STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

July 10, 2006

TO: Agencies and Parties of Interest

Re: Northwest Renewable Ethanol Production Facility in Longview

The Washington State Department of Ecology (Ecology) is in receipt of the attached State Environmental Policy Act (SEPA) environmental checklist from Northwest Renewable, LLC, for the Corn Based Fuel Ethanol Production Facility project located at the Mint Farm Industrial Park in Longview. The checklist and any additional relevant information provided by consulted agencies and governments will be used by Ecology in making a SEPA threshold determination. A threshold determination is the formal decision as to whether a proposal is likely to result in significant adverse environmental impacts that would require review in an environmental impact statement (EIS). A threshold determination may result in a 1) determination of significance (DS), in which case an EIS is required; 2) a determination of non-significance (DNS); or 3) a mitigated determination of non-significance (MDNS).

Prior to making our threshold determination, we are requesting that you review the environmental checklist and related documents and provide comments concerning permits needed, any probable significant adverse environmental impacts associated with the project that you anticipate, appropriate mitigation that may or will be required in order for you to grant approvals or permits, and any additional information needed from the applicant. Since the applicant has a limited construction period window, we are attempting to make our threshold determination as expeditiously as possible. Please submit your comments to me at the address provided below, or email them to dwal461@ecy.wa.gov within fourteen (14) days of the date of this letter. Thank you in advance for your cooperation in this matter.

Sincerely,

Richard K. Wallace
Southwest Regional Director
Washington State Department of Ecology
PO Box 47775
Olympia, WA 98504-7775

STATE ENVIRONMENTAL POLICY ACT CHECKLIST

Northwest Renewable, LLC – Ethanol Plant
Mint Farm Industrial Park
Longview, Washington

Prepared by
Makad Corp.
805 Broadway, Suite 747
Vancouver, WA 98660
Tel: 360.699.3002
Fax: 360.699.3007

June 2006

TABLE OF CONTENTS

SEPA CHECKLIST.....TAB 1

FIGURES.....TAB 2

ATTACHMENTS

MINT FARM FINAL ENVIRONMENTAL IMPACT STATEMENT.....TAB 3

MINT FARM DRAFT ENVIRONMENTAL IMPACT STATEMENT .....TAB 4

MINT FARM CC&Rs .....TAB 5

MINT FARM PHASE II STORMWATER DRAINAGE PLAN .....TAB 6

MINT FARM WETLAND MITIGATION SUMMARY.....TAB 7

TRAFFIC ANALYSIS FOR MINT FARM INDUSTRIAL PARK (9-12-96).....TAB 8

PHASE I ENVIRONMENTAL SITE ASSESSMENT (JUNE 2006) .....TAB 9

NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

SEPA CHECKLIST

TAB 1: SEPA CHECKLIST

WAC 197-11-960 Environmental checklist.

ENVIRONMENTAL CHECKLIST

Purpose of checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal. even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D)

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic area," respectively.

A. BACKGROUND

1. **Name of proposed project, if applicable:**

   Northwest Renewable, LLC - Ethanol Plant
   Longview, Washington

2. **Name of applicant:**

   Northwest Renewable, LLC

3. **Address and phone number of applicant and contact person:**

   Ms. Tawni Camarillo
   Project Director, Makad Corp.
   805 Broadway, Suite 747
   Vancouver, WA 98660
   Tel: 360.699.3002, ext. 22
   Fax: 360.699 3007

4. **Date checklist prepared:**

   June 16,2006

5. Agency requesting checklist:

Washington State Department of Ecology

6. Proposed timing or schedule (including phasing, if applicable):

Construction of the proposed project will commence as soon as possible after issuance of the required environmental permits and approvals. Current plans are to begin construction in September 2006. Facility construction is expected to last 16 months. Following the completion of construction, operation of the facility will commence. We expect to begin operations in fall 2008 time frame.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

There are currently no plans for future additions, expansion or additional activity. However, the project will be phased to provide an initial storage capacity, with additional capacity being added as production/demand warrant the increase This SEPA is to accommodate full build-out of the facility

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Environmental information used in this checklist to assess environmental impacts associated with plant development relies on information concerning design, equipment, and emissions/effluents. Since the proposed facility will be very similar to a recently permitted facility in Benton County, Washington, a portion of the information and data provided for the facility is based on data from that facility The information used, and provided, is expected to be representative of the proposed ethanol production facility. The SEPA completed for the Columbia Ethanol Facility dated August 29, 2005 was referenced for facility information that is applicable to this current proposed facility.

Specific to this site, the following information has been developed.

Phase I Environmental Site Assessment (PBS: June, 2006) (attached)

In addition, the following documents were prepared for the Mint Farm Industrial Park.

Environmental Impact Statement (DEIS – September 1996, FEIS November 1996)
Final Alternatives Analysis and Compensatory Mitigation Plan (September 2000)

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

There are no other proposals or applications pending for government approvals for other uses at the proposed site or directly affecting the property in question.

10. List any government approvals or permits that will be needed for your proposal, if known.

State of Washington

- SEPA Checklist
- Waste Water Discharge Permit
- Construction Storm Water General Permit
- Industrial Storm Water General Permit
- Air Permit (through Southwest Clean Air Agency)
- Master Business License
- Boiler/Pressure Vessel Permit
- Fuel Tax License
- Alcohol Fuel Plan Permit

City of Longview

- Building Permit
- Electrical Permit
- Mechanical Permit
- Plumbing Permit
- Fire and Life Safety Permit
- Grading and Erosion Control Permit
- Public Infrastructure Permit

Additional governmental approvals and/or permits will be completed as needed

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Northwest Renewable, LLC is proposing to construct and operate an ethanol manufacturing plant at a 31.8-acre site located on a portion of the Mint Farm Industrial Park in Longview, Washington (see attached Figures). The plant will be located near the southeast comer of the Mint Farm Industrial Park

The plant will utilize corn as the feedstock, and at full production, will produce approximately 50-55 million gallons of ethanol on an annual basis. At full production, approximately 19.33 million bushels of corn will be required to produce this amount of ethanol. Ethanol will be marketed for use as a gasoline additive as required by federal air pollution regulations, and some state regulations. Distiller's grain is produced as a beneficial by-product of ethanol production. Approximately 171,156 tons of distiller's grain will be produced. The grain will be marketed as livestock feed. Another by-product of ethanol production is carbon dioxide (CO_2). Currently there are no plans to capture the CO_2 from the process.

The Mint Farm Industrial Park was selected for its proximity and access to transportation systems (rail and highway) and the "shovel-ready" status of the available parcels.

Plant construction will occur over a 16-month period and will require a workforce of 200-350 Plant operations will require a workforce of 38-42 to support operations The plant is intended to operate on a 24-hourlday schedule, with three shifts per day Most of the operating personnel will be on the day shift.

Major plant activities will include grain receiving, storage, milling, and ethanol production. The plant will use a dry milling process to produce the ethanol A description of the different parts of the dry milling process is provided below. These process descriptions are subject to changed based on final licensor information as well as vendor and supplylequipment selection.

> Corn Receiving, Storage and Milling – Corn will be transported to the Plant by haul trucks via local roads/street It would first be analyzed and blended with other corn supplies to meet production requirements The corn would then be transported to storage silos via discrete storage feed conveyor systems. Active dust control would be maintained during all conveyance and storage operations, consisting of dust collection systems, baghouse filtration, and blower release to the atmosphere. For processing, the grain would be transferred from the storage silos to a blending facility; the blended gain would be transported to the milling section by the conveyors after a series of cleaning steps. These steps include separation of particles that are bigger and smaller than the whole grain using a vibrating sieve, stone removal using a vibrating separator that uses density differences to remove stones of the same size as grain, and a magnetic trap to separate the ferromagnetic particles would be sieved in the vibrating sieve and fed to the starch conversion process. Coarse particles and hulls would be fed to an air classifier. Light particles, such as hulls, would be aspirated by air and collected with a bag filter. Hulls would be fed to distiller's grain storage by pneumatic conveyor. All milling section equipment would be connected to an appropriate dust collection system to control fugitive grain dust emissions.

Cooking, Liquefaction, Saccharification and Fermentation – The prepared "meal" will be combined with water, heat, and enzymes to break the "meal" into fine slurry or "mash. The slurry or "mash" is then heated for sterilization purposes and is then pumped to a liquefaction tank where other enzymes are added to convert the starches into glucose sugars, Ammonia is added to provide for pH control and also as a nutrient to the yeast. Next the slurry or "mash" is cooled and pumped into the fermenters. At this point, yeast is added to begin the forty to fifty hour batch fermentation process. This fermentation process converts the glucose sugar to ethanol and carbon dioxide. During this part of the process the "mash" is agitated and kept cool to facilitate the activity of the yeast. After fermentation, the resulting "beer" is transferred to distillation columns. If desired, the CO_2 released during fermentation could be captured and sold for use in carbonating soft drinks and beverages or the manufacture of dry ice

Distillation and Dehydration – The distillation columns separate the ethanol from the remaining "stillage". The ethanol is concentrated to 190 proof using conventional distillation and then is hydrated to approximately 200 proof in a molecular sieve system. The anhydrous ethanol is then blended with about 5% denaturant (such as gasoline) to render it undrinkable and thus not subject to beverage tax.

Storage – Production of ethanol would be collected daily into above grade tanks. The tanks will have the capacity to accommodate the plant's daily production. Denaturant in the form of unleaded gasoline would also be stored in above grade tanks, After blending of the ethanol and the denaturant, the resulting final product would be transferred and stored into additional storage tanks pending shipment from the site for distribution to end users.

Solids Separation and Evaporation – The "stillage" is sent through a centrifuge that separates the course grain from the solubles. The solubles are then concentrated to about 30% solids by evaporation, resulting in Condensed Distillers Solubles (CDS) or "syrup". The coarse grain and the syrup are then dried together to produce dried distillers grains with solubles (DDCS), a high quality, nutritious livestock feed.

The Project will consist of the following facilities and structures:

Main Process Areas

- Grain unloading, storage and reclaiming system - these facilities will include a truck unloading hopper, transfer conveyors and elevators, storage silos equipped with aeration systems, reclaim conveyors, scalping screen, and a dust collection system.
- Battery limits ethanol plant – the plant includes grain milling, preparation and mashing, fermentation, distillation, dehydration, evaporation, decanting, DDGS drying, enzyme and chemical receiving and storage, and CIP cleaning.
  DDGS storage and loading system – these facilities shall include a storage building, reclaim conveyors, transfer conveyors, and loading conveyors for rail car and truck loadout.
- Denaturant and ethanol storage and loading/unloading system – these facilities shall include denaturant storage tanks and truck unloading station, ethanol storage tanks with rail car and truck loading station These storage tanks are contained in an earthen diked area.

Utilities

- Cooling tower and chiller system designed to handle process needs;
- Dry compressed air system providing for all plant requirements;
- Fire protection system; and,
- Electrical equipment, switchgear, distribution panels, motor starters, wiring and connections, trays, conduit, fittings, local panels and fixtures.

Buildings

Several buildings will be constructed at the Plant. They will be conventional, pre-engineered metal buildings and will comply with the Contract Specifications and governing building code requirements. Exact configurations will depend upon final engineering and Plant layout. These buildings include:

Main Process ***Building*** - A metal building to house pumps, exchangers and small tanks, sized to adequately accommodate the final layout design for the equipment. Insulation shall be provided in

the roof and walls. (Note - large tanks are located outside)

Control Building - A concrete block building which will come complete with all partitions, walls, MCC room, control room, lab, restrooms, employee breakroom, and other interior buildout items and features required to implement the final design. Building services to include:

- Male and female employee bathroom fixtures and plumbing including showers;
- Fixtures and plumbing for laboratory;
- HVAC in offices, control room, lab, bathrooms and break room areas;
- Ventilation in accordance with design codes for process areas;
- Climate controlled MCC room; and
- Electrical receptacles per Owner's requirements.

DD&E Equipment Enclosure - A metal building sized to adequately accommodate the final design for selected DD&E process equipment Insulation shall be provided in the roof and walls. Building services to include:

Ventilation in accordance with design codes for process area, and
Electrical receptacles per requirements

DDGS Storage & Loadout Building - A metal building to house the DDGS storage and handling system, sized to adequately accommodate the final layout design for this equipment. This building will provide flat storage of DDGS, complete with all handling pits, conveyors, loadout hoppers, and other structures and components required to implement the final design.

Administration Building - *A* metal building to house the Plant's administration and management personnel, to include offices. a conference room, restrooms, and an office supply storage room and an area for a copier and fax machine. The buildout and finish materials will be of a standard, utilitarian type and quality typically found in an industrial administration building, and will include:

- Male and female employee bathroom fixtures and plumbing;
- HVAC throughout the building; and,
  Electrical receptacles per requirements

Utility and Maintenance Building - *A* metal building to house the boiler, chiller, air compressor, and support equipment sized to adequately accommodate the final layout design for this equipment. Insulation will be provided in the roof and walls. Building services to include.

Building ventilation only (no heating or air conditioning);

- Adequate convenience receptacles; and

The Utility and Maintenance Building will also include a concrete block partitioned area to serve as a Maintenance Room for the storage of parts and spare equipment, including.

- Building heating and ventilation, and
- Adequate convenience and welding receptacles;

Centrifuge/Dryer Building - A metal building to house the DDGS centrifuges and dryer. This building is not insulated.

All building and equipment related concrete including footings, foundations, walls, and floor slabs will be provided. Where appropriate, building sumps and trench drains will be provided to conveniently drain process areas during wash downs or process spills. Building access will be provided in accordance with sound engineering and safety practices, including catwalks, platforms, and stairs in the Main Process Building for access to the major tanks and equipment.

Systems, Instruments & Controls, and Services

The following systems, instruments and controls, and services will be provided as required for the plant.

Equipment and Piping Systems - All equipment, components and piping includes, but is not limited to, the following:

Installation of all equipment in final position, complete, anchored, connected and in operable condition,

- Erection of large field-fabricated tanks on-site,
- All piping systems in accordance with the final design and Contract specifications;
- Piping system identification in accordance with Contract specifications;
- Paint or insulation of all carbon steel materials,
- Supplementary steel supports and brackets for equipment;
- Commissioning and testing of all tanks and mechanical systems and connections in accordance with the Contract specifications,
- All manual and automated valves;
- All pipe racks, pipe supports, hangers. anchors and fasteners;
- All Plant process piping including buried piping,
- Required piping insulation and heat tracing;
- Adequate freeze protection for exposed lines, and
- Bulk tanks for chemicals storage

Instruments and Controls - All instruments and controls to adequately monitor, measure and control the process per the final design specification, which includes, but is not limited to. the following

- All instrument wiring as required to provide a complete and functioning system,
- A complete Process Control System with hardware and software to handle all regulatory, discrete and sequential control applications The control system modules and hardware will be suitably packaged for an industrial environment; and
- lntegration of loop and discrete control of the dryer system into the Process Control System, as necessary to make it consistent with process safety standards and standard industry practice

Services

- Operator training in control and operation of the complete facility;
- Operating manuals for the whole system,
- Commissioning and start-up support,
- Supervision and assistance to demonstrate the performance of the system and major equipment using the installed instrumentation. and
- Initial stocking of permanent safety equipment will be provided for the plant including safety showers and eyewash stations so the plant is in compliance with the Uniform Fire Code and governing building codes

Site Work

Site work at the site will consist of the following

- General site work including grading. excavation. foundation system installation, fill dirt, fill gravel, compacting. trenching, landscaping and erosion control,
- Site roads and parking area within plant battery limits only. Roads will be gravel construction with asphalt provided at plant entrance points and parking areas only,
- Storm drainage ditches, culverts. piping and structures for adequate site drainage and run-off control in compliance with applicable codes, and
- Temporary roads, within plant battery limits. needed to provide adequate access to the buildings and equipment area and maintenance of such roads during construction.

12. **Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address. if any. and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.**

The proposed facility will be located on a 31 8 acre site at the southeast comer of the Mint Farm Industrial Park in Longview, Cowlitz County, Washington. The Mint Farm Industrial Park fronts on Industrial Way (SR 432) on the south and is bounded by the Columbia and Cowlitz Railroad on the east, and a large Consolidated Diking Improvement District drainage Ditch No. 5 on the south. The site is located in Township 8 North, Range 2 West, Section 31 See vicinity and site map.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): Flat, rolling, hilly, steep slopes, mountainous, other…

The topography at the site is generally flat.

b. What is the steepest slope on the site (approximate percent slope)

The steepest slope on the proposed plant development site is approximately 2% on the site of small topographical irregularities existing at the site The overall site is very flat with minor slopes being present alongside ditches

c. What general types of soils are found on the site (for example, clay, sand, gravel. peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Soils at the site are primarily soft to medium stiff silt and fine sandy silt, which becomes medium stiff to stiff below about 80 to 100 feet. The soils are mapped as Snohomish silty clay loam, a poorly drained, silty, clayey, and peaty alluvium.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Due to the tlat nature of the site, the hazard of erosion or other slope instability due to steep slopes is low. However, the shallow subsurface soils present at the site are known to be susceptible to settlement under loading from buildings, roadways, and utility trenches A Geotechnical Report specific to the proposed plant will be developed for the site to ensure that proper measures are taken to protect the facility fiom impacts should settling occur The EIS for the Mint Farm Industrial Park identified several measures that will reduce settlement problems: preloading, use of piles, and over excavation of soft soils with backfill. The site specific Geotechnical Report will determine which of these. or other, methods is best suited for the proposed facility.

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

Filling and grading will be conducted in order to provide a suitable base for pavements and to promote surface water drainage fiom the site. The site specific Geotechnical Report and the site civil engineering plans provide the necessary design detail for all filling that will occur to support site development Fill, consisting of structural fill or general fill, will be brought in fiom a clean off-site source via dump truck.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

No long-term erosion is anticipated as a result of the project, although some minor short-term erosion during construction is possible. As necessary, the site will be grubbed and cleared. Excavation of portions of the site will be necessary to accommodate foundations, underground piping and utilities, and other project features. These areas will be backfilled as soon as practicable. The tlat terrain limits the potential for construction related erosion.

After construction, during use, the majority of the site will be covered with impervious surfaces or landscaped areas to handle runoff or infiltration It is not anticipated that significant erosion would result as a result of the operation of the proposed facility.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

New impervious surfaces may reach 40-50% of the total site area. Impervious surfaces will include paved roads, paved parking areas, and structures.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

A detailed erosion control plan to comply with state and local regulations, including any preventative measures and monitoring requirements will be developed and implemented at the site. The construction contractor will be required to obtain necessary construction permits and complete measures to minimize erosion of site soils from leaving the site boundaries.

Construction best management practices will be employed during construction to minimize erosion as a result of construction activities Following construction, the site will be landscaped to provide permanent vegetative cover and/or surface cover along the borders of and w i t h the site.

2. Air

a. What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

During Site Construction

Air emissions during construction would consist mainly of dust and vehicle emissions. During construction, fugitive dust emissions at the facility site will be controlled with application of water Vehicle emissions during construction would be generated by construction workers driving to and from the site and fiorn operation of equipment (e.g., cranes, concrete mixers, welders, backhoes, graders). The construction contractor will be required to supply equipment that meets current emissions control regulations from mobile equipment.

During Plant Operation

Plant operation would result in air emissions would result fiom plant-related product and employee transportation Plant-related product transportation would include transportation of corn, process chemicals, and supplies to the plant and transport of ethanol and distillers grain fiom the plant. Corn would be transported in covered trucks, which would minimize dust emissions. Employee transportation consists of employees driving to and fiom the facility.

Other plant-related activities that will generate air emissions during operation include diesel locomotive emissions while rail cars are being loaded and vehicle emissions fiom trucks bringing supplies/hauling product to/from the site.

During operation, air emissions fiom stacks and vents and/or fugitive air emissions would be generated during various stages of the ethanol manufacturing process. Air emissions fiom the plant operations will primarily be a result of grain drying and ethanol production, with lesser emissions from grain handling and vehicular operations associated with plant activities. Plant emissions would consist mainly of "criteria" air pollutants for which there are primary National Ambient Air Quality Standards (NAAQS). These include nitrogen oxides (NO,), sulfur dioxide (SO_2), carbon monoxide (CO), volatile organic carbons (VOC), and particulates, including suspended particulates and PM_{10}. Emission rates will be less than 100 tons/year for each criteria pollutant and less than 25 tons for hazardous air pollutants. These anticipated emission rates qualify the source as a synthetic "minor" stationary source

The proposed ethanol production plant will be designed to produce 50-55 million gallons of denatured ethanol per year. It is reasonable to estimate that air emission rates will be equivalent to the rates associated with the 49 million gallon/year Glacial Lakes Energy ethanol manufacturing plant in Watertown, South Dakota, and those estimated for the Plymouth, Washington facility. This comparison suggests that the proposed plant would emit less than 95 tons/yr of NO,, 40 tons/yr of SO_2, 95 tons/yr of CO, 95 tons/yr of VOCs, and 45 tons/yr of particulates from vents, stacks, and roads. These estimates represent total emissions less than 370 tons/yr of combined criteria pollutants. The plant will also emit less than 15 tons of criteria pollutants

Washington State classifies NO, as a toxic pollutant The Washington Administrative Code (WAC) identifies ethanol as a Class B Toxic Air Pollutant with an Acceptable Source Impact Level of 6,300 micrograms per cubic meter on a 24-hour average (WAC 173-460). The emissions from vents and stacks at the facility will be well below human health risk levels of concern.

Particulates are primarily biodegradable grain waste that is converted to soil after dispersion and settling to the ground All emissions, as required by federal and state law. will be below the allowed concentrations/volumes at the site boundaries.

Some of the plant emissions (particulates and CO:) will be considered during completion of air permits for the plant in combination with other emission sources in the vicinity. The facility will obtain air permits for the facility, which will contain applicable regulatory requirements for controlling emission levels from the facility

CO_2 will be produced as a by-product of the fermentation process and from the combustion of natural gas in the facility. Approximately 16 pounds of CO_2 is produced per bushel of corn. CO_2 emissions per vear are estimated to be approximately 161,000 tons.

During operation, there is potential for the plant to emit a yeast-like odor with similarities to both baking bread and a brewery/distillery). However, the process includes a thermal oxidizer to control grain-drying odor potential and a packed water tower scrubber to control fermentation odor. The plant design recycles process water; the only water discharge is from the cooling tower and reverse osmosis water blowdown. As such, odor potential from water discharge is minimal.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

Other industrial developments at the Mint Farm Industrial park and the Weyerhaeuser Mill across the street are potential off-site sources of emissions or odor, but are not expected to affect this proposal

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

The project will use best available control technology to reduce air emissions to avoid air quality and lor visual impacts. As part of the permitting process, emissions estimates will be developed and air quality impacts will be considered. More specifically the following measures will be taken.

- Dust will be controlled during construction through the application of water

During Operation

- Air emission control equipment will be incorporated into the plant design to reduce emissions to allowable levels. This equipment includes enclosed grain and DDGS handling with bag filter systems to capture coarse particulates in the grain handling and milling operations.
- Best Available Control Technology (BACT) as determined through the air permit application process, will be used to reduce VOC, NO,, and other emissions.
- Vapor recovery and flaring will be used at the ethanol truck loading facility.
- A small flare will be employed to deal with off-gas produced by the plant's methanator when the dryers are down.
- Rail cardtrucks transporting corn to the facility will be covered to reduce dust emissions
- Access roads and parking areas will be paved to minimize dust emissions
- Enclosures will be utilized for fugitive emissions
- Roads will be paved for dust control

3. Water

a. Surface:

- **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds. wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

Yes. There is a ditch that crosses the eastern portion of the site; the ditch drains into a flood control ditch maintained by the Consolidated Diking Improvement District # 1. Wetlands present on the site are considered "prior converted cropland and are regulated by the State of Washington (EIS, page 31).

- Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

Yes. Site development will be within 200-feet of the ditch crossing the site. See attached site plan

- Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

It is expected that minor wetland filling will occur to accommodate the construction (less than 500 cubic yards) As part of the overall development of the Mint Farm Industrial Park development, wetland mitigation areas are currently set aside to accommodate plant development. See the attached Mint Farm Industrial Park Wetland Mitigation Plan.

- Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

This proposal will not require any surface water withdrawals or diversions

- Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The proposed project is located in an area identified as shaded Zone X on the FIRM Map Community Panel Number 5300340005D. Revised December 20, 2001, an area protected by levees from 100 year flood events

- Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No No direct discharge of any process waste materials to surface waters will occur as part of this project.

b. Ground:

- Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No. Water necessary for plant operation will be acquired from the City of Longview

- Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . , : agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the **system(s)** are expected to serve.

No septic tanks are required for the project Waste will be discharged to the City of Longview sanitary sewer system. Access to the sewer municipal system is currently available at the end of Hoehne Avenue. The Control building and the Administration building will both have restrooms that will discharge to the sanitary sewer system The system will serve the 38-42 employees to be employed by the plant during operation.

c. Water runoff (including stormwater):

- Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Storm water runoff from roads, parking areas, and roofs will be collected and treated as part of the stormwater management system developed for the Mint Farm Industrial Park as outlined in the EIS (page 27). Permanent storm facilities have been constructed throughout the Industrial Park to collect storm water, separate oil. grit, and other contaminants. and to convey that storm water to controlled release detention ponds. Final stormwater facilities will be constructed per the Mint Farm Phase II Master Stormwater Drainage Plan. Please refer to the EIS for more information.

- Could waste materials enter ground or surface waters? If so, generally describe.

The design of the plant and associated site development will be such that Waste material is not allowed to enter ground or surface waters under normal operations, however, there is the possibility that with a failure of one (or more) of the control or storage systems that material could enter surface or groundwater. Secondary containment and colle tion features are included in the plant design to collect and contain any spills resulting from equipment failure.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

The wastewater would be recycled to the reverse osmosis unit minimizing the wastewater discharge Combined with other plant design components the amount of wastewater discharge will be less than 200 gallons per minute.

Storm water will be directed to water quality facilities that are commonly constructed for property development. Storm water control will follow the requirements of the City of Longview and Washington State Department of Ecology

Erosion control measures required by local and state permits will be implemented during construction (e.g. minimizing the time bare earth and excavations are left exposed, stabilizing soils, and installing sediment controls) and operation (e.g. landscaping, best management practices, operator training).

4. Plants

a. Check or circle types of vegetation found on the site:

——— deciduous tree: alder, maple, aspen, other

——— evergreen tree: fir. cedar, pine, other

——— shrubs

✓ grass c

✓ pasture

——— crop or grain

——— wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other

——— water plants: water lily, eelgrass, milfoil, other

✓ other types of vegetation: blackberry, reed canary grass

The proposed site is vegetated with weeds, yass. and non-native species typical of disturbed sites in southwest Washington.

b. What kind and amount of vegetation will be removed or altered?

The entire 31.8 acre site will be cleared of vegetation during construction activities, as necessary to allow for construction of all site improvements. Erosion control measures will be implemented to minimize sediment laden water from leaving the site.

c. List threatened or endangered species known to be on or near the site.

No known threatened or endangered plant species are known to exist on the site. The EIS prepared for the Mint Farm Industrial Park states that no threatened or endangered plant species are known to be present on or near the Mint Farm Industrial Park.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Portions of the site will be landscaped for aesthetic and stormwater control purposes Native plants will be incorporated into plant landscaping

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

birds: hawk, heron, eagle, **songbirds, other:** Canada Geese, ducks, pheasant, quail, migratory birds
mammals: deer, bear, elk, beaver. other:
fish: bass, salmon, trout, herring, shellfish, other:

b. List any threatened or endangered species **known** to be on or near the site.

Lake Sacajawea is believed to provide habitat for the large mouth bass, a priority species. The fish may occupy portions of the larger drainage ditches within the Mint Farm Industrial Park site. Likewise, the nearby Columbia River provides habitat for 12 threatened/endangered salmonid species (see table below). However, information provided in the technical appendices to the EIS, specifically the Wildlife Habitat Report, indicates that there is no surface water connection between the ditches on site and the Columbia River that provide access for anadromous fish.

Species	Status	
	State	Federal
Chinook Salmon. Lower Columbia River ESU		T
Chinook Salmon. Upper Columbia River Spring Run ESU		E
Chinook Salmon. Snake River fall run ESU	T	T
Chinook Salmon, Snake River spring/summer run ESU	T	T
Chinook Salmon. Upper Willamette River ESU		T
Chum Salmon. Columbia River ESU		T
Coho Salmon. Lower Columbia River ESU	E	T
Sockeye Salmon. Snake River ESU		E
Steelhead Trout, Snake River ESU		T
Steelhead Trout. Upper Columbia River ESU		E
Steelhead Trout. Middle Columbia River ESU		T
Steelhead Trout. Lower Columbia River ESU		T

c. Is the site part of a migration route? If so, explain.

Yes, the site is within the Pacific Flyway for migratory birds The territory of the Pacific Flyway comprises the western Arctic, including Alaska and the Aleutian Islands and the Rocky Mountain and Pacific coast regions of Canada, the United States and Mexico. south to where it becomes blended with other flyways in Central and South America

d. Proposed measures to preserve or enhance wildlife, if any:

No measures are proposed beyond those actions taken as part of the development of the Mint Farm Industrial Park. Those measures are outlined in the EIS prepared for that project.

6. Energy and natural resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

During Construction

Electricity, gasoline, and diesel fuel would be used for construction equipment and worker vehicles

During Operation

A variety of energy types are necessary for the operation of the facility:

- Natural Gas: steam generation, process heating
- Electricity: operation of conveyor drive motors, pumps, facility lighting, office equipment
- Diesel Fuel: trains and trucks carrying material to and product from the facility
- Gasoline: vehicles

There have been concerns raised in the past about the energy balance associated with ethanol production from grain, and it has been claimed that there is a net negative energy loss (i.e., the energy required to produce a gallon of ethanol is greater than the energy value in the gallon of ethanol). A number of scientific studies refute this claim. The most recent study published by the U.S Department of Agriculture calculates that there is a 24% energy gain in the ethanol product as compared to the energy required to manufacture that product. (http://www.ethanol.org/pdfs/est_energy_balance.pdf)

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No, the proposed project will not affect the potential use of solar energy on adjacent properties

c. What kinds of energy conservation features are included in the plans of this proposal?

