TO:

Brunswick Town Board and Eau Claire County
Planning and Development Department

IN REFERENCE TO:

Rezoning, Conditional Use Permits and Nonmetallic Reclamation Permit Application for Riekemann Property

SUBMITTED BY:

Mathy Construction Company
920 10th Avenue North
Onalaska, WI 54650

DATE:

January 14, 2003

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INTRODUCTION

1.1 Purpose

This request for **Zoning Changes, Conditional Use Permits and a Nonmetallic Mining Reclamation Permit** from the Brunswick Town Board and the Eau Claire County Planning and Development Department is submitted by Mathy Construction Company. This application describes plans for the following

- Rezoning of a five (5) acre section of land from A-1 Exclusive Agriculture to I-1 Non-sewered Industrial for the purpose of erecting a Hot Mix Asphalt plant.
- Rezoning the rest of the 157.5 acre parcel of land from A-1 Exclusive Agriculture to A-2 Agriculture-Residential for the purpose of sand & gravel excavation.
- Application for a Conditional Use Permit to allow the operation of a HMA plant on the site.
- Application for a Conditional Use Permit to allow the excavation of sand & gravel on the site.
- Application for a Non-metallic Mining Reclamation permit for the reclamation of the property.

The plan describes the progressive extraction of sand and gravel raw materials and contemporaneous reclamation of disturbed areas to residential and recreational land use. Mathy Construction has an option to purchase this property, which is presently owned by Robert & Donna Riekemann (Riekemann Property) of W5544 State Road 85, Eau Claire, Wisconsin 54701-9536. Mathy Construction will be the owner of the property, holder for all permits and responsible for all operations on the site, with company address of:

Mathy Construction Company
920 10th Avenue North
Onalaska, WI 54650
Phone (608) 783-6411 /Fax (608) 783-4311

1.2 Location and Legal Description

An option to purchase the Riekemann Property was signed on August 20, 2002. The property contains 157.5 acres and is located north of State Highway 85, approximately four miles west and three miles south of the junction of Interstate 94 and State Highway 85-37, southwest of the City of Eau Claire, Wisconsin, (Please refer to Figure # 1, Site Location Map). The property is located within the Town of Brunswick, Eau Claire County, Wisconsin.

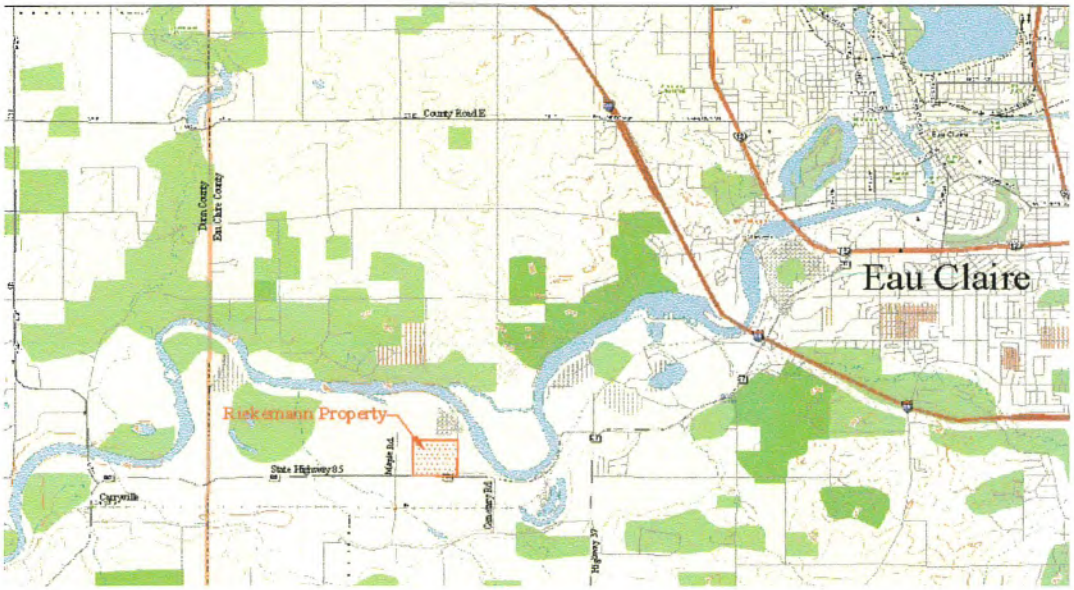


Figure #1, Site Location Map

The entire Riekemann Property is zoned A-1 Exclusive Agriculture. The adjacent properties are also zoned A-1 Exclusive Agriculture. Refer to Figure # 2, Zoning Map for the zoning status of neighboring properties.

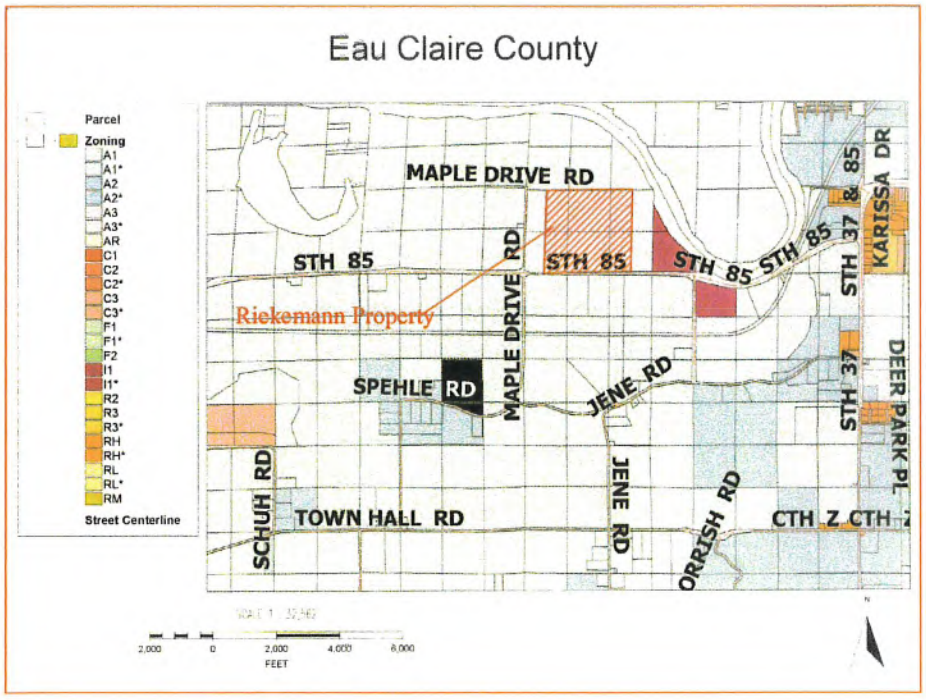


Figure #2 Zoning Map

The Tax Parcel numbers of the Riekemann Property are 26.10.4.3-1, 26.10.4.3-2-A, 26.10.4.3-3-A and 26.10.4.3-4. The legal description of the property where the extraction of sand and gravel is proposed includes the following:

The west half of the west half of the southeast quarter and the east three-fourths of the southwest quarter of section 4, Township 26 North, Range 10 West, Town of Brunswick, Eau Claire County, Wisconsin (see figure #3, plat map).

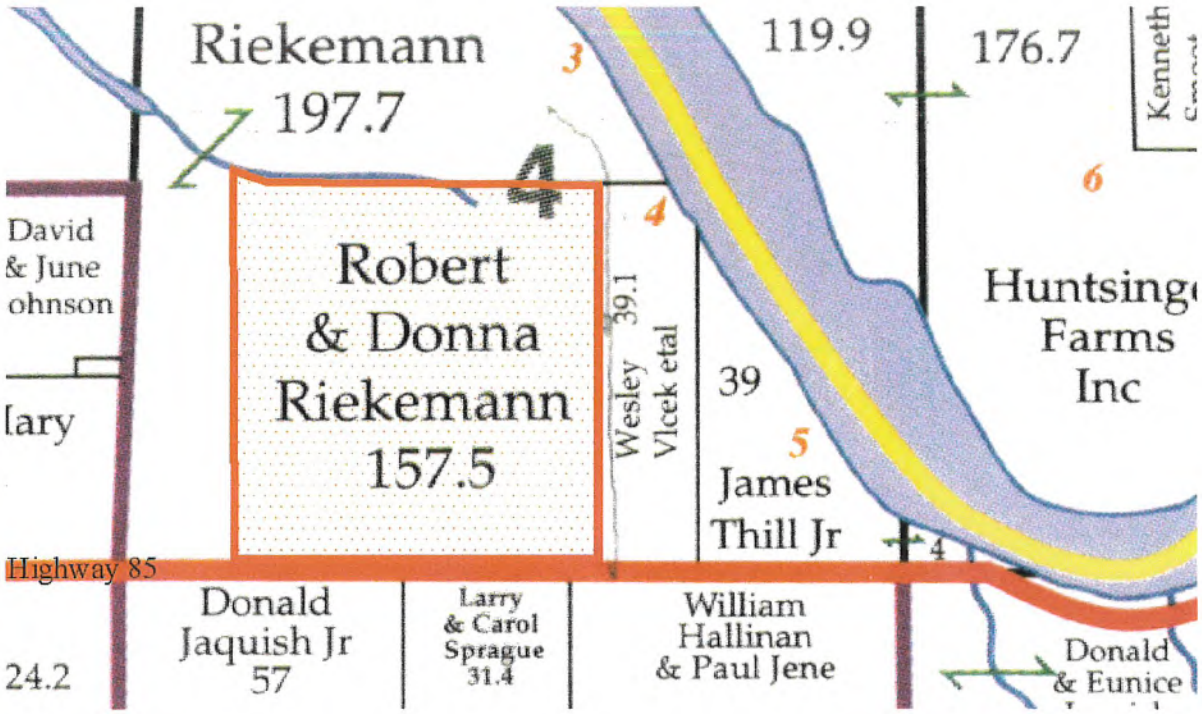
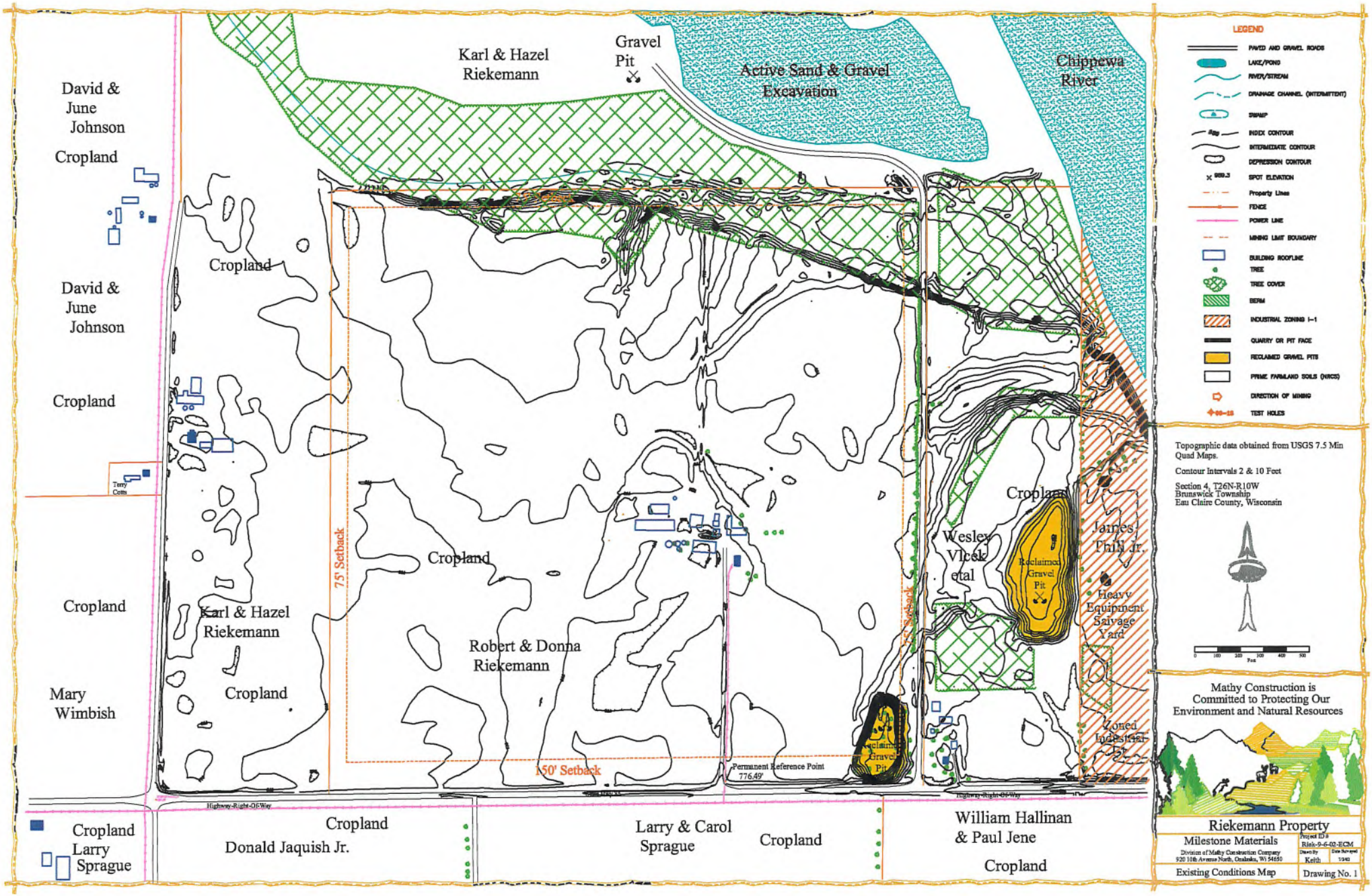


Figure #3 Plat Map

1.3 Site Characteristics and Present Land Use

The site characteristics and present land use of the Riekemann Property and surrounding areas is shown on Drawing #1, Existing Conditions Map. Shown on the map are trees and forested areas, roads, landowners, neighboring residences, outbuildings and the existing topography with both two-foot and 10-foot contour intervals.

The majority of the 157.5-acre Riekemann Property is tillable farmland. No cultural features exist on the property. The extreme southeast portion of the property has been mined and reclaimed in the past as indicated by a reclaimed gravel pit. No streams or rivers traverse the excavation area and there is little or no surface water runoff leaving the site. Nearly all precipitation on the site drains internally and percolates into the sandy topsoil and subsoil.


Karl & Hazel Riekemann
Gravel Pit
Active Sand & Gravel Excavation
Chippewa River
David & June Johnson
Cropland
David & June Johnson
Cropland
Cropland
Terry Cotts
Cropland
Karl & Hazel Riekemann
Cropland
Robert & Donna Riekemann
Mary Wimbish
Cropland
75' Setback
150' Setback
50' Setback
Permanent Reference Point
776.49'
Reclaimed Gravel Pit
Wesley Vlcek etal
Cropland
Reclaimed Gravel Pit
James Phill jr.
Heavy Equipment Salvage Yard
Zoned Industrial
Highway-Right-Of-Way
Cropland
Larry Sprague
Cropland
Donald Jaquish Jr.
Larry & Carol Sprague
Cropland
William Hallinan & Paul Jene
Cropland
LEGEND
PAVED AND GRAVEL ROADS
LAKE/POND
RIVER/STREAM
DRAINAGE CHANNEL (INTERMITTENT)
SWAMP
INDEX CONTOUR
INTERMEDIATE CONTOUR
DEPRESSION CONTOUR
SPOT ELEVATION
Property Lines
FENCE
POWER LINE
MINING LIMIT BOUNDARY
BUILDING ROOFLINE
TREE
TREE COVER
BERM
INDUSTRIAL ZONING I-1
QUARRY OR PIT FACE
RECLAIMED GRAVEL PITS
PRIME FARMLAND SOILS (NRCS)
DIRECTION OF MINING
TEST HOLES
Topographic data obtained from USGS 7.5 Min Quad Maps.
Contour Intervals 2 & 10 Feet
Section 4, T26N-R10W
Brunswick Township
Eau Claire County, Wisconsin
Mathy Construction is Committed to Protecting Our Environment and Natural Resources
Riekemann Property
Milestone Materials
Division of Mathy Construction Company
920 10th Avenue North, Onalaska, WI 54650
Project ID #
Riek-9-6-02-ECM
Drawn By
Keith
Date Surveyed
Existing Conditions Map
Drawing No. 1

The closest navigable stream or river is the Chippewa River which is located about 900 feet northeast of the site. Another abandoned and reclaimed gravel pit can be found on the Wesley Vlcek property, immediately east of this site.

The land surrounding the planned sand and gravel excavation operation is primarily used for agricultural purposes, aggregate mining, industrial use and residential acreage. Refer to Figure #4, General Land Use Map. There are two neighboring residences within 660 feet of the property boundaries of the Riekemann Property. The owners of the adjacent properties are shown on Figure #3(Plat Map) and Drawing No. 1(Existing Conditions Map).

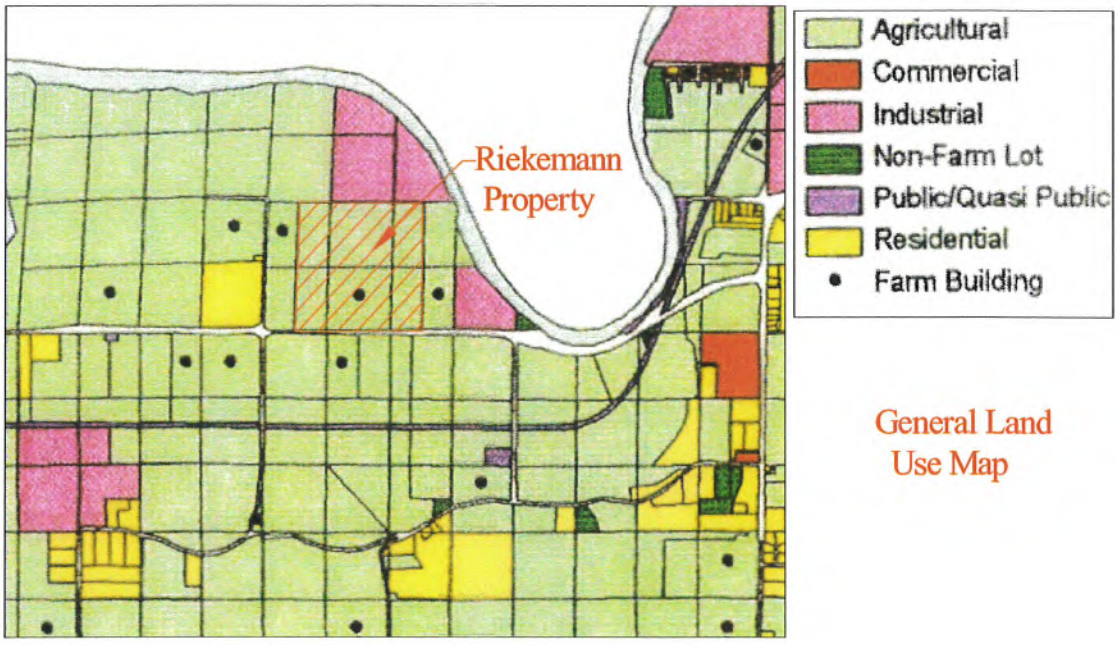


Figure #4, General Land Use Map

1.4 Soils and Geology

Soils found with the proposed excavation area are of the Menahga-Plainfield association, see figure #5, Soils Map. This soil association consists of excessively drained sands and loamy sands that are underlain by loamy sand and sand over stream terraces. The Plainfield Series (PfB) is also excessively drained with a topsoil layer of about 6 inches thick and a subsoil layer of about 23 inches thick.

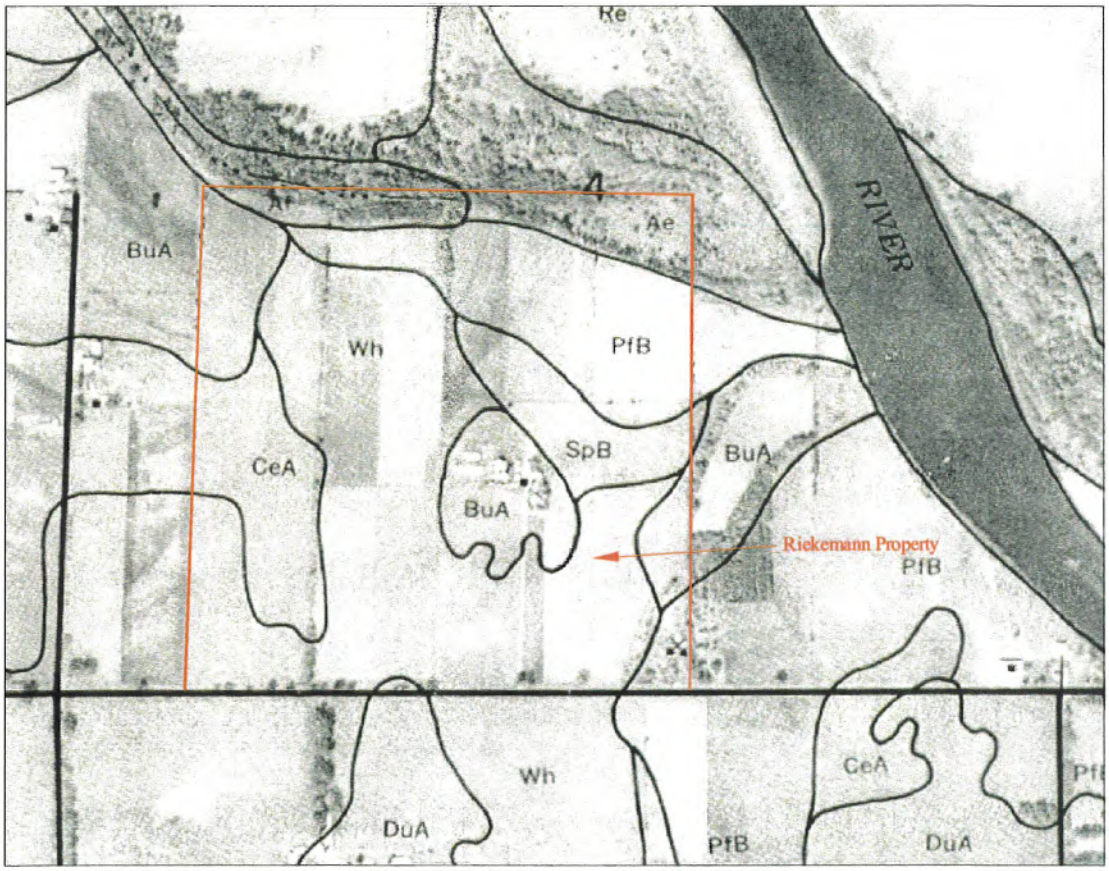


Figure #5 Soils Map

Also present on this site are specific soil types identified as the Burkhardt sandy loam (BuA), the Caryville loam (CeA), the Plainfield loamy sand (PfB), the Sparta loamy sand (SpB) and the Whitehall silt loam (Wh). The Riekemann property, as determined from test drilling, is covered with one to two (1-2) feet of black topsoil (A horizon), one to twelve (1-12) feet of brown silty sandy sub-soil (B horizon) and at least sixty five (65) feet of coarse sand and gravel.

The Robert & Donna Riekemann 157.5-acre tract of land under consideration in this plan is situated roughly in the middle of the broad meander valley of the Chippewa River. This meander valley is over two (2) miles wide and consists of alluvial deposits of silt, sand, gravel and clay deposited by the constant erosion and depositional movements of the Chippewa River through its geologic history. The river has effectively concentrated and consolidated glacial sands and gravels left by retreating glaciers ages ago throughout the extensive drainage network within the Chippewa River basin. The river has further sorted these materials into areas, which are very sandy, very rocky, and very clayey, or areas, which have a good mix of sand and gravel, see figure #6.

The Riekemann property contains a good mix of clean sand and gravel and is very well suited for construction use and HMA, materials in the Eau Claire market area. The actual depth (thickness) of the coarse sand and gravel deposit may be thicker than 65 feet depending upon the depth to the bottom of the ancient Chippewa River valley channel (up to 200' per Wisconsin Geological Survey). Surface elevations on the site range from 764 to 771 feet above sea level. The elevation of the present water table is 750.5 feet or roughly 14 to 21 feet below the surface.

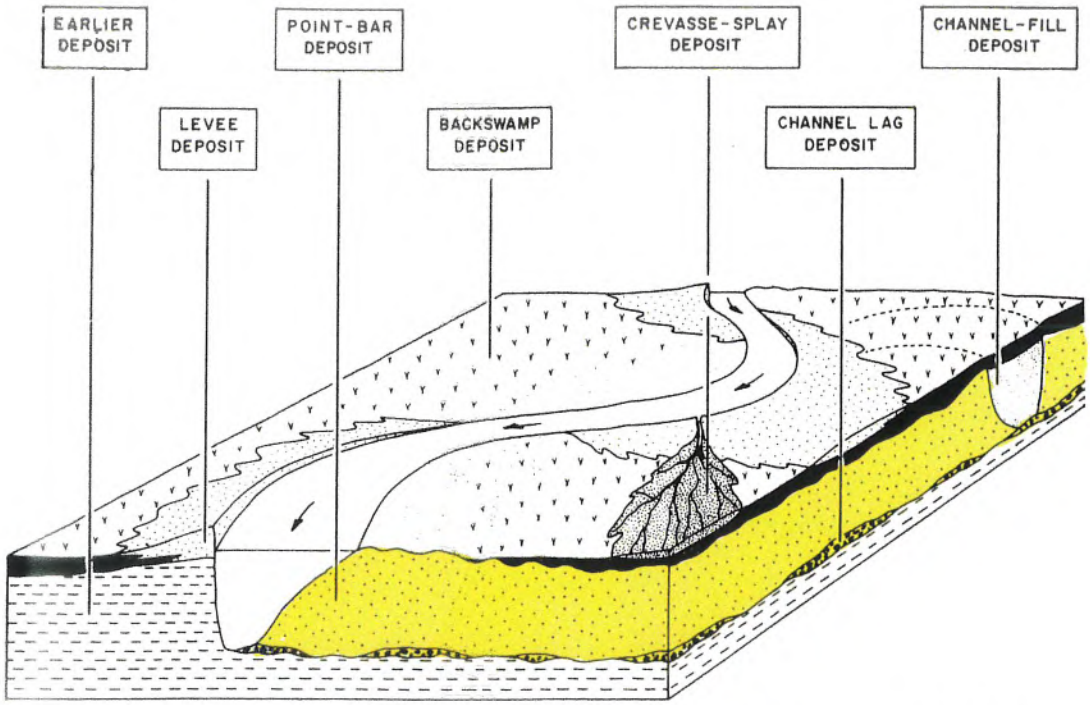


Figure #6 Block diagram of meandering-river, flood-plain and channel deposit (Allen, 1964)

The one hundred (100) year flood elevation for this area is 766 feet above sea level. Figure #7, Glacial Geology Map, shows the relationship of the Riekemann Property to mapped Pleistocene deposits in the Eau Claire County area.

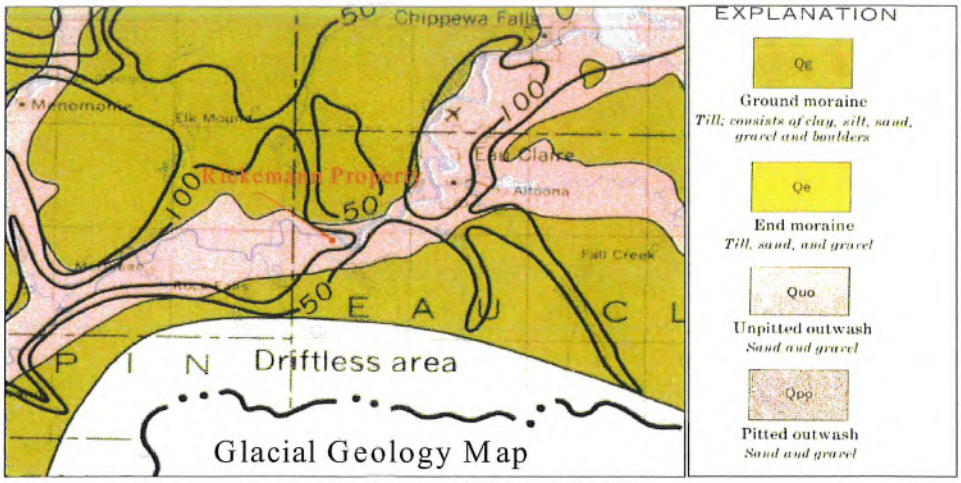


Figure #7 Glacial Geology Map

A geological exploration of the sand and gravel reserves on the Riekemann Property was conducted in May, 2002. Figure #8, Typical Geologic Cross-Section, shows the typical geologic units and their relationships below the ground surface. There are approximately 135 acres of minable sand and gravel reserves on the 157 acre property.

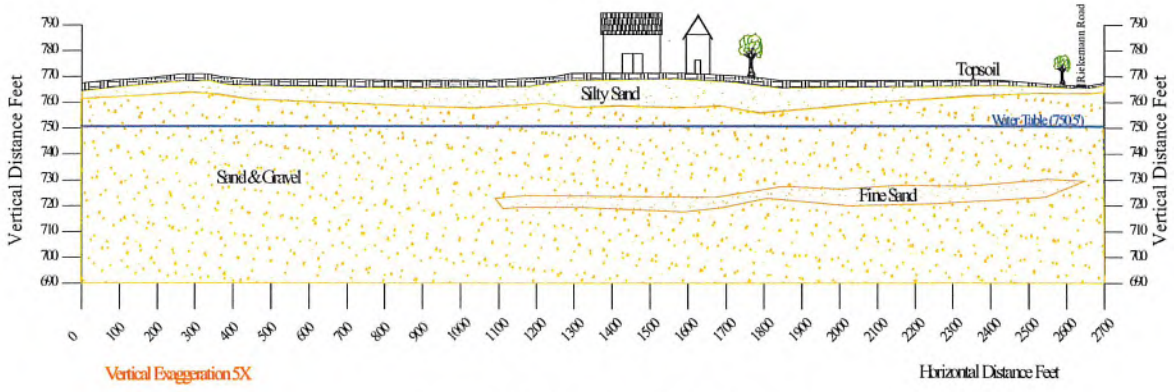


Figure #8, Geological Cross-Section

The ground water level under the Riekemann Property is predicted to be at an elevation of approximately 750.5 feet above sea level based upon a report of the Hydrogeology of the Riekemann Property[1] by Dr. John Tinker, (Appendix A). All of the known water wells of residences immediately surrounding the Riekemann Property are completed in the outwash sand and gravel. A summary of the data from the Well Constructor's Reports of wells in the area of the property is available from the Wisconsin Geological and Natural History Survey and is included in the report by Dr. John Tinker (Appendix A). Typically, the neighboring wells drilled for household use are 4 to 6 inches in diameter, average about 80 feet deep and yield from 10 to 20 gallons per minute. The alluvial aquifer is a suitable source for potable water. Dr. Tinker's report indicates that the direction of the ground water flow in the aquifer will fall within the range of N35W to N43W towards the Chippewa River.

1.5 Biologic Information

The native vegetation found on the Riekemann Property likely included mixed prairie grasses in the low areas and some white pine, jack pine and scrub oak trees on the hill slopes[2]. Today, a mixture of deciduous trees and pine trees are found in the wooded area along the north end of the property and nearly all of the remaining land is cultivated for row crops. A line of large elm trees is found in the fence line along the existing access road on the east side of the property.

A variety of wildlife may occasionally be found on or near the property. Some of the species present include white-tailed deer, coyote, red fox, raccoon, opossum, woodchuck, skunk, fox squirrel, gray squirrel, and cottontail rabbit. Resident birds found locally include

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[1] Hydrology of the Riekemann Property Town of Brunswick, Eau Claire County, Wisconsin by John R. Tinker, Jr., Ph.D., JRT Hydro, Inc., W940 County WW, Eleva, WI 54738.

[2] Soil Survey of Eau Claire County, United States Department of Agriculture, Soil Conservation Service, November, 1977

wild turkey, ruffed grouse, crow, pheasant, great horned owl, red-tailed hawk, blue jay, cardinal, nuthatch, chickadee, several woodpeckers and starling. Migratory birds in the area include American robin, red-winged blackbird, and killdeer. Garter snakes are also present in the area. To our knowledge, there are no threatened or endangered species of plants or animals on the property.

SECTION 2.0
HMA PLANT DEVELOPMENT PLAN

2.1 Purpose

This application package contains a request for a zoning change from A-1 Exclusive Agricultural to I-1 Non-sewered Industrial District for a five (5) acre parcel in the northeast corner of the Riekemann Property and a Conditional Use Permit for the operation of a Hot Mix Asphalt (HMA) plant. This application describes plans for the placement of the HMA plant on this section of land currently owned by Robert and Donna Riekemann. Mathy Construction along with Eau Claire Asphalt Corporation will be responsible for the operation of the HMA plant.

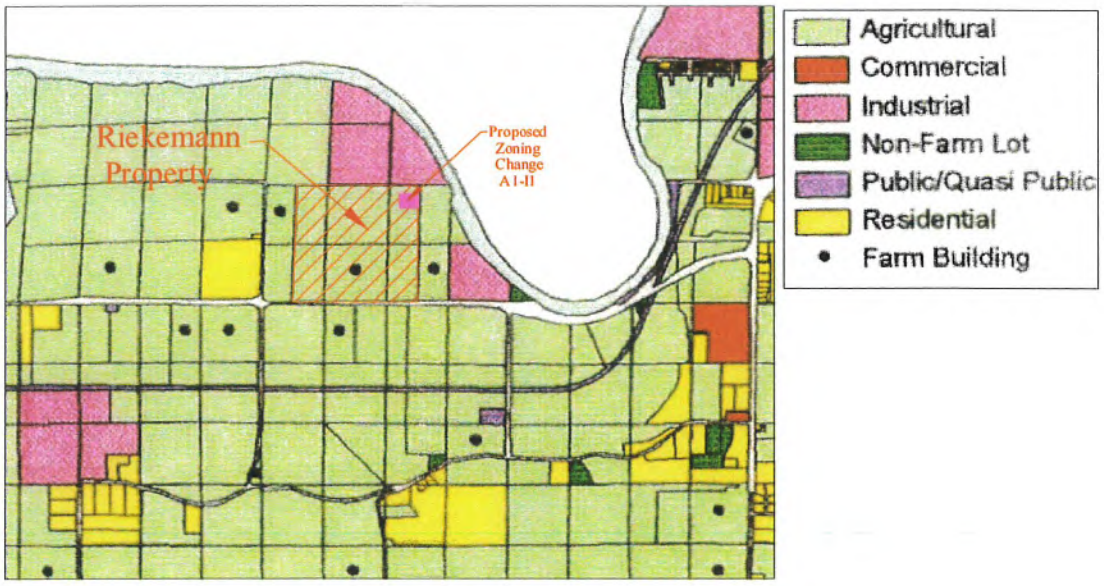
Mathy Construction Company requests a Conditional Use Permit and the change in zoning to address the need for present and future HMA product demand in the Eau Claire County area. Depletion of the aggregate reserve at the current HMA plant site on Porterville Road requires the relocation of the HMA plant to the Riekemann site which contains an abundant long term source of aggregate materials. This plan describes various aspects involved in creating an efficient, environmental friendly and aesthetically pleasing site.

2.2 Location and Legal Description

The entire 157.5-acre Riekemann Property is zoned A-1 Exclusive Agriculture. The surrounding properties on the north, south and west are also zoned A-1 Exclusive Agriculture and east of the Riekemann property there are several parcels of land that are zoned I-1 Non-sewered Industrial District.

The proposed HMA plant site will consist of five (5) acres, located in the northeast corner of the property, see zoning map below. Refer to Figure #9, Zoning Map for a more detailed zoning status of neighboring properties.

Figure #9 Zoning Map



A legal description of the parcel to be rezoned is as follows:

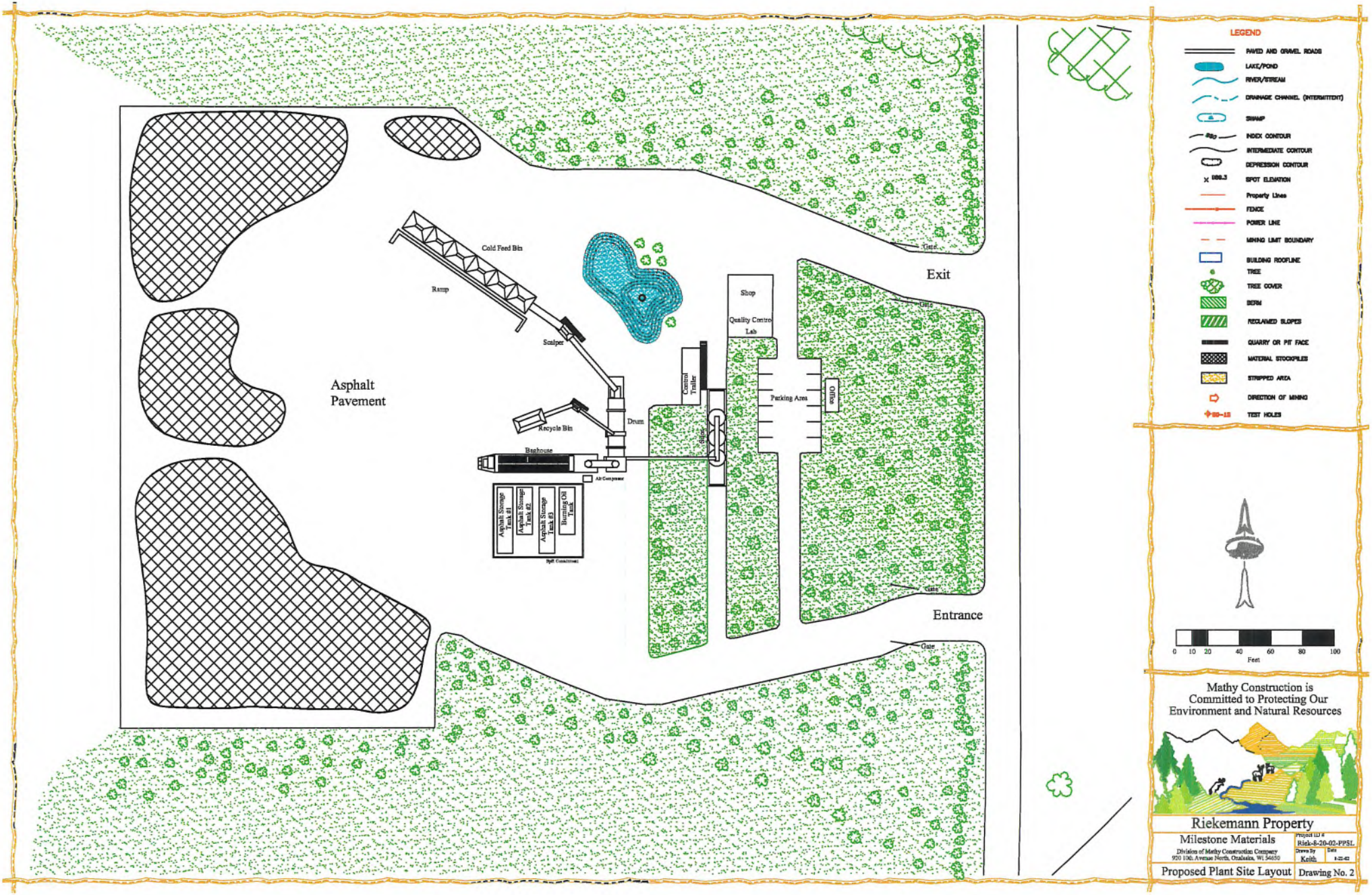
Starting at the Southeast corner of Section 4, Township 26 North-Range 10West, Brunswick township, Eau Claire County, Wisconsin, thence west 1980 feet parallel to south section line, thence north 2000 feet parallel to east section line to point of beginning. Thence west 550 feet parallel to south section line, thence south 396 feet parallel to east section line, thence east 550 feet parallel to south section line, thence north 396 feet to point of beginning.

2.3 Site Development

Construction and development of the HMA plant and site will begin in the spring of 2003. The proposed site plan is shown in Drawing No. 2 (Proposed HMA Plant Site Layout). Construction will begin with the building of screening berms to the south and west of the site. Water retention dikes will also be constructed along the north side of the site to ensure storm water runoff does not leave the property. Storm water runoff will be collected in a retention pond and allowed to evaporate. An aeration fountain may be used to increase the evaporation rate of this water, see photo 1, Typical HMA Plant Layout.

Photo 1, Typical HMA Plant Layout

All berms will be seeded and planted with scattered trees to create an attractive appearance that will blend with the natural surroundings, see photo 2, Conceptual HMA Plant


Cold Feed Bin
Ramp
Scalper
Asphalt Pavement
Recycle Bin
Drum
Baghouse
Air Compressor
Asphalt Storage Tank #1
Asphalt Storage Tank #2
Asphalt Storage Tank #3
Burning Oil Tank
Spill Containment
Control Trailer
Silos
Shop
Quality Control Lab
Parking Area
Office
Gate
Exit
Entrance
LEGEND
PAVED AND GRAVEL ROADS
LAKE/POND
RIVER/STREAM
DRAINAGE CHANNEL (INTERMITTENT)
SWAMP
INDEX CONTOUR
INTERMEDIATE CONTOUR
DEPRESSION CONTOUR
SPOT ELEVATION
Property Lines
FENCE
POWER LINE
MINING LIMIT BOUNDARY
BUILDING ROOFLINE
TREE
TREE COVER
BERM
RECLAIMED SLOPES
QUARRY OR PIT FACE
MATERIAL STOCKPILES
STRIPPED AREA
DIRECTION OF MINING
TEST HOLES
0 10 20 40 60 80 100
Feet
Mathy Construction is Committed to Protecting Our Environment and Natural Resources
Riekemann Property
Milestone Materials
Division of Mathy Construction Company
920 10th Avenue North, Onalaska, WI 54650
Project ID #
Riek-8-20-02-PPSL
Drawn By
Keith
Date
8-21-02
Proposed Plant Site Layout
Drawing No. 2

Entrance. Roads and stockpile areas will be paved with HMA pavement to provide safe and stable traffic area. Seeding, plantings and permanent erosion control are more thoroughly discussed later in this section.

Photo 2, Conceptual HMA Plant Entrance

2.4 Hot Mix Asphalt Plant

Layout of the HMA plant is depicted in Drawing No. 2 (Proposed Plant Site Layout). The main components of the plant are the drum-dryer, silo(s), baghouse, tanks and control house. The aggregate is dried in the drum where it is mixed with the liquid asphalt cement. When the aggregate and asphalt cement are thoroughly mixed, the HMA product is conveyed

to the silo where it is stored until it is loaded into trucks to be delivered to the project site. The combustion gases (air) from the drying process are routed via ductwork to the baghouse. The baghouse filters the airstream as it passes through the filter media. Baghouse's are typically fitted with over a thousand filter elements to ensure adequate removal of particulate matter. Once the air is filtered through the baghouse, the clean air and steam (water vapor) exit the baghouse stack into the atmosphere.

The on-site tanks contain liquid asphalt cement, burner fuel and diesel fuel. A Portland Cement Concrete spill containment barrier will be installed under the tanks to prevent any possible contact between the product and the ground, (see photo 3, Typical Tank Containment Barrier). The liquid asphalt cement is a raw material used for hot mix asphalt. The burner fuel powers the burner used to dry the aggregate in the drum. Diesel fuel is used to fuel the on-site loader and equipment. An additional safety feature, valve lockout procedures, are employed to prevent possible leaks from entering the environment.

The control house contains all the computerized controls used to operate the HMA plant. An operator monitors the controls at all times during the operation mode to ensure proper operation of the plant and it's components. The quality control laboratory is used to ensure the asphalt mixes produced are made to specification and meet the highest industry standard for quality.

