Draft Environmental Impact Statement
Appendices

Minnesota
DEPARTMENT OF NATURAL RESOURCES

UPM/Blandin Paper Mill Thunderhawk Project
Grand Rapids, Minnesota
January 2006

Appendix A

Scoping Environmental Assessment Worksheet

Minnesota Department of Natural Resources

500 Lafayette Road
St. Paul, Minnesota 55155-4025

Date: December 20, 2004

To: Parties on the EAW Distribution List
Other interested Parties

From: Bill Johnson BJ

Natural Resources Program Consultant
Environmental Policy and Review Unit

Re: UPM/Blandin Paper Thunderhawk Project
Environmental Impact Statement
Scoping EAW/Draft Scoping Decision Document

Enclosed please find the Scoping Environmental Assessment Worksheet and Draft Scoping Decision Document the DNR has prepared to assist in identifying the issues and analyses to include in an Environmental Impact Statement for a proposal to expand pulping and paper production capacity at a paper mill in Grand Rapids, Minnesota.

The DNR invites comments on the proposed EIS scope during the 30-day scoping period that concludes Wednesday, January 19, 2005 at 4:30 PM. Comments should address the accuracy and completeness of the information presented, and suggest issues for investigation in the EIS. The DNR will hold a public scoping meeting on Wednesday, January 12, 2005, beginning at 7:00 PM, at the Reif Center for Performing Arts in Grand Rapids, Minnesota.

The Scoping EAW discloses information about the project and its setting and identifies potentially significant impacts. The Draft Scoping Decision Document give the public a preliminary view of the intended EIS scope. The Draft Scoping Decision reflects only information available at this time. The DNR will revise the document based on the full scoping record, and will issue a Final Scoping Decision to serve as the "blueprint" for EIS preparation.

Please address any inquiries or comments to me at the address provided in the EAW. Thank you for your interest.

Enclosure: Scoping EAW/Draft Scoping Decision Document

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Revised 2/99

ENVIRONMENTAL ASSESSMENT WORKSHEET

Note to preparers: This form is available at www.mnplan.state.mn.us. *EAW Guidelines* will be available in Spring 1999 at the web site. The Environmental Assessment Worksheet provides information about a project that may have the potential for significant environmental effects. The EAW is prepared by the Responsible Governmental Unit or its agents to determine whether an Environmental Impact Statement should be prepared. The project proposer must supply any reasonably accessible data for - but should not complete - the final worksheet. If a complete answer does not fit in the space allotted, attach additional sheets as necessary. The complete question as well as the answer must be included if the EAW is prepared electronically.
Note to reviewers: Comments must be submitted to the RGU during the 30-day comment period following notice of the EAW in the *EQB Monitor*. Comments should address the accuracy and completeness of information, potential impacts that warrant further investigation and the need for an EIS.

1. **Project title:** UPM/Blandin Paper Thunderhawk Project

2. **Proposer**: UPM-Kymmene / Blandin Paper
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3. **RGU**: Minnesota Department of Natural Resources
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4. **Reason for EAW preparation** (check one)
   EIS scoping _X_ Mandatory EAW___ Citizen petition ___ RGU discretion___ Proposer volunteered_X_

   If EAW or EIS is mandatory give EQB rule category subpart number and subpart name. 4410.4300 Subpart 13.
   Subpart Name: Paper or pulp processing mills.

5. **Project location** County: Itasca City/Township: City of Grand Rapids

NE¼NE¼ Section 20	Township 55N	Range 25W
NW¼NW¼ Section 21	Township 55N	Range 25W

Attach each of the following to the EAW:

- County map showing the general location of the project. (See Figure 1)
- U.S. Geological Survey 7.5 minute, 1:24,000 scale map indicating project boundaries (photocopy acceptable). (See Figure 2)
- Site plan showing all significant project and natural features. (See Figure 3)

6. **Description**
   a. Provide a project summary of 50 words or less to be published in the *EQB Monitor*.

UPM/Blandin Paper proposes to construct a new paper manufacturing line, known as Paper Machine 7, at its

Grand Rapids, Minnesota mill. Existing Paper Machine 6 will undergo efficiency improvements while Paper Machine 5 will be shut down. Project-related wood use will increase by an estimated 197,000 cords annually.

b. Give a complete description of the proposed project and related new construction. Attach additional sheets as necessary. Emphasize construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes. Include modifications to existing equipment or industrial processes and significant demolition, removal or remodeling of existing structures. Indicate the timing and duration of construction activities.

Overview

UPM-Kymmene/Blandin Paper proposes to expand and modify its paper mill located in Grand Rapids, Minnesota; see Figures 1-3. The project is known as Thunderhawk. The project's main feature is the addition of a complete paper manufacturing line that is designated as Paper Machine No. 7 (PM7). The project also includes increasing pulp producing capacity, optimization of the Paper Machine No. 6 (PM6) paper line, and the addition of warehouse facilities. Should the project occur, the existing Paper Machine No. 5 (PM5) line would be shut down permanently in conjunction with "start-up" of the new operations. The facility's wood use would increase approximately 197,000 cords annually to a total estimated wood consumption at the mill of 400,000 cords per year.

The project uses wood as the primary raw material to produce publication-grade rolled paper. Both hardwood (e.g., aspen) and softwood (e.g., spruce, balsam) species supply the mill. Project elements that require new construction, cause physical manipulation of the environment, or produce wastes can be considered in terms of:

Wood-related Operations
Paper Manufacturing
Production Outputs
Wood Use
Water Use
Wastewater Treatment
Energy Infrastructure
Other Infrastructure
Site Preparation and Schedule

Wood-related Operations

Woodyard. The UPM/Blandin Paper mill receives hardwood and softwood logs for use in the facility's papermaking operations. The mill has an existing woodyard whose basic function is to receive, store, and retrieve wood. Wood is transported to the mill principally by truck in the form of 100" logs, but some delivery by rail also occurs. The woodyard would continue to be used with the project. See Table 1, Projected Raw Wood Transport and Arrivals.

Chip Receiving Station. The woodyard does not receive chips at present. The project includes installation of a chip receiving station, which is a large pit with a belt-conveyor located underneath. It will allow the mill to receive and process softwood chips purchased on the open market when needed. The chip receiving station will be constructed in the woodyard to accommodate deliveries by either truck or rail. The likely

location would be in the vicinity of the wood chip storage towers; the exact location has not been determined.

Truck deliveries will self-unload into the chip receiving station while rail cars will be emptied through bottom dumping. The unloading will be over a hopper that will feed to the chip storage towers. A belt-conveyor will move the wood chips through screening and then convey the chips to the storage towers. The amount of chips that will be processed in this way is not known; it is expected to be minimal due to other project-related changes that are proposed to minimize future reliance on purchased chips.

Proposed Action: Addition of a new chip receiving station.

Table 1: Projected Raw Wood Transport and Arrivals			
Time Period	Softwoods	Hardwoods	Totals
Present Condition (YTD thru August, 2004)	256 cords/day 20 truck/day 40 rail cars/year	179 cords/day 18 trucks/day	435 cords/day 38 trucks/day 40 rail cars/year
Proposed Condition	441 cords/day 31/trucks day 500 rail cars/year	565 cords/day 57 trucks/day	1006 cords/day 88 trucks/day 500 rail cars/year

Woodroom. Wood used at the mill is transported from the woodyard to an existing woodroom. Both hardwood and softwood logs will be processed in the woodroom. The present purpose of the woodroom is to debark the source 100" logs and cut them to 50" lengths. These 50" logs are then conveyed to the Pressurized Groundwood Mill (PGW) for further processing. The future woodroom will continue to process hardwoods as now occurs but will treat softwoods differently in the future.

For the woodroom's hardwood line, a new mechanical debarker will be added to handle increased wood throughput. It will be installed parallel to an existing mechanical debarker and includes associated belt conveyors. Once debarked, the stripped logs are sent to the PGW.

The woodroom will also be modified to accommodate softwood chipping. Slasher deck saws now present will be removed to improve chip quality later in the process. A new chipper will be installed after the debarking drum to chip softwood for the new Thermo Mechanical Pulpmill (TMP). Because up to 20% of the TMP chips may be aspen, a conveyor will be added after the hardwood drum to direct aspen to the new chipper.

All chips regardless of source will be screened to remove fines and oversized chips. The fines will be burned at the Rapids Energy Center power house while the oversized material will be returned to the chipper. The chipper and screen will be located in a building addition on the south end of the woodroom. The screened chips will be conveyed to two new chip storage silos before being conveyed to the new TMP plant. Aspen chips will be stored in the second storage silo.

Proposed Action: 1) Addition of a new mechanical debarker to the hardwood line; 2) addition of a new chipper to the woodroom; and 3) construction of two new storage silos.

Mechanical Pulping. Roundwood logs and chips must undergo mechanical pulping to strip the individual fibers from the parent wood material. The project proposes to use the existing, but modified, PGW while requiring the installation of a new TMP.

Pressurized Groundwood Mill. The current PGW processes both hardwoods and softwoods. The hardwood line (e.g., aspen) has four grinders while the softwood line (e.g., spruce, balsam) has six grinders. Debarked logs from the woodroom or block storage area are conveyed to these grinders, which contain large, rotating, abrasive stones that strip wood fibers off the logs. Water is sprayed onto the stone to wash the abraded pulp off the grinder surfaces as well as cool the stone's surface. This whole process occurs under pressurized conditions and at temperatures above the boiling point of water. The flow of pulp slurry collects at the bottom of the grinder and is then conveyed via pipe to a common hardwood or common softwood grinder stock chest.

The wood fiber slurry next undergoes a screening and cleaning process. Screens remove "large" wood pieces or fiber bundles that were not completely processed in the grinder. An estimated 20-30% of the slurry stream is screened out, or "rejected," for further processing within the reject refining system. Rejected fibers undergo further mechanical action to break apart the fiber bundles. This product is screened once again, where the system "accepts" go forward to the cleaning stage while the rejects return to the reject system for more reprocessing.

The system accepts are cleaned by passing the slurry through a series of hydro-cyclones that remove dense material such as dirt, metal, or wood matter. The rejects from the cleaner system are removed for eventual treatment in the municipal wastewater treatment facility (WWTF); this makes up approximately 1% of the pulp production at this point in the process. The accepted pulp goes on to a vacuum-type thickener where the pulp is concentrated from approximately 1% solids to 10% solids before eventual storage until needed. Water removed at this stage is collected and reused as shower water for the grinders and other dilution points in the process.

When needed, the pulp is pulled from storage and is diluted again with process water obtained from the paper machine proper (e.g., white water). Some additional refinement occurs and then the pulp is bleached, using sodium hydrosulfite or dithionite for softwood pulp, and hydrogen peroxide for hardwood pulp. Other chemicals used in the peroxide-based treatment include: sodium hydroxide or "caustic," sodium silicate, EDTA for sequestering metal ions, and sulfuric acid for pH control.

The proposed project restricts the PGW to processing aspen only, but its processed pulp output will be used in both PM6 and PM7.

Pulp to PM6. The existing peroxide bleaching system will be used for pulp directed to PM6, but it will undergo some project-related modification. The modifications require the installation of a new pulp washing system to remove residual bleaching chemicals and dissolved wood material. This system consists of a belt-type dewatering press with associated piping, tanks, and pumps. Filtrate from the washing press is directed to the pulpmill process water system. Paper machine white water is used to dilute the pulp after the washing press. These improvements will be housed in the existing PGW structure.

Proposed Action: Modify existing PGW peroxide bleaching system.

Pulp to PM7. A new refining and peroxide bleaching system will be added to the PGW for the PM7-directed pulp. Major components include:

- Belt-type dewatering presses (2)
- Pulp/bleach chemical mixer
- Retention tower
- Belt-type washing presses (2)
- High consistency post refiner

This system will be in a building addition on the southern side of the PGW.

Proposed Action: Install a new refining and peroxide bleaching system to PGW.

Thermo Mechanical Pulpmill. The proposed project includes the installation of a new TMP at the facility. Like the PGW, the TMP is a form of mechanical pulping but it is chip-based rather than log-based. Wood chips are passed between rotating discs with serrated metal plates attached to the opposing surfaces. This mechanical action, when operating at high temperatures and pressures, breaks the chips into individual fibers. The temperatures and pressure in the TMP are higher than those in the PGW. Relative to the PGW, pulp fibers generated in the TMP are more intact and longer, thus providing better strength properties for the finished paper product. Both softwood and hardwood chips can be processed in the TMP.

Chips will be directed from the chip storage towers to the TMP; all chips must be washed prior to refining. The aspen chips will be treated with caustic and hydrogen peroxide before refining to assist in chip softening. All three types of chips (e.g., aspen, spruce, balsam) will be mixed together prior to TMP refining. The TMP fiber refining is proposed to occur in three stages to assure that the fibers are adequately developed, thus providing the desired paper strength and smoothness properties.

Once the pulp is refined, it is processed in the TMP much the same way as occurs for the PGW pulp. However, TMP processing does not use centrifugal cleaners and a cleaning stage is not necessary. Screens remove the wood pieces or fiber bundles that were not completely processed in the refiner. An estimated 30-40% of the process stream is screened out or rejected, where the reject undergoes further mechanical action to break apart the fiber bundles. This product is screened once again with the system "accepts" going forward to the thickening stage and the rejects returning to the reject system for reprocessing.

The pulp "accepts" go to a vacuum-type thickener where the pulp slurry is thickened to about 10% solids before storage. The water that is removed is collected in a large tank to be reused as dilution water at the refiners and other dilution points in the process. Once removed from storage, the pulp is bleached using hydrogen peroxide. Other chemicals used in the peroxide bleaching process are: sodium hydroxide, sodium silicate, EDTA for sequestering metal ions, and sulfuric acid for pH control.

The TMP will provide fiber for both PM6 and PM7. The TMP structure is located south of the PM5 assembly and immediately west of PM7; see Figure 3. Major components of this system are:

- Chip handling
- Refining
- Thickening
- Storage
- Bleaching

Bleached TMP pulp will be pumped to the adjoining PM7 area. Bleached TMP pulp for PM6 will be pumped via a new above-ground pipe bridge to the PM6 area.

Proposed Action: Install a new TMP.

Chemical Pulping. Chemical pulp manufactured by the kraft process is used to reinforce the paper by providing higher tear and tensile strength that is desirable for the type of publication paper produced by the mill. The mill does not produce kraft pulp itself; the company purchases its kraft pulp on the open market from (primarily) Canadian mill sources. Kraft pulp is transported in bale form, each of which weighs 480 air dry pounds (A.D. lbs.) at an estimated 10% moisture content. The bales are slurried in a hydrapauler, which uses process white water to agitate and break up the bales to form the kraft slurry, which is in turn directed to the paper machines.

Kraft pulp bales are delivered to the mill via truck or rail to the existing kraft warehouse, which is located next to the PM5 building in the central part of the site. The bales are repulped as needed in existing kraft slushing equipment and related systems. Once reconstituted, the pulp then stored in existing tanks next to the kraft pulpers.

A new kraft pulp makedown line is needed because the the project will increase kraft pulp utilization by approximately 50%. While this need for additional slushing capacity is certain, whether one or two new pulpers (with dewiring units and feed conveyors) will be needed will not be known until the final mill layout is determined. Regardless, at least one new pulper is proposed with the project. A new kraft pulp tank, which will also be located near the stock preparation of PM7, will also be required so that stock blending can be done for PM7's specific process needs.

Proposed Action: Install a new kraft pulp makedown line.

Paper Manufacturing

Stock Preparation. The stock preparation process prepares the fiber furnish mix, water, and additives for the paper machine sheet forming process. Kraft and mechanical pulp fibers are refined to develop the correct fiber morphology to enhance the strength and printing characteristics of the finished product. The different fibers (i.e., kraft, mechanical pulp, and broke) are then mixed in precise ratios that depend upon the grade of paper being made. Additives such as filler clay, starch, and dye are mixed into the blend of fibers to make up the furnish or "stock" from which paper is made.

Pigments. One dimension of paper quality is appearance in terms of whiteness and luster. Pigments are added during the paper production process to provide these qualities.

Kaolin. The mill currently uses kaolin clay in the operation of PM5 and PM6 for pigmentation purposes. Kaolin clay is transported exclusively by rail in either a dry or slurry form; either type could be used under future mill operations. If clay comes to the mill in dry form, it requires receiving hoppers, storage silos, and a make down facility to produce slurry for future use in the paper machine; this is marked "Opt. Dry Filler" on Figure 3. When liquefied, the clay is stored in tanks at 30-70% solids, which means that it can be piped to additional points in the paper machine stock preparation process.

Rail deliveries will increase by an estimated 10 cars a week as a result of the project. Future mill

operations will require approximately 175,000 tons of kaolin clay to supply production for PM6 and PM7.

Proposed Action: Add a kaolin processing station.

Precipitated Calcium Carbonate. The proposed project also includes the use of precipitated calcium carbonate (PCC) to meet pigment requirements. The PCC will be produced onsite in a facility owned and operated by the supplier; this project element is a connected action. No supplier has been identified at this time.

The PCC will use flue gas from the Rapids Energy Center boilers to provide carbon dioxide (CO_2) for use in the manufacture of PCC. Lime (CaO) will be brought to the site, typically via rail, as a key raw material. The lime is combined with CO_2 and water to produce $CaCO_3$, or PCC.

PCC use is expected to be approximately 75,000 tons per year. Where the PCC operation will be located at the mill has not been determined. Key elements of the manufacture and processing of PCC are:

- PCC Plant Building
- PCC storage tanks
- Flue gas pipe and facilities
- PCC plant process equipment

The process equipment will be provided by the supplier, while the proposer will supply the buildings and utilities.

Proposed Action: Install a new PCC facility.

Total annual pigment consumption post-project is expected to be 250,000 tons.