Conservation features and energy impact mitigation measures incorporated into the plans of this proposal include the capture and reuse of process heat generated by natural gas and steam in process heat exchange equipment.

d. List other proposed measures to reduce or control energy impacts, if any:

Conservation features and energy impact mitigation are included in the plans for this facility and include the capture and reuse of process heat generated by natural gas and steam in process heat exchange equipment.

7. Environmental Health

a. Are there any environmental health hazards. including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, which could occur as a result of this proposal? If so. describe.

After incorporation of air emission controls and wastewater treatment, the facility will not emit or discharge toxic chemicals at levels above state and federal human health risk standards. Air emissions associated with the facility are predominantly non-toxic. Particulates that consist predominantly of grain wastes are considered PM or PM_{10}. VOCs emitted from the plant (e.g., glycerol) are either biodegradable or non-toxic. Based on design experience at similar plants, stack emissions of carcinogenic compounds will be controlled through BACT-equivalent equipment to levels below human health risk levels.

Releases of hazardous and dangerous materials with the potential to adversely impact human health and/or the environment through spills of raw materials or gasoline are unlikely. However. if a spill were to occur, environmental and human exposure would be minimized through the incorporation of secondary containment measures in the design of the facility. In addition, the development of spill contingency plans will be directed at preventing, minimizing, containing and cleaning up any spills quickly and effectively.

The most significant risk potential posed by the plant is fire and explosion due to the presence of grain dust and heat sources, as well as large volumes of flammable materials (i.e. fuel, alcohol). Grain dust controls (e.g. ventilation, air cleaning, monitoring systems) will be incorporated into the plant design to reduce the accumulation of combustible

levels of grain dust. Fire suppression, alarm systems, and other appropriate safeguards will be incorporated into flammable material storage facilities. In addition, all employees working with flammable materials would be trained in emergency response to releases and fires, and in reducing operational spills.

- **Describe special emergency services that might be required.**

Emergency services currently available in the City of Longview and Cowlitz County would be required. Services that could potentially be required include fire and medical. Worker accidents or exposure to toxic material could occur, but emergency medical services are less than 5 miles away (St. John Medical Center) and could respond to such incidents The City of Longview Fire Department will provide fire response and protection services. The Cowlitz 2 Fire and Rescue is adjacent to the site if additional assistance is necessary. Plant personnel will be trained to provide first response in the event of a minor emergency

- **Proposed measures to reduce or control environmental health hazards, if any:**

Product and Hazardous Substance Management and Emergency Response

Northwest Renewable has a strong commitment to worker safety and protection of the environment. Receipt, storage. and handling of hazardous materials would be performed under facility specific operating procedures (to be developed) by trained personnel to ensure that materials are handled in a safe manner and to minimize the potential for any accidental spills or releases. Facility specific and job specific training requirements will be defined prior to facility startup and a training program will be implemented to ensure operating personnel are current on required training. Facility operating personnel training requirements will be tailored to specific job categories. Those employees involved in receiving, handling, and storage of hazardous materials will be required to successfully complete training facility specific training and emergency response training.

Facility specific training will be developed to ensure that operating personnel have received sufficient training and have demonstrated competence relative to plant systems and the use, inspection, repair, and replacement of emergency and monitoring equipment; identification and operation of systems within the facility that have automatic shutdown features' procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment; communications or alarm systems; response to fires or explosions; and facility shutdown in the event of an accident or emergency

Workers will be trained to observe. report, and respond to conditions that have the potential to lead to the release of hazardous substances. fire, or explosion. Control equipment installed within the facility will reduce/eliminate the potential for and will provide warning of any chemical releases to the environment or conditions that could contribute to fire and/or explosion. Operations, maintenance, and emergency procedures will be established to maximize effective response. These measures will minimize any impacts associated with releases or hazardous conditions at the facility.

Emergency response procedures will be developed that consider the manufacturing process, materials present, and potential hazards First response actions to a spill and/or fire emergency will be developed prior to facility startup and will take into account the location of the plant and the distance from emergency services. Plant personnel trained to respond to a spill and/or fire emergency as a first response. Using a graded approach that considers the potential threat to human health and the environment, specific actions would be taken to alert emergency services, evacuate personnel. and place the facility in a safe condition.

8. Noise

a. What types of noise exist in the area, which may affect your project (for example: traffic, equipment, operation, other)?

Noise that exists in the area is associated with the other tenants at the Mint Farm Industrial Park and the adjacent Weyerhaeuser Mill. This includes noises associated with trucks, trains, and vehicles accessing those businesses. Other ambient noise levels in the area are fiom traffic. or the Columbia and Cowlitz Railroad that borders the eastern side of the Mint Farm Industrial Park No surrounding noise sources have the potential to affect the proposed project.

b. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

During Construction
Construction-related activities, equipment, and vehicles will generate short-term noise

During Operation
During operation, the plant site would generate noise from a variety of sources. including process (primarily milling and drying operations); decanters. compressors. jet cooler equipment, support equipment (conveyors, pumps) truck and trains; loading/unloading operations, truck and rail traffic, and worker vehicles The noise will be generally consistent with that of other types of facilities that either currently or may operate in the future in the Mint Farm Industrial Park.

The hammer mills will produce the loudest noise at the site Unshelded. they can generate noise in the 105 dB range at 1 meter inside the elevator enclosure and 100 dB outside of the elevator enclosure. This equipment would be placed inside a building whch would shield a portion of the noise, decreasing generated noise levels just outside the building wall to 100 dB. Engineering controls (e.g., hearing protections) would be used to mitigate noise impacts to facility personnel

Truck and rail traffic would also generate increases in short-term noise impacts as they access the site Truck noise would be similar to existing truck traffic accessing other industrial uses at the Mint Farm Industrial Park. Rail traffic noise would be similar to that already occurring at the Industrial Park The incremental addition of truck and rail traffic would cause a corresponding increase in the associated noise In addition to access. rail loading would also generate noise

The nearest residential use is less than 1-mile from the nearest portion of the proposed plant site (located to the east of the plant site) As the major sources of' noise are shield by building enclosures and further shielded from residential areas by other site structures, noise levels are not expected to exceed acceptable levels If required, noise levels will be mitigated to meet acceptable levels (60dB from an industrial source) at the nearest residence in accordance with WAC 173-60, "Maximum Environmental Noise Levels "

c. Proposed measures to reduce or control noise impacts. if any:

The hammer nulls will be located inside a building to shield a portion of the noise. decreasing the generated noise to 100dB immediately outside of the building. Engineering controls (e.g hearing protection) will protect personnel from noise impacts

Loading/unloading activities will occur during daylight hours, thereby reducing noise impacts on these most noise-sensitive uses during night hours

Acoustic mitigation measures could include the incorporation of acoustic enclosures on all noise-generating equipment and areas, locating noise-generating equipment away from residences and other sensitive land uses, or orientating equipment to project sound away from residential and other sensitive land uses.

9. Land and shoreline use

a. What is the current use of the site and adjacent properties?

The site is currently a vacant parcel within a larger industrial park The industrial park has been planned to allow development by various types of industrial facilities. such as the proposed ethanol plant.

Industrial uses surround the site on the north and west Residential uses exist adjacent to the eastern edge of the site The site is across Industrial Way from Weyerhaeuser's Longview Mill.

b. Has the site been used for agriculture? If so. describe.

Yes. The site was once operated as a mint farm

c. Describe any structures on the site.

There are no structures currently existing on the site.

d. Will any structures be demolished? If so, what?

Not applicable. No structures currently exist on the site that will require demolition

e. What is the current zoning classification of the site?

The site is zoned M-2, Manufacturing District

f. What is the current comprehensive plan designation of the site?

The Comprehensive Plan designates the site as light industrial

g. If applicable, what is the current shoreline master program designation of the site?

The site is outside of the area that falls under the jurisdiction of the Longview Shoreline Master Program.

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

No part of the site has been designated as "environmentally sensitive"

i. Approximately how many people would reside or work in the completed project?

38-42 people would work at the facility None of the employees would reside on the plant site All workers will commute to the plant for their assigned work shift

j. Approximately how many people would the completed project displace?

Because the site is currently vacant, the project would not displace any people

k. Proposed measures to avoid or reduce displacement impacts. if any:

No measures proposed, as no displacement will occur

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans. if any:

The proposed project is compatible with the site zoning, with the adjacent industrial uses and with the permitted uses enumerated in the Mint Farm CC&Rs

10. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

This project would not result in the provision of any new housing units

b. Approximately how many units, if any. would be eliminated? Indicate whether high, middle, or low-income housing.

The project would not eliminate any housing units

c. Proposed measures to reduce or control housing impacts, if any:

The project would not cause housing impacts: therefore, no housing-related mitigation measures are proposed

11. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest proposed height of any structure at the site will be a maximum of 175-feet. The tallest structures will be the distillation, grain receiving, and dryer exhaust stacks. The exterior materials will be structural metal with painted metal siding. The stack will be constructed of steel.

b. What views in the immediate vicinity would be altered or obstructed?

The project will not cause a significant aesthetic impact The project is located within an existing industrial park within an industrial area of the City of Longview. Uses surrounding the site include residential uses to the east, heavy industrial uses to the south, and two chemical companies to the west. A vegetative buffer and the elevated railroad grade along the east edge of the property limit views into the site. Views into the site are unrestricted from Industrial Way Views from the north and west will be restricted by other industrial uses within the Mint Farm Industrial Park.

c. Proposed measures to reduce or control aesthetic impacts, if any:

The Mint Farm Industrial park has established design guidelines to protect the surrounding neighborhoods and to improve project appearance Exteriors of buildings will be painted with standard colors to blend with other industrial uses of the area. Landscaping will be provided in accordance with the Mint Farm CC&R requirements. The exhaust stack plume opacity will meet Washington State air emissions standards. Appropriate measures (e.g. tree planting) will take place to screen the facility from view

12. Light and glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

The project would not impose permanent light and glare impacts Security and convenience lighting will be used to support facility operations during dusk. dawn. and niyhts

b. Could light or glare from the finished project be a safety hazard or interfere with views?

The project will not produce light or glare that will create a safety hazard or interfere with views in the area

c. What existing off-site sources of light or glare may affect your proposal?

There are no known existing off-site sources of light or glare that would affect the proposal If a developnient occurs that does cause substantial off-site light or glare sources. these impacts may adversely affect the performance of on-site fire detection monitors in ethanol loading facilities This has the potential to result in faulty readings and potentially unwarranted foam releases

d. Proposed measures to reduce or control light and glare impacts, if any:

Light and glare impacts imposed by the project are anticipated to be negligible. Non-glare building and equipment surface materials will be incorporated into the project design Outdoor security and convenience lighting will use directional and low glare lighting that will minimize and/or control glare impacts to areas near the facility.

13. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Lake Sacajawea and Lake Sacajawea Park is approximately ¾ of a mile from the eastern boundary of the site. Lake Sacajawea provides informal water-related recreational opportunities. The Columbia River provides the opportunity

for various water-related recreational opportunities including boating. wind surfing, and fishing. The City of Longview has many other parks that are available for use Mountain hiking and biking are also available

b. Would the proposed project displace any existing recreational uses? If so, describe.

No recreational activities currently occur on the site It is not expected that the site will displace any existing recreational uses in the area.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

The proposed project will not impact recreation or recreational opportunities, therefore no mitigation measures are proposed The project will not provide any recreational opportunities.

14. Historic and cultural preservation

a. **Are** there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? **If** so, generally describe.

No As part of the EIS completed for the Mint Farm lndustrial Park project, the Washington State Historic Preservation Office has reviewed the Washington State Inventory of Cultural Resources and indicated that no cultural resources have been identified in this area.

b. Generally describe any **landmarks** or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

No landmarks or evidence of historic, archeological, scientific, or cultural importance exist on or adjacent to the site. The site was previously a mint farm, which lends to the current name of the industrial park.

c. Proposed measures to reduce or control impacts, if any:

The project would not cause cultural resource impacts, therefore, no related mitigation measures are proposed. However, if any cultural artifacts are discovered during construction, all development will cease and appropriate local, state, tribal, and Federal agencies will be contacted.

15. Transportation

a. Identify public streets and highways **serving** the site, and describe proposed access to the existing street system. Show on site plans, if any.

The site is located in western Longview; direct access to Interstate 5 (Exit 36) is provided through Longview along state highways designated as Tennant Way and Industrial Way. Approximately 2 miles east of the site. these roads connect with Oregon Way, providing access to Oregon highways via the Lewis and Clark Bridge. Industrial Way, Washington Way. Prudential Boulevard, and Hoehne Avenue provide direct access to the site.

b. Is site currently served by public transit? **If** not, what is the approximate distance to the nearest transit stop?

The site is not served by public transit. The nearest Community Urban Bus Service (CUBS) is located at 32nd Avenue and Dover Street, approximately 2,500 feet from the site

c. How many parking spaces would the completed project have? How many would the project eliminate?

The project will not eliminate any parking spaces The completed project will create approximately 30-50 spaces for use by plant employees and visitors (will meet City of Longview requirements). The number of parking spaces will be determined in order to meet City of Longview development requirements

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

Yes – a new access street, approximately 1,500 feet in length will be required as part of the Mint Farm Industrial Park to access this site off the end of the existing Hoehne Avenue.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project will use rail transportation to transport both ethanol and distillers grain from the facility. Nothing will be transported to the facility by rail.

The site is bounded on the east by the Columbia and Cowlitz Railroad operated by the Weyerhaeuser Company. The railroad provides an intertie to nationwide shipping routes via the Burlington Northern Santa Fe railroad. The site is currently served by a rail spur, which enters at the southwest comer and travels along the south edge of the site. A two-track rail system with storage capacity is adequate to accommodate required rail traffic to and on the site.

The plant will be served by both rail and truck traffic The rail and truck traffic volume estimates will be similar to the Columbia Ethanol Facility proposed in Benton County, except that rail is not currently planned as a method of transporting material to this proposed plant.

Ethanol tank cars will be used to transport ethanol from the site. It is anticipated that 30-35% of the ethanol produced will be shipped from the facility via rail, for a total of 5-6 cars per week. Similarly, the 35-40% of the distillers grain to be shipped in grain cars will require a total of 5-6 cars per week.

No water or air transportation of materials or products is planned as part of this proposal

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

The completed facility will generate 30-32 truck transport trips each day to deliver feedstock to the facility and 28-30 truck transport trips to deliver product from the facility each day. These numbers are based on the amount of corn required/ethanol produced by the facility, the percentage being delivered to/from the site by truck, and the capacity of the grain/tanker truck. Approximately 65-70% of the ethanol produced will be shipped out in tanker trucks along with 60-65% of the distillers grain.

Peak volumes will occur during shift changes The facility will operate 7 days per week with 3 shifts per day, and approximately 20 employees per shift Peak traffic volumes will occur in the early morning (6-7 am) and the late afternoon (4-5 pm) during shift changes, during these times approximately 20 vehicles will be arriving at or departing from the facility In addition, one transport truck trip to the facility and one leaving the facility would also be expected during these peak volume times

Trucks will enter the site from Industrial Way (SR 432), approximately half a mile east of an existing signalized intersection with 38th Avenue. Industrial Way, Washington Way, Prudential Boulevard, and Hoehne Avenue also provide direct access to the site. An access road to be constructed as part of this project will provide access to shipping and receiving facilities. The completed project will add approximately 80 additional vehicle trips per day to and from the site.

A traffic study was prepared for the Mint Farm Industrial Park to evaluate the effect of the Industrial Park proposal on traffic in the area (see attached). The intersection of Industrial Way and 38th Avenue was not identified as a site where unacceptable levels of service would be reached as a result of industrial park development. Please refer to EIS or Traffic Study for more information.

Neither truck nor automobile traffic volume increases associated with project development are expected to change levels of service on any local roads or highways.

g. Proposed measures to reduce or control transportation impacts, if any:

Transportation impacts will be minor and would not alter the existing level of service; therefore, no mitigation measures are proposed.

16. Public services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

The project will not result in an increased need for any public services Existing emergency response services will be adequate to support plant operations. The construction and operation of the facility will create new direct and indirect jobs and associated economic development.

b. Proposed measures to reduce or control direct impacts on public services, if any.

No mitigation measures are proposed; the proposal is only anticipated to have very minor impacts related to public services.

17. Utilities

a. Circle utilities currently **available at** the site: electricity, natural **gas**, **water**, refuse **service**, **telephone**, sanitary sewer, septic system, **other**: cable

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Utilities are currently available at the end of Hoehne Avenue and will be extended to the site

C. SIGNATURE

The above answers are true and complete to the best of my knowledge I understand that the lead agency is relying on them to make its decision. NORTHWEST RENEWABLE, LLC

Signature: By: Tawni Camarillo, Vice President

Date Submitted June 29, 2006

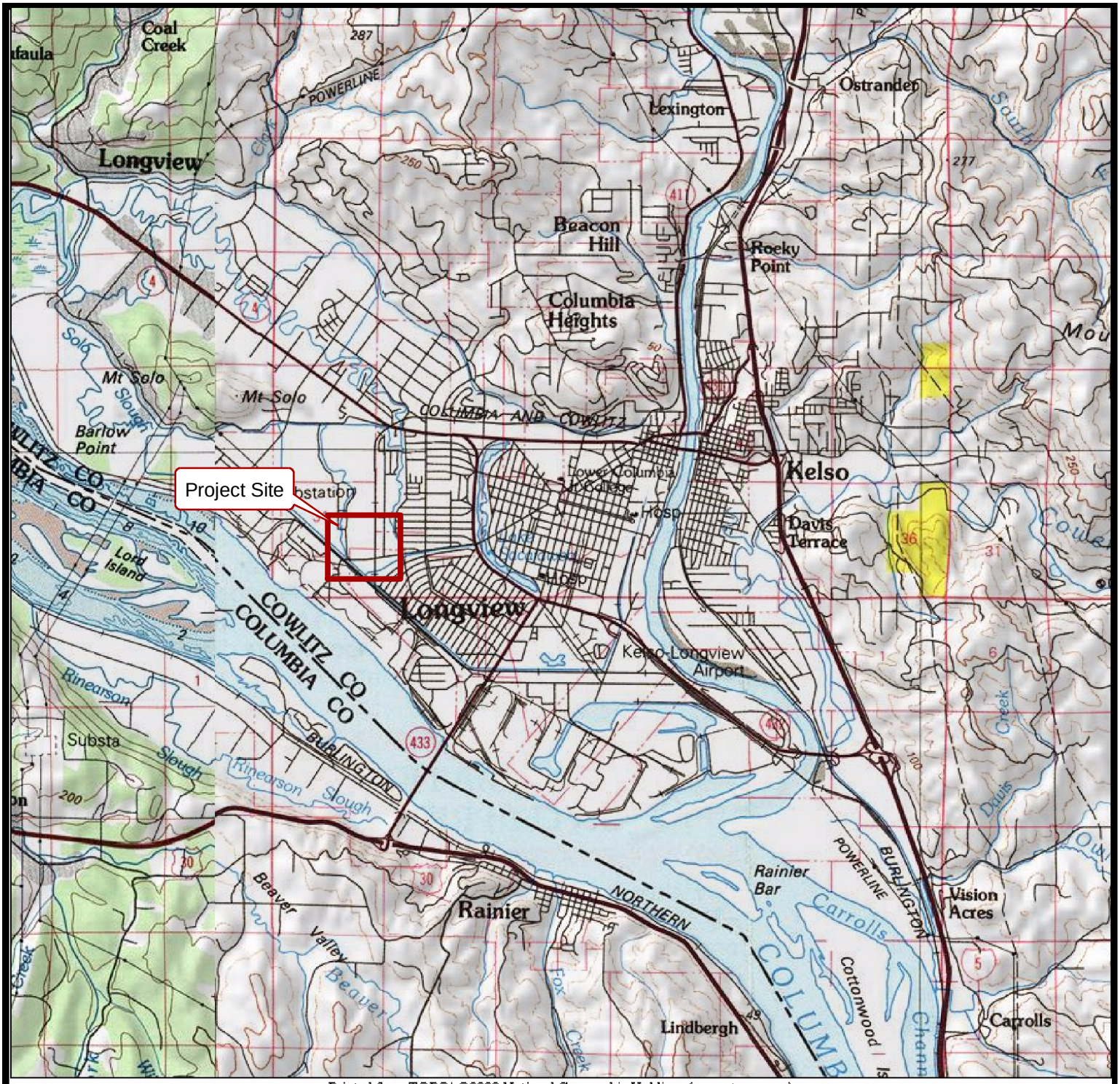
Attachments:

1. Vicinity Map (Tab 2)
2. Site Plan (Tab 2)
3. Aerial Photograph (Tab 2)
4. Mint Farm Industrial Park. Environmental Impact Statement (Tab 3 – Final, Tab 4 – Draft)
5. Mint Farm Industrial Park, CC&Rs (Tab 5)
6. Mint Farm Industrial Park, Phase 11 Stormwater Drainage Plan (Tab 6)
7. Mint Farm Industrial Park, Wetland Mitigation Summary (Tab 7)
8. Traffic Analysis for Mint Farm Industrial Park (9-12-96) (Tab 8)
9. Phase I Environmental Site Assessment (June 2006) (Tab 9)

NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

SEPA CHECKLIST

TAB 2: FIGURES



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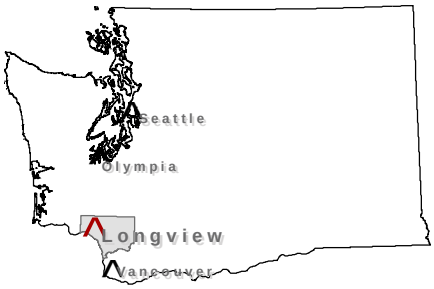
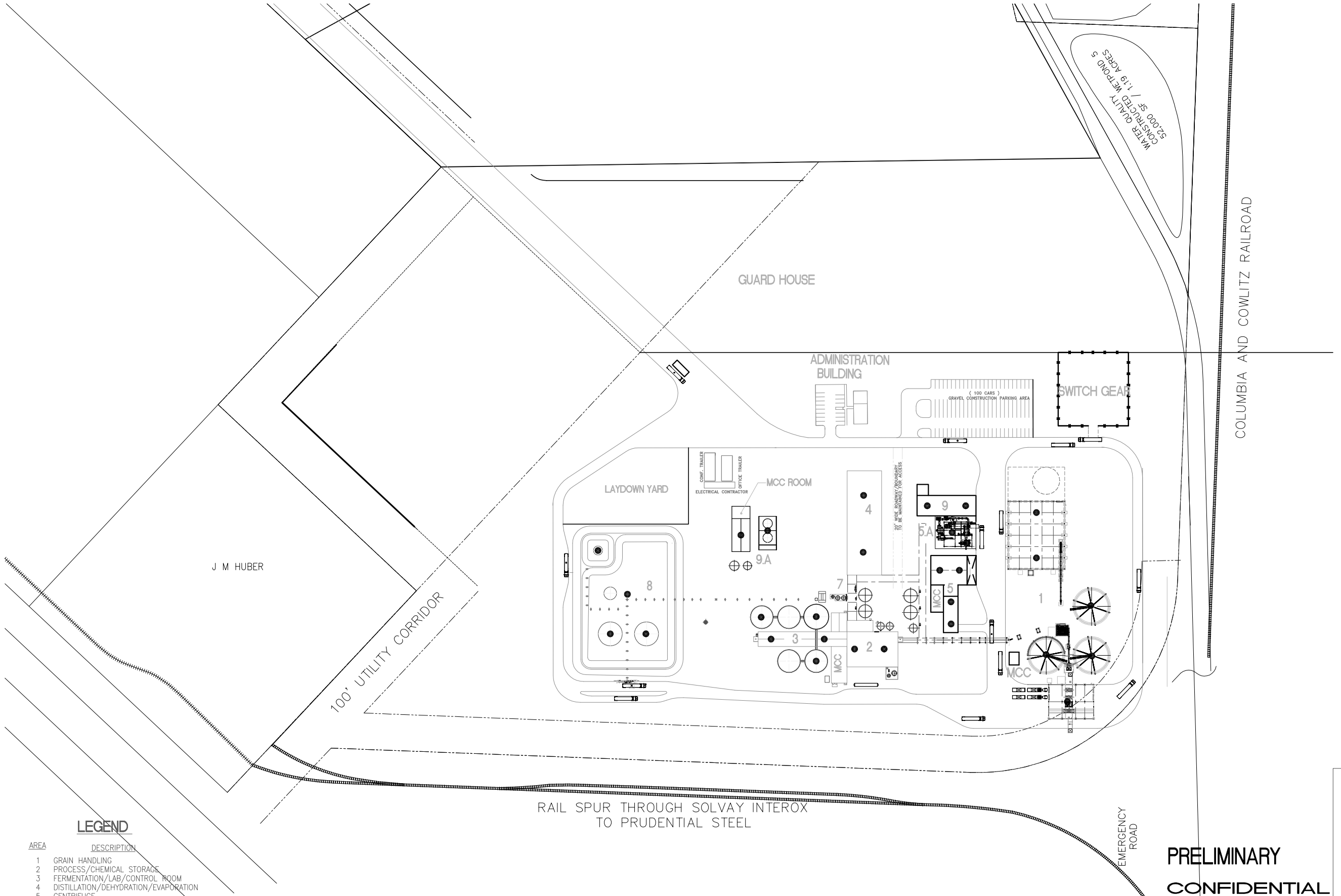


Date:
June 2006

VICINITY MAP
Northwest Renewable, LLC - Ethanol Plant
LONGVIEW, WASHINGTON

FIGURE
1



LEGEND

AREA	DESCRIPTION
1	GRAIN HANDLING
2	PROCESS/CHEMICAL STORAGE
3	FERMENTATION/LAB/CONTROL ROOM
4	DISTILLATION/DEHYDRATION/EVAPORATION
5	CENTRIFUGE
5.A	DRYER
7	ANAEROBIC TREATMENT MODULE
8	ETHANOL STORAGE/LOADOUTLOADOUT FLARE
9	TO/HRSG
9.A	R.O. WATER/FIREWATER/PROCESS WATER/AIR COMPRESSOR COOLING TOWER/CHILLER

PRELIMINARY

CONFIDENTIAL

REV	REVISION	DATE ISSUED	DWN BY	CHK BY	PSI APPD
--	--	-	-	-	-
--	--	-	-	-	-
A	PRELIMINARY ISSUE	06/21/06	CW	-	-

NORTHWEST RENEWABLE, LLC.
SITE PLAN 55MML ETHANOL PLANT

MAKAD CORPORATION

LONGVIEW NORTHWEST RENEWABLE WASHINGTON

CAD Ref. No. MB0102
DRAWN BY: CW DATE: 06/07/06
CHECKED BY: DATE:
SCALE: 1/8"=1'-0"
DRAWING NO.: MB-0102 REV. A

Date:
June 2006

AERIAL PHOTOGRAPH
Northwest Renewable, LLC - Ethanol Plant
LONGVIEW, WASHINGTON

FIGURE
2

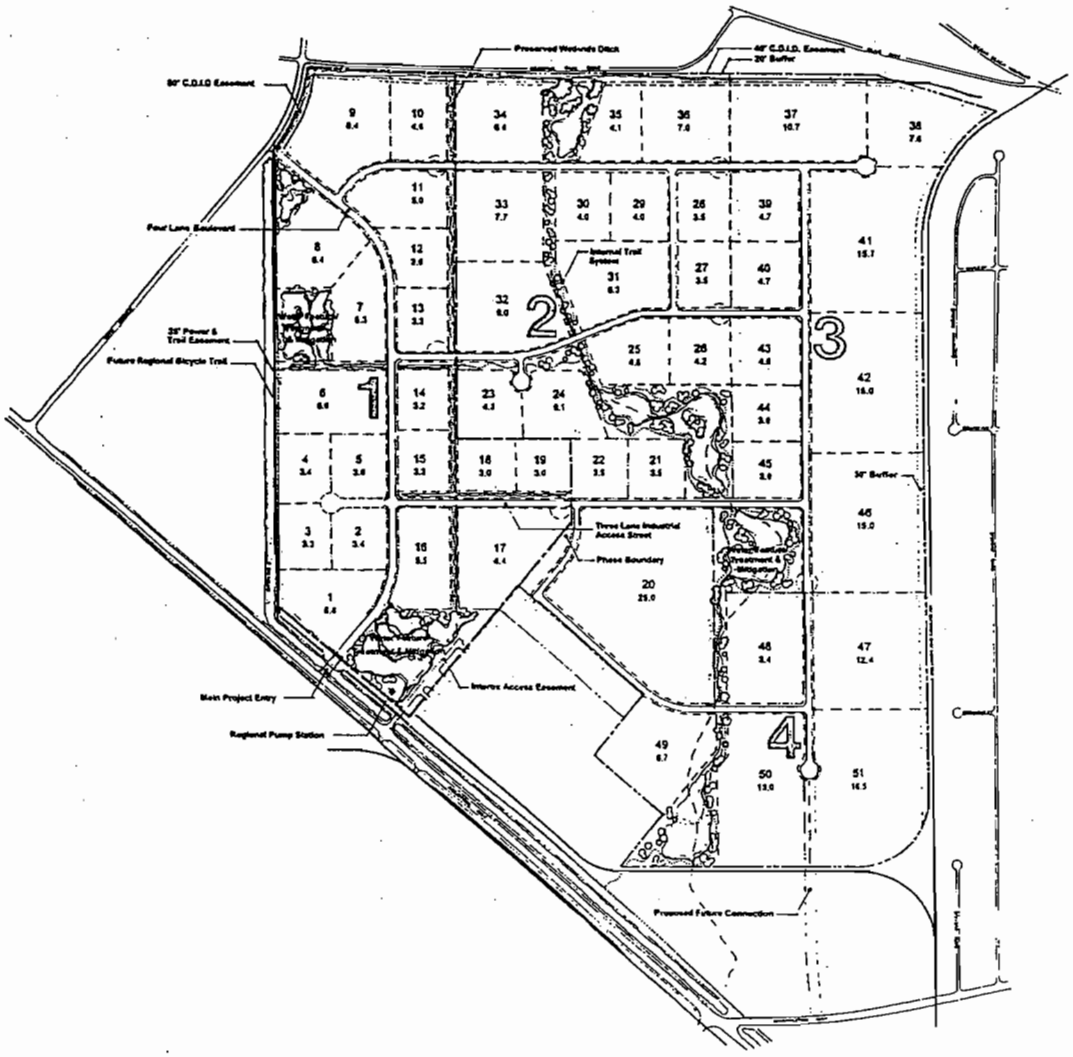
NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

SEPA CHECKLIST

TAB 3: MINT FARM FINAL ENVIRONMENTAL IMPACT STATEMENT

FINAL
ENVIRONMENTAL IMPACT STATEMENT
FOR
MINT FARM INDUSTRIAL PARK

City of Longview, WA



Prepared by
Richard Carothers Associates
September 1996

FINAL
ENVIRONMENTAL IMPACT STATEMENT
FOR
MINT FARM INDUSTRIAL PARK

City of Longview
Longview Planning Department
Longview, WA

Prepared as an addendum to the Draft EIS in compliance with WAC 197-11-560 (5)

The State Environmental Policy Act of 1971 Revised Code of Washington 43.21.C
Chapter 197-11 WAC effective April 4, 1984
as described in the 1988 handbook and updates periodically issued by the Department of Ecology

and
City of Longview SEPA Ordinance

TABLE OF CONTENTS

COVER LETTER

FACT SHEET ..... SECTION 1

COMMENT LETTERS RECEIVED
AND CITY OF LONGVIEW RESPONSES ..... SECTION 2

CORRECTED PAGES FROM EIS ..... SECTION 3

TO: Interested Parties
FROM: Edwin R. Ivey, City Manager, City of Longview

November 6, 1996

RE: Mint Farm Industrial Park
Final Environmental Impact Statement (FEIS)

The City of Longview received 12 letters commenting on its Draft EIS for the Mint Farm Industrial Park. The most direct way to respond to issues raised in the letters is to address each comment individually. The letters received and City responses are included in this document. The changes to the Draft EIS document which were needed to respond to the comments were of a minor nature so the City has chosen to prepare this Final Environmental Impact Statement as an addendum to the Draft EIS in compliance with WAC 197-11-560 (5).