2.5 HMA Plant Access

The plant site will have access by two driveways. Separate entrance and exit points are provided to the facility to allow truck traffic to move safely to and from the plant. Locked gates will be located at all driveways to deny unauthorized vehicles entry to the

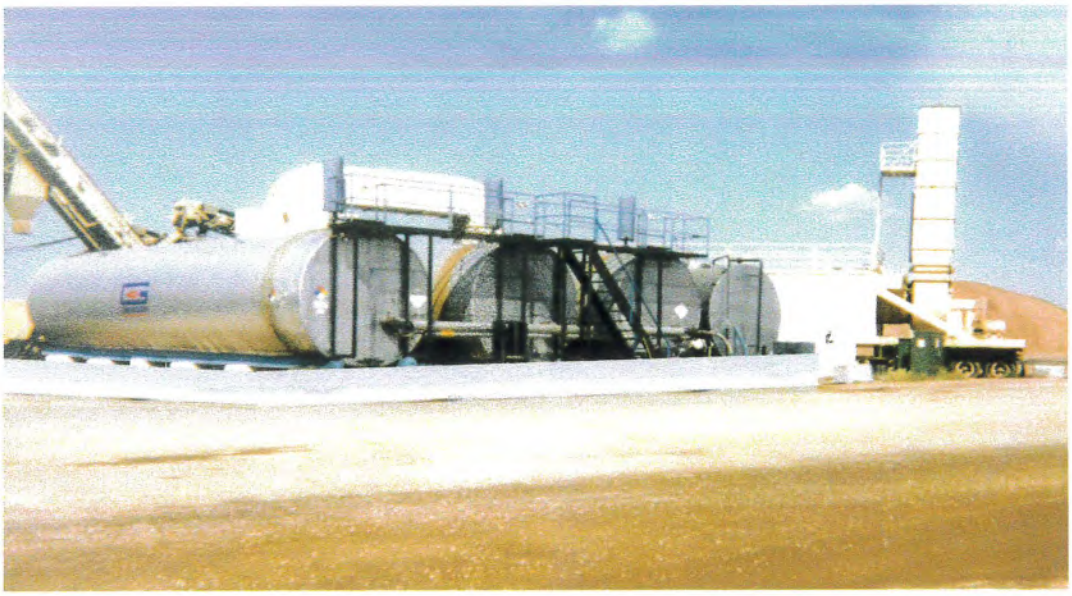


Photo 3, Typical Tank Containment Barrier

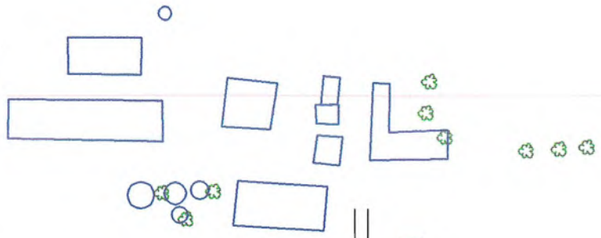
property during non-operation hours.

The current access point to State Highway 85 will need to be relocated to address safety issues with truck traffic leaving the project site. The current access point is located on the east edge of the Riekemann Property provides limited sight distance and poses a potential safety hazard. Drawing No.3 (Proposed Highway Improvements) shows relocation of the access point to the west. Included in the new access plan is a by-pass lane, acceleration and deceleration lanes. This new intersection offers a better line of sight for drivers, and a safer situation for entering and exiting Highway 85. A permit application describing this plan has been sent to the Wisconsin DOT and it has been conceptually accepted, see (Appendix B).

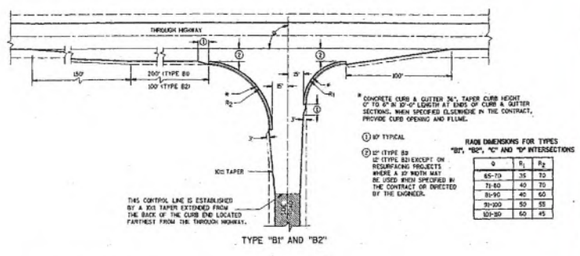
2.6 Operation Activity

The Hot Mix Asphalt construction season, due to seasonal weather, is generally

Robert & Donna
Riekemann



Intersection Design Specs.



GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

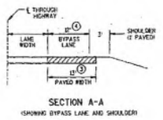
SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

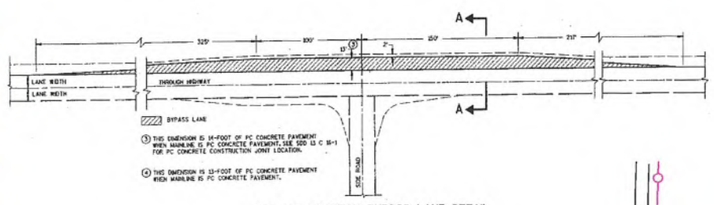
WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING SURFACE



SECTION A-A
(SHOWING BYPASS LANE AND SHOULDER)



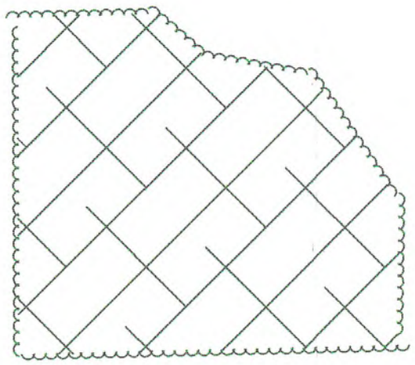
TEE INTERSECTION BYPASS LANE DETAIL

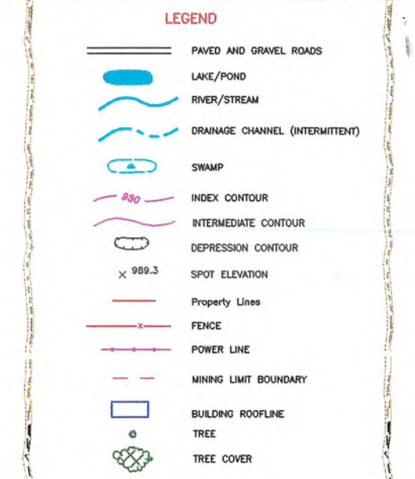
Construct field access road

Existing access road

New road location provides a better line of sight at intersection.

Wesley Vlcek etal

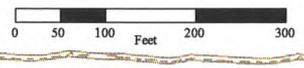




Topographic data obtained from Eau Claire County Planning & Development Department

Contour Intervals 2 Feet

Section 4, T26N-R10W
Brunswick Township
Eau Claire County, Wisconsin



Residential Drive

523

Industrial Drive

518

Residential Drive

Highway-Right-Of-Way

State Hwy 85

Highway-Right-Of-Way

Acceleration Lane

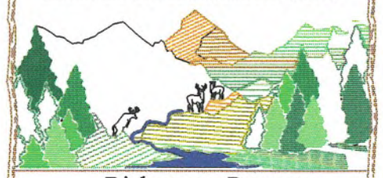
Bypass-lane
Lane width 12'
1' Paved shoulder

Deceleration Lane
Paved width 12'

Larry & Carol Sprague

William Hallinan & Paul Jene

Mathy Construction is Committed to Protecting Our Environment and Natural Resources



Riekemann Property

Milestone Materials
Division of Mathy Construction Company
920 10th Avenue North, Onalaska, WI 54650

Project ID # Riek-8-19-02-IID
Drawn By Keith
Date 8-19-02

Intersection Improvements Detail Map

Drawing No.3

limited to the spring, summer and fall. The hours of operation are dependent on the length of daylight, air temperature and demand for the HMA product. It is possible that night operations may be required, as more municipal and commercial contracts are requiring night paving to reduce the inconvenience of road construction to the driving public and to minimize loss to businesses during daytime construction. The typical hours of operation, however are 5:30 a.m. to 9:00 p.m. Monday through Friday and 5:30 a.m. to 5:00 p.m. on Saturday as needed.

The number of employees needed for the operation of the asphalt plant are three (3) experienced and trained full-time employees. Engineers, supervisors, mechanics, laboratory technicians and maintenance personal may be present at the site as needed.

2.6.1 Air Quality

The Wisconsin DNR Bureau of Air Management regulates the HMA plant operations and requires the plant to have an air quality permit. Computer simulated dispersion modeling of emissions from HMA operations have shown compliance with the National Ambient Air Quality Standards (NAAQS) applicable to the HMA industry The plant operates in compliance with the permit and is required to keep daily records to show continual compliance with the permit. Some of the emission control and inspection parameters listed in the permits include baghouse stack-testing of particulate emissions, periodic burner tune-ups to ensure optimum fuel burning efficiency and emissions, seasonal opacity testing, emissions monitoring devices and daily inspections on the plant, especially the emission control equipment. The associated aroma of HMA production are controlled by a combinations of vapor condensers, stack height, air and perfume additives.

2.6.2 Erosion Control

An erosion control plan will be implemented during the construction phase of the plant site. Once construction of the plant site is complete, temporary erosion control will be utilized until vegetation is in place. The entire site will either be seeded or surfaced with Hot Mix Asphalt. The vegetation and asphalt surfaces will serve as permanent erosion control.

Inspections are performed and documented by the plant foreman to ensure that operating conditions meet the requirements of the erosion control plan. Erosion control practices are addressed in Chapter 3 of the Wisconsin Construction Site Best Management Handbook (see Appendix C) which will serve as the standard for erosion control of soils.

Erosion control nets or mats, mulching, filter fabric barriers, straw bale barriers and other erosion control devices will be used as needed to minimize soil loss during berm construction and other soil disturbance activities. These erosion control devices will be installed according to the methods and procedures described in Chapter 3 of the Wisconsin Construction Site Best Management Handbook.

Upon notice to company management, periodic on-site inspections by Brunswick Township and Eau Claire County Planning and Zoning Department will be welcomed. Erosion control measure recommended will be implemented as appropriate to prevent soil erosion from the site.

2.6.3 Spill Prevention Plan

The Wisconsin DNR Storm Water Pollution Prevention Plan and the US EPA Spill Prevention Control and Countermeasures (SPCC) plans address practices for facilities that operate around water and handle oil products. These plans address the proper storage,

handling, and use of petroleum products, as well as inspection and response procedures. The pollution prevention practices addressed in site management planning for this site minimize the opportunity for infiltrating water to carry oil products to the groundwater.

2.6.4 Sound

Sound reduction is achieved by the installation of sound buffers, plant location and modern technology and controls. This site has incorporated each of the above listed sound reduction methods to reduce the sound associated with hot mix asphalt production. The most effective sound buffer is the use of the topography of the site and vegetation. Trees, plants and earthen berms can absorb a large part of the sound generally associated with an HMA plant operation. This site will use electrical power from the local utility, thus eliminating the need for diesel generators to supply electrical power to operate the plant.

SECTION 3.0
SITE EXCAVATION DEVELOPMENT PLAN

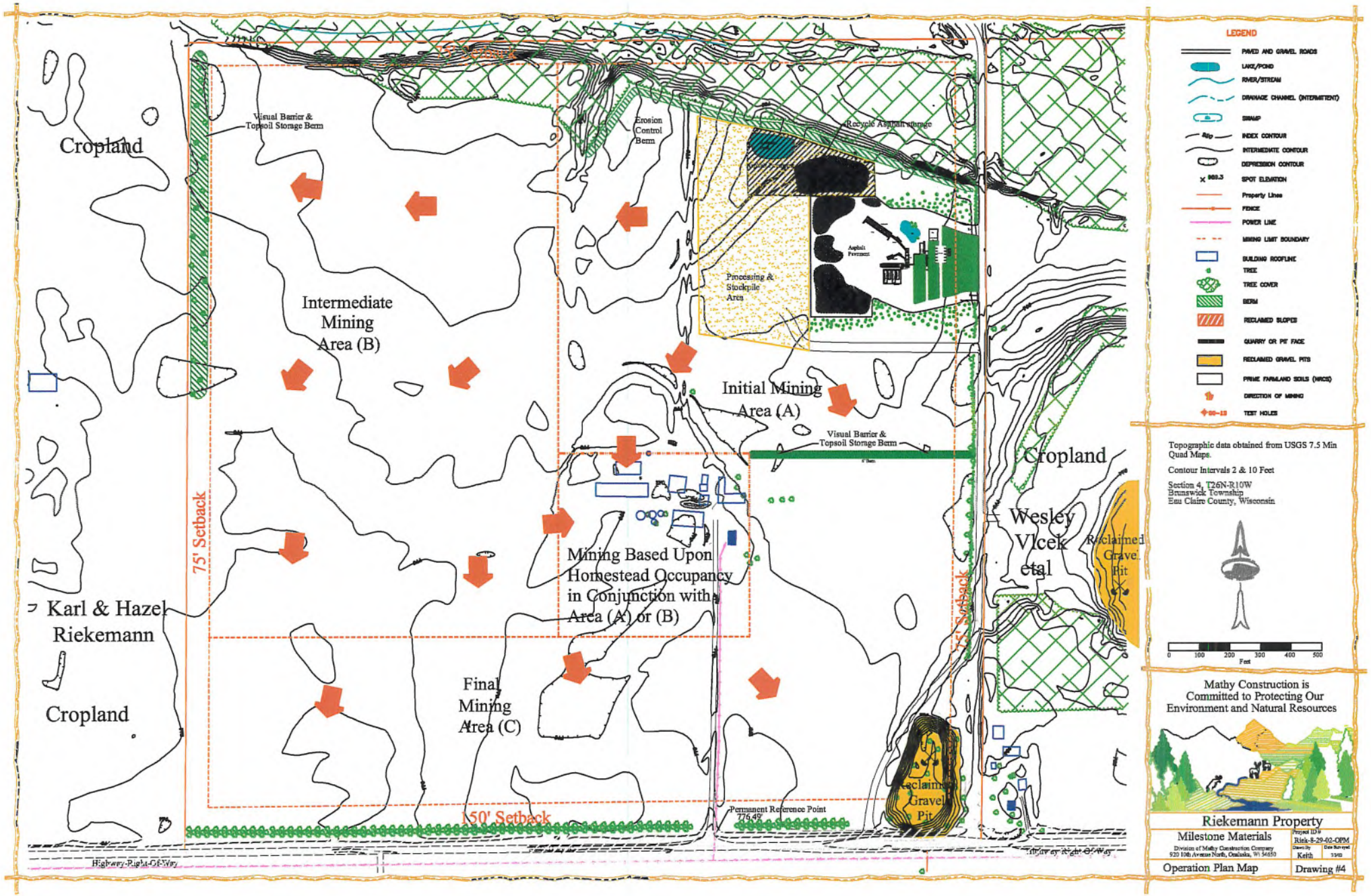
3.1 Site Layout

The proposed extent of the sand and gravel operation and future excavation area on the Riekemann Property is shown on Drawing 4, Operation Plan Map. The excavation activity is planned to occur in a continuous sequence, however it will focus upon four (4) areas. The total area to be disturbed by the excavation and processing in these areas is as follows:

Initial Mining Area (A)	38 Acres
Intermediate Mining Area (B)	49 Acres
Final Mining Area (C)	38 Acres
Homestead Area	10 Acres
Total	135 Acres

3.2 Operation Development Plan

The sand and gravel site development work will start within the next 12 months with planting of trees on the south side of the Riekemann Property and construction and relocation of the entrance road. The site of the proposed new access road intersection with State Highway 85 is shown on Drawing No. 3 (Intersection Improvements Detail Map). Other initial development at the site will include the construction of berms and installation of a HMA plant. The initial construction and development work at the site will have only minimal impact on the agricultural use of the property.


Cropland
Visual Barrier & Topsoil Storage Berm
Erosion Control Berm
Recycle Asphalt storage
Asphalt Pavement
Processing & Stockpile Area
Intermediate Mining Area (B)
Initial Mining Area (A)
Visual Barrier & Topsoil Storage Berm
Cropland
Wesley Vlcek etal
Reclaimed Gravel Pit
75' Setback
Mining Based Upon Homestead Occupancy in Conjunction with Area (A) or (B)
Karl & Hazel Riekemann
Cropland
Final Mining Area (C)
75' Setback
Reclaimed Gravel Pit
50' Setback
Permanent Reference Point 776.49'
Highway Right-Of-Way
Highway Right-Of-Way
LEGEND
PAVED AND GRAVEL ROADS
LAKE/POND
RIVER/STREAM
DRAINAGE CHANNEL (INTERMITTENT)
SWAMP
INDEX CONTOUR
INTERMEDIATE CONTOUR
DEPRESSION CONTOUR
SPOT ELEVATION
Property Lines
FENCE
POWER LINE
MINING LIMIT BOUNDARY
BUILDING ROOFLINE
TREE
TREE COVER
BERM
RECLAIMED SLOPES
QUARRY OR PIT FACE
RECLAIMED GRAVEL PITS
PRIME FARMLAND SOILS (NRCS)
DIRECTION OF MINING
TEST HOLES
Topographic data obtained from USGS 7.5 Min Quad Maps.
Contour Intervals 2 & 10 Feet
Section 4, T26N-R10W
Brunswick Township
Eau Claire County, Wisconsin
0 100 200 300 400 500
Feet
Mathy Construction is Committed to Protecting Our Environment and Natural Resources
Riekemann Property
Milestone Materials
Division of Mathy Construction Company
920 10th Avenue North, Onalaska, WI 54650
Project ID #
Riek-8-29-02-OPM
Drawn By
Keith
Date Surveyed
Operation Plan Map
Drawing #4

Once excavation begins, the site is expected to have enough sand and gravel reserves for many years of continuous operation. The life of the deposit is totally dependent on the rate of sand and gravel sales.

The limits of the sand and gravel operation and excavation will be defined by a minimum 75-foot setback from all neighboring property lines and a 150-foot setback from centerline of State Highway 85. All excavation boundaries will be staked with steel stakes before excavation operations begin. A permanent reference point with an elevation of 776.49 feet is established by a 3/4" steel rebar placed on the east side of the current entrance road and is identified on the Existing Conditions Map, refer to drawing #1.

The farming operation will continue on all land not affected by the aggregate extraction, berms and plant site. The area of land disturbed by the sand and gravel excavation will be kept to the minimum. In general, no more than a few acres of land will be stripped of soil ahead of mining operations to maximize the land available for agricultural production. Row crop farming of the remaining portion of the property is expected to continue until the sand and gravel excavation is completed. The mining operations plan has been to preserve the prime farmland areas for as many years as possible.

As new areas are opened, the topsoil and subsoil will be removed and stored until adequate topsoil and subsoil has been reserved in order to complete the reclamation of the property. Excess topsoil and subsoil beyond that needed to complete the total reclamation of the site will be removed for use at other locations.

3.2.1 Initial Mining Area (A) Activity

Excavation of the sand and gravel deposit will begin in the Initial Mining Area (A) see figure #10. This area of the operation will first involve the removal of the topsoil and subsoil and the storage of each in separate berms around the perimeter of the sand and gravel excavation. The berms will be constructed to store and protect the soil for future use. These berms will also direct any storm water runoff from neighboring fields around and away from the excavation. After the removal and storage of the topsoil and subsoil, the sand and gravel above the water table in this area will be excavated with wheel loaders to just above the water table. After all of the sand and gravel raw materials above the

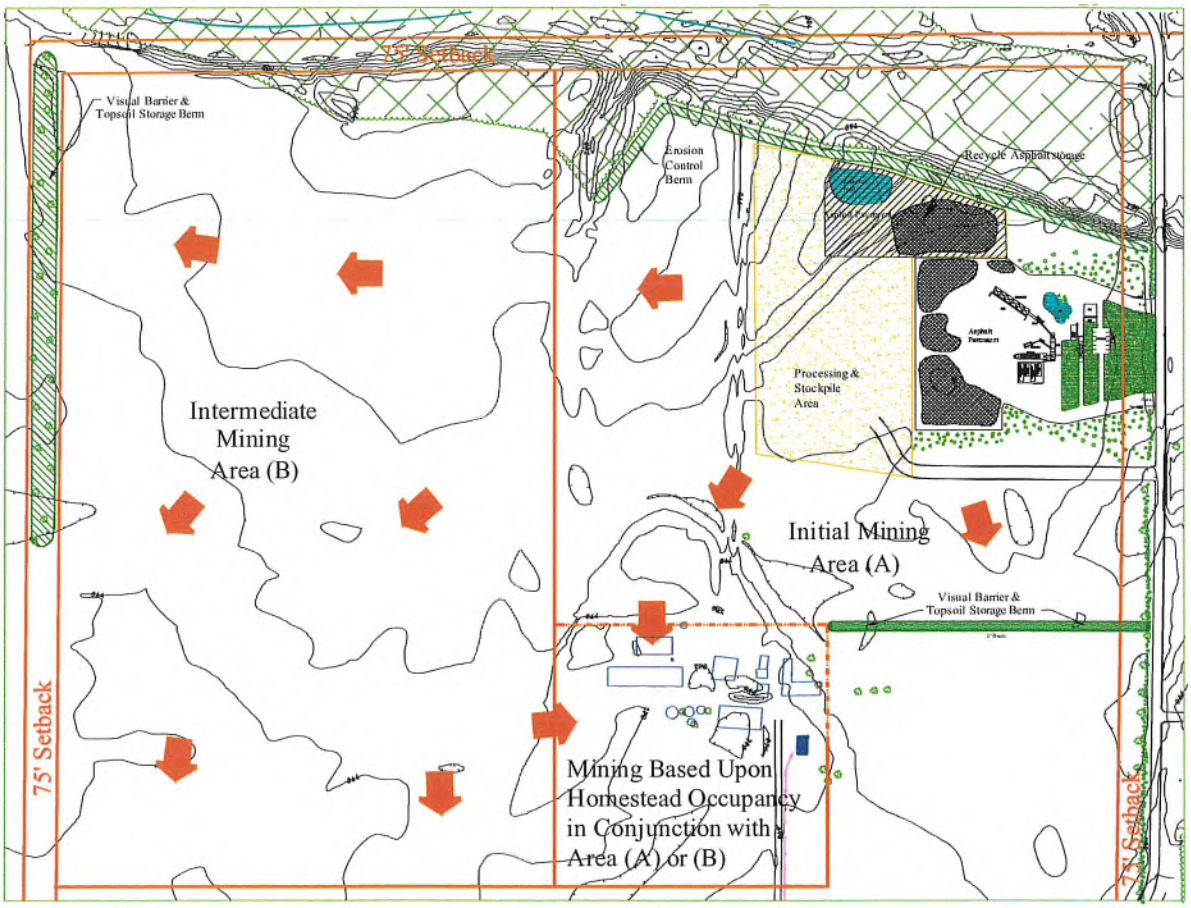


Figure #10 Initial Mining Operations Area

water table have been excavated in this area, operations will begin in the Intermediate Mining Area (B).

3.2.2 Intermediate Mining Area (B) Activity

Operations will continue with the removal of subsoil and topsoil from above the sand and gravel in a small area to the west of Initial Mining Area (A). The sand and gravel above the water table will be excavated with a wheel loader or scraper. Concurrently, excavation below the water table in the Initial Mining Area (A) will begin. Intermediate Mining Area (b) operations will continue until all of the sand and gravel raw materials above the water table in this area are excavated. The arrows on figure #11, Operations Map show the planned outward progression of the excavation.

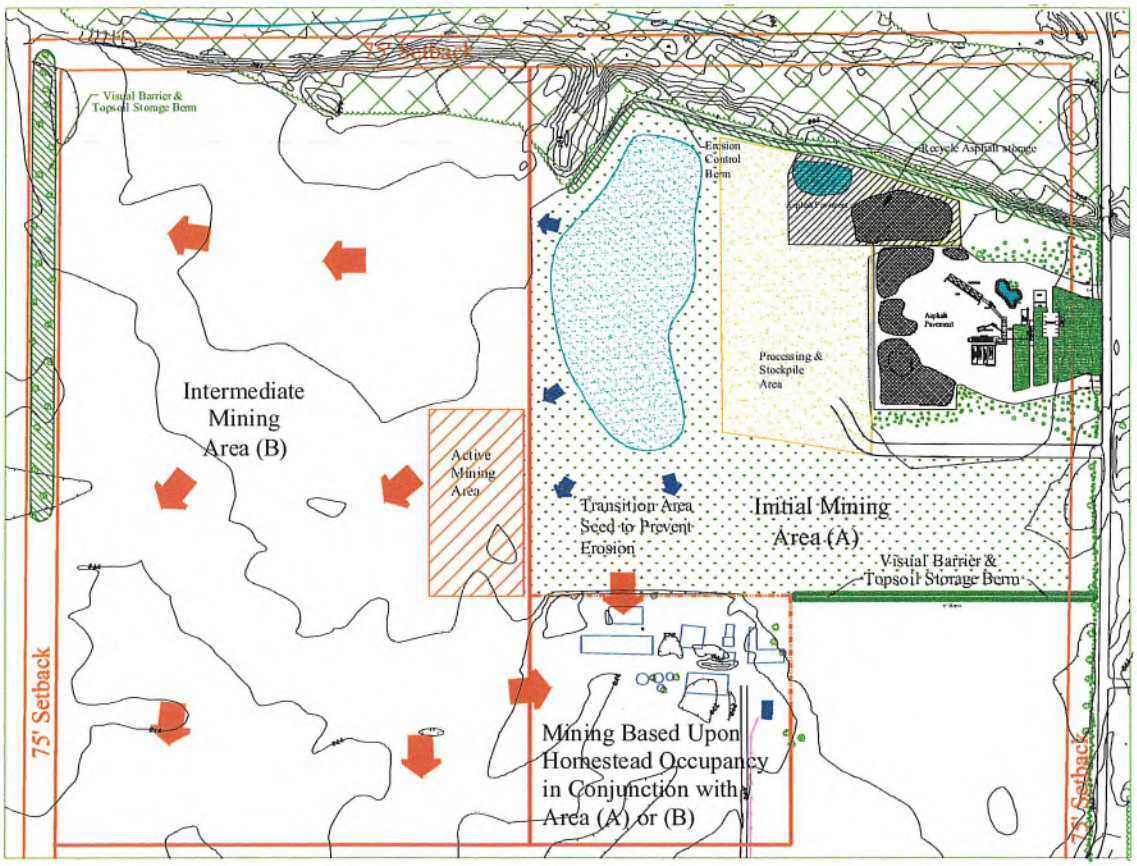


Figure #11, Operations Map

Interim reclamation will be performed on disturbed land areas not needed for operation activities. Interim seeding will occur within the transition zone between the above water table excavation and the below water excavation until these areas are further excavated. This interim vegetative cover will help to reduce soil erosion. Open and exposed soil areas within the transition zone will be kept to a minimum.

3.2.3 Final Mining Area (C) Activity

The Final Mining Area (C) will commence only after areas (A & B) are completely excavated, see Figure #12, Final Mining Area Operations Map. Mining above the water table will take place in this area and excavation below the water table will proceed from Area (B). This operation will continue until the sand and gravel raw materials have been excavated. Reclamation of the shoreline and surrounding areas will take place as excavation operations in those areas are completed.

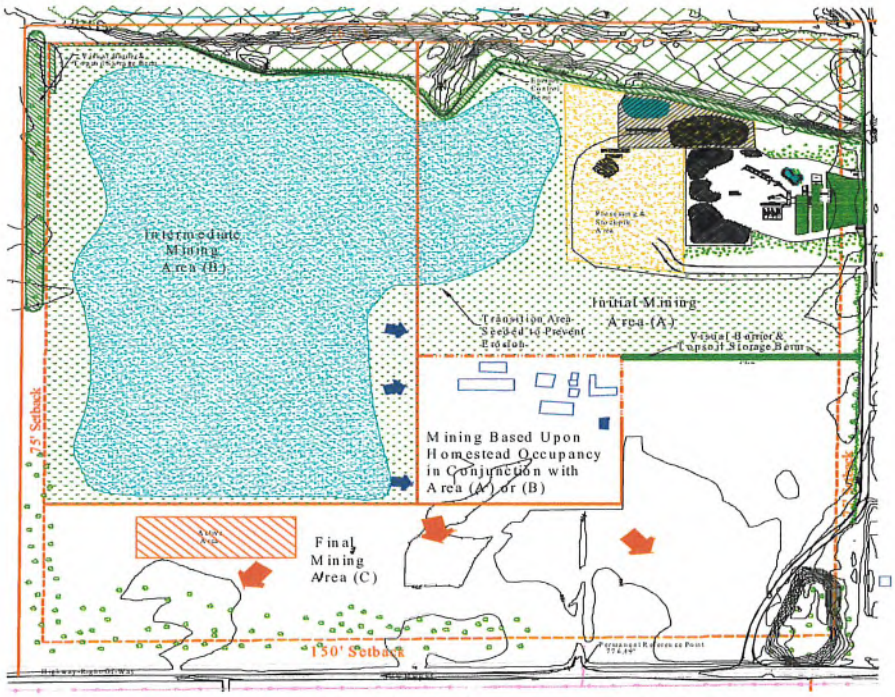


Figure #12 Final Mining Area Operations Map

3.2.4 Homestead Area Mining

Mining activity within this area will not begin until the residence and buildings are no longer occupied or being used by the Riekemann's. Timing for mining of this area therefore will determine whether this area is excavated with Area (A) or Area (B) activity.

3.3 Operation Processing Plan

The operation of the sand and gravel processing plant, product load out and scale is expected to employ anywhere between two and ten people, depending on the time of the year and activity. Normal aggregate operations will only require two to three employees for load out and scale operations. Occasionally, additional employees will be on site for temporary duties related to excavation, sand and gravel processing and other maintenance support activities.

The mining process will involve the excavation of the sand and gravel followed by further processing. The excavation above the water table will be with a wheel loader. The excavation operations below the water table will either use a cutterhead dredge, hydraulic excavator or dragline to remove material to a depth of at least 18 feet. The sand and gravel will be either hauled, conveyed or pumped to a stockpile at the onsite processing area.

After the sand and gravel has been excavated and stockpiled it will undergo further processing. A screening plant will separate the sand from the oversize gravel. The sand portion will be screened into various sand products. When sufficient oversize gravel has been stockpiled, a crushing plant will be brought to the site to crush the oversize gravel into coarse aggregate for use in HMA mixes and various other crushed stone products. A crushing plant typically includes one or more crushing units, screens and conveyors. A raw material washing plant may be used at times to further process the sand and gravel into lean

sand and gravel products for specialty uses. All of the sand and gravel processing equipment is portable and is easily moved in and out of the site as needed to replenish product stockpiles.

Wheel loaders will be used to load the aggregate products into trucks from the stockpiles. The trucks will then be weighed before leaving the site, in order to insure compliance with highway weight restrictions.

3.4 Operation Equipment List

Typical equipment which may be involved in the sand and gravel operation is listed below.

Overburden Removal:	1 backhoe
	1-2 bulldozers
	2-3 scrapers (optional)
	1-3 haul trucks
Processing Operations:	1 crushing/screening plant (occasionally)
	1 dredge, hydraulic excavator or dragline
	1-2 wheel loaders
	1-2 tool van/generator
	1 fuel truck (occasionally)
	1-3 conveyors/stackers
	1 water pump (optional in association with washing operations)
	1 water truck

Additional equipment may be utilized as needed.

3.5 Operation Schedule

Activity at the site will normally occur during the typical construction season from March to November. However, reduced operations may occur December through February, as supply and demand for sand and gravel aggregate products warrant.

Production hours at the site will be limited to 5:30 a.m. to 9:00 p.m. weekdays and 5:30 a.m. to 3:00 p.m. on Saturdays. No production or sales activities will occur on Sunday. Equipment maintenance hours may extend outside of these hours when required to meet project schedules. Directional lighting will be used in the production area when conditions warrant.

3.6 Sand and Gravel Use

The sand and gravel products are primarily used for new road and highway construction and maintenance work in the Eau Claire County area. The majority of the sand and gravel aggregate products sold from this site will be used in Hot Mix Asphalt mix aggregate, for township, county, state, federal and commercial projects.

3.7 Haul Routes

The primary haul route to be used by loaded commercial trucks will be over the improved onsite road, which will run along the east side of the property with direct access to State Highway 85. The proposed site of the access road entrance relocation is shown on Drawing No. 3, Intersection Improvements Detail Map. The new access point will be reconstructed to include a deceleration/acceleration lane and a bypass lane.

The trucks used for hauling HMA products to market from this site will primarily be private single to quad-axle dump trucks. These trucks will haul material from the site as HMA products are sold and transported to job locations, typically in the construction season between March and November. The number of trucks hauling each week will vary and will depend upon the number of construction projects in the market area.

SECTION 4.0
ENVIRONMENTAL CONSIDERATIONS

4.1 Site Screening and Security

A mixture of White Spruce (*Picea glauca*), Red Pine (*Pinus resinosa*) or other native trees such as Silver Maple (*Acer saccharinum*), Sugar Maple (*Acer saccarum*) and Northern Red Oak (*Quercus rubra*) will be used as visual screens along the south property lines of the Riekemann Property. The trees will be planted within the 150-foot setback to help screen the operation from view along State Highway 85 to the south, see photo 4, typical mature vegetative visual screen. Existing trees along the property line will be preserved until maturity and will be replaced with new tree plantings at the appropriate time. The tree rows will be to create an effective variable-height visual and windbreak barrier. A very substantial stand of deciduous and scattered evergreen trees exist all along the north perimeter of the property and these will be left in place to visually screen the operation from view of Chippewa River.

Photo 4, Typical Mature Vegetative Visual Screen

4.2 Air Quality

The Wisconsin DNR Bureau of Air Management regulates crushing and screening operations at the site. The processing equipment is in compliance with the opacity requirements of the New Source Performance Standards and is permitted under the Aggregate Processing General Permit. Computer simulated dispersion modeling of emissions from aggregate processing operations have shown compliance with the National Ambient Air Quality Standards (NAAQS) applicable to the crushing industry.

The general permit provides flexibility for using different processing configurations and various pieces of equipment, depending on the type of aggregate product being produced. It outlines production requirements, including record keeping, employee training, malfunction prevention and abatement and fugitive dust control measures that must be maintained for compliance with the permit. The plant foreman will document the compliance activities associated with these requirements on a daily environmental tracking form. Records of daily, monthly and year-to-date production information will be available for inspection at the plant site.

Wet suppression will be used as needed to supplement insitu moisture for control of fugitive emissions from the plant equipment. Control of fugitive emissions from roads in the operation and excavation area will be provided by use of a water truck or spray system that will spray water on the roads as necessary.

4.3 Ground Water Protection

The sand and gravel excavation and processing operation will employ a variety of mechanical screening, crushing, and conveying equipment, including loaders and trucks. The

lubrication, fueling, and repair practices used to maintain the equipment will be designed to eliminate petroleum products from ground contact. The Storm Water Pollution Prevention Plan and the Spill Prevention Control and Countermeasures (SPCC) plans address practices for proper storage, handling, and use of petroleum products, as well as inspection and response procedures, see (Appendix D). If fuel for mobile equipment is stored on-site, it will be stored in an above-ground tank with secondary containment, outside of the area of the pit excavation.

The pollution prevention practices addressed in site management planning minimize the opportunity for infiltrating water to carry contaminants to groundwater. Plant foremen will perform site inspections throughout the operating period. Observations and conditions will be reported daily for all applicable environmental programs.

4.4 Surface Water

The Wisconsin Department of Natural Resources Storm Water Program regulates the proposed sand and gravel excavation operation. Mathy Construction has coverage under a General Permit for Nonmetallic Mining Operations. The company has an existing storm water plan for aggregate operations that employs Best Management Practices (BMP's) for pollution prevention. The management practices listed in the plan addresses both petroleum product handling and erosion control, including the on-site containment of storm water runoff for suspended solids control.

Rain that falls on the excavation area will be contained and allowed to seep naturally into the underlying sand. When and where necessary, temporary earthen berms may be constructed to direct storm water runoff around the excavation area. These berms will be constructed according to the standards for diverting flow in Chapter 3, Section A of the Wisconsin Construction Site Best Management Practice Handbook found in (Appendix C).

With the possible exception of the access road, all storm water and spring snowmelt water from the operation will be contained within the excavation, and no runoff will leave the excavation or processing area.

4.5 Waste Disposal and Recycling

Solid wastes generated in the course of production will be disposed in dumpsters provided by licensed haulers. Regular disposal intervals will be maintained to prevent waste accumulation. There will be no hazardous wastes produced in conjunction with the excavation or processing operations. Drain oil and lubricants from equipment maintenance will be collected for recycling by a licensed drain oil contractor. The waste receptacles will be located away from active operation areas.

4.6 Safety and Health

The United States Department of Labor, Mine Safety and Health Administration (MSHA) regulates the safety and health considerations of the sand and gravel excavation and processing operation. The site will be subject to annual inspection by MSHA and must meet the sound and emission exposure limits established for personnel employed in the operation activity.

Sound will be mitigated on the site by maintaining functional mufflers and exhaust systems on all internal combustion engines and by shielding mechanical processes with sound barriers. The excavation, screening and crushing of sand and gravel will be reduced to a sound level that will allow for normal conversation to occur at or near the property boundaries.

Respirable emissions will be controlled at the site by use of wet suppression for processing aggregate materials and by eliminating fugitive emissions from peripheral activities, including trucking. Shrouds, tarps, and shields will be used to supplement wet suppression and control the emissions. The company is committed to maintaining respirable emissions within MSHA standards and provide a healthy, emission-free environment for employees and neighboring property owners.

An appropriate speed limit will be enforced at the facility for loaders and trucks to provide safe working conditions and reduce fugitive emissions. Hard hats are mandatory for all personnel within the excavation and processing areas. Berms, gates and signs will be used to direct and control traffic at the site. Visitors must have permission to enter the site and must observe all safety regulations while visiting the site.

SECTION 5.0
RECLAMATION PLAN

5.1 Post-Mining Land Use

The Riekemann Property will be reclaimed to a post-mining land use of residential and recreational land use consistent with A-2 Agriculture-Residential zoning. The final topography of the site after reclamation is shown on Drawing 5, Reclamation Plan Map. Representative cross-sections of the final reclaimed property are shown on Figure 13, Typical Reclamation Cross-Section. Reclamation will occur concurrently with the development and progression of the excavation across the property.

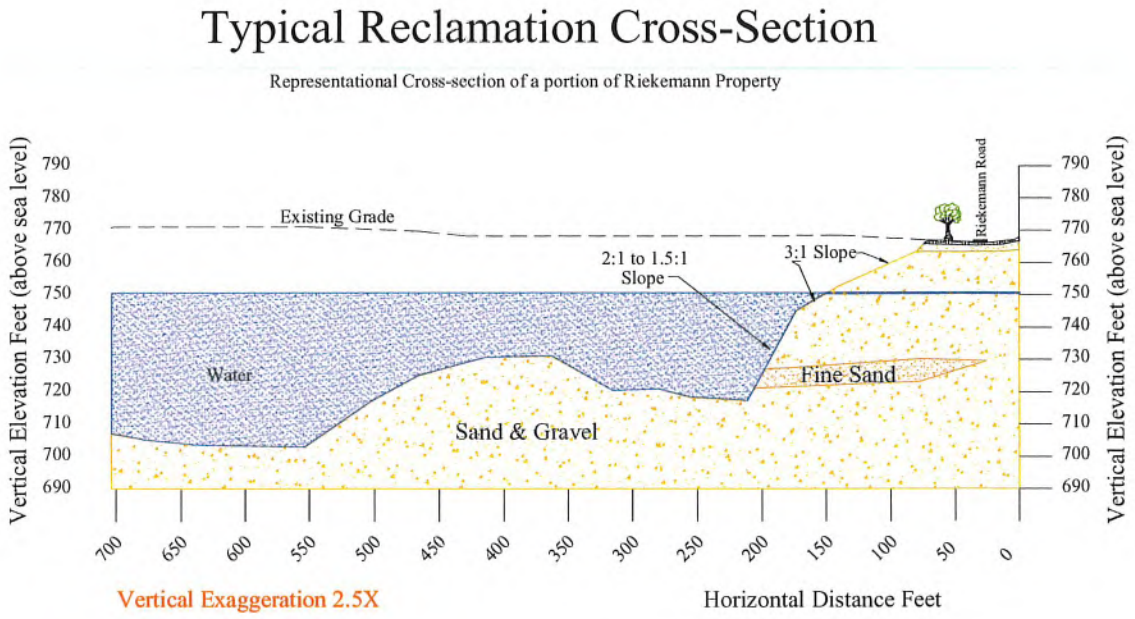
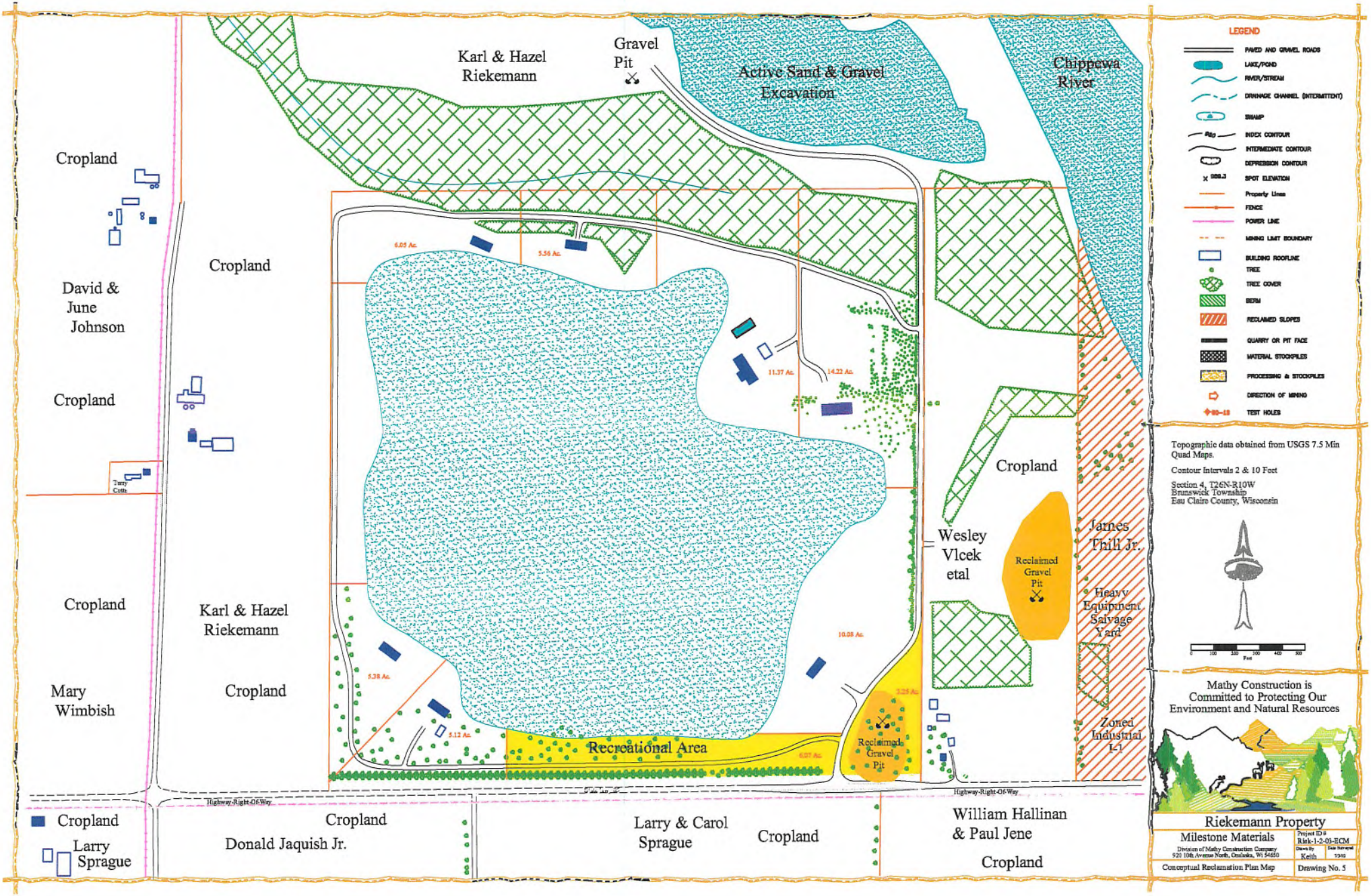


Figure #13, Typical Reclamation Cross-Section


Karl & Hazel Riekemann
Gravel Pit
Active Sand & Gravel Excavation
Chippewa River
Cropland
David & June Johnson
Cropland
Cropland
Cropland
Karl & Hazel Riekemann
Mary Wimbish
Cropland
Cropland
Wesley Vlcek etal
Reclaimed Gravel Pit
James Thill Jr.
Heavy Equipment Salvage Yard
Zoned Industrial I-1
Recreational Area
Reclaimed Gravel Pit
Highway-Right-Of-Way
Highway-Right-Of-Way
Cropland
Larry Sprague
Cropland
Donald Jaquish Jr.
Larry & Carol Sprague
Cropland
William Hallinan & Paul Jene
Cropland
6.05 Ac.
5.56 Ac.
11.37 Ac.
14.22 Ac.
10.08 Ac.
5.38 Ac.
5.12 Ac.
3.25 Ac.
6.07 Ac.
LEGEND
PAVED AND GRAVEL ROADS
LAKE/POND
RIVER/STREAM
DRAINAGE CHANNEL (INTERMITTENT)
SWAMP
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Division of Mathy Construction Company
920 10th Avenue North, Onalaska, WI 54650
Project ID # Riek-1-2-09-ECM
Drawn By Keith
Date Surveyed
Conceptual Reclamation Plan Map
Drawing No. 5

The plan for mining and reclamation of the site has been developed using the best possible mining, environmental and development advice available. Therefore, in concert with Eau Claire County and Brunswick Township, the plan describes the final disposition of this site to include an 80 acre recreational lake and seven (7) residential building lots ranging in size from five (5) acres to just over fourteen (14) acres. The plan also proposes the creation of a recreational area consisting of approximately ten (10) acres. The recreational area includes a 6.23 acre beachfront park with walking path (see photo #5, Proposed Lakeshore Recreational Area) and a 3.25 acre picnic shelter area located in the southeast corner of the property.