Other Inputs. No other major raw materials are used during stock preparation. However, all paper machines have some miscellaneous process aid chemicals that do not add substance to the paper. These include wet end starch (0-15 lbs/ton paper produced depending on grade), defoamers (< 1%), retention aids (1-2 lbs/ton), microbiological control agents (< 1%), and felt cleaners (< 1%). Each of these agents will be present in the operation of PM6 and PM7.

Total use of these agents is expected to be double the amount historically consumed at the mill.

Paper Machine Process. The paper machine process consists of forming, pressing, drying, and reeling of the finished paper product.

Prepared fiber stock is directed to the paper machine sheet forming area; here a thin stream of fiber stock is injected under high pressure into a twin-wire sheet former. The paper sheet that forms is quickly transported through the machine to remove as much water as possible from it by gravity and vacuum means. Water removed during the early part of the forming process is very high in solids content while water removed later by vacuum is much lower in solids. These two types of “cloudy” and “clear” white water are collected and reused in the paper machine stock system. Surplus white water is pumped to a saveall where the fibers and clay are

removed and returned to the overall process. The resulting clarified white water is then directed back into the pulpmill, to repulp kraft and broke, and as a replacement for fresh water wherever it is practical to do so. After forming, the sheet is transferred to a press section where more water is removed by mechanical means. For example, the sheet entering the press section has a moisture content of about 80% water; when it leaves the press section it is about 55% water. Water remaining in the paper at this point must be removed by evaporation. This is accomplished by holding the sheet against steam-heated cylinders. This part of the paper machine is called the dryer section. The paper is then wound up on a spool at the reel.

Paper Machine 7. The proposed project includes the installation of a new, complete paper manufacturing line designated as PM7. This will require the construction of a building to house the paper machine and provide space for paper finishing and roll storage.

The new machine will be of a twin-wire former-type with a forming section wire width of approximately 437 inches. The paper machine design speed is as follows:

- Construction speed: 7,218 feet per minute
- Production speed: 6,890 feet per minute
- Average speed: 5,906 feet per minute.

PM7 is projected to have an annual output of 450,000 metric tons of publication-grade paper.

Proposed Action: Install a new paper machine.

Paper Machine 6. The mill has housed PM6 since 1989. No new construction is proposed under the project for PM6. Rather, the project proposes to increase the efficiency of PM6 in two principal areas.

- Waste Reduction. Process-related waste generation can be reduced from current conditions. Waste reduction can be accomplished by lowering the proportion of fiber stock being transferred back to the pulper for reuse in the paper machine. An 8% decrease in waste generation may be realized, with waste going from 16% to 8% of the paper stock being processed in PM6. The benefit accrues from higher paper stock capture that results in more finished materials being generated by the paper machine.
- Possible PM Speed-Up. More production could be achieved with increased operating speed. This could be accomplished by modifying the machine's drive section. The potential increase in fiber use associated with the proposed machine speed-up is reflected in the values offered in the Scoping EAW.

PM6 is projected to have an annual output of 240,000 metric tons of publication-grade paper.

Proposed Action: Modification of an existing paper machine.

Paper Machine 5. The mill has housed PM5 since 1975. The project proposes the complete shutdown of PM5 prior to the start-up of PM7. The PM5 buildings that are considered useable will be retained under the project and saved for future PM7 operational support.

Proposed Action: Shut down of an existing paper machine.

See Figure 4a, Project Schematic, for the project's estimated paper production.

Paper Finishing. The paper finishing process transfers paper from large, jumbo reels to smaller rolls that are to be wrapped and shipped to the customer. This can include supercalendaring, which is the mechanical process of "polishing" the sheet of paper. This is accomplished by threading the paper through an alternating series of fiber/synthetic rolls and heated steel rolls. The slippage of paper between these two types of rolls gives a glossy finish to the paper. The finished product would then be staged from the paper finishing area for shipping to the paper warehouse.

Paper Machine 7. The paper machine requires construction of paper finishing facilities. This will be part of the overall PM7 building structure.

Proposed Action: Addition of new paper finishing facilities.

Roll Storage. The roll storage area is used to store mechanical rolls associated with the components of the paper machine. It is a support area for ongoing mechanical maintenance operations.

Paper Machine 7. Installation of roll storage facilities, which are of a typical warehouse design, will be part of the project. This will be a section of PM7's housing.

Proposed Action: Addition of a new roll storage area.

Paper Warehousing. UPM/Blandin Paper is considering the addition of a new paper warehouse to the facility. Short-term storage is now accomplished onsite in the PM5 and PM6 shipping areas, but this is considered insufficient to handle future production levels for PM6 and PM7. The warehouse design itself will be typical of facilities providing short-term storage and shipping services, including multiple shipping bays.

This project feature is necessary to alleviate potential project-related traffic congestion. It will also ensure future flexibility in shipping and receiving operations, which is an important cost control factor, especially for logistical costs. Several options have been proposed, including some that involve the acquisition of adjoining properties or new properties altogether. See Figures 5a and 5b, Paper Warehouse Options.

Warehouse Option No. 1. In this option the existing PM6 warehouse would remain as is. A new warehouse would be built south and adjacent to the new PM7 finishing area. It would house paper exclusively from PM7.

Warehouse Option No. 2. The option involves the construction of a new warehouse just east of PM6. This warehouse would service both PM6 and PM7. It will require the acquisition of neighboring properties and the potential abandonment of NW Third Street.

Warehouse Option No. 3. This option combines the existing PM5 and PM6 shipping areas with the existing kraft warehouse area. A new kraft warehouse would be constructed south and adjacent to the new PM7 finishing area. Both PM6 and PM7 would be serviced by this warehouse option.

Warehouse Option No. 4. In this option a new warehouse would be built offsite west of the woodyard. The proposer owns some of the property at this site, but additional property will need to be purchased to allow for this development. Two special trucks would transport paper from PM6 and PM7 to the warehouse under this scenario.

Warehouse Option No. 5. This option involves building an offsite warehouse with access to multiple railroad companies. Two different locations are being considered under this option. One location involves building the warehouse in an existing industrial park in Duluth. A second option involves building the warehouse in a new industrial area in Coleraine with access to two railroad lines; this alternative might require property rezoning. No specific location has been identified, thus this project element is a potential phased action.

Proposed Action: Addition of a new paper warehouse.

Finished Product Transport. Finished product will be transported either from the mill proper or the paper warehouse to the respective customer. Currently shipments average approximately 9 railway cars and 9 trucks per day. Thus, the majority of paper (by weight) has been shipped by rail (approximately 80%). These rates however vary from day to day, with costs serving as the primary determinant of shipping mode. It is therefore possible that future ratios may be different. See Table 2, Finished Paper Product Transport and Departures.

Table 2: Finished Paper Product Transport and Departures

Time Period	Maximum Number of Rail Cars	Minimum Number of Rail Cars	Maximum Number of Trucks	Minimum Number of Trucks
Present Condition (Warehouse onsite)	12	1	45	9
Proposed Condition (Warehouse onsite)	23	1	93	23
Proposed Condition (Warehouse offsite)		1	93	89

Production Outputs

The existing paper mill's "baseline" production capacity averaged 446,605 short tons/year over the period 1993-2002. The mill has been running downsized capacities since 2003, which accompanied the permanent shutdown of PM3 and PM4. The proposed expansion will increase the paper mill's production to 761,000 short tons per year. The incremental increase in production (over baseline) will be 314,000 short tons/year. See Figure 4b, Paper Mill Production.

Wood Use

The mill uses wood as the principal raw material for the purpose of industrial paper production.

Types of Wood. The three principal tree species used by the Mill are aspen, balsam, and spruce.

Wood Use Amounts. The amount of roundwood and kraft pulp used at the facility is described below.

Roundwood. The proportion of each species used in the facility's wood supply has varied considerably in response to wood market conditions, paper product demand, weather, availability, and pulp and paper process technology. Aspen, for example, has been as little as 20% to as much as 57% of the species mix for paper produced at the mill over the past decade. Currently, on an annualized basis, aspen makes up 41% of the mill's total wood use. Similarly, spruce consumption has ranged from 34,000 to 95,000 cords per year. Blandin fully anticipates the mix of these three species will continue to vary in the future due to both

economic and non-economic factors that drive stumpage prices and species availability.

Total pulpwood use has ranged between 166,000 and 221,000 cords per year over the past decade. Annual wood use dropped in 2003 in association with the permanent shutdown of PM3 and PM4. Consequently, annualized wood use for 2004 is estimated to be approximately 166,000 cords, or some 25 % less than the facility's total wood use in 2002. This means that the amount of wood consumed by the mill in 2002 would be more indicative of its annual wood needs over the past decade. UPM/Blandin Paper's average annual wood use from 1994 through 2002 has been calculated as a "baseline" value of 203,000 cords.

The proposed project will increase wood use by an estimated 197,000 cords per year. Approximately 110,000 cords, or 56% of this increase, is anticipated to be aspen, with the remaining 87,000 cords consisting of the softwoods spruce and balsam. However, as indicated above, there will likely be considerable year-to-year variability in facility's species mix. Total annual wood consumption at the mill is projected to be 400,000 cords.

Proposed Action: Increase the use of roundwood.

Kraft pulp. The facility uses kraft pulp purchased from Canadian sources. 2003 kraft usage was 92,109 air-dry short tons being used that year in the operations of PM5 and PM6. 2002 kraft usage totaled 131,784 air dry short tons resulting from the operation of PMs 3, 4, 5, and 6. Future kraft pulp consumption is estimated to be 147,208 air dry tons annually, which is an increase from current operations of approximately 52,000 air dry short tons per year.

Proposed Action: Increase the use of kraft pulp.

See Table 3, Summary of Historical, Current, and Planned Incremental Wood Use, and Figure 6a, Historic and Proposed Levels of Wood Use.

Table 3: Summary of Historical, Current, and Planned Incremental Wood Use

(100-inch cords)	Aspen	Balsam	Spruce	Total
Range 1994-2003	35,000 – 118,000	41,000 – 62,000	34,000 – 95,000	166,000 – 221,000
Baseline (Average) 1994-2002	92,000	53,000	58,000	203,000
Proposed Increase	+110,000	+28,000	+59,000	+197,000
Proposed Total New Use	202,000	81,000	117,000	400,000

Kraft Pulp Use	Current	Projected Increase	Total
	95,208 air dry tons/yr	52,000 air dry tons/yr	147,208 tons/yr

Sources of Wood. Roundwood used at the facility originates from: 1) harvest of company owned and managed timberlands; 2) Minnesota wood purchased on the open market; and 3) wood imports.

The proposer anticipates that approximately 144,000 cords (73%) of the project-related increase in wood need will be sourced from Minnesota timberlands. The balance of 53,000 cords will be imported, primarily from Canada, Michigan, and Wisconsin. The company has not identified a specific procurement zone because open-market wood purchases will be made wherever economically feasible. The company predicts that imports will

remain an important source of wood for the project. See Figure 6b, Project-related Wood Sources: Minnesota and Imports.

Roundwood procured in Minnesota proper will come from timber harvest occurring on a variety of ownerships. These include Blandin lands, other industrial and non-industrial private lands, and county, state, and federal lands. The company has provided a profile of timber procurement by ownership; See Figure 7, Current Blandin Wood Sources by Owner (%). It should be noted that the proposer believes that the relative proportions across ownerships can change substantially over relatively short periods (e.g., 2-3 years).

Water Use

The paper production process uses water to meet equipment cooling and process-related requirements.

Water Intake Structure and Pumping Station. Current and future facility-related water needs will be met by using water appropriated from the Mississippi River Paper Mill Reservoir. Water is appropriated through an intake structure located just upstream of the Blandin Dam, just off the northern riverbank.

The project includes the possible addition of a new water intake structure and pumping station. The new components will be located in the same vicinity, but just upstream, of the current intake facility. Although not a critical project component, installation of a new structure would improve the maintainability and reliability of the pumping equipment compared to the current situation. The destinations and uses of water would not change from the current management condition. The new pumping house will contain both intake water pumping and filtering equipment.

Proposed Action: Add a new intake structure and pumping station.

Fire Suppression System. State and city building regulations and insurance underwriters require the facility to install, maintain, and operate a fire suppression system. The system is supplied by the fresh water storage tank, which contains river water that has been filtered to make it useable for this and other applications. The fire extinguishing water system only consumes water when the sprinklers are activated (due to a fire) or when fire extinguishing hoses are being used. When on standby, there is no water use; the pipes are kept pressurized to provide for an instantaneous start if fire fighting is necessary.

The existing system is capable of taking care of the new mill components. However, the installation of a new water intake and pumping station makes it feasible to consider locating a new fire suppression system in the same area. Once online, the new system would replace the existing system.

Proposed Action: Replace the existing fire suppression system with a new system.

Non-Contact Water Cooling Loop System. The proposed project includes the addition of a non-contact cooling loop for cooling: 1) the TMP and PGW motors, and 2) the chiller system for cooling of electric and control rooms. This cooling loop will likely only be needed during the summer months, most likely for three or four months a year. In winter the proposer expects that non-contact cooling water would be introduced to the intake and would allow for recovery of all the energy. The cooling loop is a once-through type of water appropriation where the device will receive water via an existing intake structure, which is housed in the Blandin Dam proper. Used water will be returned to the Mississippi River through the existing discharge structure as a regulated warm water discharge.

Proposed Action: Install a non-contact water cooling loop system.

Wastewater Treatment

Municipal WWTF. Wastewater generated at the mill is routed for treatment at the Grand Rapids municipal wastewater treatment facility (WWTF). This publicly operated facility receives a current daily average flow of 5.8 mgd. Flows are first directed to the Industrial Wastewater Treatment Plant for primary treatment and are then transferred to the Combined Domestic/Industrial Secondary Plant. The WWTF discharges the treated effluent into the Mississippi River at an outfall structure located downstream of the Blandin Dam.

Increased levels of paper production will result in increased project-related flows to the WWTF. Effluent generation is expected to increase with the project to an average 1.7 mgd to a daily average flow of 7.5 mgd. In addition to increased flows, effluent quality will also change with the project; biological oxygen demand (BOD) will increase from current conditions. The clarifiers at the primary plant are adequately sized and dimensioned for the future loading, however the secondary facility is now being evaluated on the potential effect of the proposed expansion on biological treatment efficiency.

Preliminary study indicates that a minor change is needed to improve BOD treatment capabilities, specifically improved oxygen contact performance. New technology, possibly fine bubble diffusion equipment, will likely be utilized. The installation of any new technology to address this change in waste stream quality is a connected action. No change in existing NPDES/SDS permit limits are required for the change.

Proposed Action: Modify the WWTF.

Energy Infrastructure

Allete/Minnesota Power Components. Allete/Minnesota Power operates the Rapids Energy Center (REC) at the mill site. Although separate from the paper making operations, there is an interdependence between the REC and the mill. The REC is an important source of energy for UPM/Blandin Paper's mill-related operations. In return, the mill provides the REC with waste wood and with raw water.

The REC provides the paper mill with all of its steam requirements, most of its pneumatic (e.g., pressurized air) requirements, and up to 1/3 of the mill's electrical demand. REC steam is used to dry paper in the paper machines, condition paper, and heat the water used in papermaking. The paper mill uses electrical power to drive the paper machines as well as for office equipment and lighting; some 30 MW is currently supplied by the REC to the mill for these purposes. There is a need mill-wide for compressed air.

The mill delivers the waste wood created in the papermaking process to the REC Wood Barn. This is done by conveyor and typically some 200 tons of wood refuse is delivered daily for temporary storage in the barn or is directly delivered to the coal- and wood-fired boilers. The mill-delivered wood accounts for approximately one-quarter (1/4) of the total daily wood burned at the REC. The paper mill also provides the REC with filtered river water, which is used for wash down purposes and cooling various pieces of equipment. The mill also supplies fire protection to the REC.

The REC consists of four boilers (Nos. 5, 6, 7, and 8), two steam turbine generators (Nos. 6 and 7), and two hydro-generators (Nos. 4 and 5) that are located at the dam. Boilers 5 and 6 are coal- and wood-fired units

while Boilers 7 and 8 are gas-fired units. The two steam generators can each supply approximately 15 MW of electricity. The two hydro-generators augment the electrical power produced at the facility; both generate electricity that is based on run-of-the-river-type flows and typically produce about 1 MW combined.

Each of the following project elements is a connected action being done for the project by Allete/Minnesota Power.

Steam Accumulator. The REC boilers produce mainly steam used in the mill, however some steam is also a byproduct of TMP operation and associated heat recovery. Regardless of source, system-related steam pressures vary according to process and mechanical needs and on exactly which machinery is operating at a given time. In papermaking, sudden steam fluctuations can occur when paper machines suddenly come "online" or "offline," for example due to paper breaks or switching to heavier grades of paper.

The project includes the installation of a new steam accumulator to reduce pressure variability in the steam system. TMP heat recovery produces steam at a fairly constant output capacity but cannot adapt to large fluctuations in steam use. The new steam accumulator is designed to provide stability to the steam supply when sudden steam fluctuations occur. It provides a benefit similar to a capacitor bank on an electrical system; overall system stability is maintained when this component is in place. The steam accumulator will be located and connected to the existing power house on the south side of the building.

Water Demineralization Plant. The boilers use screened and demineralized river water for make-up. The current demineralization plant is located within the power plant. The demineralization system consists of tanks and pumps and does not require a separate building (from the power plant). The project includes improvements to the water demineralization plant; this may involve construction of an extension on the power plant, or use of the same building that will house the new steam accumulator.

Back-up Boiler. TMP heat recovery will provide a significant portion of the additional steam that will be used by the mill when the project is complete. Circumstances may arise where the TMP must be down but both PM6 and PM7 are expected to continue operations. There is insufficient steam capacity with the current boiler system to meet all projected steam system requirements with the TMP down.

Addition of a natural gas-fired boiler is proposed for those occasions where the TMP is shut down and both paper machines are in production. This new boiler might also be used if either the solid-fuel boilers or other gas-fired boiler(s) are offline for maintenance during normal production.

Electric Power Feed Lines. The mill uses electricity purchased from Allete/Minnesota Power. The electricity used at the mill comes off the grid or is generated by the REC.

