peat
References:	1) Peatrex, Ltd. Div. of Premier Enterprises.	County:	Otter Tail
	1989, MN/DNR peat producers questionnaire	Status:	Active (1)
	2) Dan Flotterud, Peatrex, Ltd. 1989, personal	USGS quadrangle:	Stalker Lake
•	communication 3) MN/DNR. 1986, Peatrex, Ltd., Peatland	Township name:	Tordenskjold
	Reclamation Permit	Location:	T 132 R 41 W Sec 22 (1)
		Description:	Peat (1)
		Extraction method:	Dragline (2)
Company:	Gull River Peat (1)	Processing method:	Air dry (2)
Main commodity:	Peat	Uses of commodity:	Bulk to golf courses (2)
County:	Cass	Trade names:	Tamarack Peat Moss (2)
Status:	Active (1)	Marketing area:	Local (Fergus Falls area) (2)
USGS quadrangle:	Baxter	References:	1) MN/DNR. 1986, Letter to Jerry Ewert,
Township name:	Sylvan		Tamarack Peat Moss, dated June 3, 1986
Location:	T 133 R 29 W Sec 16 NW1/4 NE1/4 (1)		2) Jerry Ewert, Tamarack Peat Moss. 1984, personal communication
Description:	Peat (1)		personal communication
References:	1) MPCA. 1988, Letter to Michael Gendron,		·
	dated February 3, 1988	Company:	Pelant (1,2)
		Main commodity:	Peat
Company:	Chippewa Topsoil (1)	County:	Rice
Main commodity:	Peat	Date opened:	1983 (1)
County:	Hennepin	Status:	Active (2)
Status:	Active (1)	USGS quadrangle:	New Market
	Rockford	Township name:	Webster
USGS quadrangle:		Location:	T 112 R 21 W Sec 1 NW1/4 NW1/4 (1)
Township name:	Medina	Description:	Peat (2)
Location:	T 118 R 23 W Sec 3 NE1/4 (1)	References:	1) Rice County. 1983, Conditional Use Permi
Description:	Peat (1)		2) Pelant. 1987, Letter to MN/DNR, dated Ma
References:	1) MPCA. 1987, Letter to Reg Pederson, dated June 8, 1987		18, 1987
Company:	Quostar Productions, Inc. (1)	Company:	Fisons Western (U.S.), Inc.

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Main commodity:	Peat	Main commodity:	Peat
County:	Rice	County:	St. Louis
Date opened:	1969 (2)	Date opened:	1988 (1)
Status:	Temporarily inactive (1)	Status:	Active (1)
Past operator/owner:	Eli Colby Co.(2)	USGS quadrangle:	Fredenberg
USGS quadrangle:	Little Chicago	Township name:	Gnesen
Township name:	Webster	Location:	T 52 R 14 W Sec 29 NW1/4 NW1/4 AND
Location:	T 112 R 21 W Sec 25 NW1/4 (3)		T 52 R 14 W Sec 29 N1/2 SW1/4 NW1/4 (2)
Description:	Hypnum peat (1)	Location comments:	Mining operation and plant at 7688 Rice Lake
Extraction method:	Bulldozer (2)		Rd. (1)
Processing method:	Air dry, screen, bag (2)	Description:	Sphagnum and carex (reed-sedge) peat; fairly
Uses of commodity:	Horticultural - growing medias (1)		dense and decomposed (3)
Marketing area:	Nationwide (2)	Extraction method:	Dredge (3)
References:	1) Fisons Western (U.S.), Inc. 1989, MN/DNR	Processing method:	Air dry, value added (2)
	peat producers questionnaire	Uses of commodity:	Horticultural (1)
	2) John Colby, Jr. 1987, personal communication	Marketing area:	
	3) MN/DNR. 1987, Fisons Western (U.S.) Inc., Peatland Reclamation Permit	References:	 1) Twin Ports Blacktop. 1989, MN/DNR peat producers questionnaire 2) Klaers, J. M. 1988, Letter to Julie Jordan, dated March 17, 1988 3) Ben Pearson, Twin Ports Blacktop. 1988, site
Company:	Minnesota Sphagnum, Inc. (1)		visit and personal communication
Main commodity:	Peat		
County:	St. Louis	Company:	Power-O-Peat (1)
Date opened:	1988 (1)	Main commodity:	Peat
Status:	Active (1)	County:	St. Louis
USGS quadrangle:	Brookston NW	Date opened:	1962 (1)
Township name:	Arrowhead	Status:	Temporarily inactive (1)
Location:	T 51 R 19 W Sec 2 SW1/4 AND	USGS quadrangle:	Central Lakes
	T 51 R 19 W Sec 3 SE1/4 (3)	Location:	T 56 R 17 W Sec 34 E1/2 SE1/4 AND
Location comments:	Near Floodwood (1)	Location.	T 56 R 17 W Sec 35 SW1/4 SW1/4; W1/2
Description:	Sphagnum peat (1)		NW1/4 SW1/4 AND
Extraction method:	Vacuum harvest (2)		T 55 R 17 W Sec 2 W1/2 NW1/4 AND
Processing plant:	Located at mining operation site, near		T 55 R 17 W Sec 3 NE1/4 NE1/4 (1)
Description of t	Floodwood (1)	Description:	Reed-sedge peat (1)
Processing method:	Air dry, screen, compressed baied (2)	Extraction method:	Bulldozer (1)
Uses of commodity:	Horticultural - baled sphagnum (1)	Processing method:	Air dry, screen, value added (perlite,
Marketing area:	Nationwide (2)		vermiculite, polystyrene beads) (1)
References:	1) Minnesota Sphagnum, Inc. 1989, MN/DNR peat producers questionnaire	Uses of commodity:	Horticultural (1)
	2) Boyd Baughman, Minnesota Sphagnum, Inc.	Trade names:	Power-O-Peat, Gardner Kay (2)
	1987, personal communication	Marketing area:	Nationwide (2)
	3) MN/DNR. 1987, Minnesota Sphagnum Inc., Peatland Reclamation Permit	References:	1) MN/DNR. 1986, Power-O-Peat, Inc., Peatland Reclamation Permit 2) Todd Leoni, Power-O-Peat, Inc. 1986,
Company:	Twin Ports Blacktop (1)		personal communication

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Company:	Unimin Corp. (1,2)	Processing method:	Drying and screening (1)
Main commodity:	Silica Sand	Uses of commodity:	Petroleum, glass, foundry and construction industries (1)
County:	Le Sueur	Marketing area:	Primarily in U.S. and Canada (1)
Quarry/pit name:	Kasota Pit (1)	References:	1) Unimin Corp. 1988, MN/DNR questionnaire
Date opened:	1982 (1)	,	2) Unimin Corp. 1989, personal communication
Status:	Active (1,2)		3) USDL. MSHA mine reference list
Township name:	Kasota	·····	
Location:	T 109 R 26 W Sec 5 AND	Company:	Twin City Silica, Inc. (1,2,4)
	T 109 R 26 W Sec 6 (2)	Main commodity:	Silica Sand
Location comments:	Near St. Peter (1)	County:	Washington
Geologic age:	Cambrian	Quarry/pit name:	Twin City Silica Pit (1)
Geologic formation: Description:	Jordan Sandstone (1) Sandstone (1)	Date opened:	Late 1950's or early 1960's, current company reopened pit in early 1970's (1)
Extraction method:	Open pit (1)	Status:	Active since early 1970's, inactive mid 1960's t early 1970's (1)
Processing plant:	Kasota Plant (at pit location) (2)	Past operator/owner:	Durox Management Co. (3)
Processing method:	Drying and screening (1)	Location:	T 28 R 21 W Sec 1 W1/2 (1)
Uses of commodity:	Petroleum industry (1)		T 28 R 21 W Sec 1 SW1/4 (3)
Marketing area:	Primarily in U.S. and Canada (1)	Location comments:	Near Woodbury (1); near Lake Elmo (3)
References:	1) Unimin Corp. 1988, MN/DNR questionnaire 2) Unimin Corp. 1989, personal communication	Geologic age:	Ordovician
	-, -, -, -, -, -, -, -, -, -, -, -, -, -	Geologic formation:	St. Peter Sandstone (1)
	·····	Description:	Sandstone (1)
Company:	Unimin Corp. (1-3)	Processing plant:	Plant, sand pit, and office at same location (1)
Main commodity:	Silica Sand	Processing method:	Drying, screening, ball-mill (1)
County:	Le Sueur	Uses of commodity:	Foundry sand and sand blasting medium used
Quarry/pit name:	Ottawa Pit (1-3)		as abrasives, ball-mill silica flour used in
Date opened:	1950 (1)		cement block industry (1); from early to mid 1960's the silica sand was used for making
Status:	Active (1-3)		lightweight concrete (1); building panels (3)
Township name:	Ottawa	Marketing area:	Regional (1)
Location:	T 111 R 26 W Sec 33 AND	References:	1) Twin City Silica, Inc. 1989, personal
	T 111 R 26 W Sec 34 (2)		
Geologic age:	Cambrian		2) USBM. [1980], MILS 3) Hogberg. 1966, p. 4
Geologic formation:	Jordan Sandstone (1)		4) Hill; West. 1985, p. 11
Description:	Sandstone (1)		
Extraction method:	Open pit (1)		
Processing plant:	Ottawa Plant (at pit location) (2)		

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Stone - Abrasive Quartzite

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Company:	Jasper Stone Co. (1-10)	Processing plant:	Jasper Stone Co. (plant, quarry, and office at same location) (2)
Main commodity: Other commodities:	Abrasive Quartzite Dimension Quartzite	Processing method:	Hydraulic splitters, wire saws, tumbler mill, polisher (2)
County: Quarry/pit name: Date opened: Status:	Rock Jasper Stone Co. Quarry (1) 1890? (1) Active (1)	Uses of commodity:	Mill and chute liner blocks approx. 70% of production, some acid blocks, grinding media cubes and pebbles approx. 20% of production, but probably 50% of tonnage, building stones and memorials approx. 5% now, this amount will be increasing (2)
Location: Location comments: Geologic age: Geologic formation: Description: Chemical analyses:	T 104 R 46 W Sec 6 NE1/4 (1) Near Jasper (1,3,4) Middle Proterozoic Sioux Quartzite (1) Rose quartzite (1); "This material is rock consisting of quartz grains very firmly compacted and containing Potassium Aluminum Silicate (Feldspar) and Iron Sesquioxide (Hematite) as a binder." (1) 98.7% silicon dioxide (1); detailed chemical analyses available from Jasper Stone Co. (1)	References:	 Jasper Stone Co. 1988, MN/DNR questionnaire Jasper Stone Co. 1988, personal communication Herod. 1969 Bowles. 1918, p. 204 USBM. [1979], MILS USDL. MSHA mine reference list Hogberg. 1969, p. 42 Hogberg. 1966, p. 34, 39 Sikich. 1959, p. 541 Thiel; Dutton. 1935, p. 148, 149
Extraction method:	Open pit (1)		

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Stone - Crushed Carbonate Rock

-		Processing method:	Impact and jaw crushing, screening (1)
Company:	Southern Minnesota Construction Co., Inc.(1)	Uses of commodity:	Road base, agricultural lime (1); bricklayer's
Main commodity:	Crushed Carbonate Rock		cement (1918) (11)
Other commodities:	Dimension Carbonate Rock	Trade names:	Aglime (1)
County:	Blue Earth	Marketing area:	30-50 miles from Mankato (1)
Quarry/pit name:	Kasota Quarry (1)	References:	1) Mankato Aglime & Rock Co. 1988, MN/DNF
lternate name:	North Quarry, Brooks Quarry (2)		questionnaire 2) U.S. Army Corps of Engineers files
Status:	Active (1)		3) Mossler. 1975, station 303
Past operator/owner:	Lundin Construction Co. (1,2); Morgon Brooks (1918) (3)		4) USBM. [1978], MILS 5) USDL. MSHA mine reference list
ownship name:	Lime		 6) MN/DOT Aggregate Unit files 7) Hogberg. 1969, p. 43
ocation:	T 109 R 26 W Sec 20 (1-3)		8) Hogberg. 1966, p. 34
ocation comments:	Ref. 2 location map shows quarry in W1/2 of Sec. 20, on west side of RR tracks		9) Stauffer; Thiel. 1933, p. 42, 43, 68, 69, 73 10) Thiel; Dutton. 1935, p. 119, 120
Geologic age:	Ordovician		11) Bowles. 1918, p. 158 12) Stauffer; Thiel. 1914, p. 126
Geologic formation:	(Oneota Fm.)		12) Staulier, Thiel. 1914, p. 120
escription:	Dolomite (2)		
Physical test data:	Available from MN/DOT Aggregate Unit (2)	Company:	R. B. McGowan, Inc. (1)
lses of commodity:	Riprap, 4 in. to 6 in. rock, 1-1/2 in. dust free, CL	Main commodity:	Crushed Carbonate Rock
	2, CL 5, agricultural lime (1); polished rock	County:	Dakota
rade names:	(1918) (3) Kasata Stara (1)	Quarry/pit name:	McGowan Quarry (1-4)
	Kasota Stone (1)	Status:	Active (1)
larketing area:	Within 50 miles of Mankato (1) 1) Southern Minnesota Construction Co., Inc.	Location:	T 27 R 24 W Sec 28 SE1/4 (2,4)
References:	1988, MN/DNR questionnaire 2) MN/DOT Aggregate Unit files	Location comments:	Located immediately south of the Minnesota River and adjacent on west side of I-35W (1,2)
	3) Bowles. 1918, p. 155	Geologic age:	Ordovician
		Geologic formation:	Shakopee Fm. (2)
Company:	Mankato Aglime & Rock Co. (1-8)	Description:	The rock is generally a medium-grained dolomite, gray to brown with some sandy
Main commodity:	Crushed Carbonate Rock		dolomite (2)
County:	Blue Earth	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Quarry/pit name:	Mankato Aglime & Rock Co. Quarry (1-6)	Processing plant:	Portable crushing plant (1)
lternate name:	Carney Quarry (6); Carney Cement Co. Quarry (9-12)	Uses of commodity:	Crushed aggregate (1)
)ate opened:	1860's (1)	Marketing area:	Greater Twin Cities area (1)
itatus:	Active (1)	References:	 McGowan Development Corporation. 1989, personal communication
Past operator/owner:	Carney Cement Co. (1933) (9,10); Carney		2) MN/DOT Aggregate Unit files
ast operator/owner.	Bricklayer's Cement Co. (1933) (9, 10), Carney		3) MN/PCA. 1989, personal communication
N/DOT source no:	7-2		 Dakota County Assessor. 1989, personal communication
ocation:	T 109 R 26 W Sec 30 AND		communication
	T 109 R 26 W Sec 31 (1)		
	T 109 R 26 W Sec 30 SE1/4 SW1/4 (2,3)	Company:	Edward Kraemer & Sons, Inc. (1)
	T 109 R 26 W Sec 31 N1/2 (2,3,6-8)	Main commodity:	Crushed Carbonate Rock
ieologic age:	Ordovician	County:	Dakota
eologic formation:	Oneota Fm. (3,9,10,12); Shakopee-Oneota	Quarry/pit name:	Burnsville Quarry (1,3,5,6)
escription:	Fms. (2,6) Buff colored limestone (1); dolomitic limestone	Alternate name:	Edward Kraemer & Sons Quarry (3); Kraemer Quarry (2)
	(2); see Refs. 6, 9, 10 and 12 for stratigraphic	Date opened:	1958 (1)
	section descriptions	Status:	Active (1)
chemical analyses:	CaCO3 45%, MgCO3 40% (1); see Refs. 9 and	USGS quadrangle:	Bloomington
	10 for further analyses	Location:	T 27 R 24 W Sec 33 SW1/4 NE1/4 (3,4)
hysical test data:	Available from U.S. Army Corps of Engineers (2)		T 27 R 24 W Sec 33 SE1/4 NW1/4 (4)
xtraction method:	Blasting (1)		T 27 R 24 W Sec 33 NE1/4 SW1/4 (4)

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	T 27 R 24 W Sec 33 NW1/4 SE1/4 (4)	I	communication
Location comments:	Quarry just west of the intersection of Cliff Rd. and 35W in Burnsville (1); quarry in center of Sec. 33 (2,6); (Ref. 3 listed R. 21, instead of R. 24, I've assumed a typographical error, since other information matched this site)		 MN/DOT Aggregate Unit files U.S. Army Corps of Engineers files USDL. MSHA mine reference list
	Ordovician	Company:	Holst Excavating, Inc. (1)
Geologic age: Geologic formation:		Main commodity:	Crushed Carbonate Rock
-	Shakopee-Oneota Fms. (1); Shakopee Fm. (2) Dolomitic limestone (1); see Ref. 2 for	County:	Dakota
Description:	stratigraphic sections	Quarry/pit name:	Bauer Quarry (1)
Physical test data:	Available at MN/DOT Aggregate Unit and U.S.	Status:	Active (1)
•	Army Corps of Engineers (2,6)	Township name:	Marshan
Extraction method:	Blasting (1)	Location:	T 114 R 17 W Sec 34 (1)
Processing plant:	Plant, quarry, and office at same location (1)		T 114 R 17 W Sec 34 NE1/4 SW1/4 (2)
Processing method:	Crushing, screening, washing (1)	Description:	Dolomitic limestone (1)
Uses of commodity:	Washed concrete aggregate, bituminous	Processing plant:	Portable crushing plant (1)
	aggregate, base products, riprap, agricultural lime (1)	Processing method:	Crushing, screening, washing (1)
Remarks:	Very large quarry (4)	Uses of commodity:	Crushed aggregates, riprap, agricultural lime,
References:	1) Edward Kraemer & Sons, Inc. 1989, personal		road base, any other limestone products (1)
References.	communication	Marketing area:	30-50 mile radius (1)
	 2) MN/DOT Aggregate Unit files 3) USBM. [1979], MILS 4) Mossler. 1974a, Dakota County station 112 	Remarks:	Holst Excavating, Inc. Minnesota's office is located in Hastings (1); Steve Bauer, owner of quarry (2)
	 USDL. MSHA mine reference list U.S. Army Corps of Engineers files 	References:	1) Holst Excavating, Inc. 1989, personal communication 2) Dakota County Assessor. 1989, personal
Company:	Bryan Rock Products, Inc. (1)		communication
Main commodity:	Crushed Carbonate Rock		
County:	Dakota	Main commodity:	Crushed Carbonate Rock
Quarry/pit name:	Hasting Pit No. 4 (1)	County:	Dakota
Alternate name:	Davies Pit (2); Davies Quarry (3); Mann	Quarry/pit name:	Bauer Quarry (1,3,4)
	Construction Co. Quarry (3); Frier Quarry (4,5)	Status:	Active (1)
Status:	Active (1)	USGS quadrangle:	Vermillion
Past operator/owner:	Davies Excavating, Inc. (previous operator)	Location:	T 115 R 17 W Sec 31 NW1/4 SE1/4 (1-4)
	(1-3); Mann Construction Co. (abandoned quarry in 1975) (4,5); Bernard Frier (abandoned quarry in 1973) (5)	Location comments:	Four miles west of Hastings, on east side of Jacobs Ave. Rd. (4)
Township name:	Ravenna	Geologic age:	Ordovician
Location:	T 114 R 16 W Sec 29 NW1/4 SW1/4 (2,3) AND	Geologic formation:	Prairie du Chien Gp. (2,3)
	T 114 R 16 W Sec 29 SW1/4 NW1/4 (2,4)	Physical test data:	Available from U.S. Army Corps of Engineers (3)
Location comments:	Near Hastings (1); 1 mile SW of Etter (4)	Remarks:	Loren and Will Bauer, owners of quarry (1989)
Description:	Dolomitic limestone (1)	Deferences	(1) (1) Delete County Annual 1990 annual
Chemical analyses:	Calcium carbonate 50-95%, magnesium carbonate 5-40%, silicon dioxide 5-15%, iron oxide 0-2% (1)	References:	 1) Dakota County Assessor. 1989, personal communication 2) Mossler. 1974a, Dakota County station 51 3) U.S. Army Corps of Engineers files
Physical test data:	Available at U.S. Army Corps of Engineers (4)		4) MN/DOT Aggregate Unit files
Extraction method:	Surface mining (1)		
Processing method:	Blasting, crushing, screening (1)	Main commodity:	Crushed Carbonate Rock
Uses of commodity:	Road base, pipe bedding, concrete aggregate, decorative (1)	County: Quarry/pit name:	Dakota Hastings Quarry (1,2)
Marketing area:	St. Paul, Hastings, and surrounding	Status:	
Marketing area: References:	St. Paul, Hastings, and surrounding southeastern areas of Twin Cities (1) 1) Bryan Rock Products, Inc. 1988, MN/DNR		Intermittently active (4/88 list) (2) Hastings, 15 min.

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Stone - Crushed Carbonate Rock

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References:	 USBM. [1979], MILS USDL. MSHA mine reference list Dakota County Assessor. 1989, personal 	Geologic formation:	Prosser or Stewartville Fm. (7); Prosser Fm. (5) Wise Lake and Dunleith Fms. (5); Mantorville Fm., Cannon Falls and Sogn Mbrs. (6)
	communication	Description:	Dolomitic limestone in gray white to yellow color (1); medium to thick bedded gray dolomite, fine grained, weathers buff to brow
Company:	Stussy Construction, Inc. (1-4)		(7); see Refs. 5 and 6 for detailed stratigraphi
Main commodity:	Crushed Carbonate Rock	Dhusiaal taat data	section descriptions
County:	Dodge	Physical test data:	Available from MN/DOT Aggregate Unit (7)
Quarry/pit name:	Brown Quarry (1-4)	Processing plant:	Portable crushing plant (1)
Date opened:	1950's (1)	Processing method:	Crushing, screening, washing (2)
Status:	Intermittently active since 1986 (2)	Uses of commodity:	Crushed road rock products 75%, screened rock 10%, agricultural lime 10%, washed rock
Past operator/owner:	Brown (1921) (4)		5% (1)
MN/DOT source no:	20049	Marketing area:	Dodge County (1)
Township name:	Canisteo	References:	1) Stussy Construction, Inc. 1988, MN/DNR
Location:	T 106 R 16 W Sec 24 NW1/4 (1)		questionnaire
	T 106 R 16 W Sec 24 NW1/4 NW1/4 (4)		2) Stussy Construction, Inc. 1989, personal
Location comments:	Near Kasson (1)		communication 3) USDL. MSHA mine reference list
Geologic age:	Ordovician		4) USBM. [1979], MILS
Geologic formation:	Galena Gp., Stewartville Fm. (4); Stewartville and Prosser Fms. (5)		5) Stone. 1980, p. A-35, A-36 6) Leverson; Gerk. undated, location M-113 7) MN/DOT Aggregate Unit files
Description:	Dolomitic limestone in yellow shades (1); light buff, medium to thick bedded dolomitic limestone, thin bedded at very top of formation, mottled gray and buff (1969) (4)		8) Hogberg. 1969, p. 47 9) Niles. [1988a], table 1
Processing plant:	Portable crushing plant (2)	Company:	Quarve & Anderson⁻Co. (1)
Processing method:	Crushing, screening (2)	Main commodity:	Crushed Carbonate Rock
Uses of commodity:	Crushed road rock products, screened rock,	County:	Dodge
	agricultural lime (2)	Quarry/pit name:	Granger Quarry (1-3)
Marketing area:	Dodge County and western part of Olmsted County (2)	Date opened:	1952 (1)
References:	1) Stussy Construction, Inc. 1988, MN/DNR	Status:	Active (1)
	questionnaire	Past operator/owner:	Bruce Granger (1969) (3)
	2) Stussy Construction, Inc. 1989, personal	MN/DOT source no:	20045
	communication 3) USDL. MSHA mine reference list	Township name:	Concord
	4) MN/DOT Aggregate Unit files	Location:	T 108 R 17 W Sec 14 SW1/4 (1)
	5) Niles. [1988a], table 1		T 108 R 17 W Sec 14 SE1/4 SE1/4 (2)
			T 108 R 17 W Sec 14 SW1/4 SE1/4 (1969)
Company:	Stussy Construction, Inc. (1-8)		T 108 R 17 W Sec 13 NW1/4 (1921) (3)
Main commodity:	Crushed Carbonate Rock	Location comments:	West Concord nearest town (1); 1/2 mile northeast of Concord (2)
County:		Geologic age:	Ordovician
Quarry/pit name:	Stussy's Quarry (1,2,4-7)	Geologic formation:	Galena Gp. (1,3); Stewartville Fm. ? (3);
Date opened:	1930's (1)		Dunleith Fm. (2)
Status:	Active (1)	Description:	Limestone, buff colored, stratified, dolomitic
MN/DOT source no:	20051		limestone (1); thin to thick bedded, gray dolomite or limestone, fine grained, weathering
JSGS quadrangle:	Dodge Center		to buff (3); see Ref. 2 for stratigraphic section
Township name:	Mantorville	Physical test data:	Available from MN/DOT Aggregate Unit (3)
_ocation:	T 107 R 16 W Sec 21 SW1/4 (2)	Processing plant:	Portable crushing plant (1)
	T 107 R 16 W Sec 21 SW1/4 SW1/4 (5-8)	Processing method:	Crushing, screening (1)
ocation comments:	Situated 1/2 mile west and 3/4 mile south of Mantorville (6)	Uses of commodity:	Crushed and screened limestone aggregate f aggregate base (1)
Geologic age:	Ordovician	I .	Dodge County (1)

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References:	1) Quarve & Anderson Co. 1988, MN/DNR questionnaire 2) Stone. 1980, p. A-32 3) MN/DOT Aggregate Unit files	Processing method: Uses of commodity: Marketing area: Remarks:	Crushing, screening, washing (1) Crush rock products, agricultural lime (1) Approximately 16 mile radius of Harmony (1) Large quarry (6)
Company:	Pederson Brothers of Harmony, Inc. (2)	References:	1) Pederson Brothers of Harmony, Inc. 1989, personal communication 2) USDL. MSHA mine reference list
Main commodity:	Crushed Carbonate Rock		3) MN/DOT Aggregate Unit files
County:	Fillmore		4) USBM. [1979], MILS
Status:	Active (2)		5) U.S. Army Corps of Engineers files 6) Weiss. 1953, p. 233-236
Location:	T 101 R 8 W Sec 15 SE1/4 SW1/4 (2)		7) Levorson; Gerk. undated, locality M-107
	T 101 R 8 W Sec 15 SW1/4 (1)		8) Weiss. 1955, p. 767
Location comments:	Quarry by Mabel (1)		9) Prokopovich; Schwartz. 1956, p. 35 10) Thiel; Stauffer. 1947, p. 5, 12, 13
Geologic age:	Ordovician		11) Hogberg. 1969, p. 45
Geologic formation:	Platteville Fm. (1)		12) Hogberg. 1966, p. 35
References:	1) Mossler. 1971 2) Fillmore County Zoning. 1989, personal communication		 Stone. 1980, p. A-9, A-10 Fillmore County Assessor. 1988, personal communication Niles. [1988c], table 3 Fillmore County Zoning. 1989, personal
Company:	Pederson Brothers of Harmony, Inc. (1,2,4,15,16)	4 <u>8</u>	communication
Main commodity:	Crushed Carbonate Rock	Company:	Pederson Brothers of Harmony, Inc. (1)
County:	Fillmore	Main commodity:	Crushed Carbonate Rock
Quarry/pit name:	Big Springs Quarry (1-3)	County:	Fillmore
Alternate name:	Pederson Quarry (3-9)	Quarry/pit name:	Franks Quarry (1-3)
Date opened:	40-50 years ago (1989) (1)	Alternate name:	Ed Thacher Quarry (5); George Drury Quarry
Status:	Active (1,14)		(5,6)
Past operator/owner:	Ellsworth Duxbury (1965) (3)	Status:	Active (1)
MN/DOT source no:	23096	Past operator/owner:	Roverud Construction Co. (see Producer
Township name:	Harmony		Directory) (2,3); Ed Thacher (1965) (4); George Drury (1884) (5,6)
Location:	T 101 R 10 W Sec 9 NW1/4 SW1/4 (3,4,11,14)	MN/DOT source no:	23091
	T 101 R 10 W Sec 9 SW1/4 (5,6,8,10,15)	Township name:	Bristol
	T 101 R 10 W Sec 9 NE1/4 SW1/4 (16)	Location:	T 101 R 11 W Sec 3 NE1/4 NE1/4 (2.4)
Location comments:	Situated 1/2 mile and 1-1/2 miles west of Harmony (7); at about the middle of the north edge of SW1/4 of section 9 (6,8)	Location comments:	Preston nearest town (1); Ed Thacher Quarry on east side of road and the newer quarry on west
Geologic age:	Ordovician	0	side of road is owned by Ray Thacher (1953) (5)
Geologic formation:	Galena Gp. (5,6,15); Prosser and	Geologic age:	Ordovician
Description:	Cummingsville Fms. (6,15) Limestone, light gray or white, high calcium,	Geologic formation:	Galena Gp., Prosser and Cummingsville Fms. (5); Platteville Fm. (7)
	low magnesium (1) See Ref. 6 for detailed stratigraphic section and	Description:	Limestone (1); see Ref. 5 for detailed stratigraphic section
	paleontology, brief summary follows:	Physical test data:	Available from MN/DOT Aggregate Unit (4)
	Galena Gp. 59 ft 4 in. Prosser Fm. 40 ft 7 in.	Extraction method:	Blasting (1)
	Cummingsville Fm. 18 ft 9 in.	Processing plant:	Portable crushing plant (1)
	Also see Refs. 7 and 13 for detailed	Processing method:	Crushing, screening (1)
	stratigraphic sections	Uses of commodity:	Crushed road rock products (1)
Chemical analyses:	See Ref. 9 for chemical analyses	Marketing area: References:	Approximately 16 mile radius of Harmony (1)
Physical test data:	Available from MN/DOT Aggregate Unit (3) and U.S. Army Corps of Engineers (5)	neierences:	 Pederson Brothers of Harmony, Inc. 1989, personal communication USBM. [1979], MILS
Extraction method:	Blasting (1)		3) USDL. MSHA mine reference list
Processing plant:	Portable crushing plant (1)		4) MN/DOT Aggregate Unit files 5) Weiss. 1953, p. 546-550

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Stone - Crushed Carbonate Rock