The responses to the letters received consist of factual corrections and explanation of ongoing programs to develop mitigation measures. This Final EIS addendum contains the comment letters received, responses to each comment, pages changed in the EIS and an updated fact sheet. The addendum is being sent to anyone who received the Draft EIS and a notice of Final EIS availability is being sent to anyone who received a similar notice for the Draft EIS.

Some comments reflect a concern over the effect of increasing traffic in Longview, especially on Industrial Way. The City is participating in an Interagency Route Development Planning Process to address access and congestion issues on Industrial Way. Comments are particularly useful on this subject because they underscore the importance of a coordinated public and private effort to address the current and future needs associated with access to businesses along SR 432 and SR4.

Access to businesses on Industrial Way is a problem at current levels of traffic although by widely recognized traffic standards the level of service on Industrial Way is adequate. Unless mitigating measures are implemented, access in this area will be more difficult as both project generated traffic and regional background traffic are added to Industrial Way. The City, Council of Governments, and State Department of Transportation are currently working with property owners in the area to develop a plan for maintaining and improving access as traffic increases from project and non project areas. The City recognizes that mitigation of impacts of the project, especially in the area of traffic will require an ongoing commitment to interagency planning and implementation as the project is developed.

Letters were received which questioned how drainage and treatment of stormwater would be handled. Discussions are currently being conducted with the Consolidated Diking Improvement District to assure that discharges from the proposal site will not negatively affect drainage from other property in the vicinity. Water will be treated in wet ponds prior to release to wetlands and drainage ditches to assure that water quality impacts from the proposal site are minimized. Treatment will be in accordance with Department of Ecology Best Management Practices.

The City appreciates your review of the Draft Environmental Impact Statement document and trusts that the material in this Final EIS addresses issues raised. The information developed through the Environmental Impact Statement Process will be used by the Longview Planning Commission and City Council in their consideration of conditions of approval for the preliminary plat application for the project. The City encourages ongoing participation by agencies and the public during the plat review process.

Our goal in this SEPA process has been to implement the intent and requirements of the State Environmental Policy Act especially in the areas of making the SEPA process useful to decision makers, integrating the SEPA process with other planning and licensing procedures and encouraging public involvement in decisions that affect environmental quality.

FACT SHEET

FACT SHEET

Project Title:	Mint Farm Industrial Park
Proponent:	City of Longview
Proposed Project:	The project entails development of a 435 acre Light Industrial Park in phases. Current City ownership is limited to approximately 124 acres designated as Phase One. The roads and utilities for Phase One development are proposed for construction in 1997.
Project Location	Land lying north of Industrial Way, west of the Columbia and Cowlitz Railroad, east of 38th Avenue and south of Memorial Park Drive in Longview, Washington. Phase one development will occur along the west edge of the site.
Purpose:	Provide sites for industrial and business use in the Longview area which are fully serviced with utilities and roads.
Lead Agency:	City of Longview
SEPA Official:	Ed DeVries, Planning and Building Director City of Longview
Contact Person	Ed DeVries, Planning and Building Director City of Longview 1525 Broadway Longview, WA 98632-7080
Licenses Required:	City of Longview Grading Permit City of Longview Subdivision Approval US Army Corps of Engineers 404 permit (for modifications to existing ditch areas only) NPDES Construction Permit (for private sites over five acres) City of Longview Building Permits will ultimately be needed by individual property developers as individual parcels are developed.
Principal Contributors:	Richard Carothers Associates Author of DEIS Contact: Carl Stixrood (206) 324-5500 Watershed Dynamics-Wetlands analysis Contact: Tom Deming (206) 735-4288 Hart Crowser--Geotechnical analysis Contact: Jeff Wagner (206) 324-9530
Date of Issue:	November 6, 1996

Date of Final Action	Preliminary Plat Approval Winter 1996/1997
Subsequent Environmental Review	None is anticipated
Location of Prior EIS	None have been prepared
Cost of Copy	None

Comment Letters Received and City of Longview Responses

List of Letters received

Author	Agency/Company	Page
Gerald Smith/Mary Legry	WA State Department of Transportation	2-1
Gary Hall	Solvay Interox	2-7
Richard Bemm	Director, Longview Parks and Rec. Dept	2-12
JG Denison	Cowlitz County Assessor	2-14
Avery Loy	The Mallory Co.	2-16
Bruce Cooper	Cooper Oil	2-18
Randy Sweet		2-20
Steven Harvey	Cowlitz-Wahkiakum Council of Governments	2-24
Yvette O'Neill		2-30
George Marsh		2-32
Janet White	Woods Logging Supply Inc.	2-35
Rebecca Inman	Department of Ecology	2-38
Ronald Colbert P.E.	Consolidated Diking Improvement District	2-43

Washington State Department of Transportation
Sid Morrison
Secretary of Transportation

Southwest Region
4200 Main Street
P.O. Box 1709
Vancouver, WA 98668-1709

(360) 905-2000
(360) 905-2222 Fax

October 29, 1996

OCT 1996
Received
Planning & Building
City of Longview

Ed Devries, Director of Planning
City of Longview
1525 Broadway
Longview, WA 98632

RE: SR 432
Mint Farm Industrial Park
Draft EIS, Traffic Study

Dear Mr. Devries:

We have reviewed the proposed "Mint Farm Industrial Park" development and found some areas of concern or potential concern to Washington State Department of Transportation (WSDOT).

1. While we do not directly dispute the projected peak hour trip generation given in the traffic study, we view it as conservative (smaller). By using another ITE parameter, with a better statistical test value (higher R-square value), a trip generation almost 50 percent greater would be anticipated. The development consists of 435 acres (344 buildable acres), at least 6,000,000 sq. ft. of buildings, plus roads and parking lots which by WSDOT estimates will generate 42,000 daily trips/3600 peak hour trips (possibly 5400 peak hour trips).

2. We are concerned that no traffic analysis was done at the proposed SR-432 access to the site. Without such analysis no assessment of impact or congestion can be made. The EIS proposes a new traffic signal at this location. Although it is likely a signal may be appropriate, without the analysis the necessary warrants cannot be determined. Also further to the east there is an existing access adjacent to the Mint Farm property. Improving this access and utilizing it for the proposed project would lessen the impact to the traffic-carrying capacity of the highway. Also opposite this point is the main access to the paper products division of Weyerhaeuser. We are concerned that traffic from the proposed access would interfere with the safe operation of this intersection. This possibility should be addressed in the necessary additional traffic analysis.

3. The traffic study identifies four SR-432 intersections and three SR-4 intersections that are projected to go to Level of Service (LOS) 'E' or worse as a result of this development. We are concerned that there is no mitigation for these impacts except unidentified improvements proposed at the SR-4/38th Avenue and SR-432/Oregon Way intersections. The Washington State Transportation System Plan has identified existing deficiencies on State highways that exceed current funding projections. It is unlikely the additional improvement needs brought about by this development will be funded under existing

programs within the next 20 years. Therefore, we are concerned that no alternate funding sources have been identified. Without the necessary improvements, long term economic development could be affected.

4. Also it is anticipated that traffic from this development will affect transportation facilities outside the study area. Some assessment of impact should be made in those areas. Some widening will be necessary to accommodate left turn channelization at key intersections and possibly a continuous left turn lane. There should be some discussion of the availability of the necessary right of way.

5. In order to lessen the traffic impacts of this development more attention should be paid to travel demand management. This proposal should include more complete plans for transit service and should address rail service to the site.

6. An access management plan should be developed on the routes impacted by the Mint Farm development as well as specifically for this site. Well thought out access management would maximize the benefits of all development in the area, and preserve future options at the same time.

An industrial development with the excellent potential of the Mint Farm proposal should be carefully and comprehensively integrated into the regional planning efforts in order to maximize its benefits. With potential significant impacts on two state highways (SR 432 and SR 4), the issues raised by this proposal, in combination with other major development on these highways, could very effectively be addressed by the participation of the City of Longview in WSDOT's Route Development Planning process.

WSDOT is very supportive of the City's long range economic development plans to continue to diversify Longview's commercial and industrial base. If you have any questions please contact Mary Legry at (360) 905-2014.

Sincerely,

GERALD E. SMITH, P.E.
Regional Administrator

Mary Legry

By: MARY LEGRY
Regional Planning Manager

GES:mas
ML

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 29, 1996

Mary Legry, Regional Planning Manager
Southwest Region
4200 Main Street
P.O. Box 1709
Vancouver, WA 98668-1709

Re: Response to Mint Farm Industrial Park Draft EIS Comments

Dear Ms. Legry:

Thank you for your comments dated October 29, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will attempt to respond to those comments in the order in which you presented them.

1. Comment noted. The City's intended use for the site is expected to be of a lower intensity than that indicated in your letter. As described in the employment section of this FEIS under impacts, the City's current industrial park (100 acres) supports about 1,400 employees. The City intends that the Mint Farm site be developed at a slightly lower intensity than the current park so a ratio of 10 employees per gross acre has been used to project future employment. Using this ratio, Phase One at 124 gross acres could accommodate 1,240 employees. The entire project, when all 435 acres are built out could accommodate 4,350 employees. This employment will come from a mix of new businesses attracted to the area and expansion of locate businesses. The new employees will locate on the project site over a period of 20 to 30 years. These employment assumptions were considered in choosing the peak hour generation rates from the ITE manual.

Planning & Building • 1525 Broadway, Longview, WA 98632-7080 • (360) 577-3330 • Fax (360) 577-4018

If a higher than projected trip generation rate were to occur, as the WSDIOT letter suggests is possible, the impacts projected in the FEIS would occur sooner than forecast and payment for needed improvements would need to occur sooner than expected. The ability of the City and adjacent property owners to make needed improvements would be enhanced under this higher growth scenario since revenues from property, sales and other tax sources would be higher as a result of greater than expected economic activity.

2. Comment noted. A traffic signal was assumed to be necessary to provide adequate access and egress to the Mint Farm site. The consultant is currently working with the Washington Department of Transportation on the design of the intersection at the site entrance. Studies needed to complete the entrance design will be done as part of coordination work with the Washington Department of Transportation on the entry intersection design.

The second portion of this paragraph discusses a possible realignment of the main project access and combining it with existing access to Solvay Interox as a way of limiting congestion on a State Highway. The Master Plan provides the future opportunity to reorient the Solvay Interox entry interior to the Mint Farm, reducing in part the potential conflicts noted in your letter. The possible conflicts inherent in the offset intersections is recognized. This issue is most effectively dealt with through the review of the entry design and through the regional Route Development Planning process being conducted by the WSDOT.

3. There is no expectation that the State would need to fund all road improvements identified by this study. Funding for needed improvements is expected to be addressed in the Route Development Planning Process now underway. Increased economic activity from the proposal site and other sites along Industrial Way will increase the revenues available for needed road improvements. Possible funding sources include special taxing districts such as locate improvement districts, and broader tax sources such as fuel, business and operations tax, sales tax and property taxes. Federal grant sources may be available to fund some of the needed improvements.

4. The development of the Mint Farm site is part of regional and city wide traffic growth. Planning for the impact of such growth is most effectively accomplished through area wide planning processes such as the interagency Route Development Planning Process currently underway. This process could be expanded in scope by the WSDOT and Council of Governments to address areas mentioned in the WSDOT letter.
If road widening and intersection improvements require the acquisition of additional right of way to accommodate regional traffic growth, the

acquisition and development of such right of way would be part of the planned improvements projects.

5. As the proposal site develops and employee numbers rise, travel demand management options become feasible. The City will encourage alternative transportation modes. Effective implementation of travel demand management is expected to be possible when the site reaches an employee population of roughly 2,000.

Incentives to reduce peak hour vehicle use can take a variety of forms and will be determined as characteristics of employee needs become known. Conversations with CUBS indicate that there are no current plans to expand transit service to the proposal site, however, once the site reaches a higher level of development it may become feasible to review service plans. Options for travel demand management which will be considered as the site develops include a range of steps to encourage transit use, ridesharing and off peak travel such as the following:

- Provide bus pull-outs and transit shelters on major bus routes through the Mint Farm.
- Require transit and ridesharing information be available at all employment centers with more than a minimum number of employees (Possibly 50 employees for example.)
- Provide on-site ride matching services.
- Require Mint Farm tenants to provide transit pass subsidies for CUBS Transit for employees.
- Organize and/or subsidize shuttle subscription service to, from, and within the Mint Farm.
- Reserve parking in a preferential locations for high occupancy vehicles.
- Require mandatory participation by tenants in a flextime program to encourage a percentage shift in a vehicle trips to off-peak hours of up to 20%.

Transportation Management measures could be structured to allow involvement by the owner's association/or tenants on an ongoing basis. A transportation management association could be formed to manage and implement a Travel Demand Management Plan.

Rail access has been considered in planning the site. Rail access is not part of Phase 1 because of the distance of this area from existing rail lines. The master plan does not preclude developing rail spurs within later phases of development adjacent to the existing rail line should demand exist for such service.

6. The City supports access management planning as part of route development planning for major transportation corridors (SR4 and SR432) impacted by the Mint Farm development This effort is being led by the Council of Governments and by the Washington State Department of Transportation.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement and addressed at such time that a comprehensive study of SR 432 is conducted.

Respectfully,

Ed DeVries

Ed DeVries, Director of Planning and Building

SOLVAY

SOLVAY INTEROX

OCT 1996
Received
Planning & Building
City of Longview

October 23, 1996

Mr. Ed Devries, Director of Planning and Building
Longview City Hall
1525 Broadway
Longview, WA 98632

Subject: Comments on Draft Environmental Impact Statement for Mint Farm Industrial Park, City of Longview, WA

Dear Mr. Devries:

In response to your September 25 letter requesting comments on the subject Draft Environmental Impact Statement Report (EIS) prepared by Richard Carothers Associates, we have the following comments relative to the Solvay Interox site.

Referencing the attached mark-up of the Master Site Plan, and figure 7a from the EIS titled 'Conceptual Wetland Mitigation Plan- Site A', we have identified five topics that need to be considered in design of the site drainage system.

Topic numbers as identified on the master plan mark-up:

1. 1 & 2) The Solvay Interox site is underlain by an east-west running perforated drain pipe collection grid which routes ground water to a west perimeter collection ditch. This ditch in turn is routed to an existing off-site north-south running drainage ditch through a 24-inch corrugated metal pipe (C.M.P). Referencing figure 7a, this ditch will become a major component of the proposed 'Site A' wetland. The design of 'Site A' needs to accommodate this flow pattern and volume, if not already considered.

   3 & 4) Figure 7a shows the above ditch terminating within the proposed wetland. However, as shown by the attached master plan mark-up, this ditch continues turning to the east and serves as the north perimeter site drainage ditch for the Solvay Interox property. In fact, the overflow of our storm retention pond is routed directly to this ditch. Again, the design of 'Site A' needs to accommodate this demand.

2. 5) Solvay Interox intends to purchase 10 acres adjacent to our north property line for future plant expansion. This of course will change the parcel and service road layouts.

Solvay Interox will be pleased to assist in your development design to ensure that the required modifications accommodate our site flow demands.

Solvay Interox
3500 Industrial Way, Longview, Washington [illegible]
[illegible] Fax [illegible]

SOLVAY
INTEROX

We appreciate the opportunity to comment on the Mint Farm Industrial Development. If you have any questions about this letter, please call Mr. Mike Banigan at (360) 636-7793.

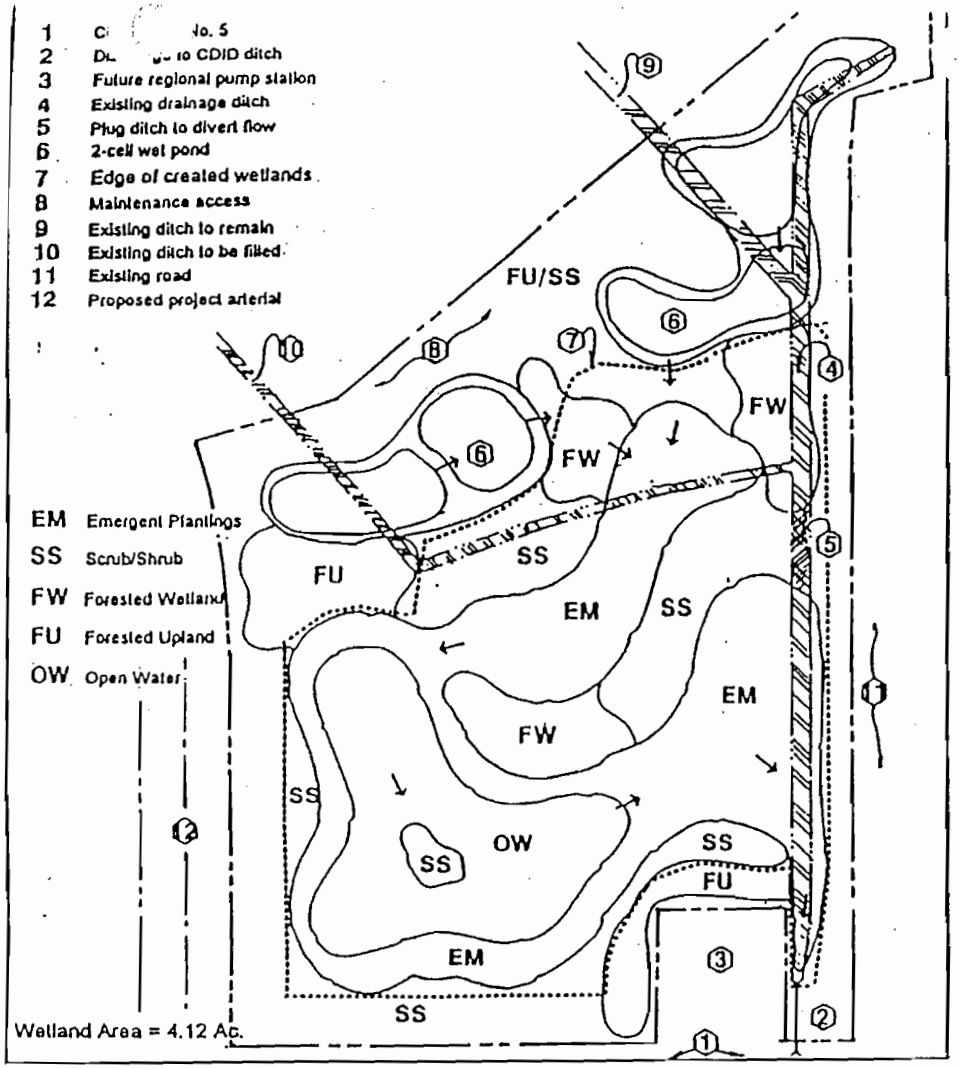
Sincerely,

Gary Hall

Gary Hall
Vice President - Manufacturing

GLH01896.DOC:kar

Attachments

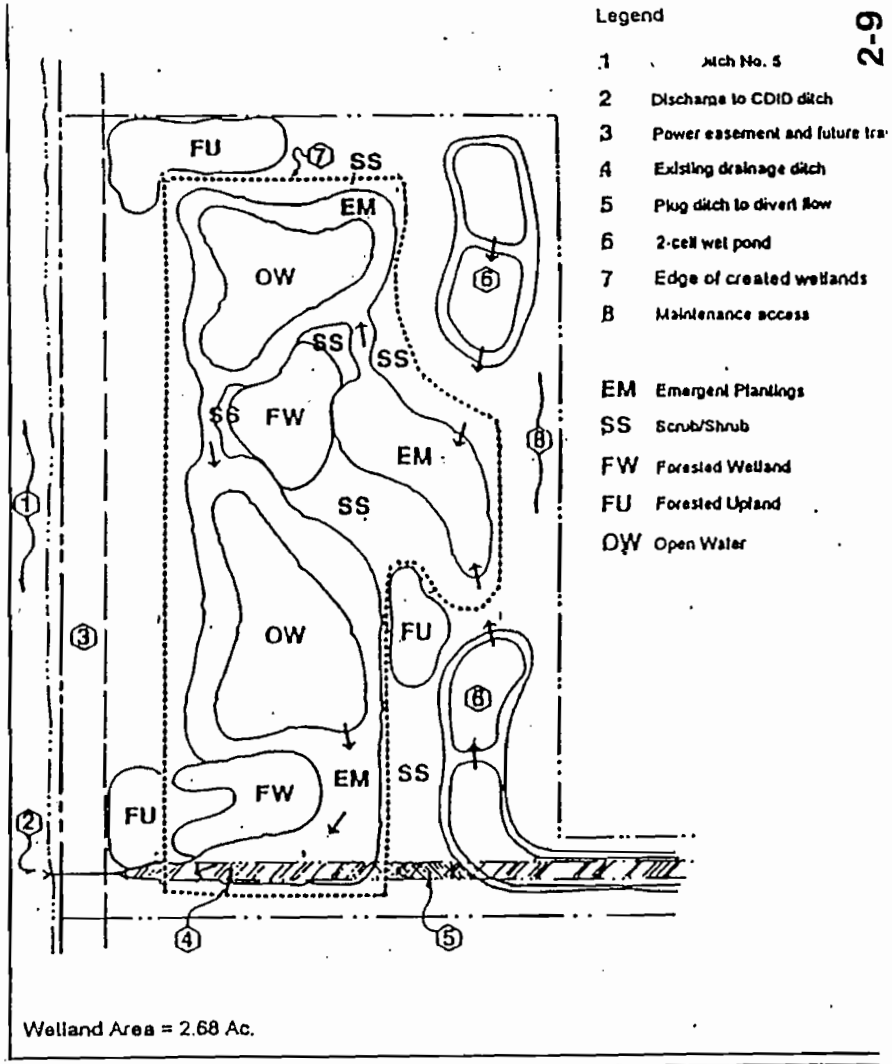


WETLAND FILL APPLICATION FOR
THE MINT FARM INDUSTRIAL PARK
Longview, Cowlitz County, WA

FIGURE 7a
CONCEPTUAL WETLAND
MITIGATION PLAN- SITE A

Richard Carothers Associates

August 1996



WETLAND FILL APPLICATION FOR
THE MINT FARM INDUSTRIAL PARK
Longview, Cowlitz County, WA

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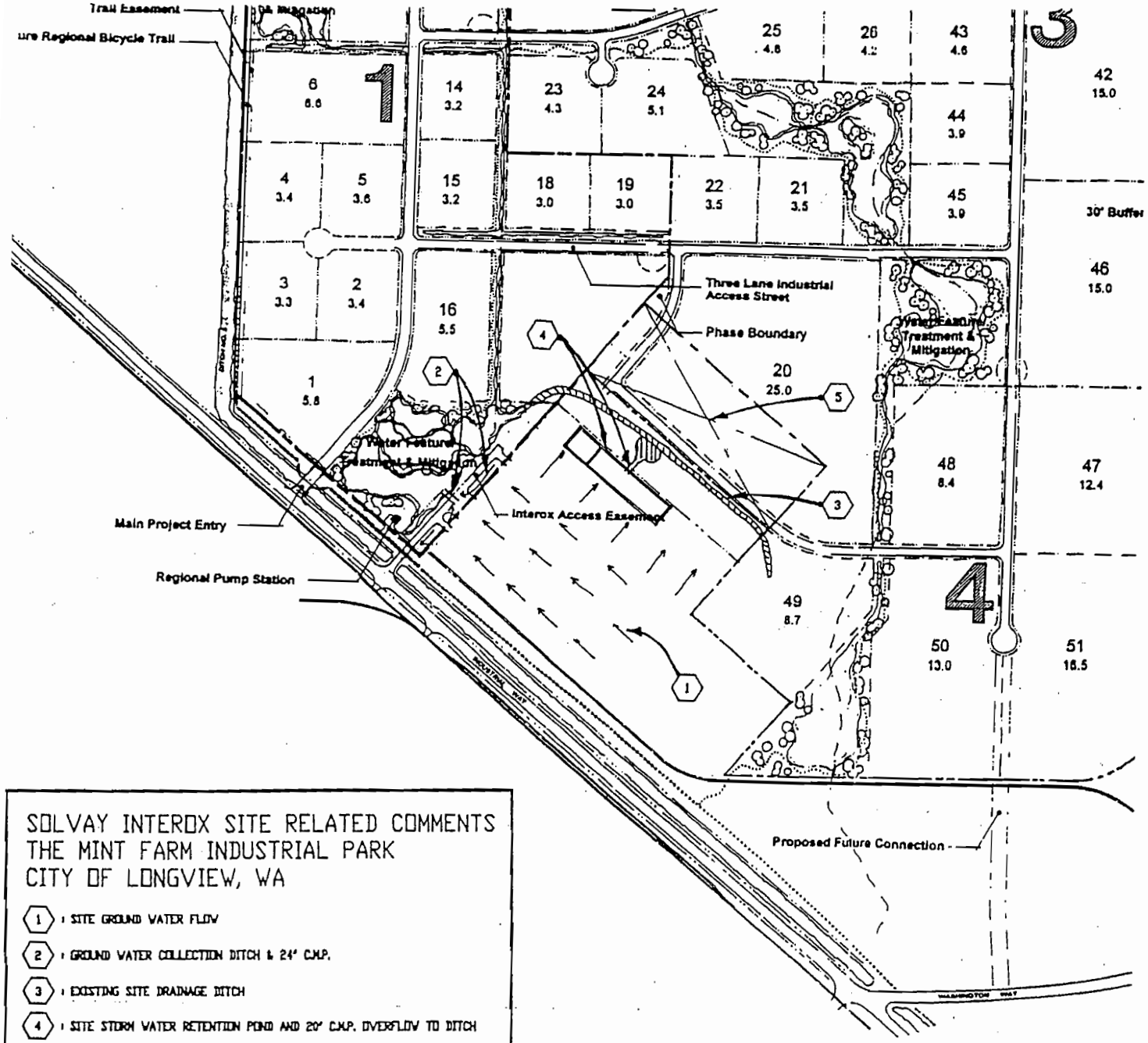
CONCEPTUAL WETI
MITIGATION PLAN- S

Richard Carothers Asso

August 1996



SOLVAY INTEROX SITE RELATED COMMENTS
THE MINT FARM INDUSTRIAL PARK
CITY OF LONGVIEW, WA

1 : SITE GROUND WATER FLOW

2 : GROUND WATER COLLECTION DITCH & 24" C.M.P.

3 : EXISTING SITE DRAINAGE DITCH

4 : SITE STORM WATER RETENTION POND AND 20" C.M.P. OVERFLOW TO DITCH

5 : 10 ACRE F ADDITION

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 29, 1996

Gary Hall
Vice President - Manufacturing
Solvay Interox
3500 Industrial Way
Longview, WA 98632

Re: **Response to Mint Farm Industrial Park Draft EIS Comments**

Dear Mr. Hall:

Thank you for your comments dated October 23, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will respond to those comments in the order in which you presented them.

1. The additional information regarding the underdrain collection system is appreciated. Design level studies subsequent to preparation of the DEIS have established the necessity to isolate the proposed on-site detention areas from the north-south ditch which you have identified. The project's storm water system will discharge to the CDID No. 1 regional collection system through the north-south ditch, but will not incorporate it within the wetlands mitigation system. The final on-site design will, therefore, accommodate both the needs of your on-site system and the drainage ditch serving the low-lying areas north of your current site.

