

| Table Name    | Field Name | Definition  | Valid Values                                   | Descriptions                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------|------------|-------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| kana_pits.dbf |            |             |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|               | PIT_Q_ID   | Number, 9,0 | Ex:<br>1,2,3,4,5,6,7....<br>341, 342, 343, 344 | Aggregate pit unique ID                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|               | Source     | Text, 30    | See Below                                      | Construction aggregate pit data source compiled from or observed (ex: topographic map- found on the topographic map). Where multiple records existed for a single gravel pit, data points were removed based on a constructed hierarchy of source information. The following sources of information are listed according to rank.                                                                                                                                              |
|               |            |             | MNDOT ASIS                                     | Minnesota Department of Transportation database called Aggregate Source Information Systems. If the location did intersect a gravel pit, the locations were interpreted off of existing gravel pit sheets to relocate the mines to as specified on the sheet. This was ranked highest because of associated quality and texture data. Some locations were modified to better correlate to present gravel pit boundaries and on top of USGS 7.5 Minute Topographic Map symbols. |
|               |            |             | Topographic Map                                | These gravel pits are located from USGS 7.5 minute quadrangles. This was ranked second highest because of the widespread use of the maps. Where field checked, some of these pit types were changed from gravel to borrow or sand pits to reflect the material excavated.                                                                                                                                                                                                      |
|               |            |             | Field Work                                     | These pits were located while in the field. These pits were ranked third highest due to the fact they were directly observed for quality, texture, and spatial accuracy.                                                                                                                                                                                                                                                                                                       |
|               |            |             | Soil Survey                                    | The records for these pits are from the Soil Survey Geographic Database (SSURGO) Kanabec County. The dataset was downloaded in June 2010. These pits were ranked fourth highest.                                                                                                                                                                                                                                                                                               |
|               |            |             | Air Photo                                      | Gravel mines were also located and some attributes were interpreted with air photography. These pits were ranked last because they were remotely interpreted.                                                                                                                                                                                                                                                                                                                  |
|               | Type       | Text, 30    | See Below                                      | The type of pit observed                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|               |            |             | Gravel Pit                                     | Gravel Pit                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|               |            |             | Sand Pit                                       | Sand Pit                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|               |            |             | Dimension Stone Quarry                         | Dimension Stone Quarry                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|               |            |             | Borrow Pit                                     | Borrow Pit- is defined not by use but by material. If a pit contains significant clay and silt material, it was classified as borrow.                                                                                                                                                                                                                                                                                                                                          |