	6) Winchell and others. 1884, p. 323	Description:	Shakopee dolomite, 40 ft face (1)
	7) Thiel; Dutton. 1935, p. 152	Extraction method:	Drilling, shooting (1)
	•	Processing plant:	Portable crushing plant (1)
Company:	Roverud Construction Co. (1,3,4)	Processing method:	Crushing, screening (1)
Main commodity:	Crushed Carbonate Rock	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
County: Quarry/pit name:	Fillmore Brumm Quarry (1,3,4)	Remarks:	(This possibly is MN/DOT Source No. 23094, listed under inactive crushed carbonate rock
Status:	Active (1)		quarries)
		References:	1) Mathy Construction Co. 1989, MN/DNR
Past operator/owner: MN/DOT source no:	J. Gjerdrum (2) 23135		questionnaire and personal communication 2) Fillmore County Zoning. 1989, personal
Location:	T 102 R 8 W Sec 33 NE1/4 (1)		communication
Location comments:	T 102 R 8 W Sec 33 S1/2 NE1/4 (2)	Company:	Patterson Quarries, Div. of Mathy Construction
	Mabel nearest town (1) Ordovician	Company.	Co. (1,7)
Geologic age:		Main commodity:	Crushed Carbonate Rock
Geologic formation:	Oneota Fm. (1) Oneota dolomite, buff, residual, calcitic (1)	County:	Fillmore
Description: Extraction method:		Quarry/pit name:	Grabau Quarry (1-4,7)
	Explosives, crushing (1) Portable rock crusher (1)	Alternate name:	Gills Quarry (5); Highway Quarry (6)
Processing plant:		Status:	Active (1,7)
Processing method:	Screening (1)	Past operator/owner:	Grabau (1968) (2); Kappers Construction Co. (4
Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)	MN/DOT source no:	23128
Marketing area:	SE Minnesota, NE Iowa (1) 1) Roverud Construction Co. 1988, MN/DNR	Location:	T 102 R 12 W Sec 17 SE1/4 SE1/4 (1-7)
References:	questionnaire and personal communication 2) MN/DOT Aggregate Unit files 3) USDL. MSHA mine reference list	Location comments:	Four miles east and 3-1/2 miles south of Spring Valley (3,4)
		Geologic age:	Ordovician
	4) USBM. [1979], MILS	Geologic formation:	Galena Gp., Stewartville Fm. (3-6)
		Description:	Dolomite (4,6); 60 ft face (1); see Refs. 3, 4, and
Company:	Orval Sorum & Sons (2)		6 for stratigraphic section descriptions; Dubuque and Maquoketa Fms. also exposed in
Main commodity:	Crushed Carbonate Rock		quarry (3-6)
County:	Fillmore	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Quarry/pit name:	Sorum Quarry (1,2)	Extraction method:	Drilling, shooting (1)
Status:	Active (2)	Processing plant:	Portable crushing plant (1)
MN/DOT source no:	23126	Processing method:	Crushing, screening (1)
Location:	T 102 R 9 W Sec 17 NW1/4 SW1/4 (1)	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
Physical test data: References:	Available from MN/DOT Aggregate Unit (1) 1) MN/DOT Aggregate Unit files 2) USDL. MSHA mine reference list	References:	 Mathy Construction Co. 1989, MN/DNR questionnaire and personal communication MN/DOT Aggregate Unit files Leverson and others. 1979, p. 59, 65
Company:	Patterson Quarries, Div. of Mathy Construction Co. (1,2)		4) Leverson; Gerk. undated, locality M-100 5) Weiss. 1957, p. 1035 6) Stauffer; Thiel. 1914, p. 152
Main commodity:	Crushed Carbonate Rock		7) Fillmore County Zoning. 1989, personal communication
County:	Fillmore	¢	
- Quarry/pit name:	Hanson Quarry (1,2)		
Date opened:	1960 (1)	Company:	Kappers Aggregates, Inc. (1)
Status:	Active (1,2)	Main commodity:	Crushed Carbonate Rock
ocation:	T 102 R 10 W Sec 11 NW1/4 NW1/4 (1)	County:	Fillmore
	T 102 R 10 W Sec 11 W1/2 NW1/4 (2)	Quarry/pit name:	Rifle Hill Quarry (1,2)
Location comments:	Near Preston (1)	Alternate name:	Hadland & Vreeman Quarry (2)
Geologic age:	Ordovician	Status:	Active (1)
Geologic formation:	Shakopee Fm. (1)	Past operator/owner:	Raymond Adenhorst (1965) (2); Hadland and Vreeman (1965) (2-4)

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MN/DOT source no:	23089	County:	Fillmore
Township name:	Forestville	Quarry/pit name:	Peterson Quarry (1,2,4)
Location:	T 102 R 12 W Sec 35 NW1/4 NE1/4 (1-4)	Alternate name:	Thompson Quarry (3)
Location comments:	Cherry Grove nearest town (1); near Ostrander	Status:	Active (1)
		Past operator/owner:	Thompson (1965,1921) (3)
Geologic age:	Ordovician	MN/DOT source no:	23085
Geologic formation:	Prosser Fm. (2)	Location:	T 103 R 8 W Sec 8 SW1/4 (1)
Description:	Limestone (1)		T 103 R 8 W Sec 8 SW1/4 SW1/4 (2,3)
Physical test data:	Available from MN/DOT Aggregate Unit (2)	Location comments:	Peterson nearest town (1)
Extraction method:	Drilling, blasting (1)	Geologic age:	Ordovician
Uses of commodity:	Road gravel 70%, agricultural lime 30% (1)	Geologic formation:	Oneota Fm. (1)
Marketing area:	Fillmore County, Howard and Winneshiek counties, Iowa (1)	Description:	Oneota dolomite, vuggy, chert nodules, medium brown, massive, argonite buff zone (1
References:	1) Kappers Aggregates, Inc. 1988, MN/DNR	Physical test data:	Available from MN/DOT Aggregate Unit (3)
	questionnaire 2) MN/DOT Aggregate Unit files	Extraction method:	Explosives, crushing (1)
	3) Hogberg. 1969, p. 41	Processing plant:	Portable rock crusher (1)
	4) Hogberg. 1966, p. 32	Processing method:	Screening (1)
		Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)
Company:	Patterson Quarries, Div. of Mathy Construction	Marketing area:	SE Minnesota, NE Iowa (1)
Main commodity:	Co. (1) Crushed Carbonate Rock	References:	1) Roverud Construction Co., 1988, MN/DNR guestionnaire
County:	Fillmore		2) USBM. [1979], MILS
Quarry/pit name:	Rifle Hill Quarry (1-11)		 3) MN/DOT Aggregate Unit files 4) USDL. MSHA mine reference list
	Active (1)		4) USDL. MISHA Mille reference list
Past operator/owner:	Kappers Construction Co. (3,4,11)	Company:	Orval Sorum & Sons (2)
Location:	T 102 R 12 W Sec 35 NE1/4 NW1/4 (1-6)	Main commodity:	Crushed Carbonate Rock
Lesstion comments.	T 102 R 12 W Sec 35 NW1/4 (7-10)	County:	Fillmore
Location comments:	One mile north and 2-1/2 miles east of Cherry Grove (3,4,6,11)	Status:	Active (2)
Geologic age:	Ordovician	Past operator/owner:	Howard Gossman (1965) (1)
Geologic formation:	Galena Gp., Prosser and Stewartville Fms. (2-4)	MN/DOT source no:	23082
Description:	130 ft face (1); see Refs. 3-5, 8 and 11 for	Township name:	Holt
·	detailed stratigraphic sections; see Refs. 2, 6, and 7 for additional descriptions	Location: References:	T 103 R 9 W Sec 34 SE1/4 NW1/4 (1,2) 1) MN/DOT Aggregate Unit files
Extraction method:	Drilling, shooting (1)		2) Fillmore County Zoning. 1989, personal
Processing plant:	Portable crushing plant (1)		communication
Processing method:	Crushing, screening (1)		
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)	Company:	Patterson Quarries, Div. of Mathy Construction
References:	1) Mathy Construction Co. 1989, MN/DNR		Co. (1)
	questionnaire and personal communication	Main commodity:	Crushed Carbonate Rock
	2) Mossler. 1987, p. 23, 24 3) Sloan; Kolata. 1987, p. 85-91	County:	Fillmore
	4) Sloan and others. 1987, p. 203, 208	Quarry/pit name:	Fountain Quarry (1-3)
	5) Stone. 1980, p. A-4 6) Leverson and others. 1979, p. 59, 65	Aiternate name:	Kappers Quarry (2,3,7); Larson's Quarry (9)
	7) Webers. 1966, p. 118-120	Status:	Active (1)
	8) Weiss. 1953, p. 454-464 9) Weiss. 1955, p. 767	Past operator/owner:	Kappers Construction Co. (5,6,9); Larson, owner (1953) (9); August Jung Estate (1965) (3
	10) Weiss. 1957, p. 1053	MN/DOT source no:	23122
	11) Leverson; Gerk. undated, locality M-106	Location:	T 103 R 11 W Sec 3 SW1/4 SW1/4 (1,2,5-8)
			T 103 R 11 W Sec 3 S1/2 SW1/4 (3,9)
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\bigcirc	Active	
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0	Geologic age:	Ordovician
	Geologic formation:	Galena Gp. (1,7); Prosser Fm. (9)
0	Description:	Limestone, 60 ft face (1); thick-bedde
\bigcirc		argillaceous limestone, over 55 ft exp four benches (8); Prosser Fm. upper
\bigcirc		see Refs. 2, 4, and 10 for detailed stra sections and paleontology
G	Chemical analyses:	See Ref. 8 for chemical analyses
\bigcirc	Physical test data:	Availabie from MN/DOT Aggregate U
0	Extraction method:	Drilling, shooting (1)
	Processing plant:	Portable crushing plant (1)
0	Processing method:	Crushing, screening (1)
\bigcirc	Uses of commodity:	Crushed rock, agricultural lime, ripra
\odot	References:	1) Mathy Construction Co. 1989, MN/ questionnaire and personal commun
\bigcirc		 2) Leverson; Gerk. undated, locality N 3) MN/DOT Aggregate Unit files
0		4) Stone. 1980, p. A-7, A-8
0		5) Hogberg. 1966, p. 34
		6) Hogberg. 1969, p. 42 7) Aiexander. 1987, p. 4, 5
0		8) Prokopovich; Schwartz. 1956, p. 32
0		9) Weiss. 1953, p. 484-487
0	Company:	Kappers Aggregates, Inc. (1)
\bigcirc	Main commodity:	Crushed Carbonate Rock
\odot	County:	Fillmore
0	Quarry/pit name:	Fountain Quarry (1)
-	Status:	Active (1)
\odot	Location:	T 103 R 11 W Sec 4 E1/2 SE1/4 (1)
0	Geologic age:	Ordovician
\bigcirc	Geologic formation:	(Galena Gp.)
0	Description:	Limestone (1)
	Extraction method:	Drilling, blasting (1)
0	Uses of commodity:	Road gravel 70%, agricultural lime 30
0	Marketing area:	Fillmore County, Howard and Winnes counties, Iowa (1)
	References:	1) Kappers Aggregates, Inc. 1988, MN
0		questionnaire
	Company:	Kappers Aggregates, Inc. (1,2)
	Main commodity:	Crushed Carbonate Rock
0	County:	Fillmore
	Quarry/pit name:	Wykoff Quarry (1,2)
0	Alternate name:	Kappers Quarry (2)
0	Status:	Active (1)
	Past operator/owner:	Edwin C. Kappers (1965) (2)
0	MN/DOT source no:	23132
0	Location:	T 103 R 12 W Sec 25 NW1/4 SE1/4
0		T 103 R 12 W Sec 26 NW1/4 SE1/4
0		T 103 R 12 W Sec 26 SW1/4 SE1/4
	Description:	Limestone (1)
0	Physical test data:	Available from MN/DOT Aggregate Ur
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	Extraction method:	Drilling, blasting (1)
7); Prosser Fm. (9)	Uses of commodity:	Road gravel 70%, lime 30% (1)
ft face (1); thick-bedded, gray, nestone, over 55 ft exposed in	Marketing area:	Fillmore County, Howard and Winneshiek counties, Iowa (1)
B); Prosser Fm. upper 47 ft (10); and 10 for detailed stratigraphic aleontology	References:	1) Kappers Aggregates, Inc. 1988, MN/DNR questionnaire 2) MN/DOT Aggregate Unit files
chemical analyses		
MN/DOT Aggregate Unit (3)		
ng (1)	Company:	Patterson Quarries, Div. of Mathy Construction Co. (1,2)
ing plant (1)	Main commodity:	Crushed Carbonate Rock
ening (1)	County:	Fillmore
agricultural lime, riprap (1)	Quarry/pit name:	Wykoff Quarry (1,2)
truction Co. 1989, MN/DNR	Date opened:	1979 (1)
and personal communication erk. undated, locality M-102	Status:	Active (1,2)
gregate Unit files	Location:	T 103 R 12 W Sec 26 SW1/4 SE1/4 (1,2)
p. A-7, A-8	Geologic age:	Ordovician
66, p. 34 169, p. 42	Geologic formation:	Galena Gp. (1)
987, p. 4, 5	Description:	30 ft face (1)
; Schwartz. 1956, p. 32	Processing plant:	Portable crushing plant (1)
, p. 484-487	Processing method:	Crushing, screening (1)
<u> </u>	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
gates, Inc. (1)	References:	1) Mathy Construction Co. 1989, MN/DNR
onate Rock		questionnaire 2) Fillmore County Zoning. 1989, personal
y (1)		communication
Sec 4 E1/2 SE1/4 (1)	Company:	Patterson Quarries, Div. of Mathy Construction Co. (1,2)
	Main commodity:	Crushed Carbonate Rock
	County:	Fillmore
g (1)	Quarry/pit name:	Bly Quarry (1-3,5,6)
%, agricultural lime 30% (1)	Date opened:	1878 (6)
y, Howard and Winneshiek	Status:	Active (1,2)
(1) gregates, Inc. 1988, MN/DNR	Past operator/owner:	Lloyd Bly (1965) (3); T. M. Bly (1918) (6); Kappers Aggregates (1969) (4)
	MN/DOT source no:	23053
	Location:	T 103 R 13 W Sec 3 SE1/4 NW1/4 (2-4)
	Geologic age:	Ordovician
gates, Inc. (1,2)	Geologic formation:	Galena Gp. (1,5); Stewartville Fm. (5)
nate Rock	Description:	Dolomitic limestone, 56 ft (5); see Refs. 5 and 6 for descriptions
(1,2)	Physical test data:	Available from MN/DOT Aggregate Unit (3)
y (2)	Extraction method:	Drilling, blasting (1)
	Processing plant:	Portable crushing plant (1)
ers (1965) (2)	Processing method:	Crushing screening (1)
	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
Sec 25 NW1/4 SE1/4 (2)	References:	1) Mathy Construction Co. 1989, MN/DNR
Sec 26 NW1/4 SE1/4 AND		questionnaire and personal communication
Sec 26 SW1/4 SE1/4 (1)		 2) Fillmore County Zoning. 1989, personal communication 3) MN/DOT Aggregate Unit files
MN/DOT Aggregate Unit (2)		4) Hogberg. 1969, p. 43

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	5) Weiss. 1953, p. 271-275 6) Bowles. 1918, p. 163 7) Kirk. 1926, p. 88	Main commodity: County: Quarry/pit name:	Crushed Carbonate Rock Fillmore La Fleur Quarry (1-5)
Company:	Kappers Aggregates, Inc. (1,2)	Status: Past operator/owner:	Active (1) John Peterson (1965), Le Fluer (1941) (2)
Main commodity:	Crushed Carbonate Rock	MN/DOT source no:	23083
-	Fillmore	Location:	
County: Quarry/pit name:	Bly Quarry (1)		T 104 R 8 W Sec 27 S1/2 (1)
	Active (1)		T 104 R 8 W Sec 27 SE1/4 SW1/4 (2,6)
Status:	T 103 R 13 W Sec 3 NE1/4 SE1/4 (1)		T 104 R 8 W Sec 27 SE1/4 (2,3)
Location:		1	T 104 R 8 W Sec 27 SW1/4 SE1/4 (7)
Description:	Limestone (1)	Location comments:	Rushford nearest town (1)
Extraction method:	Drilling, blasting (1)	Geologic age:	Ordovician
Uses of commodity:	Road gravel 70%, agricultural lime 30% (1)	Geologic formation:	Oneota Fm. (1-3)
Marketing area:	Fillmore County, Howard and Winneshiek counties, Iowa (1)	Description: Physical test data:	Oneota dolomite, light brown, massive (1) Available from MN/DOT Aggregate Unit (2) and
References:	1) Kappers Aggregates, Inc. 1988, MN/DNR		U.S. Army Corps of Engineers (3)
	questionnaire 2) USDL. MSHA mine reference list	Extraction method:	Explosives, crushing (1)
		Processing plant:	Portable rock crusher (1)
	,	Processing method:	Screening (1)
Company:	Patterson Quarries, Div. of Mathy Construction	Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)
	Co. (1)	Marketing area:	SE Minnesota, NE Iowa (1)
Main commodity:	Crushed Carbonate Rock	References:	1) Roverud Construction Co. 1988, MN/DNR
County:	Fillmore		questionnaire
Quarry/pit name:	Eggert Quarry (1-3)		 2) MN/DOT Aggregate Unit files 3) U.S. Army Corps of Engineers files
Alternate name:	Eckert Quarry (4)		4) USBM. [1979], MILS
Date opened:	Pre-1967 (1)		5) USDL. MSHA mine reference list
Status:	Active (1)		6) Hogberg. 1969, p. 47 7) Fillmore County Assessor. 1988, personal
Past operator/owner:	Bertha Eggert (1965), Roverud (1921) (2); Quarve and Anderson Co. (1978) (3); G. & Q. Construction (4)		communication
MN/DOT source no:	23114	0	
USGS quadrangle:	Rushford West	Company:	Roverud Construction Co. (1,2)
Location:	T 104 R 8 W Sec 2 NE1/4 NE1/4 (1,2)	Main commodity:	Crushed Carbonate Rock
· · · · · · · · · · · · · · · · · · · ·	T 104 R 8 W Sec 2 NW1/4 NE1/4 (3,4)	County:	
Location comments:	Near Rushford (1)	Quarry/pit name:	Brown Quarry (1)
Geologic age:	Ordovician	Alternate name:	Arendahl Quarry (1,2)
Geologic formation:	Oneota Fm. (1,2,4)	Status:	
Description:	Oneota dolomite, 125 ft face (1)	Location:	T 104 R 9 W Sec 16 NE1/4 (1)
Physical test data:	L.A. abrasion 35, absorption 2.0%, specific	Location comments: Geologic age:	Arendahl nearest town (1) Ordovician
	gravity 2.60 (1)	Geologic formation:	Oneota Fm. (1)
Extraction method:	Drilling, shooting (1)	Description:	Dolomite (1)
Processing plant:	Portable crushing plant (1)	Extraction method:	Explosives, crushing (1)
Processing method:	Crushing, screening (1)	Processing plant:	Portable rock crusher (1)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)	Processing method:	Screening (1)
Remarks:	Large quarry (2)	Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)
References:	1) Mathy Construction Co. 1989, MN/DNR	Marketing area:	SE Minnesota, NE Iowa (1)
	questionnaire and personal communication 2) MN/DOT Aggregate Unit files 3) USBM. [1979], MILS 4) U.S. Army Corps of Engineers files	References:	1) Roverud Construction Co. 1988, MN/DNR questionnaire 2) USDL. MSHA mine reference list

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Roverud Construction Co. (1,4-6)

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Stone - Crushed Carbonate Rock

Company	Patterson Quarries, Div. of Mathy Construction	MN/DOT source no:	25090
Company:	Co. (1,4)	Township name:	Roscoe
Main commodity:	Crushed Carbonate Rock	Location:	T 109 R 16 W Sec 29 SW1/4 SW1/4 (1,3)
County:	Fillmore	Geologic age:	Ordovician
Quarry/pit name:	Kingsbury Quarry (1,4)	Geologic formation:	Prosser Fm. (2); Dunleith Fm. (5)
Iternate name:	Pilot Mound Quarry, Bradt Quarry (2)	Description:	Dolomite top 11 ft, limestone lower 23 ft (5)
ate opened:	Pre-1970 (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2)
status:	Active (1,4)	Processing plant:	Portable crushing plant (1)
ast operator/owner:	Claude Bradt (2)	Processing method:	Crushing, screening (1)
N/DOT source no:	23067	Uses of commodity:	Crushed rock products, agricultural lime (1)
ocation:	T 104 R 10 W Sec 3 SW1/4 SW1/4 (1-3)	References:	1) Kielmeyer Construction Co. 1989, persona
ocation comments:	Pilot Mound nearest town (1)		communication 2) MN/DOT Aggregate Unit files
Seologic age:	Ordovician		3) USBM. [1979], MILS
eologic formation:	Shakopee Fm. (1)		4) USDL. MSHA mine reference list
Description:	Shakopee dolomite (1); approximately 30 + ft face (3)		5) Stone. 1980, p. A-31
Physical test data:	L.A. abrasion 36 (1); further test data available from MN/DOT Aggregate Unit (2)	Company:	Holm Brothers Construction Co. (1,3)
Extraction method:	Drilling, shooting (1)	Main commodity:	Crushed Carbonate Rock
Processing plant:	Portable crushing plant (1)	County:	Goodhue
Processing method:	Crushing, screening (1)	Quarry/pit name:	Holm Quarry (1)
lses of commodity:	Crushed rock, agricultural lime, riprap (1)	Alternate name:	Betcher Quarry (2,3); O'Conner Quarry (3)
leferences:	1) Mathy Construction Co. 1989, MN/DNR	Status:	Active (1)
	questionnaire and personal communication	Past operator/owner:	Fred Betcher, owner (1989) (2,4)
	2) MN/DOT Aggregate Unit files	MN/DOT source no:	25094
	3) Mossler. 1983, station 404) Fillmore County Zoning. 1989, personal	Township name:	Zumbrota
	communication	Location:	T 110 R 15 W Sec 24 SE1/4 SW1/4 (2-4)
		Geologic age:	Ordovician
······································		Geologic formation:	Shakopee-Oneota Fms. (2)
company:	Orval Sorum & Sons (2)	Description:	Dolomitic limestone, 43 + ft face (2)
lain commodity:	Crushed Carbonate Rock	Processing plant:	Portable crushing plant (1)
county:	Fillmore	Processing method:	Crushing, screening (1)
status:	Active (2)	Uses of commodity:	Crushed rock products, agricultural lime, ripr
ast operator/owner:	Milton Moen (1965) (1)		(1)
N/DOT source no:	23072	Marketing area:	Local area (1)
ownship name:	Mound	References:	1) Holm Brothers Construction Co. 1989,
ocation:	T 104 R 10 W Sec 28 SW1/4 NE1/4 (1)		personal communication 2) MN/DOT Aggregate Unit files
	T 104 R 10 W Sec 28 NE1/4 AND		3) USBM. [1979], MILS
	T 104 R 10 W Sec 28 SE1/4 (2)		4) Goodhue County Zoning. 1989, personal
lemarks:	Small quarry (1)		communication
leferences:	1) MN/DOT Aggregate Unit files		
	2) Fillmore County Zoning. 1989, personal communication	Company:	Kielmeyer Construction Co. (1-3)
	communication	Main commodity:	Crushed Carbonate Rock
		County:	Goodhue
ompany:	Kielmeyer Construction Co. (1-4)	Quarry/pit name:	Zumbrota Quarry (1)
lain commodity:	Crushed Carbonate Rock	Alternate name:	Dedan Quarry (1-3); Bredohoft Quarry (4)
ounty:	Goodhue	Status:	Active (1)
uarry/pit name:	Roscoe Quarry (1,3)	Past operator/owner:	Mrs. Schultz, current quarry owner (1989) (1);
iternate name:	Peterson Quarry (1-3)		Mann Construction Co. (1965) (4,5); H.
tatus:	Active (1)		Bredohoft (1968) (4)
	- x·/	MN/DOT source no:	25099

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Township name:	Zumbrota	Past operator/owner:	Lawrence Jacobson (1968) (2)
Location:	T 110 R 15 W Sec 30 NW1/4 SE1/4 (2,4,5) AND	MN/DOT source no:	25101
	T 110 R 15 W Sec 30 SW1/4 NE1/4 (4,5)	Township name:	Holden
Location comments:	Two miles NE of Zumbrota (4)	Location:	T 110 R 18 W Sec 14 SE1/4 SE1/4 (1-3) AND
Geologic age:	Ordovician		T 110 R 18 W Sec 23 (1)
Geologic formation:	Shakopee and Oneota Fms. (4)	Location comments:	Quarry now expanding into section 23 (1)
Description:	About a 35 ft face in Shakopee-Oneota	Geologic age:	Ordovician
Description.	dolomite (4); see Ref. 4 for further description	Geologic formation:	Prosser Fm. and Cummingsville Fm. ? (2)
Processing plant:	Portable crushing plant (1)	Description:	Limestone (1,2)
Processing method:	Crushing, screening (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Uses of commodity:	Crushed rock products, agricultural lime (1)	Processing plant:	Portable crushing plant (1)
References:	1) Kielmeyer Construction Co. 1989, personal	Processing method:	Crushing, screening (1)
	communication	Uses of commodity:	Crushed rock products, agricultural lime (1)
	 USBM. [1979], MILS USDL. MSHA mine reference list MN/DOT Aggregate Unit files Hogberg. 1969, p. 44 	References:	 Kielmeyer Construction Co. 1989, personal communication MN/DOT Aggregate Unit files USBM. [1979], MILS USDL. MSHA mine reference list
Company:	Kielmeyer Construction Co. (1,3)		
Main commodity:	Crushed Carbonate Rock	Company:	Kielmeyer Construction Co. (1)
County:	Goodhue	Main commodity:	Crushed Carbonate Rock
Quarry/pit name:	Foss Quarry (1)	County:	Goodhue
Alternate name:	Goodhue County Quarry (1,3); Aspelund	Quarry/pit name:	O'Connor Quarry (1-3)
Chatura	Quarry (2,4); Nesseth Quarry (1)	Alternate name:	Connors Quarry (4)
Status:	Active (1)	Status:	Active (1)
Past operator/owner:	Quarve & Anderson Co. (4); Goodhue County, owner (1968) (2)	Past operator/owner:	Holm Brothers Construction Co. until 1985 (2,3); Michael Conners (1968) (4)
MN/DOT source no:	25085	MN/DOT source no:	25098
Township name:	Wanimingo	Township name:	Belle Creek
Location:	T 110 R 17 W Sec 8 SE1/4 NE1/4 (2,3)	Location:	T 111 R 16 W Sec 4 NW1/4 NE1/4 (2,4)
Geologic age:	Ordovician	Geologic age:	Ordovician
Geologic formation:	Prosser Fm. (2,5,6)	Geologic formation:	Platteville Fm. (4)
Description:	Limestone, medium to thick beds, becoming	Description:	Limestone (4)
	thin at top, gray weathering to buff, argillaceous, face 42 ft (2)	Processing plant:	Portable crushing plant (1)
Chemical analyses:	See Ref. 6, station 5 for chemical analyses	Processing method:	Crushing, screening (1)
Processing plant:	Portable crushing plant (1)	Uses of commodity:	Crushed rock products, agricultural lime (1)
Processing method:	Crushing, screening (1)	References:	1) Kielmeyer Construction Co. 1989, personal
Uses of commodity:	Crushed rock products, agricultural lime (1)		communication 2) USBM. [1979], MILS
References:	1) Kielmeyer Construction Co. 1989, personal		3) USDL. MSHA mine reference list
	communication		4) MN/DOT Aggregate Unit files
	2) MN/DOT Aggregate Unit files		
	3) USBM. [1979], MILS 4) USDL. MSHA mine reference list	Company:	Kielmeyer Construction Co. (1,3)
	5) Prokopovich; Schwartz. 1957, p. 51		Crushed Carbonate Rock
	6) Prokopovich; Schwartz. 1956, p. 8, 13	Main commodity:	
		County:	Goodhue
Company:	Kielmeyer Construction Co. (1-4)	Quarry/pit name:	Ryan Quarry (1-3)
	Crushed Carbonate Rock	Status:	Active (1)
Main commodity:		Past operator/owner:	Gerald Ryan (1968) (2)
County:		MN/DOT source no:	25109 Della Oracle
Quarry/pit name:	Jacobson Quarry (1-4)	Township name:	Belle Creek
Status:	Active (1)	Location:	T 111 R 16 W Sec 11 SE1/4 NW1/4 (2)

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0	Geologic age:
0	Geologic formation:
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	References:
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\bigcirc	Company:
0	Main commodity: County:
\odot	Quarry/pit name:
\odot	Alternate name:
0	Status:
	Past operator/ow
0	MN/DOT source
0	Township name: Location:
0	Geologic age:
\bigcirc	Geologic formation
\bigcirc	Description:
0	Processing plant
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0	Uses of commodi References:
	neierences.
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\bigcirc	Company:
0	Main commodity: County:
0	Quarry/pit name:
Ō	Status:
õ	Township name:
-	Location:
	Description
	Description: Processing plant:
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0	Marketing area: Remarks:
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õ	References:
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	Ordovician
ion:	Platteville Fm. (2)
	Probably Platteville limestone (2)
it:	Portable crushing plant (1)
hod:	Crushing, screening (1)
dity:	Crushed rock products, agricultural lime (1)
	1) Kielmeyer Construction Co. 1989, personal
	communication
	MN/DOT Aggregate Unit files
	3) USBM. [1979], MILS
	······································
	Kielmeyer Construction Co. (1,3,4)
<i>ı</i> :	Crushed Carbonate Rock

npany: in commodity unty: Goodhue arry/pit name: Gadinet Quarry (1) Tongen Quarry (1,2,4); Tougen Quarry (3) ernate name: Active (1) tus: t operator/owner: Oscar Tongen (1968) (2) /DOT source no: 25081 vnship name: **Belle Creek** T 111 R 16 W Sec 21 SE1/4 SE1/4 (2,3) ation: logic age: Ordovician logic formation: Platteville Fm. (2,5) Platteville limestone (2) cription: cessing plant: Portable crushing plant (1) cessing method: Crushing, screening (1) s of commodity: Crushed rock products, agricultural lime (1) erences: 1) Kielmeyer Construction Co. 1989, personal communication

cessing plant: cessing method: s of commodity:

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 2) MN/DOT Aggregate Unit files 3) USBM. [1979], MILS 4) USDL. MSHA mine reference list 5) Hoeft. 1959, p. 60, 61
Holst Excavating, Inc. (1)
Crushed Carbonate Rock
Goodhue
Banks Quarry (1)
Active (1)
Leon
T 111 R 17 W Sec 10 (1)
T 111 R 17 W Sec 10 NW1/4 SW1/4 (2)
Dolomitic limestone (1)
Portable crushing plant (1)
Crushing, screening, washing (1)
Crushed addregate riprap adricultural lime

Crushed aggregate, riprap, agricultural lime, road base, etc. (1) 30-50 mile radius (1) Holst Excavating, Inc., Minnesota's office is located in Hastings (1) 1) Holst Excavating, Inc. 1989, personal communication

2) Goodhue County Zoning. 1989, personal communication

Company:	Kielmeyer Construction Co. (1-4)	
Main commodity:	Crushed Carbonate Rock	
County:	Goodhue	
Quarry/pit name:	Spring Garden Quarry (1-4)	
Status:	Active (1)	
Past operator/owner:	Milton Swenson, current (1989) owner (1); Mann Construction Co. (1,3)	
MN/DOT source no:	25108	
Township name:	Leon	
Location:	T 111 R 17 W Sec 14 SW1/4 SW1/4 (2,3,5,6)	
Geologic age:	Ordovician	
Geologic formation:	Prosser Fm. (3,6); Dunleith Fm. (5)	
Description:	Limestone, 40 ft face (3); see Ref. 5 for stratigraphic section; see Refs. 3 and 6 for brief descriptions	
Chemical analyses:	See Ref. 6 for chemical analyses	
Physical test data:	Available from MN/DOT Aggregate Unit (3)	
Processing plant:	Portable crushing plant (1)	
Processing method:	Crushing, screening (1)	
Uses of commodity:	Crushed rock products, agricultural lime (1)	
References:	 Kielmeyer Construction Co. 1989, personal communication USBM. [1979], MILS MN/DOT Aggregate Unit files USDL. MSHA mine reference list Stone. 1980, p. A-33, A-34 Prokopovich; Schwartz. 1956, p. 14 Prokopovich; Schwartz. 1957, p. 51 	
Company:	Kielmeyer Construction Co. (1)	
Main commodity:	Crushed Carbonate Rock	
County:	Goodhue	
Quarry/pit name:	Herneke Quarry (1)	
Status:	Active (1)	
Past operator/owner:	Henke, owner (1988) (2)	
Township name:	Leon	
Location:	T 111 R 17 W Sec 30 (1)	
	T 111 R 17 W Sec 30 S1/2 NW1/4 (2)	
Geologic age:	Ordovician	
Geologic formation:	Prosser Fm. (2)	
Description:	Limestone (1)	
Processing plant:	Portable crushing plant (1)	
Processing method:	Crushing, screening (1)	
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Crushed rock products, agricultural lime (1) 1) Kielmeyer Construction Co. 1989, personal communication 2) Niles. [1988a], table 1