2. Comment noted. Future development plans will be adjusted to reflect the additional property acquired by Solvay Interox.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement.

Respectfully,

Ed DeVries

Ed DeVries, Director of Planning and Building

From: Richard Benm (10/7/96)
: Ed DeVries
.: Nelson Graham, Ed Ivey

10/7/96
4:33 PM

F.Y.I.Draft EIS - Mint Farm Ind. Park

I have reviewed this and have only a couple of comments. 1. Page 27 - Water, Mitigating Measures: It should be addressed somewhere that the retention ponds should be deep enough to keep from becoming overgrown with aquatic weeds and that the detention ponds should be designed to only hold water for a period of no more that 24 hours so as not to kill off any grass or other vegetation that is planted in them. 2. Page 56 - Parks (first paragraph): Third sentence talks about the Lakewood School complex which the school dist. took back and is no longer used as a recreation facility. Therefore, the reference should be removed. In the second to last sentence, rather than reference Kellogg Park which is strictly play equipment, I would rather see Highland Park which is closer and has more amenities. 3. Under Unavoidable Adverse Impacts, it should be mentioned that the City will have to maintain the trail system and perhaps the ponds and detention areas if this is in fact going to be the case. 4. Page 57 - Under impacts (third paragraph): This does not address the maintenance of the trails and grass areas around them. Is this going to be our responsibility or handled through an owner's association? Thanks for the opportunity to respond.

==========

OCT 1996
Received
Planning & Building
City of Longview

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 29, 1996

Rich Bemm, Director
Parks and Recreation Department
P.O. Box 128
Longview, WA 98632

Re: **Response to Mint Farm Industrial Park Draft EIS Comments**

Dear Mr. Bemm:

Thank you for your comments dated October 7, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will attempt to address your comments in the order in which you presented them.

1. The retention ponds will be approximately five feet deep. This will be deep enough to prevent the growth of aquatic weeds. The pond edges will be planted with wetland species to filter runoff and improve water quality. Detention areas are designed to be inundated for short periods only. The detention areas will be planted with native wetland margin shrub and groundcover species which grow in conditions of periodic inundation.

2. The changes you have suggested regarding the Lakewood project and identification of the closer park property have been incorporated into the Final EIS.

3. The maintenance method mentioned in your correspondence has been added to the EIS. Maintenance initially is expected to be through an owners' association with possible future transfer to the drainage utility. Trails and open space would be included in the maintenance responsibilities of the owners' association as would street trees and planter strips.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement.

Respectfully,

Ed DeVries, Director of Planning and Building

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Cowlitz County ASSESSOR

RAY RYAN, Assessor
CHARLOTTE MCINTIRE, Administrative Assistant
DEAN TAKKO, Chief Appraiser - Residential Division
JIM DENISON, Chief Appraiser - Business Division

RECEIVED
OCT 16 1996
EXECUTIVE OFFICE
CITY OF LONGVIEW

October 14, 1996

City of Longview
City Manager
Longview City Hall
1525 Broadway
Longview, WA 98632
ATTN: Mr. Ed Ivey

RE: Mint Farm Industrial Park Distribution & Mailing List

Dear Mr. Ivey:

I recently obtained a copy of the "E.I.S." for the City of Longview, Mint Farm Industrial Park. The document includes a "Distribution List" or mailing list for key community leaders. The county assessor is not included on the list and asks that his name be added.

Please add Mr. Ryan to the list so that the assessor will receive future mailings.

Thank you for your consideration.

Regards,

J. G. Denison,
Chief Appraiser,
Business Division

Cc. Ray Ryan

TELEPHONE (360) 577-3010 • SCAN 563-3010 • TDD (360) 577-3061

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 29, 1996

J. G. Denison
Chief Appraiser, Business Division
Cowlitz County Assessor
207 Fourth Avenue North
Kelso, WA 98626

Re: **Response to Mint Farm Industrial Park Draft EIS Comments**

Thank you for your comments dated October 14, 1996. The County Assessor's name has been added to the EIS distribution list and a copy of the final document will be sent to him.

Respectfully,

Ed DeVries, Director of Planning and Building

Planning & Building • 1525 Broadway, Longview, WA 98632-7080 • (360) 577-3330 • Fax (360) 577-4018

Avery Loy
The Mallory Co.
P.O. Box 2068
Longview, WA 98632
360-636-5750
360-577-4244(FAX)
10/22/96

OCT 1996
Received
Planning & Building
City of Longview

Mr. Ed DeVries
Director of Urban Services and Permits
City of Longview
1525 Broadway
Longview, WA 98632

Dear Mr. DeVries,

The Mallory Company has certainly enjoyed our new location in Longview, and appreciate the approach that you and the city took to make it possible. We have told many people how great the city was to work with.

Our experience was totally positive with one little exception, and I understand that that exception may possibly present even more problems. When we submitted our offer to the city to purchase the lot last year, we included the required draft drawing that included a site plan. This plan detailed two 40' access driveways into the property. After we purchased the lot and committed to a building contract the building permit process told us that we were only going to be allowed one 30' driveway. We were also told that McDonald's was going to build on the adjacent lot very soon and that we would share access to a new intersection East of us. Since we have moved in, a number of customers have mentioned they don't patronize our store at times because it is too difficult for large trucks to get in and out of our lot. Additionally, it seems the McDonald's project is off, and we will not have that access for a while, if ever.

I now hear form other property owners on Industrial Way that the city is considering the banning of all left turns on Industrial Way to accommodate increased traffic from the city's new development. A supply store like ours obviously relies on easy access for our customers. Every day, dozens of cars and trucks from local(and some not so local) mills and contractors buzz in and out to pick up operating supplies(and pay some city sales tax). To further restrict access to our store could be disastrous for our business. If this left turn ban is being considered, please explore all possible alternatives and weigh heavily the costs that could fall on the people supporting your existing development.

Sincerely,

Avery Loy
President

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 29, 1996

Avery Loy
The Mallory Co.
P.O. Box 2068
Longview, WA 98632

Re: **Response To Mint Farm Industrial Park Draft EIS Comments**

Dear Mr. Mallory:

Thank you for your comments received October 24, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will attempt to address your comment regarding access to your property on Industrial Way.

As a result of concerns for traffic safety the City of Longview has found it necessary to limit left turns in other areas of the City. This solution and others will be considered during the future Route Development Plan for SR 432. The study is expected to examine existing conditions, project where problems will occur and explore all possible solutions.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement and addresses at such time that a comprehensive study of SR 432 is conducted.

Respectfully,

Ed DeVries, Director of Planning and Building

Planning & Building • 1525 Broadway, Longview, WA 98632-7080 • (360) 577-3330 • Fax (360) 577-4018

COOPER OIL INC.

940 Industrial Way • Longview, WA 98632
(360) 423-7600 • Fax (360) 423-5014
1-800-238-8179

Oct. 14, 1996

To: Ed Deuries
Director of Planning
1525 Broadway
Longview, WA. 98632

Re:Mint Farm Industrial Park

Dear Mr. Deuries,

Cooper Oil, Inc. moved to our present location at 940 Industrial Way nine years ago. We chose this site because of our customers ability to easily access our services. The entering and exiting of our facility comprises a major portion of our total business volume. We are very concerned that the City of Longview safeguard those of us who have helped make this present industrial development so successful. Any thing that is done to decrease the access availability to this property would seem short sighted, and we would see it as working against those of us that have helped Longview to become so successful in this present industrial area.

We urge you to be very aware of the absolute necessity for a left turn lane into our north side property. We are all for increased Industrial Park area, but at the same time, we believe that it should not be at the expense of previous established development.

Sincerely,

Bruce Cooper

Bruce Cooper
Cooper Oil, Inc.

OCT 1996
Received
Planning & Building
City of Longview

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 29, 1998

Bruce Cooper
Cooper Oil Inc.
940 Industrial Way
Longview, WA 98632

Re: **Response to Mint Farm Industrial Park Draft EIS Comments**

Dear Mr. Cooper:

Thank you for your comments dated October 14, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will attempt to address your comment regarding access to your property.

Comment noted. The need for a left turn lane into your property will be brought to the attention of the interagency planning group considering improvements to SR 432 to help plan effectively for preservation of access to existing businesses.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement and addressed at such time that a comprehensive study of SR 432 is conducted.

Respectively,

Ed DeVries

Ed DeVries, Director of Planning and Building

Planning & Building • 1525 Broadway, Longview, WA 98632-7080 • (360) 577-3330 • Fax (360) 577-4018

Randy Sweet
PO Box 876
Kalama, WA 98625

OCT 1996
Received
Planning & Building
City of Longview

October 15, 1996

Ed Devries, Dir. of Planning
Longview City Hall
1525 Broadway
Longview, WA 98632

Re: Mint Farm Industial Park Draft EIS

Dear Mr. Devries,

1. I am the owner of a property (1120 Industrial Way) which I believe will be significantly impacted by the increased traffic volumes which result from the proposed development of the Mint Farm Industrial Park. Your analysis of traffic impacts points out that there will be an "unacceptable level of service" at the Oregon Way/Industrial Way intersection before completion of Phase One, i.e., the first 125 acres.
When the pending International Paper/ Port of Longview and Barlow Point projects are considered, with hundreds of additional acres are added to the remaining 310 acres of the Mint Farm the probable impacts to traffic become staggering.

2. As you know, the existing Industrial Way businesses primarily serve the larger manufacturing facilities in the industrial area, Longview/Kelso and the I-5 corridor. A key reason for our development of the properties along Industrial Way was the excellent infrastructure that was in place and the ready access to nearby industries, the local area and I-5. Over the past few years, with local industrial growth and infilling of the few remaining parcels, there has been added traffic and a deterioration in the local access to Industrial Way. This concerns me.

3. I was recently invited to participate in a meeting with Cowlitz-Wahkiakum COG, DOT, Cowlitz County and local government staff to discuss transportation planning for the SR 432 corridor. Our discussions covered a wide range of possibilities to optimize access to existing and future, e.g., International Paper, Mint Farm and Barlow Point, industrial development. The DOT representative at the meeting explained that this planning process was a necessary first step to obtaining state funding for corridor capital improvements. I must say that I was surprised by lack of interest expressed by the City of Longview to support this plan, given the obvious benefit to their proposed development.

4. The Mint Farm Draft EIS traffic analysis is limited to major intersections and points out the existing problem at Third and Tennant Way and the near term failure of the Oregon Way/Industrial Way intersection. In fact, your consultants projectionsshow traffic more than doubling on Industrial Way with completion of only the first phase of the Mint Farm

4. development. What does this do to the access to existing businesses along Industrial Way? The loss of ready cross-traffic access to Industrial Way will severely handicap these businesses. Significant increases in local traffic, especially during peak hours, will reduce accessibility. If existing Industrial Way businesses are consequently limited to right turn only ingress and egress, there will be added local congestion extending to Oregon , California and Tennant Ways as cars and trucks attempt to enter and/or exit these properties.

5. I am aware of the fact that Industrial Way is now a state route. However, since the City of Longview initially developed and marketed the Industrial Way corridor , I believe that you have an affirmative duty to ensure that it remains a viable, attractive and efficient business district with ready access to Longview, Kelso, I-5 and most importantly to the nearby major industrial facilities. As the regulator charged with local planning, I believe it is your duty to insist that all major developments consider existing conditions, ALL planned development for the impacted area and the long term, i.e., 20 year, projected impacts and mitigation measures of this development.

Sincerely,

H. Randy Sweet

Owner, 1120 Industrial Way

cc. Mary Legry

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 28, 1996

Randy Sweet
P.O. Box 876
Kalama, WA 98625

Re: **Response to Mint Farm Industrial Park Draft EIS Comments**

Dear Mr. Sweet:

Thank you for your comments dated October 15, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will attempt to respond to those comments in the order in which you presented them.

1. Comment acknowledged. As indicated in paragraph three of your letter, an interagency planning process is being considered which would address improvements needed to accommodate future development along Industrial Way.

2. Comment noted. As the business community grows additional traffic is anticipated. The impacts of growth need to be evaluated in a comprehensive manner and long term solutions explored.

3. Comment noted. The City of Longview is committed to being a participant in the proposed study provided that a an equitable funding formula can be agreed upon.

4. Comment noted. The interagency planning forum mentioned in your letter is the appropriate forum through which to work out the best way to accommodate through traffic while maintaining access to businesses along Industrial Way.

5. Comment noted. The Cities of Longview and Kelso, Cowlitz County, the Council of Governments, Washington State Department of Transportation, Port of Longview and some of the major industries are currently discussing the need for a comprehensive study and Route development Plan for SR 432. This study would evaluate I-5 to Ocean Beach

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Highway and include Tennant Way and Industrial Way. The study would examine existing conditions, project where problems will occur and explore various solutions.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement and addressed at such time that a comprehensive study of SR 432 is conducted.

Respectfully,

Ed DeVries, Director of Planning and Building

Cowlitz-Wahkiakum Council of Governments

ADMINISTRATION ANNEX
)7 NORTH FOURTH AVENUE
KELSO, WA 98626-4195

PHONE (360) 577-3041
SCAN 562-3041
FAX (360) 425-7760
TDD PHONE (360) 577-3061

COWLITZ COUNTY
CITY OF LONGVIEW
CITY OF KELSO
CITY OF CASTLE ROCK
CITY OF WOODLAND
CITY OF KALAMA
TOWN OF CATHLAMET
PORT OF LONGVIEW
PORT OF KALAMA
PORT OF WOODLAND
COWLITZ COUNTY PUD NO. 1
LONGVIEW SCHOOL DISTRICT
KELSO SCHOOL DISTRICT
WOODLAND SCHOOL DISTRICT
CASTLE ROCK SCHOOL DISTRICT
BEACON HILL SEWER DISTRICT
WAHKIAKUM COUNTY PORT NO. 1
WAHKIAKUM COUNTY PORT NO. 2
WAHKIAKUM COUNTY PUD NO. 1
WAHKIAKUM COUNTY

October 25, 1996

Ed DeVries, Director
Planning and Building Department
City of Longview
PO Box 128
Longview, WA 98632

Subject: Draft EIS for Mint Farm Industrial Park

Dear Ed:

Staff at the Council of Governments has reviewed the Draft Environmental Impact Statement (DEIS) for the Mint Farm Industrial Park preliminary plat. Many of the issues discussed in the EIS that are of a local or regional focus are well addressed in the document or will be addressed by appropriate agencies. Our focus is on how the proposed development affects and is related to the regional transportation network; our comments also tend to be more general than specific, as you will note.

The Mint Farm development has the exciting potential to further diversify the economic base of the region and presents an opportunity for all affected entities to insure the long term growth and betterment for the area. One of the key features of how this development contributes to the community's capital investment and job opportunities are its transportation connections and potential to enhance the regional network. The development presents an excellent opportunity to insure road and intersection capacities remain adequate for continued development of this property and other sites in the vicinity.

As you know, we assisted Richard Carothers Associates with background and modeling information for the Traffic Analysis report and were able to work on a variety of issues with the consultants leading up to the preparation of the Draft EIS. Thus, our comments attempt to tie up some of our discussions with emphasis on melding the development into the present and future regional road network, primarily SR 432 (Industrial Way), SR 4 (Ocean Beach Highway) and 38th Avenue.

1. **Intersections, road segments and land use developments:** The COG has provided existing and forecasted land use and transportation information for the consultants. The Draft EIS, page 48, lists the intersections and those needing improvements due to progressive phases of the Mint Farm's development. Since the Mint Farm is one of several developments proposed in the Longview industrial/commercial area, traffic projections for the ten identified intersections and related road segments should incorporate other projected land use activities, especially along the SR 432 corridor and Ocean Beach Highway. The areas slated for future development include the Port of Longview, the International Paper property, Barlow Point and the Longview Wye and Tennant Way properties. Traffic volume growth for each intersection along these corridors will not be proportional or equal due to the fact that development will not occur evenly within the region. The timing for transportation facility improvements can be better determined by including these land uses along with phases of the Mint Farm. Thus, the analysis and implementation of future transportation improvements should begin with route development plans for SR 432 and SR 4, hopefully during 1997. Work programs and funding for these plans are currently being discussed by the COG's transportation technical and policy committees.

2. **Capacity:** The combination of traffic generated by the development of phase I of the Mint Farm and WalMart results in a level of service (LOS) "E" for the intersection of 38th Avenue and Ocean Beach Highway (refer to page 30, Traffic Analysis report). If the 38th and Ocean Beach Highway intersection is the primary access for workers from the residential areas to the Mint Farm, the city should work with the Washington State Department of Transportation (WSDOT), Southwest Region, to address access management as part of the route development plan to sustain capacity for future developments along Ocean Beach Highway. Maintaining intersection capacity is critical to the long range development of the Mint Farm and to fulfilling the city's intention to protect nearby residential areas from cut-through commuter traffic (pages 49, 50, DEIS, Measures to Limit Traffic on Memorial Park Drive).

The Traffic Analysis (pages 20, 21) identifies the intersections of 3rd Avenue and Tennant Way and Oregon Way/Industrial Way as having unacceptable LOS (presently and with Phase I Mint Farm development, respectively). These two intersections are important to traffic flows in the SR 432 corridor and for sustained development of the Mint Farm. The SR 432 Route Development Plan will provide the means by which mitigation measures will be devised and implemented by affected participants.

3. **Safety and truck access:** Safe and convenient truck access, obviously, at the SR 432/Industrial Way point of entry into the Mint Farm site is critical to the site's long term expansion. The present configuration of four lanes with no turn pockets will increase safety problems for trucks and workers entering and exiting the Mint Farm and other sites in the corridor. The volume of trucks combined with increased commuter traffic has the potential to cause conflicts and delays. The city should work closely with the WSDOT to reconfigure SR 432 lanes to accommodate increased truck and commuter traffic. This can be done by revising the roadway striping to allow for turn pockets to access properties along the corridor. For the longer range, the SR 432 Route Development Plan will identify improvements to maintain capacity and improve access into the site along with projects to serve the development of industrial and commercial properties along the entire SR 432 corridor, from I-5 to SR 4.

4. **Relationship to 38th Avenue:** The site plan shows that the interior roads will be four-lane with all the amenities. However, no improvement recommendations are made for the adjacent 38th Avenue right-of-way which is currently a two-lane road without shoulders. The city comprehensive plan, Metropolitan Transportation Plan and current transportation improvement program (TIP) call for widening and improving this last stretch of 38th Avenue very soon. The timing of this preliminary plat presents an excellent opportunity to coordinate the vehicular, pedestrian and bicycle improvements to the last stretch of 38th Avenue. The city's initiative to improve 38th north of the site is a very positive step toward completing these needed improvements.

5. **Rail service:** Page 52 of the EIS states no rail service is planned for the site. Development of the Mint Farm presents an excellent opportunity to consider rail service. The Port of Longview's rail improvements will divert the bulk of their rail traffic from the existing line which serves properties west of Oregon Way. This creates an opportunity for increased rail service to the Mint Farm. Use of rail will enhance intermodal connections in the corridor and maintain roadway capacity for trucks, workers and through traffic. We recommend the site plan be examined for options to extend rail service or at least easements to the site for rail spurs. Agreements with the Columbia and Cowlitz Railroad should be explored which will provide service for the long-term development of the property.

6. **Other transportation modes:** The DEIS discusses in several places bicycle and pedestrian facilities within the plat. These improvements present an excellent opportunity to connect with bicycle lanes and sidewalks linking West Longview (as noted above regarding 38th Avenue) and other neighborhoods with the Mint Farm (through Memorial Park Drive and the future Washington Way connection). The DEIS also mentions on page 51 the future use of transit to the site; we concur with the impacts and mitigating measures noted on that page. The Cowlitz Transit Authority's transit development plan, developed and approved prior to the Mint Farm proposal, does not include any expansion of service outside its current service area. We recommend the city work with the transit authority to re-examine the plan and pursue expansion of bus service to this site and others in the industrial corridor. Absent any public transit in the industrial corridor, vanpool and rideshare programs for major employers, including those in the Mint Farm project, should be pursued. The goal again is to maintain capacity of the roadways for present and future development of this and other sites in the vicinity.

This concludes our comments. I thank you for the opportunity to review and respond to the EIS. The development of this site is a long time coming; it offers opportunities for affected jurisdictions and the private sector to insure the region enjoys its long range benefits, as well. Please call if you or others have any questions.

Sincerely yours,

Stephen H. Harvey
Director

SHH:RBS:nh

cc: Mary Legry, SW WSDOT
Roy Hewson
John Bean

633MFDES.SHO

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 29, 1996

Stephen Harvey, Director
Cowlitz-Wahkiakum Council of Governments
Administration Annex
207 Fourth Avenue North
Kelso, WA 98626

Re: **Response to Mint Farm Industrial Park EIS Comments**

Dear Mr. Harvey:

Thank you for your comments dated October 25, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will address your comments as you presented them.

1. **Intersections, Road Segments and Land Use Developments:** This EIS evaluates the probable traffic impacts of the Mint Farm Industrial Park in the context of existing and known future conditions (as supplied by the Cowlitz Wahkiakum Council of Governments). A more definitive analysis, including alternative versions of non-project trip generation elsewhere in the region requires a regional planning response. The City of Longview supports cooperative route development planning for major transportation corridors (SR4 and SR 432) as proposed by the Council of Governments and by the Washington State department of Transportation .

2. **Capacity:** The City of Longview agrees with the suggestion proposed by COG and will work with the Washington State Department of Transportation to address access management as part of the route development plan to sustain capacity for future developments along Ocean Beach Highway.

The City supports the SR 432 Route Development Plan as a way to develop and implement mitigation measures for the intersections of 3rd Avenue and Tennant Way and Oregon Way and Industrial Way.

3. **Safety and Truck Access:** The City will work closely with the WSDOT to accommodate increased truck and commuter traffic on SR 432 through

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short range striping solutions and through participation in longer range solutions as part of the Development Plan for the SR 432 corridor.

The City and consultant team is currently working with WSDOT to design the best near term solution for the project entry on Industrial Way.

4. **Relationship to 38th Avenue:** Comment noted. the City will consider the need and scheduling of improvements to 38th Avenue during the review of the preliminary plat application.

5. **Rail Service:** Comment acknowledged. Rail access is not part of Phase One because of the distance from this area from existing rail lines. the Master Plan does not preclude developing rail line should demand exist for such service.

6. **Other Transportation Modes:** Comment noted. The City will work to support transit, bike and pedestrian connections to the site where feasible and when demand supports the development of such facilities.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement and addressed at such time as a comprehensive transportation study is conducted.

Respectfully,

Ed DeVries, Director of Planning and Building

7/29/96

OCT 1996
Received
Planning & Building
City of Longview

Dear Mr. Deuries,

As stated in our earlier correspondence we and our neighbors on Dorothy Street are concerned that changing the ditch system in the Mint Farm fields will cause our properties to flood. No one will clear the ditch behind our houses next to the railroad tracks, even though we have asked both city/county and Weyerhauser. Last year we almost got flooded. Please include in your plan a clearing of the Dorothy St/RR tracks ditch system or use your political power to get it done. No one will listen to mere concerned citizens, it seems, so I am doubtful that you will reply, but I thought it worth a try.

Sincerely, Yvette Neill

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 29, 1996

Yvette O'Neill
1803 Dorothy Avenue
Longview, WA 98632

Re: **Responses to Mint Farm Industrial Park Draft EIS Comments**

Dear Ms. O'Neill:

Thank you for your comments dated September 29, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement and in particular your concerns about drainage.

The City of Longview and the Consolidated Diking Improvement District No. 1 recognize that while allowing new development, existing development must be protected from negative impacts. The drainage from Phase One will discharge to the south and west into Ditch No. 5. The discharge points from Phase One of the Mint Farm development are over one mile downstream from Dorothy Avenue and closer to the existing pump stations. Discharge points from future phases have not yet been determined but there is no expectation that they will discharge to the east.

CDID No. 1 is continually improving pump capacity to keep up with changes in regional needs and it is expected that the Mint Farm development will not make the problems you've described worse. Maintenance of ditches is the responsibility of CDID No. 1, and your concerns will be brought to their attention.

Respectfully,

Ed DeVries

Ed DeVries, Director of Planning and Building

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October 14, 1996

Ed DeVries
Director of Planning and Building
1525 Broadway
Longview, WA 98632

OCT 1996
Received
Planning & Building
City of Longview

Re: Mint Farm Industrial Park (DEIS)

Dear Mr. DeVries:

1. As an owner of five properties along Industrial Way, which represent 12 separate businesses, I am extremely concerned that no mention has been made of the impact a 300% peak hour increase in traffic will have on the existing businesses located on both sides of Industrial Way, more specifically between the intersections of Oregon Way and California Way. With businesses on both sides of the street, traffic along this section of Industrial Way is already extremely congested at times. Queue lengths at the intersections of International Way and Columbia Boulevard, due to the high percentage of truck traffic, can be as long as three blocks, or more.

2. The traffic analysis contained within the City's DEIS totally ignores the impact resulting from channeling 500 additional peak hour vehicles through this already heavily congested area.

3. I see no provisions for extending the left-turn lane, which now terminates at 1061 Industrial Way, west to Oregon Way. Is it the City and State's plan to simply prohibit all left turns in and out of our properties? If so, what will be done to mitigate this?! Will the roadway along the south side of the railroad tracks be improved between California Way and Oregon Way? Will a frontage road be developed between intersections? If right-turns-only out of our properties are ultimately required, where will the traffic be routed and what will this do to the value and usability of our properties?

4. This traffic study appears to only have studied the intersections adjacent to the development and out to I-5. I feel a full-blown transportation analysis is warranted, encompassing the next 20 years of growth, addressing not only the intersections, but the impacts to existing fully developed businesses along Industrial Way, and it must include the impacts of the undeveloped I-P property, as well as the Radakovich land.

Sincerely,

George Marsh,
Property Owner
cc: Steve Jacobson WSDOT

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 28, 1996

George Marsh
122 Alderwood Lane
Longview. WA 98632

Re: **Response to Mint Farm Industrial Park Draft EIS Comments**

Dear Mr. Marsh:

Thank you for your comments dated October 14, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will attempt to respond to those comments in the order in which you presented them.

1. Comment noted. As indicated in the level of service analysis, existing conditions at the intersection of Oregon Way and Industrial Way near your properties are presently at Level Of Service C. This indicates that delays of 15 to 25 seconds at the intersection are common during peak hour an that there may be some cases in which a driver may have to wait for two light cycles. Drivers making turns in and out of businesses along Industrial Way in this area currently experience some delay and frustration. This problem will worsen over time even without the Mint Farm proposal. With the proposal (without mitigating measures) peak hour and off peak traffic congestion in the area of Industrial Way and Oregon Way will increase.

2. The EIS identifies the intersection of Oregon Way and Industrial Way as a problem area where mitigation measures are likely to be needed as the Phase 1 area approaches full development. An error was found in the eastbound section of the traffic projections table, which has been corrected (attached). The corrected numbers reflect a delay in reaching unacceptable level of service at the intersection as a result of the project. However, that delay is likely to be of only a few years. The conclusion of the corrected calculations is to delay, but not remove, the necessity to make improvements to alleviate traffic congestion in the area.

Improvements to intersections and roadways are generally scheduled by local and state agencies when the level of service deteriorates to LOS E or LOS F

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(see page 8 of the traffic study for definitions) which roughly corresponds to the time at which Phase 1 is anticipated to be built out.

3. The Cities of Longview and Kelso, Cowlitz County Council of Governments, Washington State Department of Transportation, Port of Longview and some of the major industries are currently discussing the need for a comprehensive study and Route Development Plan for SR 432 (Industrial Way). This study would evaluate I-5 to Ocean Beach Highway and include Tennant Way and Industrial Way. The study would examine existing conditions, project where problems will occur and explore various solutions.

Your suggestion for extending the left turn lane on Industrial Way, and left turn control to individual properties and adjacent road improvements will be considered at such time as a comprehensive evaluation of SR 432 takes place. The City of Longview has limited left turns in other areas of the community in response to traffic safety concerns. the goal of any improvements will be to improve traffic flow and maintain access to adjoining properties. Possible sources of funding for road improvements include State and Federal grants, Local Improvement Districts and tax revenue.

4. The Traffic projections in the EIS encompass traffic growth with and without the Mint Farm project over the development time frame expected. The projections cover a time period beyond twenty years. Cumulative impacts resulting from development of vacant areas is more appropriately assessed in the City's Comprehensive Plan rather than the Environmental Impact Statement.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement and addressed at such time that a comprehensive study of SR 432 is conducted.

Respectfully,

Ed DeVries, Director of Planning and Building

Wood's Logging Supply, Inc.
"Wood Like to Serve You"

OCT 1996
Received
Planning & Building
City of Longview

October 23, 1996

Ed DeVires
Longview Planning Department
P.O. Box
Longview, WA 98632

Mr. DeVires:

1. This letter is in regards to the proposal of the Mint Farm Industrial Area. This proposal will triple the traffic along adjoining streets that are already up to capacity. Changing streets design will put some local business at risk of loosing business. We must protect the local area business that have worked hard to make it where there are today, before bringing major companies into the area. Business along Industrial Way would greatly be affected if the left turn lane was taken out or the traffic rerouted. The City looks at the additional revenue that it will bring to their pockets, instead of the hard work that these local business people have done.

2. Local neighbors & children are at risk of loosing their peaceful homes to the sound of a booming industrial park. The added traffic along the residential routes proposes a threat to the children that live in those neighborhoods. As a homeowner I would be most worried that the value of my home would decrease in all areas that are even close to this site.

As a local business owner and citizen of Longview, I would request the City give this proposal a great deal of thought. One that will be a benefit to all that is concerned and not just the City officials.