Electricity use will increase substantially with the project. A new power feed line will need to be installed to handle the increased electrical load. The project will rely on the local transmission system; no new transmission towers are needed. Rather, existing lines can be upgraded to handle the additional load. The existing onsite substation can be used too with the project.

Proposed Action: Add energy-related infrastructure.

Allete/Minnesota Power also plans to retire the REC's No. 6 Turbine Generator. This is not a connected action because it is independent of the project; the turbine generator is housed in the PM 3 and 4 structure that is being

removed from the site prior to project implementation. The result will be a reduction in the REC's self-generation of electrical power by 15 MW. The decommissioning of the turbine generator also eliminates Allete/Minnesota Power's water appropriation from the existing intake structure for turbine-related cooling. The previously referenced installation of a non-contact water cooling loop will use the existing intake structure as that system's water source. No change is proposed for the No. 7 Turbine Generator, which does not use appropriated river water for cooling purposes.

UPM/Blandin Paper Components. As noted in the previous discussion about steam management, excess process heat from the TMP is a potential source of steam energy for the project. This is because the process of disintegrating the wood chips into fibers in the TMP refiners produces heat. A fair portion of that heat is in the form of steam that can be converted in a heat recovery system to clean steam for use in paper drying, or part of it being bound to heat recovery condensate. Before the condensate is pumped to the waste water system, further heat can be recovered using water/water heat exchangers to heat paper machine white water, and thus move heat to the paper machine system.

The project-related installation of the new TMP provides opportunities for waste heat capture and redirection back into papermaking processes.

Proposed Action: Install a heat recovery system.

Other Infrastructure

Some existing utilities that supported historic mill functions, especially operations for PM3 and PM4, will have to be relocated. In particular, installation of PM7 will require the likely relocation of some onsite storm sewer, sanitary sewers, potable water mains, and fire mains. The mill effluent sewers for PM5 and PM6 will also require rerouting, and a new line to handle PM7 will need to be added. Most of this activity will be restricted to the existing mill site, although some offsite connections to the main, area-wide system will likely be necessary.

Proposed Action: Conduct minor modifications to infrastructure.

Site Preparation and Schedule

The project will require site preparation related to construction of the TMP, PM7 and its components, and the paper warehouse option that is chosen. The proposed new plant expansion would be located in an area renovated after the removal of support structures for PM3 and PM4. These areas are commonly known as the research facility, shipping, Nos. 3 and 4 paper lines, old power plant, coating prep, and TMP.

The area requiring site preparation can be described as follows. The new PM7, finishing complex, and roll grinding building is envisioned as occupying an area starting just south of NW Second Street extending to the south approximately 400 feet and starting approximately 150 feet west of Pokegama Avenue extending to the west approximately 1,500 feet. A new TMP plant will be located on the west end of the paper machine building. Multiple options are being considered for paper warehousing, some onsite and some offsite.

The types of equipment and materials that are expected to be used for the construction activity are those typical to large, industrial projects. Excavation equipment such as dozers, diggers, backhoes, and trucks will be used for establishing appropriate elevation levels and the placement of pilings and other foundation structures. Construction of buildings will involve the use of crane-type lifting equipment.

The construction will progress in a normal sequence. The elevation and foundation work will be completed first, followed by the building structures proper, with the interior work completed last. New foundations and footings are required for the new buildings and equipment.

The comprehensive construction schedule has not been formulated at this time. Construction could commence in early 2006, with start up of the new paper machine line possible in late 2007.

Proposed Action: Conduct site preparation activities.

Proposed Treatment of Topic in EIS:
The EIS will include a complete project description, including the timing of all phases of construction and operation.

The EIS will consider all phased and connected actions along with the proposed project. Paper Warehouse Option No. 5 is potentially a phased action. Connected actions include: onsite PCC production; municipal WWTF improvements; and energy infrastructure improvements.

c. Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The project is privately proposed; its purpose is to upgrade the paper production machinery, technology, and capacity at the existing paper mill.

d. Are future stages of this development including development on any outlots planned or likely to happen?
___Yes _X_No
If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

e. Is this project a subsequent stage of an earlier project? _X_Yes ___No
If yes, briefly describe the past development, timeline and any past environmental review.

The site has been used for industrial purposes, principally hydropower generation and paper production, for over 100 years. The project occurs in the context of the site's historic use for these purposes.

The mill structures that housed Paper Machine Nos. 3 and No. 4 will be demolished prior to project implementation. No. 6 Turbine Generator is housed in this building; it will be decommissioned and removed from the site prior to the demolition activity. This demolition activity is completely permitted and is exempt from State Environmental Review requirements. This action is not part of the UPM/Blandin Paper Thunderhawk Project and is not subject to the EIS. See Figure 8, Demolition Diagram, regarding the existing structures being removed from the site.

7. **Project magnitude data**
Total project acreage: 19.0
Number of residential units: unattached: N/A attached: N/A maximum units per building: N/A
Commercial, industrial or institutional building area (gross floor space): total square feet: 828,000

Indicate areas of specific uses (in square feet): N/A

Office 5,400	Manufacturing 657,600
Retail N/A	Other industrial N/A
Warehouse N/A	Institutional N/A
Light industrial N/A	Agricultural N/A
Other commercial (specify)	

Building height 84 ft If over 2 stories, compare to heights of nearby buildings: Similar to existing structures; see Figure 9, Building Heights.

8. **Permits and approvals required.** List all known local, state and federal permits, approvals and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure.

Unit of government	Type of application	Status
DNR	Water Appropriation Permit Amendment	To be obtained
MPCA	Air Modification Permit	To be obtained
	National Pollutant Discharge Elimination System (NPDES) Storm Water Permit	To be obtained
	Hazardous Waste Permit	Existing permit
	NPDES/SDS Discharge Permit	To be obtained
Corps of Engineers	Section 10/404 Permit	To be obtained
City of Grand Rapids	Zoning Permit	To be obtained
	Building Code Compliance	To be obtained
Grand Rapids Public Utilities	Industrial Discharge Permit	Existing permit
City of Duluth	Zoning Permit	To be obtained
	Building Code Compliance	To be obtained
City of Coleraine	Zoning Permit	To be obtained
	Building Code Compliance	To be obtained

9. **Land use.** Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses. Indicate whether any potential conflicts involve environmental matters. Identify any potential environmental hazards due to past site uses, such as soil contamination or abandoned storage tanks, or proximity to nearby hazardous liquid or gas pipelines.

The current and historic use of land for the project is for industrial paper production.

The site was originally developed in 1901. Paper production for the present mill dates back to March 1902, when Itasca Paper Company began to make its first newsprint with Paper Machine No. 1. A second paper machine was added in 1921, which was followed by Charles K. Blandin's purchase of the mill in 1923. Paper Machine No. 3 was installed in 1932, which coincided with a primary product change from newsprint to groundwood printing paper. The primary product again changed in 1955 to the production of coated groundwood printing paper. The No. 4 line was added in 1963 to increase the mill's manufacturing capacity. Paper Machines 1 and 2 were retired in 1989 and 1932 respectively.

In 1977, British Columbia Forest Products Limited purchased Blandin Paper. A majority interest in BCFP was acquired by Fletcher Challenge, New Zealand in 1987. In 1988 the name of BCFP was changed to Fletcher Challenge Canada Limited. In 1997, Blandin Paper was purchased by UPM-Kymmene, which is headquartered in Helsinki, Finland; Blandin Paper is currently a North American subsidiary of UPM-Kymmene.

The mill was downsized in 2003 with the permanent shutdown of PM3 and PM4. The current papermaking facility consists of two paper machines, Numbers 5 and 6, that are producing lightweight coated groundwood paper.

A dam was built on the Mississippi River at this site as part of the original development. Electricity has been produced at the site continuously since 1901. The mill's cogeneration plant was purchased in March of 2000 by Allete/Minnesota Power. The REC provides the mill's steam and a portion of the electricity used in paper production.

The project is compatible with adjacent and nearby land uses. The current land use on the mill site is industrial and is zoned SI-2, Shoreland Industrial Park 2; this zoning will not change with the project. The present site consists primarily of building space, paved surfaces and parking lots, railroad track areas, and wood storage areas. The company has offices across the river from the mill; this area is zoned residential-business (R-B). This area also includes the Blandin Club House, and an office parking area for the Company.

The present mill site, including the proposed location for PM7, is bordered on the south by the Mississippi River, which is used locally as a recreational resource that supports a sport fishery. Areas to the north, northeast, and east are zoned for business (B-2 or B-3) and contain retail businesses, offices, and commercial services. Areas to the west and south across the river from the mill are residential and are zoned (R-2).

Residential units are located across the street from the wood storage area on the west and south across the river from the mill. The nearest residences are south of the mill, west of Pokegama Avenue, at a distance of about 350 feet.

The present mill site covers approximately 68 acres. The proposed addition of PM7 does not require the acquisition of additional private commercial properties in itself. However, the project contemplates adding paper warehousing facilities that could require acquisition of adjoining commercial properties, which in turn would require rezoning from a business to industrial classification.

No increase in parking facilities is anticipated.

A figure of the City of Grand Rapids Official Zoning Map is available upon request.

Proposed Treatment of Topic in EIS:
The EIS will discuss potential land use conflicts in sections addressing traffic and noise.

10. **Cover types.** Estimate the acreage of the site with each of the following cover types before and after development:

	Before	After		Before	After
Types 1-8 wetlands	0.0	0.0	Lawn/landscaping	0.6	0.8
Wooded/forest	0.3	0.3	Impervious surfaces	34.0	55.4
Brush/Grassland	0.0	0.0	Other: (describe)	33.1*	11.5
Cropland	0.0	0.0			
			TOTAL	68.0	68.0

If **Before** and **After** totals are not equal, explain why:

The mill site is a fully developed, industrial facility.

*The "other" category includes the former site of PM3 and PM4, whose impending demolition is not part of the project but is where the new PM7 will be located. The "after" balance of 11.5 acres is mostly existing graveled areas with some naturally vegetated areas along the Mississippi River. The category also includes additional non-paved areas located throughout the site.

Proposed Treatment of Topic in EIS:
This topic is minor, but will be discussed with limited information beyond that in the EAW. Specific mill site development details will be developed during EIS preparation. The EIS will include updated cover type information and "before and after" cover type maps, and will describe the conversion of existing land cover types that will result from project implementation.

11. **Fish, wildlife and ecologically sensitive resources**
    a. Identify fish and wildlife resources and habitats on or near the site and describe how they would be affected by the project. Describe any measures to be taken to minimize or avoid impacts.

Wildlife Resources. The bulk of the site supports wildlife species typical to an industrial setting. Animals present are those adapted to urban conditions where the availability of natural forage and cover is low. Species likely to be found include crows, starlings, and rabbits. Better quality wildlife habitat is however available at the project site's southern boundary along the Mississippi River. Species typical to Northern Minnesota's riparian-type habitats may be present, including various small mammals, a variety of birds, and some herps (e.g., turtles; frogs). This better quality habitat is limited to narrow strips of natural vegetation located between the developed areas and the river that is broken up with stretches of more developed property.

The project will result in little or no impact to wildlife species on or near the site. No habitat conversion is

associated with the proposal. Noise-related disturbance will be present during construction, but this will be local, temporary, and limited to the construction period itself. Once the project is built, it is possible that noise-related disturbance effects will be present for wildlife located in the immediate vicinity of the mill due to the round-the-clock operation of the woodyard or other facilities. Species present will either habituate to the noise or be displaced to neighboring habitat areas if available; the result of this displacement will be intra- and inter-specific competition that can result in a small, local population decline. Measures to reduce offsite noise propagation may reduce some of the disturbance effects. Minimal impact is anticipated.

Proposed Treatment of Topic in EIS:
The EIS will not include a discussion of wildlife resources.

Fish Resources. The Mississippi River Paper Mill Reservoir and the Mississippi River abut the site's southern boundary; these waterbodies are separated by the Blandin Dam. The river above and below the dam exhibits a warm water fishery, including several species of sport fish. Species present include: northern pike; walleye; muskellunge; spottail shiner; yellow bullhead; pumpkinseed; largemouth bass; bowfin; and common sucker. Other aquatic resources include various species of herps and invertebrates.

River-related Water Appropriation. The project includes the appropriation of Mississippi River water from two intake structures, one existing and one new. Both the existing and proposed new intake structures will appropriate water from the Mississippi River Paper Mill Reservoir; the existing structure is located in the Blandin Dam and the new structure is proposed to be located just upstream of the Blandin Dam. Although not essential to the project, installing the new structure will address some limitations of the existing pumping operation. Water taken in by the structure will be used for cooling process equipment and for process-related purposes.

Water intake structures of the proposed type can cause death or injury to aquatic organisms by *impingement* (being pinned against screens or other parts of a water intake structure) or *entrainment* (being drawn into the water system and be subjected to thermal, physical, or chemical stresses). Aquatic organisms affected by these water withdrawals include fish, fish larvae and eggs, crustaceans, mollusks, invertebrates, and other free-floating microscopic plants and animals.

Both project-related intake structures can result in impingement and/or entrainment of fish and other aquatic biota under normal operating conditions. According to a previous study at the site, the seasonal pattern of impingement for most species was characterized by the absence or low presence of fish during the winter months followed by a marked increase in mid- to late-summer, and subsequent decline to near zero by late fall or early winter. Annual impingement with the current water intake structure for both sport fish and non-sport fish was recorded in 1976 to be 86.3 lbs. Because the facility will increase its water use by approximately 10%, it is possible that intake structure-related impingement and/or entrainment might increase with the project in the absence of impact control measures.

The project's impingement- and/or entrainment-related impacts are regulated under DNR's Water Appropriation Permit Amendment. Measures available to reduce project-related impingement include: conducting an impingement study; application of Best Available Technologies (BATs); and using appropriate intake screen sizes, flows, and depths. It is possible that the application of these measures can substantially reduce the impingement of larger fish, but some measure of entrainment of smaller fish fry and eggs and other microorganisms probably cannot be avoided. Compensatory damage payments, which are negotiated through the permit process, are a possible mitigation for entrainment-related impacts.

The proposer has committed to meet all DNR permit conditions assigned to both intake structures to avoid, minimize, and mitigate project-related impingement and/or entrainment effects. With proper design and operation, impacts to aquatic resources are expected to be minimal.

Non-Contact Cooling System Discharge. The proposed installation of a non-contact cooling system with the project will create a new warm water discharge into the river. It will affect the same general reach of river associated with the current warm water discharge from Allete/Minnesota Power's No. 6 Turbine Generator (that will be terminated). The temperature and potentially affected area profile of the proposed discharge is expected to be similar to the current condition.

Warm water discharges can reduce the receiving water's ability to hold dissolved gases (e.g., oxygen), maybe to levels too low to support some aquatic species, or can be at temperatures that can stress aquatic organisms. Potential adverse impacts can be reduced through: 1) minimizing the temperature differential between the discharge and receiving water, and 2) providing adequate instream mixing.

The proposed discharge will require an MPCA NPDES/SDS permit. Measures available to avoid or reduce adverse thermal impacts include: 1) requiring the discharge to be within a temperature differential limit over the temperature of the intake water; 2) establishing an absolute temperature limit that cannot be exceeded; 3) applying a mix of differential and ultimate limits; and 4) restrictions tied to low flow or drought conditions. MPCA's permit process will require the proposer to demonstrate that the pollutant flow and loading will not diminish water quality before the permit will be issued. The project will meet all permit requirements.

Little adverse effect to the fishery resources of the Mississippi River is anticipated with the project.

Proposed Treatment of Topic in EIS:
This topic is minor; it will be discussed briefly in the EIS using the same information as in the EAW.

b. Are any state-listed (endangered, threatened or special concern) species, rare plant communities or other sensitive ecological resources such as native prairie habitat, colonial waterbird nesting colonies or regionally rare plant communities on or near the site? _X_ Yes ___No

If yes, describe the resource and how it would be affected by the project. Indicate if a site survey of the resources has been conducted and describe the results. If the DNR Natural Heritage and Nongame Research program has been contacted give the correspondence reference number: ERDB20050214. Describe measures to minimize or avoid adverse impacts.

The DNR's Natural Heritage and Nongame Research Program was consulted to determine if any rare plant or animal species, or other natural significant features, are known to occur within the general area of the proposed project. Records are available for two occurrences of rare species or natural communities that occur, or may occur, in the search area.

Live specimens of two special concern mussel species, black sandshell mussel (*Ligumia recta*) and creek heelsplitter mussel (*Lasmigona compressa*), were documented in the Mississippi River approximately 2000 feet downstream of the Blandin Dam. Black sandshell mussels are found in medium to large rivers where waters flow continuously through; most often they are embedded in gravel or firm sand. Creek heelsplitter mussels

often occur in the creeks and headwaters of small to medium rivers, embedded in fine gravel or sand. Mussels are susceptible to water quality degradation from changes in runoff or other physical changes such as damming, channelization, and dredging.

Permit-related conditions to control runoff, sedimentation, and thermal impacts, with the associated water quality protections, should be protective of these species and their instream habitat. Any adverse impacts should be minimal.

Proposed Treatment of Topic in EIS:
The EIS will not discuss rare animal or plant species or natural communities.

12. **Physical impacts on water resources.** Will the project involve the physical or hydrologic alteration – dredging, filling, stream diversion, outfall structure, diking, and impoundment – of any surface waters such as a lake, pond, wetland, stream or drainage ditch? _X_ Yes ___No
If yes, identify water resource affected and give the DNR Protected Waters Inventory number(s) if the water resources affected are on the PWI: 31-533 (for reservoir). Describe alternatives considered and proposed mitigation measures to minimize impacts.

New Water Intake Structure. The project involves work-in-the-bed of the Mississippi River to install a new water intake structure.