Company:

References:

Uses of commodity:

Valley Limestone Co. (1-4)

Main commodity:	Crushed Carbonate Rock	Alternate name:	Bremer Quarry (3)
County:	Goodhue	Status:	Active (1)
Quarry/pit name:	Valley Limestone Co. Quarry (1,2)	Past operator/owner:	Walter Bremer, owner (1968) (3)
Alternate name:	Hader Quarry (2-4)	MN/DOT source no:	25107
Status:	Active (1)	Township name:	Florence
MN/DOT source no:	25089	Location:	T 112 R 13 W Sec 32 NW1/4 SE1/4 (3,4)
Location:	T 111 R 17 W Sec 36 SE1/4 SW1/4 (2,3,5)	Location comments:	South of road (2)
Location comments:	Seven miles northwest of Zumbrota on U.S.	Geologic age:	Ordovician
	Hwy. 52 (1); there is a group of quarries at Hader in the SE1/4 SW1/4 Sec. 36 (5)	Geologic formation:	Shakopee-Oneota Fms. (3)
Geologic age:	Ordovician	Description:	Dolomitic limestone (2)
Geologic formation:	Prosser Fm. (2,5,6)	Processing plant:	Portable crushing plant (1)
Description:	See Ref. 5 for description	Uses of commodity:	Crushed stone, agricultural lime (1)
Chemical analyses:	See Ref. 5 for chemical analyses	References:	1) Roberson Lime & Rock Products. 1988
References:	•		MN/DNR questionnaire 2) Roberson Lime & Rock Products. 1989.
References.	1) Valley Limestone Co. 1989, personal communication		personal communication
	2) MN/DOT Aggregate Unit files		3) MN/DOT Aggregate Unit files
	3) USBM. [1979], MILS		 Goodhue County Zoning. 1989, personal communication
	 USDL. MSHA mine reference list Prokopovich; Schwartz. 1956, p. 14 		communication
	6) Prokopovich; Schwartz. 1977, p. 51		
	· ·	Company:	Hoist Excavating, Inc. (1,4,5)
Company:	Holst Excavating, Inc. (1,2)	Main commodity:	Crushed Carbonate Rock
Main commodity:	Crushed Carbonate Rock	County:	Goodhue
County:	Goodhue	Quarry/pit name:	Holst Quarry (1)
Quarry/pit name:	Prokash Quarry (1)	Alternate name:	Pit No. 6 (1); Charlson Quarry (2)
Alternate name:	Cordes Quarry (2)	Status:	Active (1)
Status:	Active (1)	MN/DOT source no:	25123
MN/DOT source no:	25119	Township name:	Featherstone
Township name:	Florence	Location:	T 112 R 15 W Sec 6 (1)
Location:	T 112 R 13 W Sec 9 NW1/4 (2)		T 112 R 15 W Sec 6 SE1/4 (3)
Location comments:	Frontenac nearest town (1)		T 112 R 15 W Sec 6 NE1/4 SE1/4 (4)
Geologic age:	Ordovician		T 112 R 15 W Sec 5 NW1/4 SW1/4 (5)
Geologic formation:	Oneota Fm. (2)	Geologic age:	Ordovician
Description:	Oneota dolomitic limestone (1,2)	Geologic formation:	Oneota Fm. (3); Shakopee-Oneota Fms. (5)
Physical test data:	Available from U.S. Army Corps of Engineers (2)	Description:	Dolomitic limestone (1)
Processing plant:	Portable crushing plant (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Processing method:	Crushing, screening, washing (1)	Processing plant:	Portable crushing plant (1)
Uses of commodity:	Crushed aggregates, riprap, agricultural lime,	Processing method:	Crushing, screening, washing (1)
•	road base, etc. (1)	Uses of commodity:	Crushed aggregate, riprap, agricultural lime,
Marketing area:	30-50 mile radius (1)	Marketing area:	road base, etc. (1) 30-50 miles radius (1)
Remarks:	Holst Excavating, Inc., Minnesota's office is located in Hastings (1)	References:	1) Holst Excavating, Inc. 1989, personal
References:	 Holst Excavating, Inc. 1989, personal communication U.S. Army Corps of Engineers files MN/DOT Aggregate Unit files 		communication 2) MN/DOT Aggregate Unit files 3) Mossler. field notes on Goodhue County highway map 4) Goodhue County Zoning. 1989, personal communication 5) Niles. [1988a], table 1
Company:	Roberson Lime & Rock Products (1)		
Main commodity:	Crushed Carbonate Rock		
County:	Goodhue	Company:	Holm Brothers Construction Co. (1)
Quarry/pit name:	Bowe Quarry (1)	Main commodity:	Crushed Carbonate Rock

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Stone - Crushed Carbonate Rock

County:	Goodhue	Location comments:	Located 1/2 mile off Hwy. 61, near junction of County Rd. 46 (1)
Quarry/pit name:	Keller Quarry (1)	Description:	Limestone, pale yellow (1)
Status:	Active (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Past operator/owner:	Keller, quarry owner (1988) (2)	Extraction method:	Drilling, blasting (1)
MN/DOT source no:	25125	Processing method:	Crushing, screening (1)
Township name:	Featherstone	Uses of commodity:	Crushed rock 3/4 in. and 1 in., riprap, screened
Location:	T 112 R 15 W Sec 7 SW1/4 (2)	uses of commonly.	rock 1-1/2 to 6 in. (1)
Description:	Limestone (1)	Marketing area:	Within 20 miles of quarry (1)
Processing plant:	Portable crushing plant (1)	References:	1) Luhman's Construction Co. 1988, MN/DNR
Processing method:	Crushing, screening (1)		questionnaire
Uses of commodity:	Crushed rock products, agricultural lime, riprap (1)		 2) MN/DOT Aggregate Unit files 3) USBM. [1978], MILS 4) USDL. MSHA mine reference list
Marketing area:	Local area (1)		
References:	1) Holm Brothers Construction Co. 1989, personal communication	<u> </u>	
	2) MN/DOT Aggregate Unit files	Company:	Roverud Construction Co. (1)
		Main commodity:	Crushed Carbonate Rock
		County:	Houston
Company:	Holm Brothers Construction Co. (1,3)	Quarry/pit name:	Gillen Quarry (1,2)
Main commodity:	Crushed Carbonate Rock	Alternate name:	Gillan Quarry (3)
County:	Goodhue	Status:	Active (1)
Quarry/pit name:	Carlton Quarry (1)	Past operator/owner:	Hector Construction Co. until 1975 (3)
Alternate name:	Hoim's Quarry (2,3)	MN/DOT source no:	28086
Status:	Active (1)	Township name:	Crooked Creek
MN/DOT source no:	25122	Location:	T 101 R 4 W Sec 6 NE1/4 (1)
Township name:	Vasa		T 101 R 4 W Sec 5 NW1/4 NW1/4 (4,5)
Location:	T 112 R 16 W Sec 10 (2)	Location comments:	New Albin, Iowa nearest town (1)
	T 112 R 16 W Sec 10 S1/2 (4)	Geologic age:	Ordovician
Geologic age:	Ordovician	Geologic formation:	Oneota Fm. (1)
Geologic formation:	Oneota Fm. (4)	Description:	Dolomite, medium brown, cherty, abrasive (1)
Physical test data:	Available from MN/DOT Aggregate Unit (2)	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Processing plant:	Portable crushing plant (1)	Extraction method:	Explosives, crushing (1)
Processing method:	Crushing, screening (1)	Processing plant:	Portable rock crusher (1)
Uses of commodity:	Crushed rock products, agricultural lime, riprap	Processing method:	Screening (1)
	(1)	Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)
Marketing area:	Local area (1)	Marketing area:	SE Minnesota, NE Iowa (1)
References:	 Holm Brothers Construction Co. 1989, personal communication MN/DOT Aggregate Unit files USDL. MSHA mine reference list Niles. [1988b], table 2 	References:	 Roverud Construction Co. 1988, MN/DNR questionnaire MN/DOT Aggregate Unit files USDL. MSHA mine reference list Houston County Planning and Zoning. 1989 personal communication Houston County Highway Dept. 1983, quary
Company:	Luhman's Construction Co. (1-4)		list
Main commodity:	Crushed Carbonate Rock		
County:	Goodhue	Company:	Poverue Construction Co. (1.2.5)
Quarry/pit name:	Luhman's Quarry (1,3,4)	Company: Main commodity:	Roverud Construction Co. (1,3-6) Crushed Carbonate Rock
Date opened:	1969-1970 (1)	County:	Houston
Status:	Active (1)	-	
MN/DOT source no:	25120	Quarry/pit name:	Pool Hill Quarry (1-3)
Township name:	Welch	Alternate name:	Beneke Quarry (2-4)
Location:	T 113 R 16 W Sec 13 NE1/4 SE1/4 (1)	Status:	Active (1)
	T 113 R 16 W Sec 13 SE1/4 SW1/4 (3)	1	

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Quarry/pit name;	Eitzen Quarry (1,2)	Location:	T 101 R 7 W Sec 17 SE1/4 (1-3)
County:	Houston	MN/DOT source no:	28053
Main commodity:	Crushed Carbonate Rock	Past operator/owner:	Kenneth Buxengard (1965) (4)
Company:	Roverud Construction Co. (1,2)	Status:	Underpass Quarry (7-13) Active (1)
	-,	Alternate name:	Newhouse Quarry (3,4); Spring Grove
	questionnaire 2) USDL. MSHA mine reference list	Quarry/pit name:	Underpass Quarry (1,3-6)
References:	1) Roverud Construction Co. 1988, MN/DNR	County:	Houston
Marketing area:	SE Minnesota, NE Iowa (1)	Main commodity:	Crushed Carbonate Rock
Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)	Company:	Roverud Construction Co. (1,5,6,11-13)
Processing method:	Screening (1)		
Processing plant:	Portable rock crusher (1)		2) MN/DOT Aggregate Unit files
Extraction method:	Explosives, crushing (1)	References:	1) Roverud Construction Co. 1988, MN/DNR questionnaire
•	chert nodules, layered to massive (1)	Marketing area:	SE Minnesota, NE Iowa (1)
Description:	Buff to medium brown, dolomite, vugular, close	Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)
Geologic formation:	Oneota Fm. (1)	Processing method:	Screening (1)
Geologic age:	Ordovician	Processing plant:	Portable rock crusher (1)
Location comments:	Caledonia nearest town (1)	Extraction method:	Explosives, crushing (1)
Location:	T 101 R 5 W Sec 7 NE1/4 (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Township name:	Winnebago	Description:	Medium gray, layered limestone (1)
Status: Past operator/owner:	Active (1) Hector Construction Co. (2)	Geologic formation:	Platteville Fm. (1)
Quarry/pit name: Status:	Winnebago Quarry (1,2)	Geologic age:	Ordovician
County: Quarry/nit name:	Houston	Location comments:	Spring Grove nearest town (1)
Main commodity:	Crushed Carbonate Rock		T 101 R 6 W Sec 21 NE1/4 NE1/4 (2)
Company: Main commodity:	Roverud Construction Co. (1)	Location:	T 101 R 6 W Sec 22 NW1/4 (1)
Compart		MN/DOT source no:	28070
		Past operator/owner:	Glen Kinneberg (1965), John Asleson (1941) (2
	6) USDL, MSHA mine reference list	Status:	Active (1)
	 U.S. Army Corps of Engineers files Hogberg. 1969, p. 46 	Quarry/pit name:	Kinneberg Quarry (1,2)
	3) USBM. [1979], MILS	County:	Houston
	2) MN/DOT Aggregate Unit files	Main commodity:	Crushed Carbonate Rock
References:	1) Roverud Construction Co. 1988, MN/DNR questionnaire	Company:	Roverud Construction Co. (1)
Marketing area:	SE Minnesota, NE Iowa (1)		
Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)		2) USDL. MISHA Mille Telefence list
Processing method:	Screening (1)		questionnaire 2) USDL. MSHA mine reference list
Processing plant:	Portable rock crusher (1)	References:	1) Roverud Construction Co. 1988, MN/DNR
Extraction method:	Explosives, crushing (1)	Marketing area:	SE Minnesota, NE Iowa (1)
Physical test data:	Available from U.S. Army Corps of Engineers (4)	Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)
	(1)	Processing method:	Screening (1)
resonhaan	calcite, chert nodules, vuggy, massive at basal	Processing plant:	Portable rock crusher (1)
Description:	Gray to buff, medium grained, dolomite,	Extraction method:	Explosives, crushing (1)
Geologic age. Geologic formation:	Oneota Fm. (1)		chert nodules, massive, calcite nests (1)
Location comments: Geologic age:	Near New Albin, Iowa (1,5) Ordovician	Description:	Oneota dolomite, gray to brown to dark brown medium grained, also buff zones, scattered
Logation commenter	T 101 R 4 W Sec 33 SE1/4 SW1/4 (2,3,5)	Geologic formation:	Oneota Fm. (1)
Location:	T 101 R 4 W Sec 33 SW1/4 (1,4)	Geologic age:	Ordovician
Township name:	Jefferson	Location comments:	Eitzen nearest town (1)
MN/DOT source no:	28066	Location:	T 101 R 5 W Sec 18 SE1/4 (1)
		Township name:	Winnebago
	(2)		

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Stone - Crushed Carbonate Rock

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	T 101 R 7 W Sec 17 S1/2 SE1/4 (4)	Town
	T 101 R 7 W Sec 17 SE1/4 SE1/4 (5-10)	Locat
	T 101 R 7 W Sec 17 SW1/4 SE1/4 (11-13)	
Location comments:	North side of Hwy. 44, 3.2 miles west of Spring Grove (11-13)	Locat
Geologic age:	Ordovician	Geolo
Geologic formation:	Platteville Fm. (1-4,7,11-13)	Geolo
Description:	Platteville, medium to light gray, hard layered, lithographic limestone (1); see Ref. 3 for section description; see Refs. 7, 11-13 for detailed stratigraphic sections, Ref. 7 also includes paleontology	Desci Physi
Chemical analyses:	See Ref. 3 for chemical analyses	Extra
Physical test data:	Available from MN/DOT Aggregate Unit (4)	Proce
Extraction method:	Explosives, crushing (1)	Proce
Processing plant:	Portable rock crusher (1)	Uses
Processing method:	Screening (1)	Marke
Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)	Refer
Marketing area:	SE Minnesota, NE Iowa (1)	
	questionnaire 2) Mossler. 1987, p. 18 3) Mossler. 1971 4) MN/DOT Aggregate Unit files 5) USBM. [1979], MILS 6) USDL. MSHA mine reference list 7) Weiss. 1953, p. 215-224 8) Hoeft. 1959, p. 278 9) Weiss. 1957, p. 1053 10) Weiss. 1955, p. 767 11) Sloan and others. 1987, p. 213 12) Sloan; Kolata. 1987, p. 92-95 13 Leverson; Gerk. undated, locality M-120	Main Coun Quarr Statu: MN/D Town: Locat
Company:	Botcher Construction Co. (1)	Geolo Geolo
Main commodity:	Crushed Carbonate Rock	Physi
County:	Houston	
Quarry/pit name:	Hambert Quarry (1)	Refer
Status:		
T	Active (1)	
i ownsnip name:	Active (1) Crooked Creek	
•		
Location:	Crooked Creek	
Location: Processing plant: Processing method:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1)	Comp
Location: Processing plant: Processing method: Uses of commodity:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1) Riprap, crushed rock, agricultural lime (1)	· ·
Location: Processing plant: Processing method: Uses of commodity: Marketing area:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1) Riprap, crushed rock, agricultural lime (1) Houston, Fillmore, and Winona counties (1)	Main
Location: Processing plant: Processing method: Uses of commodity: Marketing area:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1) Riprap, crushed rock, agricultural lime (1)	Comp Main Coun Quarr Status
Location: Processing plant: Processing method: Uses of commodity: Marketing area: References:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1) Riprap, crushed rock, agricultural lime (1) Houston, Fillmore, and Winona counties (1) 1) Botcher Construction Co. 1989, personal	Main Coun Quarr Statu Past o
Location: Processing plant: Processing method: Uses of commodity: Marketing area: References: Company:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1) Riprap, crushed rock, agricultural lime (1) Houston, Fillmore, and Winona counties (1) 1) Botcher Construction Co. 1989, personal communication	Main Coun Quarr Statu Past o MN/D
Township name: Location: Processing plant: Processing method: Uses of commodity: Marketing area: References: Company: Main commodity: County:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1) Riprap, crushed rock, agricultural lime (1) Houston, Fillmore, and Winona counties (1) 1) Botcher Construction Co. 1989, personal communication	Main Coun Quarr
Location: Processing plant: Processing method: Uses of commodity: Marketing area: References: Company: Main commodity:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1) Riprap, crushed rock, agricultural lime (1) Houston, Fillmore, and Winona counties (1) 1) Botcher Construction Co. 1989, personal communication Roverud Construction Co. (1) Crushed Carbonate Rock	Main Coun Quarr Statu Past o MN/D Locat
Location: Processing plant: Processing method: Uses of commodity: Marketing area: References: Company: Main commodity: County:	Crooked Creek T 102 R 4 W Sec 17 (1) Portable crushing plant (1) Crushing, screening (1) Riprap, crushed rock, agricultural lime (1) Houston, Fillmore, and Winona counties (1) 1) Botcher Construction Co. 1989, personal communication Roverud Construction Co. (1) Crushed Carbonate Rock Houston	Main Coun Quarr Status Past o MN/D

ownship name:	Mayville
ocation:	T 102 R 5 W Sec 16 SW1/4 (1)
	T 102 R 5 W Sec 16 SE1/4 SW1/4 (2)
ocation comments:	. Caledonia nearest town (1)
eologic age:	Ordovician
eologic formation:	Oneota Fm. (1,2)
escription:	Oneota dolomite, top-medium to dark brown; lower-light to medium brown/gray buff areas; abrasive, massive, chert nodules, calcitic, quartz zones, vuggy, coarse to medium grained (1)
hysical test data:	Available from U.S. Army Corps of Engineers (2)
xtraction method:	Quarry benched; explosives, crushing (1)
rocessing plant:	Portable rock crusher (1)
rocessing method:	Screening (1)
ses of commodity:	Riprap, crushed stone, lime, filter stone (1)
larketing area:	SE Minnesota, NE Iowa (1)
eferences:	1) Roverud Construction Co. 1988, MN/DNR questionnaire 2) U.S. Army Corps of Engineers files
lain commodity:	Crushed Carbonate Rock
ounty:	Houston
uarry/pit name:	Kruckow Quarry (2)
tatus:	Active (1)
N/DOT source no:	28088
ownship name:	Mayville
ocation:	T 102 R 5 W Sec 16 SE1/4 SW1/4 (1)
	T 102 R 5 W Sec 16 NE1/4 SW1/4 (2,3)
	T 102 R 5 W Sec 16 SE1/4 (3)
eologic age:	Ordovician
eologic formation:	Oneota Fm. (3)
hysical test data:	Available from MN/DOT Aggregate Unit (2) and U.S. Army Corps of Engineers (3)
eferences:	 Houston County Planning and Zoning. 1989, personal communication MN/DOT Aggregate Unit files U.S. Army Corps of Engineers files USDL. MSHA mine reference list
ompany:	Roverud Construction Co. (1,3,4)
ain commodity:	Crushed Carbonate Rock
ounty:	Houston
uarry/pit name:	Rauk Quarry (1,3,4)
tatus:	Active (1)
ast operator/owner:	Elvin Danielson Estate (1965) (1)
N/DOT source no:	28047
ocation:	T 102 R 7 W Sec 35 NW1/4 (1)
	T 102 R 7 W Sec 35 S1/2 NW1/4 (2,3)
ocation comments:	Spring Grove nearest town (1)
eologic age:	Ordovician
eologic formation:	Oneota Fm. (1,5); Shakopee Fm. (5)

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Description:	Oneota dolomite, massive (1)	References:	 Roverud Construction Co. 1988, MN/DNF questionnaire
Extraction method:	Explosives, crushing (1)		2) MN/DOT Aggregate Unit files
Processing plant:	Portable rock crusher (1)		3) U.S. Army Corps of Engineers files
Processing method:	Screening (1)		4) USBM. [1979], MILS 5) USDL. MSHA mine reference list
Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)		-,
Marketing area: References:	SE Minnesota, NE Iowa (1) 1) Roverud Construction Co. 1988, MN/DNR		
neierences.	questionnaire	Company:	Haefs & Sons, Inc. (1)
	2) MN/DOT Aggregate Unit files	Main commodity:	Crushed Carbonate Rock
	3) USBM. [1979], MILS 4) USDL. MSHA mine reference list	County:	Houston
	5) Mossler, field notes on Houston County	Quarry/pit name:	Sanden Quarry (1)
	highway map	Status:	Active (1)
		Township name:	
Company:	Botcher Construction Co. (1)	Location:	T 103 R 5 W Sec 6 SE1/4 (1)
Jompany: Main commodity:	Crushed Carbonate Rock	Description:	Limestone (1)
		Processing plant:	Portable crushing plant (1)
County:		Processing method:	Crushing (1)
Quarry/pit name:	Welke Quarry (1)	Uses of commodity:	Road rock (1)
Status:	Active (1)	Marketing area:	Within 10-15 miles (1)
Township name:	Hokah	References:	1) Haefs & Sons, Inc. 1989, personal
Location:	T 103 R 4 W Sec 3 (1)		communications
Processing plant:	Portable crushing plant (1)		
Processing method:	Crushing, screening (1)	Company:	Roverud Construction Co. (1)
Jses of commodity:	Riprap, crushed rock, agricultural lime (1)	Main commodity:	Crushed Carbonate Rock
Marketing area:	Houston, Fillmore, and Winona counties (1)	County:	Houston
References:	1) Botcher Construction Co. 1989, personal communication	Quarry/pit name:	Badger Quarry (1)
	communication	Status:	Active (1)
·····	· · · · · · · · · · · · · · · · · · ·	Location:	T 103 R 6 W Sec 27 NW1/4 (1)
Company:	Roverud Construction Co. (1)	Location comments:	Caledonia nearest town (1)
Main commodity:	Crushed Carbonate Rock	Geologic age:	Ordovician
County:	Houston	Geologic formation:	Oneota Fm. (1)
Quarry/pit name:	Zeiger Quarry (1)	Description:	Oneota dolomite, light to medium brown,
Alternate name:	Brownsville Quarry (1); Zaiger Quarry (2,3)	•	medium grained (1)
Status:	Active (1)	Extraction method:	Quarry benched; explosives, crushing (1)
Past operator/owner:	Hector Construction Co. (3-5); John Zaiger	Processing plant:	Portable rock crusher (1)
WWDOT	(1965) (2)	Processing method:	Screening (1)
MN/DOT source no:	28080	Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)
ownship name:	Brownsville	Marketing area:	SE Minnesota, NE Iowa (1)
.ocation:	T 103 R 4 W Sec 22 NE1/4 (1)	References:	1) Roverud Construction Co. 1988, MN/DNF
	T 103 R 4 W Sec 22 N1/2 SE1/4 (2,4)		questionnaire
Location comments:	Brownsville nearest town (1)		
Geologic age:	Ordovician	Company:	Roverud Construction Co. (1)
Geologic formation:	Oneota Fm. (1)	Main commodity:	Crushed Carbonate Rock
Description:	Oneota dolomite (1)	County:	Houston
Physical test data:	Available from MN/DOT Aggregate Unit (2) and U.S. Army Corps of Engineers (3)	Quarry/pit name:	Yucatan Quarry (1,2)
Extraction method:		Status:	Active (1)
Processing plant:	Explosive, crushing (1) Portable rock crusher (1)	Past operator/owner:	Hector Construction Co. until 1984 (2)
Processing method:		Township name:	Yucatan
•	Screening (1) Bioran crushed stone lime filter stone (1)	Location:	T 103 R 7 W Sec 15 NW1/4 (1)
Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)	Location comments:	Houston nearest town (1)
Marketing area:	SE Minnesota, NE Iowa (1)	1	

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Geologic age:	Ordovician	Processing method:	Crushing (1)
Geologic formation:	Oneota Fm. (1)	Uses of commodity:	Road rock (1)
Description:	Oneota dolomite (1)	Marketing area:	Within 10-15 miles (1)
Extraction method:	Explosives, crushing (1)	References:	1) Haefs & Sons, Inc. 1989, personal
Processing plant:	Portable rock crusher (1)		communication
Processing method:	Screening (1)		2) USBM. [1979], MILS 3) USDL. MSHA mine reference list
Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)		4) MN/DOT Aggregate Unit files
Marketing area:	SE Minnesota, NE Iowa (1)		5) Houston County Highway Dept. 1982, quan
References:	1) Roverud Construction Co. 1988, MN/DNR questionnaire		list
	2) USDL. MSHA mine reference list	Company:	Haefs & Sons, Inc. (1)
· · · · · · · · · · · · · · · · · · ·	·	Main commodity:	Crushed Carbonate Rock
Company:	Roverud Construction Co. (1,3,4)	County:	Houston
Main commodity:	Crushed Carbonate Rock	Quarry/pit name:	Schiel Quarry (1)
County:	Houston	Status:	Active (1)
Quarry/pit name:	Sherry Quarry (1,4)	Township name:	La Crescent
Alternate name:	Gaustad Quarry (2); Cherry Quarry (3)	Location:	T 104 R 4 W Sec 8 SW1/4 SW1/4 (1)
Status:	Active (1)	Description:	Limestone (1)
Past operator/owner:	Albert Sherry (1965), Gaustad (1921) (1)	Processing plant:	Portable crushing plant (1)
MN/DOT source no:	28045	Processing method:	Crushing (1)
Location:	T 103 R 7 W Sec 36 SW1/4 (1)	Uses of commodity:	Road rock (1)
		Marketing area:	Within 10-15 miles (1)
	T 103 R 7 W Sec 36 NE1/4 SW1/4 (2)	References:	1) Haefs & Sons, Inc. 1988, personal
	T 103 R 7 W Sec 36 NW1/4 SW1/4 (3)	nelelences.	communication
Seologic age:	Ordovician		
Seologic formation:	Oneota Fm. (1)		
Description:	Oneota dolomite (1)	Company:	Patterson Quarries, Div. of Mathy Construction
Extraction method:	Explosives, crushing (1)	Main commodity:	Co. (1) Crushed Carbonate Rock
Processing plant:	Portable rock crusher (1)	County:	Houston
Processing method:	Screening (1)	Quarry/pit name:	Horn Quarry (1)
Jses of commodity:	Riprap, crushed stone, lime, filter stone (1)		
Marketing area:	SE Minnesota, NE Iowa (1)	Date opened:	1971 (1)
References:	1) Roverud Construction Co. 1988, MN/DNR questionnaire	Status:	Active (1)
	2) MN/DOT Aggregate Unit files	Township name:	
	3) USBM. [1979], MILS	Location:	T 104 R 4 W Sec 8 SW1/4 SE1/4 (1)
	4) USDL. MSHA mine reference list	Location comments:	La Crescent nearest town (1)
		Geologic age:	Ordovician
Company:	Haefs & Sons, Inc. (1)	Geologic formation:	Oneota Fm. (1)
fain commodity:	Crushed Carbonate Rock	Description:	Dolomite, 50 ft face (1)
County:	Houston	Extraction method:	Drilling, blasting (1)
Quarry/pit name:	Horn Quarry (1-3,5)	Processing method:	Crushing, screening (1)
Status:	Active (1)	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
ast operator/owner:	Hector Contruction Co. (2,3); Horn (2,4,5)	Marketing area:	Houston County (1)
N/DOT source no:	28001	References:	1) Mathy Construction Co. 1988, MN/DNR questionnaire
ownship name:	La Cresent		questionnane
ocation:	T 104 R 4 W Sec 8 SE1/4 SW1/4 (1)		
	T 104 R 4 W Sec 8 SE1/4 SE1/4 SW1/4 (2,5)	Company:	Patterson Quarries, Div. of Mathy Construction
escription:	Limestone (1)		Co. (1)
hysical test data:	Available from MN/DOT Aggregate Unit -	Main commodity:	Crushed Carbonate Rock
	COPES file (4)	County:	Houston
rocessing plant:	Portable rock crusher (1)	Quarry/pit name:	Mathy Quarry (1)