Photo #5, Proposed Lakeshore Recreational Area

5.2 Reclamation Sequence and Final Site Reclamation

Reclamation of the excavation and operation areas will occur on a regular basis throughout all mining areas. Reclamation will begin as sand and gravel is depleted and the land is no longer needed for product sales, stockpiling, equipment setup or other facilities.

The reclamation process will primarily involve the grading and sloping of the shoreline. The shoreline areas below the maximum high water mark of around 766' above sea level will remain as a beach. All areas above 766' will be revegetated. Only native soil materials will be used to backfill excavated areas if required for land restoration. The subsoil will be reapplied first and then topsoil will then be applied uniformly over the area and seeded with appropriate seed mixtures as recommended in the seeding plan prescribed in Section 5.3 that follows. All disturbed land areas will be graded to a slope less than or equal to 3:1 horizontal to vertical. The beach area slope of not greater than 3:1 shall continue to a depth of 6 feet below normal lake level and a minimum of 18' from the shore. See figure #15. Lake Detail map for more details.

When possible, the topsoil and subsoil removed from newly excavated areas will be placed directly onto areas undergoing backfilling and reclamation. This one step procedure will improve the efficiency of the reclamation operation, reduce topsoil handling and help to preserve the topsoil viability for revegetation. If topsoil (A horizon) cannot be immediately reapplied on areas reclaimed to final slopes and grades, it will be saved in topsoil stockpiles that will be sloped and seeded until needed for reclamation. Subsoil (B horizon) materials removed from newly excavated areas will be stockpiled separately from the topsoil, and also sloped and seeded until needed for reclamation.

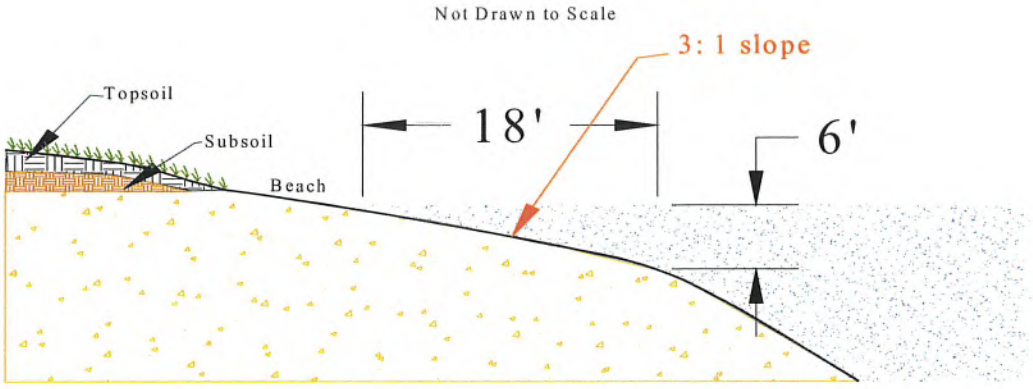

Figure 15, Lake and Shoreline Detail Map

An adequate quantity of topsoil and subsoil will be saved for future reclamation. The projected quantity of topsoil and subsoil needed to reclaim the property is calculated as follows. Using a minimum topsoil thickness of 4" and a minimum subsoil thickness of 12", the quantity of soils required for reclamation per acre is calculated at 43,560 square feet per acre multiplied by 1.33 feet of soil divided by 27 cubic feet per cubic yard or 2,145 cubic yards per acre. Excess topsoil and subsoil, not needed for reclamation, will be removed for use at other locations.

The final reclamation activity will involve the backfilling and sloping of all remaining disturbed areas and revegetation of all remaining disturbed areas. The site topography will be graded so that all slopes will be less than or equal to 3:1 (horizontal to vertical). All slopes will be blended into the surrounding topography and all areas will be graded to properly drain. No structures associated with the sand and gravel operation will remain on the site after the excavation is completed. All stockpiles of sand and gravel products will be removed.

5.3 Seeding Plan

Disturbed areas subject to erosion and reclaimed areas will be seeded with seed mixtures in Chapter 3, B.4. Seeding, Wisconsin Construction Site Best Management Handbook. (see Appendix C). A companion seeding of oats, barley or spring wheat may be used as a cover crop if seeding is necessary in the spring or early summer.

Mulching will be applied according to the standards of Chapter 3, B.3. Mulching, Wisconsin Construction Site Best Management Handbook. Areas will be checked for nutrients before seeding and fertilizer will be applied as needed.

5.4 Erosion Control

Erosion control practices are addressed in the storm water pollution prevention plan. Chapter 3,Wisconsin Construction Site Best Management Handbook will serve as the standard for erosion control of soils.

Erosion control nets or mats, mulching, filter fabric barriers, straw bale barriers and other erosion control devices will be used as needed to minimize soil loss during berm construction and other soil disturbance activities. These erosion control devices will be installed according to the methods and procedures described in Chapter 3 of the Wisconsin Construction Site Best Management Handbook.

Upon proper notice of company management, periodic on-site inspections by Eau Claire County and Brunswick Township officials and personnel will be welcomed. Erosion control measures recommended by the Eau Claire County Land Conservation Department will

be implemented as appropriate to prevent soil erosion from the site excavation.

5.5 Reclamation Cost and Financial Assurance

The estimated cost for final revegetated reclamation of this development plan should not be excessive. The banks around the perimeter of the mining areas and shoreline will have a reclamation cost calculated as follows. The projected cost per acre for an operator and heavy equipment combined is 10 hours at a rate of $100.00 per hour or $1,000.00. After the seedbed has been prepared, our experience hiring a commercial seeding contractor reveals an average rate of $1,000.00 per acre to fertilize, seed and mulch reclamation areas. The projected reclamation cost is therefore approximately $2,000.00 per acre of land. The calculated acreage requiring reclamation after all excavations are complete is about 40 acres. This acreage multiplied by $2,000 per acre equals a projected reclamation cost of $80,000.00.

A reclamation surety bond adequate to cover reclamation costs will be provided to Eau Claire County, Wisconsin for acres affected by the excavation operation.

5.6 Criteria for Successful Reclamation

Eau Claire County will determine the criteria for successful reclamation in the field during annual inspections with input from Mathy Construction and their consultants. During these inspections, if Eau Claire County or Brunswick Township recommends either grading, seeding, remedial repair measures or erosion control, they will be implemented as appropriate to achieve successful reclamation. The reclamation measures implemented will later re-evaluated to accomplish successful reclamation and a release of bond.

5.7 Reclamation Certifications

The required signed operator and owner certifications pertaining to reclamation are provided in Appendix E.

APPENDIX A

Hydrogeology of the Riekemann Property

By: John R. Tinker, Jr., Ph.D.

JRT HYDRO, INC
John R. Tinker, Jr., Ph.D.
W940 County Road WW
Eleva, WI 54738
715 836-5485

October 8, 2002

Ron Garrison
Mathy Construction Company

Subject: Riekemann Property

Dear Ron:

Enclosed are three copies of the Riekemann report. Two copies are bound and one copy is unbound. The unbound copy may be used to add to your report. The two bound copies may stand alone for another use. Please call me if you have questions.

Sincerely,

John R. Tinker, Jr., Ph.D.

HYDROGEOLOGY OF THE RIEKEMANN PROPERTY

TOWN OF BRUNSWICK, EAU CLAIRE COUNTY, WISCONSIN

DATE: SEPTEMBER 8, 2002

SUBMITTED TO: RON GARRISON
MATHY CONSTRUCTION COMPANY
920 10TH AVENUE NORTH
ONALASKA, WISCONSIN 54650

SUBMITTED BY: JOHN R. TINKER, JR., Ph.D.
JRT HYDRO, INC.
W940 COUNTY WW
ELEVA, WI 54738

Wisconsin Professional Geologist #88
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INTRODUCTION

Ron Garrison of Mathy Construction Company requests an evaluation of the hydrogeology of the Robert and Donna Riekemann Property in the SW ¼, Section 4, T26N, R10W (Figure 1). The scope of work includes the description of the water-table aquifer, the construction of a water-table map, and the identification of groundwater flow direction and velocity for the Riekemann property.

METHODS OF STUDY

An analytic element groundwater flow model, GFLOW (Haitjema, 1995), is used to simulate the water-table aquifer beneath the Riekemann Property. A groundwater model is selected because the zones of contribution for municipal wells in Eau Claire County are modeled by Tinker (2002) using GFLOW for the Wisconsin Department of Natural Resources (WI DNR). This previous modeling effort provides an excellent starting point to complete the scope of work of this project. To construct an analytic element model, surface-water elevations are entered as mathematical elements or strings of elements. Elevations of surface-water features are obtained from USGS 7 ½ minute maps. Each element is represented by an analytical solution. Areal recharge from precipitation and lateral variations in aquifer properties are represented by areal sinks and line doublets as described by Haitjema (1995). The effects of these individual solutions are superposed or added together to arrive at a solution for the groundwater flow system, including total heads at any point within the flow system. The reader is referred to Haitjema (1995) for a detailed description of the analytic method and GFLOW.

The GFLOW model by Tinker (2001) for western Eau Claire County is calibrated to WI DNR regulated sites with water elevations referenced to mean sea level; to selected upland private wells shown on the Eau Claire County water table map (Muldoon, 1992), to a selected number of field located private wells in upland areas between the Eau Claire and Buffalo River drainage systems, and to baseflow discharges on the Chippewa River, Lowes Creek, and Otter Creek. The far-field conditions for the Riekemann Property of the Eau Claire County model (Tinker, 2001) are changed to near-field conditions and the model calibrated to water levels in selected private wells in the Riekemann study area. A sensitivity analysis is performed by increasing and decreasing the values of hydraulic conductivity and regional recharge. A stepwise modeling approach (Haitjema, 1995) is utilized.

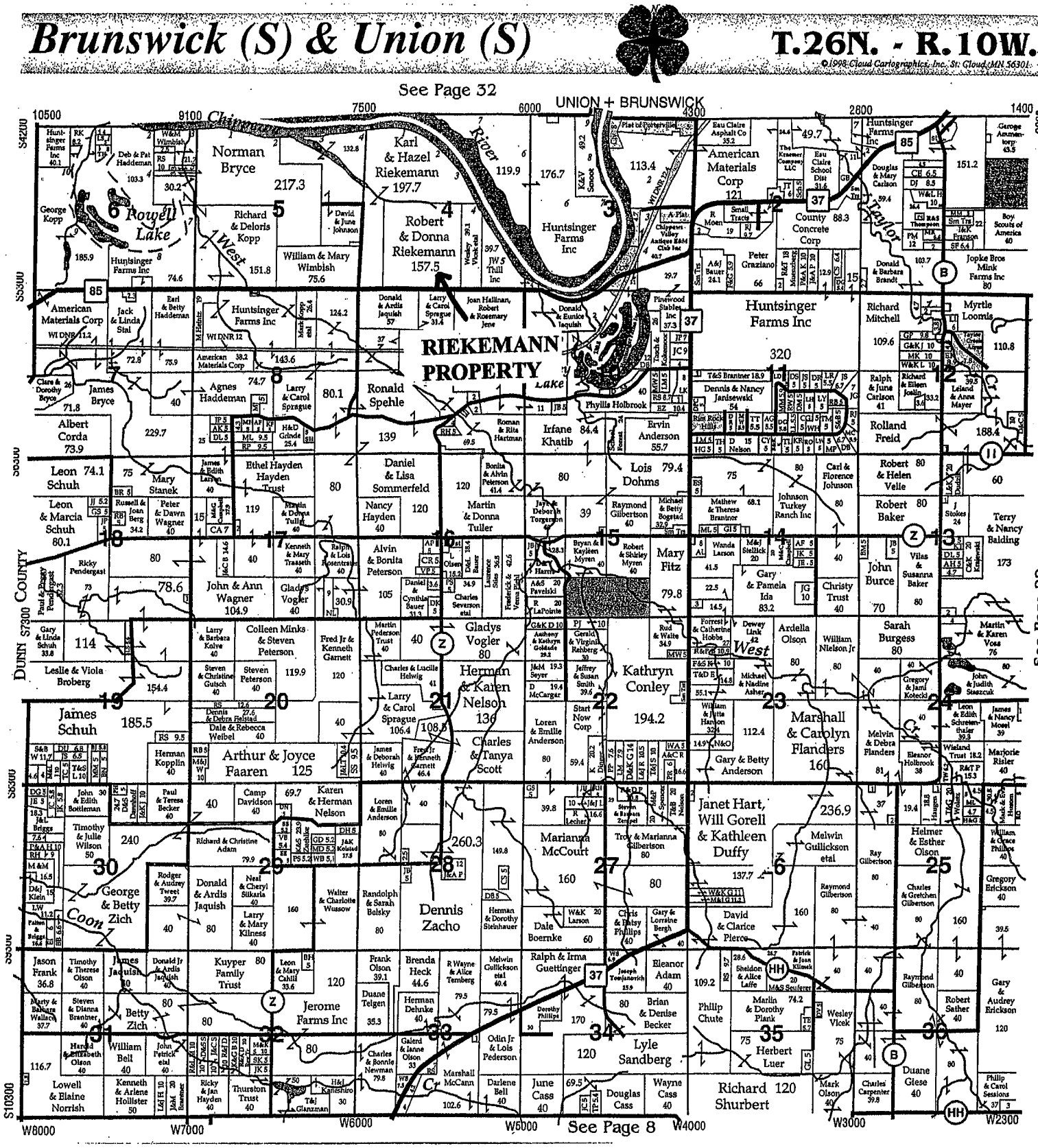


Figure 1. Location of the Robert and Donna Riekemann property in the SW 1/4 Section 4, T26N, R10W in the Town of Brunswick, Eau Claire County, Wisconsin.

INPUT DATA TO GFLOW MODEL

Surface Water Features

The Riekemann Property is located, in part, on land immediately south of the Chippewa River and, in part, on a fluvial terrace to the Chippewa River (Figure 2). A higher elevation fluvial terrace is south of Spiele Road in Section 9, T26N, R10W. South of the upper fluvial terrace are sandstone hills composed of the Mt. Simon Formation.

The GFLOW model consists of "near-field" and "far-field" elements. The near field is the area of higher data resolution and includes: the Chippewa River from the East ½, Section 1, T26N, R11W to the West ½, Section 3, T26N, R10W. The far field extends from the near field to the edge of the modeled area and includes Coon Creek and Taylor Creek (Figure 3).

Streams in both the near field and far field are modeled as strings of individual elements called "linesinks". Far-field linesinks define regional groundwater flow patterns, while near-field linesinks are more refined. Elevation of both near field and far field streams are obtained for permanent streams shown on Wisconsin USGS 7 ½ minute topographic maps: specifically, Eau Claire West, Elk Creek Lake, Rock Falls, and Mondovi NE.

Water-Table Aquifer

A water-table aquifer consisting of fluvial sands and gravel is beneath the Riekemann Property. The hydraulic conductivity of the fluvial sediment is estimated from well constructor's reports (Appendix A) using the method of Bradbury and Rothschild (1985). The background hydraulic conductivity of 8 feet/day for the sandstone aquifer of the regional model by Tinker (2002) was changed in the area of the fluvial terrace to 146 feet/day. This initial hydraulic conductivity of 146 feet per day was raised to 600 feet/day during calibration of the groundwater model. The elevation of the base of the water-table aquifer is 650 feet (Tinker, 2002) for the groundwater model.

Recharge

Recharge to the groundwater model is 8 inches/year (Tinker, 2002).

MODEL CALIBRATION

Test Points - Private Water Supply Wells

The model solution is a steady state solution to represent an average water-table elevation over time. Therefore, observed water-table heads are not equal to steady-state heads but, depending on the time of measurement, may be larger or smaller (Haitjema, 1995, page 281). Seventeen calibration test points for water-table elevations are from water levels from thirty well constructor's reports from wells in the near-field area (Figure 3).

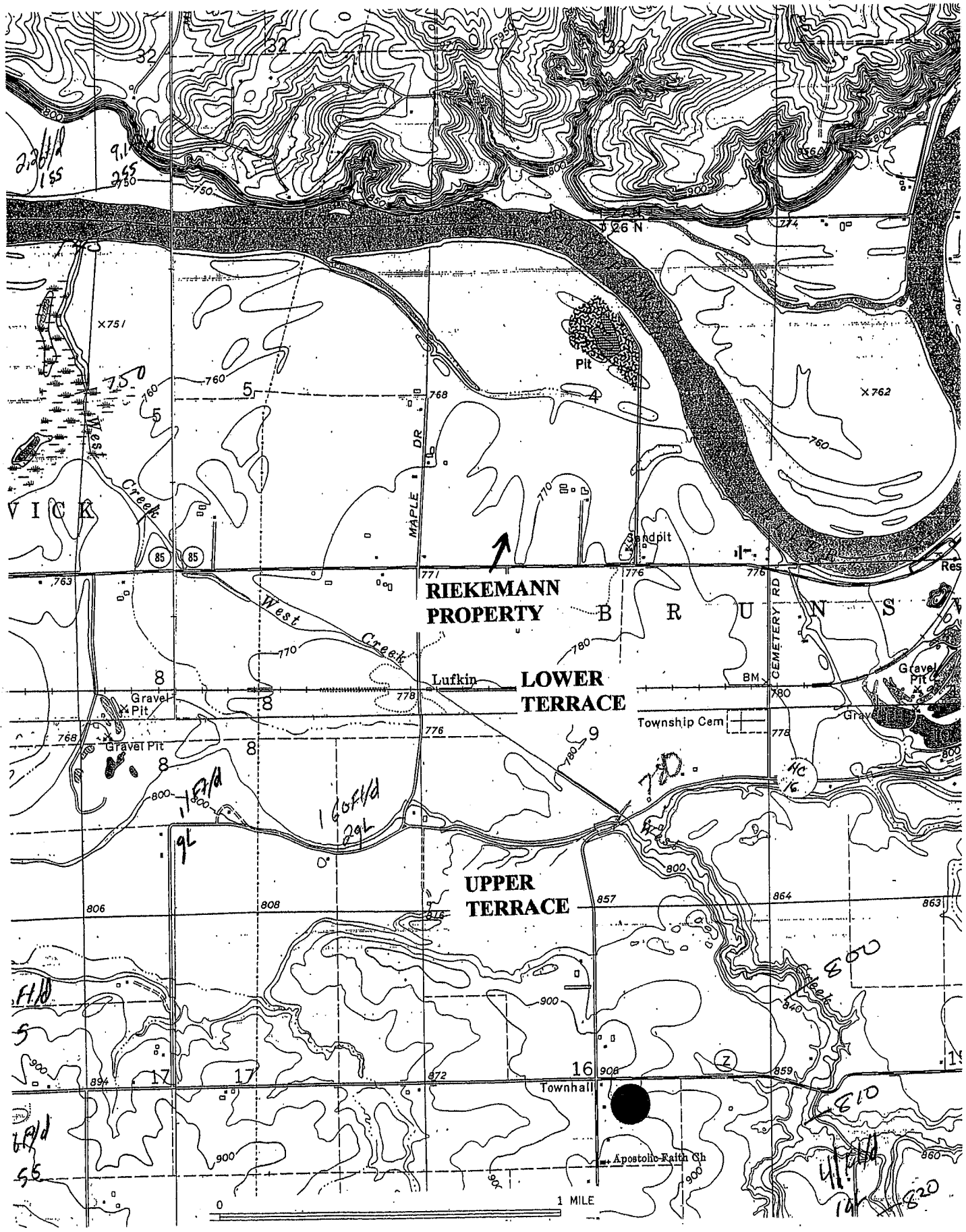


Figure 2. Topographic map of the Riekemann property.

NORTH

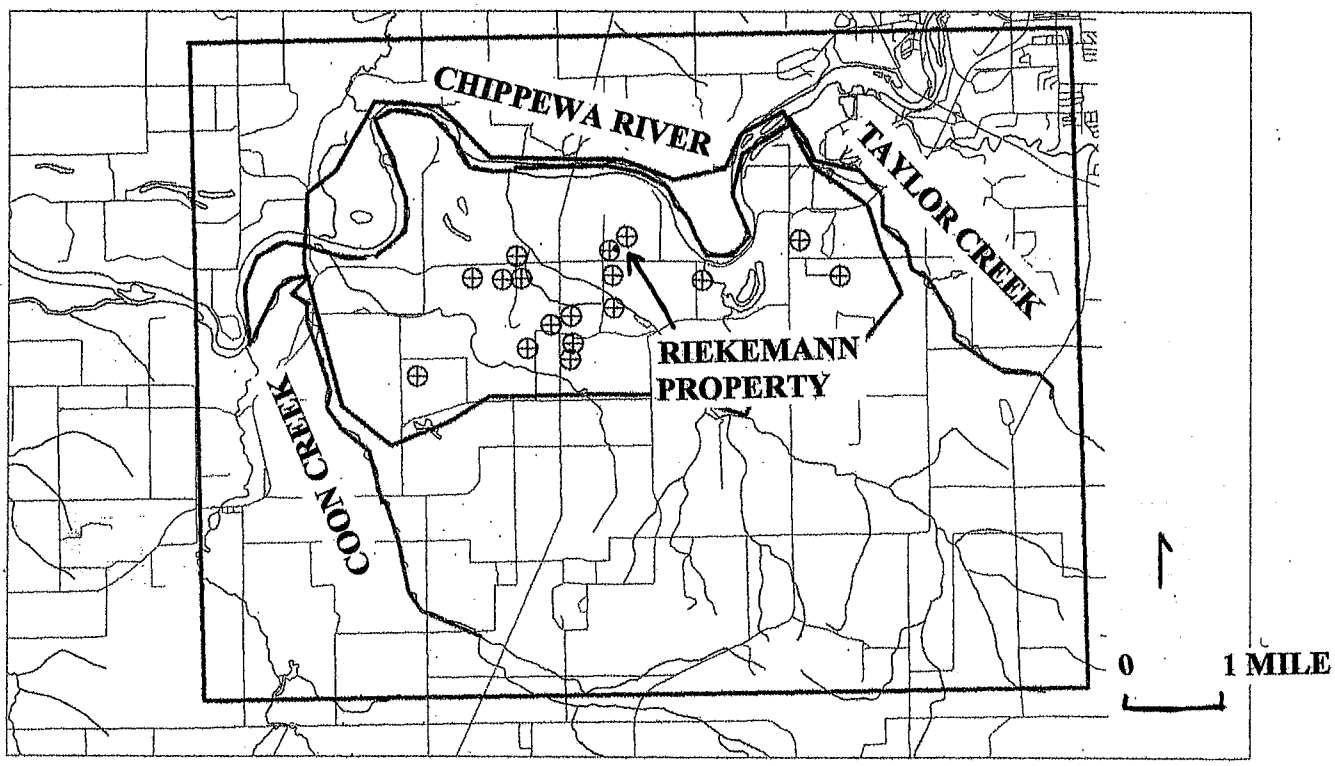


Figure 3. **The Chippewa River is near field and Coon Creek and Taylor Creek are far-field linesinks. Circles are calibration points which are private water-supply wells.**

During calibration, the horizontal hydraulic conductivity is adjusted in the model to obtain the best fit to the observed water-table elevations. The background hydraulic conductivity of 146 feet per day is increased to 600 feet per day during calibration.

West Creek

West Creek is shown on the topographic map as a permanent stream. Therefore, West Creek was initially modeled with near-field line sinks. Contour lines of 760 and 770 feet cross West Creek in the N ½ of Section 8, T26N, R10W and line sinks of these elevations were set for West Creek. During calibration, the line sinks for West Creek were removed to obtain better calibration to water levels in private water-supply wells. It is noted that Muldoon (1992) also does not use for the Eau Claire County water-table map the 760 and 770 contour lines crossing West Creek in the N ½ of Section 8, T26N, R10W (Appendix B, Figure 6).

RESULTS OF MODEL CALIBRATION

Figure 4 presents the calibrated water-table map for Section 4, T26N, R10W.
The mean absolute error for the calibrated water-table map is 2.6 feet. Dividing the mean absolute error (2.6 feet) by the difference (121 feet) between the maximum (760 feet) and minimum groundwater elevations (639 feet) equals a 2.1 percent error for the model. This is an acceptable error for the purpose of the model.

SENSITIVITY ANALYSIS

The sensitivity analysis consists of variations in the input parameters of recharge and hydraulic conductivity. The calibrated recharge of 8 inches per year is increased to 12 and 14 inches per year and decreased to 6 inches per year. The hydraulic conductivity of the fluvial sediment is increased from 600 to 800 and 1000 feet per day and decreased to 400 and 200 feet per day. Table 1 presents the results of the sensitivity analysis.
The mean absolute error (MAE) increases from 2.6 to 2.9 feet when recharge increases from 8 to 12 and 14 inches per year. The MAE decreases from 2.6 to 2.5 feet when recharge decreases from 8 to 6 inches per year. The MAE increases from 2.6 to 2.9 feet when hydraulic conductivity increases from 600 to 1000 feet per day. The MAE increases from 2.6 to 7.5 feet when hydraulic conductivity decreases from 600 to 200 feet per day.

For all changes in recharge and hydraulic conductivity values, the range in the direction of groundwater flow is from due north to N52W for the SW ¼, Section 4, T26N, R10W. The calibrated model has a groundwater flow direction of N32W. The most reasonable direction of groundwater flow is N32W for the calibrated model, for when K = 800 feet/day, and when K= 800 feet/day with R=12 inches/year.

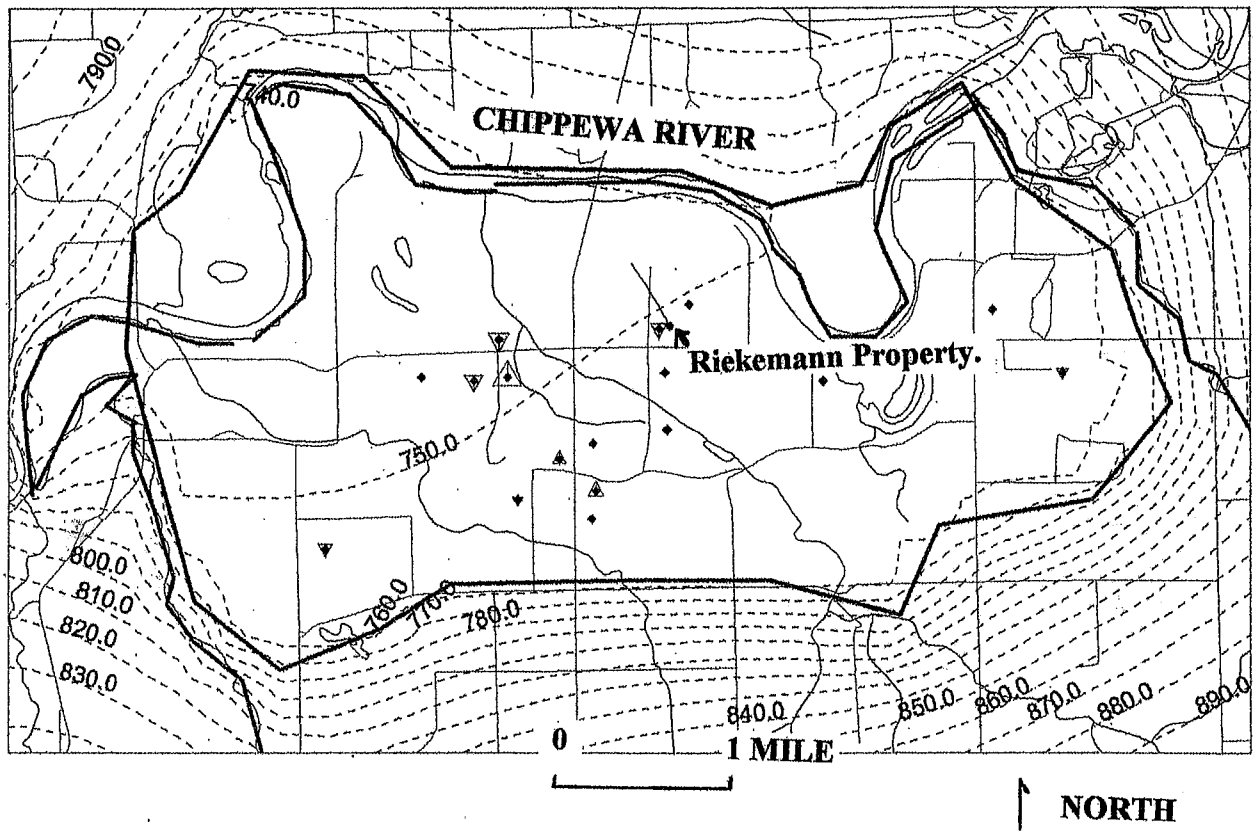


Figure 4. Water-table map for Section 4, T26N, R10W in the Town of Brunswick, Eau Claire County, Wisconsin. Red line shows the direction of groundwater flow and 5-year travel time.

TABLE 1. Results of the sensitivity analysis.

Description	Mean Diff.	Median Diff.	MAE	RMS	Flow Direction
Calibrated Model R=8 inches/yr, K=600 ft/d	-0.2	0.8	2.6	3.0	N32W
Model with R=12 inches/yr	1.1	1.8	2.7	3.3	N22W
Model with R=14 inches/yr	1.9	2.3	2.9	3.6	N20W
Model with R=6 inches/yr	-0.8	0.1	2.5	3.0	N38W
Model with K=800 ft/day	-1.3	-0.5	2.6	3.3	N42W
Model with K=1000 ft/day	-2.0	-1.5	2.9	3.7	N52W
Model with K=400 ft/day	1.9	2.2	2.9	3.6	N18W
Model with K=200 ft/day	7.5	8.0	7.5	8.4	North
Model with K=800 ft/d and With R=12 inches/yr	-0.3	0.6	2.6	3.0	N32W

DIFF = Difference
MAE = Mean Absolute Error
RMS = Root Mean Square Error

MODEL PREDICTION

Figure 4 presents the calibrated water-table map for Section 4, T26N, R10W. The calibrated groundwater model predicts a N32W groundwater flow direction and a groundwater velocity of 1.5 feet per day for the SW 1/4, Section 4, T26N, R10W.

$$\text{Velocity} = \frac{\text{Hydraulic Conductivity times Hydraulic Gradient}}{\text{Porosity}}$$

$$= \frac{600 \text{ feet/day times } 0.00077}{0.3} = 1.5 \text{ feet/day}$$

The red line on Figure 4 represents 5-years of groundwater travel time.

The predicted groundwater elevation in the center of the SW ¼, Section 4, T26N, R10W is 750.5 feet above mean sea level. Bank storage during flood times for the Chippewa River may affect the local groundwater flow direction and elevation of the water table.

CONCLUSIONS

Based on the groundwater flow model, the following conclusions are presented for the Riekemann property in the SW 1/4, Section 4, T26N, R10W.

1. The groundwater flow direction is approximately N32W.
2. The groundwater elevation in the center of the SW ¼, Section 4, T26N, R10W is approximately 750.5 feet above mean sea level.
3. The groundwater flow velocity is approximately 1.5 feet per day.

REFERENCES CITED

Bradbury, K. and Rothschild, E., 1985, A Computerized Technique for Estimating the Hydraulic Conductivity of Aquifers from Specific Capacity Data: Ground Water, v. 23, no. 2, p. 240-246.

Haitjema, Henk, 1995, Analytic Element Modeling of Groundwater Flow: Academic Press, 394 p.

Muldoon, M.A., 1992, Generalized Water-Table Elevation Map of Eau Claire County, Wisconsin:

Tinker, Jr., John R., 2002, Groundwater Flow Model for Municipal Wells in Eau Claire County, Wisconsin, Revised June 2002: Report submitted to the Wisconsin Department of Natural Resources, July 8, 2002, 78 p.

APPENDIX A

AVAILABLE WELL CONSTRUCTOR'S REPORTS FOR STUDY AREA

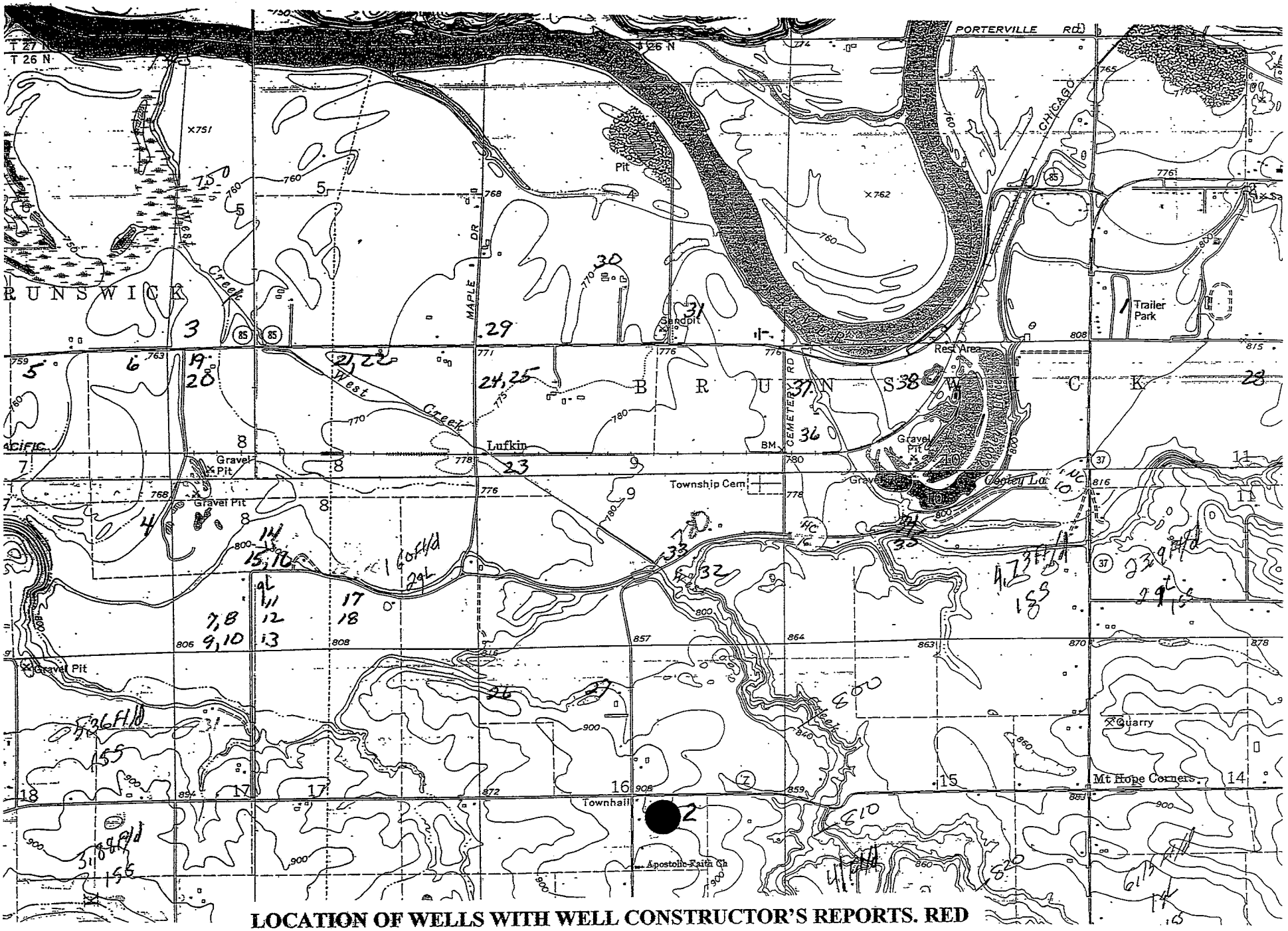
Summary of Data from Well Constructor's Reports

Number of Reports 38 includes 1 mobile home park well, 1 fire station well, 1 irrigation well, and 35 private water-supply wells (Figure 5)

4 sandstone wells and 34 fluvial sediment wells

Hydraulic Conductivity (arithmetic mean)
fluvial sediment = 146 ft/day, standard deviation = 82.4 ft/day
sandstone = 1.9 ft/day, standard deviation = 0.72 ft/day

Average Depth of Wells
fluvial sediment = 70.5 feet, standard deviation = 27.5 feet
sandstone = 166, standard deviation = 90.3 feet



LOCATION OF WELLS WITH WELL CONSTRUCTOR'S REPORTS. RED NUMBERS ON MAP MATCH WITH NUMBERS IN UPPER RIGHT HAND CORNER OF EACH WELL CONSTRUCTOR'S REPORT (APPENDIX A).

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

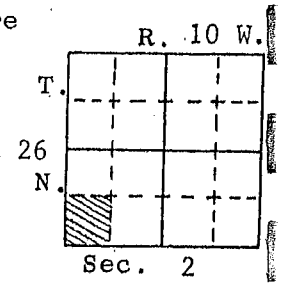
Log No. L6-EC-

Well name Pine Edge Mobile Home Park Well
Town of Brunswick
Owner.... Pine Edge Mobile Home Park
Address.. Route #4
Eau Claire, WI 54701
Driller.. Olson Bros. Well Drilling Co., Inc.
Engineer.

County: Eau Claire

Completed... 11/18/70
Field check.
Altitude.... 805' ETM
Use..... Potable
Static w.l.. 51'
Spec. cap... 10 GPM/ft.

805 − 51 = 754



Quad. Eau Claire West 7½'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
10"	0	40'				6"	U.S. Steel A53B Seamless T & C 19.45U.280 wall	+2'	90'	6"	Tele-Well screen Stainless Steel U.O.P. 12 slot	90'	100'
6"	40'	100'											

Drilling method: Cable tool
Samples from 0 to 100' Rec'd: 1/26/81

Studied by: B. J. Socha

Grout	from	to
16 Sacks neat pressure cement grout	0	40'

Issued: 1/15/85

Formations: Outwash

Remarks: Well tested for 2 hours at 20 GPM with 2 feet of drawdown.

K = 0.0012 ft/sec
104 ft/day

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	0-5		Sand	Dk yl bn	C	Vfn/VC	Little gravel. Trace silt, clay.
	5-10		"	Yl brown	"	"	Trace gravel, silt, clay.
	10-15		"	"	"	"	Same.
	15-20		"	"	"	"	Little gravel. Trace silt, clay. / bn snd. Tr st,cl.
	20-25		Gravel	Mixed	M peb	Gran/L peb	Rhy,rhy porph,volc,grnt,qtz,trap,ss(sil,lim & hem cem). Mch yl
	25-30		Sand	Yl brown	VC	Vfn/VC	Trace gravel, silt, clay. / ss. Mch yl bn snd. Tr st,cl
	30-35		Gravel	Mixed	S peb	Gran/L peb	Qtzt,volc,trap,rhy,rhy porph,grnt,Fe form;hem cem feldspathi
	35-40		"	"	Gran	Gran/M peb	Rhy porph, Fe form, qtz, grnt, trap. Ltl sand. Tr silt, clay.
	40-45		Sand	Yl brown	C	Vfn/VC	Much gravel. Trace silt, clay.
	45-50		"	"	"	"	Same.
	50-55		"	"	"	"	Trace gravel, silt, clay.
	55-60		"	"	"	"	Same.
	60-65		"	"	"	"	"
	65-70		"	"	"	"	"
	70-75		"	"	VC	"	Much gravel. Trace silt, clay.
	75-80		Gravel	Mixed	Gran	Gran/S peb	Grnt,qtz,qtzt,rhy porph,sil & hem cem ss,Fe form. Mch snd. Tr
	80-85		"	"	"	Gran/M peb	Same plus limonite, trap. / st,cl.
	85-90		"	"	"	"	Qtz,qtzt,hemic ss w/mch lim matx,trap,cht,porph rhy,micaceous
	90-95		Sand	Lt yl bn	C	Vfn/VC	Trace gravel, silt, clay. / sil cem ss,ss(lim,sil & hem cem).
100'	95-100		"	"	"	"	Same. / Much sand. Trace silt, clay.

OUTWASH

END OF LOG

WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
3817 Mineral Point Road • Madison, WI 53705

Geologic Log No. J205-EC-227

Well name Brunswick Fire Station Well
Town of Brunswick
Owner.... Town of Brunswick
Address.. Route 4, c/o John Weber
Eau Claire, WI 54701
Driller.. Olson Bros. Well Drilling Co.
Engineer.

County: Eau Claire
Completed... 2/14/79
Field check.
Altitude.... 906' ETM
Use..... filling fire trucks
Static w.l.. 83'
Spec. cap... 1.2 GPM/ft 906 83 823

R. 10 W.
T. 26 N.
Sec. 16

Location: NW¼, NW¼, NW¼, NW¼, SE¼, Sec. 16, T26N, R10W Quad. Mondovi NE 7½'

Drill Hole						Casing & Liner Pipe or Curbing					
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
12"	0	61'				8"	New stl A53B .322 wall 28.55 lb/ft Schedule 40 PE, Prime	+22"	61'				
8"	61'	300'											

Grout	from	to
27 sacks neat pressure cement	0	61'

Drilling method: rotary
Samples from 0 to 300' Rec'd: 10/19/79

Studied by: Kathleen Massie

Published: 6/6/91

Formations: glaciofluvial deposits, Mt. Simon Formation.

Remarks: Well tested for 4 hours at 75 GPM with 65 feet of drawdown.
DNR Permanent Well #78008 & Eau Claire Co. Miscellaneous #7.
The upper part of bedrock in this well may be Eau Claire Formation.

K = 6.7X10⁻⁶ ft/sec
1000006.7
Sandstone
0.56 ft/d

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
Glaciofluvial 25'	0-5		Sand	Brown	M	Vfn/VC	Trace gravel(Gran/S peb),silt.
	5-10		"	"	"	"	Same.
	10-15		"	"	Fn/M	"	"
	15-20		"	"	M	"	Little gravel(Gran/M peb). Trace silt.
	20-25		"	"	"	"	Trace gravel(Gran/M peb),silt.
MT. SIMON FORMATION	25-30		Sandstone	Pl yellow	Vfn&M	"	Sang & Rnd.Tr G.sil cem,G lim cem,yl sil matx/cl,strng bn sil
	30-35		"	"	"	"	Same plus tr fos frags. sh,pl gn micus sh,Vfn-glauc&zr&mafic
	35-40		"	Pl yl & ol gy	Fn	"	See end of log. snds,mafic incl,mica. Mod frstg.Ltl
	40-45		"	"	"	"	Same but slgtly less ol gy sh,but ltl lim stng&half qtz s
	45-50		"	Pl yellow	M	"	Rnd.Tr G sil cem,G lim cem,mafic chips are gy,half are yl
	50-55		"	"	M/C	"	See end of log. incl,Fn/M mafic snds,sec qtz grw,cl,yl lim/s
	55-60		"	Bn yl & ol gy	Fn	"	See end of log. shale. Much frosting. Ltl quartz silt.
	60-65		"	Pl yellow	M/C	"	Rnd. Tr G sil cem,G bn yl lim cem,sec qtz grw,mafic incl,mica,
	65-70		"	"	"	"	Same but ltl cl. yl to bn yl sil sh,cl,fos frags.Mod frstg.L
	70-75		"	"	"	"	Rnd. Tr G sil cem,G bn yl lim cem,sec qtz grw,mafic qtz s
	75-80		"	"	"	"	Same plus tr Fn-mafic snds. incl,mica,lt gy micus stl sh,Fn/M
	80-85		"	"	"	"	Same. zr,fos frags,cl.Mod frstg.Ltl q
	85-90		"	"	"	"	Same but ltl clay. silt.
	90-95		"	"	"	"	Rnd. Tr G sil cem,G bn yl lim cem,sec qtz grw,mafic incl,fos
	95-100		"	"	"	"	Same plus tr pl gn micus sh. frags,mica,Fn/M zr&mafic snds,wh
	100-105		"	"	"	"	See end of log. sil sh,cl. Mod frstg.Ltl qtz s
	105-110		"	"	"	"	Same as 100'-105'.
	110-115		"	"	"	"	Same plus tr fossil frags.
	115-120		"	V pl bn	Fn&VC	Vfn/Gr	Srnd&Wrnd. Ltl G to VG slgtly dolic cem(w/fines&micus sh),G to
	120-125		"	"	"	"	Same. VG viv cem(M/C),pl gn micus sh,qtz st.Mod fr
	125-130		"	"	Fn&C	"	See end of log. Tr yl bn sil cem(w/viv cem),mica,Fn/M-mafic
	130-135		"	"	Fn&VC	"	Same as 115'-120'. snds,mafic incl,pyr,sec qtz growths.
	135-140		"	"	"	"	Srnd&Wrnd. Mod G to VG sil cem(w/fines&sh),frstg.Ltl pl gn mic
	140-145		"	"	Fn&C	"	Same plus tr wh sil sh. sh,mica,qtz st.Tr G to VG viv cem(M/C
	145-150		"	"	Fn&C/VC	"	See end of log. bn yl sil cem(w/viv),Fn/M mafic snds
	150-155		"	"	Fn&C	"	See end of log. (incl Fe oxides&zr),mafic incl,sec
	155-160		"	"	Fn/M	"	See end of log. qtz growths,lim staining.

WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
3817 Mineral Point Road • Madison, WI 53705

Geologic Log No. J205-EC-227

Well name: Brunswick Fire Station Well

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
MT. SIMON FORMATION	160-165		Sandstone	V pl bn	M	Vfn/Gr	Srnd to rnd.Ltl G sil cem,frstg.Tr pl gn micus sh,Fn/M mafic
	165-170		"	"	Fn/M	"	See end of log. snds(as abv),qtz silt,mafic inclusions,mica.
	170-175		"	"	Fn/M&C	"	Srnd&Wrnd.Tr G sil cem,mafic incl,pl gn micus sh,Fn/C mafic sr
	175-180		"	"	"	"	See end of log. (as abv),qtz st,mafic incl,mica,non-qtz gr
	180-185		"	"	Fn/M	"	See end of log. Ltl Wrnd qtz gravel(Gr/SP).Mch frosting.
	185-190		"	"	"	"	Sang to srnd. Mch G sil cem,qtz st,frstg,mica,Ltl pl gn micus
	190-195		"	"	M/C	"	See end of log. sh.Tr G lim cem,lim stng,rd bn hem micus sh,
	195-200		"	"	Fn/M	"	See end of log. Fn/M mafic snds(as abv),mafic incl.
	200-205		"	"	"	"	Same as 195'-200' but much G sil cem.
	205-210		Ss & Shale	Lt rd bn & DkYd bn	"	"	Hemic & micus(sh).Srnd to rnd.Mch G sil cem,qtz st,pl gn micus
	210-215		"		"	"	See end of log. sh,frstg,Ltl mica,rnd qtz gvl(Gr/SP).Tr Fn/M
	215-220		Sandstone	V pl bn	M/C	"	See end of log. mafic snd(as abv),mafic incl,lim staining
	220-225		"	"	Fn&C	"	Srnd&Wrnd.Mch G slgtly dolic cem,frstg.Tr pl gn micus sh,wh
	225-230		"	"	Fn/M&VC	"	See end of log. sh,off wh sil matx,pyr,Fn/M-zr,mafic incl,
	230-235		"	"	Fn/M	"	See end of log. st,rd bn hem micus sh,mica.Ltl Wrnd qtz gvl
	235-240		"	"	"	"	Srnd to rnd.Mch G slgtly dolic cem,frstg.Ltl pl gn (Gr/SP
	240-245		"	"	"	"	See end of log. micus sh.Tr rd bn hem micus sh,mafic incl,
	245-250		"	Pl pk yl	M/C	"	See end of log. sil sh,Fn/C-zr,qtz st,gy sil shale.
	250-255		"	"	"	"	Rnd to Wrnd.Ltl G sil cem.Few pk feld grns.Mch frstg,Wrnd qtz
	255-260		"	"	C	"	See end of log. gvl(Gr/SP).Tr pl gn micus sh,mafic incl,bn yl
	260-265		"	"	C/VC	"	See end of log. micus sh,mica,Fn/M-zircon,pyrite.
	265-270		"	"	"	"	Same as 260'-265'.
	270-275		"	"	M/C	"	Same but little Wrnd qtz gravel(Gran/S peb).
	275-280		"	"	"	"	Wrnd.Mch G yl to pk sil cem,frstg,Wrnd qtz gvl(Gr/MP).Few pk
	280-285		"	"	C/VC	"	See end of log. feld grns.Tr pyr cem,Fn-pyr xtls,Fn/C mafic
	285-290		"	V pl bn	"	"	See end of log. snds(as abv)(Fe oxides&zr),mafic incl,V pl
	290-295		"	"	"	"	See end of log. 'desert rose'(barite?)-w/pyr xtls betwee
275'	295-300		"	"	"	"	Same as 290'-295' 'petals',pl gn micus sh,drsy quartz. minus the 'desert rose'.
			END OF LOG				
			"See end of log" samples.				
	35-40		Sandstone	Pl yl & ol gray	Fn	Vfn/VC	Ang.Mch VG slgtly dolic cem,ol gy micus sh,mica,frstg,st,tan bk fos frags.Ltl Vfn/Fn mafic snds(incl zr & Fe-oxides),Tr G bn yl lim cem,Vfn/Fn-glauc(w/yl ss),yl sil sh,pyr.The ss chip are gy or pl yl w/layers of sh throughout,more gy,yl resu of lim stng?The larger qtz grains are coated w/many pyr coatings & inclusions.
	50-55		Sandstone	Pl yellow	M/C	Vfn/VC	Same as 45'-50' plus trace pale green micaceous shale.
	55-60		Sandstone	Bn yl & ol gray	Fn	Vfn/VC	Sang.Mch VG slgtly dolic cem,ol gy micus sh,mica,st,bk fos frags.Ltl pyrite(cem,Vfn-grains,incl/coatings),Vfn mafic snds (iron oxides & zircon & unknown).Tr G lim cem,bn yl sil sh, lt gy sh,mafic incl,sec qtz growths.Half gy chips,half yl bn yl chips.
	100-105		Sandstone	Pl yellow	M/C	Vfn/VC	Rnd.Tr G sil cem,G bn yl lim cem,sec qtz grw,mafic incl,Fn/M mafic sands,pl gy micus sh,ol,wh sil sh,mica.Mch frstg.Ltl qtz silt.
	125-130		Sandstone	V pl bn	Fn&C	Vfn/Gr	Srnd&Wrnd.Mch G to VG silcs cem(w/fines&sh),pl gn micus sh, frosting.Ltl mica,qtz silt.Tr G to VG viv cem(M/C).Tr lim s Fn/M-mafic snds(incl iron oxides & zircon),mafic & rutile incl,sec qtz grw,pyr.
	145-150		Sandstone	V pl bn	Fn&C/VC	Vfn/Gr	Srnd&Wrnd.Mch G to VG sil cem(w/fines&sh),frstg,pl gn micus Ltl mica,qtz st,Wrnd qtz gvl(Gr/SP).Tr G to VG viv cem(M/C), lim stng,Fn/M-mafic snds(incl iron oxides & zircon),mafic incl,sec qtz growths.
	150-155		Sandstone	V pl bn	Fn&C	Vfn/Gr	Sang&Wrnd.Mch G to VG sil cem(w/fines),frstg.Ltl qtz st,pl gr micus sh,mica.Tr G to VG viv cem(M/C),Fn/M mafic snds(incl iron oxides & zircon),mafic incl,sec qtz grw,lim stng.
	155-160		Sandstone	V pl bn	Fn/M	Vfn/Gr	Srnd.Ltl G sil cem,frstg.Tr G to VG viv cem(M/C),pl gn micus sh Fn/M mafic snds(as abv),qtz st,mafic incl,mica.
	165-170		Sandstone	V pl bn	Fn/M	Vfn/Gr	Srnd to rnd.Ltl G sil cem,frstg,Wrnd qtz gvl(Gr/SP).Tr pl gn micus sh,Fn/C mafic snds(as abv),qtz st,mafic incl,mica.

WISCONSIN GEOLOGICAL and NATURAL HISTORY SURVEY
3817 Mineral Point Road • Madison, WI 53705

Geologic Log No. J205-EC-227

Well name: Brunswick Fire Station Well

Depths	Graphic Section	Rock Type	Color	Grain Size		Miscellaneous Characteristics
				Mode	Range	
175-180		Sandstone	V pl bn	Fn/M&C	Vfn/Gr	Srnd&Wrnd.Tr G sil cem,mafic incl,rd bn hem mica sh,lim stn qtz st,mafic incl,mica.Ltl pl gn micus sh.Moh frosting.
180-185		Sandstone	V pl bn	Fn/M	Vfn/Gr	Sang to srnd.Ltl G sil cem,qtz st.Moh frstg,mica.Tr lim cem, stng,pl gn micus sh,rd bn hem,micus sh,mafic incl,Fn/M-mafi sands(as above).
190-195		Sandstone	V pl bn	M/C	Vfn/Gr	Sang to rnd.Ltl G sil cem,qtz st,mica.Moh frstg.Tr G lim cem pl gn micus sh,rd bn hem micus sh,Fn/M mafic snds(as abv),m incl,wh sil shale.
195-200		Sandstone	V pl bn	Fn/M	Vfn/Gr	Sang to srnd.Ltl G to F sil cem.Moh qtz st,frstg,pl gn micus Few Wrnd qtz grans.Tr rd bn hem micus sh,Fn/M mafic snds(as above),mafic incl,lim staining,mica.
210-215		Ss & Sh	Lt red bn-ss dk red bn-shale	Fn/M	Vfn/Gr	Same as 205'-210' but pl gn micus shale makes up half shale
215-220		Sandstone	V pl bn	M/C	Vfn/Gr	Srnd to rnd.Moh G sil cem,frstg.Ltl qtz st,pl gn micus sh.Tr sil sh,rd bn hem micus sh,Fn-zr,mafic incl,mica.
225-230		Sandstone	V pl bn	Fn/M&VC	Vfn/Gr	Same as 220'-225' but little pl gn micus shale.
230-235		Sandstone	V pl bn	Fn/M	Vfn/Gr	Same as 225'-230' but tr pl gn micus sh,qtz gvl(Gr/SP).
240-245		Sandstone	V pl bn	Fn/M	Vfn/Gr	Srnd to rnd.Moh G slgtly dolic cem,frstg.Ltl pl gn micus sh, qtz st,mica.Tr rd bn hem micus sh,mafic incl,wh sil sh,gy s sh matrix,pyr,Fn/M-zr.
245-250		Sandstone	Pl pk yl	M/C	Vfn/Gr	Srnd to Wrnd.Moh G pl pk or sil cem,frstg.Few pk feld grains Wrnd qtz grans.Tr pyr cem,mica,pl gn micus sh,mafic incl,wh sil sh,Fn/M-zircon,qtz silt.
255-260		Sandstone	Pl pk yl	C	Vfn/Gr	Wrnd.Moh G sil cem,Wrnd qtz gvl(Gr/SP),frstg.Few pk fled gra Ltl pl gn micus sh.Tr pyr,Fn/M mafic sands(zircon & iron ox mafic incl,bn yl micus shale.
260-265		Sandstone	Pl pk yl	C/VC	Vfn/Gr	Same as 255'-260' but tr pl gn micaceous shale.
280-285		Sandstone	Pl pk yl	C/VC	Vfn/Gr	Wrnd.Tr G yl to pk sil cem,pk feld grns,pyr,Fn-pyr xtls,wh s sh,rd bn hem micus sh,Fn/C mafic snds(as abv),mafic incl, 'desert rose' petals.Moh Wrnd qtz gvl(Gr/MP),frosting.
285-290		Sandstone	V pl bn	C/VC	Vfn/Gr	Same as 280'-285' plus tr 'desert rose' w/pyr xtls between 'petals' (barite?).
290-295		Sandstone	V pl bn	C/VC	Vfn/Gr	Wrnd.Tr G yl sil cem,pk feld grains,pyr cem,pyr,wh sil sh/ma mafic incl,Fn/C mafic sands(as abv),pl gn micus sh,'desert' rose'(barite?).Moh frosting,Wrnd qtz gvl(Gr/MP).

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

(57)

NOTE:
White Copy – Division's Copy
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Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300-15 Rev. 2-79

APR 15 1988

1. COUNTY Eau Claire
CHECK (✓) ONE: [✓] Town [ ] Village [ ] City — Name ~~Union~~ BRUNSWICK

2. LOCATION — 1/4 Section or Gov't. Lot: SW SW — Section: 5 — Township: 26N — Range: 10W
OR – Grid or Street No. — Street or Road Name
AND – If available subdivision name, lot & block No.

3. NAME [✓] OWNER [ ] AGENT AT TIME OF DRILLING CHECK (✓) ONE
Richard Kopp
ADDRESS Rt. 4
POST OFFICE Eau Claire — ZIP CODE 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)
Building: none
Sanitary Bldg. Drain (C.I. / Other); Sanitary Bldg. Sewer (C.I. / Other); Floor Drain Connected To: (C.I. Sewer / Other Sewer); Storm Bldg. Drain (C.I. / Other); Storm Bldg. Sewer (C.I. / Other)
Street Sewer (San. / Storm); Other Sewers (C.I. / Other); Foundation Drain Connected to: (Sewer / Clearwater Dr. / Sewage Sump / Clearwater Sump); Sewage Sump (C.I. / Other); Clearwater Sump; Septic Tank; Holding Tank: 70'; Sewage Absorption Unit (Seepage Pit / Seepage Bed: 80 / Seepage Trench); Manure Hopper or Retention or Pnuematic Tank
Privy; Pet Waste Pit; Pit: Nonconforming Existing (Well / Pump / Tank); Subsurface Pumproom Nonconforming Existing; Barn Gutter; Animal Barn Pen; Animal Yard; Silo With Pit; Glass Lined Storage Facility; Silo w/o Pit; Earthen Silage Storage Trench Or Pit; Earthen Manure Basin
Temporary Manure Stack or Platform; Watertight Liquid Manure Tank or Basin; Manure Pressure Pipe; Subsurface Gasoline or Oil Tank; Waste Pond or Land Disposal Unit (Specify Type); Manure Storage Basin (Concrete Floor Only / Concrete Floor and Partial Concrete Walls); Other (Describe)

5. Well is intended to supply water for: Mobile home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
10	Surface	21'	6	21	40

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	steel .280 wall 18.97 P.E. KHC	Surface	36
5 9/16	Johnson Stainless Steel 10 Slot Screen 5X5 K packer	36	40

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
1 bag Benseal	Surface	21

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Br. sand & gravel	Surface	43

L.S 76.5 12 7.5 — 43 12 31 — K=138 ft/day

10. TYPE OF DRILLING MACHINE USED
[ ] Cable Tool [ ] Rotary-air w/drilling mud [ ] Rotary-w/drilling mud [ ] Rotary-hammer w/drilling mud & air [✓] Rotary-hammer & air [ ] Reverse Rotary [ ] Jetting with [ ] Air [ ] Water

Well construction completed on Aug. 5 1986

Well is terminated 12 inches [✓] above [ ] below final grade

Well disinfected upon completion [✓] Yes [ ] No

Well sealed watertight upon completion [✓] Yes [ ] No

11. MISCELLANEOUS DATA
Yield Test: 1 Hrs. at 20 GPM
Depth from surface to normal water level 12 Ft.
Depth of water level when pumping 15 Ft. Stabilized [✓] Yes [ ] No

Water sample sent to Eau Claire #2427 laboratory on Aug 5 1986

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature Thomas P Olson Registered Well Driller — 487

Business Name and Complete Mailing Address: Tom's Olson Bros. Well Drilling Co. 4625 Olson Drive Eau Claire, Wis. 54701 16177

NOV 3 1975 DEC 17 1975 4

WELL CONSTRUCTOR'S REPORT
FORM 3300–15

NOTE
WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire | CHECK ONE: ☒ Town ☐ Village ☐ City | NAME: Brunswick

2. LOCATION – ¼ Section: NE¼ SE¼ | Section: 7 | Township: 26N | Range: 10W
OR – Grid or street no. | Street name

AND – If available subdivision name, lot & block no.

3. OWNER AT TIME OF DRILLING: Lee Lademann
ADDRESS: R.4
POST OFFICE: Eau Claire Wis. - 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE-WATER DRAIN C. I.	WASTE-WATER DRAIN TILE

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
			Nothing in at this date						

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)
None

5. Well is intended to supply water for: Home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	72			

7. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
5	Steel I & C	Surface	69
	New black 15# per ft		
	2" x 3' screen	69	72
	ASTM A53		
	Youngstown Steel		

936 mc 10 slot Johnson screen

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	1
Sand	1	9
Sand & gravel	9	72

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

10. TYPE OF DRILLING MACHINE USED
☒ Cable Tool ☐ Direct Rotary ☐ Reverse Rotary
☐ Rotary – air w/drilling mud ☐ Rotary – hammer with drilling mud & air ☐ Jetting with ☐ Air ☐ Water

Well construction completed on: Oct 25 19 75

11. MISCELLANEOUS DATA
Yield test: 3 Hrs. at 10 GPM
Depth from surface to normal water level: 51 ft.
Depth to water level when pumping: 55 ft.

Well is terminated 18 inches ☒ above ☐ below final grade
Well disinfected upon completion ☒ Yes ☐ No
Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Eau Claire laboratory on: Oct 27 19 75

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE
Kenneth B. Olson Registered Well Driller
2791

COMPLETE MAIL ADDRESS
3909 Lark Ave - Eau Claire Wis
54701

Please do not write in space below

COLIFORM TEST RESULT | GAS – 24 HRS | GAS – 48 HRS | CONFIRMED | REMARKS

AUG 10 1976

5

State of Wisconsin
Department of Natural Resources
Box 450
Madison, Wisconsin 53701

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15
Rev. 10–75

1. COUNTY: Eau Claire
CHECK (✓) ONE: ☒ Town ☐ Village ☐ City
Name: Brunswick

2. LOCATION: ✓ ¼ Section: NW¼ NE¼ | Section: 7 | Township: 26N | Range: 10W
OR – Grid or Street No. | Street Name
AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: Jack R. Stai
ADDRESS: R. 4
POST OFFICE: Osseo Wis 54758

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Sewer C.I.	Storm Bldg. Sewer Other
7	—	—	41	—	—	—	—	—	—	—

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer	Foundation Drain Connected to: Sewage Sump	Foundation Drain Connected to: Clearwater Dr.	Foundation Drain Connected to: Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit
—	—	—	—					—	—	—	45	—	Seepage Pit: Seepage Bed: 70 Seepage Trench:

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit
—	—	Well –, Pump –, Tank –	—	—	—	—	—	—	—	—

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)
—	—	—	—	—	—

5. Well is intended to supply water for: Home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	33			

7. CASING, LINER, CURBING AND SCREEN Material, Weight, Specification & Method of Assembly 3¼" Johnson Follow

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
5	Steel I & C	Surface	30
	Rusblack 15# per ft		
	.258 Wall ASTM A53		
	Semitone Metal Ind Ltd		
	4"x3' screen	30	33

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	1
Sand & gravel	1	33

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool
☐ Rotary-air w/drilling mud
☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air
☐ Rotary-hammer & air
☐ Reverse Rotary
☐ Jetting with: ☐ Air ☐ Water

Well construction completed on: Aug 3 19 76

11. MISCELLANEOUS DATA

Yield Test: 2 Hrs. at 12 GPM
Depth from surface to normal water level: 13 Ft.
Depth of water level when pumping: 21 Ft. Stabilized ☒ Yes ☐ No

Well is terminated: 26 inches ☒ above ☐ below final grade
Well disinfected upon completion ☒ Yes ☐ No 15028
Well sealed watertight upon completion ☒ Yes ☐ No

2792 Water sample sent to: Eau Claire laboratory on: Aug 3 19 76

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

15028

SEE OTHER SIDE

Signature

Registered Well Driller

Complete Mail Address: 2909 Lake Ave Eau Claire Wis

6

WELL CONSTRUCTOR'S REPORT
FORM 3300–15

JUL 2 2 1975

NOTE
WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire | CHECK ONE: ☒ Town ☐ Village ☐ City | NAME: Brunswick

2. LOCATION – ¼ NE ¼ | ¼ Section: NE ¼ | Section: 7 | Township: 26N | Range: 10W
OR – Grid or street no. | Street name

3. OWNER AT TIME OF DRILLING: Earl Lieseman
ADDRESS: 5105 Jeffers Rd.
AND – If available subdivision name, lot & block no.
POST OFFICE: Eau Claire (Wis) - 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C. I.	WASTE WATER DRAIN TILE
5					ot this date			

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
			Nothing used			99	126		

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)
None

5. Well is intended to supply water for: Home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	39			

7. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
5	Steel D & C	Surface	36
	New black 15 # per ft		
	2" x 3' screen	36	39
	936 on 10 slot Johnson screen		

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	1
Sand	1	17
Sand & gravel	17	39

L.S
763 to 753 b = 29 K = 164 gal/day

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

10. TYPE OF DRILLING MACHINE USED
☒ Cable Tool ☐ Direct Rotary ☐ Reverse Rotary
☐ Rotary – air w/drilling mud ☐ Rotary – hammer with drilling mud & air ☐ Jetting with ☐ Air ☐ Water

Well construction completed on: July 17 19 75

11. MISCELLANEOUS DATA
Yield test: 3 Hrs. at 12 GPM
Depth from surface to normal water level: 10 ft.
Depth to water level when pumping: 12 ft.

Well is terminated: 12 inches ☒ above ☐ below final grade
Well disinfected upon completion: ☒ Yes ☐ No
Well sealed watertight upon completion: ☒ Yes ☐ No

Water sample sent to: Eau Claire laboratory on: July 21 19 75

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE | COMPLETE MAIL ADDRESS

SEE OTHER SIDE

Kenneth B. Olson Registered Well Driller | 3909 Lark Ave - Eau Claire Wis 54701
2795

Please do not write in space below

COLIFORM TEST RESULT	GAS – 24 HRS.	GAS – 48 HRS.	CONFIRMED	REMARKS

7

APR 25 1977

State of Wisconsin
Department of Natural Resources
Box 450
Madison, Wisconsin 53701

NOTE:
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Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15
Rev. 10–75

1. COUNTY: Eau Claire | CHECK (✓) ONE: ☒ Town ☐ Village ☐ City | Name: Brunswick

2. LOCATION: ¼ Section ✓ | Section: 8 | Township: 26N | Range: 10W
OR Grid or Street No. | Street Name
AND Available subdivision name, lot & block No.

3. NAME: ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: Dan Larson
ADDRESS: R.25 Abbie Hill Drive
POST OFFICE: Eau Claire Wis. 54701

4. Distance in feet from well to nearest (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Sewer C.I.	Storm Bldg. Sewer Other
5	—	—	—	—	—	—	—	—	—	—

Street Sewers San.	Street Sewers Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer	Sewage Sump	Clearwater Dr.	Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit: Seepage Pit	Seepage Bed	Seepage Trench
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Privy	Pet Waste Pit	Disposal System Nonconforming Existing: Well	Pump	Tank	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit
—	—	—	—	—	—	—	—	—	—	—	—	—

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)
—	—	—	—	—	—

5. Well is intended to supply water for: House & Shop

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	86			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
5	Steel I & C	Surface	83
	Newblack 15# per ft		
	.258 wall ASTM A53		
	Sumitomo Metal Ind LTD		
	4" X 3' screen Johnson	83	86

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	1
Sand	1	6
Sand & Gravel	6	86

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool
☐ Rotary-air w/drilling mud
☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air
☐ Rotary-hammer & air
☐ Reverse Rotary
☐ Jetting with Air / Water

Well construction completed on: April 13 1977

11. MISCELLANEOUS DATA

Yield Test: 2 Hrs. at 10 GPM
Depth from surface to normal water level: 56 Ft.
Depth of water level when pumping: 61 Ft. Stabilized ☒ Yes ☐ No

Well is terminated: 14 inches ☒ above ☐ below final grade
Well disinfected upon completion: ☒ Yes ☐ No
Well sealed watertight upon completion: ☒ Yes ☐ No

2794 Water sample sent to: Eau Claire laboratory on: April 14 1977

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature

SEE OTHER SIDE

Complete Mail Address

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 2-79

DEC 3 1984

1. COUNTY: Eau Claire
CHECK (✓) ONE: ☒ Town ☐ Village ☐ City
Name: ~~Union~~ BRUNSWICK

2. LOCATION: ¼ Section or Gov't. Lot: SW¼ SW¼ | Section: 8 | Township: 26 N | Range: 10W
OR – Grid or Street No. | Street or Road Name: Town Road
AND – If available subdivision name, lot & block No.

3. NAME ☐ OWNER ☒ AGENT AT TIME OF DRILLING CHECK (✓) ONE: Brian Thiess
ADDRESS: Route 4
POST OFFICE: Eau Claire, WI
ZIP CODE: 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. Sewer	
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Other
7										

Street Sewer		Other Sewers		Foundation Drain Connected to:		Sewage Sump		Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit	Manure Hopper or Retention or Pneumatic Tank
San.	Storm	C.I.	Other	Sewer	Sewage Sump	C.I.	Other					
				Clearwater Dr.	Clearwater Sump				45		Seepage Pit	
											Seepage Bed	
											Seepage Trench 80	

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Basin
		Well									
		Pump									
		Tank									

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin Concrete Floor Only Concrete Floor and Partial Concrete Walls	Other (Describe)

5. Well is intended to supply water for: Human

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	74½			

7. CASING, LINER, CURBING AND SCREEN
Material, Weight, Specification

Dia. (in.)	Mfg. & Method of Assembly	From (ft.)	To (ft.)
5	New steel threaded	Surface	72
	& cuppled 15 lbs per		
	ft ASTM A-120 1200 PSI		
	Valley Steel Pipe		
	5" by 3 ft Johnson Screen	71½	74½

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
sand	Surface	50
sand & Gravel	50	74½

10. TYPE OF DRILLING MACHINE USED
☒ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud ☐ Rotary-hammer w/drilling mud & air ☐ Rotary-hammer & air ☐ Reverse Rotary ☐ Jetting with Air ☐ Water

Well construction completed on 11-01 19 84

11. MISCELLANEOUS DATA
Yield Test: 4 Hrs. at 15 GPM
Depth from surface to normal water level 54 Ft.
Depth of water level when pumping 54 Ft. Stabilized ☒ Yes ☐ No

Well is terminated 16 inches ☒ above ☐ below final grade
Well disinfected upon completion ☒ Yes ☐ No
Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Madison laboratory on 11-05 19 84

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature
488 Robert Wetherbee Registered Well Driller

Business Name and Complete Mailing Address
Route 2 Eau Claire, WI

WELL CONSTRUCTOR'S REPORT
FORM 3300–15

OCT 19 1971

NOTE
WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire | CHECK ONE: ☒ Town ☐ Village ☐ City | NAME: Brunswick

2. LOCATION – ¼ Section: SW ¼ | ¼ Section: SW ¼ | Section: 8 | Township: 26N | Range: 10W

OR – Grid or street no.: or NW ¼? | Street name:

AND – If available subdivision name, lot & block no.:

3. OWNER AT TIME OF DRILLING: Jonathon Kent

ADDRESS: 608 ½ 3rd St.

POST OFFICE: Eau Claire Wis 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C. I.	WASTE WATER DRAIN TILE
8						None at this date		

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
				Nothing else in					

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.): None

5. Well is intended to supply water for: Home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
4	Surface	76			

7. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
4	Steel I & C	Surface	73
	New black 11# per ft		
	2" x 3' screen	73	76
	936 on 10 slot Johnson screen		

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Top soil	Surface	1
Sand	1	4
Sand & gravel	4	76

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool ☐ Direct Rotary ☐ Reverse Rotary
☐ Rotary – air w/drilling mud ☐ Rotary – hammer with drilling mud & air ☐ Jetting with ☐ Air ☐ Water

Well construction completed on: Oct 8 19 71

Well is terminated: 17 inches ☒ above ☐ below final grade

Well disinfected upon completion: ☒ Yes ☐ No

Well sealed watertight upon completion: ☒ Yes ☐

11. MISCELLANEOUS DATA

Yield test: 3 Hrs. at 10 GPM

Depth from surface to normal water level: 53 ft.

Depth to water level when pumping: 55 ft.

Water sample sent to Eau Claire laboratory on: Oct 11 19 71

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE

Kenneth B. Olson Registered Well Driller
2795

COMPLETE MAIL ADDRESS

3909 Lake Ave. Eau Claire Wis 54701

Please do not write in space below

COLIFORM TEST RESULT	GAS – 24 HRS.	GAS – 48 HRS.	CONFIRMED	REMARKS

AUG 20 1971

WELL CONSTRUCTOR'S REPORT
Wel-6

WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire — CHECK ONE: [X] Town [ ] Village [ ] City — NAME: Brunswick

2. LOCATION (Number and Street or ¼ section, section, township and range. Also give subdivision name, lot and block numbers when available.): SW 1/4 of SW 1/4 Sec 8 Township 26 N Range 10 W

3. OWNER AT TIME OF DRILLING: Royal Bowlin

4. OWNER'S COMPLETE MAIL ADDRESS: Rock Falls, Wis R.1

5. Distance in feet from well to nearest: (Record answer in appropriate block)

BUILDING	SANITARY SEWER C.I.	SANITARY SEWER TILE	FLOOR DRAIN C.I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C.I.	WASTE WATER DRAIN TILE
10	12		14					

CLEAR WATER DRAIN C.I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
				Nothing	else in	at	this	date	

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.): None

6. Well is intended to supply water for: Home

7. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
4	Surface	73			

8. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
4	Steel T & C	Surface	70
	New black 11# per ft		
	2" X 3' screen	70	73
	936 #10 slot Johnson screen		

9. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

10. FORMATIONS

Kind	From (ft.)	To (ft.)
Top soil	Surface	1
Sand	1	6
Sand & gravel	6	73

Well construction completed on Aug 10 1971

Well is terminated 18 inches [X] above [ ] below final grade

Well disinfected upon completion [X] Yes [ ] No

Well sealed watertight upon completion [X] Yes [ ] No

11. MISCELLANEOUS DATA

Yield test: 3 Hrs. at 12 GPM

Depth from surface to normal water level 52 ft.

Depth to water level when pumping 54 ft.

Water sample sent to Eau Claire laboratory on: Aug 11 1971

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE: Kenneth B. Olson Registered Well Driller — COMPLETE MAIL ADDRESS: 3909 Lark Ave - Eau Claire Wis 54701

2796

Please do not write in space below

JAN 21 1994

State of Wisconsin
Private Water Supply - WS/2
Department of Natural Resources
Box 7921
Madison, WI 53707 (Please type or print using a black pen.)

Well Construction Report For WISCONSIN UNIQUE WELL NUMBER GE712

Property Owner: MARK LARSON
Telephone Number: (715) 831-1140
Mailing Address: 2929 Blakely Ave
City: Eau Claire | State: WI | Zip Code: 54701
County of Well Location: Eau Claire | Co. Well Permit No. W 8982 | Well Completion Date (mm-dd-yy): 12-15-93

18 Well Constructor (Business Name): KEN OLSON Well Drilling | License # 215
Address: 3188 Sundet Rd
City: Eau Claire | State: WI | Zip Code: 54703

1. Well Location — Please use decimals instead of fractions.
[X] Town [ ] City [ ] Village of Brunswick — Fire # (If avail.)
Grid or Street Address or Road Name and Number (If avail.): SPEHLE RD
Subdivision Name: CSM Vol 1 Pg 232 | Lot # 2 | Block #
Gov't Lot # ____ or SE 1/4 of SW 1/4 of Section 8; T 26 N; R 10 [ ] E [X] W

2. Mark well location with a dot in correct 40-acre parcel of section. N / S / E / W (marked x in SE quarter-quarter of SW parcel)

3. Well Type [X] New [ ] Replacement [ ] Reconstruction
of previous unique well # ____ constructed in 19 ____
Reason for new, replaced or reconstructed well? new home
[X] Drilled [ ] Driven Point [ ] Jetted [ ] Other

4. Well serves 1 # of homes and or ____ (Ex: barn, restaurant, church, school, industry, etc.)
High Capacity: Well? [ ] Yes [X] No; Property? [ ] Yes [X] No

5. Well located on highest point of property, consistent with the general layout and surroundings? [X] Yes [ ] No If no, explain on back side.
Well located in floodplain? [ ] Yes [X] No
Distance in Feet From Well To Nearest:

	1. Landfill		9. Downspout/Yard Hydrant		17. Wastewater Sump
4	2. Building Overhang		10. Privy		18. Paved Animal Barn Pen
	3. Septic or Holding Tank (circle one)		11. Foundation Drain to Clearwater		19. Animal Yard or Shelter
69	4. Sewage Absorption Unit		12. Foundation Drain to Sewer		20. Silo - Type
	5. Nonconforming Pit		13. Building Drain [ ] Cast Iron or Plastic [ ] Other		21. Barn Gutter
	6. Buried Home Heating Oil Tank		14. Building Sewer [ ] Gravity [ ] Pressure [ ] Cast Iron or Plastic [ ] Other		22. Manure Pipe [ ] Gravity [ ] Pressure [ ] Cast Iron or Plastic [ ] Other
	7. Buried Petroleum Tank		15. Collector or Street Sewer		23. Other Manure Storage
	8. Shoreline/Swimming Pool		16. Clearwater Sump		24. Other NR 112 Waste Source: nothing else in

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
6	surface	86

Method of constructing upper enlarged drillhole only.
[ ] 1. Rotary - Mud Circulation
[ ] 2. Rotary - Air
[ ] 3. Rotary - Foam
[ ] 4. Reverse Rotary
[ ] 5. Cable-tool Bit ____ in. dia.
[ ] 6. Temp. Outer Casing ____ in. dia. Removed? [ ] Yes [ ] No If no, explain ____
[ ] 7. Other ____

9. Geology

DNR USE ONLY	Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
T	Topsoil	Surface	1
S	Sand	1	7
	Sand & gravel	7	86

45 406 55/31 8/day 51 K=10.4

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification, Manufacturer & Method of Assembly	From (ft.)	To (ft.)
6	Steel T&C new black 19.45 # per ft. .280 wall ASTM A53 Sawhill Steel	surface	83

Dia. (in.)	screen type, material & slot size	From	To
5	3' Johnson Stainless 15 slot	83	86

8. Grout or Other Sealing Material
Method N/A

Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
	surface		

10. Static Water Level
____ ft. above ground surface
55 ft. below ground surface

11. Pump Test
Pumping Level 60 ft. below surface
Pumping at 20 GPM for 2 hours

12. Well Is: 12 in. [X] Above [ ] Below Grade
Developed? [X] Yes [ ] No
Disinfected? [X] Yes [ ] No
Capped? [X] Yes [ ] No

13. Did you permanently seal all unused, noncomplying, or unsafe wells? [ ] Yes [ ] No If no, explain

14. Signature of Point Driver or Licensed Supervisory Driller: Daniel B. O— | Date Signed 1-4-94 DBO
Signature of Drill Rig Operator (Mandatory unless same as above) | Date Signed

Make additional comments on reverse side about geology, additional screens, water quality, etc. Comments on reverse side ____ (Check ✓, if yes).

WGNHS ORIGINAL

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 2-79

JAN 19 '82

1. COUNTY: Eau Claire
CHECK (✓) ONE: ☒ Town ☐ Village ☐ City Name: Brunswick

2. LOCATION OR – Grid or Street No. | ¼ Section or Gov't. Lot: SE SW | Section: 8 | Township: 26 N | Range: 10 W | Street or Road Name: —
AND – If available subdivision name, lot & block No.: Gene Rd.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: Al Fohrman
ADDRESS: 33 Pine Edge Ct. Lot 4
POST OFFICE: Eau Claire ZIP CODE: 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Sewer C.I.	Storm Bldg. Sewer Other
12'										

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer	Foundation Drain Connected to: Sewage Sump	Foundation Drain Connected to: Clearwater Dr.	Foundation Drain Connected to: Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit: Seepage Pit	Seepage Bed	Seepage Trench	Manure Hopper or Retention or Pneumatic Tank
										none				none		

Privy	Pet Waste Pit	Pit: Nonconforming Existing: Well	Pump	Tank	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Basin

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin: Concrete Floor Only	Concrete Floor and Partial Concrete Walls	Other (Describe)

5. Well is intended to supply water for: Household

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
6	Surface	104			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	New seamless steel A53 B 18.97 lb. 1945 #54 3-10-82	Surface	100
6	280 Wall PVC		
5	Johnson 5 3/4" Super Stainless Steel Screen 15 Slot	100	104
5	Knocker		

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Sand	Surface	15
Sand & gravel	15	104

10. TYPE OF DRILLING MACHINE USED
☐ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud ☐ Rotary-hammer w/drilling mud & air ☒ Rotary-hammer & air ☐ Reverse Rotary ☐ Jetting with Air ☐ Water

Well construction completed on: April 27 19 82

11. MISCELLANEOUS DATA
Yield Test: 1 Hrs. at 20 GPM
Depth from surface to normal water level: 54 Ft.
Depth of water level when pumping: 55 Ft. Stabilized ☒ Yes ☐ No

Well is terminated 24 inches ☒ above ☐ below final grade
Well disinfected upon completion ☒ Yes ☐ No
Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to: Eau Claire # 834 laboratory on 8-7 19 82

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: James Olson #746 Registered Well Driller

Business Name and Complete Mailing Address: Olson Bros. Well Drilling Co. 4625 Olson Drive Eau Claire, Wis. 54701

489

9.0 plot

WELL CONSTRUCTOR'S REPORT
FORM 3300–15

APR 19 1974

NOTE
WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire

CHECK ONE: ☒ Town ☐ Village ☐ City

NAME: Brunswick

2. LOCATION – ¼ Section: SE ¼ | ¼ Section: SW ¼ | Section: 8 | Township: 26N | Range: 10W

OR – Grid or street no. | Street name

3. OWNER AT TIME OF DRILLING: Darrell Berkowich

ADDRESS: 1122 Hedgewood Ave

AND – If available subdivision name, lot & block no.

POST OFFICE: Eau Claire Wis 54701

4. Distance in feet from well to nearest:

(Record answer in appropriate block)

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C. I.	WASTE WATER DRAIN TILE

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
			Nothing in at this date						

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)
None

5. Well is intended to supply water for: Mobile home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	83			

7. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
5	Steel J & C	Surface	80
	New black 15# per ft		
	2" x 3' screen	80	83
	936 no 10 slot Johnson screen		

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	1
Sand	1	8
Sand & gravel	8	31
Sand gravel & Clay	31	62
Sand & gravel	62	83

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Neat	Surface	

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool ☐ Direct Rotary ☐ Reverse Rotary
☐ Rotary – air w/drilling mud ☐ Rotary – hammer with drilling mud & air ☐ Jetting with ☐ Air ☐ Water

Well construction completed on: April 15 1974

11. MISCELLANEOUS DATA

Yield test: 3 Hrs. at 10 GPM

Depth from surface to normal water level: 54 ft.

Depth to water level when pumping: 60 ft.

Well is terminated 12 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Eau Claire laboratory on: April 16 1974

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE

Kenneth B. Olson Registered Well Driller
2797

COMPLETE MAIL ADDRESS

3909 Lark Ave - Eau Claire Wis
54701

Please do not write in space below

COLIFORM TEST RESULT	GAS – 24 HRS.	GAS – 48 HRS.	CONFIRMED	REMARKS

SATISFACTORY

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 2-79

SEP 7 1983

1. COUNTY: Eau Claire
CHECK (√) ONE: ☒ Town ☐ Village ☐ City
Name: Brunswick

2. LOCATION: ¼ Section or Gov't. Lot: NE ¼ Sec. 8 | Section: 7 | Township: 26N | Range: 10W
OR – Grid or Street No. | Street or Road Name: Town Rd
AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (√) ONE: Rick Pahl
ADDRESS: R-4
POST OFFICE: Eau Claire Wi. ZIP CODE

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. Sewer	
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Other
10										

Street Sewer		Other Sewers		Foundation Drain Connected to:		Sewage Sump		Clearwater Sump		Septic Tank	Holding Tank	Sewage Absorption Unit	Manure Hopper or Retention or Pnuematic Tank
San.	Storm	C.I.	Other	Sewer		Sewage Sump		C.I.	Other				
				Clearwater Dr.		Clearwater Sump				50		Seepage Pit / Seepage Bed / Seepage Trench 100	

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Basin
		Well / Pump / Tank	Nonconforming Existing								

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin: Concrete Floor Only / Concrete Floor and Partial Concrete Walls	Other (Describe)

5. Well is intended to supply water for: Human

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	67½			

7. CASING, LINER, CURBING AND SCREEN
Material, Weight, Specification Mfg. & Method of Assembly

Dia. (in.)		From (ft.)	To (ft.)
5"	New Steel Threaded + Coupled 15 Lb per Ft Astm A 120	Surface	64
5"	Pvc Johnson Screen	64½	67½

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Sand & Gravel	Surface	67½

10. TYPE OF DRILLING MACHINE USED
☒ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud ☐ Rotary-hammer w/drilling mud & air ☐ Rotary-hammer & air ☐ Reverse Rotary ☐ Jetting with: ☐ Air ☐ Water

11. MISCELLANEOUS DATA
Yield Test: 10 Hrs. at 3 GPM
Depth from surface to normal water level 50 Ft.
Depth of water level when pumping 50 Ft. Stabilized ☒ Yes ☐ No

Well construction completed on 5-9 1983
Well is terminated 10 inches ☒ above ☐ below final grade
Well disinfected upon completion ☒ Yes ☐ No
Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Madison laboratory on 5-10 1983

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: Robert Mettelsen Registered Well Driller
Business Name and Complete Mailing Address: R-2 Eau Claire Wis. 54703

490

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300-15 Rev. 12-76
RECEIVED SEP 3 1980
AUG 27 1980

1. COUNTY Eau Claire
CHECK (✓) ONE: [X] Town [ ] Village [ ] City
Name Brunswick

2. LOCATION
¼ Section NE SW | Section 8 | Township 26N | Range 10W
OR – Grid or Street No. | Street Name
AND – If available subdivision name, lot & block No.

3. NAME [X] OWNER [ ] AGENT AT TIME OF DRILLING CHECK (✓) ONE
Mike Jurjens - WWL
ADDRESS Rt 4
POST OFFICE Eau Claire WI 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Sewer C.I.	Storm Bldg. Sewer Other
9		34	—	—	—	—	—	—	—	—

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer	Clearwater Dr.	Sewage Sump	Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Seepage Pit	Seepage Bed	Seepage Trench
—	—	—	—	—	—	—	—	—	—	—	41	—	—	—	—

Privy	Pet Waste Pit	Pit: Nonconforming Existing Well	Pump	Tank	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit
—	—	—	—	—	—	—	—	—	—	—	—	—

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)
—	—	—	—	—	—

5. Well is intended to supply water for: Mobile Home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	71			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
5	Steel T&C new black	Surface	68
	15# per ft .258 wall		
	ASTM ~~A120~~ A53		
	Sumitomo Metal Ind		
	4"X3' Johnson Screen	68	71

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
none	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	1
sand	1	3
sand & gravel	3	5
sand	5	8
sand & gravel	8	71

80 53 / 47 71 53 / 18 4" 8 60 ft/dm

10. TYPE OF DRILLING MACHINE USED
[X] Cable Tool
[ ] Rotary-air w/drilling mud
[ ] Rotary-w/drilling mud
[ ] Rotary-hammer w/drilling mud & air
[ ] Rotary-hammer & air
[ ] Reverse Rotary
[ ] Jetting with [ ] Air [ ] Water

Well construction completed on 8-6 1980

11. MISCELLANEOUS DATA
Yield Test: 2 Hrs. at 10 GPM
Well is terminated 12 inches [X] above [ ] below final grade
Depth from surface to normal water level 53 Ft.
Well disinfected upon completion [X] Yes [ ] No
Depth of water level when pumping 56 Ft. Stabilized [X] Yes [ ] No
Well sealed watertight upon completion [X] Yes [ ] No

Water sample sent to Eau Claire laboratory on 8-~~8~~6 1980

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side:

Signature Daniel B Olson
Kenneth Olson Well Drilling Registered Well Driller
Complete Mail Address 2717 Pearl Dr Eau Claire WI

16

WELL CONSTRUCTOR'S REPORT TO WISCONSIN STATE BOARD OF HEALTH

Wel 6

See Instructions on Reverse Side

RECEIVED
NOV 25 1963
SANITARY ENGINEERING

1. County Eau Claire (NE¼SW¼) Town ☒ Brunswick / Village ☐ / City ☐ Check one and give name

2. Location Sec 8 T 26 N R 10 W
Name of street and number of premise or Section, Town and Range numbers

3. Owner ☒ or Agent ☐ Agnes Huddleson
Name of individual, partnership or firm

4. Mail Address R-5 Box 124 Eau Claire Wis
Complete address required

5. From well to nearest: Building 4 ft; sewer — ft; drain — ft; septic tank — ft; dry well or filter bed — ft; abandoned well — ft.