The structure will be located in the Mississippi River Paper Mill Reservoir just upstream of the Blandin Dam. Project-related construction could include: 1) limited dredging and/or excavation or 2) installation of riprap. Erosion or sedimentation is possible without use of appropriate best management practices (BMPs), including: 1) deposit of excavated materials in suitable upland areas; 2) control of turbidity with a silt curtain; 3) timing the project to anticipate desirable flow conditions; and 4) exotic species inspection and control.

The installation of this structure is subject to DNR's Water Appropriation Permit Amendment. It is also subject to US Army Corps of Engineers permitting authority under Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act. The former regulates all work occurring in the navigable waters of the Unites States while the latter regulates the discharge of dredged or fill material into the waters of the United States. Both state and federal permits will require that the water intake structure be designed, placed, and operated such that adverse impacts are avoided and/or minimized. Little or no impact is expected from the operation of the intake structure once construction is complete.

Proposed Treatment of Topic in EIS:
This topic is minor, but will be discussed with limited information beyond that in the EAW. The EIS will discuss both proposed structures. For the new intake structure, a description of site selection criteria, a proposed design, construction techniques, and an estimate of soil/sediment disturbance will be provided. For the existing structure, proposed improvements to reduce the potential for impingement/entrainment will be detailed. The EIS will list available BMPs appropriate to this type of activity.

13. **Water use**. Will the project involve installation or abandonment of any water wells, connection to or changes in any public water supply or appropriation of any ground or surface water (including dewatering)? _X_ Yes ___No
If yes, as applicable, give location and purpose of any new wells; public supply affected, changes to be made, and water quantities to be used; the source, duration, quantity and purpose of any appropriations; and unique

well numbers and DNR appropriation permit numbers, if known. Identify any existing and new wells on the site map. If there are no wells known on site, explain methodology used to determine.

The project involves the appropriation of water from the Mississippi River to meet papermaking process and non-contact cooling water requirements. The majority of this water will be returned to the river as a regulated discharge. Water appropriation at the facility is regulated under existing DNR Water Appropriation Permit #75-2147; the project requires amendment of this permit.

DNR Water Appropriation Permit #75-2147 authorizes UPM/Blandin Paper and Allete/Minnesota Power to use a maximum of 16 billion gallons per year. Of this total, some 7 billion gallons per year is allocated for paper production purposes while the balance of 9 billion gallons per year is allocated for turbine generator cooling (at the REC generating facility). Future combined appropriations will be similar to current levels because Allete/Minnesota Power plans to decommission and remove the No. 6 Turbine Generator from the site and the Thunderhawk project adds a similarly-sized non-contact cooling loop system to the facility. No. 6 Turbine Generator was cooled by appropriated river water.

The current water balance is best estimated for the 2003-04 operations of PMs 5 and 6. Daily water use averaged 5.9 million gallons per day (mgd), with a maximum use of 7.5 mgd. This amounted to approximately 2.16 billion gallons of water taken from the river per year and is considered typical of the current condition.

The future anticipated water balance is as follows:

Mill-related operations. Water appropriation for mill-related operations is proposed to increase with the project to an average level 10.1 mgd, with a maximum anticipated use of 10.6 mgd. This represents water use at 3.68 billion gallons per year. The maximum design use with the project is 14.0 mgd, which is below permit limits and results in a total projected mill-related appropriation of 5.2 billion gallons per year under maximum operating conditions.

Non-contact Water Cooling Loop. Water appropriation use for non-contact water cooling purposes is expected to occur at a maximum rate of 24.65 mgd, with a total predicted annual water use for this purpose as 3.0 billion gallons per year. Water appropriation will only likely occur during summer conditions, most likely over a 3-4 month period.

TMP Motor Cooling. The TMP motors require cooling at a rate of 1.3 mgd, with a total annual water use of 0.5 billion gallons.

REC-related Water Use. The REC will use water for boiler-related steam generation and for make-down uses. This use will average 2.2 mgd and result in an annual water use of 900 million gallons per year.

Total Proposed Annual Water Use. The total amount of water predicted to be used by all operations at the facility is 8.8 billion gallons per year. Of this total, 7.9 billion gallons will be used by UPM/Blandin Paper and 900 million gallons will be used by Allete/Minnesota Power.

The current Water Appropriation Permit allows for the appropriation of water far in excess of the complete operations' design limits (e.g., paper mill and REC). The permit will be amended to better reflect anticipated future water use levels. Potential controls include: 1) installation of flow meters to accurately gauge and record flows; 2) annual reporting requirement; 3) employing water conservation techniques and practices; 4)

assignment of a water use cap; and 5) prescribed use restrictions. The project will comply with all permit-related conditions.

Regarding potential changes in potable or municipal water uses, the project is not expected to result in any appreciable changes.

Proposed Treatment of Topic in EIS:
This topic is minor, but will be discussed with limited information beyond that in the EAW. A water balance will be provided comparing current versus proposed appropriation levels.

14. **Water-related land use management district.** Does any part of the project involve a shoreland zoning district, a delineated 100-year flood plain, or a state or federally designated wild or scenic river land use district? _X_Yes ___No
If yes, identify the district and discuss project compatibility with district land use restrictions.

The project site abuts the north bank of the Mississippi River in downtown Grand Rapids, Minnesota. The location is part of a state-mandated shoreland zoning district administered by the City of Grand Rapids. The Mississippi River Paper Mill Reservoir at the project site is classed as General Development while the river reach below the Blandin Dam has a shoreland classification of Urban. The site itself is zoned SI-2, Shoreland Industrial Park 2 (General Industrial) by the City. The continued use of the site under the project is consistent with this classification.

Development along the Upper Mississippi River from Lake Itasca to the southern boundary of Morrison County is subject to the 2002 Mississippi Headwaters Board (MHB) Comprehensive Plan. The MHB jurisdiction applies to the unincorporated areas of the counties lying along the Mississippi River and Headwaters Lakes, including Itasca County. The MHB corridor does not apply to the site because it lies within the corporate limits of the City of Grand Rapids.

The delineated 100-year floodplain has two values at the site; one applies to development above the Blandin Dam while the other applies to development below the dam. The elevation above the dam is 1269.0 feet and the value below the dam is 1256.7 feet. The project site is at an average elevation of 1283 feet. Based on this information and review of the floodplain maps, the project is not in the regional floodplain.

Proposed Treatment of Topic in EIS:
The EIS will not include a discussion of water-related land use management districts.

15. **Water surface use**. Will the project change the number or type of watercraft on any water body? __Yes _X_No
If yes, indicate the current and projected watercraft usage and discuss any potential overcrowding or conflicts with other uses.

Proposed Treatment of Topic in EIS:
The EIS will not include a discussion of water surface use.

16. **Erosion and sedimentation.** Give the acreage to be graded or excavated and the cubic yards of soil to be moved:
acres 9.5; cubic yards 85,000. Describe any steep slopes or highly erodible soils and identify them on the site

map. Describe any erosion and sedimentation control measures to be used during and after project construction.

The project site is characterized as level with permeable soils. The majority of the construction will occur in developed, stable areas not subject to erosion. Bulk excavation of approximately 85,000 cubic yards is necessary for the PM7 machine room and roll grinding/storage complex. This excavation below the complex requires the placement of approximately 72,000 cubic yards of compacted granular fill to bring the prepared site to elevation 1273 feet, which is the elevation needed to suit the footing installation. Most soil disturbance will be in the areas for the new TMP, PM7 and its finishing unit and roll storage facilities, the filler clay structure, and any paper warehouse.

Erosion and sedimentation in the construction area will be minimized using accepted construction methods, including directing construction-related runoff to the existing mill drainage system. Where surface runoff could potentially flow directly into the Mississippi River, the proposer indicates a drainage ditch with sedimentation barriers will be constructed to intercept these flows and direct it into the existing storm drainage system. These site improvements will be made consistent with the City of Grand Rapids' development requirements.

MPCA requires a general NPDES storm water construction permit for projects that disturb five or more acres. Such a permit is required for the project. It provides for the use of BMPs such as silt fences, bale checks, and prompt revegetation to prevent eroded sediment from leaving the construction site. The proposer must have a sediment and erosion control plan that will provide more detail regarding the specific measures to be implemented and will also address: phased construction; vehicle tracking of sediment; inspection of erosion control measures implemented; and timeframes in which erosion control measures will be implemented. The project will comply with all applicable permit conditions.

Proposed Treatment of Topic in EIS:
This topic is minor, but will be discussed with limited information beyond that in the EAW. Schematics will be provided in the EIS that show: 1) where grading and excavation will occur, 2) the proposed storm water drainage system, and 3) areas where new landscaping or access roads will be installed along the Mississippi River on the south side of the project area.

17. **Water quality: surface water runoff**
    a. Compare the quantity and quality of site runoff before and after the project. Describe permanent controls to manage or treat runoff. Describe any stormwater pollution prevention plans.

The project will convert approximately 21.4 acres of graveled or earthen surfaces to impervious surfaces, which in turn will increase the quantity of runoff generated at the site from current conditions. The proportional increase in runoff generation is projected to be approximately 35% based on the change in impervious area. Pre- and post-project runoff volumes have not been calculated.

Runoff quality is typical to that which results when precipitation falls on buildings, pavement, and some natural surfaces. Little or no change in runoff quality is expected post-project.

Runoff generated at the site is conveyed to an existing storm drainage system that will require limited modification to accommodate the project. See Figure 10, Existing Storm Sewer Plan. These modifications are required to handle runoff from roof drains and surface runoff for the new buildings being proposed. Wherever possible, landscaping will be installed along the Mississippi River on the south side of the project area as a BMP to limit potential runoff-related impacts.

The general NPDES Storm Water Permit requires adequate storm water treatment capacity to assure that water quality is not adversely affected by runoff once the project is constructed. The facility is subject to an existing Storm Water Pollution Prevention Plan (SWPPP) that will be modified to include the new project-related facilities being installed at the site. The SWPPP prescribes what controls should be used to protect runoff quality prior to leaving the site, including routine inspections and storing process-related materials in locations that do not allow any contact with stormwater.

b. Identify routes and receiving water bodies for runoff from the site; include major downstream water bodies as well as the immediate receiving waters. Estimate impact runoff on the quality of receiving waters.

Runoff generated by the project is directed to the both the Mississippi River Paper Mill Reservoir (above the dam) and the Mississippi River (below the dam). The majority of runoff enters the paper mill reservoir. Little or no impact is expected on the quality of the receiving water from current conditions.

Proposed Treatment of Topic in EIS:
The topic is minor, but will be discussed with limited information beyond that in the EAW. Specific estimates of pre- and post-project runoff quantities will be provided. A qualitative description of runoff quality and the related impact on the receiving water will be provided. The EIS will also detail the changes to the existing storm drainage system needed for the project and what additional water treatment measures, if any, are necessary to protect water quality. Possible changes to the SWPPP will be listed.

18. **Water quality: wastewaters**
    a. Describe sources, composition and quantities of all sanitary, municipal and industrial wastewater produced or treated at the site.

The project will create two types of wastewater, specifically sanitary wastewater and industrial wastewater.

Sanitary Wastewater. Sanitary wastewater typical to any industrial- or manufacturing-type operation will be produced at the mill. The facility is connected to the existing sanitary system and will not be affected by the project. Assuming a daily workforce of 350 persons per day are using 100 gallons of water over that period, approximately 35,000 gallons of sanitary wastewater will be generated at the facility. The project increases employment by an estimated 25 employees a day; this represents a project-related increase of 2500 gal/day.

Industrial Wastewater. All water used for paper production is taken from the Mississippi River and mechanically screened. Once screened, a portion is used as non-contact cooling water with the remainder allocated for process-related purposes. Wastewater generated at the mill is routed for treatment at the Grand Rapids municipal wastewater treatment facility (WWTF) or is proposed to be discharged back into the Mississippi River.

Wastewater directed to the publicly operated facility occurs at a current daily average flow of 5.8 mgd. Flows are first directed to the Industrial Wastewater Treatment Plant for primary treatment and are then transferred to the Combined Domestic/Industrial Secondary Plant. The WWTF discharges the treated effluent into the Mississippi River at an outfall structure located downstream of the Blandin Dam. There are two sources of this flow:

Non-contact cooling water. Water used for cooling that does not come into contact with a raw material,

intermediate product, waste product other than heat, or finished product is termed "non-contact cooling water." Equipment used in the papermaking process is cooled by this type of water under present and proposed operations. The facility operates with a once-through system where the water is not recirculated for other purposes.

The composition of the non-contact cooling water does not change other than any changes due to screening. No chemicals are added or used to treat this water.

The quantity of non-contact cooling water changes slightly with the project from the levels occurring when PMs 5 and 6 were operating. Volumes under current or proposed conditions are not available. The facility does not meter this flow and pre-engineering estimates for future operations have not been formulated. Estimates of post-project flows should be available once the pre-engineering is complete. The proposer anticipates installing measurement devices to monitor flow volumes for future operations.

Process water. Water used in the actual papermaking process is termed "process water." Because the targeted paper grades are sensitive to water quality, river water taken for process purposes is treated by flotation to separate out colloidal impurities, is filtered, and then is pumped to a fresh water storage tank. Process water as a wastewater source is generated in a number of activities, including chip washing, PGW, TMP, and paper production.

Process water does change in composition as a function of use. These changes are summarized in Table 4, Quality of Process Water Discharged to the Municipal WWTF. Volumes under current and proposed conditions are not available. The facility does not meter this flow and pre-engineering estimates for future operations have not been formulated. Estimates of post-project flows should be available once the pre-engineering is complete. The proposer anticipates installing measurement devices to monitor flow volumes for future operations.

Increased levels of paper production will result in increased project-related flows to the WWTF. Effluent generation is expected to increase with the project to an average 1.7 mgd to a daily average flow of 7.5 mgd. In addition to increased flows, effluent quality will also change with the project; biological oxygen demand (BOD) will increase from current conditions. The clarifiers at the primary plant are adequately sized and dimensioned for the future loading, however the secondary facility is now being evaluated on the potential effect of the proposed expansion on the biological treatment efficiency.

Table 4: Quality of Process Water Discharged to the Municipal WWTF

Waste Streams	Current	Future
PH	6-9	6-9
TSS	32 mt/d	51 mt/d*
BOD_7	15 mt/d	32 mt/d
CBOD	31 mt/d	64 mt/d
Volume	8.2 mgal/d maximum	10.6 mgal/d maximum
Volume	5.8 mgal/d average	7.5 mgal/d average
Temperature	112 F average	112 F average
Temperature	125 F maximum	125 F maximum
*units in metric tons/day		

The project includes a proposed new discharge of industrial wastewater to the Mississippi River.

Non-contact Cooling Loop. The proposed addition of a non-contact cooling loop will result in a new warm water discharge to the Mississippi River. The discharge is projected to occur mainly under summer conditions over a three to four month period. This discharge will require a NPDES/SDS Discharge Permit that will stipulate the maximum discharge flow and thermal pollutant loading from the facility. Although not a feature of the project, Allete/Minnesota Power's retirement of No. 6 Turbine Generator will eliminate an existing thermal discharge at the site. The proposed new discharge is expected to be very similar in character to the existing discharge (being retired).

Measures available to avoid or reduce adverse thermal impacts include: 1) requiring the discharge to be within a temperature differential limit over the temperature of the intake water; 2) establishing an absolute temperature limit that cannot be exceeded; 3) applying a mix of differential and ultimate limits; and 4) restrictions tied to low flow or drought conditions. MPCA's permit process will require the proposer to demonstrate that the pollutant flow and loading will not diminish water quality before the permit will be issued. The permit will likely have assigned flows and seasonal restrictions. The project will meet all permit requirements. Little or no adverse impact is anticipated with this project-related discharge.

b. Describe waste treatment methods or pollution prevention efforts and give estimates of composition after treatment. Identify receiving waters, including major downstream water bodies, and estimate the discharge impact on the quality of receiving waters. If the project involves on-site sewage systems, discuss the suitability of site conditions for such systems. (See answer for c below)

There is no onsite treatment of wastewater associated with the project.

c. If wastes will be discharged into a publicly owned treatment facility, identify the facility, describe any pretreatment provisions and discuss the facility's ability to handle the volume and composition of wastes, identifying any improvements necessary.

All project-related wastewater is directed to the Grand Rapids WWTF prior to discharge to the Mississippi River.

The WWTF's existing NPDES permit will not require alteration to accommodate the project. Permit limitations include a design flow of 15.2 mgd and effluent concentrations of 25 mg/l for carbonaceous biological oxygen demand (CBOD) and 20 mg/l total suspended solids (TSS). The combined industrial and sanitary wastewater flows with the project will be approximately 12.9 mgd, of which 11.6 mgd will be from the paper mill. Violations of water quality standards below the WWTF discharge point occur infrequently under existing conditions and are not likely to increase with the project. The proposer and Grand Rapids Public Utilities have an agreement that regulates wastewater quality leaving the mill.

Both flows and effluent quality of wastewater sent to the WWTF change with the project. In particular, biological oxygen demand (BOD) will increase from current conditions. The clarifiers at the primary plant are adequately sized and dimensioned for the future loading, however the secondary facility may require modification to ensure adequate biological treatment efficiency.

The proposer and Grand Rapids Public Utilities are currently evaluating what improvements or modifications may be necessary for the WWTF to process the future waste stream. Preliminary study indicates that a minor

change is needed to improve BOD treatment capabilities, specifically improved oxygen contact performance. New technology, such as fine bubble diffusion equipment, will likely be utilized. The potential installation of this new technology is a connected action. No change in existing NPDES/SDS permit limits are required for the application of this new technology to the plant. The WWTF will continue to comply with all permit requirements.

d. If the project requires disposal of liquid animal manure, describe disposal technique and location and discuss capacity to handle the volume and composition of manure. Identify any improvements necessary. Describe any required setbacks for land disposal systems.

Not applicable.

Proposed Treatment of Topic in EIS:
The topic is minor, but will be discussed with limited information beyond that in the EAW. Proposed improvements to the WWTF, which constitute a connected action to the project, will be detailed in the EIS. The EIS will identify the anticipated pollutant flow and thermal loading associated with the non-contact cooling loop discharge.