Respectfully,

Janet White

Janet White
Owner of
Woods Logging Supply,
and concerned citizen

2-35

). Box K • 702 Industrial Way • Longview, WA 98632-7915 • (206) 577-8030 FAX (206) 423-7567
`. Box 969 • 123 Main Street • Morton, WA 98356 • (206) 496-5011 FAX (206) 496-6273
State Street • Sedro Woolley, WA 98284 • (206) 855-0331 FAX (206) 855-1091

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

RECEIVED
NOV 0 1 1996
RICHARD CAROTHERS ASSOC.

October 30, 1996

Janet White
Woods Logging Supply
P.O. Box K
Longview, Washington 98632

Re: **Response to Mint Farm Industrial Park EIS Comments**

Dear Mrs. White:

Thank you for your comments dated October 23, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will address your comments as you presented them.

1. Comment acknowledged. Traffic growth in Longview and on Industrial Way will occur with or without the project. Corrected traffic projections indicate that the increase attributable to the Mint Farm project is closer to doubling of traffic without the project than tripling it. The traffic increase created by the proposal is an impact which the City recognizes needs mitigation. The objective of the interagency Route Development Planning process being considered is to develop measures which preserve access to existing business and accommodate increased traffic from the Mint Farm and other projects. the City hopes your business will participate in the planning process to assure that any changes which are ultimately made to Industrial Way address you needs.

2. The City has recognized that increased traffic in residential areas, especially commuter and commercial traffic can have negative effects. The City has a policy to prevent such increases. A range of mitigation measures are identified in the EIS which are designed to minimize or eliminate the impact of the proposal on existing residential areas. Measures include not providing access from Memorial Park Drive and consideration of traffic diversion measures to discourage through traffic from using neighborhood streets north and east of the proposal site.

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Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement and addressed at such time as a comprehensive transportation study is conducted.

Respectfully,

Ed DeVries, Director of Planning and Building

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6006

OCT 1996
Received
Planning & Building
City of Longview

October 22, 1996

Mr. Ed Devries
City of Longview
1525 Broadway
Longview WA 98632

Dear Mr. Devries:

Thank you for the opportunity to comment on the draft environmental impact statement (DEIS) for the Mint Farm Industrial Park. We have reviewed the DEIS and have the following comments.

Water Quality:

1. From the information provided, it appears that the project may require an National Pollution Discharge Elimination System general stormwater permit. A temporary erosion control plan for each phase of the total project should also be submitted to the Department of Ecology.

2. The proposed 435 acre light industrial park will result in the impervious surfaces replacing the existing undeveloped (pasture) land. This will substantially increase both the amount and velocity of runoff. Also urban water quality problems will be generated.

3. Figure 3 (page 16) indicates that stormwater detention facilities will be to Consolidated Diking Improvement District #1 recommendations. There is no indication of what those standards are. The only hint is a performance standard to prevent overtaxing ditch and pumping systems.

4. It is suggested that the project be designed to the standards in Ecology's *Stormwater Management Manual for the Puget Sound Basin*. Although Longview is not located in the Puget Sound Basin, the climate is similar and standards in the manual will work for the Longview area. The benefit of designing to Ecology's manual is that water quality considerations will be included in the design of the industrial park. The text (page 27) implies that the stormwater will be treated by "ditches and swales." However for ditches and swales to be effective for water quality treatment (and not just conveyance), the entire project, including the ditches and swales, have to be properly designed. Also Ecology's manual addresses water quantity so the concerns of the drainage district should be satisfied.

5. Page 27 of the DEIS indicates that catch basins will trap the finer paved surface particulates. Catch basins do not normally capture the small particulates. Usually these are carried in the pipes by the flow of the water. Any small particles that settle in catch basins are subject to removal by the next large storm. Medium sized particles normally are found in the bottom of catch basins. There should be a systematic program to inspect and remove the material found in catch basins, which was not addressed in the DEIS.

6. Nothing was mentioned in the DEIS about the potential users of the industrial park. For water quality to be managed, future industrial uses must be properly designed and managed. It is recommended that Ecology's manual also be used for this purpose. Source control is the most effective measure. Also proper maintenance activities must be employed to achieve water quality.

7. It is recommended the city adopt the Ecology manual. This will provide the necessary standards for both the industrial park and the industrial uses for the management of stormwater for both water quantity and quality purposes.

Wetlands:

8. Discharges of stormwater to waters of the state, including wetlands, must be treated using appropriate best management practices (WAC 173-201A-160). Wetlands created to replace natural habitat for mitigation purposes are regulated as natural waterbodies and would therefore require pretreatment of stormwater discharges.

Ecology wetland staff has received the Wetlands Assessment and Conceptual Compensatory Mitigation Plan from the applicant and will provide comments on the Plan under separate cover.

If you have any questions regarding the comments from our Water Quality Program, please contact Mr. Gary Kruger at (360) 407-0238. For questions regarding the comments made by our Wetlands Section, please call Mr. Perry Lund at (360) 407-7260.

Sincerely,

Rebecca J. Inman

Rebecca J. Inman
Environmental Review Section

RI:

#966735

cc: Gary Kruger, SWRO
Perry Lund, SWRO
Mike Mourhous, SWRO
Abbe White, SWRO

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

October 31, 1996

Rebecca J. Inman
Environmental Review Section
DEPARTMENT OF ECOLOGY
P.O. Box 47600
Olympia, WA 98504-7600

Re: Response to Mint Farm Industrial Park Draft EIS Comments

Dear Ms. Inman:

Thank you for your comments dated October 22, 1996 regarding the Mint Farm Industrial Park Draft Environmental Impact Statement. I will attempt to respond to those comments in the order in which you presented them.

1. Under the application instructions for a National Pollution Discharge Elimination System (NPDES) general stormwater permit, a permit is not required for initial preload work at the Mint Farm. The City need not apply for the permit because Longview is a municipality of less than 100,000 population and the initial Phase 1 construction (preload of roadways) sites are owned or operated by the City. Private developers working on the Mint Farm site will need to apply for NPDES permits when areas over five acres in size are disturbed. The NPDES permit is included in the list of licenses required in the EIS.

Temporary and permanent erosion and sediment control measure and procedures will follow WSDOE standard specifications as indicated on page 12 of the Stormwater Management Report in the EIS.

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2. Comment Acknowledged. The project drainage facilities are designed to address the impact of increased impervious surface. Phase 1 calls only for the design and construction of the first 125 acres of the proposed 435 acre light Industrial park. Measures are included to address urban water quality problems. The primary components of the design are wet ponds located at the bottom end of the drainage system, prior to discharge to the C.O.D. drainage system.

3. Currently, the requirements for on site detention of stormwater are currently under discussion with the Consolidated Diking Improvement District so they can be included in the final design. There are no written standards specified by the Consolidated Diking Improvement District.

4. As indicated in the introduction to the Preliminary Stormwater Hydraulics Report in the Technical Appendix to the EIS, the project is designed in accordance with Ecology's *Stormwater Management Manual for the Puget Sound Basin*. Conveyance and water quality treatment systems for the project will comply with the requirements as specified in the manual. The surface runoff generated by the industrial park will be treated primarily by water quality wet ponds. As suggested in your letter, while ditches and swales will provide some water quality benefits they will not be the primary means of treatment.

5. Comment noted. The City will clean catch basins as part of its regular street maintenance program.

6. The EIS states on page 35 that: "Typical uses planned in light industrial areas which are being considered for the proposal site include: light manufacturing and fabrication; warehousing and storage; wholesale distribution, product processing and packaging; laboratory and research operations. Free standing office buildings, and retail functions will not be allowed, but these uses can be provided if they are subsidiary to other allowed uses."

Ecology's manual can be used to manage the water quality effects of future industrial uses. Source control and maintenance activities will be addressed in the Codes, Covenants and Restrictions as they are developed. Permanent measures proposed for the Mint Farm site include vegetating all exposed soils which are not paved, minimizing slopes, and developing an enclosed piped conveyance system to intercept runoff from the entire site and redirect it into wet ponds providing water quality treatment.

7. Ecology's recommendation that Longview adopt the Ecology manual is noted.

8. Comment noted. Pretreatment of stormwater discharges utilizing appropriate best management practices will be provided before water is discharged to waters of the State including wetlands.

Again, thank you for your comments, they will be incorporated into the Final Environmental Impact Statement.

Respectfully,

Ed DeVries, Director of Planning and Building

ccw

CONSOLIDATED DIKING IMPROVEMENT DISTRICT NO. 1
5350 PACIFIC WAY, LONGVIEW, WA 98632 • PHONE (360) 423-2493 • FAX (360) 578-2924

DISTRICT BOARD OF SUPERVISORS
SHERRY BEAN — CHAIRMAN
MERRITT KETCHAM — VICE-CHAIRMAN
BILL HALLANGER — SECRETARY

October 9, 1996

OCT 1996
Received
Planning & Building
City of Longview

Ed DeVries, Director
Planning & Building Department
City of Longview
P.O. Box 128
Longview, WA 98632

SUBJECT: Case No. PC1996-9, Preliminary Plat of Mint Farm Industrial Park

The subject preliminary plat and related Draft Environmental Impact Statement have been reviewed in this office. C.D.I.D. No. 1 does not have any comments on this proposed development.

RONALD J. COLBERT, P.E.
District Engineer/Manager

RJC:js

C:\WP61\WP61WORK\D1005COL.LTR

Corrected Pages from EIS

The Following EIS Sections are changed as indicated by the Strikethrough and Underline text.

Traffic Study

Page 18 from the Traffic study should be deleted and replaced with the following:
(Strikethrough indicates deletion. Double underline indicates addition)

The Oregon Way Industrial Way Intersection projections were reviewed during the FEIS preparation because of the concern expressed in several letters about the traffic congestion projected in this intersection. An error was found in the eastbound left turn present number which has been corrected below.

The Tables in the EIS utilize actual traffic counts for present conditions and modeling results for future conditions. The modeling was not based on the present conditions shown. Since the modeling results are not directly related to actual traffic volumes the model is most useful in predicting relative increases and identifying general problem areas. The model results are less accurate in identifying the precise level of project and non project contribution to problems.

Since concern was expressed about the level of the project contribution to congestion problems at Oregon Way and Industrial Way a calculation was made which more accurately reflects actual numbers of vehicles expected at this particular intersection. The eastbound traffic was adjusted to reflect increases caused by actual volumes of site generated traffic which would arrive at the Oregon Way intersection given the turning movements projected by the Council of Governments Model. A 2% annual growth rate was used to increase the present traffic which was determined from actual traffic counts. The results of this effort are shown in the corrected table below.

The modeling effort identified intersections of concern and where mitigation measures are needed and these original results, as reported in the EIS are felt to be valid by the EIS authors.

Oregon Way at Industrial Way

This is a signalized intersection with protected left lanes on all four legs of the intersection. Each left turn is controlled. Industrial Way is a four lane road before and after the intersection. On the far right of the east bound traffic, there is a deceleration lane, and it becomes a yielded right turning lane onto Oregon Way. A raised traffic island separates this lane from the rest of the intersection. The lane then becomes an acceleration lane and merges into Oregon Way's traffic.

Set-back sidewalks and street curbs line Oregon Way except for the southbound side, south of Industrial Way. Crosswalks are on the east, west, and north sides of the intersection. There are railroad crossings immediately north and east of the intersection.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	91	526	57	331	312	244	122	409	350	~~687~~ 68	236	119	2865
Phase I	176	1110	88	369	493	251	153	507	600	~~171~~ 125	~~726~~ 466	~~412~~ 256	~~5056~~ 4594
Phase II	175	1176	84	379	502	263	156	523	613	~~178~~ 167	~~726~~ 636	~~422~~ 357	~~5197~~ 5031
Phase III	189	1208	97	386	547	276	167	536	624	~~185~~ 206	~~746~~ 774	~~422~~ 450	~~5383~~ 5460
Phase IV	211	1401	104	413	562	285	175	547	642	~~304~~ 203	~~822~~ 772	~~501~~ 433	~~5965~~ 5748

-- rev. 10/24/96

Parks or Other Recreational Facilities

Existing Conditions

Bicycle Trails

The proposal site is linked to Downtown Longview by an existing bicycle trail located along Ocean Beach Highway, Olive Way and Memorial Park Drive which is the northern boundary of the Proposal site. A potential extension of this bicycle trail is indicated in the Comprehensive Plan along 38th Avenue, past the proposed entrance to Phase 1. A bicycle trail from Lake Sacajawea Park extends along Washington Way to 32nd Avenue, less than one quarter mile from the southeast corner of the proposal site. A Potential bicycle trail is shown in the Comprehensive Plan extending along Hemlock Street to the east border of the site at its mid point.

The above mentioned trails connect to an extensive network of existing, planned and potential bicycle routes which will link the proposal site to most industrial and business areas of Longview. The system is particularly well suited to link the employment opportunities on the proposal site with existing residential areas to the north and east.

Potential bicycle/pedestrian paths are shown in the Longview Comprehensive Plan, (Figure 13). Routes adjacent to the proposal site include an alignment along the ditch which forms the west boundary of the site, and a trail along the south west side of Industrial Way. A potential bicycle route is shown along 38th Avenue. A proposed future trail route follows the BPA power easement adjacent to the project's south boundary, turning north on a trail easement along the westerly boundary of the project.

Parks

The Longview Comprehensive Plan identifies park and recreation facilities in Longview. There are several recreational facilities located near the proposal site. The former Natural High School ~~and the School Complex just east of~~ Lake Sacajawea Park are the closest major facilities. Lake Sacajawea Park is about 3/4 mile from the eastern boundary of the proposal site assuming a direct pedestrian and bicycle access route crossing the existing railroad tracks and proceeding along Hemlock Street. ~~Kellogg Park, a 1/2 acre neighborhood playlot is located just northeast of the proposal site at 33rd and Dorothy~~. Highlands Park, a 6.38 acre Neighborhood park is located 1.8 miles east of the proposal site on Industrial Way. This park contains playground equipment, ballfields, picnic areas, tennis courts and restrooms. No formal municipal park facilities are planned on the proposal site.

Impacts

Development of the proposal site may increase use of recreational facilities in Longview and to a lesser extent in Cowlitz County. This demand will be generated primarily during Phase 2 development by the increased population which employment on the proposal site supports. Need for new recreational facilities will primarily be generated in areas where new housing is developed during latter phases of site development.

Mitigating Measures

The proposal site will include a network of open spaces with ponds and trails which will be available to the public. This facility will help serve employee recreation needs and will help meet City wide needs for passive recreation. Activities at the proposal site will include walking, jogging, and wildlife observation. A looped system could be achieved through an additional trail along the existing south and west perimeter trail easements. On site recreation facilities of the type proposed are typically used by employees at lunchtime and by the public during evenings and weekends.

Unavoidable Adverse Impacts

Growth of population in Longview and Cowlitz County will create a need for new recreation facilities. Some of this need is indirectly attributable to activity on the proposal site. If the open space areas and drainage features are deeded to the City, the City will be responsible for maintenance of the trails, ponds and detention areas on the Mint Farm Site and City maintenance costs will increase.

Maintenance

Existing Conditions

The site in its current condition does not require maintenance by the City. However, existing roads that will serve the area are maintained by the City. Industrial Way is a State Highway maintained by the Washington State Department of Transportation.

Impacts

Roadways within the project area will be developed to meet or exceed City standards and will be dedicated to the City upon completion. Maintenance of new and existing roadways will increase.

Water and sanitary services will be developed to the required City design standards. Maintenance will be by the City.

The on-site storm drainage facilities including retention/detention facilities will be constructed as part of the project. These areas will include trails and lawn areas. Maintenance initially is expected to be through an owner's association with possible future transfer to the City drainage utility. Trails and open space would be included in the maintenance responsibilities of the owner's association as would street trees and planter strips.

Maintenance of electrical, natural gas, phone and cable systems will be by the supplier.

Mitigating Measures

Tax revenues and user charges will help offset maintenance costs in the public sector.

Unavoidable Adverse Impacts

There will be an increase in maintenance of public facilities.

Distribution List

Bernie Chaplin
Dept of Transportation
Trans Bld/Mail Stop KF-01
Olympia, WA 98504-5201

John Daly
Dept of Agriculture
Mail Stop AX-41
Olympia, WA 98504-0641

Paul Donahue
Dept of Social/Health Serv.
Cap Programs/Ofc Bldg #2
Mail Stop OB-23B
Olympia, WA 98504

Gary Harder
Transportation/Utilities
Chandler Bldg.
1300 Evergreen Pk Dr So
Olympia, WA 98504

David Heiser
Pks & Rec Comm
Mail Stop KY-11
Olympia, WA 98504-5711

David Dietzman
Dept of Natural Resources
P.O. Box 47015
Olympia, WA 98504-7015

Jerry Opaz
Environm Protect Agency
Region 10, Env. Review
Mail Stop WD-136
Seattle, WA 98101

Fred Weinmann
U.S. Army Corps of Eng.
Env. Resources Section
P.O. Box C-3755
Seattle, WA 98214

Dr. Robert G. Whitlam
Ofc of Comm Development
Ofc of Archeology, His Pres
Mail Stop KL-11
Olympia, WA 98504-5411

Cow Co. Assn of Realtors
1717 Olympia Way
Longview, WA 98632

Mike Drummond
Longview Daily News
P.O. Box 189
Longview, WA 98632

Cheryl Spencer
Lv Chamber of Commerce
1563 Olympia Way
Longview, WA 98632

Corps of Engineers
P.O. Box 2946
Portland, OR 97208-2946

Corps of Engineers
P.O. Box C-3755
Seattle, WA 98124-2255

Dave Guenther
Soil Conserv. Service
1708 Allen Street
Kelso, WA 98626

Martin Carty
Cow. Co. Public Works
207 No. 4th
Kelso, WA 98626

Steve Jacobson
Access Management
Dept of Transportation
P.O. Box 1709
Vancouver, WA 98668

Cowlitz Co. Health Dist.
1516 Hudson
Longview, WA 98632

Gary Hall, Manager
Solvay Interox
3500 Industrial Way
Longview, WA 98632

J. M. Huber Corporation
P.O. Box 310 - Chem Div
Havre De Grace
MD 20178

Columbia and Cowlitz Railway
3401 Industrial Way
Longview, WA 98632

Clint Page, President
Cowlitz Economic Development Co
P.O. Box 1278
Longview, WA 98632

Stephen Harvey, Director
Cowlitz - Wahkiakum Council of Governments
Administration Annex
207 North Fourth Avenue
Kelso, WA 98626-4195

Bill Pfleeger, Engineer
Cowlitz PUD
960 Commerce Avenue
Longview, WA 98632

Mr. Roger Albin
Cascade Natural Gas
1332 Vandercook Way
Longview, WA 98632

Judy Fuller
League of Women Voters
2843 Maryland
Longview, WA 98632

Ed Rheaume
Lv./Kelso Building Trades
P.O. Box 1076
Longview, WA 98632

Steve Manlo
Habitat Biologist
11203 N.E. 98th Street
Vancouver, WA 98662

Ross Graham
Weyerhaeuser Company
P.O. Box 188
Longview, WA 98632

Ken Stone, Engineer
Cowlitz County
207 North 4th Avenue
Kelso, WA 98626

Randy Bristlen
Longview Post Office
1603 Larch
Longview, WA 98632

Larry Frazier
Cow. Co. Bldg. & Plng.
207 No. 4th
Kelso, WA 98626

Fair Manager
Cowlitz Co. Fairgrounds
P.O. Box 722
Longview, WA 98632

Jim Elliott
Century Cable
750 11th Avenue
Longview, WA 98632

George Bell, Area Mngr.
Bonneville Power Admin.
P.O. Box 3621
Portland, OR 97208

Don Bales
Dept of Ecology/Env Review
Mail Stop PV-11
Olympia, WA 98504-7703

Ron Colbert
C.D.I.D. #1
5350 Pacific Way
Longview, WA 98632

Ken O'Hollaren
Port Longview
P.O. Box 1258
Longview, WA 98632

Dept of Ecology
Environmental Review Section
P.O. Box 47703
Olympia, WA 98504-7703

Nicholas Seaver
Longview School District
2715 Lilac Boulevard
Longview, WA 98632

Ace Palmer, Engineer
U.S. West Comm.
1305 Washington Way
Longview, WA 98632

Ed McGuire
Depart. of Wildlife
Mail Stop FA-11
Olympia, WA 98504-1211

Joe Valenzuela, Chief
Fire District #2
P.O. Box 807
Kelso, WA 98626

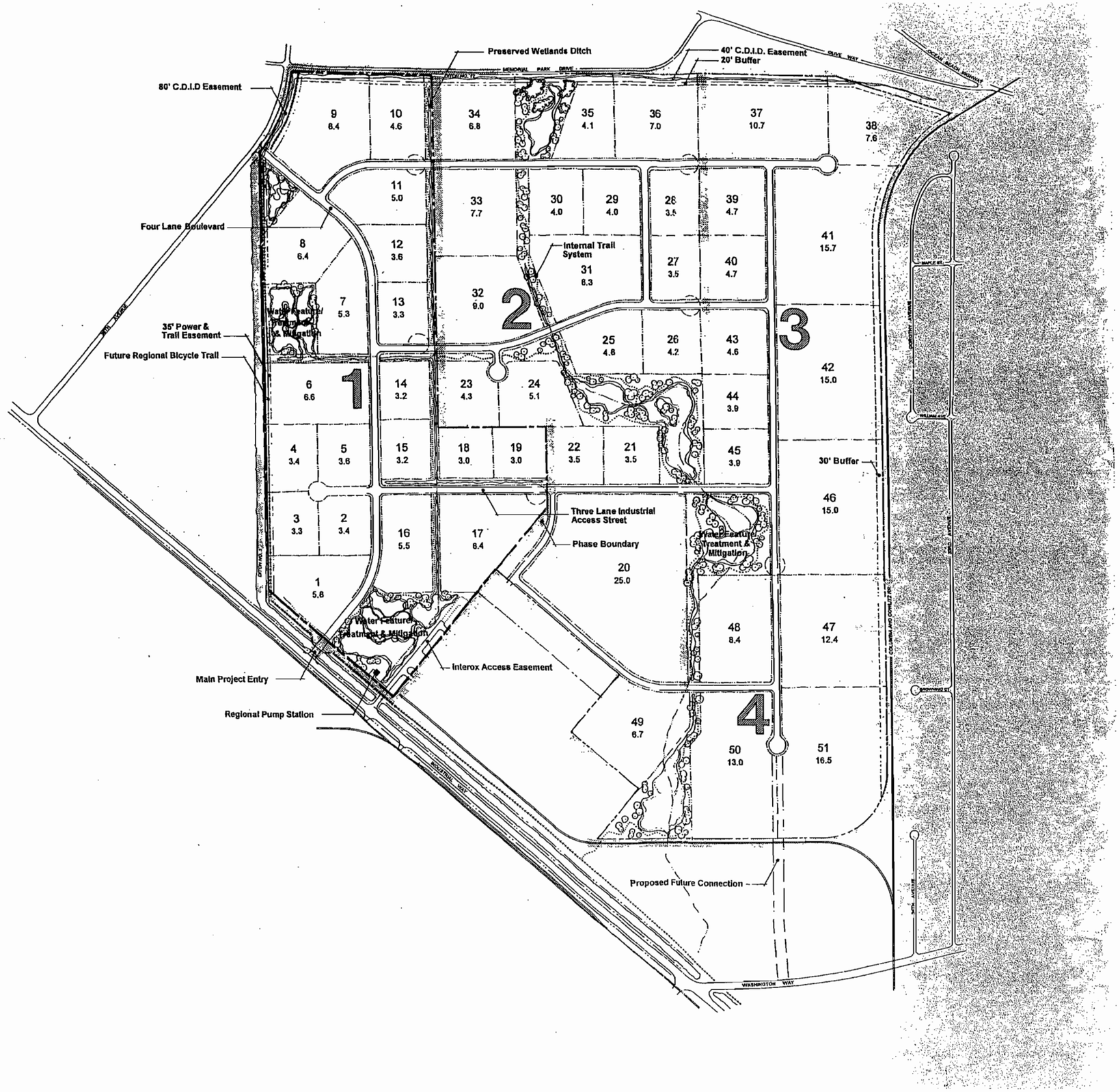
Brian Peterson
Cow Co. Sheriff
207 North 4th
Kelso, WA 98626

Albert Elliott
SW Air Poll Cont Auth
1308 NE 134th, Suite D
Vancouver, WA 98685

Ray Ryan, Assessor,
Cowlitz County
207 North 4th
Kelso, WA 98626

THE MINT FARM INDUSTRIAL PARK

CITY OF LONGVIEW, WASHINGTON



Site Data

Net Developable Lot Area	344.2 Acres
Street Rights-of-Way	30.4
Dedicated Open Space	52.7
Easements	8.5
Diking District Ditch Easements	—
PUD Power Easement	—
City Trail Easement	—
Interox Access Easement	—
Total Master Plan Area	435.8 Acres

Phasing Plan

	Developable Area Acres	Building Area Yield
Phase One	88.2	1.6 million SF
Phase Two	111.2	1.9 million SF
Phase Three	85.8	1.5 million SF
Phase Four	59.0	1.0 million SF

Master Development Plan

NORTH

100 0 300 600
SCALE IN FEET

4 ACRES
1 ACRE
SCALE AREAS

RICHARD CAROTHERS ASSOCIATES, LTD.
LAND PLANNING, CIVIL ENGINEERING, LANDSCAPE ARCHITECTURE, SURVEYING & ENVIRONMENTAL SERVICES
814 EAST PIKE STREET · SEATTLE, WA 98122
206/324-5500 FAX 328-1880
705 SOUTH NINTH, #301 · TACOMA, WA 98405
206/627-9131 FAX 627-4730

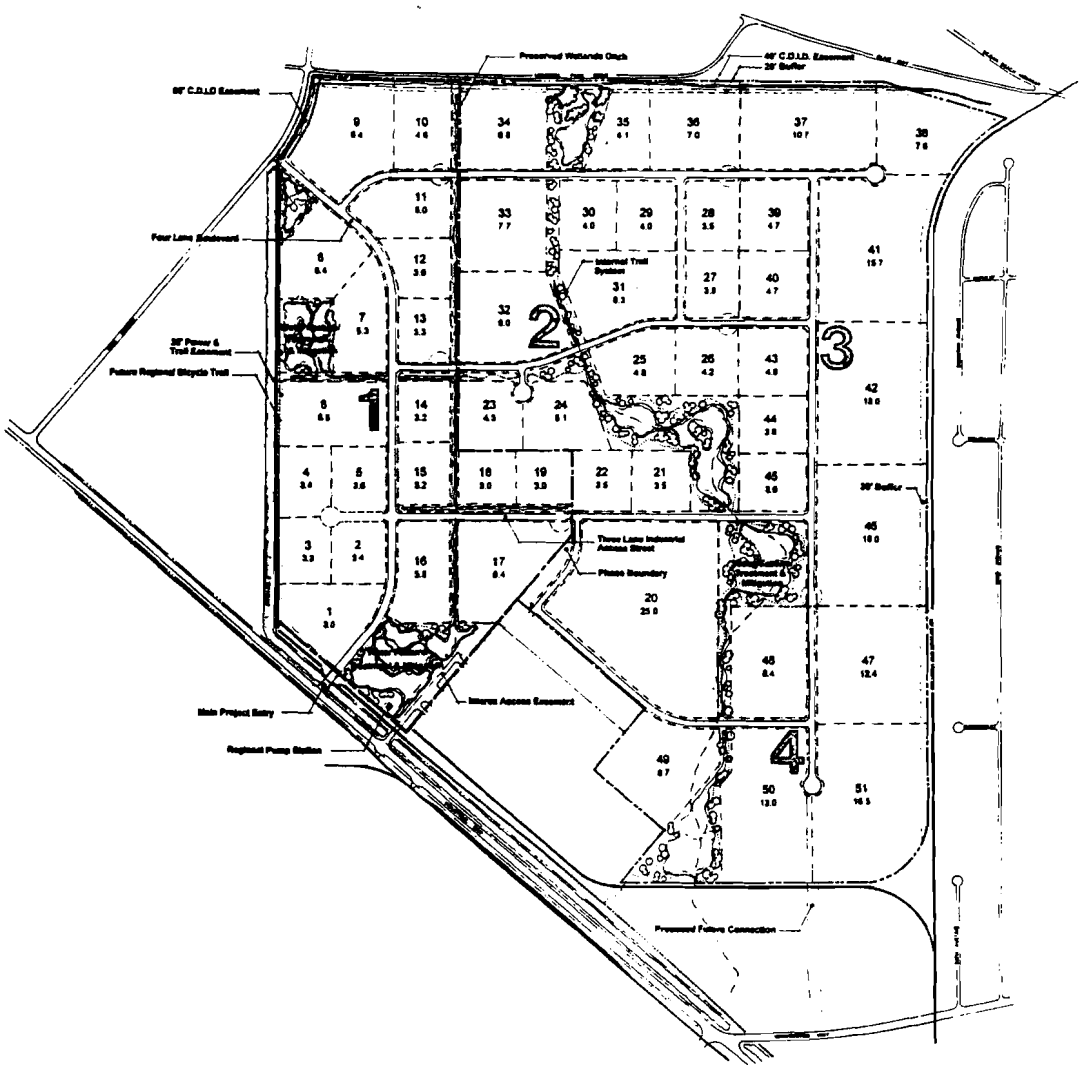
NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

SEPA CHECKLIST

TAB 4: MINT FARM DRAFT ENVIRONMENTAL IMPACT STATEMENT

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
FOR
MINT FARM INDUSTRIAL PARK

City of Longview, WA



Prepared by
Richard Carothers Associates

September 1996

The City of Longview Washington

P.O. Box 128
Longview, WA 98632-7080

September 26,1996

MEMORANDUM

TO: Ed Ivey, City Manager
Nelson Graham, Assistant City Manager
Corky Gower, Director of Public Works
Roy Hewson, City Engineer
Lowell Marsh, Utilities Administrator
John Bean, Traffic Engineer
Rudy Weyland, Fire Chief
Bob Burgreen, Police Chief
Rich Bemm, Director of Parks and Recreation
Marion Otteraaen, Librarian

FROM: Ed DeVries, Director of Planning and Building

SUBJECT: **Draft EIS For Mint Farm Industrial Park**

Attached please find a copy of the Draft Environmental Impact Statement for the Mint Farm Industrial Park. This document is the result of a scoping process which identified the areas of major concern. The review addresses the entire 435 acre site which has the potential for industrial development either by the City of Longview or Weyerhauser Company.