6. Well is intended to supply water for: Home

7. DRILLHOLE:

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
4	0	61			

8. CASING AND LINER PIPE OR CURBING:

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
4	Standard Steel 956 #D #60 Tshreaded	0	58

9. GROUT:

Kind	From (ft.)	To (ft.)
None		

10. FORMATIONS:

Kind	From (ft.)	To (ft.)
Top soil	0	4
Sand & Gravel	4	7
Sand gravel & Clay	7	15
Sand & Gravel	15	61

Construction of the well was completed on: Nov 19 19 63

The well is terminated 11 inches ☒ above, below ☐ the permanent ground surface.

Was the well disinfected upon completion? Yes ✓ No —

Was the well sealed watertight upon completion? Yes ✓ No —

11. MISCELLANEOUS DATA:

Yield test: 3 Hrs. at 15 GPM.

Depth from surface to water-level: 34 ft.

Water-level when pumping: 41 ft.

Water sample was sent to the state laboratory at: Eau Claire (City) on Nov 20 19 63

Signature Kenneth B. Olson (Registered Well Driller) 3909 Lark Ave Eau Claire Wis (Complete Mail Address)

Please do not write in space below

Rec'd — No.

Ans'd

Interpretation

	10 ml	10 ml	10 ml	10 ml	10 ml
Gas—24 hrs.					
48 hrs.					
Confirm					
B. Coli					

3728

17

Well Construction Report For

WISCONSIN UNIQUE WELL NUMBER AB667

Property Owner HARRIS GRINDE (TST) Telephone Number 835-4060

Mailing Address 1112 Grissom

City Eau Claire State WI Zip Code 54701

County Eau Claire | County Well Location Permit No. W-1580 | Well Completion Date 10-25-88 (M-M D-D Y-Y)

State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

NOV 7 1988

1. Location (Please type or print using a black pen.)

☒ Town ☐ City ☐ Village of Brunswick | Fire # (if available)

Grid or Street Address or Road Name and Number (if available)

Subdivision Name | Lot # | Block #

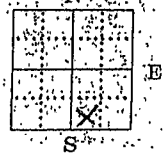
Gov't Lot # ___ or SW ¼ of SE ¼ of Section 8 ; T 26 N; R 10 ☐ E ☒ W

Well Constructor (Business Name) DAN DIXON License # 352

Address 3128 Sundet Rd

City Eau Claire State WI Zip Code 54703

2. Mark well location in correct 40-acre parcel of section.



3. Well Type ☒ New ☐ Replacement ☐ Reconstruction/Rehabilitation

of well constructed in 19 ___.

Reason for new, reconstructed, replaced, or rehabilitated well? watering nursery stock

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other ___

4. Well serves ___ # of homes and/or nursery stock (ex: barn, restaurant, church, school, industry, etc.)

High Capacity Well? ☐ Yes ☒ No

High Capacity Property? ☐ Yes ☒ No

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☒ Yes ☐ No

Well Located in Floodplain? ☐ Yes ☒ No

Distance In Feet From Well To Nearest:

___ 1. Landfill
___ 2. Building Overhang
___ 3. Septic or Holding Tank
___ 4. Sewage Absorption Unit
___ 5. Nonconforming Pit
___ 6. Buried Home Heating Oil Tank
___ 7. Buried Petroleum Tank
___ 8. Shoreline/Swimming Pool
___ 9. Downspout/Yard Hydrant
___ 10. Privy
___ 11. Foundation Drain to Clearwater
___ 12. Foundation Drain to Sewer
___ 13. Building Drain ☐ Cast Iron or Plastic ☐ Other
___ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
___ 15. Collector Sewer
___ 16. Clearwater Sump
___ 17. Wastewater Sump
___ 18. Paved Animal Barn Pen
___ 19. Animal Yard or Shelter
___ 20. Silo — Type ___
___ 21. Barn Gutter
___ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
___ 23. Other Manure Storage ___
Other NR 112 Waste Source
X 24. NOTHING IN

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
6	surface	86

Method of constructing upper enlarged drillhole. (If applicable ✓ more than one.)

☐ 1. Rotary — Mud Circulation
☐ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☐ 5. Cable-tool Bit ___ in. dia.
☐ 6. Temp. Outer Casing ___ in. dia. Removed? ☐ Yes ☐ No
If no, explain ___
☐ 7. Other ___

9. Geology

Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
Topsoil	surface	1
sand & gravel	1	3
sand	3	9
sand & gravel	9	86

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	Steel PE new black	surface	82
	18.97# per Ft .280 wall		
	ASTM A53 NKK Steel		

Dia. (in.)	screen type and material	From (ft.)	To (ft.)
5	4' Johnson Screen	82	86

8. Grout or Other Sealing Material

Method N/A

Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
	surface		

10. Static Water Level: 59 ft. below ground surface

11. Pump Test: Pumping Level 61 ft. below surface; Pumping at 17 GPM for 3 hours

12. Well Is: 12 in. ☒ Above ☐ Below Grade

Developed? ☒ Yes ☐ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

13. Were all unused, noncomplying, or unsafe wells properly filled with sealant? ☐ Yes ☐ No If no, explain N/A

14. Signature of Well Constructor: Daniel B Olson DBO Date Signed 10-31-88

Signature of Drill Rig Operator: Daniel B Olson DBO Date Signed 10-31-88

Make additional comments on reverse side about geology, etc.

WELL CONSTRUCTION REPORT

STATE OF WISCONSIN

WELL CONSTRUCTOR'S REPORT — DEPARTMENT OF RESOURCE DEVELOPMENT

18

Wel

1. COUNTY: Eau Claire — CHECK ONE: ☒ Town ☐ Village ☐ City — NAME: Brunswick

2. LOCATION (Number and Street or ¼ section, section, township and range. Also give subdivision name, lot and block numbers when available.)
SW 1/4 of SE 1/4 Sec. 8 Twn 26 N R. 10W

3. OWNER AT TIME OF DRILLING
Emmett Meier

4. OWNER'S COMPLETE MAIL ADDRESS
Emmett Meier 406 Talmadge St. Eau Claire, Wis.

5. Distance in feet from well to nearest: (Record answer in appropriate block)

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C. I.	WASTE WATER DRAIN TILE
5						92		

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
		60		75					

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

6. Well is intended to supply water for:
Home

7. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
8	Surface	12			
4	12	104			

8. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
4"	New-black	Surface	
	10 Wt. per ft. 10.889		99-6
	Screen, stainless steel		
	Over all length 57-3/4		
	OD Diam. 3 3/4 Inside Dia	3"	

10. FORMATIONS

Kind	From (ft.)	To (ft.)
Sand-fine	Surface	65
sandOcoarse wuth gravel	65	104
60 6 9 -139		

9. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Puddled clay	Surface	12

NO

11. MISCELLANEOUS DATA

Yield test: 24 Hrs. at 18 GPM

Depth from surface to normal water level 69 ft.

Depth to water level when pumping 68-6 ft.

Well construction completed on Aug. 1 19 68

Well is terminated 13 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Wis. State (Madison) laboratory on: Aug. 1 19 68

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, subsurface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE: Frank J. Fisher — Registered Well Driller

COMPLETE MAIL ADDRESS: 408 East Prospect St. Durand Wis.

2799

Please do not write in space below

COLIFORM TEST RESULT	GAS — 24 HRS.	GAS — 48 HRS.	CONFIRMED	REMARKS
				9007

WELL CONSTRUCTOR'S REPORT TO WISCONSIN STATE BOARD OF HEALTH
See Instructions on Reverse Side

1. County Eau Claire, — Town [X] Village [ ] City [ ] Brunswick — Check one and give name

RECEIVED OCT 22 1951 BUREAU SAN. ENG.

2. Location N.W.¼ of N.W.¼ Sec.8 T.26N. R.10W.
Name of street and number of premise or Section, Town and Range numbers

3. Owner [X] or Agent [ ] George Sprague
Name of individual, partnership or firm

4. Mail Address R.5 Eau Claire, Wis.
Complete address required

5. From well to nearest: Building 5' ft; sewer none ft; drain none ft; septic tank none ft; dry well, or filter bed none ft; abandoned well 12' ft.

6. Well is intended to supply water for: Cooling milk & water cattle

7. DRILLHOLE:

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
4"	0'	32'			

8. CASING AND LINER PIPE OR CURBING:

Dia. (in.)	Kind	From (ft.)	To (ft.)
4"	Steel (New)	0'	32'

9. GROUT: LS 113 24 10 ~~74~~

Kind	From (ft.)	To (ft.)
none		

10. FORMATIONS:

Kind	From (ft.)	To (ft.)
Sand	0'	17'
Hard pan	17'	21'
Sand (fine)	21'	27'
Sand & coarse gravel	27'	32'

hand pump installed and sealed to well casing with a Dipley #1036 pump flange. Well is bottomed in clean gravel and no screen needed

Construction of the well was completed on: Oct. 9 1951

The well is terminated 10" 12 inches [X] above, below [ ] the permanent ground surface.

Was the well disinfected upon completion? Yes X No

Was the well sealed watertight upon completion? Yes X No

11. MISCELLANEOUS DATA:

Yield test: 7 Hrs. at 5 GPM.

Depth from surface to water-level: 23' ft.

Water-level when pumping: 23' ft.

Water sample was sent to the state laboratory at: Madison on Oct.15 1951
City

Signature Olson Bros. Well Drilling Co. — R.1 Eau Claire, Wis.
Registered Well Driller — Complete Mail Address

Please do not write in space below

20509

Rec'd OCT 16 1951 No. 4019 TO

Ans'd

Interpretation Unsafe

	10 ml	10 ml	10 ml	10 ml	10 ml
Gas—24 hrs.	0	0	+	+	0
48 hrs.	+	+	+	+	+
Confirm					
B. Coli	+	+	+	+	+

Examiner

2800

20

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 2-79

MAR 5 1974

1. COUNTY: Eau Claire
CHECK (✓) ONE: ☐ Town ☐ Village ☐ City
Name: Brunswick

2. LOCATION: ¼ Section or Gov't. Lot: NW/NW | Section: 8 | Township: 26N | Range: 10W
OR — Grid or Street No. | Street or Road Name: WIS 85
AND — If available subdivision name, lot & block No.

3. NAME ☑ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: John Heing
ADDRESS: Rt #4
POST OFFICE: Eau Claire WI | ZIP CODE: 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. Sewer	
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Other
8										

Street Sewer		Other Sewers		Foundation Drain Connected to:		Sewage Sump		Clearwater Sump		Septic Tank	Holding Tank	Sewage Absorption Unit	Manure Hopper or Retention or Pneumatic Tank
San.	Storm	C.I.	Other	Sewer		Sewage Sump		C.I.	Other			Seepage Pit	
				Clearwater Dr.		Clearwater Sump						Seepage Bed	
												Seepage Trench	

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Basin
		Well									
		Pump									
		Tank									

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin / Concrete Floor Only / Concrete Floor and Partial Concrete Walls	Other (Describe)

5. Well is intended to supply water for: Household

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
6	Surface	47			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	Tri-Continental 18.97 .280 wall Union	Surface	43
4 3/4	U.O.P. Johnson Stainless Steel Well Screen w/ 4 1/2 6 Fig. K PKR - (Pull Back)	43	47

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Sand & gravel	Surface	47

10. TYPE OF DRILLING MACHINE USED
☑ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud ☐ Rotary-hammer w/drilling mud & air ☐ Rotary-hammer & air ☐ Reverse Rotary ☐ Jetting with Air ☐ Water

11. MISCELLANEOUS DATA
Yield Test: 2 Hrs. at 20 GPM
Depth from surface to normal water level 19 Ft.
Depth of water level when pumping 19 Ft. Stabilized ☑ Yes ☐ No
Water sample sent to Eau Claire 7-54 laboratory on 5-2 1974

Well construction completed on April 25 1974
Well is terminated 12 inches ☑ above ☐ below final grade
Well disinfected upon completion ☑ Yes ☐ No
Well sealed watertight upon completion ☑ Yes ☐ No

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: [signature]
Business Name and Complete Mailing Address: Olson Bros. Well Drilling Co. 4625 Olson Drive Eau Claire, Wis. 54701

15030

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

622

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 2-79

MAY 9 1986

1. COUNTY: Eau Claire
CHECK (✓) ONE: ☑ Town ☐ Village ☐ City
Name: Brunswick / BRUNSWICK

2. LOCATION: ¼ Section or Gov't. Lot: NW-NE ✓ | Section: 8 | Township: 26N | Range: 10W
OR – Grid or Street No. | Street or Road Name: CTH 85
AND – If available subdivision name, lot & block No.

3. NAME ☑ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ON: Mark Kopp
ADDRESS: 2808 Starr Ave
POST OFFICE: Eau Claire ZIP CODE: 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. Sewe	
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Other

Street Sewer		Other Sewers		Foundation Drain Connected to:		Sewage Sump		Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit	Manure Hopper or Retention or Pneumatic Tank
San.	Storm	C.I.	Other	Sewer		Sewage Sump					Seepage Pit	
				Clearwater Dr.		Clearwater Sump					Seepage Bed	
											Seepage Trench	

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Basin
		Well	Nonconforming Existing								
		Pump									
		Tank									

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin	Other (Describe)
					Concrete Floor Only	
					Concrete Floor and Partial Concrete Walls	

5. Well is intended to supply water for: Irrigation

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
10	Surface	38	6	38	53

7. CASING, LINER, CURBING AND SCREEN
Material, Weight, Specification Mfg. & Method of Assembly

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	steel .280 wall	Surface	50
	18.97 PE U&O		
8'	stainless steel screen		
	Kparker 5X6	50	53

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
clay slurry	Surface	38

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	2
Brown sand + clay	2	22
Sand + gravel	22	53

ND 13 757 — 53 53 40 12 — 104 gpm

10. TYPE OF DRILLING MACHINE USED
☐ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud ☐ Rotary-hammer w/drilling mud & air ☑ Rotary-hammer & air ☐ Reverse Rotary ☐ Jetting with Air ☐ Water

Well construction completed on 4-11 19 86

11. MISCELLANEOUS DATA
Yield Test: 2 Hrs. at 90 GPM
Depth from surface to normal water level 13 Ft.
Depth of water level when pumping 18 Ft. Stabilized ☑ Yes ☐ No

Well is terminated 16 inches ☑ above ☐ below final grade
Well disinfected upon completion ☑ Yes ☐ No
Well sealed watertight upon completion ☑ Yes ☐ No

Water sample sent to _____ laboratory on _____ 19__

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: [illegible] #146
Business Name and Complete Address: Miller Well Drilling Co 4625 Olsen Drive

OCT 2 1973

WELL CONSTRUCTOR'S REPORT
FORM 3300–15

NOTE
WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES 2
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire
CHECK ONE: [X] Town [ ] Village [ ] City
NAME: Eau Claire

2. LOCATION – ¼ Section: NW NE; Section: 8; Township: 26 N; Range: 10 W
OR – Grid or street no.; Street name: ?
AND – If available subdivision name, lot & block no.

3. OWNER AT TIME OF DRILLING: Dennis Carothers
ADDRESS: R.5
POST OFFICE: Eau Claire, WI 54701

4. Distance in feet from well to nearest:
(Record answer in appropriate block)

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C. I.	WASTE WATER DRAIN TILE

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
		65		75					

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

5. Well is intended to supply water for: home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
8	Surface	40	4	40	90

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Sand & Clay	Surface	40
Sand	40	90

LS
no B&30
Rs 1 21 17 / day

7. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
4	New black	Surface	86
	Steel pipe T & C		
	thread couple wt.		
	per ft. 10.89		
	4 ft. screen		

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
clay	Surface	40

10. TYPE OF DRILLING MACHINE USED
[X] Cable Tool [ ] Direct Rotary [ ] Reverse Rotary
[ ] Rotary – air w/drilling mud [ ] Rotary – hammer with drilling mud & air [ ] Jetting with [ ] Air [ ] Water

Well construction completed on Aug 24 1973
Well is terminated 13 inches [X] above [ ] below final grade
Well disinfected upon completion [X] Yes [ ] No
Well sealed watertight upon completion [X] Yes [ ] No

11. MISCELLANEOUS DATA
Yield test: 24 Hrs. at 10 GPM
Depth from surface to normal water level 60 ft.
Depth to water level when pumping 62 ft.
Water sample sent to Madison laboratory on: Aug 29 1973

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE: Melvin Grojahn Registered Well Driller
2803
COMPLETE MAIL ADDRESS: Durand Wis

Please do not write in space below

COLIFORM TEST RESULT	GAS – 24 HRS.	GAS – 48 HRS.	CONFIRMED	REMARKS

Well Construction Report For
WISCONSIN UNIQUE WELL NUMBER DN 835

JUL 29 1992

State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

SEP 28 1992

Property Owner: Deloris Kopp
Telephone Number: ( ) 832-4528
Mailing Address: W6600 CTH 85
City: Eau Claire State: WI Zip Code: 54701
County of Well Location: E.C.
County Well Location Permit No.: W 7107
Well Completion Date: 07 14 92 (MM DD YY)

Well Constructor (Business Name): Olson Bros. Registration #: 146
Address: 4625 Olson Dr.
City: Eau Claire State: WI Zip Code: 54701

18

XR

2. Mark well location in correct 40-acre parcel of section. N / W / E / S

1. Location (Please type or print using a black pen.)
☒ Town ☐ City ☐ Village of Brunswick
Fire # (if available)
Grid or Street Address or Road Name and Number (if available): Cemetary Rd.
Subdivision Name ___ Lot # ___ Block # ___
Gov't Lot # ___ or SW 1/4 of NW 1/4 of Section 9; T 26 N; R 10 ☐ E ☒ W

3. Well Type ☒ New ☐ Replacement ☐ Reconstruction
of unique well # ___ constructed in 19___
Reason for new, replaced or reconstructed well? need water

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other ___

4. Well serves 1 # of homes and/or sprinklers
(ex: barn, restaurant, church, school, industry, etc.)
High Capacity Well? ☐ Yes ☒ No
High Capacity Property? ☐ Yes ☒ No

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☒ Yes ☐ No If no, explain on back side.
Well Located in Floodplain? ☐ Yes ☒ No
Distance In Feet From Well To Nearest:

1. Landfill
200 2. Building Overhang
3. Septic or Holding Tank
4. Sewage Absorption Unit
5. Nonconforming Pit
6. Buried Home Heating Oil Tank
7. Buried Petroleum Tank
8. Shoreline/Swimming Pool
9. Downspout/Yard Hydrant
10. Privy
11. Foundation Drain to Clearwater
12. Foundation Drain to Sewer
13. Building Drain ☐ Cast Iron or Plastic ☐ Other
14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
15. Collector or Street Sewer
16. Clearwater Sump
17. Wastewater Sump
18. Paved Animal Barn Pen
19. Animal Yard or Shelter
20. Silo — Type ___
21. Barn Gutter
22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
23. Other Manure Storage ___
Other NR 112 Waste Source ___
24. ___

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
10	surface	10
6	10	42

Method of constructing upper enlarged drillhole only.
☐ 1. Rotary — Mud Circulation
☒ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☐ 5. Cable-tool Bit ___ in. dia.
☐ 6. Temp. Outer Casing ___ in. dia. Removed? ☐ Yes ☐ No If no, explain ___
☐ 7. Other

9. Geology

DNR USE ONLY	Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
15	Brown sand	surface	33
4	Sand & gravel	33	42

7.80 / 7.25 / 75 ft / 320 ft / K"

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	steel A53 PE. 280 18.97 USA Maverick	surface	38

(3.56)

Dia. (in.)	screen type and material	From	To
5 1/16	Stainless steel	38	42

8. Grout or Other Sealing Material
Method: drill cuttings

Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
Benseal grout	surface	10	1

10. Static Water Level
___ ft. above ground level
26 ft. below ground surface

11. Pump Test
Pumping Level 28 ft. below surface
Pumping at 30 GPM for 1 hours

12. Well Is: 12 in. ☒ Above ☐ Below Grade
Developed? ☒ Yes ☐ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

13. Did you permanently seal all unused, noncomplying, or unsafe wells? ☐ Yes ☐ No If no, explain ___

14. Signature of Point Driver or Registered Driller: Peter Olson PO Date Signed: 7/15/92
Signature of Drill Rig Operator: Peter Olson PO Date Signed: 7/15/92

Make additional comments on reverse side about geology, etc.

DNR

WELL CONSTRUCTION REPORT
Form 3300-77A Rev. 9-88

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Well Construction Report For WISCONSIN UNIQUE WELL NUMBER CG 650

State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

JAN 2 5 1991

24

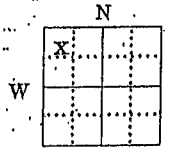
Property Owner: Don Jaquish
Telephone Number: (715) 834-5461
Mailing Address: Route 4 Box 85
City: Eau Claire
State: WI
Zip Code: 54701
County of Well Location: Eau Claire
County Well Location Permit No.: W
Well Completion Date: 01 / 15 / 91 (M M. D D. Y Y)

(18)

Well Constructor (Business Name): Hydro Engineering, Inc.
Registration #:
Address: 115 East Main Street
City: Young America
State: MN
Zip Code: 55397

XR

2. Mark well location in correct 40-acre parcel of section.



1. Location (Please type or print using a black pen.)
☐ Town ☐ City ☐ Village of Eau Claire
Fire # (if available)
Grid or Street Address or Road Name and Number (if available)
Subdivision Name
Lot #
Block #
Gov't Lot # ___ or NW ¼ of NW ¼ of Section 9 ; T 26 N; R 10 ☐ E ☒ W

3. Well Type ☒ New ☐ Replacement ☐ Reconstruction
of unique well # ___ constructed in 19 ___
Reason for new, replaced or reconstructed well?
Irrigation

4. Well serves ___ # of homes and/or ___
(ex: barn, restaurant, church, school, industry, etc.)
High Capacity Well? ☒ Yes ☐ No
High Capacity Property? ☒ Yes ☐ No

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other ___

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☒ Yes ☐ No If no, explain on back side.
Well Located in Floodplain? ☐ Yes ☐ No
Distance In Feet From Well To Nearest:

___ 1. Landfill
___ 2. Building Overhang
300 3. Septic or Holding Tank
450 4. Sewage Absorption Unit
___ 5. Nonconforming Pit
___ 6. Buried Home Heating Oil Tank
___ 7. Buried Petroleum Tank
___ 8. Shoreline/Swimming Pool
___ 9. Downspout/Yard Hydrant
___ 10. Privy
___ 11. Foundation Drain to Clearwater
___ 12. Foundation Drain to Sewer
___ 13. Building Drain ☐ Cast Iron or Plastic ☐ Other
___ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
___ 15. Collector or Street Sewer
___ 16. Clearwater Sump
___ 17. Wastewater Sump
___ 18. Paved Animal Barn Pen
___ 19. Animal Yard or Shelter
10 20. Silo — Type Cement Stave
___ 21. Barn Gutter
___ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
___ 23. Other Manure Storage ___
Other NR 112 Waste Source
___ 24. ___

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
12	surface	61

Method of constructing upper enlarged drillhole only.
☐ 1. Rotary — Mud Circulation
☐ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☒ 5. Cable-tool Bit 12 in. dia.
☐ 6. Temp. Outer Casing ___ in. dia. Removed? ☐ Yes ☐ No If no, explain ___
☐ 7. Other ___

DNR USE ONLY

9. Geology — Type, Caving/Noncaving, Color, Hardness, Etc.

From (ft.)	To (ft.)	
surface	4	T Top Soil
4	35	As Sand, Coarse, Brown, Soft
35	61	Ms Sand, Medium, Brown, Soft

DNR HICAP#: 00508
File # 18-1-0028 Note
owner well # 4
Eau Claire County Irrigation well #: 28
written approval: 11-21-1990

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
12	.375 Wall, Blk. Steel	surface	51
	Casing w/Shoe		

Dia. (in.)	screen type and material	From	To
12	Telescoping SS Screen 40-Slot	51	61

8. Grout or Other Sealing Material

Method / Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
	surface		

10. Static Water Level
24 ft. above ground level
___ ft. below ground surface

11. Pump Test
Pumping Level ___ ft. below surface
Pumping at ___ GPM for ___ hours

12. Well Is:
☒ Above Grade
18 in. ☐ Below
Developed? ☒ Yes ☐ No
Disinfected? ☒ Yes ☐ No
Capped? ☒ Yes ☐ No

13. Did you permanently seal all unused, noncomplying, or unsafe wells?
☐ Yes ☐ No If no, explain N/A

14. Signature of Point Driver or Registered Driller ___ Date Signed ___
DC

Signature of Drill Rig Operator: John Huffman JH
Date Signed: 1-21-91

Make additional comments on reverse side about geology, etc.

DEC 4 1978

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 12-76

APR 0 4 1979

1. COUNTY: EAU CLAIRE
CHECK (✓) ONE: ☒ Town ☐ Village ☐ City
Name: Brunswick

2. LOCATION: ¼ Section: NW/NW ✓ | Section: 9 | Township: 26 N | Range: 10 W
OR – Grid or Street No. | Street Name: WIS 85
AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: Don Jaquish
ADDRESS: Rt. 2
POST OFFICE: Eleva 54738

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Sewer C.I.	Storm Bldg. Sewer Other
80										

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer	Foundation Drain Connected to: Sewage Sump	Foundation Drain Connected to: Clearwater Dr.	Foundation Drain Connected to: Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit: Seepage Pit	Seepage Bed	Seepage Trench
											135			150	

Privy	Pet Waste Pit	Pit: Nonconforming Existing: Well	Pump	Tank	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit
						80				110		

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)

5. Well is intended to supply water for: Household - Dairy farm

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
6	Surface	60			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
6	P.E. New Steel A53B	Surface	56
	280 wall 18.97 LB/FT.		
	U.S. Pipe		
5 3/4"	Johnson Super Stainless Steel		
Well Screen	10 Slot	56	60

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Black Dirt	Surface	15
Black Clay	15	17
Br. Clay & Gravel	17	35
Large Gravel	35	50
Coarse Gravel	50	60
L.S 225 225 50	60 35 35	R 136 ft/day

10. TYPE OF DRILLING MACHINE USED
☒ Cable Tool ☐ Rotary-air w/drilling mud ☐ Rotary-w/drilling mud ☐ Rotary-hammer w/drilling mud & air ☐ Rotary-hammer & air ☐ Reverse Rotary ☐ Jetting with Air ☐ Water

11. MISCELLANEOUS DATA
Yield Test: 1 Hrs. at 20 GPM
Depth from surface to normal water level 25 Ft.
Depth of water level when pumping 28 Ft. Stabilized ☒ Yes ☐ No

Well construction completed on Nov. 3 19 78
Well is terminated 12 inches ☒ above ☐ below final grade
Well disinfected upon completion ☒ Yes ☐ No
Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Eau Claire City City Dept. #2829 laboratory on 11-7 19 78

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Olson Bros. Well Drilling Co. 1615

Signature: James Allen
Registered Well Driller: 146
2805

Complete Mail Address:
4625 Olson Drive
Eau Claire, Wis. 54701

State of Wisconsin
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

MAY 01 1978

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 12-76

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1. COUNTY: Eau Claire | CHECK (✓) ONE: ☒ Town ☐ Village ☐ City | Name: Brunswick

2. LOCATION: ? | ¼ Section: NW NW | Section: 16 | Township: 26N | Range: 10W
OR – Grid or Street No. | Street Name: Rt. 5
AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: Alvin Peterson
ADDRESS: R-4
POST OFFICE: Eau Claire Wisc.

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Sewer C.I.	Storm Bldg. Sewer Other
6										

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer	Foundation Drain Connected to: Sewage Sump	Foundation Drain Connected to: Clearwater Dr.	Foundation Drain Connected to: Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit: Seepage Pit	Seepage Bed	Seepage Trench
											None			None	

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit
		Well								
		Pump								
		Tank								

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)

5. Well is intended to supply water for: Farm

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
10	Surface	32			
6	32	702			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
6	New Steel threaded	Surface	32
	Coupled to Myers		
	Class A-53		
	U.S. Steel Pipe		

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Clay Cement + Water	Surface	32

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Clay	Surface	5
Sand Rock	5	702

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool
☐ Rotary-air w/drilling mud
☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air
☐ Rotary-hammer & air
☐ Reverse Rotary
☐ Jetting with: ☐ Air ☐ Water

Well construction completed on 3-27 19 78

Well is terminated 10 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

11. MISCELLANEOUS DATA

Yield Test: 2 Hrs. at 10 GPM

Depth from surface to normal water level 70 Ft.

Depth of water level when pumping 90 Ft. Stabilized ☒ Yes ☐ No

2894 Water sample sent to Madison laboratory on 3-28 19 78

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: A.D. Hall

Complete Mail Address: R 2 Box [illegible]

OCT 29 1973

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WELL CONSTRUCTOR'S REPORT
FORM 3300–15

NOTE
WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire
CHECK ONE: [X] Town [ ] Village [ ] City — NAME: Brunswick

2. LOCATION – ¼ Section: NE¼ NW¼ Section: 16 Township: 26N Range: 10W
OR – Grid or street no. Street name
AND – If available subdivision name, lot & block no.

3. OWNER AT TIME OF DRILLING: Herbert Winter
ADDRESS: R.4
POST OFFICE: Eau Claire Wis - 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

BUILDING	SANITARY SEWER C.I.	SANITARY SEWER TILE	FLOOR DRAIN C.I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C.I.	WASTE WATER DRAIN TILE
5	22		–	–	–	–	22	

CLEAR WATER DRAIN C.I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
–	–	54	–	–	76	164	231	52	–

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)
None

5. Well is intended to supply water for: Mobile Home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
10	Surface	30	5	30	161

7. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
5	Steel T&C	Surface	31
	New black 15# per ft.		

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Clay slurry	Surface	4
Neat Cement	4	30

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	1
Shale	1	6
Firm sand rock	6	161

LS
NO
161
161
97
74
K=1.6
dm

10. TYPE OF DRILLING MACHINE USED
[X] Cable Tool [ ] Direct Rotary [ ] Reverse Rotary
[ ] Rotary – air w/drilling mud [ ] Rotary – hammer with drilling mud & air [ ] Jetting with [ ] Air [ ] Water

Well construction completed on Oct 22 1973
Well is terminated 13 inches [X] above [ ] below final grade
Well disinfected upon completion [X] Yes [ ] No
Well sealed watertight upon completion [X] Yes [ ] No

11. MISCELLANEOUS DATA
Yield test: 3 Hrs. at 9 GPM
Depth from surface to normal water level 97 ft.
Depth to water level when pumping 106 ft.

Water sample sent to Eau Claire laboratory on: Oct 23 1973

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE: Kenneth B. Olson Registered Well Driller 2895
COMPLETE MAIL ADDRESS: 3909 Lark Ave. - Eau Claire Wis 54701

Please do not write in space below

COLIFORM TEST RESULT	GAS – 24 HRS.	GAS – 48 HRS.	CONFIRMED	REMARKS
				0004

UNIVERSITY OF WISCONSIN GEOLOGICAL & NATURAL HISTORY SURVEY
1815 University Avenue, Madison, Wisconsin 53706

Log No. 24-EC-13

Sample Nos. All Retained 2

Well name Huntsinger Farms, Inc. (Irr. #1)
Town of Brunswick
Owner.... Huntsinger Farms, Inc.
Address.. Route #5
Eau Claire, Wisconsin
Driller.. Olson Bros., Well Drilling
Engineer.

County: Eau Claire

Completed... July 9, 1968
Field check.
Altitude.... @ 820' ETM
Use..... Irrigation
Static w.l.. 59'
Spec. cap... 18.

820 − 59 = 761

R.10W
T. 26 N.
Sec. 11

Quad. Elk Mound 15'

Drill Hole						Casing & Liner Pipe or Curbing							
Dia.	from	to	Dia.	from	to	Dia.	Wgt.& Kind	from	to	Dia.	Wgt.& Kind	from	to
12"	0	143'				12"	Steel P&C						
							45lbs.	0	116'				
						27'	of Johnson Stainless						
							steel Slt # 16-30-40-12						

Grout: Kind	from	to
None		

Samples from 0 to 155' Rec'd: 3/4/69 Studied by: M. Roshardt Issued: Aug. 19

Formations: Drift

Remarks: Well tested for 4 hours at 215 gpm with 12 feet of drawdown. Driller reports well depth of 143 feet.

K = .00087 gpd/sq ft
75 gpd/sq ft

LOG OF WELL:

	Depths	Graphic Section	Rock Type	Color	Grain Size Mode	Grain Size Range	Miscellaneous Characteristics
	0-5		Sand	Mixed	C	M/VC	Quartz & roimded rock frags. Few granules & small pebbles.
	5-10		"	"	"	"	Same.
	10-15		"	"	"	"	Quartz & rock fragments. Many granules to large pebbles.
	15-20		"	"	"	"	Same
	20-25		"	"	"	"	Same plus trace silt.
	25-30		"	"	"	"	Same
D	30-35		"	"	C	fn/VC	Rounded quartz & rock frags. Few grans to medium pebbles.
	35-40		"	"	"	M/VC	Same
	40-45		"	"	"	"	Same plus trace large pebbles.
R	45-50		"	"	M	"	Same
	50-55		"	"	"	fn/VC	"
I	55-60		"	"	"	"	"
	60-65		"	"	"	"	Rounded quartz & rock fragments. Trace granules.
	65-70		"	"	"	"	Subrounded quartz & rock fragments. Trace large pebbles.
F	70-75		"	"	C	"	Subrounded quartz & rock fragments.
	75-80		"	"	M	"	Same plus few granules to medium pebbles.
T	80-85		"	"	"	"	Subrounded quartz & rock fragments. Tr grans to medium peb
	85-90		"	"	"	"	Same plus trace large pebbles.
	90-95		"	"	C	"	Same but no large pebbles.
	95-100		"	"	"	"	Subrounded quartz & rock fragments.
	100-105		"	"	M	"	Same plus trace silt.
	105-115		"	"	M	fn/C	Rounded quartz & few rock fragments.
	115-120		"	"	"	"	Same plus trace large pebbles.
	120-122		"	"	"	fn/VC	Same but no pebbles, trace silt.
	122-125		"	"	C	"	Rounded quartz & few rock frags. Tr granules to M pebbles.
	125-130		"	"	M	"	Subrounded quartz & rock fragments. Many grans to M pebs.
	130-135		"	"	C	M/VC	Same
	135-140		"	"	"	"	"
	140-144		"	Yl or	M	"	Subrounded to angular quartz, trace rock fragments.
	144-148		Gravel	"	S.peb	Gran/M.peb	Quartz, granite, sandstone, chert. Srnd, ltl snd. Tr silt, cl.
	148-154		Clay	Gry or	Clay	Silt/Clay	Much silt. Trace sand, granules. Non-calcareous. Iron stained.
155	154-155		Sand	Yl gray	fn/C	Vfn/VC	Trace rock fragments.

First Water Quality Test For WISCONSIN UNIQUE WELL NUMBER AS 771

State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

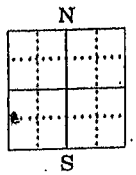
JAN 10 1989

Property Owner: KARL RIEKMAN Telephone Number: 832 6407
Mailing Address: Box 84 Route 4
City: Eau Claire State: WI Zip Code: 54701
County: E.C. County Well Location Permit No.: W
Well Completion Date: 08/17/88 (M M D D Y Y)

(18)

Well Constructor (Business Name): OLSON BROS Registration #: 1460
Address: 4625 OLSON Drive
City: EAU CLAIRE State: WI Zip Code: 54703

2. Mark well location in correct 40-acre parcel of section.



1. Location (Please type or print using a black pen.)
☒ Town ☐ City ☐ Village of BRUNSWICK
Fire # (if available)
Grid or Street Address or Road Name and Number (if available): Maple Rd
Subdivision Name Lot # Block #
Gov't Lot # ___ or SW ¼ of SW ¼ of Section 4 ; T 26 N; R 10 ☐ E ☒ W

3. Well Type ☒ New ☐ Replacement ☐ Reconstruction/Rehabilitation
of well constructed in 19 ___.
Reason for new, reconstructed, replaced, or rehabilitated well? Need water
☑ Drilled ☐ Driven Point ☐ Jetted ☐ Other

4. Well serves 1 # of homes and/or ___ (ex: barn, restaurant, church, school, industry, etc.)
High Capacity Well? ☐ Yes ☒ No
High Capacity Property? ☐ Yes ☒ No

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☒ Yes ☐ No
Well Located in Floodplain? ☐ Yes ☒ No
Distance In Feet From Well To Nearest:
___ 1. Landfill
5 2. Building Overhang
___ 3. Septic or Holding Tank
___ 4. Sewage Absorption Unit
___ 5. Nonconforming Pit
___ 6. Buried Home Heating Oil Tank
___ 7. Buried Petroleum Tank
___ 8. Shoreline/Swimming Pool
___ 9. Downspout/Yard Hydrant
___ 10. Privy
___ 11. Foundation Drain to Clearwater
___ 12. Foundation Drain to Sewer
___ 13. Building Drain ☐ Cast Iron or Plastic ☐ Other
___ 14. Building Sewer ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
___ 15. Collector Sewer
___ 16. Clearwater Sump
___ 17. Wastewater Sump
___ 18. Paved Animal Barn Pen
___ 19. Animal Yard or Shelter
___ 20. Silo — Type ___
___ 21. Barn Gutter
___ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
___ 23. Other Manure Storage / Other NR 112 Waste Source
___ 24. ___

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
8	surface	10
6	10	40

Method of constructing upper enlarged drillhole. (If applicable ✓ more than one.)
☐ 1. Rotary — Mud Circulation
☐ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☑ 5. Cable-tool Bit 6 in. dia.
☐ 6. Temp. Outer Casing ___ in. dia. Removed? ☐ Yes ☐ No If no, explain ___
☐ 7. Other ___

7. Casing, Liner, Screen

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	18.97 PE steel .280 Wt.	surface	36
(5.75) 5 3/4	screen type and material: Stainless steel	36	40

8. Grout or Other Sealing Material

Method: Pressure pump / Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
Bensal grout	surface	10	1

9. Geology

	Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
TS	Br. sand	surface	3
GS	Heavy gravel + sand	3	42
	K = .0016 ft/sec		
773	1388 ft/day		
19			
754			

10. Static Water Level
___ ft. above ground level
19 ft. below ground surface

11. Pump Test
Pumping Level 22 ft. below surface
Pumping at 20 GPM for 1 hours

12. Well Is:
17 in. ☑ Above ☐ Below Grade
Developed? ☑ Yes ☐ No
Disinfected? ☑ Yes ☐ No
Capped? ☑ Yes ☐ No

13. Were all unused, noncomplying, or unsafe wells properly filled with sealant? ☐ Yes ☐ No If no, explain ___

14. Signature of Well Constructor: Georgeann Olson (GO) Date Signed: 8-19-88
Signature of Drill Rig Operator: Peter Olson PO Date Signed: 8/23/88

Make additional comments on reverse side about geology, etc.

WGNHS ORIGINAL

WELL CONSTRUCTION REPORT
Form 3300-77A Rev. 1-88

WELL CONSTRUCTOR'S REPORT
FORM 3300–15

AUG 14 1972

NOTE
WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire | CHECK ONE: [X] Town [ ] Village [ ] City | NAME: Brunswick

2. LOCATION – ¼ Section: NE ¼ SW ¼ | Section: 4 | Township: 26N | Range: 10W
OR – Grid or street no.: [NE, SE, SW] | Street name: Town road
AND – If available subdivision name, lot & block no.:

3. OWNER AT TIME OF DRILLING: Robert Riekemann
ADDRESS: R – 4
POST OFFICE: Eau Claire Wisc

4. Distance in feet from well to nearest: (Record answer in appropriate block)

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C. I.	WASTE WATER DRAIN TILE
4								

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
		500		550					

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

5. Well is intended to supply water for: Hog Farm

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5"	Surface	44			

7. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
5"	New steel 15-2" Threaded & Coupled	Surface	44

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Top Soil	Surface	2
Gravel	2	20
Sand	20	39
Gravel	39	44

772 / 23 / 749
K = .002 ft/sq
173 ft/d

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
None	Surface	

10. TYPE OF DRILLING MACHINE USED
[X] Cable Tool [ ] Direct Rotary [ ] Reverse Rotary
[ ] Rotary – air w/drilling mud [ ] Rotary – hammer with drilling mud & air [ ] Jetting with [ ] Air [ ] Water

Well construction completed on: aug 9 1972

11. MISCELLANEOUS DATA
Yield test: 2 Hrs. at 10 GPM
Depth from surface to normal water level: 23 ft.
Depth to water level when pumping: 25 ft.

Well is terminated: 1/4 inches [X] above [ ] below final grade
Well disinfected upon completion: [X] Yes [ ] No
Well sealed watertight upon completion: [X] Yes [ ] No

Water sample sent to: Madison laboratory on: Aug 9 1972

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, sub-surface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE: Robert Wittke Box 425 Registered Well Driller
2789
COMPLETE MAIL ADDRESS: Chippewa Falls Wis

Please do not write in space below

COLIFORM TEST RESULT	GAS – 24 HRS.	GAS – 48 HRS.	CONFIRMED	REMARKS
				6150

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT

Form 3300-15 Rev. 2-79

AUG 5 1983

1. COUNTY: Eau Claire — CHECK (✓) ONE: ☒ Town ☐ Village ☐ City — Name: Unknown (Town of Brunswick per DNR)

2. LOCATION: ¼ Section or Gov't. Lot: SW¼ SE¼ — Section: 4 — Township: 26N — Range: 9W

OR – Grid or Street No. — Street or Road Name: Town Rd. (R10W per DNR) (?)

AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: Keith Helgeson

ADDRESS: R-4

POST OFFICE: Eau Claire Wis. — ZIP CODE:

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Se C.I.	Storm Bldg. Se Other
8										

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer	Foundation Drain Connected to: Sewage Sump	Foundation Drain Connected to: Clearwater Dr.	Foundation Drain Connected to: Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit	Manure Hopper or Retention or Pnuematic Tank
											70		Seepage Pit Seepage Bed Seepage Trench 70	

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Basin
		Well Pump Tank									

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin Concrete Floor Only Concrete Floor and Partial Concrete Walls	Other (Describe)

5. Well is intended to supply water for: Human

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
10	Surface	32			
6	32	105			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	New Steel Threaded & Coupled Drive Shoe Johnson Well Screen	Surface	32

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Clay Cement + Water	Surface	32

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Hard Clay	Surface	8
Mixed Rock	8	105

10. TYPE OF DRILLING MACHINE USED

☐ Cable Tool
☒ Rotary-air w/drilling mud
☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air
☐ Rotary-hammer & air
☐ Reverse Rotary
☐ Jetting with Air ☐ Water

Well construction completed on 4-4 1983

Well is terminated 12 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

11. MISCELLANEOUS DATA

Yield Test: 9 Hrs. at 10 GPM

Depth from surface to normal water level 70 Ft.

Depth of water level when pumping 70 Ft. Stabilized ☒ Yes ☐ No

Water sample sent to Madison laboratory on 4-4 1983

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: Robert Mathiesen Registered Well Driller

Business Name and Complete Mailing Address: R-2 Eau Claire Wis. 54703

486

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT

Form 3300–15 Rev. 2-79

3

APR 13 1981

MAR 25 1981 JUL 14 1981

1. COUNTY: Eau Claire

CHECK (√) ONE: XX Town ☐ Village ☐ City

Name: Brunswick

2. LOCATION: ¼ Section or Gov't. Lot: ✓ SE-SW | Section: 9 | Township: 26N | Range: 10W

OR – Grid or Street No. | Street or Road Name

AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING (CHECK (√) ONE): J. Wm. Spehle

ADDRESS: Route # 4

POST OFFICE: Eau Claire, Wisc. ZIP CODE: 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. Sewer	
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Other
5										

Street Sewer		Other Sewers		Foundation Drain Connected to		Sewage Sump		Clearwater Sump		Septic Tank	Holding Tank	Sewage Absorption Unit	Manure Hopper or Retention or Pnuematic Tank
San.	Storm	C.I.	Other	Sewer	Sewage Sump	C.I.	Other						
				Clearwater Dr.	Clearwater Sump					40		Seepage Pit	
												Seepage Bed	
												Seepage Trench 65	

Privy	Pet Waste Pit	Pit: Nonconforming Existing		Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass-Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Basin
		Well										
		Pump										
		Tank										

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin Concrete Floor Only Concrete Floor and Partial Concrete Walls	Other (Describe)

5. Well is intended to supply water for: Home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
10	Surface	4	6	4	84

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	ASTM A 53 19.45lbs. New Blk. St. T&C	Surface	81
	Seidemann-Sumitomo Metal Ind.		
3	14-slot S/S Screen	81	84

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
Drill Slurry	Surface	4

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Top Soil	Surface	2
Sand	2	84

K = .0018 ft/sec
156 ft/day

10. TYPE OF DRILLING MACHINE USED

☒ Cable Tool	☐ Rotary-hammer w/drilling mud & air	☐ Jetting with
☐ Rotary-air w/drilling mud	☐ Rotary-hammer & air	☐ Air ☐ Water
☐ Rotary-w/drilling mud	☐ Reverse Rotary	

Well construction completed on March 19 19 81

11. MISCELLANEOUS DATA

Yield Test: 3 Hrs. at 12 GPM

Depth from surface to normal water level 55 Ft.