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Alternate name: Status:	La Crescent-Schiel Quarry (1); Schiel Quarry (2,3) Active (1)	References:	1) Haefs & Sons, Inc. 1989, personal communication
Past operator/owner:	Hector Construction Co. (3,4); Leslie Schiel (2)		
MN/DOT source no:	28079	Company:	Roverud Construction Co. (1)
Township name:	La Crescent	Main commodity:	Crushed Carbonate Rock Houston
Location:	T 104 R 4 W Sec 17 NW1/4 NW1/4 (1,2,4)	County:	
Location comments:	Near La Crescent (4)	Quarry/pit name: Status:	Kelly Quarry (1)
Physical test data:	Available from MN/DOT Aggregate Unit (2)		Active (1) T 104 R 6 W Sec 28 NE1/4 (1)
Processing plant:	Portable crushing plant (1)	Location:	
Processing method:	Crushing, screening (1)		T 104 R 6 W Sec 28 SW1/4 NE1/4 (2)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)	Geologic age:	Ordovician
References:	1) Mathy Construction Co. 1989, personal	Geologic formation:	Oneota Fm. (1)
		Description:	Oneota dolomite (1)
	2) MN/DOT Aggregate Unit files 3) USDL. MSHA mine reference list	Extraction method:	Explosives, crushing (1)
	4) Hogberg. 1969, p. 42	Processing plant:	Portable rock crusher (1)
		Processing method:	Screening (1)
	Hanfa & Cana Ing. (1.0)	Uses of commodity:	Riprap, crushed stone, lime, filter stone (1)
Company:	Haefs & Sons, Inc. (1,2) Crushed Carbonate Rock	Marketing area:	SE Minnesota, NE Iowa (1)
Main commodity:		References:	1) Roverud Construction Co. 1988, MN/DNR questionnaire
County:	Houston		2) USGS. 1980, Houston quadrangle
Quarry/pit name:	Abnet Quarry (1,2)		
Status:	Active (1)		
Township name:		Company:	Botcher Construction Co. (1)
Location:	T 104 R 5 W Sec 2 E1/2 NW1/4 (1)	Main commodity:	Crushed Carbonate Rock
Location comments:	Pine Creek nearest town (1)	County:	Houston
Geologic age:	Ordovician	Quarry/pit name:	Birkeland Quarry (1)
Geologic formation:	Oneota Fm. (2)	Status:	Active (1)
Description:	Dolomite and limestone (1)	Township name:	Houston T 104 R 6 W Sec 28 (1)
Physical test data: Processing method:	Available from U.S. Army Corps of Engineers (2) Crushing, screening, washing (1)	Location:	Portable crushing plant (1)
Uses of commodity:	Washed concrete products, drainage rock, seal	Processing plant: Processing method:	Crushing, screening (1)
oses of commonly.	coat chips, agricultural lime, road rock (1)	Uses of commodity:	Riprap, crushed rock, agricultural lime (1)
Marketing area:	Within 25-30 miles (1)	Marketing area:	Houston, Fillmore and Winona counties (1)
References:	1) Haefs & Sons, Inc. 1989, personal communication 2) U.S. Army Corps of Engineers files	References:	1) Botcher Construction Co. 1989, personal communication
Company:	Haefs & Sons, Inc. (1)	Company:	Osmundson Brothers Contractors, Inc. (1)
Main commodity:	Crushed Carbonate Rock	Main commodity:	Crushed Carbonate Rock
County:	Houston	County:	Mower
Quarry/pit name:	Verenkemp Quarry (1)	Quarry/pit name:	Leroy/Le Roy Quarry (1-3)
Status:	Active (1)	Alternate name:	Osmundson Quarry (2,6)
Township name:	Mound Prairie	Date opened:	1950's (1)
Location:	T 104 R 5 W Sec 6 NW1/4 NW1/4 (1)	Status:	Active (1)
Description:	Limestone (1)	MN/DOT source no:	50064
Processing plant:	Portable crushing plant (1)	Township name:	Le Roy
Processing method:	Crushing (1)	Location:	T 101 R 14 W Sec 27 SW1/4 SW1/4 (1)
Uses of commodity:	Road rock (1)		T 101 R 14 W Sec 27 NW1/4 SW1/4 (2,5)
Marketing area:	Within 10 miles (1)		T 101 R 14 W Sec 27 NW1/4 NW1/4 (6)
		Location comments:	Quarry 1/2 mile north of Le Roy (1)

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Geologic age:	Devonian	Past operator/owner:	Melvin Rasmussen (1969) (3)
Geologic formation:	Cedar Valley Fm. (2,5,6)	MN/DOT source no:	55035
Description:	Dolomitic limestone (1); quarry exposes 28 ft of	USGS quadrangle:	High Forest
	white, lithographic, buff, fine-grained dolomite/limestone beds (5); see Ref. 6, fig. A6,	Township name:	Racine
i.	for lithologic section description	Location:	T 104 R 14 W Sec 5 NE1/4 NE1/4 (1-3,6)
Physical test data:	Available from MN/DOT Aggregate Unit (2)		T 104 R 14 W Sec 5 NW1/4 NE1/4 NE1/4 (4,5
Processing plant:	Portable crushing plant (1)		T 104 R 14 W Sec 5 SW1/4 NE1/4 NE1/4 (7)
Processing method:	Crushing, screening (1)	Location comments:	Quarry 2-1/4 miles west of south edge of Stewartville (4,5)
Uses of commodity:	Crushed rock products, agricultural lime (1)	Geologic age:	Ordovician
References:	 Osmundson Brothers Contractors, Inc. 1989, personal communication 	Geologic formation:	Stewartville and Dubuque Fms. (3-7)
1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 - 1994 -	 2) MN/DOT Aggregate Unit files 3) USDL. MSHA mine reference list 4) Hogberg. 1966, p. 35 5) Kohls. 1961, p. 149-152, 191 6) Mossler. 1987, p. 27,36 	Description:	Limestone, buff, stratified, dolomitic limestone (1); Dubuque thin bedded limestone, argillaceous limestone and shale, 5-15 ft exposed, underlain by Stewartville medium-bedded gray dolomitic limestone, fine grained, hard, prominent bedding planes, 15 ft exposed (3); see Refs. 3 and 5 for detailed
Company:	Osmundson Brothers Contractors, Inc. (1-3,6)		stratigraphic sections; see Ref. 4, p. 57-65 for a
Main commodity:	Crushed Carbonate Rock		discussion of the stratigraphy of the Dubuque Fm.
County:	Mower	Physical test data:	Available from MN/DOT Aggregate Unit (3)
Quarry/pit name:	Grand Meadow Quarry (1-5)	Processing plant:	Portable crushing plant (1)
Alternate name:	Osmundson Quarry (2)	Processing method:	Crushing, screening (1)
Status:	Active (1)	Uses of commodity:	Crushed and screened limestone aggregate (1)
MN/DOT source no:	50069, 50011	Marketing area:	Olmsted and Mower counties (1)
Township name:	Frankford	References:	1) Quarve & Anderson Co. 1988, MN/DNR
Location:	T 103 R 14 W Sec 9 S1/2 NW1/4 (1)		questionnaire
	T 103 R 14 W Sec 9 S2/3 NW1/4 (2)		2) Hobbs. 1987, p. 179 3) MN/DOT Aggregate Unit files
	T 103 R 14 W Sec 9 N1/2 (4,5)		4) Leverson and others. 1979, p. 59, 65
ocation comments:	Grand Meadow nearest town (1)		5) Leverson; Gerk. undated, locality M-121
Geologic age:	Devonian		6) Bleifuss. 1966, p. 115, 121 7) Kohls. 1961, p. 187
Beologic formation:	Cedar Valley Fm. (2,4,5)		// Kollis. 1001, p. 10/
Description:	Dolomitic limestone (1); see Refs. 2, 4 and 5 for stratigraphic section descriptions	Company:	Patterson Quarries, Div. of Mathy Construction
Physical test data:	Available from MN/DOT Aggregate Unit - COPES file (2)	Main commodity:	Co. (1) Crushed Carbonate Rock
Processing method:	Crushing, screening, washing (1)	County:	Oimsted
lses of commodity:	Crushed rock products, agricultural lime,	Quarry/pit name:	Willey Quarry (1-4)
-	concrete aggregate (1)	Date opened:	1950's (1)
leferences:	1) Osmundson Brothers Contractors, Inc. 1989,	Status:	Active (1)
	personal communication 2) MN/DOT Aggregate Unit files	Past operator/owner:	Emilind and Willey (1969) (2)
	3) USDL. MSHA mine reference list	MN/DOT source no:	55097
	4) Kohls. 1961, p. 124-127,188	USGS quadrangle:	Eyota
	5) Mossier. 1978, p. 33, plate 1 6) Hogberg. 1969, p. 44	Location:	T 105 R 12 W Sec 2 NE1/4 NW1/4 (1-3)
	יד אין גענין אין אייאן אייאן איין איין איין איין	Location.	Eyota nearest town (1)
		Geologic age:	Ordovician
company:	Quarve & Anderson Co. (1,3)	Geologic age:	Galena Gp. (1,2); Prosser Fm. or Stewartville ?
lain commodity:	Crushed Carbonate Rock		Fm. (2) $(1,2)$; Prosser Pff. of Stewartvine ?
Sounty:	Olmsted	Description:	Dolomite, 40 ft face (1); gray, thick-bedded
Quarry/pit name:	Panhandle Quarry (1,2)		limestone, good quality (2)
Alternate name:	High Forest Quarry (3); Rasmussen Quarry (3)	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Date opened:	1953 (1)	Extraction method:	Drilling and blasting (1)
Status:	Active (1)	Processing plant:	Portable crushing plant (1)

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Processing method:	Crushing, screening (1)	Location:	T 105 R 14 W Sec 2 NE1/4 (1-3)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)		T 105 R 14 W Sec 2 NW1/4 NE1/4 (5)
Marketing area:	Olmsted County (1)		T 105 R 14 W Sec 2 NE1/4 NE1/4 (5)
References:	1) Mathy Construction Co. 1988, MN/DNR	Geologic age:	Ordovician
	questionnaire	Geologic formation:	Galena Gp., Prosser Fm. (1,3-6)
	 2) MN/DOT Aggregate Unit files 3) USBM. [1980], MILS 4) USDL. MSHA mine reference list 	Description:	Limestone, buff, stratified, dolomitic limestone (1); thick bedded, gray, fine grained limestone, prominent bedding planes, fossiliferous in places, weathers buff, pitted brown surface on
Company:	Quarve & Anderson Co. (1)		top of ledge, face 75 ft, Prosser Fm. except some Stewartville Fm. on top, stripping 3-8 ft of
Main commodity:	Crushed Carbonate Rock		soil and 5 ft of thin-bedded weathered
County:	Oimsted	Dhysical test datas	limestone (5)
Quarry/pit name:	Predmore Quarry (1,2)	Physical test data:	Available from MN/DOT Aggregate Unit (5) and U.S. Army Corps of Engineers (3)
Alternate name:	Welch Quarry (2)	Processing plant:	Portable crushing plant (1)
Date opened:	1947 (1)	Processing method:	Crushing, screening (1)
Status:	Active (1)	Uses of commodity:	Crushed and screened limestone aggregate (1)
Past operator/owner:	Earl Welch (1969) (2)	Marketing area:	Rochester, Olmsted County (1)
MN/DOT source no:	55049	References:	1) Quarve & Anderson Co. 1988, MN/DNR
Location:	T 105 R 13 W Sec 13 NE1/4 (1)		questionnaire
	T 105 R 13 W Sec 13 NE1/4 SW1/4 (2,3)		2) USBM. [1978], MILS 3) U.S. Army Corps of Engineers files
	T 105 R 13 W Sec 13 NW1/4 SW1/4 (1965) (2)		4) Austin. 1968, p. 19-21
	T 105 R 13 W Sec 13 SW1/4 (4)		5) MN/DOT Aggregate Unit files
Location comments:	Three miles east and one mile north of Cummingsville (3)		6) Austin. 1972, p. 77, 78 7) USDL. MSHA mine reference list
Geologic age:	Ordovician		
Geologic formation:	Galena Gp. (1,2); Prosser Fm. (2); Dunleith Fm. (3); Stewartville and Prosser Fms. (4)	Company:	Shamrock Enterprises (1)
Description:	Limestone, buff, stratified, dolomitic limestone	Main commodity:	Crushed Carbonate Rock
	(1); gray, thick bedded limestone, fine grained, fossiliferous in places, 45 ft face (2); see Ref. 3	County:	
	for detailed stratigraphic section	Quarry/pit name:	Doty Quarry (1,2)
Physical test data:	Available from MN/DOT Aggregate Unit (2)	Alternate name:	Pit No. 418 (1921) (2)
Processing plant:	Portable crushing plant (1)	Status:	Active (1)
Processing method:	Crushing, screening (1)	Past operator/owner:	Edward Doty (1969), J. W. Shanahan (1921) (2); J. A. Steiner (4)
Uses of commodity:	Crushed and screened limestone aggregate (1)	MN/DOT source no:	55077
Marketing area:	Olmsted and Fillmore counties (1)	Location:	T 105 R 14 W Sec 4 SE1/4 NW1/4 AND
References:	1) Quarve & Anderson Co. 1988, MN/DNR		T 105 R 14 W Sec 4 NE1/4 SW1/4 (2,4)
	questionnaire 2) MN/DOT Aggregate Unit files		T 105 R 14 W Sec 4 NW1/4 SW1/4 (3)
	3) Stone. 1980, p. A-19, A-20	Location comments:	Quarry 1/2 mile north of Rochester airport (3)
	4) Niles. [1988b], table 2	Geologic age:	Ordovician
•		Geologic formation:	Prosser Fm. (5); Dunleith Fm. (3); Stewartville and Prosser Fms. (4)
Company:	Quarve & Anderson Co. (1-3)	Description:	Medium bedded gray limestone, weathering to
Main commodity:	Crushed Carbonate Rock		buff, fine grained, hard, fossiliferous, face 35-45 ft, stripping 5-10 ft of brown till and soil (2); see
County:	Olmsted		Ref. 3 for detailed lithologic section
Quarry/pit name:	Sixty-Three South Quarry (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Aiternate name:	Quarve No. 63 Quarry (2,7); Sattre Quarry, Airport Quarry (5); Hwy. 63 Quarry (3)	Processing plant:	Portable crushing plant (1)
Status:	Active (1)	Uses of commodity:	Road base products, riprap (1)
Past operator/owner:	Clarence Sattre (1969) (5)	Marketing area:	Southeastern Minnesota (1)
MN/DOT source no:	55085	References:	1) Shamrock Enterprises. 1989 personal
USGS quadrangle:	Stewartville		communication 2) MN/DOT Aggregate Unit files

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Stone - Crushed Carbonate Rock

 S) Kuhns. 1988, plate 9 S) Kuhns. 1988, plate 9 Company: Stusy Construction, Inc. and Paulson Rock Products (1, 2) Main commodity: Crushed Carbonate Rock County: Omsted County (1, 2, 4) Alternate name: Notesson Carbonate Rock County: Status: Active (1, 2) Past operator/owner: Carbonate Rock County (1, 2, 4) Alternate name: Notesson Carbonate Rock County: Status: Active (1, 2) Past operator/owner: Carbonate Rock County (1, 2, 4) MN/DOT source no: 50502 Location: T105 R 15 W Sec 9 NE1/4 (2,7) References: County R (2, 2,8,1) T100 R (1,8,2) References: County R (2, 2,8,1) T100 R (1,8,2) References: County R (2, 2,8,1) References: County R (2, 2,7,2,8,1) References: Reference: Ref		3) Stone. 1980, p. A-47	Quarry/pit name:	Eyota Quarry (1)
Company: Stusy Construction, Inc. and Paulson Pock Producel (1,2) Date operated: Cuave & Anderson (1969) (9): Tom : Extine (1960) (9): Tom : Extine			Alternate name:	Walsh Quarry (2,4,5); Patterson Quarr
Company: Stusy Construction, Inc. and Paulson Rock Products (1.2) Past operator/owner: Course & Anderson (1969) (8); Tom Estate (1969) (6); Main commodity: Crushed Carbonate Rock MN/DOT source in: 5052 Courry: Olmeted Too R 12 W Sec 8 SW1/4 NW1/4 Atternate name: Nereson Quary (3.5) Too R 12 W Sec 8 SW1/4 NW1/4 Date opened: 1950's (1) Status: Active (1.2) Past operator/owner: Nereson Estate (1969) (3); Cuarve & Anderson Co. (5.6) Coastion comments: Too R 12 W Sec 8 SW1/4 NW1/4 NN/DOT source no: 55052 Castion comments: Too R 15 W Sec 9 NE1/4 (2.7) Too S R 15 W Sec 9 NE1/4 (2.7) Too S R 15 W Sec 9 NE1/4 (2.7) Geologic formation: Geologic formation: Geologic formation: Geologic formation: Geologic formation: Geologic age: Ordovician Geologic age: Ordovician Eswartville Fm. (3.7): Wise Lake and Dunleith Fms. (4): prosare Fm. (15, grant white kodds, grant wonkee of (7): grant for theolding planse at about 2.3 ft interivals, face 40-5 ft, stripping 2 toppin] Protabe crushing plant (2) Portabe crushing stread of Order Kig (1); grant white kodds grant white koge of commodity: Crushing, soreen			Date opened:	1936 (1)
Products (1,2) Eatte (1969) (5) Main commodity: Curded Carbonate Rock Courny; Othered Outerstylpt name: Rock Dell Courny (12,4) Atternate name: Neeson Duarry (3,5) Date opend: 1595's (1) Status: Active (1,2) Past operad: 1595's (1) Status: Active (1,2) Past operad: T105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T105 R 15 W Sec 9 NE1/4 (4,6), cnsouth side of Courny R4. 128 and 1-1/2 miles east of Rock Dell (1); cneart of NV1/1 NE1/4 (6); cnsouth side of Courny R4. 128 and 1-1/2 miles east of Rock Dell (2); cneare of NV1/4 NE1/4 (6); cnsouth side of Courny R4. 128 and 1-1/2 miles east of Rock Dell (7); cneare AI (-1/4) (4); (5,8,8,8) Description: Dolomitic Imestone in gray white to yellow coll (1); needunt of thick Keddad, gray appease grabe grabure to dolomite gray, gray appease grabure to dolomite gray, weathering to but, fire dolomite with poronisert dolomite gray, weathering to but, fire dolomite with poronisert dolomite gray, gray appease grabure to dolomite gray, g			Status:	
Country: Ofmsted Guarry/pit name: Rock Dell Quarry (1,2,4) Atternate name: Nerscon Quarry (3,5) Date opened: 1950's (1) Status: Active (1,2) Paet operator/owner: Nerscon Catalet (1960) (3); Quarve & Anderson Co. (5,6) MN/DOT source no: 5502 Catation: T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 106 R 12 W Sec 8 SWI/4 NE1/6 (1) Description: Dolomite 401 How		Products (1,2)	-	
Cluarry/pit name: Rock Dell Quarry (1,2,4) Alternate name: Nereson Quarry (3,5) Date opened: 1950's (1) Status: Active (1,2) Past operator/owner: Nereson Estate (1969) (3); Quarve & Anderson Co. (5,6) MVDOT source no: 55092 Location: T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 NW1/4 (4) Does ription: One mile east of Pock Dell (4); consult side of County f1.28 and 1-14; miles seats of Pock Dell (7); center of NW1/4 NE1/4 (5) Geologic formation: Stewartville Fm. (3,7); Wise Lake and Dunleith Fms. (4); Prosser Fm. (8) Description: Dolomitic limestone in gray white to yellow color (1); medium to thick bedded, gray weathering to buff, find coloritie with prominant bedding planes at about 2-3 ft intervals, face 40-55 ft stripping 2 ft topsol and 2 ft weathered dolomite (3); quary exposes arrater frack gray limestone with bedsup to 2-3 tt intervals, streeting (1); medium to trick bedded, gray weathered gray, ling reginel limestone street (1); medium to trick bedded, gray weathered gray, ling reginel limestone analyses Physical test data: Available from MVDOT Aggregate Unit (3) Processing method: Crushed road rock products 80%, screened rock (10); aggregate Unit (13) Protable processing plant (1) Portable processing plant (1) Processing method: Crushed roa	Main commodity:		MN/DOT source no:	55052
Alternate name: Nereson Quary (3,5) T 106 R 12 W Sec 8 SE1/4 NW1/4 Date opend: 1950's (1) T 106 R 12 W Sec 8 SW1/4 NW1/4 Status: Active (1,2) T 106 R 12 W Sec 8 SW1/4 NW1/4 Past operator/owner: Nereson Estate (1969) (3); Quarve & Anderson Co. (5,6) T 106 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 106 R 15 W Sec 9 NE1/4 (2,7) T 106 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 106 R 15 W Sec 9 NE1/4 (2,7) Gelogic age: Ordovician County Rd. 128 and 1-1/2 miles seat of Rock Dell (3): on south side of County Rd. 128 and 1-1/2 miles seat of Rock Dell (3): on south side of County Rd. 128 and 1-1/2 miles seat of Rock Dell (7): center of NW1/4 NE1/4 (8) Description: Dolomite Imetions in gray white to yellow color (1); medium to thick bedded, gray westhering to buff, fine dolomite with prominent bedding planes at about 2.9 the traction method: Proteosesing plant: Proteosesing plant (2) Processing method: Crushing, screening (2) Crushing, screening (1) Crushing, screening (1) Marketing area: Olmsted County (1) Physical test data: Available from MN/DOT Aggregate Unit files (1) Mathy Construction Co. 1988, MN/DNR questionnate Olmsted County (1) Processing plant: Crushing, screening (2) Crushing, screening (2) Stwest Hord to Clonty, northere <td>•</td> <td></td> <td></td> <td>•</td>	•			•
Date opened: 1950's (1) T 105 R 12 W Sec 8 SW1/4 NW1/4 Status: Active (1,2) T 105 R 12 W Sec 8 SW1/4 NW1/4 Decation: T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 RW1/4 (3,5,6,8) T 105 R 15 W Sec 9 NE1/4 (2,7) Geologic age: Ordevician Ordevician Description: Dolomite 10(1,5,7); Wise Lake and Dunieth Fms. (6); Proser Fm. (1,5,8,11); C Bescription: Dolomite (1,6,7); Wise Lake and Dunieth Fms. (6); Proser Fm. (1,5,8,11); C Geologic age: Ordevician Stewarville Fm. (8,7); Wise Lake and Dunieth Fms. (6); Proser Fm. (1,5,8,11); C Bescription: Dolomite (1,6); Mortimestone bedding gray, fms grained ilmestone fms. (8); Proser Fm. (1,5,8,11); C Description: Dolomite limestone in gray white to yellow color (1); medium on bick bodded, gray weathering to buff, fine dolomits with prominent bedding planes 41 about 3.3 ft intervals, face 405 5ft, stripping 2 ft topsol and 2 ft weathered dolomite (3); guary reprocessing pathot: Drush MU/DOT Aggregate Unit (18) Processing plant: Protable rocessing (1) Marketing area: Milling suffer, 1947, P.4, 2, 13 Processing plant: Protable rocessing (2) Marketing area: Milling suffer, 1947, P.4, 2, 13 Processing plant: Protable rocessing (2) Marketing area:			Location:	
Status: Active (1, 2) Location comments: Three miles west of Eyota (8); nine n of Pachester (3); north of U.S. Hwy. I railroad undergass (7) MN/DOT source no: 55092 Location: T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) Geologic formation: T 105 R 15 W Sec 9 NE1/4 NW1/4 (4) Concluster (3); centre of NW1/A NE1/4 (5) Geologic age: Ordovician Didrogic age: Ordovician Beologic hormation: Stewarville Fm. (3,7); Wise Lake and Dunleith Fms. (4); Processing pathet: Physical test data: Applicat lest data: Available from MN/DOT Aggregate Unit (3); Processing pathet: Processing method: Description: Dolomitic insection engray white buy ellow color: (1); medium and path and path attring area: rather fresh gray limestone with bads up to 3-4 feet thick (7); see Ref. 4 or detailed stated doorning with bads up to 3-4 feet thick (7); see Ref. 4 or detailed stated doorning (1) Processing method: Curshed rock, rock 1988, MN/DOR aggregate Unit (3) Processing plant: Protable processing plant (1) Prokopovich; Schwarz: 1986, p23 Prokopovich; Schwarz: 1966, p. 20 NiNZOT Aggregate Unit files (1) Some, 1980, p. A-27, A-28 VINDOT Aggregate Unit files (1) NUNDOT Aggregate Unit files (1) Some, 1980, p. A-27, A-28 P				
Past operator/owner: Nereson Estate (1969) (3): Quave & Anderson Co. (5.6) of Rebothester (3): north of LiS. Hwy, 1 railroad underpase (7) MN/DOT source no: 5002 Location: T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 NW1/4 (4) Description: Delomite, 40 trace (1): medium and bedded gray, fine grained limestone County Rd. 128 and 1-1/2 miles east of Rock Dell (7): center of NW1/4 NE1/4 (5) Description: Description: Description: Delomite imestone in gray white to yellow color (1): medium to thick bedded, gray weathering to buf, fine dolomite with prominent bedding planes at about 2-3 ft intervals, face 4-055 tt stripping 2 ft topola and 2 tt weathered dolomite (3): quary exposes rarther fresh gray limestone with beds up to 3-4 teet thick (7); see Ref. 4 for detailed stratigraphis section Cushed color. 1988, MN/DOT Aggregate Unit (3) Physical test data: Available from MN/DOT Aggregate Unit (3) Processing plant: Processing plant (1) Processing method: Crushed coad nock products 80%, screened robuffor, Schwartz. 1985, personal communication Of Marketing area: Omsted County (1) References: 1) Sussy Construction, inc. 1989, personal communication Southwest part of Cinasted County, northem edge of Mower County and southeast edge of Dodge County (1) Cushed carbonate Rock References: 1) Sussy Construction, inc. 1989, personal com	-			
MN/DOT source no: 55092 Location: T 105 R 15 W Sec 9 NE1/4 (2,7) T 105 R 15 W Sec 9 NE1/4 NE1/4 (3,5,6,8) T 105 R 15 W Sec 9 NE1/4 NV1/4 (4) Location comments: One mile east of Rook Dell (4): on south side of County Rd, 126 and 1-1/2 miles east of Rook Dell (7): center of NV1/4 NE1/4 (5) Geologic age: Ordovician Geologic formation: Stewartville Frm. (3,7): Wise Lake and Dunleith Frm. (4): Processing paint: Processing paint: Processing paint: Processing method: Crushed road rock products 80%, screened rock 10%, agricultural lime 10% (1) Marketing area: Southwest part of Olimited County, northern edge of Mower County and southeast edge of Dodge County (1) References: 1) Stussy Construction, Inc. 1989, personal communication 0) WDOT Aggregate Unit files 9 NN/DOT Aggregate Unit files 0) Hopberg. 1968, p. 45 7 Prokopovich; Sohwartz. 1956, p		Nereson Estate (1969) (3); Quarve & Anderson	Location comments:	of Rochester (3); north of U.S. Hwy. 1
CoordinaToos R 15 W Sec 9 NE1/4 (2,7)Geologic formation:Galena Gp., Prosser Fm. (1,5,8,11); f.Toos R 15 W Sec 9 NW1/4 NE1/4 (3,5,6,8)Toos R 15 W Sec 9 NE1/4 NW1/4 (4)Description:Dolomite, 40 ft face (1); neutoim and borningCornentie east of Rock Dell (4); on south side of County Rd. 126 and 1-1/2 miles east of Rock Dell (4); on south side of County Rd. 126 and 1-1/2 miles east of Rock Dell (4); on south side of County Rd. 126 and 1-1/2 miles east of Rock Dell (4); on south side of County Rd. 126 and 1-1/2 miles east of Rock Dell (4); on south side of County Rd. 126 and 1-1/2 miles east of Rock Dell (4); on south side of County Rd. 126 and 1-1/2 miles east of Rock Dell (4); on south side of County Rd. 126 and 1-1/2 miles east of Rock Dell (4); on south side of County Rd. 126 and 1-1/2 miles east of Rock Dell (4); on south side of Description:<			Geologic age:	1 ()
Exclarion: Thos R 16 W Sec 9 NW1/A (21/2) Thos R 15 W Sec 9 NW1/A (21/4) (25,6,8) Thos R 15 W Sec 9 NE1/4 NW1/4 (4) Correction comments: One mile east of Rock Dell (4); on south side of County Rd, 128 and 1-12 miles east of Rock Dell (7); center of NW1/A NE1/4 (5) Geologic age: Ordovician Geologic formation: Stewartville Fm. (3); Wise Lake and Dunleith Fms. (4); Proseser Fm. (8) Description: Dolomitic limestone in gray white to yellow color (1); medium to thick bedded, gray weathering to buff, fine dolomite with prominent bedding planes at about 2-3 ft intervals, face 40-55 ft, stripping 2 ft topsoil and 2 ft weathered dolomite (3); quary exposes rather fresh gray limestone with beds up to 3-4 feet thick (7); see Fire 4 for detailed stratigraphic section Olmsted County (1) Physical test data: Available from MN/DOT Aggregate Unit (3) Processing plant (1) Processing plant (1) Crushing, screening (2) Stother, 1980, p. A-27, A-28 Physical test data: Available from MN/DOT Aggregate Unit (3) Biblic processing plant (1) Processing plant (2) Crushing, screening (2) Stother, 1980, p. A-27, A-28 Physical test data: Available from MN/DOT Aggregate Unit (3) Biblic processing plant (1) Processing plant (2) Crushed carbonate Reock communication Biblic processing plant (1) Prokopovich; Schwarz, 19	-			
T 105 R 15 W Sec 9 NE1/4 NW1/4 (4)Dolomite, 40 ft face (1); medium and bedded gray, fine graphic sector County R4. 126 and 1-1/2 miles east of Rock Dell (7); center of NW1/4 NE1/4 (5)Geologic age:OrdovicianChemical analyses: See Ref. 7, p. 26 and Ref. 8, p. 12 an chemical analyses:Geologic formation:Stewartville Fm. (3,7); Wise Lake and Dunleith Fms. (4); Prosser Fm. (8)Chemical analyses: Delomite limestone in gray white to yellow color (1); medium to thick bedded, gray weathering to buff, fine dolomite with prominent bedding planes at about 2-3 ft intervals, face 40-55 ft, stripping 21 topsoil and 2.1t weathered dolomite (3); quarry exposes rather fresh gray limestone with bedde up to 3-4 feet thick (7); see Ref. 4 for detailed stratigraphic sectionChemical analyses: Structure (1); medium to thick bedded, gray weathering to buff, fine dolomite with prominent bedding planes at about 2-3 ft intervals, face 40-55 ft, stripping 21 topsoil and 2.1t weathered dolomite (3); quarry exposes rather fresh gray limestone with bedde up to 3-4 feet thick (7); see Ref. 4 for detailed stratigraphic sectionCommonity: Cushed road rook products 80%, screened rook 10%, agricultural lime 10% (1)Deformany: Processing plant: Protopoich; Schwarz. 1956, p. 35 10) Hogberg. 1968, p. 45 10) Hogberg. 1968, p. 45 11) Niles. [1988a], table 1Company: Paulson Rock Products (1) Cushed Carbonate RockCompany:Patterson Quarries, Div. of Mathy Construction Co. (1,2,4,6)Company:Patters	Lovauvii.			Fm., Sherwood, Rivoli, and Mortimer
Location comments: One mile east of Rock Dell (4); on south side of County Rd. 128 and 1-1/2 miles east of Rock Dell (7); center of NW1/4 NE1/4 (5) Chemical analyses Geologic age: Ordovician See Ref. 7, p. 28 and 8 for strategraphic section Geologic formation: Stewartville Fm. (3,7); Wise Lake and Dunleith Fms. (4); Prosser Fm. (8) Diffing and blasting (1) Description: Diobuild implanes at about 2-3 ft intervals, face 40-55 ft, stripping 2 ft topsoil and 2 ft weathered dolomite (3); quary exposes rather fresh gray limestone with beds up to 3-4 feet thick (7); see Ref. 4 for detailed stratigraphic section Processing method: Crushing, screening (1) Processing plant: Protable processing plant (1) Warketing area: Off Marketing area: Processing plant: Processing plant (1) Warketing area: Off Marketing area: Processing plant: Protable processing plant (1) Warketing area: I) Mathy Construction Co. 1988, MN/DOT Processing plant: Protable processing plant (1) Processing method: Sublewest part of Omsted County, northern edge of Mower County and southeast edge of Dodge County (1) Sublewest part of Omsted County, northern edge of Mower County and southeast edge of Dodge County (1) References: 1) Susy Construction, Inc. 1988, personal communication Sublewest part of Unsted County, northern edge of Mower County and southeast edge of Dodge County (1)			Description:	Dolomite, 40 ft face (1); medium and
County Rd. 126 and 1-1/2 milés east of Rock Dell (7); center of NW1/4 NE1/4 (5)Chemical analyses:See Ref. 7, p. 26 and Ref. 8, p. 12 and chemical analysesGeologic age:OrdovianStewartville Fm. (3,7); Wise Lake and Dunleith Fms. (4); Prosser Fm. (8)Physical test data:Available from MN/DOT Aggregate UDescription:Dolomitic limestone in gray whife to yellow color (1); medium to thick bedded, gray weathering to buff, fine dolomite with prominent bedding planes at about 2-3 ft intervals, face 40-55 ft, stripping 2 ft topsoil and 2 ft weathered dolomite (8); quary exposes rather fresh gray limestone with beds up to 3-4 feet thick (7); see Ref. 4 for detailed stratigraphic sectionChemical analyses:See Ref. 7, p. 26 and Ref. 8, p. 12 and chemical analysesPhysical test data:Available from MN/DOT Aggregate Unit (3)Differences:Portable crushing planet: Processing plant:Physical test data:Available from MN/DOT Aggregate Unit (3)Protable processing plant (1)Crushed rock, sgricultural lime, ripra Marketing area:Physical test data:Available from MN/DOT Aggregate Unit (3)Protable processing plant (1)Processing method:Crushed rock products 80%, screened rock 10%, agricultural lime 10% (1)Marketing area:Southwest part of Olmsted County, northern edge of Mower County and southeast edge of Dodge County (1)Stussy Construction, Inc. 1989, personal communication1) Stussy Construction, Inc. 1989, personal communicationNN/DOT Aggregate Unit files (1) Stussy Construction, Inc. 1989, p. 45 7) Prokopovich; Schwarz. 1956, p. 20 8) Niles. [1989a], table 1Company: Paulson Rock Products (1) Main com	Logation commenter			bedded gray, fine grained limestone (
Geologic age: Ordovician Stewarxille Fm. (3,7); Wise Lake and Dunleith Fms. (4); Prozessing plant: Available from MN/DOT Aggregate U Description: Dolomitic limestone in gray white to yellow color (1); medium to thick bedded, gray weathering to built, fine dolomite with prominent bedding planes at about 2-3 ft intervals, face 40:55 ft, stripping 21 topsoll and 2 ft weathered dolomite (3); quary exposes rather fresh gray limestone with beds up to 3-4 feet thick (7); see Seft. 4 for d tailed stratigraphic section Processing plant: Protable processing plant (2) Processing plant: Processing plant: Processing plant: Processing plant: Processing plant: Protable processing plant:	Location comments;	County Rd. 126 and 1-1/2 miles east of Rock	Chemical analyses:	See Ref. 7, p. 26 and Ref. 8, p. 12 and
Geologic formation: Stewarkville Fm. (3,7); Wise Lake and Dunleith Fms. (4); Procser Fm. (8) Description: Dollinitic limestone in gray white to yellow color (1); medium to thick bedded, gray weathering to buff, find ediomite with prominent bedding planes at about 2-3 ft intervals, face 40-55 ft, stripping 2 ft topsoil and 2 ft weathered dolomite (3); quary exposes rather fresh gray limestone with beds up to 3-4 feet thick (7); see Ref. 4 for detailed stratigraphic section Processing method: Duilling and blasting (1) Physical test data: Available from MN/DOT Aggregate Unit (3) Processing plant: Processing plant (1) Processing plant: Portable processing plant (1) References: 1) Mathy Construction Co. 1988, MN/ Questionnaire Processing enthod: Crushing, screening (2) USDL, MSHA mine reference list 7) Prokopovich; Schwartz. 1956, p. 20 Jissey Construction, Inc. 1989, p.reforal communication Stussy Construction, Inc. 1989, p.reforal communication Stussy Construction, Inc. 1989, p.reforal communication Jisters (1988a], table 1 Stussy Construction, Inc. 1989, p. 45 Prokopovich; Schwartz. 1956, p. 20 Jisters (1988a], table 1 Status: Active (1) Main commodity: Patterson Quarries, Div. of Mathy Construction Co. (1, 2, 4, 6) Status: Active (1) Main commodity: Crushed Carbonate Rock Status: Active (1) Status:	Geologic age:	Ordovician	Physical test data:	
Fms. (4)Fross. (4): Processing plant:Portable crushing plant (2)Description:Dolomitic limestone in gray white to yellow color (1): medium to thick bedded, gray weathering to buff, fine dolomite with prominent bedding planes at about 2-3 ft intervals, face 40-55 ft, stripping 2ft topsol and 2 ft weathered dolomite (3); quary exposes rather fresh gray limestone with beds up to 3-4 feet thick (7); see Ref. 4 for detailed stratigraphic sectionProcessing method:Crushed rock, agricultural lime, ripraj Marketing area:Physical test data:Available from MN/DOT Aggregate Unit (3)Processing plant:Protable processing plant (1)Processing plant:Portable processing plant (1)Stome, 1980, p. A-27, A-28 4) USBM. [1979], MLSProcessing of entropic processing plant:Protable processing plant (1)Processing plant:Protable processing plant (1)	Geologic formation:	Stewartville Fm. (3,7); Wise Lake and Dunleith		
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Processing method: Crushing, screening (2) 6) USDL. MSHA mine reference list Uses of commodity: Crushed road rock products 80%, screened rock 10%, agricultural lime 10% (1) 6) USDL. MSHA mine reference list Marketing area: Southwest part of Olmsted County, northern edge of Mower County and southeast edge of Dodge County (1) 9) Hogberg. 1969, p. 46 References: 1) Stussy Construction, Inc. 1988, MN/DNR questionnaire 10) Hogberg. 1969, p. 35 2) Stussy Construction, Inc. 1989, personal communication 3) MN/DOT Aggregate Unit files 4) Stone. 1980, p. A-29 5) USBM. [1979], MLS 6) Hogberg. 1969, p. 45 7) Prokopovich; Schwartz. 1956, p. 20 7) Prokopovich; Schwartz. 1956, p. 20 8) Niles. [1988a], table 1 Company: Patterson Quarries, Div. of Mathy Construction Co. (1,2,4,6) Main commodity: Crushed Carbonate Rock Main commodity: Crushed Carbonate Rock Main commodity: Crushed Carbonate Rock	-			
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6) Hogberg. 1969, p. 45 7) Prokopovich; Schwartz. 1956, p. 20 8) Niles. [1988a], table 1 Status: Active (1) Past operator/owner: Dorothy Mayo Estate (1969) (2); Stus Construction, Inc. (5) Company: Patterson Quarries, Div. of Mathy Construction Co. (1,2,4,6) MN/DOT source no: 55071 Main commodity: Crushed Carbonate Rock Township name: Rochester		5) USBM. [1979], MILS		
8) Niles. [1988a], table 1 Past operator/owner: Dorothy Mayo Estate (1969) (2); Stus Construction, Inc. (5) Company: Patterson Quarries, Div. of Mathy Construction Co. (1,2,4,6) MN/DOT source no: 55071 Main commodity: Crushed Carbonate Rock USGS quadrangle: Salem Corners Township name: Rochester Location: T 106, B 14, W. Sec 21, NW1/4 NW1/4				
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Co. (1,2,4,6) Main commodity: Crushed Carbonate Rock I ocation: T 106 B 14 W Sec 21 NW1/4 NW1/4			MN/DOT source no:	55071
Main commodity: Crushed Carbonate Rock Township name: Rochester	Company:	· · · ·	USGS quadrangle:	Salem Corners
Location: T 106 B 14 W Sec 21 NW1/4 NW1/4	Join commodity		Township name:	Rochester
	•	Olmsted	Location:	T 106 R 14 W Sec 21 NW1/4 NW1/4