Please review the document and provide your comments to me by October 25, 1996. If you have no need for the document please return it to Planning and Building. Thank you.

Enclosure

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
FOR
MINT FARM INDUSTRIAL PARK

City of Longview
Longview Planning Department
Longview, WA

Prepared for the review and comments of citizens, citizen groups, and government agencies

in compliance with

The State Environmental Policy Act of 1971 Revised Code of Washington 43.21.C
Chapter 197-11 WAC effective April 4, 1984
as described in the 1988 handbook and updates periodically issued by the Department of Ecology

and
City of Longview SEPA Ordinance

TO: Interested Parties
FROM: Edwin R. Ivey, City Manager, City of Longview

September 25, 1996

RE: Mint Farm Industrial Park
Draft Environmental Impact Statement (DEIS)

The City of Longview wishes to help develop economic opportunities by providing a business park with space for light manufacturing, warehousing, distribution, product processing and packaging, laboratory and research uses. Fully serviced sites for the above types of uses will help attract new businesses to Longview and will facilitate expansion of existing businesses.

The Mint Farm site has been selected because it is located in an area planned for business park development and is located close to existing roads, utilities and potential workforce. The site has appropriate designation in the Comprehensive Plan and Zoning Code.

While development of the site will create employment opportunities it will also create impacts which must be considered and mitigated. Traffic and wildlife impacts will be the most noticeable effects from project development.

The City is committed to a policy of minimizing traffic increases in residential areas. Project entries are limited to Industrial Way and 38th Avenue to help assure this. Traffic impacts are discussed in detail in the Traffic section of the DEIS document.

As the project site is developed, open pasture land will be converted to buildings, parking, landscaped areas, roads and ponds. The ditch system will be changed. Some ditches will be expanded and some will be filled and relocated. Open space areas are planned as an integral part of the project to replace habitat lost, detain stormwater, and improve water quality. The new habitat areas provided as part of the project area will be of smaller size than the habitat lost but will be of higher quality in terms of the numbers of animals supported per unit of area.

The City welcomes your comments on this Draft Environmental Impact Statement document and will incorporate them into a Final Environmental Impact Statement. Please mail your comments by October 25, 1996 to:

Ed Devries, Director of Planning and Building
Longview City Hall
1525 Broadway
Longview, WA 98632

FACT SHEET

Project Title:	Mint Farm Industrial Park
Proponent:	City of Longview
Proposed Project:	The project entails development of a 435 acre Light Industrial Park in phases. Current City ownership is limited to approximately 124 acres designated as Phase One. The roads and utilities for Phase One development are proposed for construction in 1997.
Project Location	Land lying north of Industrial Way, west of the Columbia and Cowlitz Railroad, east of 38th Avenue and south of Memorial Park Drive in Longview, Washington. Phase one development will occur along the west edge of the site.
Purpose:	Provide sites for industrial and business use in the Longview area which are fully serviced with utilities and roads.
Lead Agency:	City of Longview
SEPA Official:	Ed DeVries, Planning and Building Director City of Longview
Contact Person	Ed DeVries, Planning and Building Director City of Longview 1525 Broadway Longview, WA 98632-7080
Licenses Required:	City of Longview Grading Permit City of Longview Subdivision Approval US Army Corps of Engineers 404 permit (for modifications to existing ditch areas only) NPDES Construction Permit City of Longview Building Permits will ultimately be needed by individual property developers as individual parcels are developed.
Principal Contributors:	Richard Carothers Associates Author of DEIS Contact: Carl Stixrood (206) 324-5500 Watershed Dynamics-Wetlands analysis Contact: Tom Deming (206) 735-4288 Hart Crowser--Geotechnical analysis Contact: Jeff Wagner (206) 324-9530

Date of Issue:	September 25, *1996*
Date Comments Due	October 25, *1996*
Date of Final Action	Preliminary Plat Approval Winter 1996/1997
Subsequent Environmental Review	None is anticipated
Location of Prior EIS	None have been prepared
Cost of Copy	None

TABLE OF CONTENTS

FACT SHEET 3

SUMMARY 7

DESIGN CONCEPTS 11
SUMMARY OF IMPACTS AND MITIGATING MEASURES 11
ENVIRONMENTAL CHOICES AMONG ALTERNATIVES 12
IMPACTS THAT CANNOT BE MITIGATED 12

SECTION 1 THE PROPOSED ACTION AND ALTERNATIVES 13

CITY OBJECTIVE 13
PROPOSED ACTION 13
Construction Schedule 13
Major Aspects of the Proposal 13
Grading 14
Storm Drainage 14
Sanitary Sewer 14
Water 14
Power 14
Telephone 14
Roads 15
Traffic 15
Amenities 15
Relationship of the Proposal to Existing Plans and Regulations 15
ALTERNATIVES 19
Alternative 1, No City Action 19
Alternative 2:-Development of Another Site 19
COMPARISON OF IMPACTS OF ALTERNATIVES 20
BENEFITS AND DISADVANTAGES OF RESERVING IMPLEMENTATION FOR SOME FUTURE TIME 20

SECTION 2 AFFECTED ENVIRONMENT. SIGNIFICANT IMPACTS AND MITIGATING MEASURES 22

THE NATURAL ENVIRONMENT 22
Earth 22
Soils and geology. topography. unique physical features 22
Air 24
Water 26
Surface Water *and* Runoff 26
Groundwater 28
Plants and Animals 29
Wetlands 30
Energy and Natural Resources 31
THE BUILT ENVIRONMENT 32
Environmental Health 32
Noise 32
Risk of Explosion and Hazardous Emissions 33
Land Use 35
Relationship to existing land use plans and to estimated population 35
Population Employment and Housing 38
Employment 38
Population 41
Housing 42
Light and Glare 43

Aesthetics *43*
Historic and Cultural Preservation *45*
Transportation *46*
Vehicular Traffic **46**
Public Transportation **51**
Rail Traffic **52**
Public Services and Utilities *52*
Fire **52**
Police **53**
Schools **54**
Parks or Other Recreational Facilities **55**
Maintenance **56**
Communications **57**
Water Supply **57**
Storm Water **59**
Sewer **59**
Solid waste **60**
Electricity **60**
Other Governmental Services **61**

SECTION 4. DISTRIBUTION LIST **62**

SECTION 5 COMMENT LETTERS RECEIVED IN RESPONSE TO SCOPING NOTICE **64**

RESPONSE TO LETTERS RECEIVED 65

TABLE OF FIGURES

FIGURE 1 VICINITY MAP 9
FIGURE 2 MINT FARM MASTER PLAN 10
FIGURE 3 STORM DRAINAGE AND OPEN SPACE SCHEMATIC 16
FIGURE 4 SANITARY SEWER SCHEMATIC 17
FIGURE 5 WATER SUPPLY SCHEMATIC 18

TABLE OF TABLES

TABLE 1 MINT FARM LAND USE (FULL BUILDOUT) 8
TABLE 2 MINT FARM PHASING 11
TABLE 3 TOTAL EMPLOYMENT IN COWLITZ COUNTY 39
TABLE 4 COWLITZ COUNTY EMPLOYMENT BY INDUSTRY, 1990 39
TABLE 5 MAJOR EMPLOYERS IN THE LONGVIEW AREA, 1992 39
TABLE 6 POPULATION IN LONGVIEW AND COWLITZ COUNTY 41
TABLE 7 LONGVIEW HOUSING UNITS 42
TABLE 8 PROJECTED WATER USE 58

TECHNICAL APPENDICES

Geotechnical Report
Wetlands Evaluation Study
Traffic Study
Stormwater Management Report
Wildlife Habitat Report
Sanitary Sewer Report
Water System Report

Summary

This Environmental Impact Statement (EIS) provides environmental information to the public and to governmental decision makers concerning the Mint Farm proposal. The current application consists of a subdivision of the property to accommodate Phase One development. The project is proposed to implement the City's comprehensive plan. The Comprehensive Plan contains the following City Policies which are relevant to the proposal:

2.06 The City will continually strive to preserve the existing industrial land that is viable and attractive to new and existing industry.

5.11 Development of professionally designed industrial parks as opposed to separate piecemeal industrial development is encouraged in order to make efficient use of public services and facilities, to maximize compatibility with adjacent non-industrial uses, and to maintain the urban area's overall attractiveness.

Since the project will require subdivision of property, Land Development and Subdivision Goals and Policies are applicable:

1.O1 If a preliminary subdivision plat represents a phase of a potentially larger development, the city should require that a master plan showing all phases of the entire potential development be submitted concurrently with the preliminary plat of the first phase.

1.04 Preliminary plats should be reviewed for the traffic circulation patterns they will create and for their impact on adjoining streets and highways.

1.15 Subdivisions should provide public and/or private open space as acceptable to the City in order to fulfill needs for active and passive recreation, for separation of conflicting activities, for preservation of sensitive areas, and for provision of adequate light, air, and privacy.

This EIS is written to encompass analysis of full development of the proposal. The Master Plan is a generalized description of land uses, circulation elements and utilities plans. Detailed design is being done for the Phase One area infrastructure which is expected to illustrate the type of infrastructure development which will occur in future phases. Refinement of detail and/or variations from the Master Plan may occur in the future. However, it is anticipated that such minor modifications will not require further environmental review if they are compatible with the original intent of the master plan analyzed herein and are consistent with the codes of governing jurisdictions.

The project is located in the western portion of the City of Longview (Figure 1 Vicinity Map) in an area which is designated in the City's Comprehensive Plan for light industrial use. The site is currently used as pasture. Uses expected to locate on the site include light manufacturing, warehousing, and distribution with auxiliary office uses. The master plan (Figure 2) calls for

subdivision of the Mint Farm site into 51 lots ranging in size from three to twenty five acres with about half of the lots in the 3 to 5 acre size range and seven lots in the ten to 20 acre size range. A central open space comdor and two separate open space tracts are proposed to provide drainage/wildlife/wetland/recreation functions. Site access and egress are located on industrial/commercial streets to the south and west to avoid impacting residential areas to the north and east. Landscape buffers are planned adjacent to residential areas along the north and east edges of the site. At full buildout the Mint Farm Project as proposed is projected to have the land use characteristics shown in Table 1:

Table 1 Mint Farm Land Use (Full Buildout)

Use	Area in acres
Total Site Area in Master Plan	**435**
Proposed Street Rights-of-way	**30.4**
Proposed Dedicated Open Space	**52.7**
Diking District Easements	**8.5**
Net Developable Lot Area	**344.2**

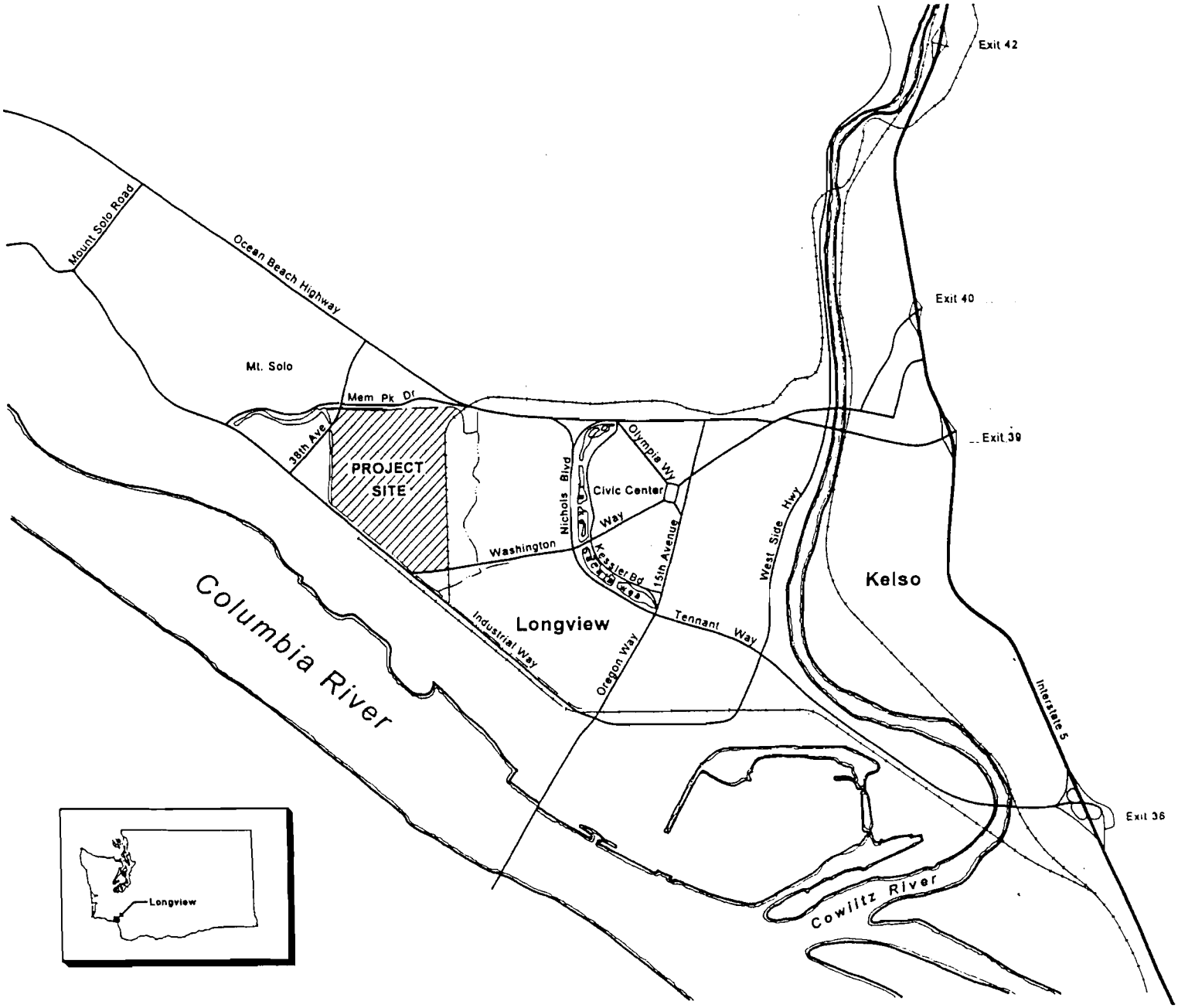
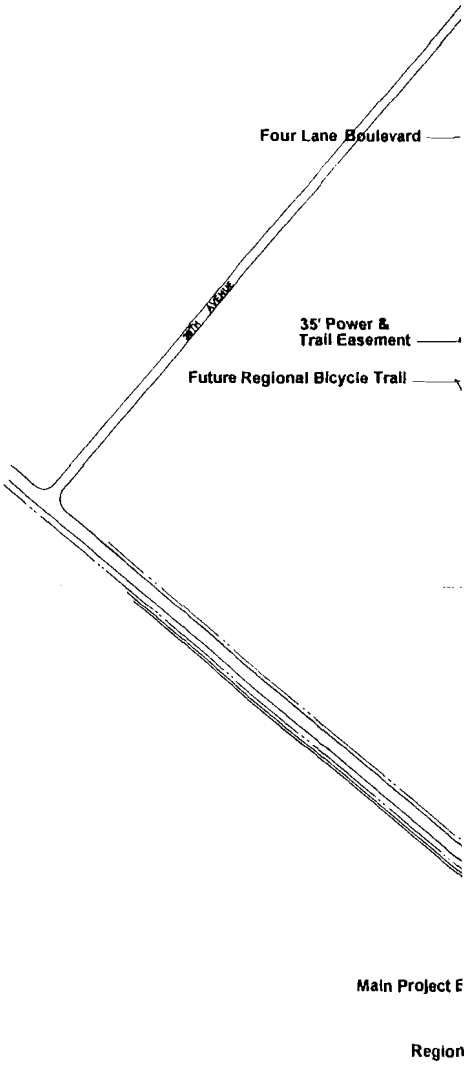


Figure 1. Vicinity Map

THE MINT FARM INDUSTRIAL PARK

CITY OF LONGVIEW, WASHINGTON



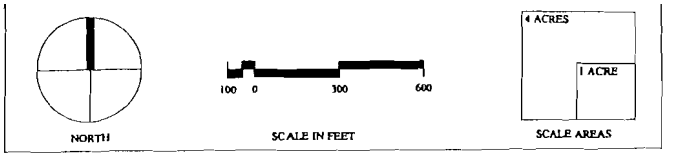
Site Data

Net Developable Lot Area	*344.2 Acres*
Street Rights-of-Way	*30.4*
Dedicated Open Space	*52.7*
Easements	*8.5*
Diking District Ditch Easements	—
PUD Power Easement	—
City Trail Easement	—
Interox Access Easement	—
Total Master Plan Area	*435.8 Acres*

Phasing Plan

	Developable Area Acres	*Building Area Yield*
Phase One	*88.2*	*1.6 million SF*
Phase Two	*711.2*	*1.9 million SF*
Phase Three	*85.8*	*1.5 million SF*
Phase Four	*59.0*	*1.0 million SF*

Master Development Plan



RICHARD CAROTHERS ASSOCIATES, LTD.
LAND PLANNING, CIVIL ENGINEERING, LANDSCAPE ARCHITECTURE, SURVEYING & ENVIRONMENTAL SERVICES
814 EAST PIKE STREET - SEATTLE, WA 98122 206/324-5500 FAX 328-1880
705 SOUTH NINTH, #301 TACOMA, WA 98405 206/627-9131 FAX 627-4730

The phasing for the Mint Farm Proposal anticipates an incremental growth over the next 30 years. with the approximate timing and areas shown in Table 2.

Table 2 Mint Farm Phasing

Phase	Implementation (years)	Developable Area (acres)	Gross Area (acres)	Number of Lots	Lot Size (acres)
One	0 to 6	87.0	124	19	3 to 8
Two	6 to 12	112.4	137	16	3.5 to 25.
Three	12 to 20	85.8	103	10	3.9 to 15.7
Four	20 plus	59.0	71	5	8.4 to 16.5

Design concepts

The City proposes development of an orderly business park planned to reflect public input and concerns, existing drainage and street patterns and a priority of minimizing impact to adjacent residential areas. The overall plan strives to:

- create a quality working environment through sound planning
- ensure a harmonious relationship among the different uses within the development and between the development and its surroundings
- develop an employment center which will meet or exceed applicable local, state and federal code requirements
- provide long term recreation, wildlife and open space benefits to the Longview Kelso community
- support planning goals of the city for employment, land use, trails, open space, and utilities
- create a development with pleasing visual qualities which are unique and distinctive.

Summary of impacts and mitigating measures

The site will be converted, over a period of years, from open pastureland to developed business park. This will reduce wildlife habitat on the site to about 30% of its current extent but will increase the diversity of this habitat by providing open water, and vegetated edges in dedicated open space tracts.

Traffic to and from the proposal site will increase as site development occurs. However, location of site entries on heavily traveled industrial/commercial roads will minimize the traffic impact. Off site improvements will be carried out as needed to divert or "calm" traffic through nearby residential areas. Traffic impacts are minimized by the site's location which is feasible to serve with mass transit and bicycle modes of transportation.

Development of the site will increase the quantity and rate of stormwater runoff generated within the site. Discharge rates from the site will be controlled to the requirements of The Consolidated Diking Improvement District #1, which provides stormwater/drainage pumping for the Longview

Kelso area. Discharges for Phase One will be to regional conveyance ditches south and west of the proposed site.

The site is located in an area planned for light industrial use and development of the proposal site is not expected to have an adverse impact on land use trends in the vicinity.

Environmental choices among alternatives

Development of this proposal site, which is close to existing housing, potential employees and services creates employment opportunities at the lowest environmental and fiscal cost. If the same quantity of development were to occur on scattered sites or on a large site in a more remote location, vehicle miles driven in the region would be higher and impacts on air and water quality and streets would be higher as a result.

Impacts that cannot be mitigated

- The number of migratory birds using the proposal site will be reduced from the levels that are supported by the current pasture use.
- Vehicular traffic on adjacent commercial and industrial streets will increase.
- **A** slight degradation in quality of water running off of the site is unavoidable.

Section I The Proposed Action and Alternatives

This environmental impact statement presents a description and evaluation of the proposed action and any reasonable alternative actions that could feasibly attain the objective of the proponent. Reasonable alternatives are those actions that approximate the objective of the proposal but at a lower environmental cost or decreased level of environmental degradation.

City Objective

The City Objective is to attract companies and jobs to Longview. Availability of readily developable, adequately sized parcels of serviced land in a business park setting is intended to provide companies (primarily from outside the County) with incentive to move to Longview. The project implements Comprehensive Land Use Plan policies (see land use section).

Proposed Action

The City of Longview has prepared a Master Plan addressing future development of the entire 435 acre Mint Farm Site. The Plan envisions subdivision into approximately 51 lots varying in size from 3 to 25 acres. (Figure 2 Mint Farm Master Plan) The lots will be sold to individual developers for business use. Road, utility, drainage and open space improvements will be made prior to sale of individual lots. Current City ownership is limited to approximately 124 acres designated as Phase One, located along the western edge of the site. The site is located in the southwest portion of the City of Longview (see vicinity map, Figure 1.)

The City is proposing a comprehensive approach to development of the Mint Farm site. Roads and utilities will be provided in a planned and coordinated fashion. Measures to mitigate development impacts such as traffic and aesthetic impacts on adjacent property are included as an integral part of the proposal. Drainage facilities will be provided in a coordinated system which provides open space benefits to the City as a whole. Overall impacts and mitigating measures associated with the Master Plan for the entire site are identified to encompass a range of proposed land use. Development plans for each lot are not known at this time. However, covenants will be made part of the deeds to regulate use, architectural character and landscaping. The development of these individual parcels is expected to be done without further environmental review if they are in conformance with the Master Plan.

Construction Schedule

Activities preparatory to major construction (preloading of road sections in Phase One) is scheduled for fall of 1996. Construction of Phase 1 roads and utilities is scheduled for 1997 Phase 2 through 4 are expected to occur after the year 2000.

Major Aspects of the Proposal

A brief description of major aspects of the proposal follows. Please refer to the elements of the environment section of this document for more detail. The proposal is a plat of 51 business park lots with over 57 acres in open space and diking district easements. Historically, all 435 acres of the proposal site have been privately owned. The City of Longview recently purchased the 124

acres in Phase 1. Phase 1 access to the site (and all future phase access) will be limited to 38th Avenue and Industrial Way. Ownership of open space and drainage facilities (approximately 48.8 acres) will be by an association of the property owners who will be financially responsible for maintenance and repairs. Slightly over 30 acres of the site will be in public street right of way, owned and maintained by the City of Longview.

Grading

Grading on the property will be necessary within road rights-of-way and to construct drainage facilities in the open space. Roadbeds will be filled to a level that places them above flood events. The filling and grading of individual lots will be the responsibility of individual lot developers.

Storm Drainage

The storm drainage system proposed for the project will consist of enclosed systems for roads and individual parcels. Drainage inlets will be located at regular intervals in the curbed roadway section and on individual parcels. (Figure 3 Storm Drainage and Open Space Schematic) The enclosed system will discharge to existing and proposed open ditches which lead to retention/detention ponds. The conveyance and detention systems for Phase One will be sized to accommodate discharge from the development lots as well as the public rights of way. The ponds will discharge to existing Diking District ditches along the south, west and north boundaries of the site which are equipped with pumping facilities. The on site system is designed to assure that any current off site drainage problems in the project vicinity are not worsened by site development.

Sanitary Sewer

The sanitary sewer service for the project will be provided by the City of Longview. On site collection will be through a gravity system located in the road rights of way. (Figure 4 Sanitary Sewer Schematic) This system will discharge to a lift station currently being designed by the City, and located at the southeast comer of the Phase One development. The lift station will convey effluent to the Central Regional Sewage Treatment Plant. Individual parcels will connect to the public system at stubs provided at each lot.

Water

Water for the project will be provided by the City of Longview. The site will be fully served with water mains and fire hydrants located in the road rights of way. (Figure 5 Water Supply Schematic) Water system capacity is provided to accommodate sprinklering of buildings on individual parcels for fire protection.

Power

Electrical power will be provided by Cowlitz County PUD. The onsite distribution system will be located underground with connection points provided at lot comers.

Telephone

Telephone service will be provided by US West Communications. Main trunk lines will be located in the road right of way with connection points at individual lot comers.

Roads

Access to the site will be provided at two points, one on 38th Avenue and one on Industrial Way. Rights of way will be cleared and "preloaded" with fill as necessary for construction of the road surface, and utilities. Asphaltic concrete road surfaces are planned, with curbing for containment of runoff Road width will vary depending on location and use. Pavement section will, as a minimum conform to City of Longview specifications.

Traffic

A full discussion of trffic impacts is included in the trffic section of this EIS. Measures to reduce traffic impacts are discussed in that section.Traffic on Memorial Park Drive will be limited through a program of planning for diversion or "calming". Project entries will not be provided off Memorial Park Drive. *As* phase 1 nears completion, intersection improvements to Ocean Beach Highway at 38th Street and Industrial Way at Oregon Way will be provided, The need for intersection improvements to support future phases is discussed in tthe traffic section and Traffic report in the technical appendices.

Amenities

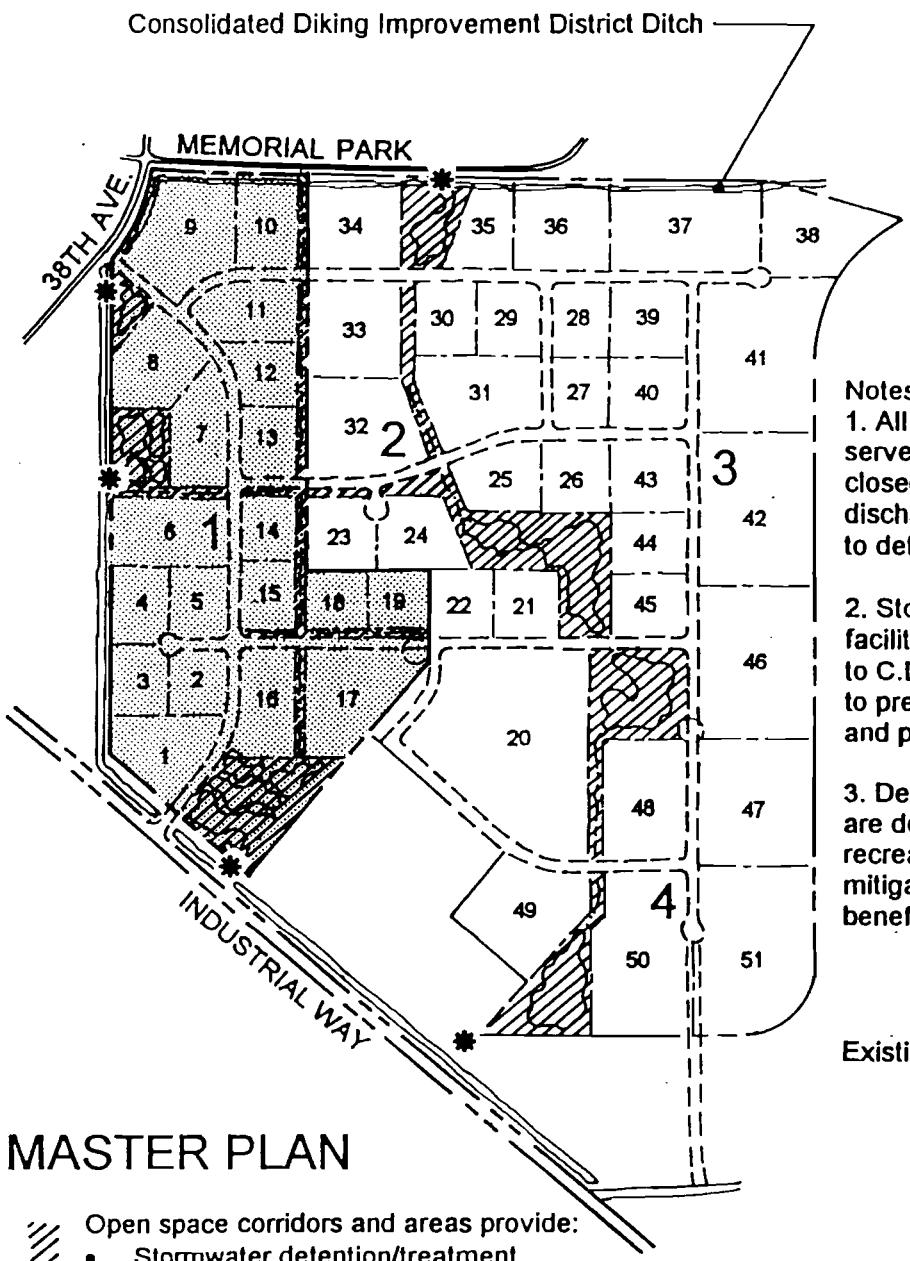
The proposal has been planned with emphasis on use of drainage features as major open spaces (Figure 3) **A** major drainage/open space comdor is provided in a north south direction through the site. Other retentionldetention facilities are located near the edges of the proposal site in locations which provide visual amenities for drivers on Industrial Way and 38th Avenue.

Relationship of the Proposal to Existing Plans and Regulations

The Comprehensive Plan designation for the proposal site is for light industrial use. Uses planned for the site are consistent with this designation. The site is zoned M-2, Manufacturing District, which allows the business park uses proposed for the site.

The project will require a “404” permit from the US Army Corps of Engineers to alter the existing drainage ditch areas of the site.

The proposal will conform with the City of Longview land subdivision regulations.