Depth of water level when pumping 57 Ft. Stabilized ☒ Yes ☐ No

Well is terminated 18 inches ☒ above ☐ below final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Will follow after installation of pump by Pelke laboratory on _____ 19____

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: [signature] Registered Well Driller

494

Business Name and Complete Mailing Address
Pelke Plumbing & Heating, Inc.
Route # 3, Box 35A Durand, Wisc. 54736

WELL CONSTRUCTOR'S REPORT TO WISCONSIN STATE BOARD OF HEALTH

Wel 6

See Instructions on Reverse Side

SE, NW, SE

1. County Eau Claire — Town ☐ / Village ☐ / City ☐ Eau Claire (Check one and give name)

2. Location Town of Brunswick Sec 9 T 26 R 10 W.
Name of street and number of premise or Section, Town and Range numbers

3. Owner ☑ or Agent ☐ Louis Spehle.
Name of individual, partnership or firm

4. Mail Address Eau Claire, Wis RD
Complete address required

5. From well to nearest: Building 20 ft; sewer ____ ft; drain ____ ft; septic tank ____ ft; dry well or filter bed 100 ft; abandoned well ____ ft.

6. Well is intended to supply water for: Farm Home

7. DRILLHOLE:

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
4	0	65			

8. CASING AND LINER PIPE OR CURBING:

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
4	Steel	0	65

9. GROUT:

Kind	From (ft.)	To (ft.)
Neat		

10. FORMATIONS:

Kind	From (ft.)	To (ft.)
Sand	0	65
K = 0.0025 ft/day		
Clay		

RECEIVED
OCT 2 1961
SANITARY ENGINEERING

Construction of the well was completed on: Sept 11 1961

The well is terminated 24 inches ☑ above, below ☐ the permanent ground surface.

Was the well disinfected upon completion? Yes ✓ No ____

Was the well sealed watertight upon completion? Yes ✓ No ____

11. MISCELLANEOUS DATA:

Yield test: 1 Hrs. at 15 GPM.

Depth from surface to water-level: 45 ft.

Water-level when pumping: 47 ft.

Water sample was sent to the state laboratory at: ____ City on ____ 19____

Signature Forrest R Sweet 731 Ferry St. Eau Claire
Registered Well Driller — Complete Mail Address

Please do not write in space below

Rec'd ____ No. ____

Ans'd ____

Interpretation ____

2804

	10 ml	10 ml	10 ml	10 ml	10 ml
Gas—24 hrs.					
48 hrs.					
Confirm					
B. Coli					

Examiner ____

9003

State of Wisconsin
Department of Natural Resources
Box 450
Madison, Wisconsin 53701

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT

Form 3300–15
Rev. 10–75

APR 04 1979
AUG 21 1978

1. COUNTY: Eau Claire — CHECK (✓) ONE: ☒ Town ☐ Village ☐ City — Name: Brunswick

2. LOCATION: ¼ Section: NE/SW — Section: 10 — Township: 26 N — Range: 10 W
OR – Grid or Street No. — Street Name:
AND – If available subdivision name, lot & block No.

3. NAME ☒ OWNER ☐ AGENT AT TIME OF DRILLING CHECK (✓) ONE: Robert Heinz
ADDRESS: Rt 4
POST OFFICE: Eau Claire WI 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain		Sanitary Bldg. Sewer		Floor Drain Connected To:		Storm Bldg. Drain		Storm Bldg. Sewer	
	C.I.	Other	C.I.	Other	C.I. Sewer	Other Sewer	C.I.	Other	C.I.	Other
51										

Street Sewer		Other Sewers		Foundation Drain Connected to:		Sewage Sump		Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit	
San.	Storm	C.I.	Other	Sewer	Sewage Sump	C.I.	Other				Seepage Pit	
				Clearwater Dr.	Clearwater Sump				60		Seepage Bed	105
											Seepage Trench	

Privy	Pet Waste Pit	Pit: Nonconforming Existing	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit
		Well								
		Pump								
		Tank								

Temporary Manure Stack	Watertight Liquid Manure Tank	Solid Manure Storage Structure	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Other (Give Description)

5. Well is intended to supply water for: household

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
6	Surface	143			

7. CASING, LINER, CURBING AND SCREEN
Material, Weight, Specification & Method of Assembly

Dia. (in.)	Material, Weight, Specification & Method of Assembly	From (ft.)	To (ft.)
6	T&C NEW steel A53B .280 WALL 19.45 LB/FT USS Pipe	Surface	139
4 3/4	Johnson Stainless Steel Well Screen W4x6 KPB	139	143

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
SAND & GRAVEL	Surface	143

K = .6012 ft/sec
104 ft/d

10. TYPE OF DRILLING MACHINE USED

☐ Cable Tool
☐ Rotary-air w/drilling mud
☐ Rotary-w/drilling mud
☐ Rotary-hammer w/drilling mud & air
☒ Rotary-hammer & air
☐ Reverse Rotary
☐ Jetting with Air ☐ Water

11. MISCELLANEOUS DATA

Yield Test: 1 Hrs. at 18 GPM
Depth from surface to normal water level 101 Ft.
Depth of water level when pumping 104 Ft. Stabilized ☒ Yes ☐ No

Well construction completed on 19 Oct 1976
Well is terminated 12 inches ☒ above ☐ below final grade
Well disinfected upon completion ☒ Yes ☐ No
Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Eau Claire City City Dept 2315 laboratory on 10-21 1976

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: James D Olson 146

Complete Mail Address: Olson Bros. Well Drilling Co.
4625 Olson Drive
Eau Claire, Wis. 54701

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT

Form 3300-15 Rev. 2-79

JUN 13 1986

1. COUNTY Eau Claire

CHECK (✓) ONE: [X] Town [ ] Village [ ] City — Name: Brunswick

2. LOCATION (or NW1/4 SE1/4) — 1/4 Section or Gov't. Lot: NE1/4 SW1/4 — Section: 10 — Township: 26N — Range: 10W

OR – Grid or Street No. — Street or Road Name

AND – If available subdivision name, lot & block No.

3. NAME [X] OWNER [ ] AGENT AT TIME OF DRILLING CHECK (✓) ONE: Phyllis Holbrook

ADDRESS: Rt4 Box 221

POST OFFICE: Eau Claire — ZIP CODE: 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)

Building	Sanitary Bldg. Drain C.I.	Sanitary Bldg. Drain Other	Sanitary Bldg. Sewer C.I.	Sanitary Bldg. Sewer Other	Floor Drain Connected To: C.I. Sewer	Floor Drain Connected To: Other Sewer	Storm Bldg. Drain C.I.	Storm Bldg. Drain Other	Storm Bldg. Sewer C.I.	Storm Bldg. Sewer Other
62	77		97							

Street Sewer San.	Street Sewer Storm	Other Sewers C.I.	Other Sewers Other	Foundation Drain Connected to: Sewer / Clearwater Dr. / Sewage Sump / Clearwater Sump	Sewage Sump C.I.	Sewage Sump Other	Clearwater Sump	Septic Tank	Holding Tank	Sewage Absorption Unit: Seepage Pit / Seepage Bed / Seepage Trench	Manure Hopper or Retention or Pneumatic Tank
								107		Seepage Pit 113	

Privy	Pet Waste Pit	Pit: Nonconforming Existing (Well / Pump / Tank)	Subsurface Pumproom Nonconforming Existing	Barn Gutter	Animal Barn Pen	Animal Yard	Silo With Pit	Glass Lined Storage Facility	Silo w/o Pit	Earthen Silage Storage Trench Or Pit	Earthen Manure Basin

Temporary Manure Stack or Platform	Watertight Liquid Manure Tank or Basin	Manure Pressure Pipe	Subsurface Gasoline or Oil Tank	Waste Pond or Land Disposal Unit (Specify Type)	Manure Storage Basin: Concrete Floor Only / Concrete Floor and Partial Concrete Walls	Other (Describe)

5. Well is intended to supply water for: Home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5	Surface	70			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
5	Steel PE new black	Surface	67
	14.62 # per Ft. .258 wall		
	ASTM A120 Union Steel		
	5"X3' Johnson Screen	67	70

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
none	Surface	

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	1
Sand	1	7
Sand & gravel	7	16
Sand	16	70

12,0016
138 ft/d

10. TYPE OF DRILLING MACHINE USED

[X] Cable Tool
[ ] Rotary-air w/drilling mud
[ ] Rotary-w/drilling mud
[ ] Rotary-hammer w/drilling mud & air
[ ] Rotary-hammer & air
[ ] Reverse Rotary
[ ] Jetting with [ ] Air [ ] Water

Well construction completed on 6-4 1986

Well is terminated 12 inches [X] above [ ] below final grade

Well disinfected upon completion [X] Yes [ ] No

Well sealed watertight upon completion [X] Yes [ ] No

900

11. MISCELLANEOUS DATA

Yield Test: 3 Hrs. at 10 GPM

Depth from surface to normal water level 58 Ft.

Depth of water level when pumping 60 Ft. Stabilized [X] Yes [ ] No

Water sample sent to Eau Claire laboratory on 6-9 1986

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: 495 Daniel B Olson — Registered Well Driller

Business Name and Complete Mailing Address: K. Olson Well Drilling, 2717 Pearl Dr Eau Claire WI 54703

900

P# 83

JAN 2 1 1971

WELL CONSTRUCTOR'S REPORT

Wel–6

WHITE COPY – DIVISION'S COPY
GREEN COPY – DRILLER'S COPY
YELLOW COPY – OWNER'S COPY

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
Box 450
Madison, Wisconsin 53701

1. COUNTY: Eau Claire — CHECK ONE: ☒ Town ☐ Village ☐ City — NAME: Brunswick

2. LOCATION (Number and Street or ¼ section, section, township and range. Also give subdivision name, lot and block numbers when available.)
or SE¼ ? – S.W. 1/4 of N.W. 1/4 Sec. 10 T. 26 N. R. 10 W.

3. OWNER AT TIME OF DRILLING: Dr. B. J. Dibble

4. OWNER'S COMPLETE MAIL ADDRESS: Rt. 5 Eau Claire, Wis.

5. Distance in feet from well to nearest: (Record answer in appropriate block)

BUILDING	SANITARY SEWER C. I.	SANITARY SEWER TILE	FLOOR DRAIN C. I.	FLOOR DRAIN TILE	FOUNDATION DRAIN SEWER CONNECTED	FOUNDATION DRAIN INDEPENDENT	WASTE WATER DRAIN C. I.	WASTE WATER DRAIN TILE
6'	23'							

CLEAR WATER DRAIN C. I.	CLEAR WATER DRAIN TILE	SEPTIC TANK	PRIVY	SEEPAGE PIT	ABSORPTION FIELD	BARN	SILO	ABANDONED WELL	SINK HOLE
		69'		89'					

OTHER POLLUTION SOURCES (Give description such as dump, quarry, drainage well, stream, pond, lake, etc.)

6. Well is intended to supply water for: Household use

7. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
5"	Surface	78'			

8. CASING, LINER, CURBING, AND SCREEN

Dia. (in.)	Kind and Weight	From (ft.)	To (ft.)
5"	Steel TFC 15lbs. new	Surface	75'
3' of	Johnson S.S. screen #18 slot	75'	78'

9. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
	Surface	

10. FORMATIONS

Kind	From (ft.)	To (ft.)
Sand & gravel	Surface	78'

R = 0.0021 gpm/sec
R = 181 gpd

11. MISCELLANEOUS DATA

Yield test: 4 Hrs. at 20 GPM

Depth from surface to normal water level: 58 ft.

Depth to water level when pumping: 61 ft.

Well construction completed on: 10 – 6 – 1970

Well is terminated 8 inches ☒ above ☐ ~~below~~ final grade

Well disinfected upon completion ☒ Yes ☐ No

Well sealed watertight upon completion ☒ Yes ☐ No

Water sample sent to Eau Claire, Wis. laboratory on: 10 – 6 – 1970

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, type of casing joints, method of finishing the well, amount of cement used in grouting, blasting, subsurface pumprooms, access pits, etc., should be given on reverse side.

SIGNATURE: David Olson Registered Well Driller

2810

COMPLETE MAIL ADDRESS: ~~Olson Bros. Well Drilling Co.~~
4625 Olson Drive
Eau Claire, Wis. 54701

Please do not write in space below

COLIFORM TEST RESULT	GAS – 24 HRS.	GAS – 48 HRS.	CONFIRMED	REMARKS

Well Construction Report For WISCONSIN UNIQUE WELL NUMBER DN 799

FEB 1 1993

State of Wisconsin
Department of Natural Resources
Private Water Supply — WS/2
Box 7921
Madison, WI 53707

Property Owner: Don Jaquish — Telephone Number: (715) 834-4472

Mailing Address: S. 5550 Cemetary Rd.

City: Eau Claire — State: WI — Zip Code: 54701

County of Well Location: Eau Claire — County Well Location Permit No.: W 5812 — Well Completion Date: 10-15-91 (M M D D Y Y)

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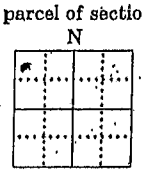
Well Constructor (Business Name): Olson Bros. Well Drilling Co., Inc. — Registration #: 146

Address: 4625 Olson Drive — City: Eau Claire — State: WI — Zip Code: 54703

2. Mark well location in correct 40-acre parcel of section.



1. Location (Please type or print using a black pen.)

☒ Town ☐ City ☐ Village of Brunswick — Fire # (if available)

Grid or Street Address or Road Name and Number (if available): S. 5550 Cemetary Rd.

Subdivision Name — Lot # — Block #

Gov't Lot # — or NW ¼ of NW ¼ of Section 10 ; T 26 N; R 10 ☐ E ☒ W

3. Well Type ☒ New ☐ Replacement ☐ Reconstruction

of unique well # _____ constructed in 19 ____.

Reason for new, replaced or reconstructed well? Dead Water

4. Well serves 1 # of homes and/or _____ (ex: barn, restaurant, church, school, industry, etc.)

High Capacity Well? ☐ Yes ☒ No

High Capacity Property? ☐ Yes ☒ No

☒ Drilled ☐ Driven Point ☐ Jetted ☐ Other _____

5. Well Located on Highest Point of Property, Consistent with the General Layout and Surroundings? ☒ Yes ☐ No If no, explain on back side.

Well Located in Floodplain? ☐ Yes ☒ No

Distance In Feet From Well To Nearest:

____ 1. Landfill	____ 9. Downspout/Yard Hydrant	____ 17. Wastewater Sump
20 2. Building Overhang	____ 10. Privy	____ 18. Paved Animal Barn Pen
120 3. Septic or Holding Tank	____ 11. Foundation Drain to Clearwater	____ 19. Animal Yard or Shelter
145 4. Sewage Absorption Unit	____ 12. Foundation Drain to Sewer	____ 20. Silo — Type _____
____ 5. Nonconforming Pit	100 13. Building Drain ☐ Cast Iron or Plastic ☐ Other	____ 21. Barn Gutter
X 6. Buried Home Heating Oil Tank	100 14. Building Sewer ☒ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other	____ 22. Manure Pipe ☐ Gravity ☐ Pressure ☐ Cast Iron or Plastic ☐ Other
X 7. Buried Petroleum Tank	____ 15. Collector or Street Sewer	____ 23. Other Manure Storage _____ Other NR 112 Waste Source
X 8. Shoreline/Swimming Pool	____ 16. Clearwater Sump	____ 24. _____

6. Drillhole Dimensions

Dia. (in.)	From (ft.)	To (ft.)
10	surface	10
6	10	40

Method of constructing upper enlarged drillhole only.

☐ 1. Rotary — Mud Circulation
☒ 2. Rotary — Air
☐ 3. Rotary — Foam
☐ 4. Reverse Rotary
☐ 5. Cable-tool Bit _____ in. dia.
☐ 6. Temp. Outer Casing _____ in. dia. Removed? ☐ Yes ☐ No If no, explain _____
☐ 7. Other _____

DNR USE ONLY	9. Geology Type, Caving/Noncaving, Color, Hardness, Etc.	From (ft.)	To (ft.)
TS	Brown sand	surface	41
	725 K = 0.0024		
	754 207 ft/d		

7. Casing, Liner, Screen Material, Weight, Specification Mfg. & Method of Assembly

Dia. (in.)		From (ft.)	To (ft.)
6	steel A53B .280 PE	surface	
	18.97 Sawkill		36
5.56			
Dia. (in.)	screen type and material	From	To
5 1/4	Stainless steel	36	40

8. Grout or Other Sealing Material

Method Neat

Kind of Sealing Material	From (ft.)	To (ft.)	# Sacks Cement
Bental grouts	surface	10	2

10. Static Water Level
____ ft. above ground level
21 ft. below ground surface

11. Pump Test
Pumping Level 23 ft. below surface
Pumping at 20 GPM for 1 hours

12. Well Is:

14 in.	☒ Above ☐ Below	Grade
Developed?	☒ Yes	☐ No
Disinfected?	☒ Yes	☐ No
Capped?	☒ Yes	☐ No

13. Did you permanently seal all unused, noncomplying, or unsafe wells? ☐ Yes ☐ No If no, explain _____

14. Signature of Pump Driver or Registered Driller — Date Signed: Dec 9 1

Signature of Drill Rig Operator — Date Signed: POJ Dec. 10, 91

Make additional comments on reverse side about geology, etc.

DNR

WELL CONSTRUCTION REPORT 204
Form 3300-77A Rev. 9-88

WGNHS ORIGINAL

State of Wisconsin
Department of Natural Resources
Private Water Supply
Box 7921
Madison, Wisconsin 53707

87

NOTE:
White Copy – Division's Copy
Green Copy – Driller's Copy
Yellow Copy – Owner's Copy

WELL CONSTRUCTOR'S REPORT
Form 3300–15 Rev. 2-79

JAN 10 1989

1. COUNTY: Eau Claire
CHECK (✓) ONE: [✓] Town [ ] Village [ ] City — Name: ~~Union~~ BRUNSWICK

2. LOCATION: 1/4 Section or Gov't. Lot: ~~NE / NE~~ — Section: 10 — Township: 26N — Range: 10W
OR – Grid or Street No.: NE, NW Sec 10 — Street or Road Name: Hwy 85
AND – If available subdivision name, lot & block No.

3. NAME [✓] OWNER [ ] AGENT AT TIME OF DRILLING CHECK (✓) ONE: Don Jaquish, Sr.
ADDRESS: 220 Minnesota St.
POST OFFICE: Eau Claire — ZIP CODE: 54701

4. Distance in feet from well to nearest: (Record answer in appropriate block)
Building: 20
Septic Tank: 75
Sewage Absorption Unit – Seepage Bed: 100

Sanitary Bldg. Drain (C.I., Other); Sanitary Bldg. Sewer (C.I., Other); Floor Drain Connected To: (C.I. Sewer, Other Sewer); Storm Bldg. Drain (C.I., Other); Storm Bldg. Sewer (C.I., Other); Street Sewer (San., Storm); Other Sewers (C.I., Other); Foundation Drain Connected to: (Sewer, Clearwater Dr., Sewage Sump, Clearwater Sump); Sewage Sump (C.I., Other); Clearwater Sump; Septic Tank; Holding Tank; Sewage Absorption Unit (Seepage Pit, Seepage Bed, Seepage Trench); Manure Hopper or Retention or Pnuematic Tank; Privy; Pet Waste Pit; Pit: Nonconforming Existing (Well, Pump, Tank); Subsurface Pumproom Nonconforming Existing; Barn Gutter; Animal Barn Pen; Animal Yard; Silo With Pit; Glass Lined Storage Facility; Silo w/o Pit; Earthen Silage Storage Trench Or Pit; Earthen Manure Basin; Temporary Manure Stack or Platform; Watertight Liquid Manure Tank or Basin; Manure Pressure Pipe; Subsurface Gasoline or Oil Tank; Waste Pond or Land Disposal Unit (Specify Type); Manure Storage Basin (Concrete Floor Only, Concrete Floor and Partial Concrete Walls); Other (Describe)

5. Well is intended to supply water for: home

6. DRILLHOLE

Dia. (in.)	From (ft.)	To (ft.)	Dia. (in.)	From (ft.)	To (ft.)
10	Surface	15			
6	15	43			

7. CASING, LINER, CURBING AND SCREEN

Dia. (in.)	Material, Weight, Specification Mfg. & Method of Assembly	From (ft.)	To (ft.)
6	steel .280 PE 18.97 #/ft	Surface	38
5/8	stainless steel screen	38	43

8. GROUT OR OTHER SEALING MATERIAL

Kind	From (ft.)	To (ft.)
1 Bag Benseal grout	Surface	15

9. FORMATIONS

Kind	From (ft.)	To (ft.)
Topsoil	Surface	2
Sand & gravel	2	43

765 / 756 K = 0.062 ft/sec 173 ft/d

10. TYPE OF DRILLING MACHINE USED
[ ] Cable Tool [ ] Rotary-air w/drilling mud [ ] Rotary-w/drilling mud [ ] Rotary-hammer w/drilling mud & air [✓] Rotary-hammer & air [ ] Reverse Rotary [ ] Jetting with [ ] Air [ ] Water

Well construction completed on 10 / 14 1987
Well is terminated 12 inches [✓] above [ ] below final grade
Well disinfected upon completion [✓] Yes [ ] No
Well sealed watertight upon completion [✓] Yes [ ] No

11. MISCELLANEOUS DATA
Yield Test: 1/2 Hrs. at 20 GPM
Depth from surface to normal water level 15 Ft.
Depth of water level when pumping 17 Ft. Stabilized [✓] Yes [ ] No
Water sample sent to Eau Claire #3230 laboratory on 10 / 15 1987

Your opinion concerning other pollution hazards, information concerning difficulties encountered, and data relating to nearby wells, screens, seals, method of finishing the well, amount of cement used in grouting, blasting, etc., should be given on reverse side.

Signature: 496 Georgeann M. Olson #146 — Registered Well Driller

Business Name and Complete Mailing Address: Olson Bros. Well Drilling Co. 4525 Olson Drive Eau Claire, Wis. 54701

APPENDIX B

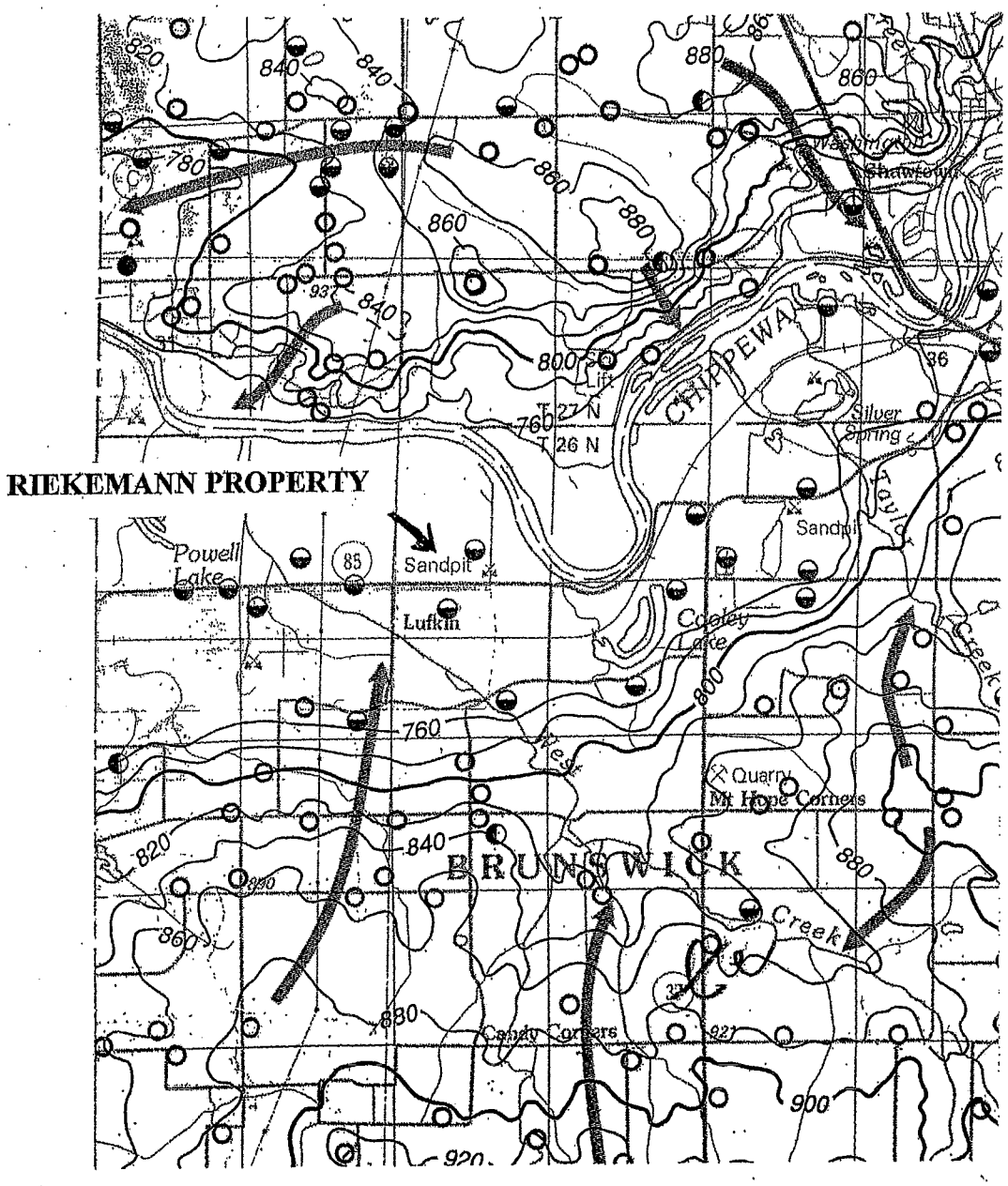


Figure 5. Water-table map by Muldoon (1992) for the Riekemann Property. The 760-foot contour line does not cross West Creek in the W ½, Section 8, T26N, R10W as shown on the topographic map (Figure 2)

APPENDIX B

Wisconsin DOT
Conceptual Permit

Wisconsin Department of Transportation

TRANSPORTATION DISTRICT 6
718 West Clairemont Avenue
Eau Claire, WI 54701-5108

Telephone · *(715) 836-2891*
Toll Free *(800) 991-5285*
FAX *(715) 836-2807*
TDD *(715) 836-6578*
E-Mail *eauclaire.dtd@dot.state.wi.us*

September 17, 2002

GAIL D. JENSEN
MATHY CONSTRUCTION CO.
PO BOX 189
ONALASKA WI 54650-0189

Subject: Special Exception to Trans 233 Requirements
Town of Brunswick
STH 85, Eau Claire County

Dear Ms. Jensen:

The Conceptual Trans 233 Land Division Review Request was transmitted to the Wisconsin Department of Transportation by your office on September 6, 2002.

The Wisconsin Department of Transportation has considered this conceptual proposal in the light of the Rules and Regulations Governing Division of Land Abutting a State Trunk Highway or Connecting Highway, Chapter Trans 233, Wisconsin Administrative Code, promulgated under authority of Section 236.13(1)(e) and 86.07(2), Wisconsin Statutes.

As a conceptual proposal, the Department of Transportation does not object to granting two (2) Special Exceptions to the requirements of Trans 233 for accesses to STH 85, with the following conditions: The existing residential drive serving the farm operation will be restricted to its existing use only. Any further land division, changes in land use, or highway improvement projects may require the removal of one of these two driveways and access to all these lands will be via a single access.

This decision is based on the preliminary information you have provided. For final approval and certification, you must submit all the required information for a formal Trans 233 Land Division Review, including **a certified survey map (CSM) or deed, and a check for the land division review fee ($110).** If the final proposal is found to agree substantially with the preliminary proposal already submitted, the Special Exception will be approved. Full compliance with the requirements as set forth in Trans 233 will be required before we can certify the final CSM.

Sincerely,

Diane Schermann

Diane Schermann
District Access Management Coordinator

DS:ss

cc: Robert Riekman, property owner

APPENDIX C

Chapter 3, Wisconsin Construction Site Best Management Practice Handbook

CHAPTER 3: BEST MANAGEMENT PRACTICES

CHAPTER 3 BEST MANAGEMENT PRACTICES

The purposes of this chapter are to:

describe best management practices to control pollutants on construction sites;

identify where the best management practices apply; and

provide minimum standards and criteria for designing and using the best management practices.

This chapter includes both temporary and permanent best management practices. Temporary best management practices are defined as best management practices designed to provide control of pollutants for days, weeks or months and generally are removed from the site when no longer needed. Generally they do not require engineering analysis or design. Permanent best management practices are defined as best management practices designed to remain in-place for years after the construction or land disturbance has ended. Permanent best management practices generally require engineering analysis or design.

The word "shall" means a required provision. "May" means an optional provision. "May not" means a prohibition.

This chapter includes descriptions and discussions of individual best management practices by the following categories:

A. Diverting flow;

B. Managing overland flow;

C. Trapping sediment in channelized flow;

D. Establishing permanent drainageways;

E. Protecting inlet;

F. Trapping sediment during site dewatering;

G. Preventing tracking; and

H. Others.

A. Best Management Practices for Diverting Flow

Concentrated or sheet runoff flow to a disturbed area greatly increases the amount of erosion of the disturbed area and the sediment carried in runoff from the disturbed area. Diverting the runoff around the disturbed area is generally an effective best management practice when the disturbed area cannot be stabilized immediately. Diverting runoff from the disturbed area also increases the practicability of controlling the pollutants from the disturbed area.

The Model Ordinance requires:

* channelized runoff from adjacent areas passing through the site shall be diverted around disturbed areas.

* sheetflow runoff from adjacent areas greater than 10,000 square feet in area shall also be diverted around disturbed areas, unless shown to have resultant runoff velocities of less than 0.5 ft./sec. across the disturbed area for the set of one-year design storms.

* diverted runoff shall be conveyed in a manner that will not erode the conveyance and receiving channels.

Diversions may be temporary or permanent best management practices.

A. 1. Permanent Diversion[1]

Definition

A channel with a supporting ridge on the downslope side constructed across the slope.

Purpose

To divert runoff around disturbed areas to a location where the water can be discharged without adversely impacting the receiving area or channel.

Conditions Where Practice Applies

1. Upslope of disturbed areas where erosion is likely to occur.
2. Upslope of soil piles.
3. To direct runoff from an area to a detention basin.
4. Around buildings or areas subjectto damage from runoff.

Planning Considerations

Permanent diversions should be planned as part of the initial site development. Design of a permanent diversion requires assessment of potential hazards in the event of failure. The design should be prepared by a registered professional engineer.

Design Criteria and Requirements

[Wisconsin Field Office Technical Guides (SCS) Standard 362 may be used for design.]

1. Timing - Diversions and outlets shall be constructed and stabilized prior to disturbing downslope areas or using the detention basin.

---

1. Derived from Wisconsin Field Office Technical Guides (SCS) standard 362, Diversion.

NOTE: "b" IS ASSUMED AS 3' (0.91 m) TO DETERMINE MEASURING POINT FOR "V" BOTTOM CHANNELS.

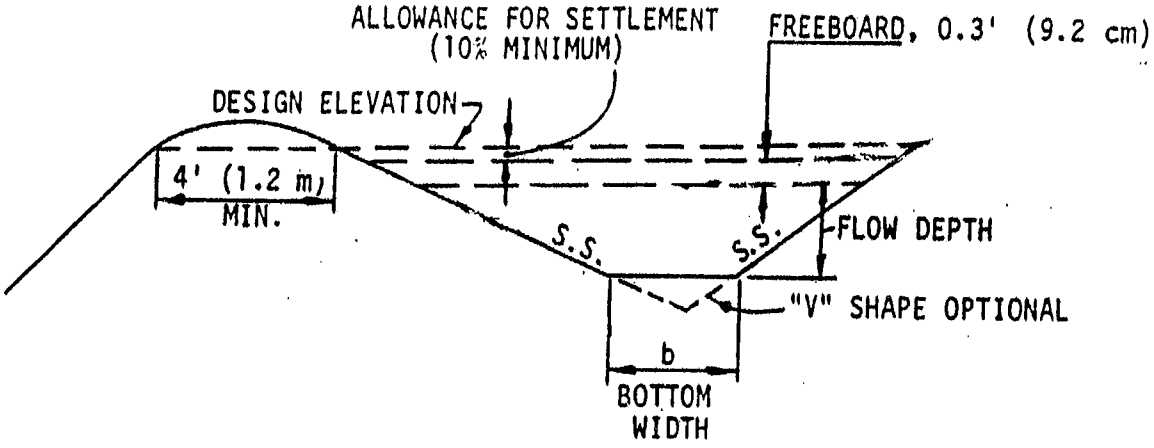


FIGURE 1

4. Grade and Velocity - The channel grades may be uniform or variable. Channel velocity shall be non-erosive and may not exceed permissible velocities shown in Table 1.

5. Outlets - Each diversion shall have an adequate outlet capable of conveying runoff to a location where the discharge will not cause adverse impacts. The design elevation of the water surface in the diversion may not be lower than the design elevation of the water surface in the outlet at their junction when both are operating at design flow.

6. Vegetative Stabilization - The diversion side slopes, ridge and the downslope side of the berm shall be stabilized by either sodding or seeding and mulching within 7 days of final grading. The diversion channel shall be stabilized as specified in the subchapter on Best Management Practices for Concentrated Flow.

Maintenance

Diversions shall be inspected within 24 hours after each rainfall or daily during periods of prolonged rainfall until the vegetative cover is stabilized. Repairs shall be made immediately.

A. 2. Temporary Diversion[1]

Definition

A temporary channel with a supporting ridge on the downslope side constructed across the slope that is used for less than 12 months..

Purpose

To divert runoff around disturbed areas to a location where the water can be discharged without adversely impacting the receiving area or channel.

Conditions Where Practice Applies

1. Where drainage areas do not exceed 3 acres.
2. Upslope of disturbed areas where erosion is likely to occur.
3. At discharge points from downspouts.
4. Upslope of soil piles.
5. To direct runoff from an area to a detention basin.

Planning Considerations

Design of a temporary diversion requires assessment of potential hazards in the event of failure. The design should be prepared by a registered professional engineer.

Design Criteria and Requirements

1. Timing - Diversions and outlets shall be constructed and stabilized prior to disturbing downslope areas or using the detention basin.

---

[1] Derived from Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control.

5. Outlets - Each diversion shall have an adequate outlet capable of conveying runoff to a location where the discharge will not cause adverse impacts. The design elevation of the water surface in the diversion may not be lower than the design elevation of the water surface in the outlet at their junction when both are operating at design flow.

6. Vegetative Stabilization - The diversion side slopes, ridge, downslope side of the berm and channel shall be stabilized within 7 days of final grading by:

   a. sodding;

   b. seeding and mulching in combination with filter fabric barriers or straw bale barriers;

   c. covering with suitable filter fabric; or

   d. covering with 6 mil polyethylene sheeting.

Maintenance

Diversions shall be inspected within 24 hours after each rainfall or daily during periods of prolonged rainfall throughout its period or use. Repairs shall be made immediately.

B. Best Management Practices for Managing Overland Flow

Overland flow refers to runoff flowing as a "sheet" over the land and is not concentrated in runoff channels. Generally, areas with overland flow are small in size. Best management practices are usually placed on sideslope and downslope locations.

Temporary best management practices include:

Filter fabric fences.

Straw bale fences.

Mulching.

Permanent best management practices include:

Seeding with mulching.

Sodding (see areas of concentrated flow for description).

These best management practices are applicable to both areas less than and greater than 10 acres where overland flow occurs and to containing pollutants from soil storage piles. The Model Ordinance requires for disturbed sites left inactive for 7 days or more:

* filter fences, straw bales or equivalent best management practices to be places along all sideslope and downslope sides of sites where less than 10 acres are disturbed at one time.

* at sites with less than 10 acres disturbed at one time, if a channel or area of concentrated runoff passes through the site, filter fences shall be placed along the channel edges to reduce sediment amounts reaching the channel.

The Model Ordinance also requires:

* filter fences or straw bales to be placed around soil piles with more than 10 cubic yards of material if the soil pile will exist for less than 7 days.

Filter fences or straw bales are also best management practices that can be used temporarily while vegetative cover is being established on soil piles of more than 10 cubic yards that will be in existance for more than 7 days.

B. 1. Filter Fabric Fences[1]

Definition

A temporary sediment barrier consisting of a geotextile filter fabric stretched across and attached to supporting posts and entrenched.

Purposes

1. To intercept and detain small amounts of sediment from disturbed areas during construction operations to prevent sediment from leaving the site.

2. To decrease the velocity of sheet flows.

Conditions Where Practice Applies

1. Downslope of disturbed areas where erosion is likely to occur in the form of sheet or rill erosion.

2. Around or downslope of soil piles.

3. Where the size of the drainage area is no more than 0.25 acres per 100 feet of fence length. The maximum slope length for given slopes is as follows:

Slope	Slope Length
< 2%	100 feet
2 to 5%	75
5 to 10%	50
10 to 20%	25
> 20%	15

4. Where the maximum gradient behind the fence is 50% (2:1).

5. Under no circumstances may filter fabric fences be used in streams, swales, ditches or below ordinary high water marks along streams. See filter fabric barriers for conditions with concentrated flow.

---

[1] Derived from Virginia Erosion and Sediment Control Handbook; North Carolina Erosion and Sediment Control Planning and Design Manual; Wisconsin Department of Transportation specifications for filter fabrics; and DNR field observations.

Factory pre-assembled with support netting: The full height of the filter fabric fence shall be supported by "2 x 2" kiln dried hardwood posts or equivalent. The posts shall be driven at least 8 inches into the ground. The maximum spacing of the posts shall be 8 feet.

6. Anchoring - The filter fabric shall be anchored by spreading at least 8 inches of the fabric in a 4" x 4" trench or a 4" deep V-trench on the upslope side of the fence as shown in Figures 1 and 2. The trench shall be backfilled and compacted.

7. Fabric specifications - The filter fabric shall meet the following specifications:

   a. Grab strength: 100 lb. minimum in any principal direction (ASTM D-1682)

   b. Mullen Burst: Minimum 200 psi (ASTM D-3786)

   c. Equivalent opening size:

      between 50 and 140 for soils with more than 15 percent by weight passing a No. 200 sieve

      between 20 and 50 for soils with less than 15 percent by weight passing a No. 200 sieve

   d. Water Flow Rate of 10 gal/min/ft^2 at 50MM constant head as determined by multiplying permittivity in sec^{-1} as determined by ASTM D-4491 by a conversion factor of 74:

   e. Ultra violet radiation stability of 90%.

   f. Fabric with support netting shall be reinforced with an industrial polypropylene netting with a 3/4 inch spacing or equivalent. A heavy duty nylon top support cord or equivalent is required.

Maintenance

1. Fabric filter fences shall be inspected within 24 hours after each rainfall or daily during periods of prolonged rainfall. Repair or replacement shall be made immediately.

2. Sediment deposits should be removed after each storm event. Sediment deposits shall be removed when deposits reach 0.5 the height of the fence.

B. 2. Straw Bale Fences[1]

Definition

A temporary sediment barrier consisting of a row of entrenched and anchored bales.

Purposes

1. To intercept and detain small amounts of sediment from disturbed areas during construction operations to prevent sediment from leaving the site.

2. To decrease the velocity of sheet flows.

Conditions Where Practice Applies

1. Downslope of disturbed areas where erosion is likely to occur in the form of sheet or rill erosion.

2. Around or downslope of soil piles.

3. Where the maximum size of the drainage area is 0.25 acres per 100 feet of fence length; the maximum length of slope behind the fence is 100 feet; and the maximum gradient behind the fence is 50% (2:1). The maximum slope length for given slopes is as follows:

Slope	Slope Length
< 2%	100 feet
2 to 5%	75
5 to 10%	50
10 to 20%	25
> 20%	15

4. Where pollutant control is needed for less than 3 months.

5. Under no circumstances may straw bale fences be used in streams, swales, ditches or below ordinary high water marks along streams. See straw bale barriers for conditions with concentrated flow.

---

[1] Derived from Virginia Erosion and Sediment Control Handbook, North Carolina Erosion and Sediment Control Planning and Design Handbook; and DNR field observations.

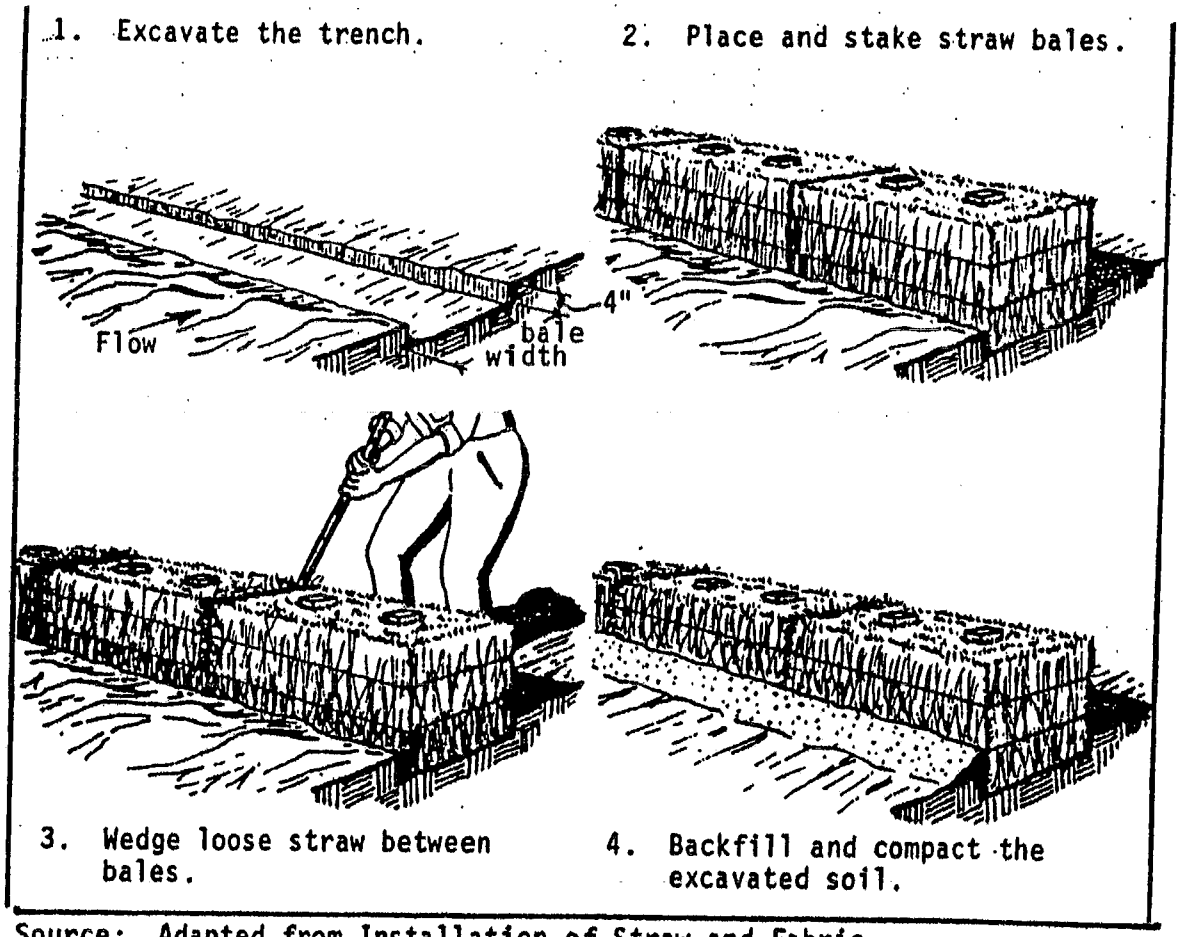
7. Anchoring - Each straw bale shall be securely anchored by at least two stakes or re-bars driven through the bale and at least 8 inches into the ground. The first stake shall be driven towards the previously anchored bale to help create a tight fit.