19. **Geologic hazards and soil conditions**
    a. Approximate depth (in feet): to ground water: 18 minimum / 24 average
       to bedrock: 100 minimum / 175 average.

       Describe any of the following geologic site hazards to ground water and also identify them on the site map: sinkholes, shallow limestone formations or karst conditions. Describe measures to avoid or minimize environmental problems due to any of these hazards.

    None of these features are present.

    b. Describe the soils on the site, giving NRCS (SCS) classifications, if known. Discuss soil granularity and potential for groundwater contamination from wastes or chemicals spread or spilled onto the soils. Discuss any mitigation measures to prevent such contamination.

    The geology of the site is typical for northern Minnesota. The project area is considered geologically stable and is characterized by a layer of ice contact stratified glacial drift ranging from 100-250 feet in depth. The drift overlays a southeastward-dipping Animikie (620,000,000 year old) rock formation. The specific bedrock under the project area is formed of Virginia Argillite, which is a clay containing rock.

    The proposer conducted a subsurface soil investigation to characterize the site's soils. Peat soils were detected in one boring hole at the extreme western end of the site. The boring indicates that the area is covered by a 5-foot layer of fill-type sand. The second horizon is a 2-foot layer of peat that was once a surface feature. No other indications of peat were found in the rest of the boring or in other bore holes. Records indicate that the peat area was formerly the edge of the original dam impoundment area in the early part of the 20th century. When the original dam collapsed, the replacement dam formed a smaller impound area. The specific peat site became dry land that was eventually backfilled and used for logyard.

    Several strata were encountered during the soil survey. The surficial sand fill layer is generally loose to medium sand fill (SP) that is 5-13 feet thick; at some locations this zone contains concrete demolition debris.

The surface fill horizon overlies the former natural surface of loose to medium dense native sand (SP) that also contains a number of gravel sizes. The third layer of the strata is characterized by dense sand and gravel deposits (GP) that are found beginning at varying depths of 5-27 feet below the surface. These dense sand and gravel structures were found to extend to the bottoms of the soil exploratory holes, which reached depths of 50-100 feet. At localized areas within the site, a 5-10 foot thick layer of stiff to hard plastic clay (CH) was found situated between the layer of loose to medium natural sand and the horizon composed of dense sand and gravel.

The SCS soil type map in the parking lot area is 1043C-Udorthents, which are nearly level to rolling. Udorthents are well drained, and moderately well drained, soils that are found near iron mines and urban areas where soil material has been removed and redeposited by earth moving machinery. The material is typically stratified, but lacks soil horizons, except for those in the underlying buried soil. The soil typically is pale brown to reddish brown, loamy, sandy, or mixed sandy and loamy material. In most areas it is glacial till, but some areas contain low-grade iron ore ranging in size from clay particles to pebble size. Permeability is moderately rapid to slow. Available water capacity ranges from high in the loamy material to low in the sandy material. The surface runoff rate is medium. The organic matter content in these soils is low and natural fertility is low to medium. Included with these soils are small areas of natural soils mainly Nashwauk and Itasca soils on the slightly higher areas or poorly drained Blackhoof and Cathro soils in small depressions. These soil types make up less then 10% to the total.

Zimmerman Series soils occur at the site. These soils are typically nearly level to sloping, are excessively drained, and occur on glacial lake and outwash plains. The slopes are generally plane or convex in nature. Typically the surface layer consists of about one inch of organic forest litter. The first defined horizon is dark grayish brown, grayish brown and dark gray loamy fine sand about three inches thick. The subsoil is about 20 inches of dark yellowish brown fine loamy sand and yellowish brown fine sand. The next 40 inches of soil is light gray and pale brown fine sand that has thin bands of brown loamy fine sand. The underlying material to a depth of 75 inches or greater is pale brown fine sand. In selected areas the soil has loamy layers, while in other areas the soil has sandy layers of predominantly coarse sand. Permeability is rapid in the Zimmerman soil and available water capacity is low. Surface runoff is slow. The soil is strongly acid or medium acid throughout. Organic matter content and natural fertility are low. Included within this soil type area are small areas of somewhat poorly drained Cowhorn soils in shallow depressions and drainage-ways. In areas of poor drainage such as deeper depressions Sago soils may be found. These soils form less then 10% of the total soil in this type.

Regarding the potential for soil contamination, some of the onsite soils are susceptible to contamination. Spill prevention for all construction areas will be maintained through constant inspections and monitoring of construction activity. Strict adherence to spill prevention and control BMPs will be enforced during construction. Once the project is operational, spill responses will continue to be coordinated by the UPM/Blandin Paper Spill Response Team. The spill team is trained and the mill maintains adequate spill response materials to address any spill of fuels or other petroleum products.

Proposed Treatment of Topic in EIS:
This topic is minor; it will be discussed briefly in the EIS using the same information as in the EAW.

20. **Solid wastes, hazardous wastes, storage tanks**
    a. Describe types, amounts and compositions of solid or hazardous wastes, including solid animal manure, sludge and ash, produced during construction and operation. Identify method and location of disposal. For

projects generating municipal solid waste, indicate if there is a source separation plan; describe how the project will be modified for recycling. If hazardous waste is generated, indicate if there is a hazardous waste minimization plan and routine hazardous waste reduction assessments.

Solid Wastes. Three types of solid waste are produced at the facility. The PCC-generated wastes are new to the facility while ash and wastewater treatment solids are currently produced from the mill.

Ash. Use of bark and wood waste as boiler fuel produces ash that has value for agricultural spreading. The addition of PM7 will not result in increased burning of bark and wood waste as boiler fuel. It is expected that the current practice of making boiler ash available for agricultural purposes will continue. In the event that ash cannot be made available for this purpose, disposal will occur at the Grand Rapids Industrial Waste Landfill.

PCC-generated Wastes. The onsite PCC operation will generate non-hazardous solid wastes. These will be landfilled at the Grand Rapids Industrial Waste Landfill.

Wastewater Treatment Solids. Byproducts of the wastewater treatment process will continue to be generated at the Grand Rapids WWTF. These solids will continue to be landfilled at the permitted landfill owned and operated by the City of Grand Rapids.

Any impacts associated with solid waste management are considered minimal.

Hazardous Wastes. Hazardous waste generation will not change with the project. The mill is designated as a Small Quantity Generator and will continue to operate under its current MPCA Hazardous Waste License Number MND006158943. All hazardous waste is manifested to Treatment Storage Disposal Facilities that are permitted in their respective states and are approved by both MPCA and the State's Hazardous Waste Vendor. Waste Codes, management methods, and reported quantities of hazardous wastes have been summarized in the MPCA Hazardous Waste License Application Forms, which are on file with the MPCA.

No impacts are anticipated.

b. Identify any toxic or hazardous materials to be used or present at the site and identify measures to be used to prevent them from contaminating groundwater. If the use of toxic or hazardous materials will lead to a regulated waste, discharge or emission, discuss any alternatives considered to minimize or eliminate the waste, discharge or emission.

There will be no change in hazardous or toxic materials used or stored onsite as a function of project implementation.

c. Indicate the number, location, size and use of any above or below ground tanks to store petroleum products or other materials, except water. Describe any emergency response containment plans.

All current and proposed above-ground storage tanks (ASTs) are depicted on Figure 3. All new tanks will be designed to provide secondary containment that meets or exceeds the regulatory requirements for emergency response. The new ASTs will be incorporated into the AST permit and will be routinely inspected in accordance with the permit requirements.

No impacts are anticipated.

Proposed Treatment of Topic in EIS:
The topic is minor, but will be discussed with limited information beyond that in the EAW. The types, amounts, and compositions of solid and hazardous wastes produced during future operations will be listed.

21. **Traffic**. Parking spaces added: N/A. Existing spaces (if project involves expansion) N/A. Estimated total average daily traffic generated: See below. Estimated maximum peak hour traffic generated (if known) and time of occurrence: See below. Provide an estimate of the impact on traffic congestion on affected roads and describe any traffic improvements necessary. If the project is within the Twin Cities metropolitan area, discuss its impact on the regional transportation system.

The project does not occur in the Twin Cities metropolitan area.

The paper mill is located near the intersection of US Trunk Highways (USTHs) 2 and 169, both of which are the region's principal commercial highways. USTH 2 proceeds east-west while USTH 169 goes north-south. State Trunk Highway (STH) 38 functions as a lower level state highway serving trips to/from the north of Grand Rapids. A Burlington-Northern Railroad line parallels USTH 2. See Tables 1 and 2 for the projected changes in truck and rail traffic.

These tables show that both truck and rail traffic increase with the project. The values provided represent the maximum potential increase. Other potential sources of increased traffic involve employees and service vehicles entering and leaving the mill as well as traffic associated with any proposed offsite paper warehouse location.

The City of Grand Rapids, in concert with the Arrowhead Regional Development Commission, updated the Grand Rapids Area Transportation Plan in 2002. The report indicates that the City's street system is based on the hierarchy created by the major access routes. USTHs 2 and 169 are major thoroughfares that connect Grand Rapids to the region. USTH 2 is also the primary commercial street through the community, which is called Fourth Street. STH 38 is a minor thoroughfare. Several streets function as secondary access routes, or collectors. These include Pokegama Avenue north of Fourth Street, East and West Fifth Street, and River Road along the south bank of the Mississippi River.

Table 1: Projected Raw Wood Transport and Arrivals

Time Period	Softwoods	Hardwoods	Totals
Present Condition (YTD thru August, 2004)	256 cords/day 20 truck/day 40 rail cars/year	179 cords/day 18 trucks/day	435 cords/day 38 trucks/day 40 rail cars/year
Proposed Condition	441 cords/day 31/trucks day 500 rail cars/year	565 cords/day 57 trucks/day	1006 cords/day 88 trucks/day 500 rail cars/year

Table 2: Finished Paper Product Transport and Departures (per day)

Time Period	Maximum Number of	Minimum Number of	Maximum Number of	Minimum Number of

	Rail Cars	Rail Cars	Trucks	Trucks
Present Condition (Warehouse onsite)	12	1	45	9
Proposed Condition (Warehouse onsite)	23	1	93	23
Proposed Condition (Warehouse offsite)		1	93	89

The Area Transportation Plan Update included consideration of this type of project (as proposed and subject to this EIS) as part of its analysis. It examined the downtown traffic circulation and parking systems in order to identify and resolve traffic-related issues. The analysis:

- included external traffic connections and internal circulation within the downtown district;
- focused on existing street configuration and capacities;
- identified the origin and destination of traffic; and
- mapped traffic flow.

The analysis was based upon: 1) previously prepared reports regarding the downtown and surrounding community, 2) reconnaissance of the downtown street system undertaken by a consulting team in the fall of 1988; and 3) key person and staff interviews undertaken early in the planning period. The Report outlined a series of recommended actions to be taken.

The project increases the number of daily vehicle trips associated with the facility. When considered in isolation, the direct effects associated with the absolute trip generation numbers are not great. However, when considered in the overall transportation and traffic context of the area, the combination of direct and indirect impacts upon traffic are potentially significant. Key issues include:

- the potential for increased daily traffic volume on USTH 2 between 12th Avenue West and Pokegama Avenue (USTH 169).
- the potential for peak hour traffic performance impacts at the intersection of USTH 2 and 12th Avenue West because 12th Avenue West will become an increasingly important access route for trucks and employees.
- the potential for peak hour traffic performance impacts at the intersection of USTH 2 and Pokegama Avenue because this is the busiest intersection in the downtown Grand Rapids area.
- the potential for peak hour traffic performance impacts at the intersection of Pokegama Avenue and 1st Street Southwest because this intersection serves the Blandin Paper office facility and also serves as an important access point from the south and east.
- potential project-related changes to rail traffic, including rail crossings such as those present at 12th and 18th Avenues Northwest.
- recommendations contained in the Transportation Plan, such as including an extra-long eastbound right turn lane and signalizing the USTH 2 / 18th Avenue Northwest intersection.
- how each of the shipping and warehousing options might affect daily traffic volumes and nearby intersections.
- any cumulative effects to the regional transportation network from the project-related increase in truck and rail traffic.

Implementation of the 2002 Grand Rapids Transportation Plan Update by design can mitigate some of the project's impacts. This is understandable since this type of project, at least in concept, was an assumption considered under the Plan. To the degree that recommendations from the plan have indeed been conducted, or

funding has been obtained, will determine the required transportation improvements needed as a direct result of the proposed project.

Proposed Treatment of Topic in EIS:
The issue of transportation/traffic-related impacts will be a major topic in the EIS. The EIS will evaluate traffic-related effects based upon generally accepted principles of traffic analysis. The EIS will provide existing traffic counts on access points to the mill and projected increased trip generation by mode, vehicle type, and direction of travel. Planned changes in access, (e.g., intersections; roads; rail), related to the project will be described and analyzed in terms of peak hour design/traffic capacity and safety. The EIS will consider adjoining roads and other connecting roads that may be adversely impacted. Appropriate measures of congestion will be considered, including level-of-service and delay times. The 2002 Grand Rapids Transportation Plan Update will be considered as part of the analysis in terms of its recommended actions and status of implementation. A qualitative description of potential regional impacts to highway or rail systems will be considered.

22. **Vehicle-related air emissions.** Estimate the effect of the project's traffic generation on air quality, including carbon monoxide levels. Discuss the effect of traffic improvements or other mitigation measures on air quality impacts. Note: If the project involves 500 or more parking spaces, consult *EAW Guidelines* about whether a detailed air quality analysis is needed.

    The project-related increase in truck and service vehicle traffic is relatively small and is not expected to result in adverse impacts on air quality.

    Proposed Treatment of Topic in EIS:
    The EIS will not include a discussion of vehicle-related air emissions.

23. **Stationary source air emissions.** Describe the type, sources, quantities and compositions of any emissions from stationary sources of air emissions such as boilers, exhaust stacks or fugitive dust sources. Include any hazardous air pollutants (consult *EAW Guidelines* for a listing) and any greenhouse gases (such as carbon dioxide, methane, nitrous oxide) and ozone-depleting chemicals (chloro-fluorocarbons, hydrofluorocarbons, perfluorocarbons or sulfur hexafluoride). Also describe any proposed pollution prevention techniques and proposed air pollution control devices. Describe the impacts on air quality.

    The Blandin paper mill in Grand Rapids is located in an attainment area with respect to all State and National Ambient Air Quality Standards (NAAQS). The installation of PM7 and the TMP system will result in changes to existing air emissions. All changes will be reviewed and permitted pursuant to the State of Minnesota and federal regulations.

    The PM7 expansion will add several emission sources to the mill operations, specifically from the chip conveyors, pulp mill refiner, and paper machine dryer. Other new sources include the TMP, wood chippers, the backup boiler, and miscellaneous natural gas space heaters, small boilers, and air makeup units.

    Pollutants that will increase with the PM7 expansion are oxides of nitrogen (NOx), Volatile Organic Compounds (VOCs), and a slight increase in particulate matter. A Prevention of Significant Deterioration (PSD) applicability analysis will be submitted and reviewed to determine whether the project will require a major amendment for PSD purposes. If the project is a major for PSD, the appropriate analyses, including Best Available Control Technology (BACT) Analysis, will be submitted. The National Ambient Air Quality

Standards (NAAQS) analysis for the PM7 project element will determine if there is an apparent threat to any applicable ambient air quality standard. The required Air Emissions Permit will incorporate any requirements resulting from BACT or NAAQS analysis. Control technology will be designed to minimize VOC emissions.

Table 5, Projected Emissions and Sources, provides a listing project-related emissions. No pollutant is expected to result in a net increase of 100 tons or more per year.

The project requires an MPCA Air Modification Permit that will satisfy both state and federal requirements. It is anticipated that the expansion will not result in the deterioration of air quality in the region. Air quality modeling will be conducted as part of the permit process. The project will comply with all permit-related conditions. The project does not meet the guidelines for preparing an MPCA Air Emissions Risk Analysis (AERA) as a part of the environmental review or part of the permit application.

Proposed Treatment of Topic in EIS:
The topic is minor, but will be discussed with limited information beyond that in the EAW. The EIS will present reasonable estimates on the quantities of emissions generated for the sources listed in Table 5. The EIS will also provide a qualitative discussion of the control types listed for various sources in Table 5.

Table 5: Projected Emissions and Sources		
Source Identification	Control Type	Emissions
PM 7 Production Line	Cyclone	Particulates; Water Vapor
Package Boiler	None	NOx; VOC
TMP	Incineration/Condensing	VOC
Pigment	Cyclone/Bag	Particulates
Tank Storage	Bag	VOC; NOx
Material Handling	None	Particulates; VOC

24. **Odors, noise and dust**. Will the project generate odors, noise or dust during construction or during operation?
_X_ Yes __No
If yes, describe sources, characteristics, duration, quantities or intensity and any proposed measures to mitigate adverse impacts. Also identify locations of nearby sensitive receptors and estimate impacts on them. Discuss potential impacts on human health or quality of life. (Note: fugitive dust generated by operations may be discussed at item 23 instead of here.)

The facility is not a source of odors but does have the potential to generate noise and dust.

Noise. Project-related construction will generate noise typical of that generated by the use of heavy equipment, including: bulldozers; dump trucks; concrete trucks and mixers; and delivery vehicles. Construction activities will be limited to daylight hours and are not expected to result in violations of MPCA noise standards.

Operational sound levels post-project are expected to be similar, but likely higher, than current levels. The duration of noise will be greater than present conditions because there will be longer operating hours. The primary source of noise from the facility is from woodyard operations. Noise from increased log truck traffic will be moderately higher, but will not occur in areas adjacent to sensitive receptors. Measures were implemented at the site in 2000 to reduce the potential for offsite noise impacts to surrounding properties, including installation of a sound wall and sound deadening material at block transfer points, and mobile

equipment changes.

A study has been commissioned to establish a baseline noise survey of the current operations. The availability of this information should allow for modeling of future levels that may be associated with the project.