Notes:
1. All roads and lots are served by a catch basin and closed pipe system which discharges to ditches leading to detention/treatment areas.

2. Stormwater detention facilities are sized according to C.D.I.D. recommendations to prevent overtaxing ditch and pumping systems.

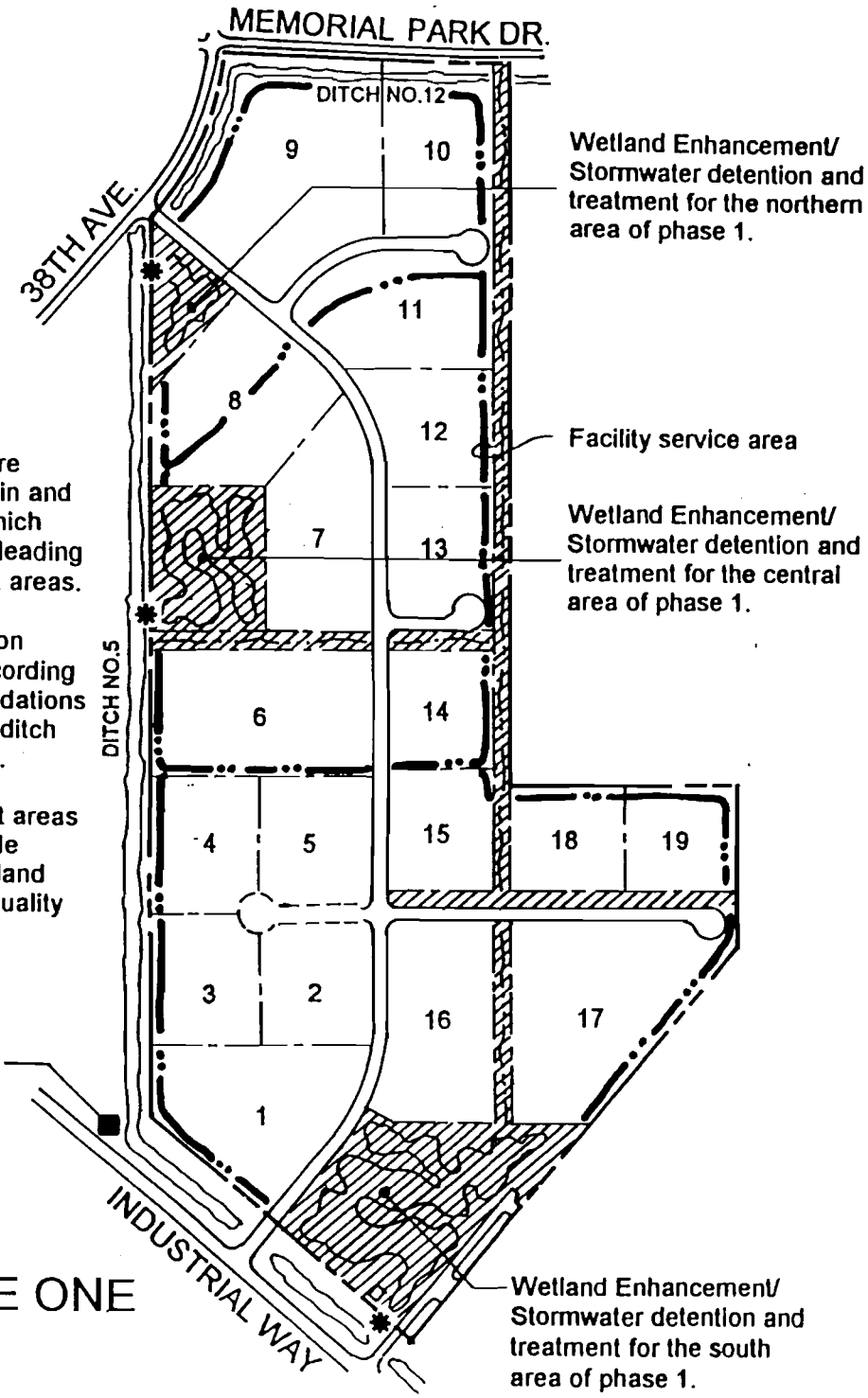
3. Detention/treatment areas are designed to provide recreation/wildlife/wetland mitigation and water quality benefits.

Existing Pump Station

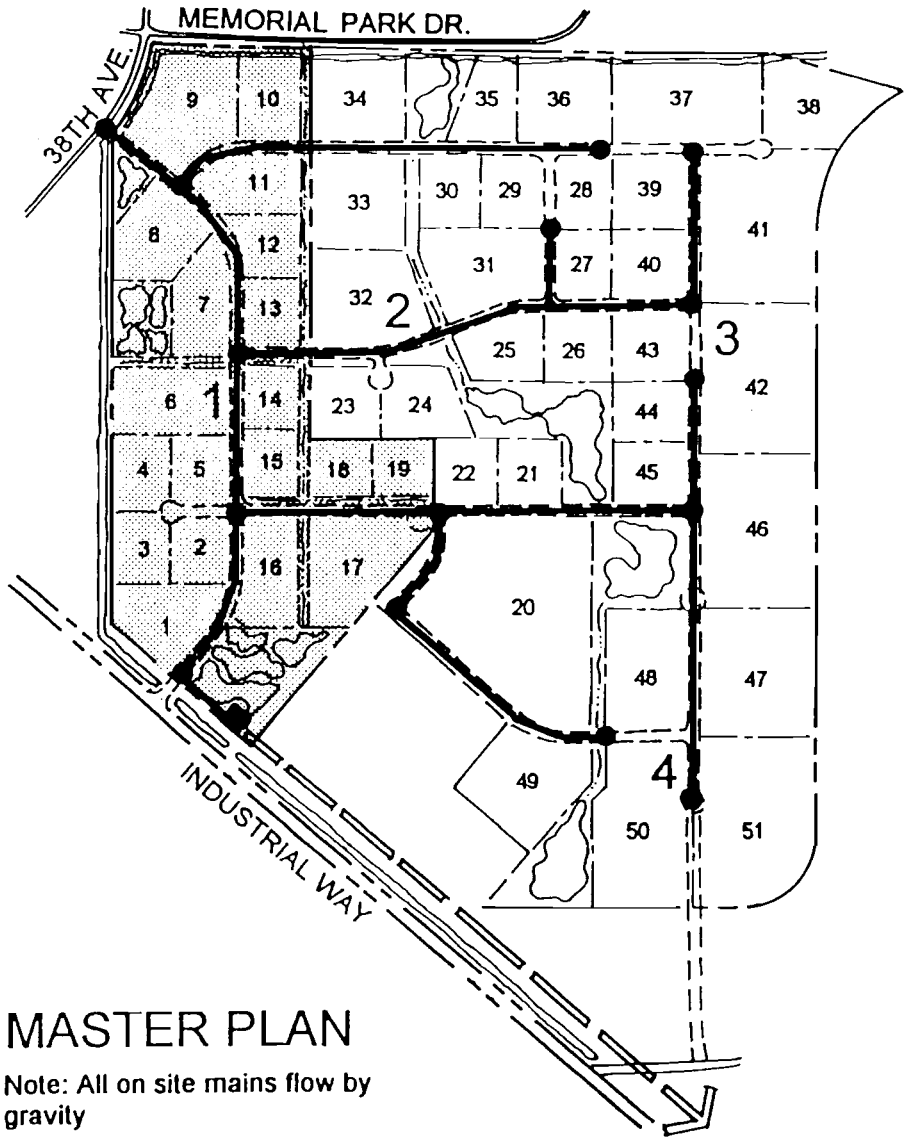
MASTER PLAN

Open space corridors and areas provide:
- Stormwater detention/treatment
- Wetland/wildlife mitigation
- Recreation

✱ Discharge point for treated/detained stormwater



PHASE ONE

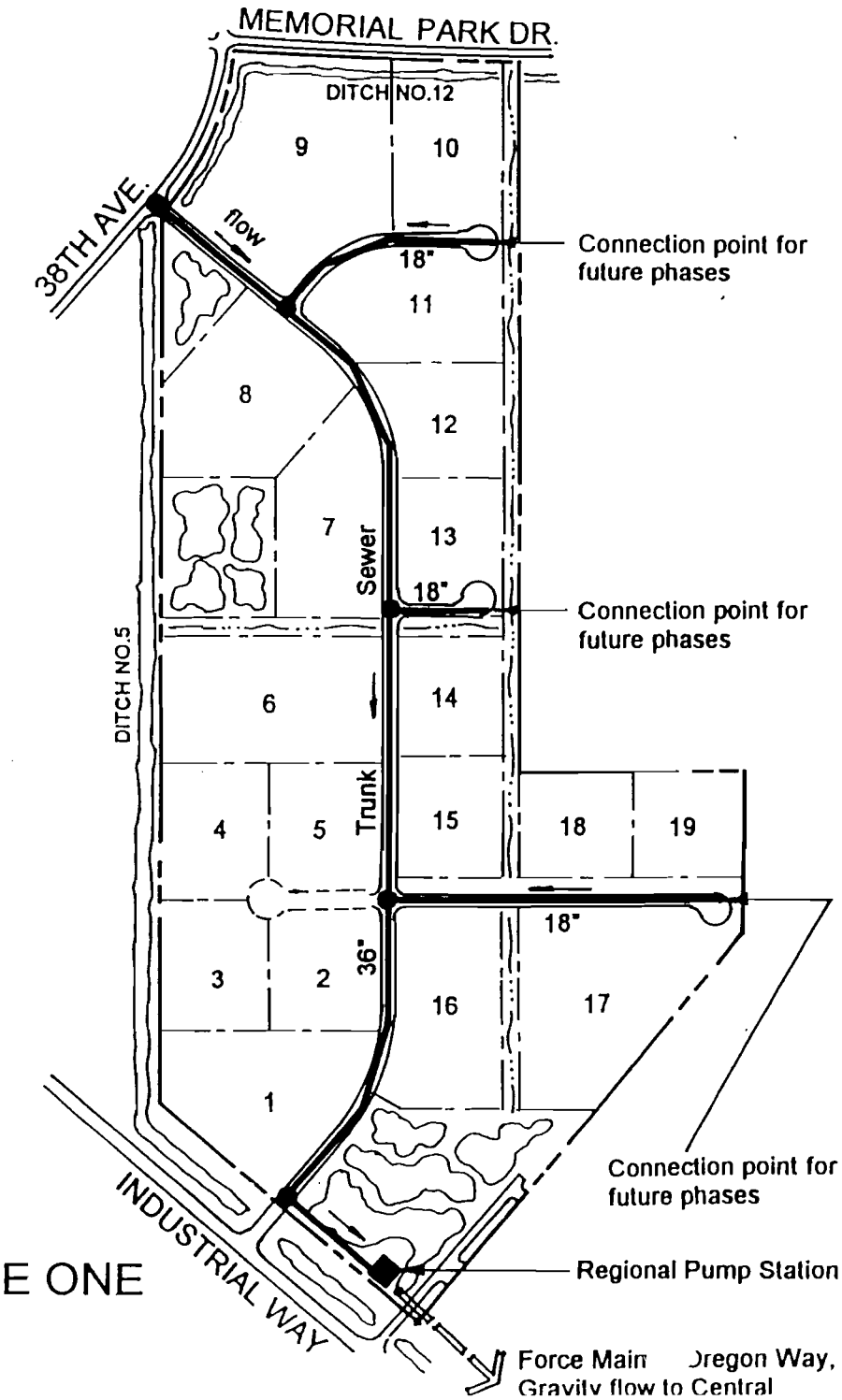


MASTER PLAN

Note: All on site mains flow by gravity

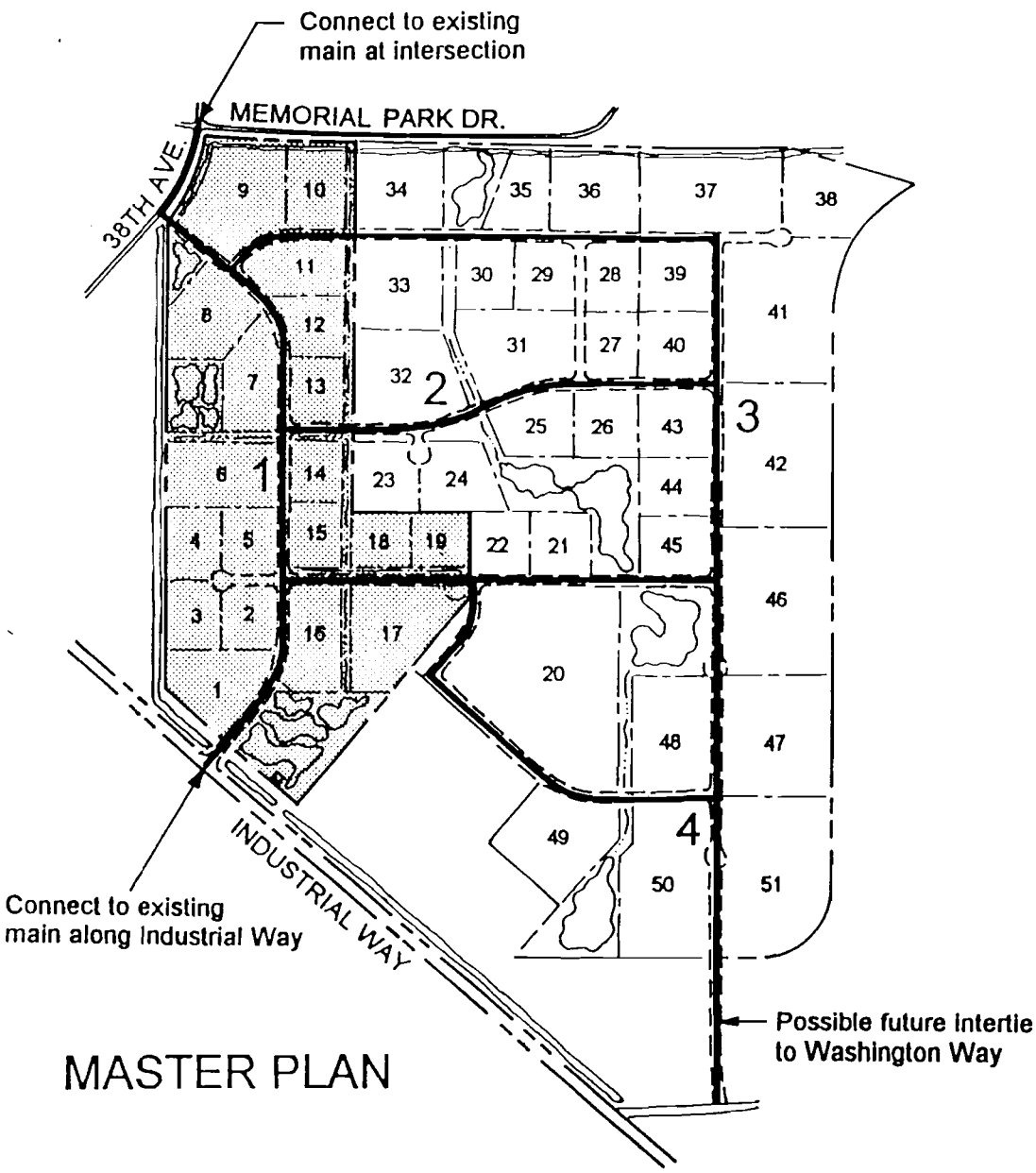
Proposed sanitary sewer

Proposed manhole



PHASE ONE

Figure 4 Sanitary Sewer Schematic



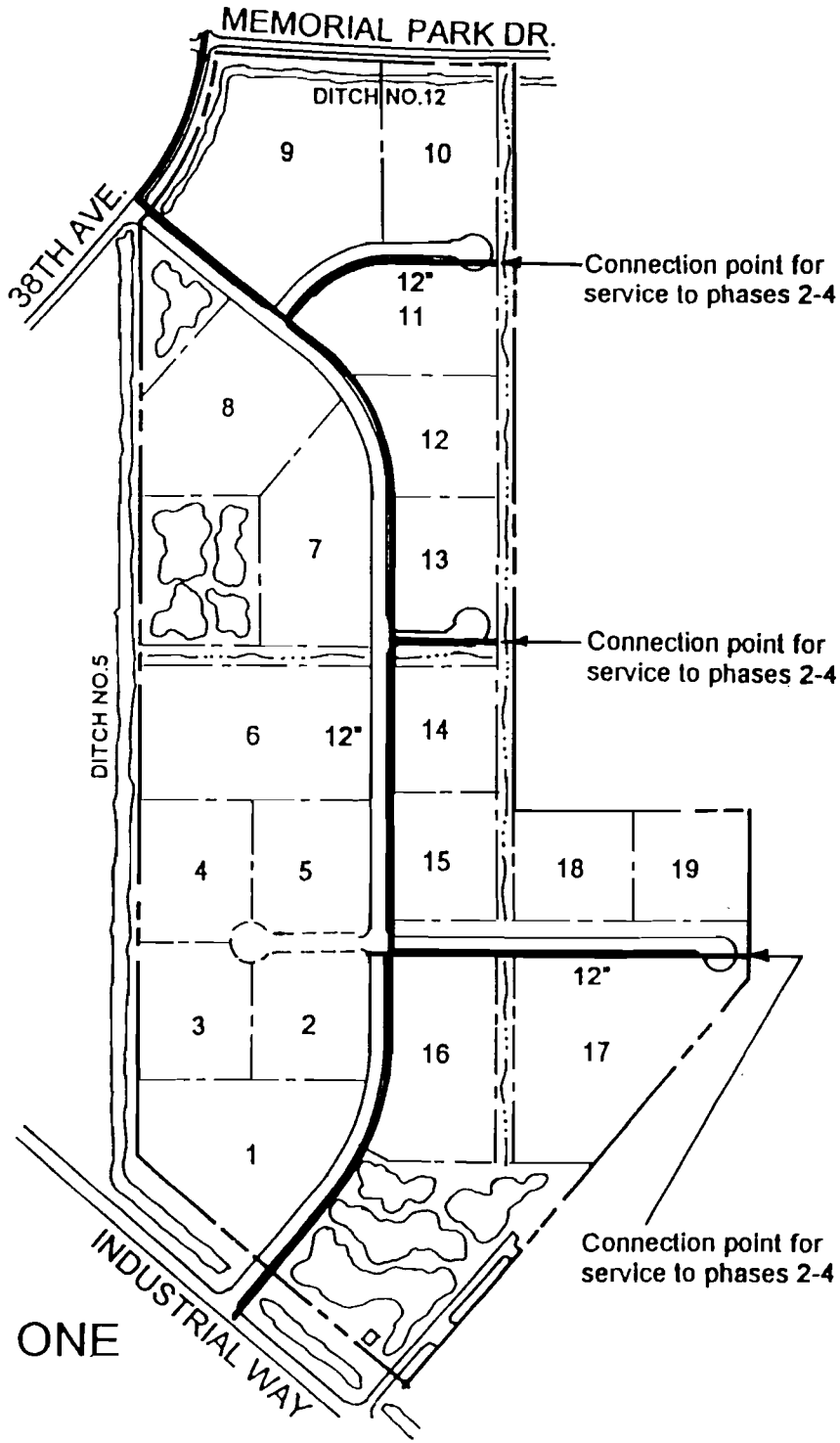


Figure 5. Water Supply Schematic

Alternatives

Alternative 1, No City Action.

If no City action is taken, the Mint Farm site will probably develop in a "piecemeal" fashion. Land parcels would be sold or leased to individual companies probably over a long period of time. Property would be developed under current Manufacturing District zoning. Utility service would be extended gradually to serve individual parcels. Development of the perimeter of the site would probably occur first with several access points to maximize use of existing streets and utilities. Development permits for each proposal would be considered one at a time. This approach creates a long platting and environmental review process before a business can design its project and apply for building permits. Several environmental impact statements might be needed as development proposals were received. The overall effect of this alternative is to reduce the attractiveness of the Longview site and area relative to other locations where environmental, land subdivision and utility issues have been resolved.

This alternative limits the ability of the City to directly address traffic and other neighborhood concerns because mitigating measures have to be identified and implemented as part of individual parcel impact analysis rather than as part of a larger more comprehensive full site analysis. Overall impact on adjacent properties would likely be higher under this approach than under the preferred Master Planned approach which identifies and addresses cumulative impacts from site development.

Some new business from outside the County would locate on currently vacant sites in the City. However the level of new business attracted to the City and overall growth in jobs is expected to be lower under this alternative than with the preferred alternative.

Another drawback of this alternative is that opportunity to develop site amenities such as a central open space/drainage feature is reduced or foregone. Treatment and detention of storm water on an individual parcel basis will have higher overall costs than a central facility accommodated under the preferred alternative, and may in aggregate perform less adequately.

Alternative 2:-Development of Another Site

Development of a similar project on another site was considered. The City has looked for and considered other sites but has not found any within the City boundaries which would be of sufficient size or appropriate location to attract business to the Longview area. Since this alternative does not achieve the objective of attracting new jobs to the Longview area, it has been dropped from further consideration.

Comparison of impacts of alternatives

The proposal is intended to mitigate major impacts of site development through inherent design measures such as location of entries, buffer landscaping, drainage/open space features and Codes/ Covenants and Restrictions placed on individual parcel use.

Alternative 1, No City Action, would likely produce greater impacts to surrounding areas. Development would occur around site edges first. Mitigating measures in the areas of traffic, buffering, drainage and open space would be limited in scope to those that could be required of an individual project proponent. Development and administrative costs would be higher because of a need for a greater number of permits and reviews.

Alternative 2, Development of Another Site. This alternative would produce greater impacts in the areas of traffic and utility costs. There are no other sites of comparable size within reach of urban utilities and services in the Longview area. Development of another site or sites would increase the length of commuting trips over the proposed action.

Benefits and disadvantages of reserving implementation for some future time.

Development of the proposal will create some localized impacts which will be mitigated through measures that are part of the proposal. These impacts must be weighed against the impacts that will occur if the project is delayed or not implemented. Since the proposal site is one of the only remaining large tracts of land within the Longview Kelso urban area, if this site is not developed, development will occur elsewhere, farther from available labor force and urban services. Development of the proposal site appears to be the lowest impact approach to meeting the region's job needs in the near future. Reserving implementation for a future time may reduce the region's ability to attract employment with a resulting lower level of social and economic well being in the area.

There are few real future options for use of the site which are foreclosed by developing the proposal site at the current time. The site has been used for agricultural purposes in the past, however, the site is within an urban area that is planned and zoned for business and industrial uses and it is unlikely that the site will be used for agricultural uses far into the future. Studies to date have not indicated any environmental attributes of the site which are not common to other lands nearby which have less potential for urban development.

On a regional level, delaying implementation has the disadvantage of potentially increasing the amount of development that might occur further fiom established housing and utility systems. Delaying implementation of the proposal could increase the overall expense of urban development and government services. Travel in the area would likely be higher with resulting need for more roads. Delaying implementation of the proposal might create long term higher regional impacts on air pollution from commuting, and on water quality fiom increased road runoff.

Delaying implementation increases the likelihood that piecemeal development of the edges of the proposal site will take place. This will reduce the ability to provide mitigation measures such as

perimeter buffers, traffic "calming" and drainage, comprehensive design, open space and wildlife features. Piecemeal development around the edges of the site will have multiple access points and will increase traffic impacts over the preferred Master Plan action. A piecemeal approach to development of the edges of the proposal site might slow the rate at which wildlife habitat in the center of the proposal site is affected. However, without a coordinated plan for open space, in the long run, the overall level of wildlife habitat on the site might be lower without the implementation under a coordinated Master Plan.

Implementation of the proposal at the current time has the benefit of accommodating some of the statewide need for light industrial growth within an urban area which has underutilized workforce capacity and a high level of urban services. The proposal site is planned and zoned for the proposed use. If the proposal is delayed, development of other land in the State with higher environmental and fiscal costs than the proposal site might occur.

Section 2 Affected Environment, Significant Impacts and Mitigating Measures

The Natural Environment

Earth

Soils and geology, topography, unique physical features

Existing conditions

The existing site topography is generally flat except for minor slopes alongside ditches. Soils are classified as Snohomish silty clay loam', a poorly drained, silty, clayey, and peaty alluvium. The soil has a low permeability and the hazard of erosion is low due to the flat nature of the site. A geotechnical engineering firm, Hart Crowser, has explored soils on site (see appendices) and has prepared engineering recommendations for accommodating the proposed development. Physical site soils explorations were limited to the Phase 1 area but the general nature of soils is expected to be similar throughout the site. Additional site specific investigation may need to be done for the development of individual parcels and for the development of roads and utilities in future phases.

Soils explorations primarily encountered soft to medium stiff silt and fine sandy silt which becomes medium stiff to stiff below about *60* to *80* feet. *A* one to two foot thick layer of stiff, apparently desiccated, silt was commonly observed at the surface. Layers of loose to dense sands and silty sands were encountered at various depths in the explorations; these layers are relatively more permeable and less compressible and range from 4 feet to *20* feet in thickness. A consistent, 4 to 5 foot thick layer of sandy volcanic ash was encountered at a depth of about *60* feet.

Groundwater elevations recorded during site explorations vary from *2* to eighteen feet. Groundwater fluctuations occur in response to changes in rainfall, temperature and other factors. See Storrnwater Hydraulics Report appendix for further information. Dewatering may be needed for temporary excavations such as utility trenches. Due to the low permeability of the existing soil, inflow to excavations will be low except where a permeable sand layer is encountered. Groundwater seepage of the levels expected can be controlled with sumps and pumps.

The soils which underlie the Mint Farm site are susceptible to settlement under loading from buildings, roadways, and utility trenches. Due to the compressible nature of existing site soils, construction on the site will require measures to assure that development is not subject to excessive differential settlement. Several measures have been identified to reduce settlement problems.

1. "Preloading" to compact soils before roads and buildings are constructed. Preload will generally consist of soil placed to a depth of three to six feet several months prior to construction. This allows time for compaction of the subsurface materials and minimizes

[1] USDA Soil Conservation Service, Soil Survev of Cowlitz County

settling of structures following construction. "Surcharge" fill may be used in which additional soil approximating the weight of the final load is placed to speed up the compaction of existing soils is then removed prior to building construction. It is expected that building slabs and paved areas will be underlain by a suitable layer of compacted structural fill.

2. Piles will be used to support structures. Since there is no consistent firm bearing soil layer at the site, piles will probably be the "friction" type which rely on soil friction against the pile side for support.
3. Overexcavation of soft soils and backfill with compacted granular fill may help to support small, light structures and some utilities.

Impacts

In order to develop the site, excavation, clearing and fill will be required for building foundations, utility trenches and roads and parking areas. Construction and development will cause increases in soil compaction and potential for soil erosion. The proposed development will require excavation and covering of existing soils with fill. The thickness of fill will probably be on the order of three to over ten feet, with finish grades shaped to collect and convey runoff to the project stormwater management system.

Fill will occur in stages rather than all at once. For example, for development of Phase 1, preload will be imported and placed in roadway right of ways to facilitate roadway and utility construction. Approximately 175,000 cubic yards of imported structural fill will be required under Phase 1 roads to depths ranging from 3 to over ten feet. As individual building sites are prepared for development, they will be filled, generally to a depth of 3 to 6 or more feet. If excess "surcharge" fill beyond that ultimately required to support buildings and parking areas is used, this material can be moved from building site to building site to minimize the amount of material imported to the site.

The transport of fill material is expected to be by truck and trailer. Potential suppliers are the Port of St. Helens pit, across the Longview bridge in Oregon and existing stockpiles of sands dredged from the Cowlitz River which are in Lexington (about 3 miles away) and in Castle Rock (about 10 miles away). Another possible option for structural fill at this site is to convey dredged materials from the Columbia River directly to the site through a hydraulic pipeline. Transport of fill material to the site will occur over a long period of time as road and lot areas are prepared for construction.

Some soft soils excavated from under roadways, utility trenches and under building spread footings may not be suitable for reuse on site and may be taken to an off site disposal area. For example, construction of Phase 1 roads will generate 1,000 to 15,000 cubic yards of such material.

Pumping to control groundwater in excavations will have a relatively small radius of influence because of the low permeability of the soils. A general lowering of the groundwater table as a result of project development is not expected. Water pumped from excavations will be laden with silt.

Pile driving to support structures can generate substantial noise and vibration. This is not expected to cause significant off site impact during Phase 1 because this area is remote from adjacent residences. An optional method of installation is to drill for piles and fill the holes with concrete. This approach has lower noise and vibration impacts.

Mitigating Measures

To minimize the potential for erosion and sedimentation, a plan will be developed to protect fill slopes fiom the elements and from surface runoffby the use of plastic sheeting, drainage ditches, silt fences, straw bale barriers, vegetation or other appropriate erosion control practices. It is anticipated that dust will be controlled by spraying with water trucks during dry conditions. Temporary treatment to filter silt from runoff water before discharge will be provided. Temporary treatment will also be provided to filter silt from water pumped fiom excavations.

Truck loads can be covered to prevent dust blowing out of truck beds en route. Mud buildup on adjacent streets will be controlled through the installation of rock construction entrances on site which help clean truck tires as they leave the site.

Traffic impacts can be minimized by requiring haul routes which avoid residential streets such as Memorial Park Drive and Olive Way.

Noise and vibration from pile driving could be minimized by using drilled piles adjacent to residential areas.

Unavoidable Adverse Impacts

Site topography will be unavoidably altered by fill required for construction of roads, utilities, buildings and parking at the proposal site but there are no significant adverse impacts that cannot be mitigated by the proposed methods.

Air

Existing Conditions

The climate of the Longview area is a West Coast marine type with moist air and a small daily range in temperature. Summers are warm and generally dry, winters are wet and mild. The major climate influences are the position and intensity of large high and low pressure centers in the north Pacific Ocean. These centers bring a prevailing westerly or northwesterly flow of air into the area in summer, and a southwesterly flow in winter. This circulation results in a rainy season beginning in fall, reaching a peak in winter, then decreasing in spring to a dry summer season.