|  |            |            |                                                                         |                                                                                                                                                                                                                       |
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|  | FieldCheck | Text, 30   | Ex: Observed on Site,<br>Observed from Road,<br>Observed with Air Photo | Explains if the aggregate pit was viewed on site, from the road, or on an air photo.                                                                                                                                  |
|  | Asis_numbr | Text, 8, 0 | Ex: 09002, 09019,, 09115,                                               | Aggregate Source Information System Number (MN/DOT Database). An empty field means that it does not have an ASIS number. Use this field to join with kana_asisquality.dbf for the pits that list the Source as "ASIS" |
|  | Size       | Text, 8    | See Below                                                               | Refers to the relative size of the pit.                                                                                                                                                                               |
|  |            |            | Small                                                                   | Small pits are less than five acres. These pits are usually used by private landowners or for small jobs.                                                                                                             |
|  |            |            | Medium                                                                  | Between 5 and 15 acres in size. These pits are used by landowners and for small construction jobs. They are generally used for short periods of time by contractors.                                                  |
|  |            |            | Large                                                                   | These pits are generally greater than 15 acres and are typically used by commercial aggregate operators.                                                                                                              |
|  | Thickness  | Text, 15   | Ex: +10, ~20, +25, 10, 25, Not Available                                | The thickness of the deposit expressed in combination with a modifier. Not Available indicates that the measurement does not apply or was not observed.                                                               |
|  | Thick_mod  | Text, 1    | Ex: +,-                                                                 | Modifiers to express numeric approximations observed for deposit thickness:<br>+ greater than<br>- to, as in 10-20                                                                                                    |
|  | Thick_min  | Number, 4  | Ex: 5, 10, 15...-999                                                    | Gives the minimum value for thickness. (-999 is a null value)                                                                                                                                                         |
|  | Thick_max  | Number, 4  | Ex: 5, 10, 15...-999                                                    | Gives the maximum value for thickness. (-999 is a null value)                                                                                                                                                         |
|  | Overburden | Text, 15   | Ex: +10, ~20, +25, 10, 25, Not Available                                | Expresses overburden thickness by possibly using one or both the modifier and value. Not Available indicates that the measurement does not apply or was not observed.                                                 |
|  | Ob_mod     | Text, 1    | Ex: ~, -, +                                                             | Modifiers to express numeric approximations for the overburden thickness at a gravel pit.<br>~ approximate<br>- to, as in 10-20<br>+ greater than                                                                     |
|  | Ob_min     | Number, 4  | Ex: 5, 10, 15...-999                                                    | Gives the minimum value for overburden thickness. (-999 is a null value).                                                                                                                                             |
|  | Ob_max     | Number, 4  | Ex: 5, 10, 15...-999                                                    | Gives the maximum value for overburden thickness. (-999 is a null value).                                                                                                                                             |
|  | Watertable | Text, 15   | Ex: +10, ~20,                                                           | The depth of the water table expressed in                                                                                                                                                                             |

|  |           |           |                               |                                                                                                                                                                                                     |
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|  |           |           | +25, 10, 25,<br>Not Available | combination with a modifier. Not Available indicates that the measurement does not apply or was not observed.                                                                                       |
|  | Wattabmod | Text, 1   | Ex: ~, -, +                   | Modifiers to express numeric approximations for the depth to the water table:<br><br>~ approximate<br>- to, as in 10-20<br>+ greater than                                                           |
|  | Wattabmin | Number, 4 | Ex: 5, 10.<br>15...-999       | Describes the minimum depth to the water table within a pit or quarry. If 20 feet of gravel was exposed and there was no water table encountered, then +20 were used.<br><br>(-999 is a null value) |
|  | Wattabmax | Number, 4 | Ex: 5, 10.<br>15...-999       | Describes the maximum depth to the water table within a pit or quarry. If 20 feet of gravel was exposed and there was no water table encountered, then +20 were used.<br><br>(-999 is a null value) |
|  | Status_1  | Text, 20  | See Below                     | Refers to the status of the pit at the time of mapping.                                                                                                                                             |
|  |           |           | Active                        | Active indicates that the pit is either being actively mined or used for other mining related usage like stockpiling material.                                                                      |
|  |           |           | Inactive                      | Refers to a pit that was not immediately active when documented or may appear to have been inactive for some time.                                                                                  |
|  |           |           | Reclaimed                     | The pit has been passively or actively reclaimed. Status_2 further describes the type of reclamation.                                                                                               |
|  |           |           | Partially Reclaimed           | Part of the pit has been passively or actively reclaimed. Status_2 further describes the type of reclamation.                                                                                       |
|  | Status_2  | Text, 50  | See Below                     | Associated with the field Status_1. This field further explains the condition of a partially or fully reclaimed gravel pit. The status could be a combination of more than one use.                 |
|  |           |           | Active                        | Specifies that mine is an active aggregate producing mine.                                                                                                                                          |
|  |           |           | Agriculture                   | Mine has been reclaimed into an agricultural use.                                                                                                                                                   |
|  |           |           | Commercial                    | Mine has been reclaimed into an commercial development like a strip mall, a store, etc.                                                                                                             |
|  |           |           | Inactive                      | Mine is not presently active at time of assessment.                                                                                                                                                 |
|  |           |           | Naturally Vegetated           | Mine has been passively or naturally revegetated over time.                                                                                                                                         |
|  |           |           | Naturally Vegetated - Grass   | Mine has been revegetated with grass.                                                                                                                                                               |
|  |           |           | Naturally Vegetated -         | Mine has been revegetated with trees.                                                                                                                                                               |