Dust. Vehicular traffic associated with woodyard activities, primarily from truck and wheeled crane operations, are a potential source of dust generation at the mill. The traffic results from the delivery and handling of logs in the woodyard area. To the degree that the project doubles the amount of wood being processed at the facility, the potential for dust generation increases accordingly. The area is largely paved at present and this paved condition will be maintained with the project. The woodyard, including the paved areas, will continue to be sprinkled periodically as a function of wood watering activities; such watering is an accepted and effective dust control measure. Dirt and wood particles captured in the sprinkling runoff are washed into an existing containment basin that is adjacent to the woodyard. Once deposited in the basin these particles are no longer available as a potential source of dust.

Truck traffic around other portions of the paper operations would also occur on paved areas that the proposer will continue to maintain. Measures taken to reduce the potential for dust generation include periodic sweeping of road surfaces; this will continue with the project. Dust-related impacts are considered to be minimal.

Proposed Treatment of Topic in EIS:
The EIS will not include a discussion of odors or dust-related impacts.

Regarding the issue of noise, the EIS will identify sensitive receptors, such as houses, and evaluate potential noise impacts to residents. The EIS will describe potential noise control measures, evaluate their effectiveness, and recommend additional measures if warranted.

25. **Nearby resources.** Are any of the following resources on or in proximity to the site?
    a. Archaeological, historical or architectural resources? _X_ Yes __No
    b. Prime or unique farmlands or land within an agricultural preserve? __Yes _X_ No
    c. Designated parks, recreation areas or trails? ___Yes _X_ No
    d. Scenic views and vistas? ___Yes _X_ No
    e. Other unique resources? ___Yes _X_ No
    If yes, describe the resource and identify any project-related impacts on the resource. Describe any measures to minimize or avoid adverse impacts.

(a) The Minnesota State Historic Preservation Office (SHPO) was contacted to conduct a Phase I evaluation of the project's potential to affect archaeological, historical, or architectural resources on or in proximity to the site. See Attachment 1, Listing of Historic and Architectural Resources within Project Vicinity.

Archaeological Resources. The SHPO review identified four (4) archaeological site locations, all of which are located in the S ½ NW ¼ of Section 20, T55N, R25W. These records are for single artifacts, artifact scatter, or structural ruin being located in this area. Construction associated with the installation of PM7 and related infrastructure at the mill site proper will not affect the specified locations (e.g. recorded sites) or any artifacts potentially contained therein.

Paper Warehouse Option No. 4 occurs in the vicinity of these sites. The location is currently developed and installation of a warehouse, if pursued, would involve redevelopment of existing structures to a warehouse

facility. Measures available to avoid or mitigate impacts include: 1) conducting a site survey to determine the quantity and quality of any artifacts; 2) monitoring construction for impacts; or 3) retaining the services of a consulting archaeologist during construction. The proposer has committed to work with SHPO to determine whether a Phase II evaluation is warranted, and if yes, will consider any recommendations that may be provided. Given that the potential warehouse site has been disturbed by previous development, the potential for adverse impacts appears low.

Historical/Architectural Resources. The SHPO review identified 36 records for historic or architectural resources occurring within the vicinity of the project. The project will not directly affect any of the recorded structures other than the mill itself, which is a listed property. The mill will remain post-project and its new configuration will be essentially the same as previous operations. No substantial impacts of historic or architectural importance are anticipated.

Proposed Treatment of Topic in EIS:
The topic of archaeological, historical, or architectural resources is minor, but will be discussed with limited information beyond that in the EAW. The State Historic Preservation Office will evaluate the records in the database to determine the project's potential to impact resources of concern. The EIS will include the results of this review and propose mitigation for any potential impacts identified.

The EIS will not address: prime or unique farmlands; designated parks, recreation areas or trails; scenic views and vistas; and other unique resources.

26. **Visual impacts.** Will the project create adverse visual impacts during construction or operation? Such as glare from intense lights, lights visible in wilderness areas and large visible plumes from cooling towers or exhaust stacks? _X_Yes ___No
If yes, explain.

Lighting. Some additional lighting may be necessary during project-related construction. Although project-related construction will typically be limited to daylight hours, it is possible that additional lighting may be necessary for some project elements. This lighting, if it occurs at all, will be temporary and limited to the construction period itself. No long-term effects are anticipated.

The project will not change lighting at the facility. The site is currently illuminated 24 hours a day and this will continue post-project. Measures available to reduce any potential lighting concerns include: 1) use of light-globe shielding to minimize side glare; 2) use of low-glare, directional light globes to concentrate light on the facility operations; and 3) limiting the number of lights to the minimum necessary to meet lighting needs. No adverse impacts are anticipated.

Visible Plumes. Mill-related operations require steam generation where waste steam is discharged to the atmosphere through a series of exhaust stacks. This steam discharge is necessary for both current and proposed operations. Visible plumes are created with the steam discharge and their visibility varies as a function of discharge rates and volumes and weather factors such as ambient temperature, wind speed, and relative humidity. The facility's steam plumes can be observed from surrounding areas and under certain conditions contribute to local fogging conditions.

The current number of steam plumes is lower than the historic condition due to the shutdown of PMs 3 and 4. The existing stacks on far southern part of the facility (e.g., housing for PM3 and PM4) will be removed prior to

the project. These stacks are now shut down, which means that the site has fewer active stacks now than was the case under the historic condition.

Project-related installation of PM7 will add new stacks or steam vents to the site very similar to those now present for PM6. These structures and related plumes will be in the same general area of where these features for PMs 3 and 4 historically occurred. However, the new structures will be at a slightly higher elevation, which should result in greater steam dispersal prior to reaching ground elevations, similar to PM6. The new TMP will also generate steam, likely from an estimated 2-4 stacks, and this again will be located in the general area of the historic PMs 3 and 4 discharges.

Overall steam volumes should appear slightly greater with the project compared to previous facility operations when Paper Machines 3, 4, 5, and 6 were operating. The steam plume associated with the operation of PMs 6 and 7 is expected to be greater than the historic profile even with the shutdown of PMs 3, 4, and 5. It is estimated that some 12-17 stacks will generate visible exhaust once the project is complete and operational. A final number will not be known until the final design specifications have been determined. In terms of generating local fog conditions, the proposed building and stack configuration is expected to reduce these instances from current conditions.

Proposed Treatment of Topic in EIS:
The EIS will not include a discussion of visual impacts.

27. **Compatibility with plans and land use regulations.** Is the project subject to an adopted local comprehensive plan, land use plan or regulation, or other applicable land use, water, or resource management plan of a local, regional, state or federal agency?
_X_Yes __No. If yes, describe the plan, discuss its compatibility with the project and explain how any conflicts will be resolved. If no, explain.

    The project is subject to the City of Grand Rapids Comprehensive Plan, which was most recently updated in October, 2003. The plan indicates that industrial uses should be located along major highway corridors, in industrial or business parks, and adjacent to existing industrial areas. The proposed project will occur on land zoned Industrial (1-2), while the Paper Warehouse Options 1-4 are proposed in areas adjacent to major highway corridors and/or existing industrial areas. For Paper Warehouse Option 5, the structure will have to meet the local planning and zoning requirements at that site before receiving approvals; it is possible that rezoning may be necessary for a structure located in Coleraine.

    The project is not subject to any other land use plans.

    Proposed Treatment of Topic in EIS:
    The EIS will not include a discussion of compatibility with local plans.

28. **Impact on infrastructure and public services**. Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project? _X_Yes ___No. If yes, describe the new or additional infrastructure or services needed. (Note: any infrastructure that is a connected action with respect to the project must be assessed in the EAW; see *EAW Guidelines* for details.)

    The project will have an impact on infrastructure and public services.

Utilities

Electricity. Project-related electricity demand will increase substantially from current levels. The increased electric energy will be consumed primarily by the operation of PM7 and the TMP. The basic annual electrical energy balance in megawatts (MW) is:

	Present	Proposed
Total Load	87	225
Maximum Self-Generated	30	15
Purchase Demand	57	210

The increased electricity demand of an estimated 153 MW/year will be obtained off the regional distribution and transmission grid. No new, offsite transmission line or substation construction is anticipated with the project. However, new power feed lines are necessary; these will occur on existing structures. The proposer also expects the need for expansion of the existing onsite substation to accommodate the new power feed lines.

Natural Gas. The paper making process uses natural gas for heating oil in super calendaring and for dryer sections involved in evaporating water from the paper sheet. Natural gas is also used for power generation. The project will result in a small increase in natural gas consumption over current levels, but less natural gas consumption will occur than was the case when Paper Machines 3, 4, 5, and 6 were in operation. The estimated gas use will increase from the current level by approximately 24% to 1.6 million cubic feet (MCF)/day. Current and projected natural gas consumption (in MCF/day) at the facility is expected to be:

Time Period	Present	Future
Maximum Summer Demand	2008	2233
Maximum Winter Demand	3233	3490
Average Annual Demand	1942	2168

Existing gas lines will be able to supply the project-related increase in natural gas consumption.

Steam. Steam is produced onsite through operations managed by either Allete/Minnesota Power or UPM/Blandin Paper. Project-related steam demand will increase with the project, from current average monthly steam demand of 249,000 lbs/hr to 391,000 lbs/hr. The increase in steam use is tied to increased paper productions levels. Steam is currently generated at the Allete/Minnesota Power facility from the operation both natural gas-fired and solid fuel-fired boilers. The increase in steam demand from the project will be met from operation of the solid fuel boilers (e.g., Boilers 5 and 6) and from TMP heat recovery (in addition to the existing Allete/Minnesota Power-based contribution). TMP heat recovery produces steam at fairly constant output energy.

Infrastructure

Municipal WWTF. Wastewater generated from mill-related operations is currently treated at the municipal WWTF. This is expected to continue with the project under an existing Service Agreement between the parties. The future waste stream however will exhibit increased BOD over current operations from the addition of PM7 and the TMP. A study sponsored by the proposer and Grand Rapids Public Utilities is now underway to determine the best and surest method to modify the WWTF to address this issue. The final choice in technology to treat the additional BOD-type waste will be proven equipment that has been used in similar applications

throughout the nation. Fine bubble diffusion is the enhanced technology being considered at this time.

The Grand Rapids Municipal WWTF is subject to NPDES/SDS permit conditions. No change in permit conditions is necessary to implement the required technology change under the existing permit.

Public Utilities. The mill is currently serviced by the standard set of public utilities. Some existing infrastructure will have to be relocated with the project. These include storm sewers, sanitary sewers, potable water, and fire mains. All such changes will be coordinated with the City of Grand Rapids and will meet applicable zoning and building code requirements.

The project will also require modification to the onsite effluent sewers. The mill effluent sewers originating from PM5 and PM6 will be rerouted to a collection point located to the north of the new PM7 building; from there it will be piped south to another collection point. The PM7 effluent will flow to this same collection point and from there all the effluent will be piped to the existing pump house located east of Pokegama Avenue. All such changes will be coordinated with the City of Grand Rapids and will meet applicable zoning and building code requirements.

No other changes in public utilities are known at this time.

Streets. The project could result in the abandonment of a one-block segment of NW Third Street if Warehouse Option No. 2 were pursued. The structure as proposed would be sited over this segment of roadway. The abandonment of NW Third Street is subject to City approval. Potential impacts include changes in local traffic patterns and changes in access to nearby businesses. No other street-related changes have been identified with the project.

Public Services

Police and Fire. The current and future facility receives police services from the City of Grand Rapids and Itasca County. The potential for the project to substantially increase demand on these service providers is small. The project-related increase in employment is not large. As such, current levels of law enforcement resources are thought sufficient to address project-related needs.

The mill occurs within the jurisdiction of the Grand Rapids Fire Department. The city's department has a mutual aid agreement with 15 outlying fire departments in the County, and four others outside of Itasca County, to provide "mutual aid" service. These contracts are reciprocal and all of the regional fire departments are staffed by volunteers. It should be noted that the existing fire protection system is geared to cope with dramatic swings in area populations that occur seasonally, primarily as summer residents return to their lake homes. Fire protection services are likely adequate for the project.

Proposed Treatment of Topic in EIS:
The topic of wastewater treatment facility modifications is minor, but will be discussed with limited information beyond that in the EAW. Proposed improvements to the WWTF, which constitute a connected action to the project, will be detailed in the EIS.

The topic of the NW Third Street abandonment if Warehouse Option No. 2 is pursued is minor, but will be discussed with limited information beyond that in the EAW. Changes in local traffic patterns and access to local businesses will be identified. Any associated socio-economic impacts will be addressed as part of the EIS

evaluation.

The EIS will not discuss other impacts on infrastructure and public services.

29. **Cumulative impacts.** Minnesota Rule part 4410.1700, subpart 7, item B requires that the RGU consider the "cumulative potential effects of related or anticipated future projects" when determining the need for an environmental impact statement. Identify any past, present or reasonably foreseeable future projects that may interact with the project described in this EAW in such a way as to cause cumulative impacts. Describe the nature of the cumulative impacts and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to cumulative impacts *(or discuss each cumulative impact under appropriate item(s) elsewhere on this form).*

Timber Harvest. The project uses wood procured from a variety of sources as the primary raw material for producing publication-grade paper at the mill. The project will increase roundwood use by a projected 197,000 cords per year. When the project-related increase is considered with current mill roundwood consumption, the mill will use approximately 400,000 cords per year once the project is in place.

This project-related increase occurs in the context of all timber harvest and industrial wood use occurring in Minnesota. Industrial wood-using sectors operating in Minnesota include: pulp and paper mills; oriented strand board (OSB) and engineered products mills; sawmills and specialty wood products; and wood export companies. UPM/Blandin Paper's Grand Rapids Mill is part of the pulp and paper sector. The project will use wood taken from the proposer's own timberlands and wood procured on an open market in competition with all other industry players. Statewide timber harvest that occurred to meet industrial demand for wood was an estimated 3.51 million cords in 2002 (the most recent available data for this statistic), with total harvest that year being 3.68 million cords when accounting for fuelwood consumption.

Statewide timber harvest has the potential to produce cumulative environmental effects upon the state's forest resources according to the Generic Environmental Impact Statement Study on Timber Harvesting and Forest Management (GEIS). Completed in 1994, the GEIS examined the potential cumulative environmental and related impacts associated with (then) current and two other higher levels of timber harvesting activity within the state: the Base (4 million cords per year), Medium (4.9 million cords per year), and High (7 million cords per year) scenarios. Each timber harvesting scenario was assessed for cumulative timber harvesting effects that might occur over a 50-year planning period (1990-2040), with assessments of forest resource conditions and resulting cumulative impacts made at decade intervals. See Executive Summary, Final Generic Environmental Impact Statement Study on Timber Harvesting and Forest Management in Minnesota, Minnesota Environmental Quality Board, 1994, pages 1-34, for an overview of the study and its recommendations.

The GEIS examined ten major issue areas for each of the three timber harvesting scenarios. These ten issue areas were: maintaining the forests for timber production; changes in the forest resource base; forest soil; forest health; plant and animal diversity; forest wildlife and fish; water quality; forest recreation; economics and management; and aesthetics and unique historic and cultural resources. Seventeen significant environmental impacts were projected at the Base Scenario, which is the scenario closest to current statewide timber harvest levels. To mitigate the cumulative impacts that were identified, the GEIS recommended 22 mitigation strategies under 3 Strategic Programmatic Response categories: site-level; landscape-level; and research.

The GEIS analysis used industries and locations that existed at the time (e.g., 1990) to establish the statewide Base Scenario-level of wood demand for use in its analysis. The Blandin Paper Mill, which was operating four

paper machines in 1990, was one of the facilities used in the GEIS to establish the annual forest products demand for evaluation in the Base scenario. As such, it is appropriate to consider the project to be of the type evaluated in the GEIS.

Because the proposed project is of the type envisioned to occur in the GEIS analysis, the findings of the GEIS are relevant in considering the harvest-related cumulative environmental effects of the proposal on Minnesota's forest resources. According to the GEIS, the project has the potential to contribute adverse effects to forest: cover patterns; species mix; age structure (for paper birch in particular); biodiversity, including rare biota; health; soil-nutrients; soil permeability; soil erosion rates; dependent wildlife species; conifer stand patterns; food producing trees; visual aesthetics; recreation; and cultural and historic resources. The degree and extent of these effects varies generally as a function of cumulative harvest levels and the application of various mitigation strategies. The GEIS also identified that even with full, timely mitigation some significant adverse consequences of cumulative timber harvest can be minimized but not completely eliminated; see Final GEIS Section 5.7.4 for a listing of these impacts.

Proposed Treatment of Topic in EIS:
The EIS will include a major discussion of the potential significant cumulative environmental effects upon forest resources as a function of project-related wood use and timber harvest. The EIS will undertake the following:

1. Compare forest conditions under the most recent level of statewide timber harvesting activity without the project (Without Project Scenario) to the Base Scenario evaluated in the GEIS.

   The GEIS Base Scenario will be used because it is the GEIS harvest scenario that most closely reflects the current level of statewide timber harvesting activity. A quantitative comparison of the most recent level of harvest to the base scenario will likely be done to determine the relevant benchmark condition by which to evaluate the project.

   Data sources used to develop the Without Project Scenario will be the most recent statewide timber harvesting statistics compiled by the MN DNR and statewide forest inventory data provided by the USDA-Forest Service's Forest Inventory and Analysis survey (FIA). This comparison will focus on identifying differences between these two scenarios in the following three areas:

   a. The projected change in Minnesota's forest conditions at decade intervals from the present to the year 2040. Forest conditions will be characterized in terms of forest extent and diversity as measured by covertype and age class structure.
   b. The 17 significant impacts projected in the GEIS Base scenario and other relevant cumulative impacts of potential significance.