Maintenance

1. Straw bale fences shall be inspected within 24 hours after each rainfall or daily during periods of prolonged rainfall. Repair or replacement shall be made immediately.

2. Sediment deposits should be removed after each storm event. Sediment deposits shall be removed when deposits reach 0.5 the height of the fence.

Figure 1.



Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

B. 3. Mulching[1] [2]

Definition

A soil surface application of plant residues or other suitable materials.

Purposes

1. To reduce erosion by dissipating raindrop impact energy and reducing overland flow and concentrated flow velocities.
2. To foster establishment of temporary vegetative cover.
3. To foster establishment of permanent vegetative cover.

Conditions Where Practice Applies

1. On exposed soils where additional grading or landscaping will take place.
2. On exposed soils in conjunction with temporary or permanent seeding.

Planning Considerations

1. The effectiveness of mulching is increased if drainage from upslope areas is diverted around the exposed areas.
2. Mulching should be used in conjunction with other best management practices such as filter fabric fences or straw bale fences.
3. A variety of mulch nets and mats are commercially available.

---

[1] Portions derived from Wisconsin Field Office Technical Guide (SCS) Standard 484, Mulching and Virginia Sediment and Erosion Control Handbook.

[2] Brand names are mentioned for illustration purposes only. Use of a trade name does not imply endorsement of the product.

Emulsified asphalt may not be used when air temperatures are below 32° F. Manufacturer's recommendations for mixing and temperature control shall be followed. The materials shall be blown from a machine designed for the application and uniformly deposited over the area in one operation. The machine used shall be capable of blowing or ejecting a constant amount of straw and allow introduction of the asphalt emulsion.

(3) Applying synthethic binders, such as Terratack, Petroset and Aerospray, in accordance with the manufacturer's recommendations.

5. Nets and Mats - Erosion nets and mats including excelsior retention blankets, jute matting and polypropylene netting, shall be installed according to the manufacturer's recommendations.

a. Fertilizer, seed or sod shall be applied before installing the nets or mats.

b. Installation shall start at the bottom of the channel or bottom of the slope. Overlap nets or mats at least 4 inches. Nets or mats shall be placed on all portions of the channel covered by water when 1 foot of water is flowing in the channel.

c. The nets or mats shall be secured by placing 6 inch or longer, no. 8 gauge or heavier wire staples. Staples shall be placed every 3 feet along the edge and where the nets or mats overlap.

Maintenance

All mulches, mats and nets shall be inspected within 24 hours after each rainfall or daily during periods of prolonged rainfall. Additional mulch, netting or matting shall be applied immediately when necessary to maintain suitable coverage. Inspections shall be made until vegetative cover is established.

B. 4. Seeding[1]

Definition

A temporary or permanent planting of grasses or legumes.

Purposes

To stabilize disturbed areas to minimize erosion and to reduce overland flow velocities.

Conditions Where Practice Applies

On exposed soils.

Planning Considerations

1. The effectiveness of seeding in controlling erosion is increased if drainage from upslope areas is diverted around the exposed areas.

2. Seeding should be used in conjunction with other best management practices such as filter fabric fences or straw bale fences.

3. Seeding may not be considered as acceptable vegetative cover until the grasses are established.

Design Criteria and Requirements

1. Model Ordinance requirements - The Model Ordinance requires that seeding (sodding, mulching or other equivalent best management practice) shall be applied within 7 days of the end of active disturbance of the soil surface.

2. Seedbed preparation - A proper seedbed shall be prepared before seeding.

3. Mulching - Seeding on all slopes shall be done in conjunction with mulching.

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[1] Portions derived from Wisconsin Field Office Technical Guide (SCS) Standard 342, Critical Area Planting, and the Virginia Erosion and Sediment Control Handbook.

C. Best Management Practices for Trapping Sediment in Channelized Flow

Channelized flow refers to runoff flowing through depressions, swales or channels. This section contains best management practices to control or trap sediment carried in channelized flow.

The Model Ordinance requires:

* at sites with more than 10 acres disturbed at one time, or at which a channel originates in the disturbed area, one or more wet detention basins be constructed to receive all runoff leaving the site.

The practices vary by drainage area as follows:

for drainage areas less than 2 acres -

Filter fabric barriers (C. 1.)

Straw bale barriers (C. 2.)

Temporary diversions (A. 2.)

for drainage areas less than 5 acres -

Sediment traps (C. 3.)

for drainage areas less than 150 acres -

Sediment basins (C. 4)

C. 1. Filter Fabric Barrier[1]

Definition

A temporary sediment barrier used in areas of concentrated flow consisting of a filter fabric stretched across and attached to supporting posts and a wire fence and entrenched.

Purpose

1. To cause sediment carried in channelized or concentrated runoff to settle by reducing the velocity of the flow.

Conditions Where Practice Applies

1. In unstabilized minor swales, ditches or diversions where the maximum contributing area is no greater than 2 acres.

2. Filter fabric barriers may not be used in intermittent and perennial stream channels.

Planning Considerations

1. A filter fabric barrier does not require an engineering analysis.

2. Under normal conditions, filter fabric barriers require removal of trapped sediment. If maintenance is difficult due to location or presence of wet soils that prohibit prompt cleaning after runoff events, additional parallel barriers should be constructed.

3. Filter fabrics degrade due to ultraviolet light. Consult the manufacturer's specifications for useful lifetime.

4. Woven and non-woven filter fabrics are available. Strength, permeability and suitability for various soil textures vary with the type of fabric.

---

[1] Derived from Virginia Erosion and Sediment Control Handbook; Wisconsin Department of Transportation specifications for filter fabrics; and DNR field observations.

b. Mullen Burst: Minimum 200 psi (ASTM D-3786)

c. Equivalent opening size:

between 50 and 140 for soils with more than 15 percent by weight passing a No. 200 sieve

between 20 and 50 for soils with less than 15 percent by weight passing a No. 200 sieve

d. Water Flow Rate of 10 gal/min/ft^2 at 50MM constant head as determined by multiplying permittivity in sec^{-1} as determined by ASTM D-4491 by a conversion factor of 74:

e. Ultra violet radiation stability of 90%.

f. Fabric with support netting shall be reinforced with an industrial polypropylene netting with a 3/4 inch spacing or equivalent. A heavy duty nylon top support cord or equivalent is required.

9. Spacing - The spacing between fences shall be determined based on the drainage area and the difference in elevation. For unpaved contributing areas, the contributing drainage area to each filter fabric barrier may not exceed 2 acres. For paved contributing areas, the contributing drainage area to each filter fabric barrier may not exceed 1 acre. The difference in elevation between barriers may not exceed 2/3rds the height of the filter fabric. [For example, a 3 foot barrier used on a 2% grade with an unpaved contributing area allows the barriers to be placed 100 feet apart provided the contributing area between the barriers does not exceed 2 acres.]

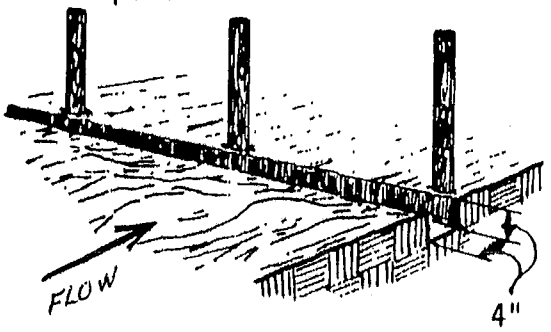
Maintenance

1. Fabric filter barriers shall be inspected within 24 hours after each rainfall or daily during periods of prolonged rainfall. Repair or replacement shall be made immediately.

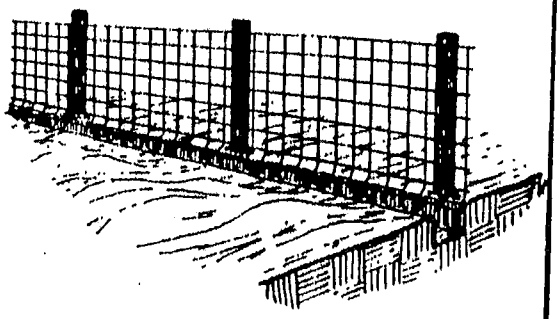
2. Sediment deposits should be removed after each storm event. Sediment deposits shall be removed when deposits reach 0.5 the height of the barrier.

Figure 2.

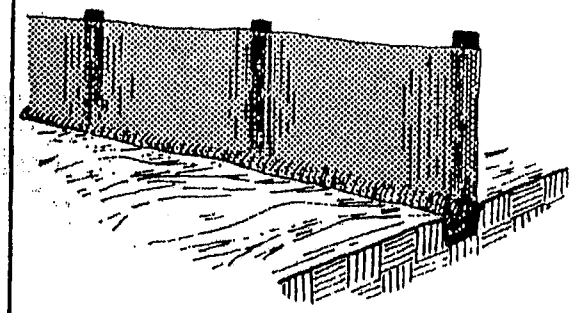
1. Set posts and excavate a 4"x4" trench upslope along the line of posts.



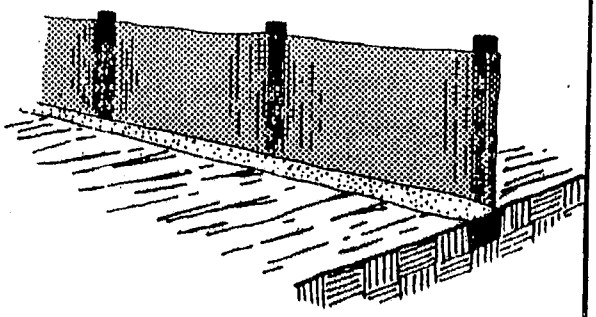
2. Staple wire fencing to the posts.



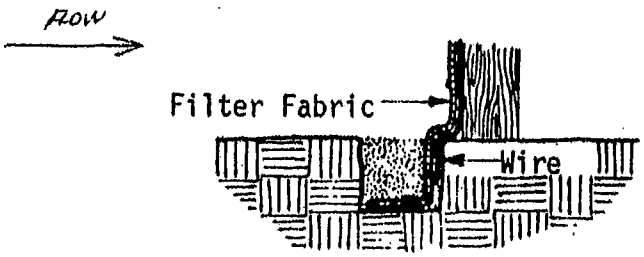
3. Attach the filter fabric to the wire fence and extend it into the trench.



4. Backfill and compact the excavated soil.



Extension of fabric and wire into the trench.



CONSTRUCTION OF A SILT FENCE

Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

C. 2. Straw Bale Barrier[1]

Definition

A temporary sediment barrier used in areas of concentrated flow consisting of a row of entrenched and anchored straw bales.

Purpose

1. To prevent channels from eroding by decreasing the velocity of low-to-moderate velocity and volume channel flows.

Conditions Where Practice Applies

1. In unstabilized minor swales, ditches or diversions where the maximum contributing area is no greater than 2 acres.

2. Straw bale barriers may not be used in intermittent and perennial stream channels.

Planning Considerations

1. A straw bale barrier does not require an engineering analysis or design.

2. Under normal conditions, straw bale barriers require removal of trapped sediment. If maintenance is difficult due to location or presence of wet soils that prohibit prompt cleaning after runoff events, additional parallel barriers should be constructed.

3. Straw bale barriers are generally less effective than filter fabric barriers. However, they may be the most practical best management practice in situations where removal of a filter fabric barrier is not possible or not practicable.

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[1] Derived from Virginia Sediment and Erosion Control Handbook.

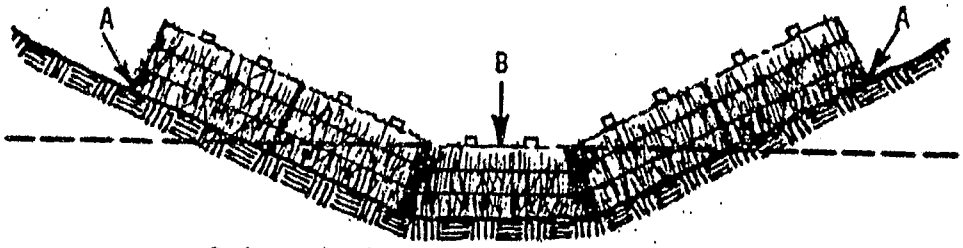
7. Spacing - The spacing between fences shall be determined based on the drainage area and the difference in elevation. For unpaved contributing areas, the contributing drainage area to each straw bale barrier may not exceed 2 acres. For paved contributing areas, the contributing drainage area to each straw bale barrier may not exceed 1 acre. The difference in elevation between barriers may not exceed 2/3rds the height of the straw bale. [For example, a 3 foot barrier used on a 2% grade with an unpaved contributing area allows the barriers to be placed 100 feet apart provided the contributing area between the barriers does not exceed 2 acres.]

Maintenance

1. Straw bale barriers shall be inspected within 24 hours after each rainfall or daily during periods of prolonged rainfall. Repair or replacement shall be made immediately.

2. Sediment deposits should be removed after each storm event. Sediment deposits shall be removed when deposits reach 0.5 the height of the barrier.

Figure 1.

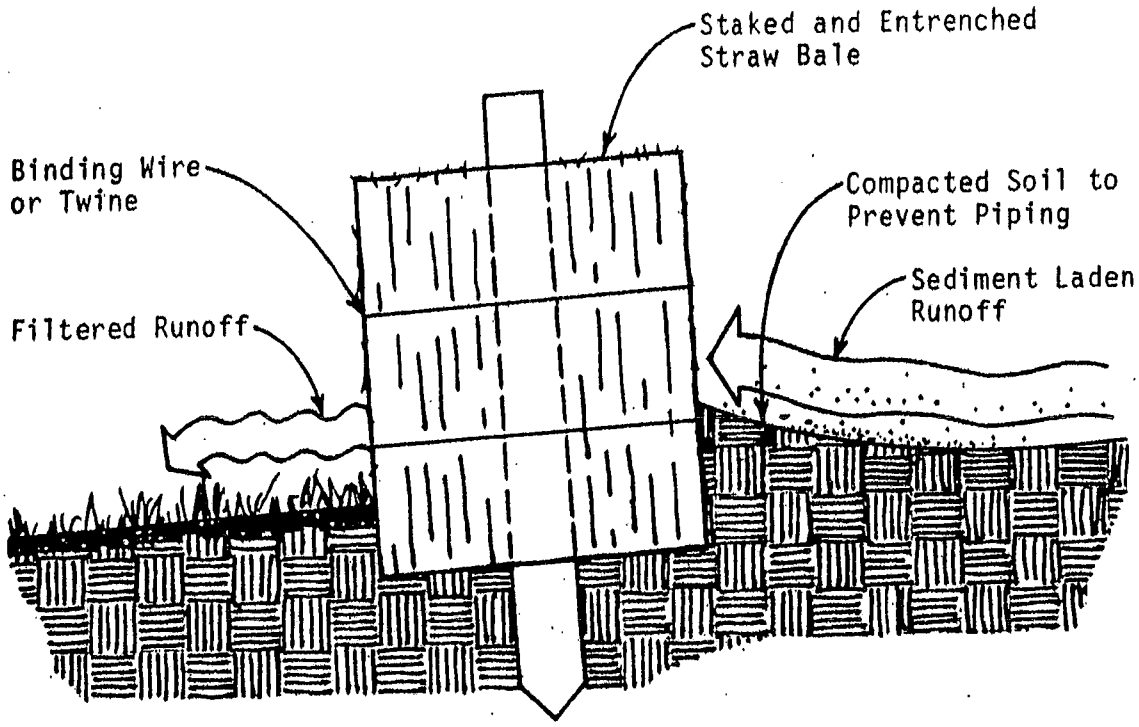


Points A should be higher than point B

PROPER PLACEMENT OF STRAW BALE BARRIER IN DRAINAGE WAY

Source: Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

Figure 3.



CROSS-SECTION OF A PROPERLY INSTALLED STRAW BALE

Source: Michigan Soil Erosion and Sedimentation Control Guidebook, 1975

C. 3. Sediment Trap[1]

Definition

A small temporary basin designed and constructed to control sediment.

Purpose

To detain sediment-laden runoff from disturbed areas for sufficient time to allow the majority of the sediment to settle out.

Conditions Where Practice Applies

For drainage areas less than 5 acres. The useful life of the basin is 18 months or less. Permanent basins require additional features.

Planning Considerations

1. Sediment traps may come under the definition of dams and be subject to the provisions of Ch. NR 333, Wisconsin Administrative Code, Dam Design and Construction Standards. As of August 1988, Chapter NR 333 did not apply to dams having a structural height of 6 feet or less, or a storage capacity of 15 acre-feet or less. Also, Chapter NR 333 did not apply to dams having a structural height of more than 6 feet but less than 25 feet and and a maximum storage capacity of less than 50 acre-feet of water. Basins may not be located where failure will result in loss of life.

2. Sediment traps meeting these design requirements are at best only 70 to 80% effective in trapping sediment. Smaller sediment particles such as clay-sized particles will not be effectively controlled. Other best management practices such as vegetative cover installed in the drainage area are generally a more effective means of controlling the smaller particle sizes than enlarging the sediment basin's area by a factor of 3 to 5.

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[1] Derived from Erosion & Sediment Control Handbook by Goldman, Jackson and Bursztynsky, Virginia Sediment and Erosion Control Handbook and North Carolina Erosion and Sediment Control Planning and Design Manual.

6. Fabric Specifications - The filter fabric shall meet the following specifications:

   a. Grab strength: 100 lb. minimum in any principal direction (ASTM D1682)

   b. Mullen Burst: Minimum 200 psi (ASTM D-3786)

   c. Equivalent opening size:

      between 50 and 140 for soils with more than 15 percent by weight passing a No. 200 sieve

      between 20 and 50 for soils with less than 15 percent by weight passing a No. 200 sieve

   d. Water Flow Rate of 10 gal/min/ft^2 at 50MM constant head as determined by multiplying permittivity in sec^{-1} as determined by ASTM D-4491 by a conversion factor of 74:

   e. Ultra violet radiation stability of 90%.

7. Embankment Cross Section - The maximum height of the sediment trap embankment shall be 5 feet. The minimum top widths and outlet heights for various embankment heights are:

Height of Embankment	Height of Outlet	Top Width of Embankment
2.0 ft.	1.0 ft.	4.0 ft.
2.5	1.5	4.0
4.5	3.5	4.0
5.0	4.0	4.5

The original ground under the embankment shall be scarified to a depth of 6 inches or more prior to placement of the fill material. Fill material shall not be placed over frozen ground.

Maintenance

Sediment shall be removed when it reaches half of the outlet height of the trap.

The sediment trap shall be inspected after each runoff event. Repairs shall be made promptly.

C. 4. Sediment Basin[1]

Definition

A temporary basin designed and constructed to control sediment.

Purpose

To detain sediment-laden runoff from disturbed areas for sufficient time to allow the majority of the sediment to settle out.

Conditions Where Practice Applies

Where other best management practices are not adequate to prevent off-site sedimentation. For drainage areas less than 150 acres. The useful life of the basin is 18 months or less. Permanent basins require additional features.

Planning Considerations

1. Sediment basins may come under the definition of dams and be subject to the provisions of Ch. NR 333, Wisconsin Administrative Code, Dam Design and Construction Standards. As of April 1989, Chapter NR 333 did not apply to dams having a structural height of 6 feet or less, or a storage capacity of 15 acre-feet or less. Also, Chapter NR 333 did not apply to dams having a structural height of more than 6 feet but less than 25 feet and and a maximum storage capacity of less than 50 acre-feet of water. Basins may not be located where failure will result in loss of life.

2. Sediment basins meeting these design requirements are at best only 70 to 80% effective in trapping sediment. Smaller sediment particles such as clay-sized particles will not be effectively controlled. Other best management

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[1] Portions derived from Erosion & Sediment Control Handbook by Goldman, Jackson and Bursztynsky, Virginia Sediment and Erosion Control Handbook, North Carolina Erosion and Sediment Control Planning and Design Manual and Wisconsin Field Office Technical Guide (SCS) standards 350 and 378.

The surface area may be adjusted for different conditions inthe drainage area. For example, using the Rational Method, the minimum surface area is:

$A_s\ (ft^2) = 1.2/v_s \times C \times i_{avg} \times A_{dr}$ (acres)

where A_s = surface area of runoff storage volume

v_s = settling velocity for a 0.015 mm. particle [0.0005 ft/sec]

C = runoff coefficient

i_{avg} = average rainfall intensity for a 10-year, 6-hour design storm [0.5 in/hr for a 3 inch design storm]

A_{dr} = drainage area to the basin in acres

for conditions where the runoff coefficient is 0.5:

$A_s\ (ft^2) = 625 \times A_{dr}$ (acres)

b. Depth - The depth of the runoff storage volume from the top of the sediment storage and permanent pool volume to the crest of the principle spillway shall be at least 2 feet to prevent resuspension of sediments.

3. Runoff Storage Volume Shape - The length to average width ratio of the basin shall be at least 2:1 with a ratio of 5:1 preferred. Baffles shall be used to prevent short-circuiting in basins with length to average width ratios of less than 5:1. The average width shall be calculated by dividing the surface area by the shortest flow path in the basin.

4. Sediment Storage and Permanent Pool Volume - The sediment storage and permanent pond volume shall be sufficiently large to contain the estimated annual sediment volume from the drainage area. The minimum depth shall be 2 feet or the estimated depth of the sediment plus 6 inches, whichever is greater. A method for estimating annual sediment volume is as follows:

Average Slope of Disturbed Area	Volume of Sediment per Acre of Disturbed Area
<6%	20 cubic yards
10%	45
14	75
18	120
22	160
26	210

9. Dewatering Outlet - The principal spillway shall include one or more outlets for dewatering the runoff storage volume. The size of the outlet(s) shall be calculated to dewater the basin in no less than 3 days. The following equation may be used:

$$A_o = \frac{A_s(2h)^{1/2}}{20{,}428 \times T \times C_d}$$

where A_o = surface area of the outlet (ft^2)

A_s = surface area of basin (ft^2)

h = head of water above outlet

T = dewatering time (hr)

C_d = coefficient of contraction for the outlet, about 0.6 for sharp edged orifices

The bottom hole or slot shall be at the elevation of the sediment storage and permanent pool. No hole shall be greater than 4 inches in diameter.

10. Embankment - Embankments shall have a minimum top width of 4 feet and side slopes of 2:1 or flatter.

Height of Embankment	Top Width of Embankment
<10 ft.	6 ft.
10.1 to 15	8
15.1 to 20	10
20.1 or greater	see SCS standard 378

The original ground under the embankment shall be stripped and scarified to a depth of 6 inches or more prior to placement of the fill material. Fill material shall not be placed over frozen ground.

Method B

1. Use Field Office Technical Guide standards 350 and 378 with the additional design criteria that follow.

2. Basin Components As shown in Figure 1, the basin shall include the following elements:

   a. a runoff storage volume;

   b. a sediment storage and permanent pool volume;

   c. a principal spillway;

   d. a dewatering outlet for the runoff water storage volume; and

   e. an emergency spillway.

3. Runoff Storage Volume Capacity - The runoff storage volume is the volume between the crest of the principal spillway and the bottom of the lowest dewatering hole. The basin shall be designed to fill to the top of the riser or other primary spillway during the design storm and then discharge at the rate of inflow to the basin.

   a. Surface area - The minimum surface area of the runoff storage volume shall be 1.2 times the area necessary to settle a 0.015 mm. particle based on the average runoff from a design storm intensity of 0.5 inches per hour (equal to either the volume of a 10-year, 6 hour storm divided by 6 hours or 0.75 times the volume of a 10-year, 24-hour storm divided by 6 hours). For entirely disturbed drainage areas, the surface area of the runoff storage volume (in square feet) equals

$$625 \times A_{dr} \text{ (drainage area in acres)}$$

6. Dewatering Outlet - The principal spillway shall include one or more outlets for dewatering the runoff storage volume. The size of the outlet(s) shall be calculated to dewater the basin in no less than 3 days. The following equation may be used:

$$A_o = \frac{A_s(2h)^{1/2}}{20,428 \times T \times C_d}$$

where A_o = surface area of the outlet (ft^2)

A_s = surface area of basin (ft^2)

h = head of water above outlet

T = dewatering time (hr)

C_d = coefficient of contraction for the outlet, about 0.6 for sharp edged orifices

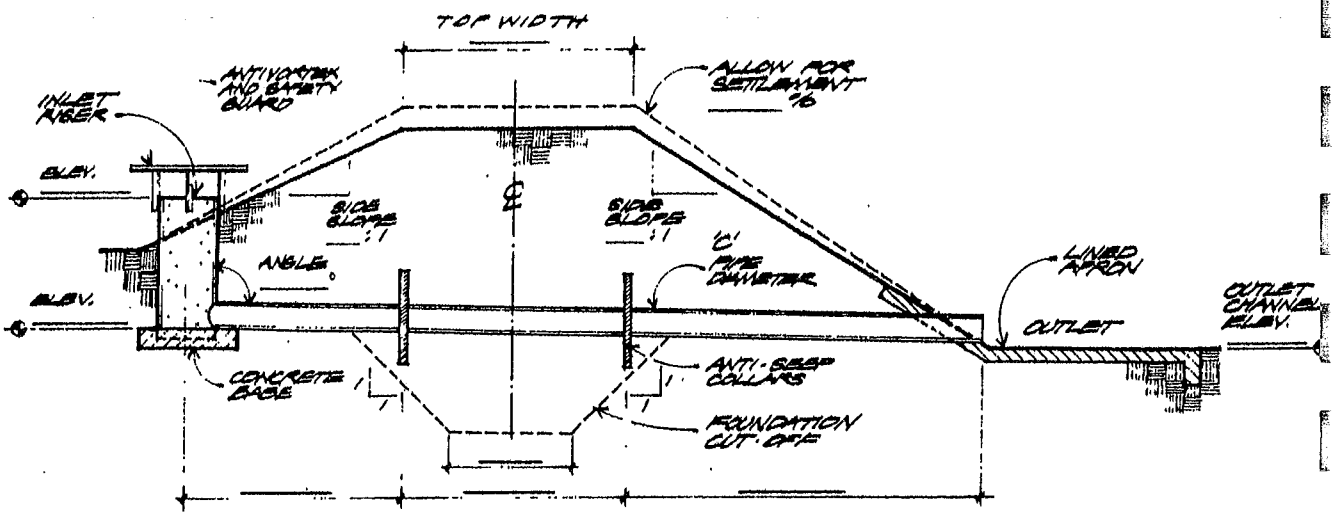
The bottom hole or slot shall be at the elevation of the sediment storage and permanent pool. No hole shall be greater than 4 inches in diameter.

7. Safety - Sediment basins should be surrounded by fences.

Maintenance

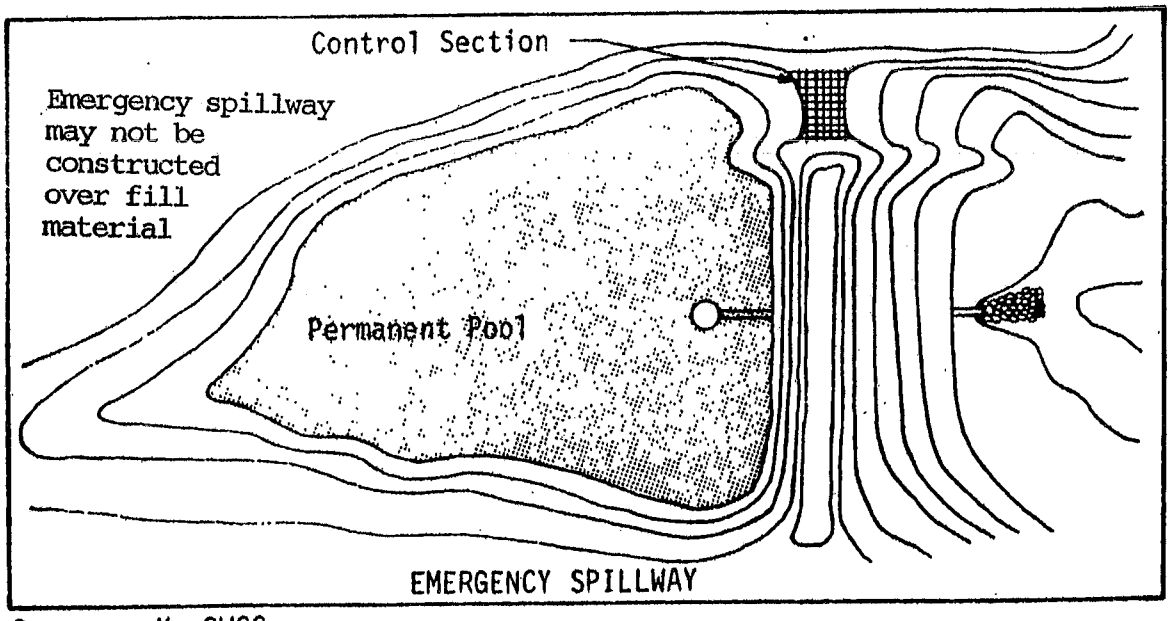
1. The embankment and emergency spillway shall be inspected regularly to insure that it is structurely sound and has not been damaged by erosion or construction equipment. Repairs shall be made promptly.

2. The sediment basin shall be checked after each runoff event. When the sediment reaches the elevation of the sediment storage and permanent pool elevation, the basin shall be cleaned out.



Source: Illinois Procedures and Standards for Urban Soil Erosion and Sedimentation Control

10 feet minimum
20 feet minimum if drainage area is greater than 20 acres



Source: Va SWCC

D. Best Management Practices for Establishing Permanent Drainageways

Concentrated runoff has a great potential to erode sediment and transport pollutants to recieving waters. Permanent best management practices to stabilize areas of concentrated flow are:

Seeding with mulching (B. 3 and 4)

Sodding (D. 2)

Grassed Waterway (D. 3)

Geotextile Reinforced Grassed Waterway (D. 4)

Rock and Concrete Lined Waterway (D. 5)

D. 1. Permanent Channel Stabilization[1]

Definition

Permanent stabilization of areas of concentrated flow.

Purpose

To prevent channels from eroding by establishing vegetation or placing rip-rap in the channel.

Conditions Where Practice Applies

In unstabilized swales, ditches or diversions.

Planning Considerations

The stabilization of a channel requires analysis of velocity for expected storms.

Design Criteria and Requirements

1. Channel Lining The lining of the channel shall meet the following requirements:

   a. channels may be vegetated if the velocity for a 10-year, 24-hour storm does not exceed the following:

for sand, silt, sandy loam and silty loam soils	3.0 ft./sec.
for silty clay loam and sandy loam soils	4.0 ft./sec.
clay	5.0 ft./sec.

   b. channels shall be lined with rock rip-rap or other non-erosive material if the velocity exceed those identified in a. above or the channel must carry water continuously. (See D. 5 Rock and Concrete Lined Waterways and D. 4 Geotextile Reinforced Grassed

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[1] Derived from Wisconsin Field Office Technical Guide (SCS) standards and Wisconsin Department of Transportation guidance.

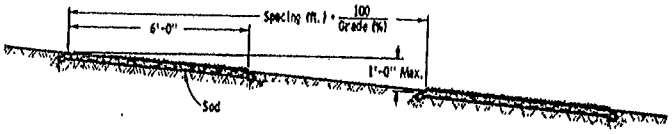
for clay soils

slope %	velocity (ft/sec) 2	3	4	5
<3	seed & mulch	seed & erosion mat	seed, erosion mat & sod checks	sod
3-5	seed & erosion mat	seed, erosion mat & sod checks	sod	sod
5-7	seed, erosion mat & sod checks	sod	sod	sod & erosion mat
>7	sod	sod	sod & erosion mat	sod & erosion mat

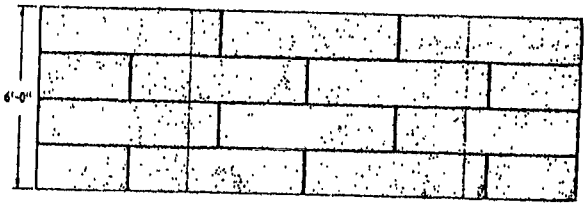
3. The best management practices identified in 1. and 2. above shall meet the following requirements:

seeding and mulching	B. 4	Seeding
erosion mat	B. 3	Mulching
sod checks	D. 2	Sodding
sod	D. 2	Sodding
grassed waterways	D. 3	Grassed Waterway
rip-rap	D. 5	Rock and Concrete Lined Waterway
geotextile reinforced grassed waterway	D. 4	Geotextile Reinforced Grassed Waterway

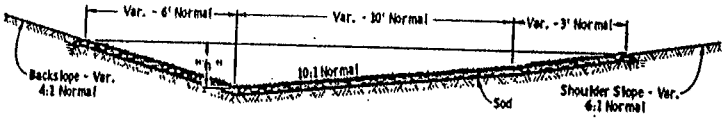
Figure 1.



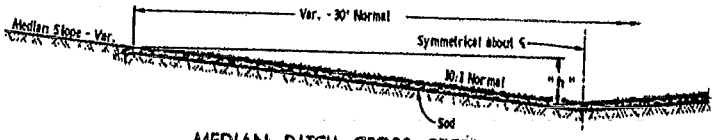
PROFILE OF DITCH GRADE



PLAN VIEW SHOWING SOD



SIDE DITCH CROSS SECTION



MEDIAN DITCH CROSS SECTION

"h" - The minimum height of ditch to be sodded shall be equal to the maximum depth of flow plus 6". The normal "h" will be 1'-6".

SOD DITCH CHECKS

State of Wisconsin
Department of Transportation
Division of Highways

D. 3. Grassed Waterway[1]

Definition

A constructed channel shaped or graded to required dimensions and established in suitable vegetation for the stable conveyance of runoff.

Purposes

1. To protect the soil surface of channels and ditches from erosive forces of high velocity runoff.
2. To slow the velocity of concentrated runoff.

Conditions Where Practice Applies

1. In ditches, channels and diversions where vegetative cover will be stable (see D. 1. Permanent Channel Stabilization)
2. In ditches, channels and diversions without permanent or frequent low flow or dry weather discharge.
3. This best management practice does not apply to perennial streams or other channels requiring Chapter 30 permits.

Planning Considerations

Grassed waterways require engineering analysis and design.

Design Criteria and Requirements

[Wisconsin Field Office Technical Guides (SCS) Standard 412, Grassed Waterway may be used for design.]

1. Timing - The vegetation and any protective materials specified in D. 1. Permanent Channel Stabilization shall be installed within 7 days of final grading.

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[1] Derived from Wisconsin Field Office Technical Guide (SCS) Standard 412, Grassed Waterway.

D. 5. Rock and Concrete Lined Waterways[1]

Definition

Lining of a channel, diversion or ditch with stone or other permanent material.

Purposes

1. To protect the soil surface of channels and ditches from erosive forces of high velocity runoff.

2. To slow the velocity of concentrated runoff.

Conditions Where Practice Applies

1. In ditches, channels and diversions where vegetative cover will not be stable (see D. 1. Permanent Channel Stabilization)

2. In ditches, channels and diversions with permanent or frequent low flow or dry weather discharge.

3. This best management practice does not apply to perennial streams or other channels requiring Chapter 30 permits.

Planning Considerations

Lined waterways require engineering analysis and design.

Design Criteria and Requirements

[Wisconsin Field Office Technical Guides (SCS) Standard 468, Lined Waterway or Outlet may be used for design.]

1. Timing - The rock rip-rap or other permanent materials shall be installed within 7 days of final grading.

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[1] Derived from Wisconsin Field Office Technical Guide (SCS) Standard 468, Lined Waterway or Outlet.

Table 2. Values of "n" for Various sizes of Riprap

inches	feet	$n = 0.04D^{1/6}$ **
2	.17	.030
4	.33	.033
6	.50	.036
8	.67	.037
10	.83	.039
12	1.0	.040

* Where 'D' is diameter of rock, the size of which is such that by weight, 50% is larger and 50% is smaller than this diameter.
** D in feet.

Table 3. Slope Adjustment Factors for Allowable Velocity (all rock sizes and shapes)

Slope: Horizontal to Vertical	ft/ft	Adjustment* Factor
3:1	0.33	0.80
4:1	0.25	0.85
5:1	0.20	0.89
6:1	0.17	0.91
7:1	0.14	0.92
8:1	0.13	0.93
9:1	0.11	0.94
10:1	0.10	1.00
12:1	0.08	1.00
15:1	0.07	1.00

* Factor = $(\cos\theta - \sin\theta)^{1/2}$, where θ = angle of bed slope

E. Best Management Practices for Protecting Inlets

Because the best management practices to minimize the movement of pollutants from the site can never be 100% effective, there remains a need to prevent pollutants from entering inlets, catch basins, culverts and other conveyance structures to prevent pollutants from reaching lakes, streams and wetlands.

The Model Ordinance requires all storm drain inlets be protected by using straw bales, filter fabric or equivalent barrier.

E. 1. Inlet Protection Barriers[1]

Definition

A temporary barrier constructed around a storm drain inlet, catch basin or culvert.

Purpose

To prevent sediment and other pollutants from entering conveyance systems.

Conditions Where Practice Applies

At the location where runoff enters conveyance system structures such as curb inlets, drop inlets and culverts.

Planning Considerations

This best management practice uses many of the design criteria and requirements of C. 1. filter fabric barriers and C. 2. straw bale barriers.

Design Criteria and Requirements

1. Model Ordinance requirements - All storm drain inlets shall be protected by using a straw bales, filter fabric or equivalent barrier.

2. Timing - The inlet protection barrier shall be installed before the site is disturbed.

3. Removal - The inlet protection barrier shall remain in-place and be maintained until the disturbed area is stabilized by permanent best management practices.

4. Placement - The inlet protection barrier shall surround the inlet except where the elevation of curbs or adjacent ground surfaces are higher than the top of the inlet structure.

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[1] Derived from Virginia Erosion and Sediment Control Handbook.

G. 1. Temporary Graveled Access Roads and Parking Areas[1]

Definition

A gravel stabilized pad located at points of vehicular access and parking on the construction site.

Purpose

To reduce the amount of sediment transported onto public roads.

Conditions Where Practice Applies

At access points to the construction sites.

Planning Considerations

The amount of sediment being transported from the site can be reduced by using other best management practices such as temporary diversions to convey runoff from downspouts to stabilized channels.

Design Criteria and Requirements

1. Timing - The graveled access shall be installed as soon as practicable after the start of site disturbance.

2. Removal - The graveled acces shall remain in-place and be maintained until the disturbed area is stabilized by permanent best management practices.

3. Location - The graveled access shall be located to provide maximum use by all construction vehicles.

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[1] Derived from Virginia Erosion and Sediment Control Handbook.

H. 1. Downspout Extender

Definition

A temporary tube, trough or pipe to convey water from a building's downspouts to a stable area.

Purposes

To prevent water discharged from a building's downspouts from eroding disturbed areas.

Conditions Where Practice Applies

On downspouts discharging to disturbed areas.

Planning Considerations

1. Conveying water from roofs can greatly decrease the amount of water flowing across disturbed areas.

Design Criteria and Requirements

1. Timing - The downspout extender shall be installed as soon as downspouts are installed.

2. Removal - Downspout extenders may be removed only after the disturbed area is stabilized by permanent best management practices.

3. Materials - Non-slotted drainage tile or equivalent impermeable material shall be used.

Maintenance

1. Downspout extenders shall be inspected within 24 hours after each rainfall or daily during periods of prolonged rainfall. Repair or replacement shall be made immediately.

APPENDIX D

Storm Water Pollution Prevention And Spill Prevention Control And Countermeasure (SPCC)

WISCONSIN
DEPT. OF NATURAL RESOURCES

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

GENERAL PERMIT TO DISCHARGE UNDER THE WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of ch. 283, Wis. Stats., and ch. NR 216, Wis. Adm. Code, any **Tier 2** private, local, state or federal facility as defined in ch. NR 216, Wis. Adm. Code, and located in the State of Wisconsin, excluding initial coverage within Indian Country after September 30, 2001, that discharges

STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY

and meeting the applicability criteria in Part II of this permit, is permitted to discharge such storm water to waters of the state (including surface waters, wetlands, groundwater, and municipal and private separate storm sewers) provided that the discharge is in accordance with the conditions set forth in this permit.

This permit is issued by the Department of Natural Resources (Department) and covers storm water discharges as of the date of issuance to the facility. This permit will be transmitted by the Department to the permittee along with an attached cover letter stating that coverage under this general permit is appropriate. *This permit will become effective at a facility beginning upon the Start Date specified by the Department in the cover letter.*

This permit to discharge storm water shall expire at midnight, March 31, 2006.

State of Wisconsin Department of Natural Resources,
For the Secretary

By Royal L. Larson
Al Shea
For Director, Bureau of Watershed Management

8/27/01
Date of Signature

Tier 2 General Permit for the Discharge of Storm Water Associated with Industrial Activity

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PART I. APPLICATION REQUIREMENTS

Tier 2 industrial facility types listed in s. NR 216.21(2)(b), Wis. Adm. Code, shall apply for a storm water discharge permit in accordance with s. NR 216.26. The Department will evaluate the information submitted in the application to determine whether a facility is covered under a storm water general permit or an individual permit, or whether coverage under a permit would be denied. If coverage under this permit is appropriate, the Department will transmit a copy of this permit to the facility with a cover letter indicating the date upon which the permit becomes effective at the facility.

PART II. STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY ELIGIBLE FOR COVERAGE BY THIS PERMIT.

A. Applicability. This permit is applicable to point sources which discharge storm water associated with industrial activity to the waters of the state, either directly or via a separate storm sewer system, originating from industrial facilities belonging to:

(1) Manufacturing facilities described by the following SIC codes, but only if contaminated storm water results from the operation of these facilities:

SIC	Description
20--	Food & Kindred Products
21--	Tobacco Products
22--	Textile Mill Products
23--	Apparel & Other Textile Products
2434	Wood Kitchen Cabinets
25--	Furniture & Fixtures
265-	Paperboard Containers & Boxes
267-	Misc. Converted Paper Products
27--	Printing, Publishing, & Allied Industries
283-	Drugs
285-	Paints & Allied Products
30--	Rubber & Misc. Plastics Products
31--	Leather & Leather Products
323-	Products of Purchased Glass
34--	Fabricated Metal Products
35--	Industrial & Commercial Machinery & Computer Equipment
36--	Electronic & Other Electrical Equipment & Components
37--	Transportation Equipment
38--	Instruments & Related Products
39--	Misc. Manufacturing Industries
4221	Farm Product Warehousing & Storage
4222	Refrigerated Warehousing & Storage
4225	General Warehousing & Storage

Note: Facilities in SIC codes 311-, 3441 and 373- are included in s. NR 216.2192)(a)1. as Tier 1 facilities.

(2) Transportation facilities described by the following SIC codes that have vehicle maintenance shops, equipment cleaning operations, or airport de-icing operations. This only applies to those portions of these facilities that are either involved in vehicle maintenance including rehabilitation, mechanical

repairs, painting, fueling, lubrication, and associated parking areas, or involved in cleaning operations, or de-icing operations, or that are listed as a pollution source area under s. NR 216.02(2)(d):

SIC	Description
40--	Railroad Transportation
41--	Local & Interurban Passenger Transit
42--	Trucking & Warehousing
43--	U.S. Postal Service
44--	Water Transportation
45--	Transportation By Air
5171	Petroleum Bulk Stations & Terminals

(3) Facilities described by the following SIC codes, including active and inactive mining operations. This permit only applies where storm water runoff has come into contact with any overburden, raw material, intermediate product, finished product, by-product, or waste material.

SIC	Description
10--	Metal Mining
12--	Coal Mining
13--	Oil & Gas Extraction
14--	Non-metallic Minerals, except fuels

Note: An industry-specific permit has been developed that combines process and storm water requirements for 14-- (non-metallic mining) facilities.

This permit does not apply to non-coal mining operations which have been released from applicable state or federal reclamation requirements after December 17, 1990; nor to coal mining operations released from the performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Act authority under 30 U.S.C. 1201 et seq. and 16 U.S.C. 470 et seq. Production, processing, or treatment operations or transmission facilities associated with oil and gas extraction are included only if there has been a discharge of storm water after November 16, 1987 containing a reportable quantity of a pollutant, or if a storm water discharge contributed to a violation of a water quality standard.

(4) Facilities subject to storm water effluent limitation guidelines, new or existing source performance standards, or toxic pollutant effluent standards under 33 U.S.C. 1251, 1311, 1314 (b) and (c), 1316 (b) and (c), 1317 (b) and (c), 1326 (c), except for those facilities identified in paragraph A.(1) that do not have contaminated storm water.

(5) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of one million gallons per day or more, or required to have an approved pretreatment program. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with section 405 of the Clean Water Act under 33 U.S.C. s. 1345.