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	T 106 R 14 W Sec 16 SW1/4 (1,2,4) T 106 R 14 W Sec 16 SE1/4 SE1/4 SW1/4 (3)	Description:	Dolomite (1); Shakopee dolomite, 34 ft (3); see Ref. 3 for detailed stratigraphic section
Geologic age:	Ordovician	Physical test data:	Available from MN/DOT Aggregate Unit (2)
Geologic formation:	Galena Gp., Prosser Fm. (2,4) and Cummingsville Fm. (2)	Uses of commodity:	Bituminous aggregate 65%, MN/DOT Class 2 20%, oversize 15% (1)
Description:	Dolomitic limestone (1)	Marketing area:	Local (1)
Chemical analyses:	See Ref. 4, p. 19 for chemical analyses	References:	1) Rochester Sand & Gravel, inc. 1988, MN/DN
Physical test data:	Available from MN/DOT Aggregate Unit (2)		questionnaire 2) MN/DOT Aggregate Unit files
Processing plant:	Portable crushing plant (1)		3) Austin. 1971, p. 196-198
Processing method:	Crushing, screening (1)		4) Austin. 1968, p. 19, 27
Uses of commodity:	Crushed road rock products 75%, screened rock 15%, agricultural lime 10% (1)		Sharmoold Enternations (1)
Marketing area:	Northwestern and southern part of Olmsted	Company:	Shamrock Enterprises (1) Crushed Carbonate Rock
	County (1)	Main commodity:	
References:	1) Stussy Construction, Inc. 1989, personal	County:	
	communication 2) MN/DOT Aggregate Unit files	Quarry/pit name:	Kelley Quarry (1)
	3) USBM. [1979], MILS	Status:	Active (1,2)
	4) Prokopovich; Schwartz. 1956, p. 18, 19	Location:	T 108 R 14 W Sec 28 E1/2 SW1/4 (1,2)
	5) USDL. MSHA mine reference list	Description:	Limestone (1)
	·	Processing plant:	Portable crushing plant (1)
Company:	Rochester Sand & Gravel, Inc. (1)	Uses of commodity:	Road base products, riprap (1)
Main commodity:	Crushed Carbonate Rock	Marketing area:	Southeastern Minnesota (1)
County:	Olmsted	References:	1) Shamrock Enterprises. 1989, personal communication
Quarry/pit name:	Rochester Sand & Gravel No.1 Quarry (1)		2) Olmsted County Planning and Zoning. 1989
Date opened:	1976 (1)		personal communication
Status:	Active (1)		
Location:	T 107 R 14 W Sec 11 NE1/4 SE1/4 (1)	Company:	Quarve & Anderson Co. (1-5)
Location comments:	Near Rochester (1)	Main commodity:	Crushed Carbonate Rock
Geologic age:	Ordovician	County:	Olmsted
Geologic formation:	Oneota Fm. (1)	Quarry/pit name:	Goldberg Quarry (1-5)
Description:	Dolomite (1)	Date opened:	1958 (1)
Extraction method:	Drill, blast, crush (1)	Status:	Active (1)
Uses of commodity:	MN/DOT Class 2 aggregate base (1)	Past operator/owner:	Harold Goldberg, Robert Leary (1969) (2)
Marketing area:	Local (1)	MN/DOT source no:	55037
References:	1) Rochester Sand & Gravel, Inc. 1988, MN/DNR	USGS quadrangle:	Rochester
	questionnaire	Location:	T 108 R 14 W Sec 36 SE1/4 (1)
			T 108 R 14 W Sec 36 SE1/4 SW1/4 (2,3) AN
Company:	Rochester Sand & Gravel, Inc. (1-4)		T 108 R 14 W Sec 36 SW1/4 SE1/4 (2)
Main commodity:	Crushed Carbonate Rock		T 108 R 14 W Sec 36 S1/2 (6)
County:	Olmsted	Location comments:	Center of SE1/4 SW1/4 (3)
• · · ·	Rochester Sand & Gravel No. 2 Quarry (1)	Geologic age:	Ordovician
Quarry/pit name:			Prairie du Chien Gp., Shakopee Fm. (1,2,5,6)
Quarry/pit name: Alternate name:	Rochester Sand & Gravel Co. Quarry (2,4)	Geologic formation:	Frame un Omen Op., Shakopee Fin. (1,2,5,0)
	Rochester Sand & Gravel Co. Quarry (2,4) Active (1)	Description:	Limestone, buff to tan, stratified, dolomitic
Alternate name:		-	Limestone, buff to tan, stratified, dolomitic limestone (1); gray dolomitic limestone, face
Alternate name: Status:	Active (1)	-	Limestone, buff to tan, stratified, dolomitic limestone (1); gray dolomitic limestone, face 50 + ft (2); see Refs. 2 and 6 for detailed
Alternate name: Status: MN/DOT source no:	Active (1) 55099	Description:	Limestone, buff to tan, stratified, dolomitic limestone (1); gray dolomitic limestone, face 50 + ft (2); see Refs. 2 and 6 for detailed stratigraphic sections
Alternate name: Status: MN/DOT source no:	Active (1) 55099 T 107 R 14 W Sec 14 SE1/4 SE1/4 (1)	-	Limestone, buff to tan, stratified, dolomitic limestone (1); gray dolomitic limestone, face 50 + ft (2); see Refs. 2 and 6 for detailed stratigraphic sections
Alternate name: Status: MN/DOT source no: Location:	Active (1) 55099 T 107 R 14 W Sec 14 SE1/4 SE1/4 (1) T 107 R 14 W Sec 14 NE1/4 SW1/4 SE1/4 (3)	Description:	Limestone, buff to tan, stratified, dolomitic limestone (1); gray dolomitic limestone, face 50 + ft (2); see Refs. 2 and 6 for detailed stratigraphic sections Available from MN/DOT Aggregate Unit (2) and

Uses of commodity:	Crushed, screened, and washed limestone aggregate used for aggregate base, concrete aggregate, and drainage aggregate (1)	References:	 Kielmeyer Construction Co. 1989, personal communication MN/DOT Aggregate Unit files
Marketing area:	Rochester, Olmsted County (1)		3) Hogberg. 1969, p. 43
References:	1) Quarve & Anderson Co. 1988, MN/DNR questionnaire		4) USDL. MSHA mine reference list
	2) MN/DOT Aggregate Unit files 3) USBM. [1979], MILS	Company:	J. L. Shiely Co. (1,2,4-7)
	4) USDL. MSHA mine reference list	Main commodity:	Crushed Carbonate Rock
	5) U.S. Army Corps of Engineers files	County:	Scott
	6) Austin. 1971, p. 190-193	Quarry/pit name:	Shakopee Quarry (1)
Company:	Shamrock Enterprises (1)	Alternate name:	Shiely Savage Quarry (2); Savage Quarry (5); Landers Quarry (6)
Main commodity:	Crushed Carbonate Rock	Date opened:	Late 1950's (10)
County:	Olmsted	Status:	Active (1)
Quarry/pit name:	Keller Quarry (1)	Past operator/owner:	Landers, Nordblom & Christensen until 1963
Alternate name:	Penz Quarry (1)		when Shiely acquired quarry (1,3,10)
Status:	Active (1,2)	MN/DOT source no:	70008
MN/DOT source no:	55098	USGS quadrangle:	Eden Prairie
Location:	T 108 R 15 W Sec 26 NE1/4 SW1/4 (2)	Township name:	Eagle Creek
	T 108 R 15 W Sec 26 NW1/4 SE1/4 (4)	Location:	T 115 R 22 W Sec 2 S1/2 SW1/4 AND
	T 108 R 15 W Sec 26 S1/2 NW1/4 SE1/4 (5)		T 115 R 22 W Sec 11 N1/2 NW1/4 (1)
Location comments:	Two miles north of Douglas on County Rd. 3, south side of road (1,2); quarry south of MN/DOT Source No. 55066 (3)	Location comments:	Near Shakopee, quarry just south of Chicago and North Western RR in Sec. 2 (1); on County Rd. 101 west of Jct 101 and 13, south of racetrack (6); Ref. 6 lists the S1/2 SE1/4 of Sec
Geologic age:	Ordovician		2; Ref. 7 lists the SW1/4 SW1/4 and SW1/4
Geologic formation:	Platteville Fm. (3-5)		SE1/4 of Sec. 2; more than one quarry in SW1, of Sec. 2 (8)
Description:	Limestone (1); see Ref. 5 for trace fossil distribution	Geologic age:	Ordovician
Processing plant:	Portable crushing plant (1)	Geologic formation:	Oneota Fm. (1)
Uses of commodity:	Road base products, riprap (1)	Description:	Oneota dolomitic limestone (1)
Marketing area:	Southeastern Minnesota (1)	Physical test data:	Available from MN/DOT Aggregate Unit -
References:	1) Shamrock Enterprises. 1989, personal		COPES file (4) and U.S. Army Corps of Engineers (6)
	communication	Processing plant:	Shakopee Plant (1)
	2) Olmsted County Planning and Zoning. 1989, personal communication		,
	3) MN/DOT Aggregate Unit files		6896 Highway 101 Shakopee, MN 55379
	4) Niles. [1988a], table 1 5) Dokken. 1987, p. 194, locality 17	Processing method:	Primary crushed material is screened to
	5) Dokken. 1967, p. 194, locality 17		produce roadbase material and secondary crushing to produce smaller size rock products
Company:	Kielmeyer Construction Co. (1-4)		The 1 in. x 1/8 in. material is fed from bins to filler processing plant which produces a
Main commodity:	Crushed Carbonate Rock		powder-like filler material. (1)
County:	Rice	Uses of commodity:	#4 Keystone - crushed rock (for drainfields and
Quarry/pit name:	Kielmeyer Quarry (1,2)		base); #67 Keystone (for landscaping, rail
Status:	Active (1)		ballast, driveways); Class 5 (roadbase); Class 5 (roadbase); mineral filler (roofing products and
MN/DOT source no:	66080		pet litter) (1)
Location:	T 110 R 19 W Sec 10 NE1/4 NW1/4 (2,3)	Marketing area:	Throughout Minnesota and western Wisconsin concentrated in central Minnesota and seven
Geologic age:	Ordovician		county metropolitan area (1)
Geologic formation:	Platteville Fm., McGregor and Carimona Mbrs. (2)	References:	1) J. L. Shiely Co. 1988, MN/DNR questionnair 2) USBM. [1979], MILS
Description:	Limestone (1,2)		3) Hogberg. 1966, p. 34
Processing plant:	Portable crushing plant (1)		4) MN/DOT Aggregate Unit files
Processing method:	Crushing, screening (1)		 USDL. MSHA mine reference list U.S. Army Corps of Engineers files
Uses of commodity:	Crushed rock products, agricultural lime (1)	1	of crowning corps of Engineers mes

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	7) Hogberg, 1969, p. 47	Extraction method:	Surface mining, blasting (1)
	8) Mossler. 1974a, Scott County station 1	Processing plant:	Aggregate Quarry Plant (1)
	9) Beissel; Ford. 1981, p. 425, 426 10) Sikich. 1959, p. 543	6 France	13580 Johnson Memorial Dr. Shakopee, MN 55379
		Processing method:	Crushing, screening (1)
Company:	Midwest Asphalt Corp. (1)	Uses of commodity:	Road base, pipe bedding, concrete aggregate,
Main commodity:	Crushed Carbonate Rock		decorative (1)
County:	Scott	Marketing area:	Entire Twin City area (1)
Quarry/pit name:	River Warren Aggregates Quarry (1)	References:	1) Bryan Rock Products, Inc. 1988, MN/DNR
Alternate name:	Malkerson Quarry (2,3)		questionnaire
Status:	Active (1)		2) Mossler. 1974a, Scott County station 5 3) USBM. [1980], MILS
Past operator/owner:	River Warren Aggregates, Inc. (2,3)		4) U.S. Army Corps of Engineers files
USGS quadrangle:	Shakopee		5) USDL. MSHA mine reference list
Township name:	Louisville		6) MN/DOT Aggregate Unit files 7) Stauffer. 1950, p. 19, 27
Location:	T 115 R 23 W Sec 16 (1)		8) Hogberg. 1969, p. 40
	T 115 R 23 W Sec 16 NE1/4 SW1/4 (2)		
Location comments:	Near Chaska (1)	Company:	Bryan Rock Products, Inc. (1)
Geologic age:	Cambrian	Main commodity:	Bryan Hock Products, Inc. (1) Crushed Carbonate Rock
Geologic formation:	St. Lawrence Fm. (4)		Scott
Description:	Limestone, reddish in color (1)	County: Quarry/pit name:	Scott Merriam Quarry (1,2,7)
Extraction method:	Surface mine (1)		
Processing method:	Crushing (1)	Alternate name:	Bryan Quarry (3,8); Bryan Red Rock Quarry (8); Bryan Rock Products Quarry (9)
Uses of commodity:	Crushed stone, agricultural lime, riprap (1)	Date opened:	1941 (1)
Marketing area:	Metro area (1)	Status:	Active (1)
References:	1) Midwest Asphalt Corp. 1988, MN/DNR	MN/DOT source no:	70006
	questionnaire 2) USBM. [1979], MILS	USGS quadrangle:	Jordon East
	3) USDL. MSHA mine reference list	Township name:	Louisville
	4) Olsen. 1982, plate 5	Location:	T 115 R 23 W Sec 29 NE1/4 (2-6)
		Location comments:	Near Shakopee (1); quarry near Merriam Junction, southwest of Shakopee (4)
Company:	Bryan Rock Products, Inc. (1,3,5,6,8)	Geologic age:	Ordovician
Main commodity:	Crushed Carbonate Rock	Geologic formation:	Shakopee and Oneota Fms. (4)
County:	Scott	Description:	Dolomitic limestone (1); see Ref. 9 for
Quarry/pit name:	Aggregate Quarry (1)		description
Alternate name:	Highway Quarry (3,5); Edina Sand & Gravel Co. Quarry (4); Halverson Bros. Quarry (7)		See Ref. 4 for detailed stratigraphic section, summary of section on west face follows:
Status:	Active (1)		Shakopee Fm.
MN/DOT source no:	70005		Willow River Mbr. 12.5 ft, dolomite,
USGS quadrangle:	Shakopee		red to yellow New Richmond Mbr.
Township name:	Louisville		Prairie Island facies 10.6 ft, dolomite,
Location:	T 115 R 23 W Sec 21 N1/2 SE1/4 (1,4)		red to yellow
	T 115 R 23 W Sec 21 SW1/4 NE1/4 (2,3)	Chemical and	Oneota Fm. 21.9 ft, dolomite
	T 115 R 23 W Sec 21 NW1/4 SE1/4 (2,3)	Chemical analyses:	CaCO3 50-95%, MgCO3 5-40%, SiO2 5-15%, Fe2O3 0-2% (1)
	T 115 R 23 W Sec 21 SE1/4 NW1/4 (8)	Physical test data:	Available from U.S. Army Corps of Engineers
Geologic age:	Ordovician		(3) and MN/DOT Aggregate Unit - ASIS and
Geologic formation:	Praire de Chien Gp. (2); Oneota Fm. (7)	[COPES files (8)
Description:	Dolomitic limestone (1); Oneota dolomite (7)	Extraction method:	Surface mining (1)
Chemical analyses:	CaCO3 50-95%, MgCO3 5-40%, SiO2 5-15%, Fe2O3 0-2% (1); see Ref. 7 for further analyses	Processing plant:	Merriam Quarry Plant (1) 3750 W. 145th St.
Physical test data:	Available from MN/DOT Aggregate Unit - ASIS		Shakopee, MN 55379
	and COPES files (6) and U.S. Army Corps of	Processing method:	Blasting, crushing, screening, wash plant (1)

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Stone - Crushed Carbonate Rock

Uses of commodity:	Road base, pipe bedding, concrete aggregate, decorative (1)	Status:	Active (1)
Marketing area:	Entire Twin City area and outlying areas and	Past operator/owner:	Gordon Becker (1965), Dickerman (1941) (3)
marketing area.	cities (1)	MN/DOT source no:	79073
References:	1) Bryan Rock Products, Inc. 1988, MN/DNR	Township name:	Plainview
	questionnaire	Location:	T 108 R 11 W Sec 22 SW1/4 SW1/4 (1-4)
	2) Barton Sand & Gravel Co. 1989, personal communication	Location comments:	Plainview nearest town (1)
	3) U.S. Army Corps of Engineers files	Geologic age:	Ordovician
	4) Austin. 1971, p. 136-138	Geologic formation:	Shakopee Fm. (1); Oneota Fm. (4)
	5) Hogberg. 1966, p. 31 6) Mossler. 1974a, Scott County station 9	Description:	Dolomite, 70 ft face (1)
	 USDL. MSHA mine reference list MN/DOT Aggregate Unit files 	Physical test data:	Available from U.S. Army Corps of Engineers (4) and MN/DOT Aggregate Unit (3)
	9) Webers; Austin. 1972, p. 90, 91	Extraction method:	Drilling, blasting (1)
	······································	Processing plant:	Portable crushing plant (2)
Company:	Southern Minnesota Construction Co., Inc. (1)	Processing method:	Crushing, screening (1)
Main commodity:	Crushed Carbonate Rock	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
County:	Steele	Marketing area:	Wabasha County (1)
Quarry/pit name:	Owatonna Quarry (1)	References:	1) Mathy Construction Co. 1988, MN/DNR
Alternate name:	Lundin Quarry (2-6); Fretham Quarry (2,3,5); Lundin Cashman Quarry (5)		questionnaire 2) Patterson Quarries. 1988, personal communication
Status:	Active (1,2)		 MN/DOT Aggregate Unit files U.S. Army Corps of Engineers files
Past operator/owner:	Lundin Constructin Co. (1-6); Fretham Quarry Enterprises (2,3,5)		
MN/DOT source no:	74063, 74062	Company:	Roberson Lime & Rock Products (1)
USGS quadrangle:	Owatonna	Main commodity:	Crushed Carbonate Rock
Township name:	Clinton Falls	County:	Wabasha
Location:	T 108 R 20 W Sec 33 S1/2 SE1/4 (2)	Quarry/pit name:	Siegenthaler Quarry (1-3)
	T 108 R 20 W Sec 33 SE1/4 (3,6)	Status:	Active (1,2)
Geologic age:	Ordovician	Past operator/owner:	Siegenthaler (1965) (3)
Geologic formation:	Prosser Fm. (3)	MN/DOT source no:	79083
Description:	Medium to thick bedded, massive, fine grained limestone, some thin bedded, sandy towards top (3)	Location:	T 108 R 12 W Sec 5 N1/2 SW1/4 (2) T 108 R 12 W Sec 5 NE1/4 SW1/4 (3)
Physical test data:	Available from MN/DOT Aggregate Unit (3)	Description:	Dolomitic limestone (2)
Uses of commodity:	Riprap, 4 in. to 6 in. rock, 1-1/2 in. dust free, CL	Physical test data:	Available from MN/DOT Aggregate Unit (1)
	2, CL 5, agricultural lime (1)	Processing plant:	Portable processing plant (1)
Marketing area:	Within 50 miles of Owatonna (1)	Uses of commodity:	Crushed stone, agricultural lime (1)
References:	 Southern Minnesota Construction Co., Inc. 1988, MN/DNR questionnaire Steel County Planning and Zoning. 1989, personal communication MN/DOT Aggregate Unit files U.S. Army Corps of Engineers files USBM. [1979], MILS 	References:	 Roberson Lime & Rock Products. 1988, MN/DNR questionnaire Roberson Lime & Rock Products. 1989, personal communication MN/DOT Aggregate Unit files
	6) Niles. [1988c], table 3	Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)
Company:	Patterson Quarries, Div. of Mathy Construction	Main commodity:	Crushed Carbonate Rock
company.	Co. (1,2,4)	County:	Wabasha
Main commodity:	Crushed Carbonate Rock	Quarry/pit name:	Tesmer Quarry (1)
County:	Wabasha	Alternate name:	Anderson Quarry (1)
Quarry/pit name:	Becker Quarry (1,4)	Status:	Active (1)
Alternate name:	Dickerman Quarry (3,4)	Location:	T 108 R 12 W Sec 5 S1/2 SW1/4 (1)
Date opened:	1950's (1)	Processing plant:	Portable crushing plant (1)
*		Processing method:	Crushing, screening (1)

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Uses of commodity:	Crushed rock, agricultural lime, riprap (1)	Geologic formation:	Shakopee-Oneota Fms. (2)
References:	1) Mathy Construction Co. 1989, MN/DNR	Description:	Dolomitic limestone (1)
	questionnaire	Physical test data:	Available from MN/DOT Aggregate Unit (2)
		Processing plant:	Portable crushing plant (1)
Company:	Patterson Quarries, Div. of Mathy Construction	Uses of commodity:	Crushed stone, agricultural lime (1)
	Co. (1)	References:	1) Roberson Lime & Rock Products. 1989, personal communication
Main commodity:	Crushed Carbonate Rock		2) MN/DOT Aggregate Unit files
County:	Wabasha		_,
Quarry/pit name:	Weaver Quarry (1)		
Alternate name:	Blattner Quarry (2)	Company:	Roberson Lime & Rock Products (1)
Status:	Active (1)	Main commodity:	Crushed Carbonate Rock
Past operator/owner:	Milton Blattner (1965) (1)	County:	Wabasha
MN/DOT source no:	79070	Quarry/pit name:	Doane Quarry (1,2)
Township name:	Minneiska	Status:	Active (1,2)
Location:	T 109 R 9 W Sec 30 W1/2 SW1/4 NW1/4 (1,2)	Township name:	Highland
Processing plant:	Portable crushing plant (1)	Location:	T 109 R 11 W Sec 30 S1/2 SE1/4 (2)
Processing method:	Crushing, screening (1)	Description:	Dolomitic limestone (2)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)	Processing plant:	Portable crushing plant (1)
References:	1) Mathy Construction Co. 1989, MN/DNR	Uses of commodity:	Crushed stone, agricultural lime (1)
	questionnaire 2) MN/DOT Aggregate Unit files	References:	 Roberson Lime & Rock Products. 1988, MN/DNR questionnaire Roberson Lime & Rock Products. 1989,
Company:	Roberson Lime & Rock Products (1)		personal communication
Main commodity:	Crushed Carbonate Rock		
County:	Wabasha	Company:	Patterson Quarries, Div. of Mathy Constructio
Quarry/pit name:	Zickrich Quarry (1)		Co. (1)
Date opened:	Re-opened in 1989, inactive the past 40-50	Main commodity:	Crushed Carbonate Rock
Jate opened.	years (1)	County:	Wabasha
Status:	Active (1)	Quarry/pit name:	Hammond Quarry (1,2)
Township name:	Highland	Date opened:	1988 (1)
Location:	T 109 R 11 W Sec 2 S1/2 SE1/4 (1)	Status:	Active (1)
Description:	Dolomitic limestone (1)	Location:	T 109 R 13 W Sec 29 SE1/4 (1)
Processing plant:	Portable crushing plant (1)	Location comments:	Hammond nearest town (1)
Uses of commodity:	Crushed stone, agricultural lime (1)	Geologic age:	Ordovician
References:	1) Roberson Lime & Rock Products. 1989,	Geologic formation:	Oneota Fm. (1)
	personal communication	Description:	Dolomite, 60 ft face (1)
		Extraction method:	Drilling, blasting (1)
		Processing plant:	Portable crushing plant (2)
Company:	Roberson Lime & Rock Products (1)		Mike Gerady
Main commodity:	Crushed Carbonate Rock		507-753-2458
County:	Wabasha	Processing method:	Crushing, screening (1)
Quarry/pit name:	Kiassan Quarry (1)	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
Alternate name:	Halverson Quarry (2)	Marketing area:	Olmsted and Wabasha counties (1)
Status:	Temporarily inactive (1989) (1)	References:	1) Mathy Construction Co. 1988, MN/DNR
Past operator/owner:	Felix Klassen (1965), Markus and Halverson (1921) (2)		questionnaire 2) Patterson Quarries. 1988, personal
MN/DOT source no:	79053		communication
ownship name:	Highland		
ocation:	T 109 R 11 W Sec 28 S1/2 SE1/4 (1)		Debaman Line and Deals Deals at (4)
		Company:	Roberson Lime and Rock Products (1)
	T 109 R 11 W Sec 28 SE1/4 SE1/4 (2)	Main commodity:	Crushed Carbonate Rock