2. Compare forest conditions under the most recent level of statewide timber harvest with the expansion project (With Project Scenario) to the Without Project Scenario. The level of use assigned to the project will be as if all roundwood were procured within Minnesota (e.g., no imports) to ensure examination of maximum potential impact to Minnesota forest resources. This comparison will focus on identifying differences between these two scenarios in the following three areas:

   a. The projected change in Minnesota's forest conditions at decade intervals from the present to the year 2040. Forest conditions will be characterized in terms of forest extent and diversity as

measured by covertype and age class structure.

b. The 17 significant impacts projected in the GEIS Base Scenario and other relevant cumulative impacts of potential significance.

3. Assess the long-term ability to sustain forest outputs and values by evaluating the extent to which the projected significant cumulative timber harvesting impacts will be mitigated under the With Project Scenario based on progress in implementing the Timber Harvesting GEIS's Strategic Programmatic Responses. Measures being implemented by the proposer on its ownerships or through its open-market purchases will also be detailed.

4. Discuss alternatives for addressing any potential unmitigated impacts associated with the With Project Scenario. Alternatives examined will include:

    - Alternative sources of wood fiber for the expansion project.
    - Investments to increase forest productivity and utilization.
    - Any alternative(s) incorporating reasonable mitigation measures identified through comments received during the comment period for EIS scoping or for the draft EIS, or through development of the Draft EIS.

To achieve these results, the EIS will consider the following factors.

Modeling. The EIS will not re-run the GEIS models. Alternative modeling approaches will be used with updated FIA data to generally gauge the degree to which current and projected future harvest levels will substantially differ from GEIS forest type, volume, and age-class projections. The analysis will likely be both quantitative and qualitative.

Use of the New FIA Dataset. The new FIA dataset will be used to compare current forest conditions with those projected for the first decade under the GEIS Base Scenario. It will also serve as the starting point to project out and then evaluate the extent to which projected changes in forest covertype and age class structure have or will likely deviate from similar projections in the GEIS Base scenario. The EIS will also identify: a) differences between the FIA survey designs between 1990 and 2003, b) how these differences have been addressed, and 3) what if any covertypes might be more likely to be affected by the differences.

Use of the Forestry Generic EIS Implementation Progress and Accuracy Assessment Project (e.g., GEIS Report Card Study). The EIS will consider the results of the cited study to incorporate into the analysis: 1) progress toward implementing the GEIS recommendations to mitigate possible adverse timber harvesting impacts, and 2) the accuracy of the GEIS in predicting changes in forest resource conditions over the first 10 of study's 50-year planning horizon (e.g., 1990-2040). The study is now currently underway and its results should be available for consideration in the EIS.

Impact Assessment. The EIS impact assessment will be both quantitative and qualitative. Changes in forest condition, in terms of the covertype and age class, will be quantified to the extent possible; what the change in forest condition means in terms of the GEIS' 17 areas of potential significant impact will be a qualitative assessment. The results of the GEIS Report Card Study will likely be considered in this evaluation. Guidance issued by the federal Council on Environmental Quality regarding cumulative effects assessment will be considered in the impact assessment as noted in EQB's *Guide to Minnesota Environmental Review Rules*.

Updated Information. The Without Project Scenario and With Project Scenarios will use updated information, generated in part from the GEIS Report Card Study, about land management practices to project and describe associated potential environmental impacts. Major departures between assumed and actual practices will be described and considered in assessing the degree to which significant impacts projected in the GEIS Base scenario remain valid. Other factors may be considered as deemed relevant, such as new information on levels of timber imported from outside Minnesota.

Scale of Analysis. Most of the analysis in the EIS will be at the statewide level. The EIS will not break out this analysis by region because market conditions have resulted in mill procurement areas that are now essentially statewide.

Precision of Analysis. Regarding comparisons of forest conditions in terms of: a) projected significant impacts, b) changes in Minnesota's forests, and c) the long-term ability to sustain forest outputs and values, the EIS to the extent possible will quantify and interpret any differences, including causes where they can be identified. Where it is not possible for differences to be quantified, the EIS will attempt to describe the direction and most likely impacts on important forest resource outputs (e.g., timber, recreation, habitat, biological diversity).

Meaning of the term "forest outputs and values." The EIS will consider the project's impacts in the broad context of sustaining important outputs and values associated with forests. These include: marketable timber and wood products; outdoor recreation opportunities; fiber production; plant and animal habitat; biodiversity; forest landscape patterns; hunting and wildlife watching; and utilitarian uses.

Other Factors. The EIS will consider other factors not anticipated by the GEIS, such as forest certification or the current increase in the sale of industrial timber lands, and how these could affect the respective impact projections.

The EIS will also consider other available studies or data that is relevant to the analysis, such as the Results from the Minnesota Spatial Analysis and Modeling Project [MFRC, December 2003].

The EIS will not consider the potential cumulative effects of timber harvested outside Minnesota that is imported into the state for sale and use. The EIS assessment will be limited to impacts upon Minnesota forest resources only.

Regional Transportation Impacts. See the discussion in Item 21.

Proposed Treatment of Topic in EIS:
The EIS will consider the potential for project-related truck and rail traffic to impact the regional transportation network.

Electric Utilities. See the discussion in Item 28. The electrical demand of the facility may add to regional demand for additional generation capacity, but predicting where and how that demand may be satisfied is not possible within this EIS.

Proposed Treatment of Topic in EIS:
The EIS will not consider the issue of regional demand for additional electrical generation capacity.

30. **Other potential environmental impacts.** If the project may cause any adverse environmental impacts not addressed by items 1 to 28, identify and discuss them here, along with any proposed mitigation.

    None known.

31. **Summary of issues.** *Do not complete this section if the EAW is being done for EIS scoping; instead, address relevant issues in the draft Scoping Decision document, which must accompany the EAW.* List any impacts and issues identified above that may require further investigation before the project is begun. Discuss any alternatives or mitigative measures that have been or may be considered for these impacts and issues, including those that have been or may be ordered as permit conditions.

RGU CERTIFICATION. The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.

I hereby certify that:

- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at Minnesota Rules, parts 4410.0200, subparts 9b and 60, respectively.

- Copies of this EAW are being sent to the entire EQB distribution list.

Signature  Date 12/18/04

Title Natural Resources Program Consultant

Environmental Assessment Worksheet was prepared by the staff of the Environmental Quality Board at Minnesota Planning. For additional information, worksheets or for *EAW Guidelines*, contact: Environmental Quality Board, 658 Cedar St., St. Paul, MN 55155, 651-296-8253, or www.mnplan.state.mn.us.

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Figure 1. County Map.

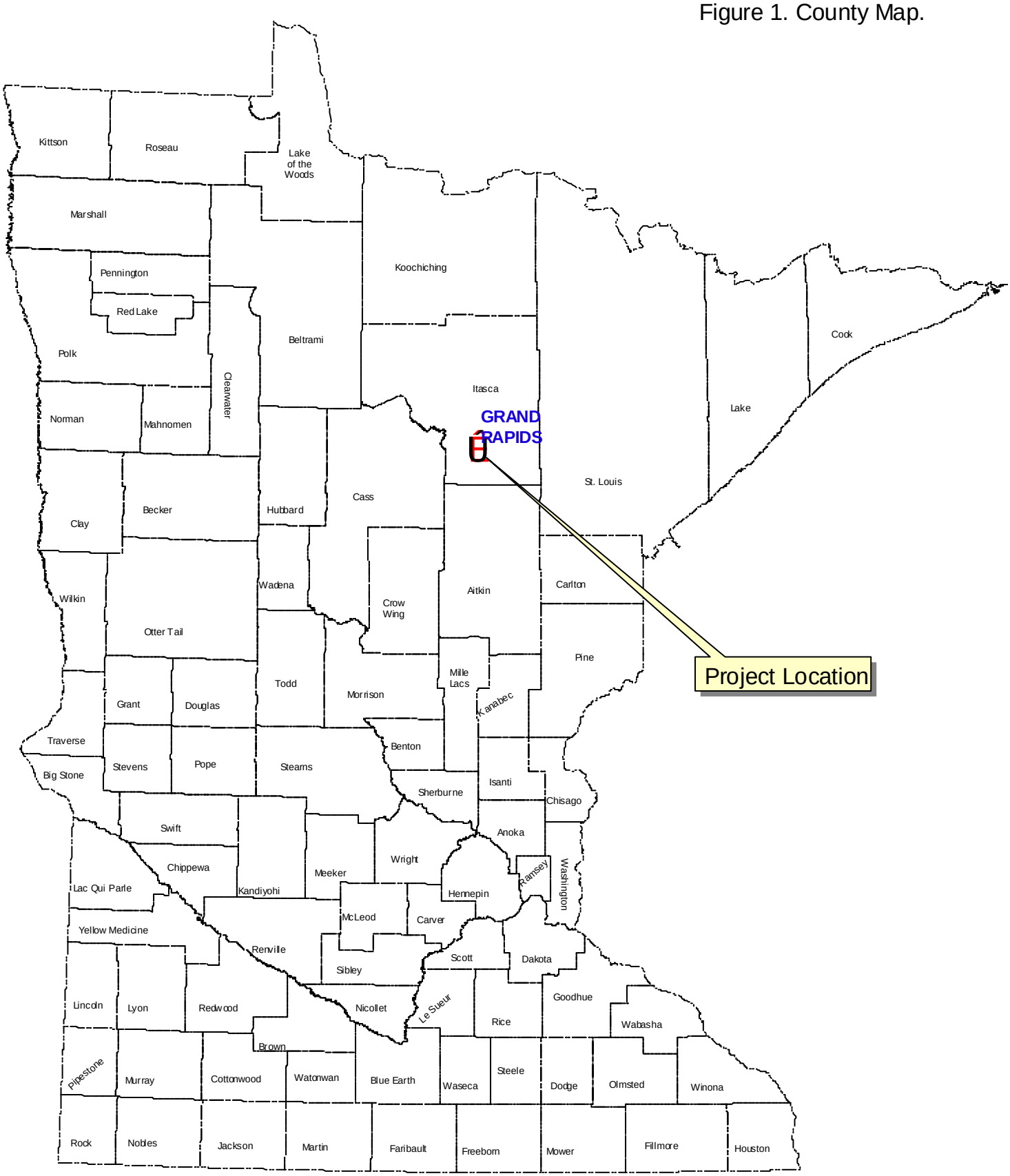

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Figure 4a. Project Schematic
(metric units)

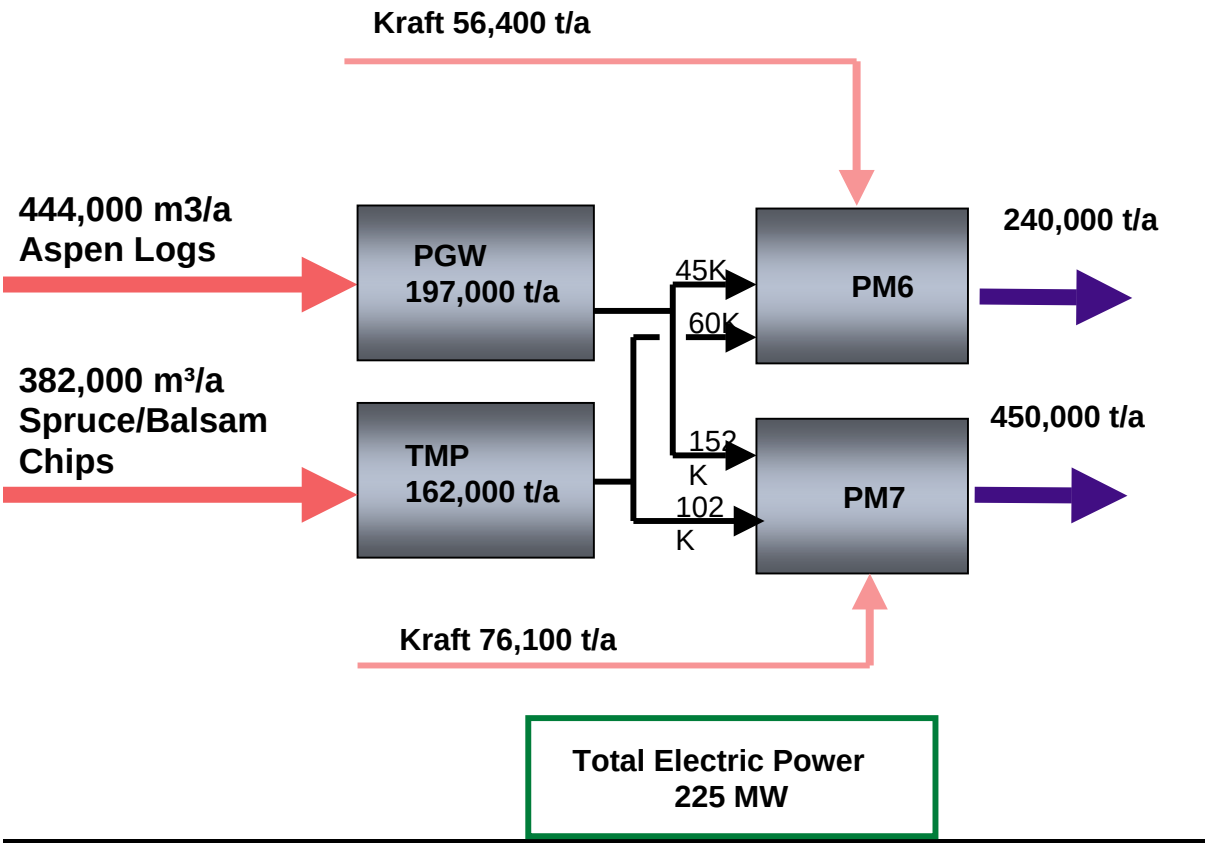


Figure 4b. Paper Mill Production

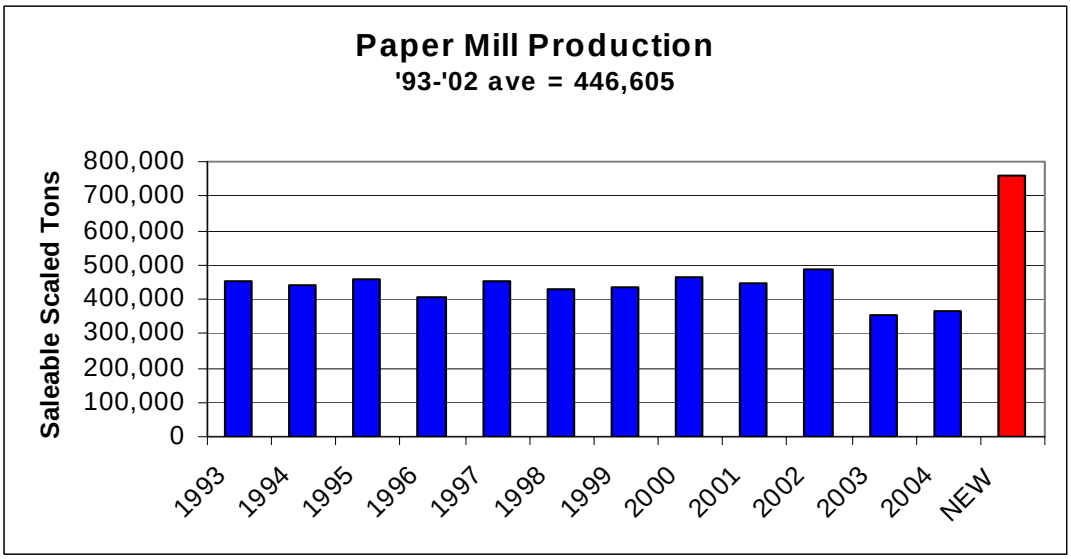
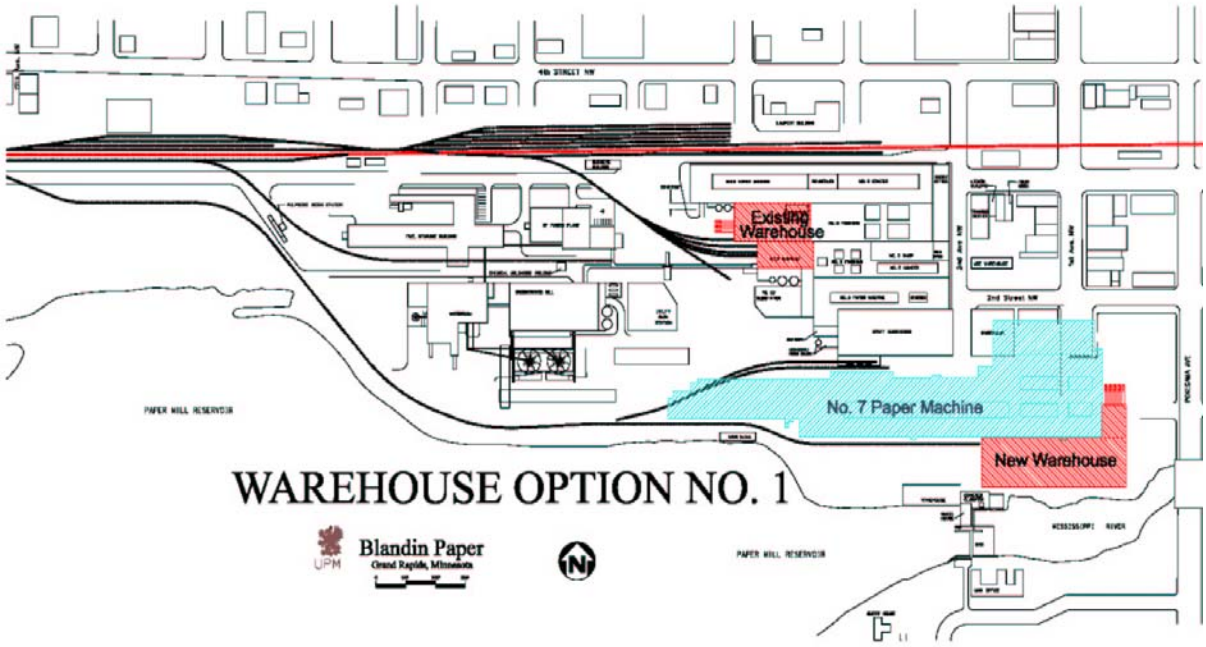