(6) Hazardous waste treatment, storage, and disposal facilities, including those operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA) under 42 U.S.C. 6921 et seq.- 6934.

(7) Landfills, land application sites, and open dumps that receive or have received any industrial waste from any of the facilities identified in Part II.A. of this permit, including those subject to regulation under subtitle D of RCRA, under 42 U.S.C. 6901 et seq.

(8) Steam electric power generating facilities, including coal handling sites but not including off-site transformer or electric substations.

(9) Facilities described in SIC code 2951 for asphalt paving mixes and block, and facilities described in SIC codes 3271, 3272 and 3273 for cement products.

(10) Facilities originally covered under a Tier 1 general permit, but subsequently covered under a Tier 2 general permit pursuant to s. NR 216.22, Wis. Adm. Code.

B. Authorized Discharges. This permit authorizes storm water point source discharges to waters of the State from industrial activities identified in Part II.A. of this permit. This permit also authorizes the discharge of storm water commingled with flows contributed by process and non-process wastewater, provided those flows are regulated by other WPDES permits.

C. Movement to Tier One Coverage. In accordance with s. NR 216.23.10, Wis. Adm. Code, the Department may revoke coverage under this permit. In this case, the permittee shall reapply for tier one general permit coverage.

D. Exclusions. The following are excluded from coverage under this permit:

(1) This permit shall not be used to provide initial permit coverage to a storm water discharge within Indian Country after September 30, 2001. Contact the DNR Northeast Regional office at (920) 492-5800 or the DNR Central office at (608) 267-7694 for non-Indian discharges within Indian Country to determine if state permit coverage from the Department is required. Storm water discharges within Indian Country from non-tribal lands that have state coverage under this general storm water permit prior to September 30, 2001 may continue to be covered under this state general permit for purposes of state law.

(2) Storm water discharges that affect wetlands, unless the Department determines that the storm water discharges is in conformance with the wetland water quality standards provisions in ch. NR 103, Wis. Adm. Code.

(3) Storm water discharges that affect endangered and threatened resources, unless the Department determines that the storm water discharges is in conformance with the endangered and threatened resource protection requirements of s. 29.604, Wis. Stats. and ch. NR 27, Wis. Adm. Code.

(4) Storm water discharges that affect any historic property that is listed property, or on the inventory or on the list of locally designated historic places under s. 44.45, Wis. Stats., unless the Department determines that the storm water discharges will not have an adverse effect on any historic property pursuant to s. 44.40 (3), Wis. Stats.

(5) Areas located on plant lands which are segregated from the industrial activities of the plant, such as office buildings and accompanying parking lots, if the drainage from the segregated areas is not mixed with storm water drainage from pollution sources listed in Part III.B.(2)(d) of this document.

(6) Facilities where the Department makes a determination, pursuant to s. NR 216.25(3), Wis. Adm. Code, that a storm water discharge is more appropriately covered under an individual WPDES permit. The Department may make this determination if one or more of the following conditions are met:

(a) The storm water discharge is a significant source of pollution and more appropriately regulated by an individual WPDES storm water discharge permit; or

(b) The facility is not in compliance with the terms and condition of this permit or ch. NR 216, Wis. Adm. Code.; or

(c) Effluent limitations or standards are promulgated for a storm water discharge covered by this permit.

(7) Storm water discharges that are regulated by permits containing storm water effluent limitations.

PART III. STORM WATER POLLUTION PREVENTION PLAN.

A. Storm Water Pollution Prevention Plan Required. All permittees covered under this storm water general permit shall prepare and implement a Storm Water Pollution Prevention Plan (SWPPP).

B. Purpose and Content of a Storm Water Pollution Plan.

(1) Purpose of the Plan. Any SWPPP prepared under this permit shall: 1) identify sources of storm water and non-storm water contamination to the storm water drainage system; 2) identify and prescribe appropriate "source area control" type best management practices designed to prevent storm water contamination from occurring; 3) identify and prescribe "storm water treatment" type best management practices to reduce pollutants in contaminated storm water prior to discharge; 4) prescribe actions needed either to bring non-storm water discharges under WPDES permit or to remove these discharges from the storm drainage system; 5) prescribe an implementation schedule so as to ensure that the storm water management actions prescribed in the Storm Water Pollution Prevention Plan are carried out and evaluated on a regular basis.

(2) Required Plan Content. The SWPPP shall contain, at a minimum, the following items and provisions:

(a) Pollution Prevention Individual. The SWPPP shall identify by job title the specific individual responsible for all aspects of SWPPP development and implementation. The individual acting in that job title shall have the responsibility to coordinate the development, evaluation, maintenance, and amendment of the SWPPP. The specific individual shall also coordinate facility compliance with the specific management actions identified in the SWPPP, including maintenance practices, conducting monitoring activities, preparing and submitting reports, and to serve as facility contact for the Department.

(b) Facility Site Description and Drainage Base Map. The SWPPP shall contain a short description that summarizes the major activities conducted at various locations throughout the facility. The SWPPP shall also contain a facility drainage base map that depicts how storm water drains on, through, and from the facility to either groundwater, surface water, or wetlands. The drainage base map shall show: the facility property boundaries; a depiction of the storm drainage collection and disposal system, including all known surface and subsurface conveyances, with the conveyances named; any

secondary containment structures; the location of all outfalls, including outfalls recognized as permitted outfalls under another WPDES permit, numbered for reference, that discharge channelized flow to surface water, groundwater, or wetlands; the drainage area boundary for each storm water outfall; the surface area in acres draining to each outfall, including the percentage that is impervious such as paved, roofed, or highly compacted soil and the percentage that is pervious such as grassy areas and woods; existing structural storm water controls; and the name and location of receiving waters. The location of activities and materials that have the potential to contaminate storm water shall also be depicted on the drainage base map.

(c) Summary of Existing Sampling Data or Observations. The SWPPP shall summarize any results of available storm water sampling data or other observations that could be useful in characterizing the quality of storm water discharges or identifying sources of storm water contamination. Available data that characterizes the quality of storm drainage discharges under dry weather flow conditions shall also be included, except when such data has or will be reported to the Department under another WPDES permit.

(d) Potential Sources of Storm Water Contamination. The SWPPP shall identify all potential source areas of storm water contamination, including but not limited to:

-outdoor manufacturing areas;
-areas of significant soil erosion;
-industrial plant yards;
-immediate access roads and rail lines;
-material handling sites (storage, loading, unloading, transportation, or conveyance of any raw material, finished product, intermediate product, by-product or waste);
-refuse sites;
-disposal or application of wastewater;
-vehicle maintenance and cleaning areas;
-any other areas capable of contaminating storm water runoff.
-rooftops contaminated by industrial activity or a pollution control device;
-storage and maintenance areas for material handling equipment;
-shipping and receiving areas;
-manufacturing buildings;
-residual treatment, storage, and disposal sites;
-storage areas (including tank farms) for raw materials, finished and intermediate products;
-areas containing residual pollutants from past industrial activity;

The SWPPP shall identify any significant polluting materials or activities associated with the storm water pollution source areas identified in this permit. When possible, specific pollutants likely to be present in storm water as a result of contact with specific materials shall also be listed.

(e) Status of Non-Storm Water Discharges to the Storm Sewer. The SWPPP shall identify all known contaminated and uncontaminated sources of non-storm water discharges to the storm sewer system and indicate which are covered by WPDES permits. The SWPPP shall contain the results of the non-storm water discharge monitoring required by s. NR 216.28, Wis. Adm. Code. If such monitoring is not feasible due to the lack of suitable access to an appropriate monitoring location, the SWPPP shall include a statement that the monitoring could not be conducted and the reasons why.

(f) Source Area Control Best Management Practices. The SWPPP shall rely, to the maximum extent practicable, and to the extent it is cost effective, on the use of source area control best management practices designed to prevent storm water from becoming contaminated at the site. Source area control best management practices that are either proposed or in place at the facility shall be indicated on the facility drainage base map described in subsection (b). The SWPPP shall provide for the use of the following applicable source area control best management practices:

1. Practices to control significant soil erosion;

2. Good house-keeping measures, preventive maintenance measures, visual inspections, spill prevention and response measures, and employee training and awareness;

3. Covering or enclosing salt storage piles so that neither precipitation nor storm water runoff can come into contact with the stored salt; or, for permittees that use brine and have salt storage piles on impervious curbed surfaces, a means of diverting contaminated storm water to a brine treatment system for process use; and

4. Use of a combination of storm water contact control or containment, drainage controls, or diversions to control SARA Title III Section 313 "Water Priority Chemicals" (42 U.S.C. s. 11023(c)) potentially discharged through the action of storm water runoff, leaching, or wind.

(g) Residual Pollutants. The SWPPP shall identify pollutants that are likely to contaminate storm water discharges to waters of the state following implementation of source area control best management practices. Past sampling data collected at the facility or at sufficiently similar outfalls at other facilities may be used in making this determination. At a minimum, the following pollutants shall be considered for their potential to contaminate storm water:

1. Any pollutant for which an effluent limitation is contained in any discharge permit issued to the permittee, for this facility, by the Department;

2. Any pollutant contained in a categorical effluent limitation or pre-treatment standard to which the permittee is subject for this facility;

3. Any SARA Title III Section 313 "Water Priority Chemical" (42 U.S.C. s. 11023(c)) for which the permittee, for this facility, has reporting requirements and which has the potential for contaminating storm water;

4. Any other toxic or hazardous pollutants from present or past activity at the site that remain in contact with precipitation or storm water and which could be discharged to the waters of the state, and which are not regulated by another environmental program; and

5. Any of the following parameters which might be present in significant concentrations: oil and grease, pH, total suspended solids, 5-day biological oxygen demand, and chemical oxygen demand.

(h) Storm Water Treatment Best Management Practices. When source area controls are not feasible, not cost effective, or when the Department determines source area control best management practices are inadequate to achieve a water quality standard, the SWPPP shall prescribe appropriate storm water treatment practices as needed to reduce the pollutants in contaminated storm water prior to discharge to waters of the state. Proposed or existing storm water treatment practices shall be shown on the facility drainage base map. The SWPPP shall provide for the following types of storm water treatment practices:

1. Storm water significantly contaminated with petroleum products shall be treated for oil and grease removal by an adequately sized, designed, and functioning wastewater treatment device. Coverage under a separate individual or general permit is required for discharges of storm water from oil/water treatment devices. Under s. 281.41, Wis. Stats., prior approval of plans for oil and grease removal devices may be required.

2. Point source discharges of storm water contaminated by significant amounts of sediment from eroding areas, including bare earth industrial lots and ongoing industrial processes, shall be treated by filtration or sedimentation reduction type practices designed in accordance with good engineering practices and the design criteria, standards and specifications outlined in the Wisconsin Construction Site Best Management Practices Handbook (WDNR Pub. WR-222 November 1993 Revision).

(i) Facility Monitoring Plan. The SWPPP shall include provisions for complying with the monitoring requirements specified in s. NR 216.28, Wis. Adm. Code, and Part IV of this permit. The SWPPP shall include a checklist of inspections to be made during the annual facility site inspection. The SWPPP shall also identify for each outfall the type of monitoring that will be conducted, such as non-storm discharge monitoring, storm water discharge quality inspections.

(j) SWPPP Implementation Schedule. The SWPPP shall include an implementation schedule for the requirements of this permit that are consistent with the compliance schedule set forth in Part V. of this permit.

(k) Signature. The SWPPP and SWPPP summary shall be signed in accordance with Part VI.M. and contain the following statement:

> "I certify under penalty of law that this document and attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information contained in the plan. Based on my inquiry of the person, or persons, who manage the system, or those persons directly responsible for gathering the information; the information contained in this document is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for providing false information, including the possibility of fine and imprisonment. In addition, I certify under penalty of law that, based upon inquiry of persons directly under my supervision, to the best of my knowledge and belief, the provisions of this document adhere to the provisions of the storm water permit for the development and implementation of a Storm Water Pollution Prevention Plan and that the plan will be complied with."

C. Inclusion of Other Plans to SWPPP by Reference. When plans, the permit application, or activities developed and conducted in compliance with this permit or other federal, state, or local regulatory programs meet the requirements of ch. NR 216, Wis. Adm. Code, the plans or activities may be incorporated into the SWPPP by reference to avoid unnecessary duplication of regulatory requirements.

D. Amending a SWPPP. A permittee shall amend a SWPPP under the following circumstances:

(1) When expansion, production increases, process modifications, changes in material handling or storage, or other activities are planned which will result in significant increases in the exposure of pollutants to storm water discharged either to waters of the state or to storm water treatment devices. The amendment shall contain a description of the new activities that contribute to the increased pollutant loading, planned source control activities that will be used to control pollutant loads, an estimate of the new or increased discharge of pollutants following treatment, and when appropriate, a description of the effect of the new or increased discharge on existing storm water treatment facilities.

(2) The comprehensive annual facility site compliance inspection, quarterly visual inspection of storm water quality, or other means reveals that the provisions of the SWPPP are ineffective in controlling storm water pollutants discharged to waters of the state.

(3) Upon written notice that the Department finds the SWPPP to be ineffective in achieving the conditions of this general permit.

PART IV. MONITORING REQUIREMENTS.

A. Purpose. Monitoring includes site inspections and non-storm water discharge assessments. The purpose of monitoring is to: a) evaluate storm water outfalls for the presence of non-storm water discharges, and b) evaluate the effectiveness of the permittee's pollution prevention activities in controlling contamination of storm water discharges.

B. Evaluation of Non-Storm Water Discharges. The permittee shall evaluate all storm water outfalls for non-storm water contributions to the storm drainage system for the duration of this permit. Any monitoring shall be representative of non-storm water discharges from the facility.

(1) Evaluations shall take place during dry periods, and may include either end of pipe screening or detailed testing of the storm sewer collection system.

(2) Either of the following monitoring procedures is acceptable:

(a) A detailed testing of the storm sewer collection system may be performed. Acceptable testing methods include dye testing, smoke testing, or video camera observation. The Department shall require a re-test after 5 years or a lesser period as deemed necessary by the Department.

(b) End of pipe screening shall consist of visual observations made at least twice per year at each outfall of the storm sewer collection system. Instances of dry weather flow, stains, sludge, color, odor, or other indications of a non-storm water discharge shall be recorded;

(3) Results of the non-storm water evaluations shall be included in the SWPPP summary required in Part V.A. and the AFSCI report required in Part V.B.(1). Information reported shall include: date of testing, test method, outfall location, testing results, and potential significant sources of non-storm water discovered through testing. Upon discovering non-storm water flows, which are not covered under another permit, the permittee shall either seek coverage under another permit or eliminate the non-storm water flow.

(4) Any permittee unable to evaluate outfalls for non-storm water discharges shall sign a statement certifying an inability to comply with this requirement, and include a copy of the statement in the SWPPP. In this case, the SWPPP shall be submitted to the Department.

C. Evaluation of Storm Water Discharges. The permittee shall evaluate storm water outfalls for storm water contributions to the storm drainage system. Any monitoring shall be representative of storm water discharges from the facility.

(1) Annual Facility Site Compliance Inspection. Permittees shall perform and document the results of the Annual Facility Site Compliance Inspection (AFSCI). The inspection shall be adequate to verify that the site drainage conditions and potential pollution sources identified in the SWPPP remain accurate, and that the best management practices prescribed in the SWPPP are being implemented, properly operated and adequately maintained. Information reported shall include: the inspection date, inspection personnel, scope of the inspection, major observations, and revisions needed in the SWPPP.

(2) Quarterly Visual Monitoring. Permittees shall perform and document quarterly visual inspections of storm water discharge quality at each storm water discharge outfall. Inspections shall be conducted within the first 30 minutes of discharge or as soon thereafter as practical, but not exceeding 60 minutes. The inspections shall include any observations of color, odor, turbidity, floating solids, foam, oil sheen, or other obvious indicators of storm water pollution. Information reported shall include the inspection date, inspection personnel, visual quality of the storm water discharge, and probable sources of any observed storm water contamination.

(3) Monitoring Waivers. The Department may waive specific monitoring requirements for the following reasons:

(a) The permittee indicates that either an employee could not reasonably be present at the facility at the time of the snowmelt or runoff event, or that attempts to meet the monitoring requirement would endanger employee safety or well being.

(b) The permittee indicates that there were no snow melt or runoff events large enough to conduct a quarterly visual inspection at an outfall.

(c) An inactive or remote facility (such as an inactive mining operation) demonstrates that monitoring and inspection activities are impractical or unnecessary. At a minimum, the Department shall establish an alternative requirement that the permittee make site inspections by a qualified individual at least once in every 3-year period.

(d) The permittee can demonstrate to the Department's satisfaction that the sources of storm water contamination are outside of the permittee's property boundary and are not associated with the permittee's activities. The demonstration shall be presented in the SWPPP and submitted to the Department for evaluation.

PART V. COMPLIANCE AND REPORTING REQUIREMENTS.

A. SWPPP Compliance and Reporting Requirements.

(1)(a) Existing facilities shall develop a SWPPP and submit a SWPPP summary to the Department prior to initiating applicable activity on site. The Department may specify a start date for existing facilities found operating without a permit that will achieve compliance in the shortest practicable time.

(b) Newly constructed facilities shall develop a SWPPP and submit a SWPPP summary to the Department prior to initiating construction.

(2) The SWPPP shall conform to the requirements specified in s. NR 216.27(3), Wis. Adm. Code.

(3) The SWPPP shall be kept at the facility and made available to the Department upon request.

(4) The SWPPP summary shall be submitted on a standardized Department form, which the Department has provided with this permit.

(5) If a SWPPP summary is incomplete, the Department shall notify the permittee, and may request a review of the entire SWPPP.

(6) Unless an alternate implementation schedule is required as part of the SWPPP, the BMP's identified in the SWPPP shall be implemented within 24 months of the effective date of coverage under this permit for existing facilities and within 12 months of the effective date of coverage for facilities constructed after October 31, 1994.

(7) The permittee shall keep the SWPPP current to correct deficiencies in the original SWPPP. The permittee shall amend the SWPPP and notify the Department in the event of any facility operational changes that could result in additional significant storm water contamination.

B. Monitoring Compliance and Reporting Requirements.

(1) The first AFSCI shall be conducted within 24 months of the effective date of coverage under this general permit. The report shall be written on forms prepared by and available from the Department, and shall contain information from the AFSCI, the quarterly visual inspection, and the non-storm water evaluation. Copies of all of AFSCI, quarterly visual inspection and non-storm water monitoring reports shall be maintained on site for Department inspection for the life of the permit.

(2) The first quarterly visual inspection of storm water discharge quality shall be conducted within 24 months of the effective date of coverage under the permit.

PART VI. STANDARD REQUIREMENTS

A. NR 205, Wis. Adm. Code. The requirements in ss. NR 205.07(1) and (3), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these referenced requirements, except for s. NR 205.07(1)(n), which does not apply to facilities covered under General Permits. Selected s. NR 205.07 requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in this Standard Requirements section can be found in s. NR 205.07(1) or (3), Wis. Adm. Code.

B. Work near Surface Waters and Wetlands. Any work performed in wetland areas or within areas subject to local floodplain and shoreland regulations must conform to all applicable county or local ordinances. All applicable state permits and/or contracts required by chs. 30, 31 and 87, Wis. Stats. (or Wisconsin Administrative Code adopted under these laws), and applicable federal permits must be obtained as necessary.

C. Duty to Comply. Any act of noncompliance with this permit is a violation of this permit and is grounds for enforcement action or withdrawal of permit coverage under this permit and issuance of an individual permit. If the permittee files a request for an individual WPDES permit or a notification of planned changes or anticipated noncompliance, this action by itself does not relieve the permittee of any permit condition.

D. Continuation of the Expired General Permit. The Department's goal is to reissue this general permit prior to its expiration date. However, if that does not occur, s. NR 205.08(9), Wis. Adm. Code, specifies that an application for reissuance of the permit will be considered to have been submitted for all of the dischargers in the class or category covered by this general permit. The class application for general permit reissuance allows the conditions and requirements of the expired permit to remain in effect until the permit is reissued or revoked.

E. Duty to halt or reduce activity. Upon failure or impairment of best management practices identified in the SWPPP, the permittee shall, to the extent deemed necessary by the Department to

maintain compliance with its permit, modify or curtail operations until the best management practices are restored or an alternative method of storm water contamination control is provided.

F. Other Information. When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the application or in plans in accordance with the provisions cited in Part III, he or she shall promptly submit such facts or information to Department.

G. Records Retention. All reports and records pertaining to the permittee's coverage under this general permit shall be retained for 5 years beyond the date of the cover letter notifying a facility of coverage under a storm water permit, and shall be made available to the Department upon request.

H. Notice of Termination. If a facility no longer claims coverage under this general permit, the permittee shall submit a signed notice of termination to the Department.

(1) Notice of termination forms may be obtained from the regional offices of the Department or by writing to the Department of Natural Resources, Storm Water Program – WT/2, Box 7921, Madison, WI 53707-7921.

(2) Notice of termination forms shall be filed with the appropriate Department regional office or to the Department of Natural Resources, Storm Water Program – WT/2, Box 7921, Madison, WI 53707-7921.

(3) Termination of coverage shall be effective upon submittal of written confirmation by the Department to the permittee.

I. Permit actions. As provided in s. 283.53, Wis. Stats., after notice and opportunity for a hearing this permit may be modified or revoked and reissued for cause.

J. Modifications to Permit Requirements. The Department may, upon request of a permittee and/or upon finding of just cause, grant modifications to the compliance and reporting schedules or any requirements of this permit. If the Department took this step at its discretion, it would change this general permit following required public noticing and the change would apply to all dischargers covered under this permit.

K. Duty to Minimize. The permittee shall take all reasonable steps to minimize or prevent any adverse impacts on the waters of the state resulting from non-compliance with this permit.

L. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with this permit and the construction site erosion control and storm water management plan. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with conditions of the permit.

M. Certification and Signature Requirements. All applications for coverage under this permit, notices of termination, plans and reports or information required by this permit shall be signed by the permittee as follows:

(1) for a corporation, by a responsible corporate officer including president, secretary, treasurer, vice president, manager, or a duly authorized representative having overall responsibility for the operation covered by this permit;

(2) for a unit of government, by a ranking elected official or other duly authorized representative;

(3) for a limited liability company, by a manager; or
(4) for a partnership, by a general partner; and for a sole proprietorship, by the proprietor.

N. Duty to Provide Information. The permittee shall furnish to the Department, within a reasonable time, any information that the Department may request to determine whether cause exists for modifying, revoking, or reissuing the permit or to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records or reports required to be kept by the permittee.

O. Liabilities under Other Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the Clean Water Act (33 U.S.C. s. 1321), any applicable State law, or regulation under authority preserved by section 510 of the Clean Water Act (33 U.S.C. s. 1370).

P. Property Rights. The permit does not convey any property rights of any sort, or any exclusive privilege. The permit does not authorize any injury or damage to private property or any invasion of personal rights, or any infringement of federal, state or local laws or regulations.

Q. Severability. The provisions of this permit are severable, and if any provisions of this permit or the application of any provision of this permit to any circumstance is held invalid the remainder of this permit shall not be affected thereby.

R. Transfers. This permit is not transferable to any person except after notice to the Department. In the event of a transfer of control of a permitted facility, the new owner or operator shall file a new storm water discharge application.

S. Inspection and Entry. Upon the presentation of credentials, the permittee shall allow an authorized representative of the Department to:

(1) enter upon the permittee's premises where a regulated permittee or activity is located or conducted, or when records are required under the conditions of the permit;
(2) have access to and copy, at reasonable times, any records that are required under the conditions of the permit;
(3) inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under the permit;
(4) to sample or monitor at reasonable times, for the purposes of assuring permit compliance, any substances or parameters in storm water at any location.

T. Spill Reporting. The permittee shall immediately notify the Department in accordance with ch. NR 706 (formerly NR 158), Wis. Adm. Code, in the event that a spill or accidental release of any material or substance results in the discharge of pollutants to the waters of the state, unless the spill or release of pollutants has been immediately reported to the Department in accordance with s. NR 205.07 (1)(s), Wis. Adm. Code.

U. Submitting Records. Unless otherwise specified, any reports submitted to the Department of Natural Resources in accordance with this permit shall be submitted to the Department office identified in the attached cover letter.

V. Notification of Noncompliance. Reports of noncompliance with requirements contained in any compliance schedule of the permit shall be submitted in writing within 14 days of the permittee

becoming aware of the noncompliance. Any report of noncompliance shall include: a description of the noncompliance; its cause; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and the effect of the noncompliance on the permittees ability to meet remaining schedules.

W. Enforcement. Any violation of s. 283.33, Wis. Stats., ch. NR 216, Wis. Adm. Code, or this permit is enforceable under s. 283.89, Wis. Stats.

X. Toxic Pollutants. In accordance with s. NR 102.12 Wis. Adm. Code, this permit requires that new and increased discharges as defined in ch. NR 207, Wis. Adm. Code, of persistent, bioaccumulating toxic substances to the Great Lakes waters or their tributaries, be limited to the maximum extent practicable when such discharges result from the contamination of storm water by contact with raw materials, products, by-products or wastes used or stored by the permittee.

TIER 2 GENERAL PERMIT TO DISCHARGE STORM WATER ASSOCIATED WITH INDUSTRIAL ACTIVITY

Facts Sheet
WPDES Permit No. WI-S067857-2
August 2001

SUMMARY

Facilities engaged in the "industrial" activities listed in s. NR 216.21(2)(b), Wis. Adm. Code, must apply for and obtain a storm water discharge permit. This permit requires permittees to develop and follow a storm water pollution prevention plan. The plan must be prepared in accordance with plan requirements contained in s. NR 216.27, Wis. Adm. Code, including provisions for site mapping, implementation schedules, annual plan assessments, and both non-storm water and storm water discharge monitoring. This briefing memo provides information regarding the Tier 2 general permit for the discharge of storm water associated with industrial activity.

INTRODUCTION

DNR's Authority to Issue Permits

The Federal Water Pollution Control Act of 1972 (Public Law 92-500), also called the Clean Water Act, requires that all point sources discharging pollutants to waters of the state obtain a wastewater discharge permit. These permits specify the conditions under which wastewaters can be discharged so that water quality standards for receiving waters are met. In 1974, the United States Environmental Protection Agency (USEPA) delegated the authority for issuing these permits to the Wisconsin Department of Natural Resources (DNR). The DNR exercises its permitting authority through the Wisconsin Pollutant Discharge Elimination System (WPDES), authorized under ch. 283, Wis. Stats. Wastewater permits issued by the state are also federal permits, and must meet with the approval of the USEPA.

The State of Wisconsin has the authority to issue two types of permits for the discharge of pollutants to waters of the state: 1) individual WPDES permits and 2) general WPDES permits. The DNR issues individual WPDES permits when the interaction between pollutant discharges and water quality is complex. These permits require careful scrutiny and must be tailored to the specific conditions of the discharge site. Currently, the State of Wisconsin has issued about 900 specific WPDES permits for the discharge of industrial wastewater. The DNR issues general WPDES permits to a broad classes of dischargers where environmental protection can be achieved through a set of general provisions that apply to all dischargers in an industrial category. The state currently has about 20 general permits that cover discharges from over 4000 industrial facilities.

DNR's Existing Efforts to Control Industrial Storm Water Discharges

The DNR has been using its regulatory authority in several program areas to control selected discharges of contaminated storm water. For example, the DNR has been requiring some type of storm water controls through its landfill licensing, hazardous waste licensing, and metallic mine licensing activities. The DNR has also had authority through federally promulgated effluent limitations to regulate storm water discharge quality for eight categories of industry in Wisconsin (cement manufacturing, feedlots, petroleum refining, phosphate manufacturing, steam electric, coal mining, ore mining and dressing, and mineral mining and processing). Some of these limitations are imposed through general permits, and

some are imposed through individual WPDES permits. In addition, the DNR has also been regulating the discharge of storm water contaminated with petroleum products through other WPDES permits.

New Storm Water Permit Program for Industries

In 1987, Congress enacted amendments to the Clean Water Act (PL 92-500) authorizing a national program of comprehensive storm water pollution control for industries and municipalities. The class of storm water discharges "associated with industrial activity" was identified as a high priority for permitting. Through a series of rule making authorized by the 1987 amendments (40 C.F.R. Part 122.26), the USEPA has:

1. identified in final rules an extensive list of industries requiring a permit to discharge storm water, and set forth permit application requirements for industry (November 16, 1990);

2. set forth in final rules the NPDES General Permit for industrial storm water discharges in non-delegated states (September 9, 1992); and

3. set forth in final rules notification requirements for industries seeking coverage under general permits, and set forth minimum monitoring and reporting requirements for storm water discharges associated with industrial activity (April 2, 1992).

Although the federal general storm water permit is not directly applicable to Wisconsin, provisions of the permit are being considered as Best Available Technology (BAT) and Best Conventional Technology (BCT) for storm water management. Since the Clean Water Act amendments require that storm water discharges meet BAT/BCT, the federal permit had important implications for states like Wisconsin as they developed their own rules concerning storm water permitting.

Concurrent with the USEPA's actions, the Wisconsin DNR has been conducting storm water program activities associated with this new program. Between April and September 1991, DNR mailed permit applications (WPDES Forms 3400-151 & 3400-152) to approximately 20,000 industrial facilities in the state that could potentially be affected by the new storm water regulations. Individual applicants were given until November 18, 1991 to submit completed applications to the DNR. Alternatively, dischargers could opt to join together with other like industries and submit a "group" application to USEPA in Washington, D.C. Under the group application system, information was to be submitted to USEPA in two parts. Due dates varied under the federal program from October 1, 1992, to May 17, 1993, depending upon industrial type. All storm water dischargers submitting either DNR's application form or that were included, as a member of a group application approved by USEPA will be considered by the DNR for general permit coverage.

In 1993, ch. 147 (now ch. 283), Wis. Stats., was amended to include storm water as a "point source" discharge and to require DNR to promulgate administrative rules for permitting the discharge of storm water. As a result, DNR created ch. NR 216, Wis. Adm. Code, for permitting storm water discharges associated with industrial activity, construction sites 5 acres or larger, and selected municipalities. These rules contain a specific directive for DNR to create a minimum of three tiers of general permits for the discharge of storm water associated with industrial activity. The Tier 1 general permit will cover the industrial activity listed in s. NR 216.21(2)(a), Wis. Adm. Code, including a variety of "heavy" type industries, bulk storage facilities, and facilities engaged in salvage type operations. The Tier 2 general permit will cover the industrial activity listed in s. NR 216.21(2)(b), Wis. Adm. Code, including a variety of "light" industries, certain transportation facilities, mining operations, steam electric generating facilities, cement manufacturers, and asphalt pavers. Under these administrative rules, DNR may allow permittees to change coverage from one tier general permit to another, depending upon conditions present

at the facility that could contaminate storm water. Ultimately, if a permittee can demonstrate that storm water at their facility could not be exposed to any industrial activity listed in s. NR 216.27(3)(i), Wis. Adm. Code, a facility can request coverage under a Tier 3 general permit for storm water discharge.

It is the intention of the DNR to initially allow general permit coverage to all storm water discharges associated with industrial activities listed in s. NR 216.21(2), Wis. Adm. Code, either as a separate permit or as an inclusion in an individual WPDES permit. However, the DNR does not currently have the administrative capability to cover all eligible facilities immediately. Consequently, DNR will issue the permit in phases to selected groups of industries until all eligible facilities have received their permits. This will allow DNR to allocate its scarce resources to the greatest storm water pollution problems.

WISCONSIN'S TIER 2 GENERAL STORM WATER PERMIT

Purpose and Nature of the Tier 2 General Permit

Ch. NR 216, Wis. Adm. Code, defines the conditions under which storm water associated with industrial activity can be discharged so that waters of the state (including surface waters, ground water, and wetlands) will be protected. This storm water permit is intended to meet the permitting requirements for storm water associated with industrial activity as established in ch. NR 216, Wis. Adm. Code, for a Tier 2 general permit.

This permit will be issued by DNR, and subsequently used to cover eligible industries. The permit will become effective at a facility beginning upon the ***Start Date*** specified by DNR in a cover letter to the facility as required by s. NR 216.26(4), Wis. Adm. Code. In summary, this permit requires regulated industrial facilities to:

1. identify and eliminate unpermitted non-storm discharges from storm water outfalls;
2. develop a Storm Water Pollution Prevention Plan that emphasizes "source area" controls, which are designed to *prevent* storm water from becoming contaminated;
3. implement the Storm Water Pollution Prevention Plan and conduct visual site inspections to assure that the plan is working;
4. visually monitor storm water outfalls for the presence of contaminants during rainfall or runoff events;
5. keep progress and monitoring results current and available for inspection by DNR.

Several technical support documents are being prepared to assist industries:

1. The DNR has developed a document for industries entitled Industrial Storm Water Pollution Prevention Planning, dated September 1994. This document provides industries with guidance in preparing the required pollution prevention plans, and will be made available to industries receiving this permit. This document (Document Sales stock #1723) is available through the Wisconsin Department of Administration, Document Sales, 202 S. Thornton Ave., P.O. Box 7840 Madison, WI 53707-3358. To order by credit card, call 1-800-362-7253.
2. The USEPA has developed a document for industries entitled Storm Water Pollution Prevention for Industrial Activities (EPA-832-R-92-006). This document includes guidance on selecting best management practices for controlling storm water pollutants from selected

sites, and supplements other similar documents. It is available for a fee from the National Technical Information Service (703-487-4650) or the U.S. Government Printing Office (202-783-3238).

3. The DNR has developed a document for industries entitled Wisconsin's Guidance for Industrial Storm Water Sampling, dated September 1994. This document provides industries with guidance in sample collection, preservation, and other aspects important to preparing for sampling, and will be made available to industries receiving this permit. This document (Document Sales stock #1723) is available through the Wisconsin Department of Administration, Document Sales, 202 S. Thornton Ave., P.O. Box 7840 Madison, WI 53707-3358. To order by credit card, call 1-800-362-7253.

4. The DNR has developed a document for general construction entitled Wisconsin Construction Site Best Management Practices Handbook (WDNR Pub. WR-222-92 Nov. 93 edition). This document provides guidance in selecting best management practices for controlling storm water pollution from soil erosion. This document (Document Sales stock #1700) is available through the Wisconsin Department of Administration, Document Sales, 202 S. Thornton Ave., P.O. Box 7840 Madison, WI 53707-3358. To order by credit card, call 1-800-362-7253.

5. The University of Wisconsin – Extension has published a document for entitled The Wisconsin Stormwater Manual: Part II-Technical Design Guidelines for Stormwater BMPs. This document provides guidance on storm water management practices, and includes sections on hydrology; infiltration basins and trenches/ wet detention basins; artificial wetland storm water management systems; filter trips/ and grassed swales. To order a copy of this manual contact the UW-Extension at 608-262-3346 or toll free at 877-947-7827. Use publication number G-3691-P. Cost: $15.00 plus shipping & handling.

Summary of the Tier 2 General Permit for Industrial Storm Water Discharges

Changes from Previous Reissuance of this Permit

1. The applicability of this permit in Part II.D. was changed as follows:
   - After September 30, 2001, this permit may not authorize the initial discharge of storm water within Indian Country.
   - Storm water discharges must be in conformance with wetland water quality standards within ch. NR 103, Wis. Adm. Code.
   - Storm water discharges must be in conformance with the endangered and threatened resource protection requirements of s. 29.604, Wis. Stats. and ch. NR 27, Wis. Adm. Code.
   - Storm water discharges that may affect any historic property will need to comply with the historic property requirements pursuant to s. 44.40 (3), Wis. Stats.

2. The Storm Water Pollution Prevention Plan (SWPPP) and SWPPP summary reporting requirement were changed within Part V.A.(1). The Department may specify a Start Date for existing facilities found operating without a permit that will achieve compliance in the shortest practical time. Thus, facilities operating in non-compliance may be given less than 12 months to develop a SWPPP and send a copy of the SWPPP summary to the Department.

Part I. Application Requirements

This part of the permit reiterates the requirements of s. NR 216.26, Wis. Adm. Code. It directs industrial facilities identified in the code to apply for a storm water discharge permit; states that the Department will evaluate the information submitted in the application to determine eligibility for Tier 2 coverage; and, if appropriate, transmit a copy of the Tier 2 permit to the facility with a cover letter, indicating the effective date of coverage.

Part II. Storm Water Discharges Associated with Industrial Activity Eligible for Coverage by This Permit

A. Applicability. Facilities eligible for coverage under this permit include those specified in s. NR 216.21 (2)(b), Wis. Adm. Code. In summary, this includes the following facilities: "light" manufacturing facilities by their SIC code; transportation facilities such as railroads, airports, and local and interurban passenger transit; mining, oil and gas operations; facilities subject to federal storm water effluent limitation guidelines, new or existing source performance standards, or toxic pollutant effluent standards; treatment works for domestic or other types of sewage; landfills; hazardous waste facilities; manufacturers of asphalt paving mixes and block, and cement products; and steam electric generators. In addition, the coverage is provided under this permit for facilities which DNR has determined are more appropriately covered by a Tier 2 general permit in accordance with s. NR 216.23(9), Wis. Adm. Code. Industrial facilities described in section A.(1) are only eligible for coverage under this general permit if they are discharging storm water that has come into contact with material handling equipment or activities, raw materials, intermediate or final products, waste materials, byproducts, or industrial machinery in the source areas listed in Part III.B.(2)(d), excluding access roads and rail lines.

B. Authorized Discharges. Non-storm water discharges to storm sewer systems can result in significant contamination of surface or groundwaters. This general storm water permit only authorizes the discharge of storm water associated with industrial activity. It does not authorize the discharge of other wastewaters, such as cooling water, non-contact cooling water, other process wastewater, domestic sewage, spills, or leaks. Some of these discharges (such as process wastewaters and cooling waters) can

be authorized through another general or individual WPDES permit. These other permits will specify different conditions appropriate for the discharge so that surface and groundwater quality is protected. The Department of Natural Resources, Bureau of Watershed Management, Permits and Pretreatment Section should be contacted if these discharges occur to determine what type of permit coverage is needed. This storm water permit does allow the commingling of non-storm water with storm water in a storm water outfall provided the non-storm water component is regulated under another permit. Under normal circumstances, there are no permits available for some types of non-storm discharges to the storm sewer system, such as the discharge of sanitary sewage (except in combined sewer areas), spills, and leaks. These types of discharges are generally illegal.

C. Movement to Tier 1 Coverage. This section gives the Department the authority to move a facility presently covered under a Tier 2 permit into a Tier 1 permit, in cases where contamination of storm water is a significant problem.

D. Exclusions. Storm water discharges are not eligible for coverage under this permit unless they meet the conditions within this section.

This permit requires storm water discharges to meet the wetland standards of ch. NR 103, Wis. Adm. Code, the endangered and threatened resources protection requirements of s. 29.604, Wis. Stats. and ch. NR 27, Wis. Adm. Code. and that storm water discharges will not adversely effect any historic property pursuant to s. 44.40 (3), Wis. Stats. These conditions were added to the permit based on required state laws that came into effect since the permit was previously issued.

This permit may not be used to provide initial permit coverage to a storm water discharge within Indian Country after September 30, 2001. An individual permit will be required for initial permit coverage after September 30, 2001. Facilities already covered under this permit are allowed to continue with coverage under the reissued permit. This change was made due to an agreement made between the State of Wisconsin with the Oneida Indian Tribe in May 1998.

This section states that areas such as office buildings and associated parking lots are not considered an industrial activity and, hence, are not covered under the storm water general permit provided the storm water discharged from these areas is kept separate from the storm water discharged from industrial activities. It should be pointed out that a facility's non-industrial areas receiving significant atmospheric deposition of contaminants from the facility's operation, will be covered under the storm water permit.

This section also allows the Department to make the determination that a facility is more appropriately regulated by an individual WPDES permit rather than a general storm water permit, and specifies the criteria for making this determination.

Lastly, this section excludes discharges regulated by other permits containing storm water effluent limitations. Some clarification is needed here. There is a difference between a discharge and a facility. It is possible for a facility to be eligible for coverage under a general storm water permit, while at the same time be required to hold an individual WPDES permit having a numerical limitation of a pollutant in a storm water discharge. A case in point is a coal-fired power plant. By Wisconsin and federal law, this facility is required to have an individual WPDES permit; and the runoff from the coal pile is subject to a maximum suspended solids concentration of 50 mg/L. Since the power plant has other "source areas" for contamination of storm water, it may also be covered under a tier 2 general storm water permit exclusive of the coal pile.

DNR may waive specific monitoring requirements for inactive or remote facilities where the typical level of monitoring effort specified by this permit is not warranted or is impractical. However, a facility check must be made at least once in 3 years at such facilities.

Part V. Compliance & Reporting

This permit has a "rolling" compliance schedule for each permittee. The schedule starts when the permittee receives the permit from DNR, referred to as the permit "effective date." Consequently, all permittees have the same number of days in which to complete specified activities regardless of when the permit becomes effective at the facility. The permit differentiates between new and existing facilities only in the timeframe by which they must create their SWPPP. Existing facilities will need to complete a SWPPP and submit a summary of the plan to DNR within 12 months of their permit effective date. Newly constructed facilities must prepare a SWPPP and submit the summary prior to initiating construction.

Part V.A. of the permit specifies that each existing facility has 24 months from the effective date of permit coverage to implement their BMP's, while a facility constructed after October 31, 1994 has 12 months. Under s. NR 216.29(5), Wis. Adm. Code, the permittee is allowed to create an alternative implementation schedule for their plan. However, DNR still maintains the authority to determine whether the alternate timeframe will be acceptable. In addition, DNR may, if warranted, perform reviews of detailed plans and specifications for storm water treatment practices, such as oil/water separators, sedimentation or filtration devices, infiltration devices, or chemical treatment devices. It is hoped that facilities will initially depend upon "source area control" practices that prevent storm water from becoming contaminated in the first place before relying on storm water treatment type mechanisms.

The permit requires the first AFSCI to be conducted within 24 months from the effective date of permit coverage. The permittee is required to create an AFSCI report, which is to be kept on site. Subsequent AFSCI's also require reports, which are to be kept on site.

Part VI. General Permit Conditions

This section includes requirements to comply with this general permit and the applicable State laws and regulations.

A. NR 205. These are general permit conditions in s. NR 205.07(1), Wis. Adm. Code are required in all WPDES permits.

B. Work near Surface Waters and Wetlands. Other permits or approvals may be required of the permittee. The permittee is responsible for obtaining the necessary approvals.

C. Duty to Comply. Any act of noncompliance with this permit is a violation of the permit and is grounds for enforcement action, for permit termination or modification, or denial of coverage under the permit. If the permittee files a request for an individual WPDES permit or a notification of planned changes or anticipated noncompliance, this action by itself does not relieve the permittee of any permit condition.

D. Continuation of Expired General Permit. This permit condition assures continued coverage for a discharger under a WPDES permit in the event that DNR is late in replacing this permit with a new issue.

E. Duty to Halt or Reduce Activity. In the event of a management practice failure, this condition requires the permittee to modify or curtail other operations until best management practices are restored or an alternative practice is put in place.

F. Duty to Provide Information. This condition requires the permittee to promptly notify the DNR when he or she becomes aware of a failure to submit any relevant facts or a submittal of incorrect information.

G. Records Retention. The permittee shall retain all reports and records for a period of 5 years beyond the effective date of permit coverage.

H. Notice of Termination. Facilities that cease discharging storm water associated with industrial activity can request that DNR terminate the facility's coverage under the general permit. This procedure applies mainly to facilities that stay in place and continue operations, but no longer discharge storm water contaminated by industrial activity. This could come about, for example, if a facility changes its business to a type that is no longer covered by this permit. In such cases, the permit serves no further purpose and can be terminated.

The DNR will not continue to apply the general permit in the case of facility closure and abandonment, provided that the site is left clean of pollutant residuals that could contaminate storm water.

I-X. Miscellaneous Conditions. These conditions are authorized or required by existing state law.

Any individual wishing further information on this permit should contact the appropriate regional Department office or:

Wisconsin Department of Natural Resources
Storm Water Program - WT/2
P.O. Box 7921
Madison, WI 53707-7921
Phone (608) 267-7694

APPENDIX E

Non-metallic Mining Reclamation Plan Operator and Owner Certifications

Non-metallic Mining Reclamation Plan Operator and Owner Certification

Owner/Operator Certification

I hereby certify, as a duly authorized representative or agent, that this reclamation plan meets the requirements of ch. NR 135, Wis. Adm. Code and that Mathy Construction will follow this plan as submitted unless a revision is submitted and approved in writing by the regulatory authority.

Signature of Applicant or Duly Authorized Agent

Date Signed

10/9/02