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Quarry/pit name:	Grossbauch Quarry (1)	Past operator/owner:	Wesley Moeching (1965) (4)
Status:	Active (1)	MN/DOT source no:	79062
Past operator/owner:	G. Grossbach, owner (3)	Township name:	West Albany
Location:	T 109 R 14 W Sec 28 N1/2 NW1/4 (2)	Location:	T 110 R 12 W Sec 15 SW1/4 (2,4)
	T 109 R 14 W Sec 28 NW1/4 NE1/4 (3)		T 110 R 12 W Sec 15 SE1/4 SW1/4 (3)
Geologic age:	Ordovician	Location comments:	North side of T.H. 60 (3)
Geologic formation:	Oneota Fm. (3)	Geologic age:	Ordovician
Description:	Dolomitic limestone (1)	Geologic formation:	Oneota Fm. (4)
Processing plant:	Portable processing plant (1)	Description:	Dolomitic limestone (2)
Uses of commodity:	Crushed stone, agricultural lime (1)	Physical test data:	Available from MN/DOT Aggregate Unit (3
References:	1) Roberson Lime & Rock Products. 1988,	Processing plant:	Portable crushing plant (1)
	MN/DNR questionnaire	Uses of commodity:	Crushed stone, agricultural lime (1)
	2) Roberson Lime & Rock Products. 1989, personal communication 3) Niles. [1988a], table 1	References:	 Roberson Lime & Rock Products. 1988, MN/DNR questionnaire Roberson Lime & Rock Products. 1989, personal communication MN/DOT Aggregate Unit files
Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)		4) Mossler. 1974b, Wabasha station 74
Main commodity:	Crushed Carbonate Rock		
County:	Wabasha	Company:	Roberson Lime & Rock Products (1)
Quarry/pit name:	Olson Quarry (1-3)	Main commodity:	Crushed Carbonate Rock
Aiternate name:	Dumfries Quarry (2); Concidine Quarry (4)	County:	Wabasha
Date opened:	1950's (1)	Quarry/pit name:	Fick Quarry (1-3)
Status:	Active (1)	Status:	Active (1)
Past operator/owner:	D. Brown and E. Concidine (1965), E. B. Christine (1921) (4)	Past operator/owner: MN/DOT source no:	Peter Fick (1965) (3) 79076
MN/DOT source no:	79058	Location:	T 110 R 13 W Sec 1 W1/2 SW1/4 (2)
fownship name:	Glasgow		T 110 R 13 W Sec 1 SW1/4 SW1/4 (3)
ocation:	T 110 R 11 W Sec 8 NW1/4 NW1/4 (1-5)	Description:	Dolomitic limestone (2)
Geologic age:	Ordovician	Physical test data:	Available from MN/DOT Aggregate Unit (3)
Geologic formation:	Oneota Fm. (1,3,5)	Processing plant:	Portable crushing plant (1)
Description:	Dolomite, 90 ft face (1)	Uses of commodity;	Crushed stone, agricultural lime (1)
Physical test data:	Available from U.S. Army Corps of Engineers (3) and MN/DOT Aggregate Unit (4)	References:	1) Roberson Lime & Rock Products. 1988, MN/DNR questionnaire
Extraction method:	Drilling, blasting (1)		2) Roberson Lime & Rock Products. 1989,
Processing plant:	Portable crushing plant (2)		personal communication
Processing method:	Crushing, screening (1)		3) MN/DOT Aggregate Unit files
Jses of commodity:	Crushed rock, agricultural lime, riprap (1)		
larketing area:	Wabasha County (1)	Company:	Roberson Lime & Rock Products (1)
References:	1) Mathy Construction Co. 1988, MN/DNR	Main commodity:	Crushed Carbonate Rock
	questionnaire	County:	Wabasha
	2) Patterson Quarries. 1988, personal	Quarry/pit name:	Robertson Quarry (1,2)
	communication 3) U.S. Army Corps of Engineers files	Date opened:	1930's (1)
	4) MN/DOT Aggregate Unit files	Status:	Active (1)
	5) Mossler. 1974b, Wabasha station 51	Township name:	Gillford
	· · · · · · · · · · · · · · · · · · ·	Location:	T 110 R 13 W Sec 27 N1/2 SW1/4 (2)
company:	Roberson Lime and Rock Products (1)	Description:	Dolomitic limestone (2)
lain commodity:	Crushed Carbonate Rock	Processing plant:	Portable processing plant (1)
county:	Wabasha	Uses of commodity:	Crushed stone, agricultural lime (1)
Quarry/pit name:	Moeching Quarry (1,2)	References:	1) Roberson Lime & Rock Products. 1988,
	Active (1)		MN/DNR questionnaire

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	2) Roberson Lime & Rock Products. 1989, personal communication	Location comments:	Located in Wabasha city limits (1); on north side of County Rd. 30 (2)
	· · · · · · · · · · · · · · · · · · ·	Description:	Limestone (1)
	-	Processing plant:	Portable crushing plant (1)
	Shamrock Enterprises (1)	Processing method:	Crushing, screening (1)
nodity:	Crushed Carbonate Rock	Uses of commodity:	Crushed rock products, agricultural lime, ripra
	Wabasha	,	(1)
ne:	Oelkers Quarry (1-4,6)	Marketing area:	Local area (1)
ame:	Kohrs Quarry (2); Zumbro Falis Quarry (3)	References:	1) Holm Brothers Construction Co. 1989,
	Active (1)		personal communication
ner:	Quarve & Anderson Co. (3-6); Arnold Oelkers (1965) (2)		2) Wabasha County Zoning. 1989, personal communication
e no:	79077		
	T 110 R 13 W Sec 31 SE1/4 SE1/4 (1-4,6)	Company:	Holm Brothers Construction Co. (1)
ments:	Zumbro Falls nearest town (1)	Main commodity:	Crushed Carbonate Rock
:	Ordovician	County:	Wabasha
mation:	Shakopee-Oneota Fms. (3)	Quarry/pit name:	Bremer Quarry (1,2)
	Dolomitic limestone (3)	Status:	Active (1)
t data:	Available at U.S. Army Corps of Engineers (3)	Past operator/owner:	Martin Bremer (1965) (2)
	and MN/DOT Aggregate Unit (2)	MN/DOT source no:	79065
plant:	Portable processing plant (1)	Township name:	Lake
nmodity:	Road base products, riprap (1)	Location:	T 111 R 12 W Sec 8 SE1/4 (1)
rea:	Southeastern Minnesota (1)		T 111 R 12 W Sec 8 SW1/4 SE1/4 (2)
:	1) Shamrock Enterprises. 1989, personal	Description:	
	communication 2) MN/DOT Aggregate Unit files	Physical test data:	Available from MN/DOT Aggregate Unit (2)
	3) U.S. Army Corps of Engineers files	Processing plant:	Portable crushing plant (1)
	4) USBM. [1980], MILS	Processing method:	••• ()
	5) USDL. MSHA mine reference list 6) Hogberg. 1969, p. 46	Uses of commodity:	Crushing, screening (1) Crushed rock products, agricultural lime, ripr
			(1)
		Marketing area:	Local area (1)
	Roberson Lime & Rock Products (1)	References:	1) Holm Brothers Construction Co. 1989,
nodity:	Crushed Carbonate Rock		personal communication
	Wabasha		2) MN/DOT Aggregate Unit files
t name:	Reuter Quarry (1)		
	Active (1)	Company:	Patterson Quarries, Div. of Mathy Construction
	T 110 R 14 W Sec 16 S1/2 SE1/4 (2)		Co. (1,2)
1:	Dolomitic limestone (2)	Main commodity:	Crushed Carbonate Rock
plant:	Portable processing plant (1)	County:	Wabasha
nmodity:	Crushed stone, agricultural lime (1)	Quarry/pit name:	Moyer Quarry (1,2)
:	1) Roberson Lime & Rock Products. 1988,	Date opened:	1950's (1)
	MN/DNR questionnaire 2) Roberson Lime & Rock Products. 1989,	Status:	Active (1)
	personal communication	Location:	T 111 R 13 W Sec 14 SE1/4 SE1/4 (1)
		Location comments:	Lake City nearest town (1)
	Holm Prothers Construction Co. (1.0)	Geologic age:	Ordovician
adita -	Holm Brothers Construction Co. (1,2)	Geologic formation:	Oneota Fm. (1)
nodity:	Crushed Carbonate Rock	Description:	Dolomite, 120 ft face (1)
	Wabasha	Extraction method:	Drilling, blasting (1)
t name:	Berger Quarry (1)	Processing plant:	Portable crushing plant (2)
	Active (1)	Processing method:	Crushing, screening (1)
name:	Wabasha	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
	T 111 R 10 W Sec 31 NW1/4 (2)	Marketing area:	Wabasha and Goodhue counties (1)

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Stone - Crushed Carbonate Rock

References:	1) Mathy Construction Co. 1988, MN/DNR	Extraction method:	Drilling, blasting (1)
	questionnaire 2) Patterson Quarries. 1988, personal	Processing plant:	Larson Piant (1)
	communication		10120 Grey Cloud Island Drive St. Paul Park, MN 55071
		Processing method:	Crushing, screening, washing (1)
Company:	Bryan Rock Products, Inc. (1)	Uses of commodity:	#2 Keystone (for drain fields); CA 3 Keystone
Main commodity:	Crushed Carbonate Rock		(for concrete, rail ballast, landscape); #67 Keystone (for concrete, rail ballast); #89
County:	Washington		Keystone (for concrete); 1-1/2" base (for road
Quarry/pit name:	Hastings Pit No. 1 Quarry (1)		base); #1 base (for road base); aglime
Alternate name:	Davies Quarry (2-4)		(farming); riprap (for erosion control) (1)
Date opened:	1942 (1)	Marketing area:	Throughout Minnesota and western Wisconsin, concentrated in central Minnesota and the
Status:	Active (1)		seven county metro area (1)
Past operator/owner:	Davies Excavating, Inc. (1979) (2,4)	References:	1) J. L. Shiely Co. 1988, MN/DNR questionnaire
Location:	T 27 R 20 W Sec 15 S1/2 NE1/4 AND		2) MN/DOT Aggregate Unit files
	T 27 R 20 W Sec 15 N1/2 SE1/4 (1)		3) U.S. Army Corps of Engineers files4) Mossler. 1974a, Inver Grove Heights station
0	T 27 R 20 W Sec 15 NW1/4 SE1/4 (2,3)		176
Geologic age:	Ordovician		5) USDL. MSHA mine reference list 6) Schwartz. 1936, p. 198
Geologic formation:	Prairie du Chien Gp. (2,3)		7) Hogberg. 1969, p. 47
Description: Chemical analyses:	Dolomitic limestone (1-3) CaCO3 50-95%, MgCO3 5-40%, SiO2 5-15%,		8) Hogberg. 1966, p. 36 9) USBM. [1980], MILS
Extraction method:	Fe2O3 0-2% (1) Blasting (1)		
Processing plant:	Hastings Plant (1)	Company:	Bryan Rock Products, Inc. (1,2)
	15672 87th St. S.	Main commodity:	Crushed Carbonate Rock
	Hastings, MN 55033	County:	Washington
Processing method:	Crushing, screening (1)	Quarry/pit name:	Bayport Quarry (1,2)
Uses of commodity:	Road base, pipe bedding, concrete aggregate,	Status:	Active (1,2)
	decorative (1)	Location:	T 29 R 20 W Sec 20 NW1/4 NE1/4 AND
Marketing area:	St. Paul, Hastings, and surrounding southeastern areas of Twin Cities (1)		T 29 R 20 W Sec 15 SE1/4 SE1/4 (1)
References:	1) Bryan Rock Products, Inc. 1988, MN/DNR	Location comments:	Bayport nearest town (1)
	questionnaire	Description:	Dolomitic limestone (1)
	2) U.S. Army Corps of Engineers files	Extraction method:	Blasting (1)
	 MN/DOT Aggregate Unit files USBM. [1980], MILS 	Processing plant:	Bayport Quarry Plant (1)
			2938 Quant Ave. N. Stillwater, MN 55082
Company:	J. L. Shiely Co. (1-3,5,7-9)	Processing method:	Crushing, screening (1)
Main commodity: County:	Crushed Carbonate Rock Washington	Uses of commodity:	Road base, pipe bedding, concrete aggregate, decorative (1)
Quarry/pit name:	Larson Quarry (1,5,9)	Marketing area:	St. Paul and surrounding areas (1)
Alternate name:	Van Der Weyer Quarry (2,3)	References:	1) Bryan Rock Products, Inc. 1988, MN/DNR
Date opened:	1958 (1)		questionnaire
Status:	Active (1,5)		2) USDL. MSHA mine reference list
MN/DOT source no:	82002		
Location:	T 27 R 22 W Sec 26 NE1/4 (1-4,7-9) AND	Company:	Patterson Quarries, Div. of Mathy Construction
	T 27 R 22 W Sec 23 SE1/4 (1)	Main commodity:	Co. (1) Crushed Carbonate Rock
Geologic age:	Ordovician	County:	Winona
Geologic formation:	Oneota Fm. (1,2)	Quarry/pit name:	Winona Dresbach Quarry (1)
Description:	Dolomitic limestone (1)	Status:	Active (1)
Physical test data:	Available from MN/DOT Aggregate Unit -	Township name:	Dresbach
	COPES file (2) and U.S. Army Corps of	Location:	
2	Engineers (3)	LOCATION:	T 105 R 4 W Sec 19 NE1/4 NE1/4 (1)

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Processing plant:	Portable crushing plant (1)	Main commodity:	Crushed Carbonate Rock
Processing method:	Crushing screening (1)	County:	Winona
References:	1) Mathy Construction Co. 1989, MN/DNR	Quarry/pit name:	Pickwick Quarry (1-3)
	questionnaire	Alternate name:	Spouts Springs Quarry (2)
		Status:	Active (1)
Company:	Haefs & Sons, Inc. (1)	Past operator/owner:	Max Braatz Estate (1965) (2)
Main commodity:	Crushed Carbonate Rock	MN/DOT source no:	85035
County:	Winona	Township name:	Pleasant Hill
Quarry/pit name:	Dresbach Quarry (1-5,7)	Location:	T 105 R 6 W Sec 1 NW1/4 (1)
Alternate name:	Pit No. 2266 (2)		T 105 R 6 W Sec 1 SW1/4 NW1/4 (2,3)
Status:	Active (1)	Geologic age:	Ordovician
Past operator/owner:	Hector Construction Co. (3,5); August Miller (1965), Underdahi (1921) (2)	Geologic formation: Description:	Oneota Fm. (1) Dolomite, lower part of Oneota Fm. (1)
MN/DOT source no:	85034	Processing plant:	Portable processing plant (1)
Township name:	Dresbach	Processing method:	Crushing, screening (1)
Location:	T 105 R 4 W Sec 19 NW1/4 (1)	Uses of commodity:	Road rock, agricultural lime (1)
	T 105 R 4 W Sec 19 NE1/4 NW1/4 (2)	Marketing area:	Within 10-15 miles (1)
1	T 105 R 4 W Sec 19 SW1/4 NE1/4 NW1/4 (2)	References:	1) Haefs & Sons, Inc. 1989, personal
	(3,4,6)	nelelences.	communication 2) MN/DOT Aggregate Unit files
Geologic age:	Ordovician		3) Jirsa; Meyer. 1984, plate 8
Geologic formation:	Oneota Fm. (4,7)		
Description:	Limestone (1); upper part of Oneota Fm. (4)	Componie	Pottoroon Querries, Div. of Methy Construction
Physical test data: Processing plant:	Available from MN/DOT Aggregate Unit (2)	Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)
Processing method:	Portable crushing plant (1) Crushing (1)	Main commodity:	Crushed Carbonate Rock
Uses of commodity:	Road rock (1); riprap (2,7)	County:	Winona
Marketing area:	Within 10-15 miles (1)	Quarry/pit name:	Pickwick Quarry (1-3)
References:	1) Haefs & Sons, inc. 1989, personal	Alternate name:	Spouts Spring Quarry (2,5)
	communication	Status:	Active (1)
	2) MN/DOT Aggregate Unit files 3) USBM. [1980], MILS	Past operator/owner:	Quarve & Anderson Co. (3); William Lee, Ray McNally (1965) (1)
	4) Jirsa; Meyer. 1984, plate 8 5) USDL. MSHA mine reference list	MN/DOT source no:	85037
	6) Mossler. 1983, station 129	Township name:	Pleasant Hill
	7) Bowles. 1918, p. 194, 198	Location:	T 105 R 6 W Sec 1 NW1/4 NW1/4 (1-4)
·		-	T 105 R 06 W Sec 01 SW1/4 NW1/4 NW1/4 (5)
Company:	Botcher Construction Co. (1)	Geologic age:	Ordovician
Main commodity:	Crushed Carbonate Rock	Geologic formation:	Oneota Fm. (3-5)
County:	Winona	Description:	Lower part of Oneota Fm. (5); dolomitic limestone (3); 40-45 ft face (4)
Quarry/pit name: Status:	Humfeld Quarry (1) Active (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2), U.S. Army Corps of Engineers (3), and Ref. 5
Township name:	New Hartford	Processing plant:	Portable crushing plant (1)
Location:	T 105 R 5 W Sec 23 S1/2 (1)	Processing method:	Crushing, screening (1)
Processing plant:	Portable crushing plant (1)	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
Processing method:	Crushing, screening (1)	References:	1) Mathy Construction Co. 1989, personal
Uses of commodity:	Riprap, crushed rock, agricultural lime (1)		communication
Marketing area:	Houston, Fillmore, and Winona counties (1)		2) MN/DOT Aggregate Unit files 3) U.S. Army Corps of Engineers files
References:	1) Botcher Construction Co. 1989, personal communication		 U.S. Army Corps of Engineers files Mossler. 1983, station 119 Jirsa; Meyer. 1984, plate 8

Active

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Company:

Service Service

Haefs & Sons, Inc. (1)

Company:

Botcher Construction Co. (1)

T 105 R 6 W Sec 21 SW1/4 NE1/4 (1-5)

Pleasant Hill

Township name:

Location:

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Active

Company:

County:

Status:

Location:

Main commodity:

Quarry/pit name:

MN/DOT source no:

Location comments:

Geologic formation:

Physical test data:

Processing plant:

Processing method:

Uses of commodity:

References:

Company:

County:

Status:

Main commodity:

Quarry/pit name:

Past operator/owner:

MN/DOT source no:

Geologic age:

Description:

Township name:

Main commodity:	Crushed Carbonate Rock
County:	Winona
Quarry/pit name:	Spout Springs Quarry (1,2)
Status:	Active (1)
MN/DOT source no:	85035
Township name:	Pleasant Hill
Location:	T 105 R 6 W Sec 1 NW1/4 (1,2)
Geologic age:	Ordovician
Geologic formation:	(Oneota Fm.)
Processing plant:	Portable crushing plant (1)
Processing method:	Crushing, screening (1)
Uses of commodity:	Riprap, crushed rock, agricultural lime (1)
Marketing area:	Houston, Fillmore, and Winona counties (1)
References:	 Botcher Construction Co. 1989, personal communication MN/DOT Aggregate Unit files

Patterson Quarries, Div. of Mathy Construction

Co. (1)

Winona

Active (1)

Pleasant Hill

Ordovician

85056

Crushed Carbonate Rock

T 105 R 6 W Sec 8 SW1/4 (1)

T 105 R 6 W Sec 8 NE1/4 SW1/4 (2,3)

Lower part of Oneota Fm. (3); Oneota Fm. or possibly the Shakopee Fm., buff colored dolomite (2); see Ref. 2 for section description

Available from MN/DOT Aggregate Unit - ASIS

and COPES files (2); also see Ref. 3

Crushed rock, agricultural lime, riprap (1)

1) Mathy Construction Co., 1989, MN/DNR

Patterson Quarries, Div. of Mathy Construction

Hector Construction Co. (3,5,6); Ben Frickson

Portable crushing plant (1)

2) MN/DOT Aggregate Unit files 3) Jirsa; Meyer. 1984, plate 8

Crushed Carbonate Rock

Frickson Quarry (1-5)

Crushing, screening (1)

questionnaire

Co. (1)

Winona

Active (1)

(1971) (2)

85071

Groth Quarry (1-3)

Near Ridgeway (2)

Oneota Fm. (1,2)

Location:	T 105 R 6 W Sec 21 SW1/4 NE1/4 (1-5)
	T 105 R 6 W Sec 21 NW1/4 SE1/4 (1)
Location comments:	Ridgeway nearest town (1); on east side of County Rd. 13 (2)
Geologic age:	Ordovician
Geologic formation:	Oneota Fm. (2,4)
Description:	Oneota dolomite, 70 ft face, medium to thick beds (2); lower part of Oneota Fm. (4)
Physical test data:	Available from MN/DOT Aggregate Unit (2); also see Ref. 4
Processing plant:	Portable crushing plant (1)
Processing method:	Crushing, screening (1)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
References:	 Mathy Construction Co. 1989, MN/DNR questionnaire MN/DOT Aggregate Unit files USBM. [1979], MILS Jirsa; Meyer. 1984, plate 8 Hogberg. 1969, p. 42 USDL. MSHA mine reference list
Company:	Haefs & Sons, Inc. (1)
Main commodity:	Crushed Carbonate Rock
County:	Winona
Quarry/pit name:	Frickson Quarry (1)
Alternate name:	Campbell Valley Quarry (2,3)
Status:	Active (1)
Past operator/owner:	Hector Construction Co. (1971) (2); Ben Frickson, owner (1965), D. A. Tiffany (1921) (2)
MN/DOT source no:	85057
Township name:	Pleasant Hill
Location:	T 105 R 6 W Sec 21 NW1/4 SE1/4 (1-3)
	T 105 R 6 W Sec 21 NE1/4 SE1/4 (2)
Location comments:	On west side of County Rd. 13 (2)
Geologic age:	Ordovician
Geologic formation:	Oneota Fm. (2,3)
Description:	Oneota dolomite, 30-40 ft face (2); lower part of Oneota Fm. (3)
Physical test data:	Available from MN/DOT Aggregate Unit (2); also see Ref. 3
Processing plant:	Portable crushing plant (1)
Processing method:	Crushing (1)
Uses of commodity:	Road rock (1)
Marketing area:	Within 10-15 miles (1)
References:	 Haefs & Sons, Inc. 1989, personal communication MN/DOT Aggregate Unit files Jirsa; Meyer. 1984, plate 8
Company:	Botcher Construction Co. (1)
Main commodity:	Crushed Carbonate Rock

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Quarry/pit name: Alternate name:	Mueller Quarry (1) Wyattville Quarry (2,4)	Company:	Patterson Quarries, Div. of Mathy Construction
Status:	Active (1)		Co. (1)
MN/DOT source no:	85-61	Main commodity: County:	Crushed Carbonate Rock
Township name:	Fremont	Quarry/pit name:	Buckbee Quarry (1-3,5,6)
Location:	T 105 R 9 W Sec 1 (1)	Status:	Active (1)
	T 105 R 9 W Sec 1 SW1/4 NE1/4 (2,3) T 105 R 9 W Sec 1 NW1/4 NE1/4 (4)	Past operator/owner:	Quarve & Anderson Co. (5,6); Ralph Buckbee (1971) (1)
Geologic age:	Ordovician	MN/DOT source no:	85082
Geologic formation:	Oneota Fm. (2)	Township name:	Fremont
Description:	Middle part of Oneota Fm. (2)	Location:	T 105 R 9 W Sec 6 NE1/4 NW1/4 (1-4)
Physical test data:	See Ref. 2 for physical test data	Geologic age:	Ordovician
Processing plant:	Portable crushing plant (1)	Geologic formation:	Platteville Fm. (3,4)
Processing method:	Crushing, screening (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2);
Uses of commodity:	Riprap, crushed rock, agricultural lime (1)		also see Ref. 3
Marketing area:	Houston, Fillmore, and Winona counties (1)	Processing plant:	Portable crushing plant (1)
References:	1) Botcher Construction Co. 1989, personal	Processing method:	Crushing, screening (1)
	communication	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
	2) Jirsa; Meyer. 1984, plate 8 3) Mossler. 1983, station 85 4) USBM. [1979], MILS	References:	 Mathy Construction Co. 1989, MN/DNR questionnaire MN/DOT Aggregate Unit files Jirsa; Meyer. 1984, plate 8 Mossler. 1983, station 71
Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)		5) USBM. [1979], MILS 6) USDL. MSHA mine reference list
Main commodity:	Crushed Carbonate Rock		
County:	Winona	Company:	Patterson Quarries, Div. of Mathy Construction
Quarry/pit name:	Enterprise Quarry (1-3,5,6)		Co. (1)
Alternate name:	Beech/Beach Quarry (2,3)	Main commodity:	Crushed Carbonate Rock
Status:	Active (1)	County:	Winona
Past operator/owner:	Quarve & Anderson Co. (5,6); George Beech (1965) (2)	Quarry/pit name:	McGuire Quarry (1-3)
MN/DOT source no:	85062	Alternate name:	Troy Quarry (2,3)
Township name:	Fremont	Status:	Active (1)
Location:	T 105 R 9 W Sec 2 SE1/4 NE1/4 (1)	Past operator/owner:	McGuire (1970) (2)
	T 105 R 9 W Sec 2 NW1/4 NE1/4 (2-5)	MN/DOT source no:	85080
	T 106 R 9 W Sec 35 SW1/4 SE1/4 (1965) (2)	Township name:	Saratoga
Location comments:	Fremont nearest town (1)	Location:	T 105 R 10 W Sec 30 NW1/4 NE1/4 (1)
Geologic age:	Ordovician		T 105 R 10 W Sec 30 SW1/4 NW1/4 NE1/4 (3,4)
Geologic formation:	Oneota Fm. (3,4)	Location comments:	(3,4) Troy nearest town (1); quarry located between
Description:	Upper part of Oneota Fm. (3)	Location comments.	Hwy. 74 and County Rd. 6 (5)
Physical test data:	Available from MN/DOT Aggregate Unit (2);	Geologic age:	Ordovician
	also see Ref. 3	Geologic formation:	Shakopee Fm. (3,5); Willow River Mbr. (5)
Processing plant:	Portable crushing plant (1)	Description:	Dolomite (5); see Ref. 5 for detailed stratigraphic section
Processing method: Uses of commodity:	Crushing, screening (1) Crushed rock, agricultural lime, riprap (1)	Physical test data:	Available from MN/DOT Aggregate Unit (2);
References:	1) Mathy Construction Co. 1989, MN/DNR		also see Ref. 3
	questionnaire	Processing plant:	Portable crushing plant (1)
	2) MN/DOT Aggregate Unit files 3) Jirsa; Meyer. 1984, plate 8	Processing method:	Crushing, screening (1)
	4) Mossler. 1983, station 87	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
	5) USBM. [1979], MILS 6) USDL. MSHA mine reference list	References:	1) Mathy Construction Co. 1989, MN/DNR questionnaire 2) MN/DOT Aggregate Unit files

2) Patterson Quarries. 1988, personal communication 3) MN/DOT Aggregate Unit files 4) USBM. [1980], MILS

Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)
Main commodity:	Crushed Carbonate Rock
County:	Winona
Quarry/pit name:	Yeadke Quarry (1)
Alternate name:	Witoka Quarry (2)
Status:	Active (1)
USGS quadrangie:	Witoka
Township name:	Homer
Location:	T 106 R 6 W Sec 20 NE1/4 NE1/4 (1-3)
Geologic age:	Ordovician
Geologic formation:	Oneota Fm. (2,3)
Description:	Lower part of Oneota Fm. (2); 40-45 ft face (3)
Processing plant:	Portable crushing plant (1)
Processing method:	Crushing, screening (1)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
References:	1) Mathy Construction Co. 1989, MN/DNR
	questionnaire 2) Jirsa; Meyer. 1984, plate 8 3) Mossler. 1983, station 133
Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)
Main commodity:	Crushed Carbonate Rock
County:	Winona
Quarry/pit name:	43 Quarry (1)
Alternate name:	West Burns Quarry (2); Quarve & Anderson Quarry (4)
Date opened:	1940's (1)
Status:	Active (1)
Past operator/owner:	Quarve & Anderson Co. (4); G & Q Construction (1971) (3)
MN/DOT source no:	85040
Township name:	Wilson
Location:	T 106 R 7 W Sec 16 SE1/4 NW1/4 (1-4)
Geologic age:	Ordovician
Geologic formation:	Oneota Fm. (1,3)
Description:	Dolomite (1); dolomitic limestone, medium to thick bedded, white crystalline, weathers to buff (3)
Extraction method:	Blasting; quarry benched, top bench 60 ft, bottom 56 ft (1)
Processing plant:	Portable crushing plant (2)
Processing method:	Crushing, screening (1)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
Marketing area:	Winona County (1)
References:	1) Mathy Construction Co., 1988, MN/DNR

questionnaire

3) Jirsa; Meyer. 1984, plate 8

4) Mossler. 1983, station 29

5) Austin. 1971, p. 202-205

Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)
Main commodity:	Crushed Carbonate Rock
County:	Winona
Quarry/pit name:	Gudmundson Quarry (1)
Alternate name:	Schoeniger Valley Quarry (2)
Status:	Active (1)
MN/DOT source no:	85084
Township name:	Warren
Location:	T 106 R 8 W Sec 16 SW1/4 (1)
	T 106 R 8 W Sec 16 NW1/4 SW1/4 (2,3,5)
Location comments:	The Arches nearest town (1); see Ref. 2, fig. 8 for location map
Geologic age:	Ordovician
Geologic formation:	Oneota Fm. (2,3)
Description:	Upper part of Oneota Fm. (3)
Physical test data:	Available from MN/DOT Aggregate Unit (4)
Processing plant:	Portable crushing plant (1)
Processing method:	Crushing, screening (1)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
References:	 Mathy Construction Co. 1989, MN/DNR questionnaire Hobbs. 1987, p. 169, 170 Jirsa; Meyer. 1984, plate 8 MN/DOT Aggregate Unit files Mossler; Book. 1981, station 43
Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)
Main commodity:	Crushed Carbonate Rock
County:	Winona
Quarry/pit name:	Fabian Quarry (1)
Date opened:	1950's (1)
Status:	Active (1)
MN/DOT source no:	85-67
Township name:	St. Charles
Location:	T 106 R 10 W Sec 11 NW1/4 NW1/4 (1)

St. Charles nearest town (1)

Ordovician

Shakopee Fm. (1,3)

Drilling, blasting (1)

Winona County (1)

Dolomite, 50 ft face (1)

Portable crushing plant (2) Crushing, screening (1)

Crushed rock, agricultural lime, riprap (1)

Location comments:

Geologic formation:

Extraction method:

Processing method:

Uses of commodity:

Marketing area:

Processing plant:

Geologic age:

Description:

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Stone - Crushed Carbonate Rock