Figure 5a. Warehouse Options No. 1 and No. 2



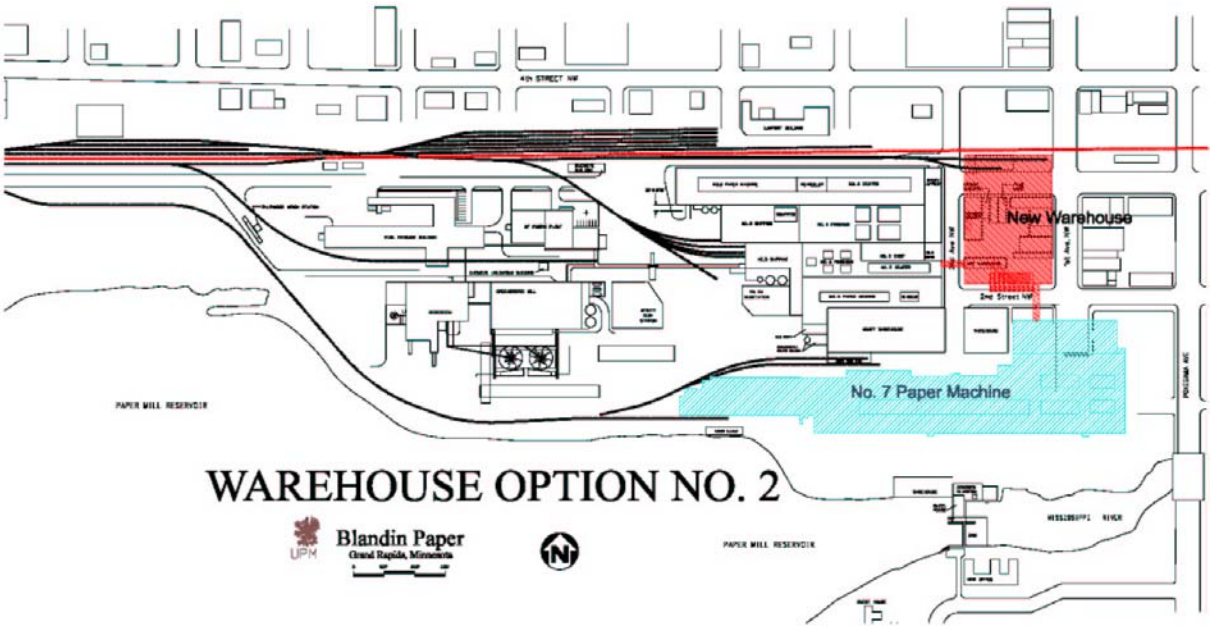
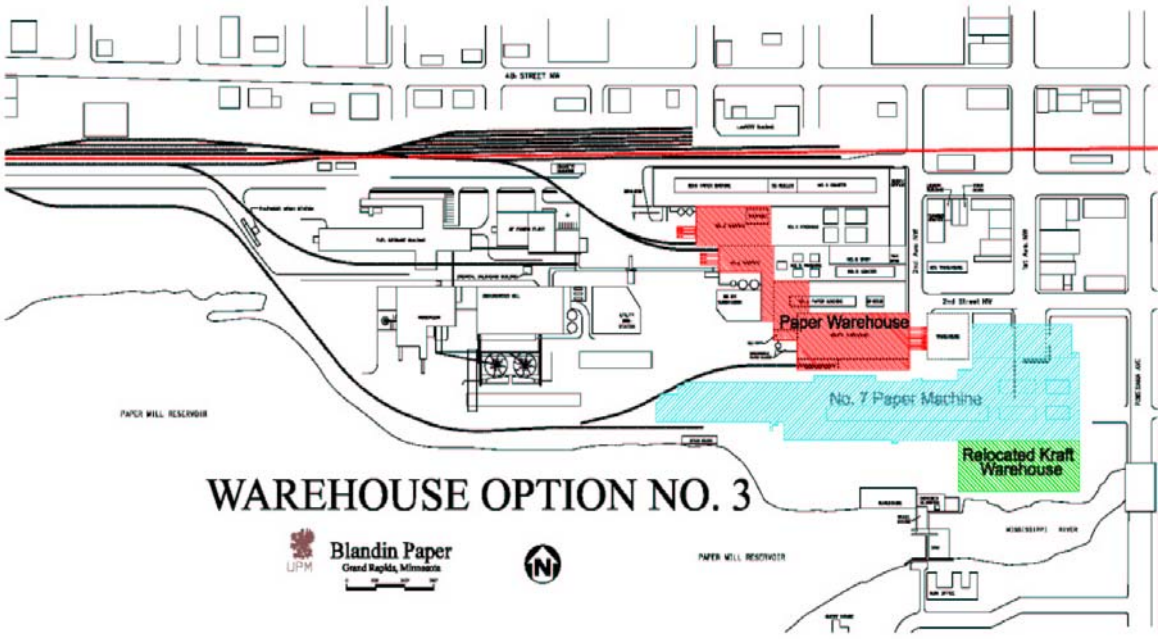


Figure 5b. Warehouse Options No. 3 and No. 4



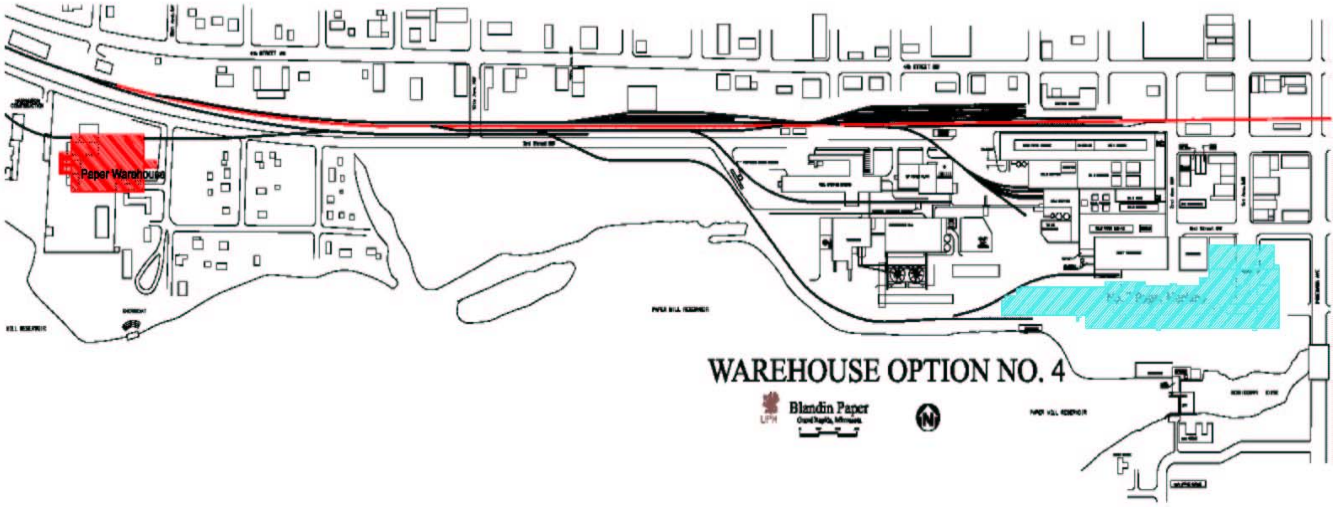


Figure 6a. Historical and Proposed Wood Use

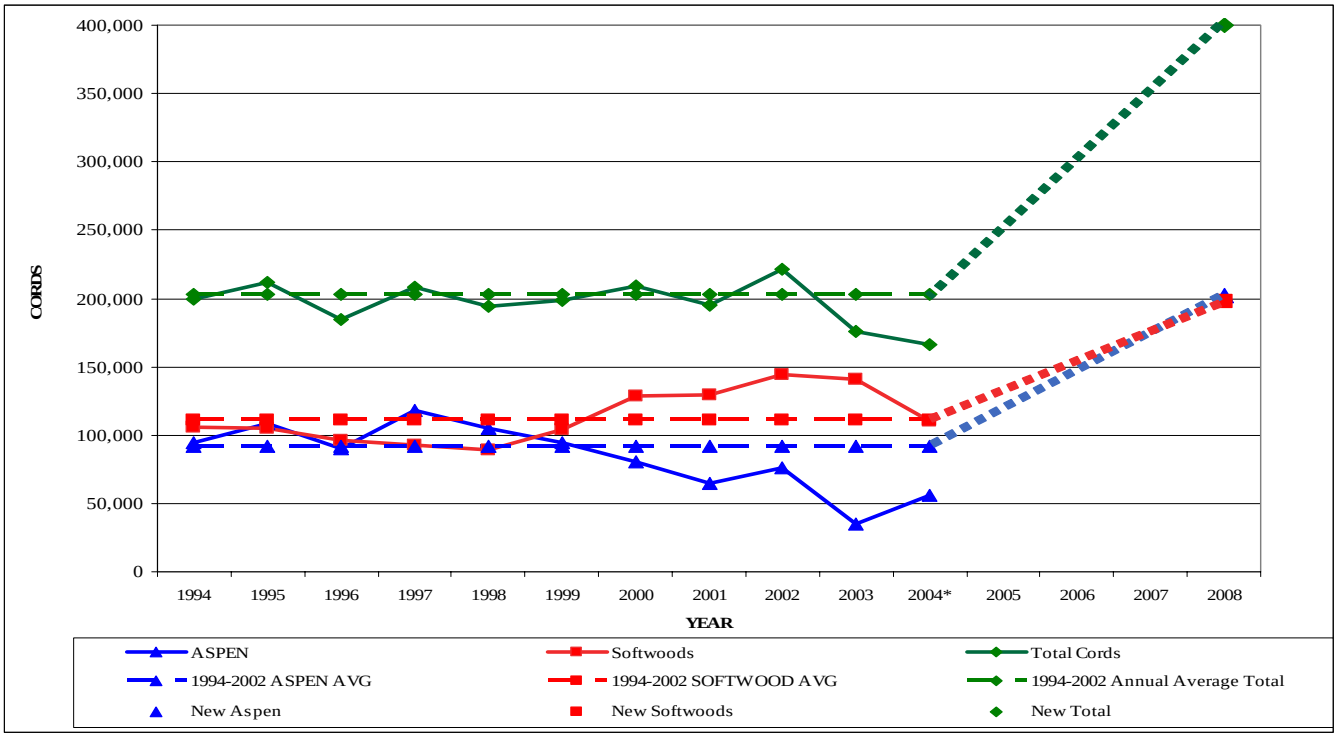


Figure 6b. Project-related Wood Sources: Minnesota and Imports

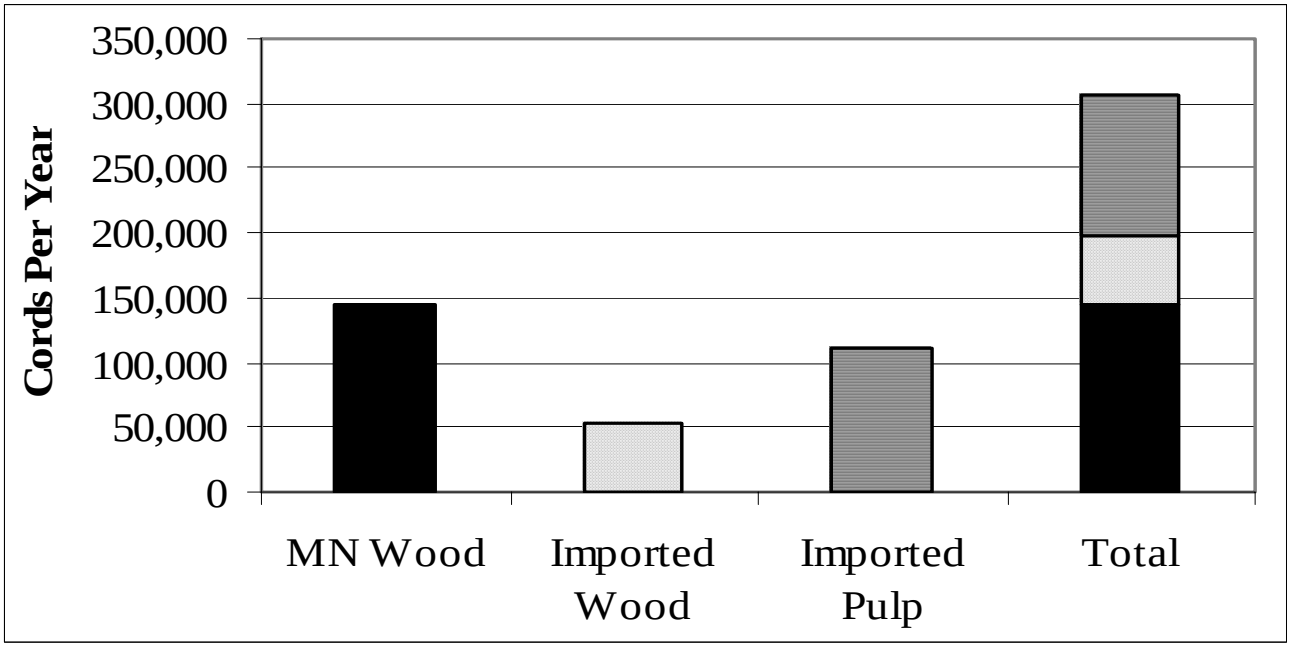
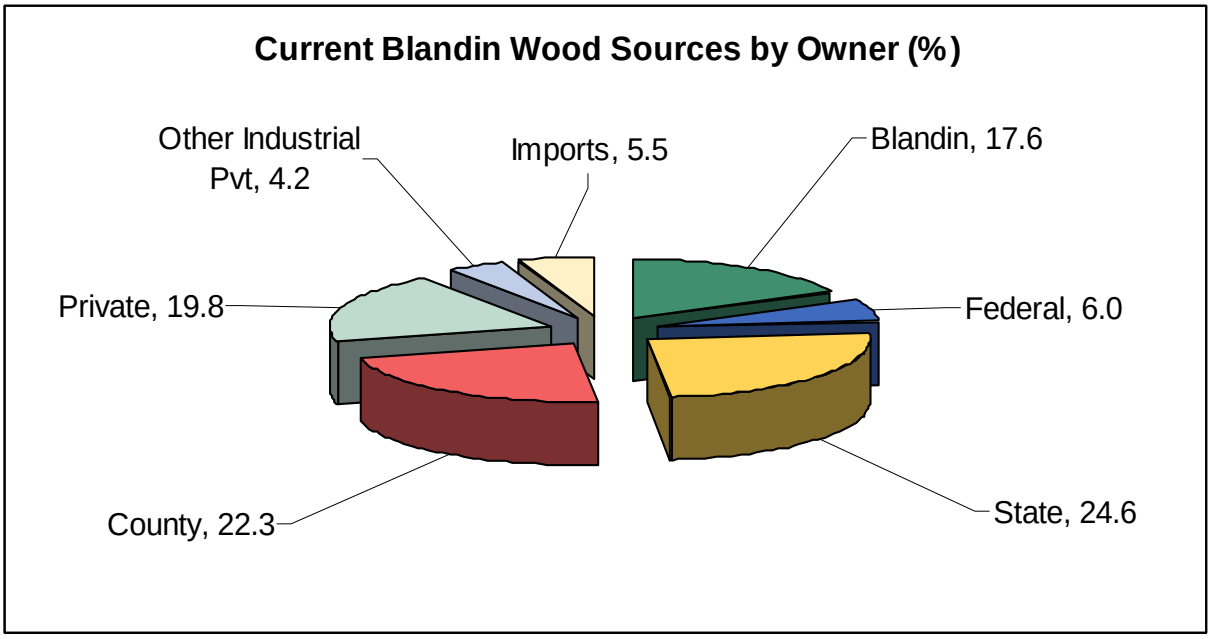


Figure 7. Current Blandin Wood Sources by Ownership



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Attachment 1: Listing of Historic and Architectural Properties within Project Vicinity

L.R. Root House	730 6th Ave.
William C. Gilbert House	719 1st Ave.
C.C. Baker House	101 7th Ave. NE
Frank Gumm House (Judy Garland childhood home; moved)	729 2nd Ave. NE
house	SE corner 2nd Ave. E. & 8th St. E.
St Joseph Catholic Church	NW corner 6th St. W. & 1st Ave. W.
house	604 1st Ave. NW
Dr. Thomas Russel House	600 Pokegama Ave. N.
A.C. Bossard House	NE corner 5th St. W. & Pokegama Ave.
E.J. Farrell House	xxx 2nd Ave. W.
R.M. Patterson House	NW corner 5th St. W. & 3rd Ave. W.
Grand Rapids Central School	NW corner 4th St. & Pokegama Ave. N.
Great Northern Railroad Depot	off 3rd St. W.
John Chisolm House	222 4th St. NW
McAlpine Block	SW corner Pokegama Ave. & 3rd St.
Pokegama Hotel	SE corner Pokegama Ave. & 3rd St.
Blandin Paper Company	115 SW First Street
Gaylin Finnigan House	NE corner 6th St. W. & 4th Ave. W.
CCC Supply Base	xxx 17th Ave. W.
Grand Rapids Post Office	505 1st Ave. NW
Itasca Dry Goods/The Itasca	324 Pokegama Ave. N.
Grand Rapids Village Hall	SE corner Pokegama Ave. & 5th St. E.
Kleffman Agency, State Farm Insurance	xxx Mn. Hwy. 38
Tic Tac Toe Shoe Repair	505 3rd Ave. NW
Nina's Glad Rags	511 3rd Ave. NW
house	518 3rd Ave. NW
house	515 3rd Ave. NW
commercial building	524 3rd Ave. NW

Attachment 1: Listing of Historic and Architectural Properties within Project Vicinity (continued)

house	523 3rd Ave. NW
house	602 3rd Ave. NW
house	609 3rd Ave. NW
house	608 3rd Ave. NW
house	612 3rd Ave. NW
house	624 3rd Ave. NW
house	623 3rd Ave. NW
house	632 3rd Ave. NW