|  |           |           |                             |                                                                                                                                                                                                                                                                                                                                               |
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|  |           |           | Trees                       |                                                                                                                                                                                                                                                                                                                                               |
|  |           |           | Partially Vegetated         | Mine has been partially revegetated and is partially unreclaimed.                                                                                                                                                                                                                                                                             |
|  |           |           | Partially Vegetated - Grass | Mine has been partially revegetated with grass and is partially unreclaimed.                                                                                                                                                                                                                                                                  |
|  |           |           | Pond                        | Mining was likely below the water table and created a pond.                                                                                                                                                                                                                                                                                   |
|  |           |           | Recreation area             | Mine has been reclaimed into a public recreation area.                                                                                                                                                                                                                                                                                        |
|  |           |           | Residential                 | Mine has been reclaimed into residential development.                                                                                                                                                                                                                                                                                         |
|  |           |           | Sloped and Vegetated        | Mine has been purposely reclaimed, walls of mine have been sloped and the mine has been vegetated                                                                                                                                                                                                                                             |
|  |           |           | Vegetated                   | Mine has been reclaimed by vegetation                                                                                                                                                                                                                                                                                                         |
|  |           |           | Vegetated-Trees             | Mine has been reclaimed and revegetated with trees                                                                                                                                                                                                                                                                                            |
|  | Dom_litho | Text, 30  | See Below                   | Dominant lithology of the pit.                                                                                                                                                                                                                                                                                                                |
|  |           |           | Superior Lobe               | Superior Lobe is a northeastern sourced glacier flowing from the Lake Superior basin to the southwest. The quality of these deposits tends to be high to very high due to the rock types found within the deposits (basalt, granite, rhyolite).                                                                                               |
|  | Dom_text  | Text, 35  | See Below                   | The dominant texture of the pit.                                                                                                                                                                                                                                                                                                              |
|  |           |           | Dimension Stone             | Competent bedrock quarried for a wide variety of uses for building applications, examples include: tiles countertops, and facades.                                                                                                                                                                                                            |
|  |           |           | Could not observe           | The texture of the pit was undetermined due to lack of access or exposure. In some cases proximal geologic evidence was used to make a textural determination.                                                                                                                                                                                |
|  |           |           | Sand                        | Indicates the deposit is composed of sand and has a fine texture.                                                                                                                                                                                                                                                                             |
|  |           |           | Sand and Gravel             | Indicates the deposit has approximately equal or slightly more sand than gravel by percent weight.                                                                                                                                                                                                                                            |
|  |           |           | Sand with Gravel            | Indicates the deposit overall has more sand than gravel by percent weight and has an overall fine texture.                                                                                                                                                                                                                                    |
|  |           |           | Sand minor Gravel           | Indicates the deposit is predominately sand with a minor percentage of gravel or coarse material.                                                                                                                                                                                                                                             |
|  |           |           | Till                        | Heterogeneous deposit possibly consisting of any combination of clay, silt, sand, gravel, cobbles, and boulders. Any granular material (fine sand to boulders) suspended within a variable matrix (silty clay to sand). Till can be loose or compacted. Till is synonymous with “drift,” and can be deposited subglacially or supraglacially. |
|  | Comments  | Text, 200 | Ex: Very sandy deposit      | Geologist comments related to the pit.                                                                                                                                                                                                                                                                                                        |

|  |         |          |                                |                                                    |
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|  |         |          | with limited gravel            |                                                    |
|  | Gpqname | Text, 50 | Ex: Mn/DOT Pit, Brook Park Pit | If available, the pit name at the time of mapping. |
|  |         |          | Not Available                  | Information about the pit name was not available.  |