References: Company:	 Mathy Construction Co. 1988, MN/DNR questionnaire Patterson Quarries. 1988, personal communication Jirsa; Meyer. 1984, plate 8 Patterson Quarries, Div. of Mathy Construction 	Location: Processing plant: Processing method: Uses of commodity: References:	T 107 R 7 W Sec 36 NE1/4 NE1/4 (1) Portable crushing plant (1) Crushing, screening (1) Crushed rock, agricultural lime, riprap (1) 1) Mathy Construction Co. 1989, MN/DNR questionnaire
	Co. (1)		
Main commodity:	Crushed Carbonate Rock	Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)
County:	Winona	Main commodity:	Crushed Carbonate Rock
Quarry/pit name:	Woodward Quarry (1-3)	County:	Winona
Status:	Active (1)	Quarry/pit name:	Meyer Quarry (1)
MN/DOT source no:	85079	Alternate name:	Straight Valley Quarry (3,4); Roverud
Township name:	St. Charles	Anomate nume.	Rollingstone Quarry (3,4)
Location:	T 106 R 10 W Sec 24 SE1/4 SW1/4 (1)	Date opened:	1950's (1)
	T 106 R 10 W Sec 24 SW1/4 SW1/4 (2-4)	Status:	Active (1)
Location comments:	Utica nearest town (1)	Past operator/owner:	Roverud (3); Joseph Ries (1965) (4)
Geologic age:	Ordovician	MN/DOT source no:	85045
Geologic formation:	Platteville Fm. (3,4)	Township name:	Norton
Physical test data:	Available from MN/DOT Aggregate Unit (2); also see Ref. 3	Location:	T 107 R 9 W Sec 4 NW1/4 SE1/4 (1)
Processing plant:	Portable crushing plant (1)		T 107 R 9 W Sec 4 SE1/4 NW1/4 SE1/4 (3)
Processing method:	Crushing, screening (1)	Location comments:	Altura nearest town (1)
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)	Geologic age:	Ordovician
References:	1) Mathy Construction Co. 1989, MN/DNR	Geologic formation:	Oneota Fm. (1,3)
	questionnaire 2) MN/DOT Aggregate Unit files	Description:	Dolomite, 75 ft face (1); middle part of Oneota Fm. (3)
	3) Jirsa; Meyer. 1984, plate 8 4) Mossler. 1983, station 65	Physical test data:	Available from MN/DOT Aggregate Unit (4); also see Ref. 3
		Extraction method:	Drilling, blasting (1)
Company:	Patterson Quarries, Div. of Mathy Construction	Processing plant:	Portable crushing plant (2)
	Co. (1)	Processing method:	Crushing, screening (1)
Main commodity:	Crushed Carbonate Rock	Uses of commodity:	Crushed rock, agricultural lime, riprap (1)
County:	Winona	Marketing area:	Winona County (1)
Quarry/pit name:	Bailey Quarry (1)	References:	1) Mathy Construction Co. 1988, MN/DNR
Status:	Active (1)		questionnaire
Township name:	St. Charles		2) Patterson Quarries. 1988, personal communication
Location:	T 106 R 10 W Sec 31 SE1/4 NE1/4 (1)		3) Jirsa; Meyer. 1984, plate 8
Location comments:	St. Charles nearest town (1)		4) MN/DOT Aggregate Unit files
Processing plant:	Portable crushing plant (1)		
Processing method:	Crushing, screening (1)	Company:	Patterson Quarries, Div. of Mathy Construction
Uses of commodity:	Crushed rock, agricultural lime, riprap (1)		Co. (1)
References:	1) Mathy Construction Co. 1989, MN/DNR questionnaire	Main commodity:	Crushed Carbonate Rock
	questionnane	County:	Winona
		Quarry/pit name:	Silo Quarry (1-5)
Company:	Patterson Quarries, Div. of Mathy Construction Co. (1)	Alternate name:	Dorn Quarry (2,3)
Main commodity:	Crushed Carbonate Rock	Status:	Active (1) Quarte & Anderson Co. (4 5): Eggr Dorn (1966)
-		Past operator/owner:	Quarve & Anderson Co. (4,5); Egar Dorn (1966) (2)
County:	Winona Bronk Quarty (1)	MN/DOT source no:	85055
Quarry/pit name:	Bronk Quarry (1)	Township name:	Norton
Status:	Active (1)	Location:	T 107 R 9 W Sec 35 SW1/4 SW1/4 (1)
Township name:	Winona		

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Stone - Crushed Carbonate Rock

	T 107 R 9 W Sec 35 SE1/4 SW1/4 (3,4,6)	MN/DOT source no:	85076
	T 107 R 9 W Sec 35 SW1/4 SE1/4 (2)	Township name:	Mount Vernon
Geologic age: Geologic formation:	Ordovician Oneota Fm. (3)	Location:	T 108 R 9 W Sec 34 SW1/4 NW1/4 NE1/4 (1) AND
Description: Physical test data:	Middle part of Oneota Fm. (3) Available from MN/DOT Aggregate Unit (2);		T 108 R 9 W Sec 34 SE1/4 NE1/4 NW1/4 (1,3,7)
Processing plant: Processing method: Uses of commodity: References:	also see Ref. 3 Portable crushing plant (1) Crushing, screening (1) Crushed rock, agricultural lime, riprap (1) 1) Mathy Construction Co. 1989, MN/DNR questionnaire 2) MN/DOT Aggregate Unit files 3) Jirsa; Meyer. 1984, plate 8 4) USBM. [1980], MILS 5) USDL. MSHA mine reference list	Location comments: Geologic age: Geologic formation: Description: Physical test data: Processing plant:	T 108 R 9 W Sec 34 NW1/4 (2,6) T 108 R 9 W Sec 28 SE1/4 SE1/4 (5) Oakridge nearest town (1) Ordovician Oneota Fm. (3) Middle part of Oneota Fm. (3) Available from U.S. Army Corps of Engineers (6) and MN/DOT Aggregate Unit (2); also see Ref. 3 Portable crushing plant (1)
	6) USGS. 1972, Rollingstone quadrangle	Processing method:	Crushing, screening (1)
Company: Main commodity: County: Quarry/pit name: Alternate name: Status: Past operator/owner:	Patterson Quarries, Div. of Mathy Construction Co. (1,4-6) Crushed Carbonate Rock Winona Kreidermacher Quarry (1-5) Patterson Quarry (6) Active (1) Kreidermacher (1967) (2)	Uses of commodity: References:	Crushed rock, agricultural lime, riprap (1) 1) Mathy Construction Co. 1989, MN/DNR questionnaire 2) MN/DOT Aggregate Unit files 3) Jirsa; Meyer. 1984, plate 8 4) USDL. MSHA mine reference list 5) USBM. [1980], MILS 6) U.S. Army Corps of Engineers files 7) USGS. 1972, Altura quadrangle

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Stone - Crushed Granite

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Company:	Ortonville Stone Co. (1,2,4,6)	References:	1) Eugene Ferweda. 1989, personal communication
Main commodity:	Crushed Granite		
Other commodities:	Dimension Granite		
County:	Big Stone	Company:	Meridian Aggregate Co. (1)
Quarry/pit name:	Ortonville Stone Co. Quarry (1)	Main commodity:	Crushed Granite
Alternate name:	Ortonville Quarry and Mill (2)	County:	
Date opened:	1971 (1)	Quarry/pit name:	St. Cloud Quarry (1)
Status:	Active (1)	Alternate name:	Shiely Quarry (3); Petters Quarry (2); Shiely-Petters Crushed Stone Co., Inc. (4,5)
USGS quadrangle:	Ortonville	Date opened:	1947 (1)
Location:	T 121 R 46 W Sec 26 S1/2 (2)	Status:	Active (1)
	T 121 R 46 W Sec 26 NE1/4 SW1/4 (4)	Past operator/owner:	J. L. Shiely Co. (2); Shiely-Petters Crushed
Location comments:	Nearest town is Ortonville (1); 2720 ft west and		Stone Co. Inc. (4,5)
	2920 ft south of NE corner (5); Sec. 26, Gov. Lots 1-4 (3); see Ref. 7, plate 12 for location	Location:	T 124 R 28 W Sec 18 NE1/4 SE1/4 AND
	map; section 26 (1)		T 124 R 28 W Sec 17 NW1/4 SW1/4 (3)
Geologic age:	Archean	Location comments:	1 mile west of St. Cloud city limits in Waite Park (2); sections 18 and 17 (1)
Geologic formation:	Ortonville Granite (5,7)	Description:	Granite (1-3)
Description:	Medium-grained light pink granite (4); red medium granitoid facies of leucogranite (5)	Extraction method:	Drill and blast (1)
		Processing method:	Crushed and screened (1)
	Modal Analyses: potash feldspar 42%, plagioclase 22%, quartz 31%, biotite 4%,	Uses of commodity:	Crushed aggregate for roads, concrete, railroad
	accessories (magnetite, apatite, zircon,		ballast (1)
	epidote, muscovite) 1% (5); see Ref. 7, p. 77 for further modal analyses	References:	1) Meridian Aggregate Co. 1988, MN/DNR questionnaire
Extraction method:	Drill, blast (1)		2) U.S. Army Corps of Engineers files
Processing plant:	Ortonville Stone Co. (1)		3) MGS. [1978-1979?] 4) Hogberg. 1969, p. 47
	Box 67 Ortonville, MN 56278		5) Hogberg. 1966, p. 36
	Dale Aesoph, Plant Manager 612-839-6131	Company:	Meridian Aggregate Co. (1)
Uses of commodity:	Crushed rock for concrete, asphalt, railroad	Main commodity:	Crushed Granite
	ballast, bank protection stone, precast panels	County:	Yellow Medicine
	(1)	Quarry/pit name:	Yellow Medicine Quarry (1)
Marketing area:	Minnesota, South Dakota, and elsewhere for certain products (1)	Alternate name:	Green Quarry(2,3,5,6,8,10,12)
References:	1) Ortonville Stone Co. 1988, MN/DNR	Status:	Active (1)
	questionnaire	Past operator/owner:	Green Co. (2,3,5,6,8,10,11,14,15,16)
	2) USBM. [1979], MILS 2) Big Stone County Assessed 1989, personal	MN/DOT source no:	87002
	 Big Stone County Assessor. 1989, personal communication 	USGS quadrangle:	Granite Falls
	4) U.S. Army Corps of Engineers files 5) Lund. 1956, p. 1487	Location:	T 116 R 39 W Sec 33 NW1/4 NW1/4 (9,13,15,16)
	6) USDL. MSHA mine reference list		T 116 R 39 W Sec 32 NE1/4 NE1/4 (13)
	7) Lund. 1950, p. 77		T 116 R 39 W Sec 29 S1/2 SE1/4 (14)
	·····		T 116 R 39 W Sec 29 NW1/4 SE1/4 (14)
Company:	Ferweda General Contracting (1)	Location comments:	Northwest edge of Granite Falls (2); in sections 29, 32, and 33 (1)
Main commodity:	Crushed Granite	Geologic age:	Archean
County:	St. Louis	Geologic formation:	Montevideo Gneiss (4)
Status:		Description:	Hard medium-grained pink and gray gneiss (6)
ocation: Description:	T 61 R 20 W Sec 23 NE1/4 NE1/4 (1) Blue granite (1)		see Ref. 2, 7, and 9 for modal analyses
Uses of commodity:	Crushed aggregate, ornamental stone (1)	Physical test data:	Available from MN/DOT Aggregate Unit and U.S. Army Corps of Engineers (5,6)
Remarks:	Started crushing stockpiled stone in 1988 (1)	Processing plant:	Meridian Aggregate Yellow Medicine Quarry (1)

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Stone - Crushed Granite

	Box 129 Granite Falls, MN 56241 Gordon Phipps, Manager 612-564-2125
Processing method:	Crushed and screened (1)
Uses of commodity:	Railroad ballast, concrete stone, asphalt stone (1)
Marketing area:	Minnesota (1)
Remarks:	There is also an abandoned quarry at this location (10)
References:	1) Meridian Aggregate Co. 1988, MN/DNR questionnaire 2) Goldich and others. 1980a, p. 21-24, 42 3) USBM. [1980], MILS 4) Goldich and others. 1970, p. 3675

5) MN/DOT Aggregate Unit files
6) U.S. Army Corps of Engineers files
7) Himmelberg. 1968, p. 6
8) USDL. MSHA mine reference list
9) Bauer. 1974, p. 50, 53, 108
10) Farhat. 1975, p. 173
11) Goldich and others. 1961, p. 179
12) MGS. [1978-1979?]
13) Meridian Aggregate Co. 1989, personal communication
14) Yellow Medicine County Assessor. 1989, personal communication
15) Hogberg. 1969, p. 41
16) Hogberg. 1966, p. 32
17) Parham and others. 1966?, p. 20-22

Stone - Crushed Quartzite

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Company:	New Ulm Quartzite Quarries, Inc. (1-3,6,8-13)	Physical test data:	Available from the U.S. Army Corps of Engineers (4) and MN/DOT Aggregate Unit (5)
Main commodity:	Crushed Quartzite	Extraction method:	Open surface (1)
County: Quarry/pit name:	Nicollet New Ulm Quartzite Quarry (1,3)	Processing plant:	Processing plant, quarry, and office at same location (1)
Alternate name: Date opened: Status:	New Ulm Quarry (2) 1861, current company reopened in 1955 (1) Active since 1955, previously active 1861-1920's	Uses of commodity: Trade names:	Concrete aggregate, bituminous aggregate, riprap, seal coat chips, gannister, poultry grit (1) "Cherry Stone" trade name of poultry grit (1)
	(1)	Marketing area:	National and Canada (1)
Past operator/owner: MN/DOT source no:	Lost Stone Co. (1); New Ulm Stone Co. (1,18) 52003	References:	1) New Ulm Quartzite Quarries, Inc. 1988, personal communication
Township name:	Courtland		2) USBM. [1979], MILS 3) USDL. MSHA mine reference list
Location:	T 110 R 30 W Sec 35 (1, 17) T 110 R 30 W Sec 35 SW1/4 SW1/4 (2,11) T 110 R 30 W Sec 35 SE1/4 SW1/4 (4,5) T 110 R 30 W Sec 35 SW1/4 (6,8,12)		 4) U.S. Army Corps of Engineers files 5) MN/DOT Aggregate Unit files 6) Parham. 1970, p. 51 7) Austin. 1972, p. 254 8) Parham. 1972, p. 62
Location comments:	Near New Ulm (1); see Ref. 14, plate 2 and Ref. 15, fig. 6 for location maps; four quarries are shown in the S1/2 SW1/4, Sec. 35 in Ref. 14, plate 2		9) Sikich. 1959 10) Hill; West. 1985, p. 13 11) Hogberg. 1969, p. 44 12) Hogberg. 1966, p. 35 13) Hogberg. 1964, p. 29
Geologic age:	Middle Proterozoic		14) Miller. 1961, p. 8, 9, 32
Geologic formation:	Sioux Quartzite (6-8,14-17)		15) Baldwin. 1951, fig. 6
Description:	Quartzite (1)		16) Webers; Austin. 1972, p. 86
Chemical analyses:	96% silica (1); see Ref. 5 for further analyses		17) Cooley. 1911, p. 14 18) Bowles. 1918, p. 202

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Stone - Crushed Schist

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Company:	Bowman Construction Co. (1-4)	Description:	Dark gray to black biotite schist, with some thi stringers of white quartz (2); the rock is a fine
Main commodity:	Crushed Schist		grained biotite schist consisting primarily of
County:	Koochiching		quartz and biotite with minor amounts of phyllite and graywacke present (1)
Quarry/pit name:	Ranier Quarry (1)	Physical test data:	Available from MN/DOT Aggregate Unit -
Alternate name:	Laidlow Quarry (1); Pit No. 519 (2); The Rock		COPES file (2)
	Quarry (3,4)	Extraction method:	Drill, shoot and crush (1)
Status:	Active (1)	Uses of commodity:	Crushed rock for concrete, bituminous
Location:	T 71 R 23 W Sec 32 NW1/4 (1)		aggregate (2)
	T 71 R 23 W Sec 31 NE1/4NE1/4 (3)	References:	1) Bowman Construction Co. 1988, MN/DNR
Location comments:	Near Ranier (1); just east of International Falls (2)		questionnaire 2) MN/DOT Aggregate Unit files 3) USBM. [1979], MILS 4)USDL.MSHA mine reference list

Stone - Crushed Trap Rock

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Company: Main commodity:	Arrowhead Blacktop Co. (1,2,4,5,14) Crushed Trap Rock		9) MN/DOT Aggregate Unit files 10) Taylor. 1963, p. 11 11) Green. 1972, p. 331
-	St. Louis		12) Sikich. 1959, p. 543
County:			13) MN Dept. of Conservation. 1964a, p. 40
Quarry/pit name:	Beck's Road Quarry (1)		14) Warzyn. 1988 15) Sikich. 1959, p. 531
Alternate name:	Zenith Dredge Quarry (2,3,15); Zenith Quarry (14)		10/ Gikion. 1909, p. 001
Status:	Active (1)	Company:	Del Zotto Manufacturing Co., Inc. (1-4)
Past operator/owner:	Zenith Dredge Co. (2,12)		• • • • •
MN/DOT source no:	69011	Main commodity:	Crushed Trap Rock
Location:	T 49 R 15 W Sec 32 SE1/4 NE1/4 (2,4,5,8)	County:	St. Louis
	T 49 R 15 W Sec 32 SW1/4 NE1/4 (6)	Quarry/pit name:	Del Zotto Quarry (1,3,4)
	T 49 R 15 W Sec 33 SW1/4 NW1/4 (5)	Status:	Active (1)
	T 49 R 15 W Sec 33 SE1/4 NW1/4 (4)	MN/DOT source no:	69500
Location comments:	Ely's Peak (7,10,11,13); see Ref. 8, p. 76 for	Location:	T 49 R 15 W Sec 34 (2,3)
	location map; section 32 (1)	Location comments:	Located in West Duluth (1)
Geologic age:	Middle Proterozoic	Description:	Basalt (1); gabbro (4); see Ref. 4 for lithologic description
Description:	Basalt (1,3-6,8,10,12,13); gabbro (1,14); diabase (3); see Ref. 14 for further lithologic description	Physical test data:	Tests show high abrasion resistance and high hardness (1); test data available from MN/DOT Aggregate Unit - COPES file (2); see Ref. 4, p. 6
Physical test data:	Specific gravity 2.87 (6); see Ref. 14, p. 7 for further test data; test data available from		for further test data
	MN/DOT Aggregate Unit - COPES file (9)	Processing plant:	Stationary plant located at quarry (1)
Processing plant:	Beck's Road Plant (at quarry location) (1)	Processing method:	Crushing, screening, washing (1)
Processing method: Uses of commodity:	Crushing, screening (1) Bituminous aggregate, construction aggregate	Uses of commodity:	Concrete aggregate, bituminous aggregate, railroad ballast, riprap (1)
oses of commounty.	(1)	Marketing area:	Greater Duluth area (1)
Remarks:	Quarry mined for over 100 years (1988) (14)	Remarks:	Very durable rock (1)
References:	 Arrowhead Blacktop Co. 1989, personal communication USBM. [1979], MILS U.S. Army Corps of Engineers files Hogberg. 1969, p. 39 Hogberg. 1966, p. 31 Bleifuss. 1952, p. xvi, viii Schwartz. 1949, p. 127 Green and others. 1977, p. 74-88 	References:	 1) Del Zotto Manufacturing Co., Inc. 1989, personal communication 2) MN/DOT Aggregate Unit files 3) MN/DOT Duluth District. 1989, personal communication 4) Warzyn. 1988

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Stone - Dimension Carbonate Rock

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Company:	Mankato-Kasota Stone, Inc. (1-3)	Location:	T 108 R 26 W Sec 7 SW1/4 NE1/4 (2-6)
Main commodity:	Dimension Carbonate Rock		T 108 R 26 W Sec 7 NW1/4 NW1/4 (11)
Other commodities:	Crushed Carbonate Rock, Natural Cement	Geologic age:	Ordovician
County:	Blue Earth	Geologic formation:	Oneota Fm. (1-6,9,10,13-17)
Quarry/pit name:	Jefferson Quarry (1-4)	Description:	Oneota dolomite (1); see Refs. 3, 6, 13-17 for stratigraphic sections and further descriptions
Date opened:	1868 (7)	Chemical analyses:	See Refs. 9, 14-16 for chemical analyses
Status:	Temporarily inactive (1988) (2)	Physical test data:	Contact Mankato-Kasota Stone, Inc. for
Past operator/owner:	A. Jefferson & Sons (1911) (4,6); Adam	-	physical test data (1)
-	Jefferson (1884) (7)	Extraction method:	Plug and feather (1)
Township name:	Mankato	Processing plant:	Mankato-Kasota Stone, Inc. (1)
Location:	T 108 R 26 W Sec 6 SW1/4 NW1/4 LOT 2 (2)		820 North Willow St.
	T 108 R 26 W Sec 6 NW1/4 (3,7)		Mankato, MN 56001
Geologic age:	Ordovician	Processing method:	Dimensional limestone fabricator (1)
Geologic formation:	Oneota Fm. (1,5); Shakopee Fm. (7)	Uses of commodity:	Cut stone 90%, split face 10% (1); past uses
Description:	Oneota dolomite (1); see Ref. 4 for brief section description		include: bridge rock, building stone, crushed rock, riprap, lime, cut stone (17); macadam, concrete (18)
Physical test data:	Contact Mankato-Kasota Stone, Inc. for physical test data (1)	Trade names:	Mankato-Kasota Stone: Pink Buff, Gray, Cream, and Golden Buff (1)
Extraction method:	Plug and feather (1)	Marketing area:	U.S.A. (1)
Processing plant:	Mankato-Kasota Stone, Inc. (1)	References:	1) Mankato-Kasota Stone, Inc. 1988, MN/DNR
	820 North Willow Street Mankato, MN 56001		questionnaire 2) Mankato-Kasota Stone, Inc. 1989, personal
Processing method:	Dimensional limestone fabricator (1)		communication
Uses of commodity:	Cut stone 90%, split face 10% (1); past uses include: building stone, flagging stone, natural cement (1918) (4); bridge masonry, cut stone for window caps and sills, lime (1884) (7)		 Austin. 1971, p. 175-177 Mossler. 1975, station 291 U.S. Army Corps of Engineers files Stubblefield. 1971, p. 141-143 Hogberg. 1969, p. 50
Trade names:	Mankato-Kasota Stone: Pink Buff, Gray, Cream, and Golden Buff (1)		8) Hogberg. 1966, p. 39 9) Stauffer. 1950, p. 21, 22, 27
Marketing area:	U.S.A. (1)		10) MN/DOT Aggregate Unit files 11) USBM. [1979], MILS
Remarks:	Mankato-Kasota Stone, Inc. is in the process of reopening quarry (1988) (2)		12) USDL. MSHA mine reference list 13) Emmons; Grout. 1943, p. 76
References:	 Mankato-Kasota Stone, Inc. 1988, MN/DNR questionnaire Mankato-Kasota Stone, Inc. 1989, personal communication Blue Earth County Zoning. 1989, personal communication Bowles. 1918, p. 156 		 14) Stauffer; Thiel. 1933, p. 42-44, 71, 74 15) Thiel; Dutton. 1935, p. 119-123 16) Stauffer; Thiel. 1914, p. 116, 119, 126 17) Bowles. 1918, p. 157, 158 18) Cooley. 1911, p. 11
	5) Thiel; Dutton. 1935, p. 128	Company:	Vetter Stone Co. (1-11)
	6) Cooley. 1911, p. 10 7) Winchell and others. 1884, p. 447-449	Main commodity:	Dimension Carbonate Rock
	γ whole and others. 1004, p. 447-449	County:	Blue Earth
		Quarry/pit name:	Vetter Stone Co. Main Quarries (1-4,6,11)
Company:	Mankato-Kasota Stone, Inc. (1-8,12)	Alternate name:	Vetter No. 1 Quarry (5)
Main commodity:	Dimension Carbonate Rock	Date opened:	1954 (1)
Other commodities:	Crushed Carbonate Rock	Status:	Active (1)
County:	Blue Earth	MN/DOT source no:	07003
Quarry/pit name:	Mankato Quarry (1)	Location:	T 109 R 26 W Sec 20 SW1/4 SW1/4 (1,2,8)
Alternate name:	Mankato Stone Quarry (5,10-12); Coughlin Quarry (9,11); T. R. Coughlan Quarry (13-18)		T 109 R 26 W Sec 20 SW1/4 NE1/4 SW1/4 (11)
Status:	Active (1)	Location comments:	Several "quarry pits" in this area (2); 3-1/8 map
Past operator/owner:	Mankato Stone Co. (10,14); Babcock Co. (2,10-12); T. R. Coughlan Co. (13-18)	Geologic age:	miles north of Mankato on local road no. 5 (11) Ordovician
Township name:	Mankato		

Stone - Dimension Carbonate Rock

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Geologic formation: Description:	Oneota Fm. (1,7,11) Dolomite, pink buff, cream gray and variations,	Description:	Dolomite, pink buff, cream gray and variations, fine grained and fine textured (1); see Ref. 3 for lithologic section description
	fine grained and fine textured (1); see Ref. 11 for detailed lithologic description	Physical test data:	Available from U.S. Army Corps of Engineers
Physical test data:	Available from U.S. Army Corps of Engineers (5) and MN/DOT Aggregate Unit - COPES files (6)	Extraction method:	(10) Blasting and shovel overburden, drill and chain saw (1)
Extraction method:	Overburden blasted, drilled, and quarry chain	Processing plant:	Vetter Stone Co. (main office) (1)
	saw (1)	Processing method:	Sawing, honing, polishing and other hand and
Processing plant:	Vetter Stone Co. (main office) (1)		machine cutting methods (1)
Processing method:	Sawing, honing, polishing and other hand and machine cutting methods (1)	Uses of commodity:	Splitter stone and cut stone used as building stone (1)
Uses of commodity:	Splitter stone and cut stone used for building stone (1)	Trade names:	Northern Buff Minnesota Stone, Northern Gray Minnesota Stone, Northern Pink Minnesota Stone (2); in the past, stone from this quarry
Trade names:	Golden Buff Minnesota Stone, Ka-Kato Cream Minnesota Stone, Minnesota Cathedral Stone, Minnesota Plains Stone, Minnesota Quarry		was called Kasota Stone in pink, buff, or cream (2); "Kasota Stone" (8)
	Creek Stone, Minnesota Ranch Stone,	Marketing area:	Nationally and internationally (1)
	Minnesota River Stone, Minnesota Skyrose	Remarks:	Several "quarry pits" in this area (2,3)
	Stone, Minnesota Travernelle (Stone), Minnesota Valley Stone, Northern Hills Stone, Northern Forest Stone, Northern Frontier Stone, Northern Tan Minnesota Stone, Silver Gray Minnesota Stone, Veined Pink Minnesota Stone (2)	References:	 Vetter Stone Co. 1988, MN/DNR questionnaire Vetter Stone Co. 1989, personal communication Stubblefield. 1971, p. 137, 138
Marketing area:	Nationally and internationally (1)		4) USBM. [1979], MILS 5) USDL. MSHA mine reference list
References:	 Vetter Stone Co. 1988, MN/DNR questionnaire Vetter Stone Co. 1989, personal communication USBM. [1979], MILS USDL. MSHA mine reference list 		6) Hogberg. 1969, p. 48 7) Hogberg. 1966, p. 37 8) MN/DOT Aggregate Unit files 9) U.S. Army Corps of Engineers files
	5) U.S. Army Corps of Engineers files	Company:	Vetter Stone Co. (1-5)
	6) MN/DOT Aggregate Unit files 7) Mossler. 1975, station 298	Main commodity:	Dimension Carbonate Rock
	8) Hogberg. 1969, p. 50	Other commodities:	Crushed Carbonate Rock
	9) Hogberg. 1966, p. 40	County:	Le Sueur
	10) Humphey. 1958, p. 55, 56 11) Stubblefield. 1971, p. 139, 140	Quarry/pit name:	North Quarries (1-5)
	.,	Date opened:	Арргох. 1960 (1)
		Status:	Active (1)
Company:	Vetter Stone Co. (1-3)	Location:	T 109 R 26 W Sec 17 E1/2 NW1/4 (1)
Main commodity:	Dimension Carbonate Rock	Geologic age:	Ordovician
County:		Geologic formation:	Oneota Fm. (1,3)
Quarry/pit name: Alternate name:	Far North Quarries (1) Caroline & Moses Quarry (4,5); Kasota Quarries (8)	Description:	Dolomite, pink buff, cream gray and variations, fine grained and fine textured (1); see Ref. 3 for stratigraphic section description
Date opened:	Арргох. 1920 (1)	Physical test data:	Available from MN/DOT Aggregate Unit (3)
Status:	Active (1)	Extraction method:	Blasting and shovel overburden, drill and chain
Past operator/owner:	Babcock Stone Co. (3-8); Mankato Stone Co.		saw (1)
Location:	(4); Kasota Stone Co., Ed Swartout (10) T 109 R 26 W Sec 5 SE1/4 SW1/4 AND	Processing plant:	Vetter Stone Co. (main office) (1)
Loganon,	T 109 R 26 W Sec 5 SE1/4 SW1/4 AND T 109 R 26 W Sec 8 E1/2 NW1/4 (1)	Processing method:	Sawing, honing, polishing and other hand and machine cutting methods (1)
	T 109 R 26 W Sec 8 SE1/4 SE1/4 NW1/4 (3)	Uses of commodity:	Splitter stone and cut stone used as building
	T 109 R 26 W Sec 8 N1/2 S1/2 NW1/4 (4)		stone (1)
Geologic age: Geologic formation:	Ordovician Oneota Fm. (1,3,10)	Trade names:	Glacier Buff Minnesota Stone, Northern Cream Minnesota Stone, Northern Pink Buff Minnesota Stone, Northern Gray Minnesota Stone (2)
according to the actions		Marketing area	Stone, Northern Gray Minnesota Stone (2)
-14 -14	·	Marketing area:	Nationally and internationally (1)

Stone - Dimension Carbonate Rock

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Remarks: References:	Several "quarry pits" in this area (2) 1) Vetter Stone Co. 1988, MN/DNR		(1); see Refs. 10-13 for stratigraphic sections and for descriptions and history of the quarry
	. questionnaire 2) Vetter Stone Co. 1989, personal communication 3) MN/DOT Aggregate Unit files 4) USDL. MSHA mine reference list 5) USBM. [1979], MILS	Chemical analyses: Physical test data:	See Refs. 5, 12, and 13 for chemical analyses Absorption 3.8%, bulk density 159.7 PCF, compressive strength 15,100 psi, flexural strength 1,270 psi (1); test data available from MN/DOT Aggregate Unit (3) and U.S. Army Corps of Engineers (4)
Componi/		Extraction method:	Drilling, blasting for crushed rock, channeling for dimensional limestone blocks (1)
Company:	Biesanz Stone Co., Inc. (1-4,6,7,10-13) Dimension Carbonate Rock	Processing plant:	Biesanz Stone Co., Inc. (1)
Main commodity:		Processing method:	Diamond saws (1)
Other commodities: County:	Crushed Carbonate Rock Winona	Uses of commodity:	Building veneers (1); crushed rock (2); building stone (3,11); agricultural lime (5,11)
Quarry/pit name:	Biesanz Stone Quarry (1,2,10-12)	Trade names:	Winona "Travertine" (1)
Alternate name:	Biesanz Quarry (3-6,13); Winona Quarry (6,7)	Marketing area:	National (1)
Date opened:	1906 (1)	Remarks:	Crushed rock, from above the dimension stone
Status:	Active (1)	·	level, is being removed by a private contractor
Past operator/owner:	Winona Rock Products produced crushed stone for Biesanz Stone Co., Inc. (1979) (6)	References:	(2) 1) Biesanz Stone Co., Inc. 1988, MN/DNR
MN/DOT source no:	85042		questionnaire
USGS quadrangle:	Winona West	co 3)	 2) Biesanz Stone Co., Inc. 1989, personal communication 3) MN/DOT Aggregate Unit files
Township name:	Winona		
Location:	T 107 R 7 W Sec 19 (1)		 U.S. Army Corps of Engineers files Jirsa; Meyer. 1984, plate 8
	T 107 R 7 W Sec 19 SW1/4 (3-6,8-10,13)		6) USBM. [1979], MILS
	T 107 R 7 W Sec 19 SW1/4 NE1/4 (14)		7) USDL. MSHA mine reference list
	T 107 R 7 W Sec 19 NW1/4 SE1/4 (6)		8) Mossler; Book. 1981, station 167 9) Mossler. 1983, station 167
Location comments:	Quarry on a bluff facing east over the Minnesota River Valley, three miles north (northwest) of Winona on Hwy. 61 (10)		10) Stubblefield. 1971, p. 144-147 11) Thiel; Dutton. 1935, p. 130-134 12) Stauffer; Thiel. 1933, p. 50, 51, 71, 74
Geologic age:	Ordovician		13) Stauffer; Thiel. 1914, p. 116, 119, 120, 221
Geologic formation:	Oneota Fm. (3,5,8-13)		14) Mossler. field notes on Winona West quadrangle
Description:	Dolomitic limestone, buff/grey/off-white; mostly solid with small fissures, resembling travertine		Anaraisio

Stone - Dimension Granite

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Company:	Cold Spring Granite Co. (6)	Marketing area:	U.S.A. (1)
Main commodity:	Dimension Granite	References:	1) Field Granite International, Ltd. 1988, MN/DNR questionnaire
Other commodities:	Crushed Granite		2) USBM. [1979], MILS
County:	Big Stone		3) Goldich and others. 1961, p.129, 145, 146,
Quarry/pit name:	Agate Quarry (1,2,6)		179 4) USDL. MSHA mine reference list
Status:	Intermittently active (2); active (6)		5) Mangen. 1956, p. 7, 11, 12
USGS quadrangle:	Ortonville		6) Lund. 1950, p. 51
Location:	T 121 R 46 W Sec 22 NE1/4 SW1/4 SE1/4 (1)		7) Sloan. 1964, p. 15, 47 8) Hogberg. 1969, p. 48
	T 121 R 46 W Sec 22 SE1/4 SW1/4 (5,6)		9) Hogberg. 1966, p. 37
Location comments:	Ortonville (7)		
Description:	Brownish red, medium grained (7)		
•	Cold Spring Granite Co. (at Cold Spring office)	Company:	Cold Spring Granite Co. (14)
Processing plant:		Main commodity:	Dimension Granite
Uses of commodity:	Dimension stone, crushed and broken (1)	County:	Mille Lacs
References:	1) USBM. [1979], MILS 2) USDL. MSHA mine reference list	Quarry/pit name:	Diamond Gray Quarry (1,3)
	3) Big Stone County Assessor. 1989, personal	Status:	Intermittently active (3); active (14)
	communication	MN/DOT source no:	48-1
	4) Hogberg. 1969, p. 48 5) Hogberg. 1966, p. 37	USGS quadrangle:	Isle SW
	6) USDL. MSHA Duluth Field Office, 1989,	Location:	T 41 R 25 W Sec 3 SW1/4 SE1/4 NE1/4 (1)
	personal communication		T 41 R 25 W Sec 3 NE1/4 NE1/4 (11,12)
	7) National Building Granite Quarries	Location comments:	About 5 miles SE of Wahkon, located along a
	Association, Inc. 1988, p. 6, 7		bend in the Knife River (4); about 5 miles sou
·			of Isle (10,13); junction of County Hwys. 27 ar 156, south of Isle (14)
Company:	Field Granite International, Ltd. (1)	Geologic age:	Early Proterozoic
Main commodity:	Dimension Granite	Geologic formation:	Isle Granite (2)
County:	Lac Qui Parle	Description:	The quarry contains granites of two types. An
Quarry/pit name:	Bellingham Quarry (1)	Decemption	older, light pinkish-gray, porphyritic facies
Alternate name:	Dewar Quarry (5); View Quarry (2)		characterized by plagioclase phenocrysts as
Status:	Intermittently active (1)		much as 2.5 cm. long. This facies contains 40-45% sodic plagioclase, 29-32% quartz,
Past operator/owner:	Georgia Field, Inc. (4); Bellingham Granite Co. (8,9)		16-20% K-feldspar, 8-9% biotite and trace amounts of augite. (2)
USGS quadrangle:	Bellingham		The quarry also contains a younger, light-gray
Location:	T 120 R 45 W Sec 16 NE1/4 SE1/4 SE1/4 (2)		fine to medium-grained facies that resembles
Location comments:	Nearest town Bellingham (1,8,9); see Ref. 6, plate 11 for location map		the Warman Granite. It is generally equigranular and structureless except for
Geologic age:	Archean		scattered small, blocky inclusions of biotite schist. It is fairly homogenuous and consists of
Geologic formation:	Bellingham Granite (3,7); Ortonville Granite (3,5,6)		25-35% sodic plagioclase, 20-30% K-feldspar (dominantly microcline), 25-40% quartz and
Description:	"Medium grained granite with a mottled		1-10% biotite. (2)
	reddish-brown color. Mottling is due to primary igneous flow fabrics in the presence of creamy white feldspar crystals. Black mica is the main dark constituent in the stone. Stone turns from		Modal Analyses: quartz 31%, oligoclase-andesine 34%, microcline 20%, biotite 14%, accessories (apatite, opaque, zircon) generally less than 0.5% (8)
	dark to medium variegation." (1) Modal Analyses: potash feldspar 51%,		See Refs. 2, 4, 5, and 8 for additional lithologi descriptions
	plagioclase 17%, quartz 23%, biotite 4%, accessories (magnetite, apatite, zircon, epidote, muscovite) 1% (5)	Physical test data:	Available from U.S. Army Corps of Engineers and MN/DOT Aggregate Unit (6,7)
Chemical analyses:	See Ref. 3, table 25 for chemical analyses	Processing plant:	Cold Spring Granite Co. (at Cold Spring office
•	· ·	Trade names:	Iridian (15)
Extraction method:	Drilling, burning, blasting (1)	References:	1) USBM. [1979], MILS
Jses of commodity:	Rough granite, random sized saw blocks, memorials, building facing (1)		2) Morey. 1979, p. 24 3) USDL. MSHA mine reference list
Trade names:	Bellingham Granite (1)	1 .	4) Harder; Johnston. 1918, p. 42, 43

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 5) Goldich and others. 1961, p. 112, 113, 177 6) MN/DOT Aggregate Unit files 7) U.S. Army Corps of Engineers files 8) Keighin and others. 1982, p. 250, 251, 254 9) Thiel. 1947, p. 168 10) Skillman. 1945, p. 38, 39, 74-76 11) Hogberg. 1969, p. 49 12) Hogberg. 1966, p. 38 13) Schwartz; Thiel. 1954, p. 174, 179, 270 14) USDL. MSHA Duluth Field Office, 1989, personal communication 15) National Building Granite Quarry Association, Inc. 1988, p. 6, 7 	L G G D
Cold Spring Granite Co. (1,3,18,19)	

Company: Main commodity: **Dimension Granite** County: Renville Quarry/pit name: Rainbow Quarry (3,18) Status: Active (1,3,19) Location: T 113 R 34 W Sec 31 NE1/4 SE1/4 (1) Geologic age: Archean Geologic formation: (Morton Gneiss) **Description:** Red quartz monzonite gneiss (2); variegated pink and black (18) Processing plant: Cold Spring Granite Co. (at Cold Spring office) **Remarks:** See references for location maps, detailed lithologic descriptions including modal analyses, and chemical test data of the Morton area. **References:** 1) Renville County Assessor. 1989, personal communication 2) Farhat. 1975, p. 172 3) USDL. MSHA mine reference list 4) Goldich and others. 1980b, p. 45-56 5) Suda. 1975 6) Lund. 1956, p. 1475-1490 7) Lund. 1953, p. 46-52 8) Lund. 1950 16, 66, 73, 74, plate 4 9) Goldich. 1936, p. 15-29 10) Goldich and others. 1970, p. 3671-3695 11) Goldich and others. 1961, p. 123-146 12) Manges. 1956, p. 7-11 13) Thiel; Dutton. 1935, p. 88-94 14) Bowles. 1918, p. 47-49 15) Nielsen; Weiblen. 1980 p. 57-75 16) Wooden and others. 1980 17) Ankenbauer. 1975 18) National Building Granite Quarries Association, Inc. 1988, p. 6, 7 19) USDL. MSHA Duluth Field Office, 1989, personal communication

Cold Spring Granite Co. (1,2,4,5,8-10,13)
Dimension Granite
Stearns
Rockville Quarry No. 1 (1)
Active (5,13)
T 123 R 29 W Sec 9 NE1/4 SE1/4 SW1/4 (2)
T 123 R 29 W Sec 9 SE1/4 SE1/4 SW1/4 (9)

Location comments: Geologic age:	Rockville (13) Early Proterozoic
Geologic formation: Description:	(Rockville Granite) Reddish-gray to pink-colored, "Rockville quartz monzonite, a rock composed of unusually large, 1-6cm long, light pink (potassic) feldspar crystals (phenocrysts) within a matrix (groundmass) of about equal quantities of gray quartz and white feldspar (albite) and about 10 percent black biotite. The Rockville also contains minor quantities of hornblende, andesine-oligioclase feldspar and magnetite." (1)
	"The shape, limits, and quarrying practices, particularly within the Rockville Quarry No. 1, are governed by natural planar zones that break the rock mass. Two steeply-dipping intersecting fracture sets, that are seen in the quarry walls and floor, trend respectively N. 35 deg 45 deg. W. and N. 55 deg. E.; spacings between the fracture sets range from 25 to 55 feet. Fracture sets that are oriented N. 5 deg 10 deg. E. and that dip 60 deg 70 deg. NW are seen in the wall rocks as diagonal planes. Sheeting (near-horizontal) fractures, that dip gently toward the southwest, have spacing intervals that range from 5 feet near the top, to 30 feet near the base of the quarry." (1); porphyritic quartz monzonite (6); see Refs. 3 and 4 for further lithologic descriptions
Chemical analyses:	See Ref. 7, table 23 for chemical analyses
Processing plant:	Cold Spring Granite Co. (at Cold Spring office)
References:	 Hoagberg. 1986, p. 2 USBM. [1979], MILS Morey. 1976, p. 36 Morey. 1976, p. 7 USDL. MSHA mine reference list Keighin and others. 1972, p. 255 Goldich and others. 1961, p. 117 Hogberg. 1969, p. 50 Hogberg. 1966, p. 38 Hogberg; Matsch. [1966?], p. 5, 9, 10 Johnson. 1978, p. 220 MGS. [1978-1979?] USDL. MSHA Duluth Field Office, 1989, personal communication
Company:	Cold Spring Granite Co. (1-4)
Main commodity:	Dimension Granite
County:	Stearns
Quarry/pit name:	Rockville Quarry No. 2 (1-3)
Status:	Active (4)
Location:	T 123 R 29 W Sec 16 SE1/4 NE1/4 NW1/4 (2)

1/2 mile south of Rockville off State Hwy. 23 (4)

Early Proterozoic (Rockville Granite)

White/black granite with few pink-colored feldspar crystals, "Rockville quartz monzonite, a rock composed of unusually large, 1-6 cm long, light pink (potassic) feldspar crystals

Location comments:

Geologic formation:

Geologic age:

Description:

Stone - Dimension Granite

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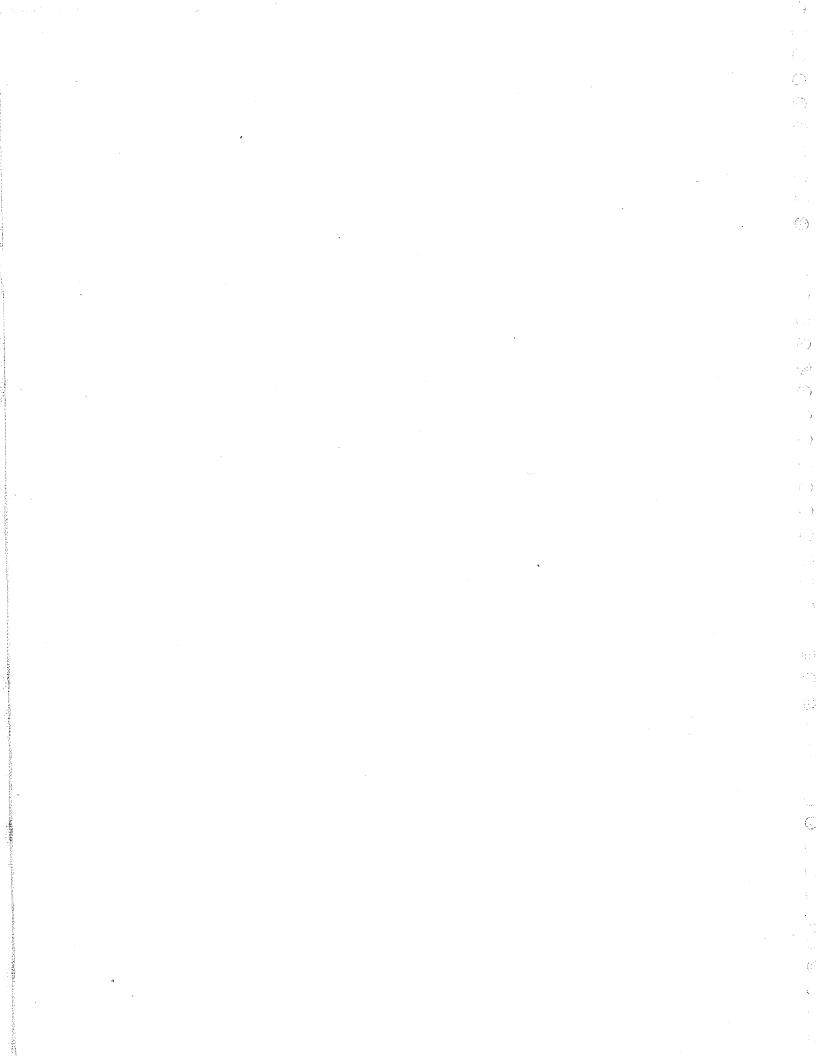
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Processing plant: References:	(phenocrysts) within a matrix (groundmass) of about equal quantities of gray quartz and white feldspar (albite) and about 10 percent black biotite. The Rockville also contains minor quantities of hornblende, andesine-oligoclase feldspar and magnetite." (1) Cold Spring Granite Co. (at Cold Spring office) 1) Hoagberg. 1986, p. 2	Description: Processing plant:	Gray granodiorite, medium-to fine-grained consisting of plagioclase (andesine-oligioclase), hornblende, augite, quartz and potassium feldspar. Accessory minerals include opaque oxide, pyrite, and chalcopyrite. (2); sheeting fractures are approximately 3 to 15 feet apart (3) Cold Spring Granite Co. (at Cold Spring office)
	2) USBM. [1980], MILS 3) USDL. MSHA mine reference list	Uses of commodity: Remarks:	Building panels (3) Slightly pinkish-light gray color on a polished
	4) USDL. MSHA Duluth Field Office, 1989,	nemars.	surface (3)
	personal communication	References:	1) USBM. [1979], MILS 2) Morey. 1976, p. 9
Company:	Cold Spring Granite Co. (1,2)		3) Hogberg; Matsch [1966?] p. 5, 6 4) Hogberg. 1966, p. 38
Main commodity:	Dimension Granite		5) USDL. MSHA mine reference list
County:	Stearns		6) MGS. [1978-1979?] 7) Stearns County Assessor. 1989, personal
Quarry/pit name:	(Charcoal Quarry)		communication
Status:	Active (1,2)		8) USDL. MSHA Duluth Field Office, 1989,
Location:	T 124 R 28 W Sec 21 E1/2 SE1/4 (1)		personal communication
Location comments:	1 mile south of St. Cloud (2)		
Processing plant:	Cold Spring Granite Co. (at Cold Spring office)	Company:	Cold Spring Granite Co. (1-5)
References:	1) Stearns County Assessor. 1989, personal	Main commodity:	Dimension Granite
	communication 2) USDL. MSHA Duluth Field Office, 1989,	County:	Stearns
	personal communication	Quarry/pit name:	Diamond Pink Quarry (1,3)
		Status:	Active (4)
Company:	Cold Spring Granite Co. (1,3-6,8)	Location:	T 124 R 29 W Sec 26 NW1/4 NW1/4 (2)
Main commodity:	Dimension Granite	Location comments:	Five miles south of Waite Park on Quarry Road (4)
County:	Stearns	Description:	Gray-pink with black-pink and dark spots,
Quarry/pit name:	Charcoal Gray Quarry (1,5,6)		medium to coarse grained (5)
Alternate name:	Charcoal Quarry (2,3)	Processing plant:	Cold Spring Granite Co. (at Cold Spring office)
Status:	Active (8)	References:	1) USBM. [1979], MILS
Location:	T 124 R 28 W Sec 34 SW1/4 NW1/4 (1,3,6) Two miles south of St. Cloud, off County Rd. 136 (8)		2) Hogberg. 1969, p. 49 3) USDL. MSHA mine reference list 4) USDL. MSHA Duluth Field Office, 1989 personal communication
Location comments:			
Geologic age:	Early Proterozoic		5) National Building Granite Quarries
Geologic formation:	(St. Cloud Granite)		Association, Inc. 1988, p. 6, 7

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Company:	Jasper Stone Co. (1-10)	Processing plant:	Jasper Stone Co. (plant, quarry, and office a same location) (2)
Main commodity:	Dimension Quartzite	Processing method:	Hydraulic splitters, wire saws, tumbler mill, polisher (2)
Other commodities:	Abrasive Quartzite		
County:	Rock	Uses of commodity:	 Mill and chute liner blocks approx. 70% of production, some acid blocks, grinding med cubes and pebbles approx. 20% of producti but probably 50% of tonnage, building store and memorials approx. 5% now, this amour will be increasing (2) 1) Jasper Stone Co. 1988, MN/DNR questionnaire 2) Jasper Stone Co. 1988, personal communication 3) Herod. 1969 4) Bowles. 1918, p. 204 5) USBM. [1979], MILS 6) USDL. MSHA mine reference list 7) Hogberg. 1969, p. 42 8) Hogberg. 1966, p. 34, 39 9) Sikich. 1959, p. 541 10) Thiel; Dutton. 1935, p. 148, 149
Quarry/pit name:	Jasper Stone Co. Quarry (1)		
Date opened:	1890? (1)		
Status:	Active (1)		
Location:	T 104 R 46 W Sec 6 NE1/4 (1)		
Location comments:	Near Jasper (1,3,4)	References:	
Geologic age:	Middle Proterozoic		
Geologic formation:	Sioux Quartzite (1) Rose quartzite (1); "This material is rock consisting of quartz grains very firmly compacted and containing Potassium Aluminum Silicate (Feldspar) and Iron Sesquioxide (Hematite) as a binder." (1)		
Description:			
Chemical analyses:	98.7% silicon dioxide (1); detailed chemical analyses available from Jasper Stone Co. (1)		
Extraction method:	Open pit (1)		



Producer Directory

Aitkin Agri-Peat

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Fleming Route P.O. Box 35 Aitkin, MN 56431

Harold Kosbau 218-326-5456

Arrowhead Blacktop Co.

Box 6568 Duluth, MN 55816-0568

Frank Pickar, Vice President 218-624-5725

Biesanz Stone Co., Inc.

P.O. Box 768 4600 Goodview Road Winona, MN 55987

Charles W. Biesanz, Jr., President 507-454-4336

Botcher Construction Co.

Rt. 2 Houston, MN 55943

James Botcher or Lowell Botcher 507-896-3723

Bowman Construction Co.

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Frank L. Bowman 218-283-4305

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Dale Westin, Sales Manager 612-445-3900

Chippewa Topsoil

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Reg Pederson 612-478-6045

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William Del Zotto, Jr. 218-626-3089 FAX 218-626-3607

Ferweda General Contracting

11325 Hwy. 22 Angora, MN 55703

Eugene Ferweda 218-254-5441

Field Granite International, Ltd.

3434 Heritage Dr. Edina, MN 55435

Gary Zitzlsperger, Exec. Vice President 612-920-9145

Fisons Western (U.S.), Inc.

Rural Route 2 Box 803 Terrell, TX 75160

Mr. Letcher 214-563-3381

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Don Haefs or Mell Haefs 507-895-2348

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Willard Holm or Al Holm 612-923-4300

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Rt 1, Box 36 Prescott, WI 54021

2750 Glendale Rd. Hastings, MN 55033

Ray Schafer or Greg Bethel (Hastings office) 612-437-1732 or 715-792-5301

Jasper Stone Co.

Jasper, MN 56144

C. F. Lytle, Manager 605-334-6766

Kappers Aggregates, Inc.

PO Box 191 Hwy. 16 East Spring Valley, MN 55975

Ken Fick, Manager 507-346-7601

Kielmeyer Construction Co.

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P.O. Box 158 Nerstrand, MN 55053

Douglas Kielmeyer 507-334-6088

Edward Kraemer & Sons, Inc.

1020 West Cliff Road Burnsville, MN 55337

Scott Falconner, Sales Manager 612-890-3611 FAX 612-890-2996

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Route 2 Red Wing, MN 55066

Harry Luhman, C.E.O. 612-388-3086

Mankato Aglime & Rock Co.

P.O. Box 254 Mankato, MN 56001

Bob Brielmaier, Vice President 507-387-3111

Mankato-Kasota Stone, Inc.

P.O. Box 1358 Mankato, MN 56002-1358

T. William Coughlan, Vice President 507-625-2746

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R. B. McGowan, Inc.

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1001 Black Dog Road Burnsville, MN 55337

Michael McGowan 612-890-1081

Meridian Aggregate Co.

P.O. Box 69 St. Cloud, MN 56302

Don Vry, Regional Manager 612-251-7141

Michigan Peat Co.

Rt. 1, Box 44C Cromwell, MN 55726

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David Blanski, Vice President of Operations 612-937-8033

Minnesota Sphagnum, Inc.

c/o Hyde Park Products, Inc. P.O. Box "X" Mamaroneck, NY 10543-0572

Raymond Hughes 914-381-6050

New Ulm Quartzite Quarries, Inc.

Route 5, Box 21 New Ulm, MN 56073

Bradley Carlstrom, Manager 507-354-2925 FAX 507-359-7870

Northern Con-Agg

P.O. Box 90 St. Peter, MN 56082

Lewis Seely, Vice President 507-931-3500

Northwestern States Portland Cement Co.

P.O. Box 1008 Mason City, Iowa 50401

V. A. Stuessy, Geologist 515-421-3232

Nova Natural Resources

P.O. Box 11630 Salt Lake City, UT 84147

Robert McDonald, President 801-359-8348

Ochs Brick & Tile Co.

P.O. Box 106 Springfield, MN 56087

Ron Schutt, Plant Manager 507-723-4221

Ortonville Stone Co.

P.O. Box 829 Sioux Falls, SD 57117

H. J. Schmidt, Secretary-Treasurer 605-334-5000

Osmundson Brothers Contractors, Inc.

P.O. Box 269 211 W. Main St. Adams, MN 55909

Jim Osmundson 507-582-3360

Patterson Quarries, Div. of Mathy Construction Co.

Rt. 3, Box 15 St. Charles, MN 55972

Dean Gaulke 507-932-3200

Paulson Rock Products

510 9th Ave. S.W. Rochester, MN 55902

James Paulson 507-289-2566 or 507-635-2421

Peat Associates of America

c/o Aitkin County Growth, Inc. 316 First Ave. N.W. Aitkin, MN 56431

Dave Hasskamp 218-927-2172

Peatrex, Ltd.

P.O. Box 67 Cromwell, MN 55726

Dan Flotterud 218-644-3321

Pederson Brothers of Harmony, Inc.

Box 606 Harmony, MN 55939

Jeff Roverud, President 507-886-3371

Pelant

1780 30th Street West Route 1 Webster, MN 55088 William Pelant

Power-O-Peat

770 Sandy Lane Gilbert, MN 55741

Terry Leoni 218-262-6127

Quarve & Anderson Co.

2430 Marion Road S.E. Rochester, MN 55904

Donald J. Lawson, Office Manager 507-289-8506

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Quostar Productions, Inc.

Rt. 1, Box 669 Ogilvie, MN 56358

Mimi Sandler 612-983-3274

Renollett Trucking, Inc.

927 Andover Blvd. N.E. Anoka, MN 55304

Daniel Renollett 612-755-3126

Roberson Lime & Rock Products

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David Roberson 507-753-2516

Rochester Sand & Gravel, Inc.

4105 E. River Road N.E. Rochester, MN 55904

Mark J. Hindermann, President 507-288-7447

Roverud Construction Co.

Box 606, Hwy. 44 East Spring Grove, MN 55974

Roy W. Prestsater, Materials Inspector 507-498-3377

Shamrock Enterprises

6415 Bandle Road Rochester, MN 55901

Donna Mann 507-288-9494 FAX 507-285-0029

J. L. Shiely Co.

1101 Snelling Ave. North St. Paul, MN 55108

Public Affairs Department 612-646-8601

Solwold Peat

53 Church Road Esko, MN 55733

Don Solwold 218-879-4177

Orval Sorum & Sons

RR 3, Box 283B Winona, MN 55987

Southern Minnesota Construction Co., Inc.

1905 Third Ave. Mankato, MN 56001

Bruce Goodrich, Material Supt. 507-625-4848

Stussy Construction, Inc.

416 North Main St. P.O. Box 187 Mantorville, MN 55955-0187

James Paulson, President 507-635-2421 or 507-635-3441

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Tamarack Peat Moss

Rt. 1 Underwood, MN 56568

Jerry Ewert 218-826-6620

Twin City Silica, Inc.

499 Cottage Grove Drive Woodbury, MN 55125

Patrick Braegelmann, Plant Manager 612-436-6025

Twin Ports Blacktop

7688 Rice Lake Road Duluth, MN 55803

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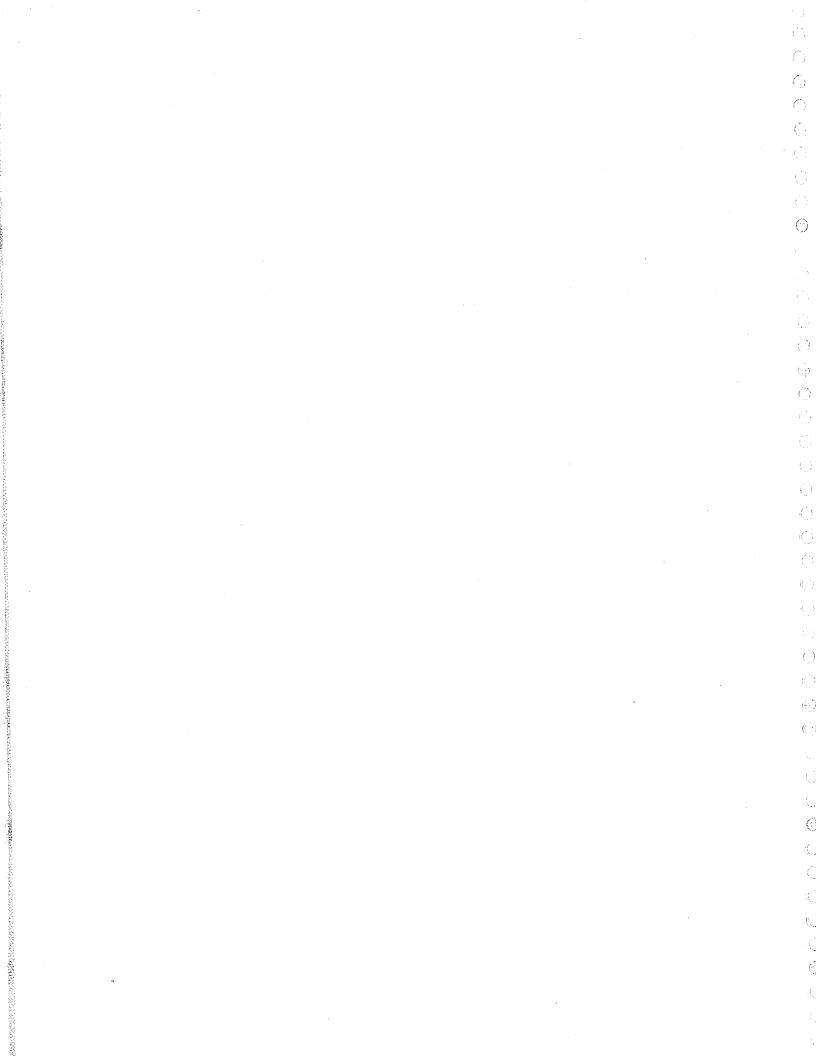
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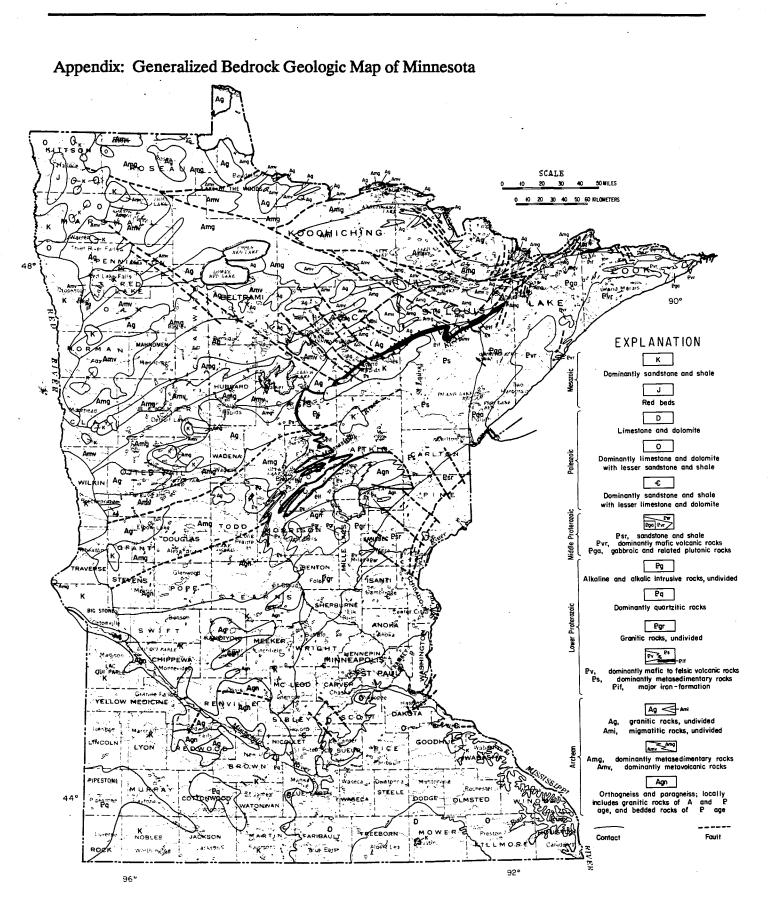
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