Average annual precipitation in Longview is 45 inches. Average monthly precipitation in Longview ranges from a high of 7.56 inches in December to a low of 0.75 inch in July. Snowfall is light, with an average annual total of 7.2 inches. January is the coldest month with an average daily high of 44.5 degrees F. and a low of 31.8 degrees F. July and August are the warmest

months with average daily high of 77-78 degrees F and lows of 50-51 degrees F. Minimum temperatures drop below freezing on 50 to 80 nights each year.

Strongest winds are generally from the south or southwest. Velocities of 40 to 50 miles per hour can be expected each year. The number of clear or partly cloudy days ranges from less than 10 per month in winter to 15 in spring and fall to more than 20 in midsummer.

Longview's air quality is monitored by the Southwest Air Pollution Control Authority and the Department of Ecology. According to the Longview Comprehensive Plan of 1993, the area is not classified as a federal non-attainment area for particulates or carbon monoxide.

Impacts

Construction:

Impacts to air quality due to construction result from clearing and grading operations and general construction activities. Impacts include dust from exposed soils, hydrocarbon emissions from paving, and emissions from construction and delivery vehicles and equipment.

Evaporation of hydrocarbons during priming and paving operations does not release sufficient amounts of vapors to produce toxic concentrations, although they may be odorous. These operations should be carried out under well ventilated weather conditions.

If large areas of soils are exposed during the dry summer months substantial amounts of airborne dust could be created.

Industrial Uses:

No specific industrial users are identified. Recent business park development and business trends suggest that the majority of uses developed will involve warehousing, light assembly, distribution, packaging, offices and other uses which have few discernible emissions. Some potential industries wanting to locate at the Mint Farm may discharge materials into the atmosphere. The impacts of such industry and mitigative responses available, must be evaluated at such time as the potential user is identified, and applies for project approval.

Traffic:

The effect of the proposal on air quality in the Longview area may be negligible or positive. If the proposal site were not developed, some or all of the business activity would locate elsewhere within and around Longview. This could result in more travel and Air Quality impact than is the case with the proposal which is located near existing residential and business areas.

Travel to and from the site could contribute to localized areas where carbon is increased. Such concentrations are most likely to occur along heavily traveled routes or at busy intersections

during periods of peak traffic. Such impacts are expected to be of short duration during morning and evening rush hours.

Mitigating Measures

Construction activities: The site will be sprinkled with water during construction to reduce dust.

Industrial uses: Industrial emissions will be regulated by the Covenants Conditions and Restrictions (CC&R's) placed on the individual parcels. These CC&R's prohibit individual businesses in the Park from creating nuisances including air pollution, dust emission, odorous, toxic or non-toxic matter including steam. Each tenant will have incentive to monitor other users in the park for compliance with the CC&R's to protect their property value and quality of business location.

Traffic:

Regulation of emissions from vehicles is beyond the scope of the project, however, measures in the Master Plan will encourage reduced use of vehicles. Such measures include:

- Provide a central open space trail system which can be linked into the City's overall pedestrian and bicycle system;
- Provide on site sidewalks where feasible to promote ride sharing and use of transit;
- Provide roadway widths which are conducive to safe bicycle travel;
- Concentrate worker intensive uses to allow more efficient use of transit and ride sharing.
- Public transit (CUBS) service could be expanded to serve the interior of the site once sufficient population is on site.

The location of the proposal site is less than two miles from the Longview Civic Center and many of the City's businesses and residences are within walking distance. This locational factor will reduce the number and length of trips to and from the site compared with a more distant location.

Unavoidable Adverse Impacts

The travel to and from the developed site will generate larger quantities of air pollutants than would be the case with the undeveloped site. Increased travel associated with this project is not directly linked to worsening air quality. As time passes, the emissions per vehicle mile are expected to decline as cars continue to become cleaner and the older, more polluting cars leave the fleet of cars on the road.

Water

Surface Water and Runoff

Existing Conditions

The site is primarily in a grassy open condition, characteristic of active pasture lands with fairly flat topography. Surface flows drain to agricultural ditches which ultimately flow into Ditch #5 and Ditch #12 maintained by the Consolidated Diking Improvement District # 1. Field observations indicate that portions of the site have ponding water during wet seasonal periods

because of the site's flat slopes and high ground water levels. The site is protected from floods by the diking and pumping system maintained by Consolidated Diking Improvement District #1(CDID). The CDID recommends a particular release rate to their ditches to prevent overtaxing the system.

Impacts

During construction, runoff from disturbed areas could be laden with silt. If this water were allowed to flow offsite before treatment, increased amounts of silt and sand could be carried into the CDID ditch system.

Development of roads, sidewalks, parking areas and buildings will increase impervious surface area. This will significantly increase both the rate and quantity of runoff generated within the site. The water running off from paved areas on site may contain some oil and other contaminants.

Mitigating Measures

The project contains a comprehensive approach to stormwater management through open space reserves, and total system design for the site. Permanent storm facilities will be constructed throughout the site to collect storm water, separate oil, grit, and other contaminants in catch basins and wet ponds, and transport the water to controlled release detention ponds. Catch basins will be placed approximately every 150 feet along proposed roadways and as needed to drain individual parcels. The water collected in these structures will be conveyed to nearby existing and newly constructed ditches and swales which provide water quality treatment. The master plan provides strategically located "neighborhood" detention ponds rather than small individual detention systems. This provides for the lowest facility cost and most efficient approach to supervision and maintenance of stormwater facilities. The detention facilities will incorporate permanent ponds and newly created wetlands with the added values of wildlife support and visual amenity. Please see the Drainage Report in the Appendices for more detail.

The rate at which runoff is released from the site will be controlled at a rate equivalent to that which would naturally occur during a *25* year storm.[2] This control will be achieved through the development of conveyance and detention ponds sized to accommodate a 100-year 24 hour storm. For Phase One, in excess of 970,000 cubic feet of stormwater storage will be provided on-site.

Water quality treatment will be provided sequentially throughout the storm conveyance and detention system. First, catchbasin sediment trapping sumps will be located at the inlets to the piped portions of the system. These sumps will trap the finer paved surface particulates. Second, stormwater will be conveyed through vegetated ditches or swales, a method effective in removing chemical, hydrocarbon and heavy metal pollutants. Lastly, the water will travel through multi-celled wet ponds and recreated wetlands, providing additional treatment time to settle and

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[2] **under existing conditions. This rate is set by CDID to meet currently available pumping capacity in the regional system.**

biologically bind the pollutants, before the water is released fiom the site into the CDID regional ditches.

Temporary erosion control measures will mitigate impacts to water quality during construction. The measures will follow Washington State Department of Ecology standard procedures to filter silt from runoff before it leaves the site. These measures will include silt fence around disturbed areas, sediment ponds, sediment traps, covering of exposed soils and erosion control seeding.

Unavoidable Adverse Impacts

During rare storm events, the capacity of the onsite detention facilities may be exceeded. During these events the rate of runoff fiom the site could be increased over pre-development levels for a short period of time. Water quality impacts cannot be completely eliminated and the quality of water leaving the site will be slightly lower than under pre-development conditions.

Groundwater

Existing Conditions

The site is characterized by high groundwater levels, especially during the winter months. Observation of approximately 120 shallow groundwater wells in February indicated an approximate average depth to groundwater of one to two feet over much of the site.

Since the site is currently used for pastureland, animal waste contaminants enter the groundwater.

Impacts

Paving for development of the project site will reduce the volume of water returned from the site to the shallow water table. The groundwater level of the site is largely dependent on general groundwater levels in the vicinity, so paving of the project site is not expected to measurably affect groundwater levels on or off site.

No groundwater withdrawal is proposed.

Impact to ground water quality from site development will be minimal or non-existent. No on site treatment of sewage is proposed and the current level of animal waste contamination will be reduced. The runoff fiom paved areas will enter the groundwater as it flows through treatment swales and ditches and is held in detention ponds. This runoff water will have some contaminants fiom paved areas.

Mitigating Measures

Water quality measures for treating surface water such as use of catch basins and treatment swales will also benefit groundwater quality.

Unavoidable Adverse Impacts

None have been identified.

Plants and Animals

Existing Conditions

The Mint Farm site is primarily in an open field condition vegetated with pasture grass. Canary grass grows in lower, wetter areas and blackberries are beginning to intrude on areas which are not used for grazing. There are small plantations of hybrid poplars and douglas fir along the north edge of the site. The site was historically used for row crops and was plowed every year. The habitat provided on the proposal site is fairly typical for pastureland in Cowlitz County. (See the Plants and Animals Report in the Appendix)

In its current condition, the site provides excellent habitat for grazing birds such as Canada geese, ducks, pheasant, and quail and is well used by these species. The site forms a stopping place for migratory birds moving between Canada and Oregon. Small mammals such as moles, voles, mice and, to a lesser extent, rabbits use the site. Beaver and muskrat have been observed in drainage courses on or adjacent to the site. Due to the lack of cover, the site is not heavily used by larger mammals such as deer. Reptiles such as frogs and garter snakes live in and along the drainage ditches on site.

If the site were not actively managed for pasture and were left undisturbed, the intrusion of blackberries would continue, with eventual succession to shrub and forest conditions. In this instance, the animal community would change also. Migratory birds would be unable to use the site and the animal community would shift to large mammals such as deer, foxes, rabbits and coyote.

No threatened or endangered species or species of concern have been identified on the project site. A "priority fish species", large mouth bass is believed to occupy Lake Sacajawea, the drainage ditches adjacent to the proposal site, and may occupy portions of the larger drainage ditches within the site.

Impacts

The development of the proposal site will replace the open grassland areas with mown lawns, maintained landscaping, roads, parking and buildings. A little over ten percent of the project will be in dedicated open space which contains open water pond/drainage features designed to provide habitat for wildlife. At full development, landscaped areas on private property and in road right of way are estimated to occupy 10 to 20 percent of the site area (excluding dedicated open space). Diking easements will occupy another 8.5% of the site area. The long term impact of the project will be to restrict habitat for plants and animals on site to about 30% to 40% of the site area.

Reduction of habitat on the proposal site will not cause a dramatic overall reduction in this type of habitat in the Cowlitz County area.

Mitigating Measures

An important measure to mitigate impacts to plants and animals is the dedication of on site open space. These areas will be specifically designed to provide high quality "enhanced" habitat which

supports the maximum possible number of wildlife per unit of area. See the Wetlands Report in the Appendix for more detail. Landscape areas required in the CC & R's will provide additional wildlife habitat.

Unavoidable Adverse Impacts

Long term site development will reduce the area of habitat available on the proposal site for plants and animals.

Wetlands

Existing Conditions

The U.S. Army Corps of Engineers, Seattle District has reviewed the status of the Mint Farm site in terms of its relation to their jurisdiction under section 404 of the Clean Water Act. It has been determined that the existing ditches within the project site meet established wetland criteria. The upland portions of the project site are classified as "prior converted cropland" and not regulated as wetlands.

The ditches are routinely maintained as a part of the ongoing agricultural activities. The most recent maintenance was completed during the fall and early winter of 1995. Surface water within on site ditch systems is present in the wet months and the systems typically become dry during the summer and remain dry until the start of the fall/winter rainy period. The large drainage district system directly offsite exhibits ponded surface water throughout the entire year.

The level of water within the ditches, (when water is present) is controlled by the invert elevations of a number of culverts which have been installed and maintained to allow access for farm machinery and livestock across these ditches.

Application of methods developed for the U.S. Army Corps of Engineers, indicates that the wetland areas identified within the project site have an overall value rating of LOW to MODERATE. There is a total of 190,225 square feet of wetlands identified on Phase 1 portions of the site.

Impacts

Phase 1

Development of Phase One of the proposal site will require modification of about 21,600 square feet of wetland ditches and fill of about 95,700 square feet of ditches. About 72,925 square feet or 38% of the wetland ditches on site will be preserved.

Future Phases

Modifications to ditches and wetlands in future phases has not yet been analyzed in detail. The major impact will be to convert the ditch system running north/south through the site to an open space/detention pond system similar to that proposed for phase one.

Mitigating Measures

Phase 1

As compensation for the unavoidable modification (fill) of on site ditches, approximately 4.1 acres of wetland area will be created within the proposed stormwater management facilities. This is a ratio of approximately 1.5 units of wetland created for every unit of wetland filled, consistent with recommendations of the Washington State Department of Ecology (DOE Publication #91-57) for emergent wetlands.

The new wetlands will be created in areas which are not now classified as wetlands. The created wetlands will replicate wetlands types not currently met by the existing drainage ditches; emergent, scrub/shrubs and forested wetlands as well as open water. Protective buffer areas at least 50 feet wide will be established along the boundary of the newly created wetland. Such buffers will be planted with a mixture of native shrubs and trees to protect the created wetlands areas.

Overall, the proposed mitigation plan will provide a higher quality and a wider range of wetland functions and values per unit area than presently exists on site. The details of this plan will be developed in consultation with and the permit approval of the U.S. Army Corps of Engineers and Washington State D.O.E. In addition to construction measures, a five year monitoring and evaluation program will be undertaken to assure the success of the selected mitigation as measured by an established set of threshold criteria. Maintenance which may be required to assure the long-term health and welfare of the wetland's and buffer's environmental functions will be carried out as determined to be needed by the monitoring program. The overall objective is to establish undisturbed plant communities that do not require maintenance. (See Wetland report in the Technical Appendices for more detail.)

Future Phases

Mitigation for any creek and ditch alterations will be provided in a manner similar to that proposed for Phase 1 at a rate of 1.5 units of mitigation area to 1 unit of area altered.

Unavoidable Adverse lrnpacts

None have been identified.

Energy and Natural Resources

Existing Conditions

Electricity Cowlitz County Public Utility District provides power to the proposal site. At present, there is little or no energy usage on undeveloped portions of the proposal site. Two chemical companies adjacent to the south part of the site are utilizing electricity.

Natural Gas Natural Gas is provided to the area by Cascade Natural Gas with a high pressure line in Industrial Way.

Impacts

Quantity of Energy Used. Growth in Longview and Cowlitz County will cause increased energy usage in these communities and energy use at the proposal site will contribute to this increase.

Electricity According to the Cowlitz County PUD, existing electric circuitry in the vicinity of the project is near its upper limit and it will be necessary to extend transmission facilities to the park.

Natural Gas Cascade Natural Gas indicates that the existing line in Industrial Way has adequate capacity to serve the proposal site.

Mitigating Measures

Quantity of Energy Used The location of the proposal site near existing housing will allow short commutes for many workers. Other workers may be able to use public transit, bikes or walk to work. Biking and walking will be facilitated through development of trails planned on site and existing and planned trails leading to the site. This may reduce the number of miles traveled and energy consumed in transportation over more dispersed locations or locations outside the City. The project and structures within it will be constructed in accordance with Washington State energy conservation Codes.

Electricity To provide service to the proposal site 115,000 volt transmission facilities will be extended to the Park, and an electric substation will be constructed within or adjacent to the Park on a site of about one acre.

Natural Gas Natural Gas service to the proposal site will be provided by connecting to the existing gas line in Industrial Way. Entrance service to the park will include a service stub, valve and possible pressure reducing station.

Unavoidable Adverse lmpacts

Development of the proposal site will increase demand for energy in the vicinity of the proposal site. However, it will probably not increase consumption of energy in the Northwest as users of the project site would have located in the Northwest with or without the project.

The Built Environment

Environmental Health

Noise

Existing Conditions

Noise generated on the proposal site is currently low or non-existent. Ambient noise levels in the area are largely from traffic. Industrial Way, in particular, has truck traffic which generates noise. The Columbia and Cowlitz Railroad which follows the eastern border of the site produces noise several times a day when a train is using the tracks. The two chemical companies adjacent to the southern portion of the site and the Weyerhaeuser Mill to the south produce some noise.

Impacts

The predominant noise impacts of the project will result from:

- Increased traffic on access roads to the site
- On-site vehicular traffic
- Temporary construction activities

The growth of traffic in the area will primarily occur on Industrial Way and 38th Avenue. Noise on these streets near the proposal site will increase, particularly during morning and afternoon rush hour.

Traffic within the site will increase noise levels internal to the site. However, the proposed circulation system and the buffering system will limit the increase of noise levels experienced off-site. The concentration of phase 1 activities in the western portion of the site will reduce and delay impacts to existing residential development until the final stages of site development.

Off site perception of construction noises will be variable, depending on the type and location of construction activity. In phase 1, very little impact to residential areas is expected because the construction activity will be remote (more than 1/4 mile) from these areas.

No significant sources of industrial noise generation are anticipated at the Mint Farm site. Light industrial operations generally are not producers of noise levels high enough to effect neighboring users. The CC&R's for the Mint Farm will limit nuisance conditions such as excessive noise and vibration.

Mitigating Measures

Major traffic access routes are planned to avoid existing neighborhoods to the north and east to limit long term impacts on residential areas.

Unavoidable Adverse lmpacts

Perceptible increases in traffic noise will occur on major arterials south and west of the proposal site (Industrial Way and 38th Avenue)

Temporary impacts from construction noise will occur, however, the effect on residential areas will be very minor in phase 1.

Risk of Explosion and Hazardous Emissions

Existing Conditions

There are no conditions on the undeveloped portions of the site which pose a risk of explosion or hazardous emissions.

The Weyerhaeuser mill and chemical companies adjacent to the southern portion of the site pose some risk of explosion or hazardous emissions. Such risk is regulated by local, state, and federal laws under which these businesses operate.

Impacts

Development of the proposal site will not increase the likelihood of explosion or hazardous emission from any existing facilities. The number of persons located near the chemical companies and Weyerhaeuser site will slightly increase the number of people exposed if a major catastrophe were to occur at one of these facilities.

There will be a minor increase in risk of explosion and hazardous emissions during construction activities. Such risks are common for developments of this type and are generally considered acceptable when standard construction procedures are used to safeguard against explosions and emissions.

Actual users within the Mint Farm site are not known at present. Typical of many light industrial facilities, though, is the storage and use of small quantities of flammable solvents. Storage of these common industrial solvents, such as acetone, ketones and xylene, and any other hazardous materials will be done in accordance with all local, state and federal regulations and health/safety standards.

The preponderance of development on the proposal site is expected to be assembly-type manufacturing, distribution, packaging and warehousing. However, there is a possibility that the project will attract some larger-scale facilities, devoted to more complex "high technology" industrial processes such as computer chip manufacturing.

"High technology" facilities may use larger quantities of explosive or hazardous materials, some toxic in character. Location of such facilities at the Mint Farm could increase the risk of explosion or exposure to hazardous emissions.

If emissions were to occur, they would impact air, surface water and groundwater resources. Areas where liquid chemicals are handled are typically paved. This reduces the potential for impact to groundwater and facilitates emergency actions to prevent contamination of surface water.

Mitigating Measures

The potential for increased risk of explosion or release of hazardous substances will be mitigated by use of appropriate safety codes and procedures.

Development plan and occupancy permit reviews required for construction permits will evaluate potential risks and the adequacy of mitigation proposals for specific projects, based on current federal, state and local hazardous material and hazardous waste material handling laws. The CC&R's for the project will alert on-site users/tenants that they must review their development plans and practices for handling hazardous materials with the applicable jurisdiction and gain approvals.

Unavoidable Adverse Impacts

A small increase in the risk of explosion or hazardous emission is created by large-scale development of industrial and commercial areas. Certain "high technology" or other manufacturing facilities, if located at the project, may slightly increase risks.

Land Use

Relationship to existing land use plans and to estimated population

Existing Conditions

Proposal Site Use

The proposal site is largely vacant. It was historically used for agricultural row crop purposes and is currently used as pasture. The site contains a system of drainage ditches to support agricultural use.

Surrounding Land Use

Land use to the north and east of the proposal site is predominantly residential. A Bonneville Power Administration maintenance facility is located northwest of the proposal site adjacent to the former Natural High Alternative School. Land to the west is largely vacant, but includes a BPA regional substation and several small industrial/commercial properties at the intersection of 38th Avenue and Memorial Park Drive. Land to the south-southwest is industrial including Reynolds Aluminum and Weyerhaeuser Company. Two chemical companies, Huber Chemical and Solvay Interox, occupy adjacent parcels adjacent to the southern portion of the site. The eastern boundary of the proposal site is formed by the Columbia and Cowlitz Railroad on a raised grade.

Comprehensive Plan

The proposal site is designated for Light Industrial use in the Longview 1993 Comprehensive Plan. The proposal site was designated for light industrial rather than heavy industrial use as zoned, because of the tract's close proximity to residential areas. The light industrial use is intended to create a land use transition from heavy industrial uses south of the proposed site along the river to the residential uses north and east of the proposed site. The site's large size and proximity to existing industrial uses, utility service, major arterials, and electrical substations suggested light industrial as the most appropriate designation.

The overall intent of the light industrial designation is to provide for light industrial activity free from potentially incompatible activity, for services and supplies needed by industry and its workers, and for heavy commercial or land consumptive activity. Typical uses planned in light industrial areas which are being considered for the proposal site include: light manufacturing and fabrication; warehousing and storage; wholesale distribution; product processing and packaging; laboratory and research operations. Free standing office buildings, and retail functions will not be allowed, but these uses can be provided if they are subsidiary to other allowed uses.

Land area along the north and east sides of the proposal site is nearly all designated for Low Density Residential use. There is a small area of High Density Residential designation just

northeast of the proposal site and a small area of Public Quasi-Public/Institutional designation just northwest of the proposal site.

Areas west of the proposal site are included in the Light Industrial Designation.
Areas south west of the proposal site, across Industrial Way are designated for Heavy Industrial use. Land south of Industrial Way is currently within unincorporated Cowlitz County. There is a small area Designated for General Commercial use just Southeast of the proposal site.

The Comprehensive Plan contains the following City Policies which are relevant to the proposal:

2.06 The City will continually strive to preserve the existing industrial land that is viable and attractive to new and existing industry.

5.11 Development of professionally designed industrial parks as opposed to separate piecemeal industrial development is encouraged in order to make efficient use of public services and facilities, to maximize compatibility with adjacent non-industrial uses, and to maintain the urban area's overall attractiveness.

Since the project will require subdivision of property, Land Development and Subdivision Goals and Policies are applicable:

1.01 If a preliminary subdivision plat represents a phase of a potentially larger development, the city should require that a master plan showing all phases of the entire potential development be submitted concurrently with the preliminary plat of the first phase.

1.04 Preliminary plats should be reviewed for the traffic circulation patterns they will create and for their impact on adjoining streets and highways.

1.15 Subdivisions should provide public and/or private open space as acceptable to the City in order to fulfill needs for active and passive recreation, for separation of conflicting activities, for preservation of sensitive areas, and for provision of adequate light, air, and privacy.

Zoning Code

The proposal site is zoned Manufacturing District, M-2. This designation allows all uses except residential uses. The land north and east of the proposal site is primarily zoned for single family residential uses with some multifamily zoning at the northwest comer of the site. Some manufacturing zoning is indicated northwest and southwest of the proposal site.

Shoreline Master Program

The proposal site is outside the area which falls under the jurisdiction of the Longview Shoreline Master Program.

Impacts

Development of the proposal site will convert pasture land to light industrial uses. The proposal is consistent with the comprehensive plan and zoning ordinance. The proposal serves to implement the goals, policies and land use designations of the Comprehensive Plan.

The initial phase of the proposal is located well away from residential areas and is not expected to create land use impacts on adjacent residences.

The proposal is designed to minimize impacts to adjacent residential properties to the north and east of the proposal site as future development occurs. Impacts could result from increased noise, odor or effect on views, but will be reduced by buffers which are part of the proposal. The railroad grade along the east edge of the site will block ground level views between residential areas and the industrial park. This makes view impacts along the east edge very minor.

Mitigating measures

Measures Proposed in the Master Plan

Mitigation of land use impacts is an integral part of the Master Plan. Measures to mitigate land use impacts include:

- The initial development phase is located in the western portion of the site where there are no areas adjacent which are planned or zoned for residential use. Adjacent existing or planned land uses in this area are industrial. This approach to project phasing will defer any land use impact from development of the proposal site to future phases.

- Design Guidelines contain provisions which are intended to minimize impacts on adjacent residential areas.

- A perimeter buffer is proposed in the Master Plan along the north and east edges of the proposal site to reduce noise, view and odor impacts.

- No access is planned to from the proposal site to streets along the north and east sides of the site. This will reduce the effect of the proposal on adjacent residences in this area since there will be no reason for businesses to be visible from residential areas.

Unavoidable Adverse Impacts

The pasture land character of the proposal site will change

Population Employment and Housing

Employment

Existing Conditions

Historical data on total employment in Cowlitz County is provided in Table 3. Until the late 1970's, employment in Cowlitz County was strongly dependent on basic industries and was relatively stable despite year to year fluctuations and dislocations in the forest products industry. An economic down-turn in the wood products industries occurred between 1980 and 1990 when lumber and wood products employment declined by 36%. Since 1986, employment in both manufacturing and non-manufacturing sectors of Cowlitz County has steadily increased; however, non-manufacturing employment has increased at a more rapid rate than manufacturing employment. This indicates a trend of economic diversification, which is best illustrated by a 16% decrease in wages paid in the manufacturing sector and 5% increase in non-manufacturing wages relative to all county wages between 1980 and 1990.

Unemployment in Cowlitz County peaked near 20% in 1983, substantially exceeding the rate for Washington State. By 1990 the unemployment rate in Cowlitz County had dropped to levels near 10%. In 1994, approximately 8.2 % (3,120 persons) of the total County labor force was unemployed (Washington State Almanac, Public Sector Information Incorporated.) The official figures may not indicate the true number of unemployed since the statistics do not include unemployed workers who have used up their unemployment benefits, discouraged workers, underemployed workers, and potential workers. The Overall Economic Development Plan for Cowlitz County reports that unemployment may be at least twice as high as reported by the State if the categories above are included in the statistics. This suggests that an existing labor pool of up to 6,000 persons might be currently available for jobs at the proposal site.

The distribution of employment in Cowlitz County by sector is indicated in Table 4. Sectors which are most appropriate for location on the proposal site are Manufacturing and Wholesale trade which accounted for 36% of total employment in the County in 1990. In addition to these sectors a portion of Retail Trade, and Services employment is a type of use that could appropriately locate on the proposal site.

Major employers in Longview are listed in Table 5 which illustrates the strong role that basic industry still plays in the local economy.

Many public and private efforts are being made to promote industrial and other business development and redevelopment. Strong public support was expressed for these efforts during the development of the Comprehensive Plan. Groups involved in economic development in Longview include the City, Port and Cowlitz Economic Development Council. Efforts are being undertaken in the areas of industrial diversification and downtown redevelopment.

Table 3 Total Employment in Cowlitz County

Year	Employment
1950	18,070
1955	18,300
1960	17,760
1965	20,600
1970	24,450
1975	28,550
1980	30,910
1985	30,190
1992	34,700

Source: Longview Comprehensive Plan Table 13

Table 4 Cowlitz County Employment by Industry, 1990

Industry	Average Number of Employees per Month
Manufacturing	10,223
Retail Trade	6,211
Services	6030
Government	4504
Construction	2132
Transportation and Public Utilities	1465
Finance, Insurance and Real Estate	1320
Wholesale Trade	1300
Agriculture, Forestry And Fishing	611

Source: Longview Comprehensive Plan Table 14

Table 5 Major Employers in the Longview Area, 1992

Employer	Employees
Weyerhaeuser Company	2,362
Longview Fibre Company	1,923
Reynolds Metals and Cable Co.	1,183
St. John's Medical Center	993
Longview School District	780
Port of Longview	744
North Pacific paper Corp.	500
Cowlitz County	500
City of Longview	300
Tollycraft corporation	295
Fred Meyer	226
Lower Columbia College	218
Northwest Hardwoods	210
Columbia Analytical	160
EMCON Incorporated	
Cowlitz PUD	140
Kaiser Permanente	140
Columbia Analytical	136
Ross-Simmons Hardwood	130
Daily News	125

Source: Longview Comprehensive Plan Table 15

Impacts

Development of the proposal site will create space for a significant number of jobs. The City's current industrial park (100 acres) supports about 1,400 employees. The City intends that the Mint Farm site be developed at a slightly lower intensity than the current park and a ratio of 10 employees per gross acre is used to project future employment. Using this ratio, Phase one at 124 gross acres could accommodate 1,240 employees. The entire project, when all 435 acres are built out could accommodate 4,350 employees. This employment will come from a mix of new businesses attracted to the area and expansion of local businesses. The new employees will locate on the project site over a period of 20 to 30 years.

It is expected that most of these jobs would be filled by current Longview and Cowlitz County residents. As indicated in the existing conditions section, there are between 3,000 and 6,000 persons in the County who are currently unemployed. Employment positions created by Phase 1 development (about 1,025 positions) could primarily be filled by hiring existing unemployed workers in the area. Phase 1 is not expected to create a substantial immigration of new employees. Some new employees with specialized managerial or technical skills may move into the area in response to expanded employment opportunity in Phase 1.

As Phase Two areas are developed, more employment opportunities may be created than can be filled by workers currently living in the City and County. Some immigration may occur in response to employment opportunities created at the proposal site.

The major impact of the proposal is to increase the number of jobs attracted to Longview that might have otherwise located in communities outside Cowlitz County. The success of this effort will positively affect the growth of the community as a whole.

In addition to the jobs locating directly on the proposal site, each job attracted to the Longview/Cowlitz County area by development of the proposal site will create additional service and support employment, which will be located on and off site. This level of indirect job creation has not been estimated precisely for the project however it is expected that one to two additional jobs will be created for each new job to the Longview Cowlitz County area which locates on the proposal site.

Mitigating Measures

Employment growth in Longview and Cowlitz County is viewed as a positive impact that does not require mitigation.

Unavoidable Adverse Impacts

None have been Identified

Population

Existing Conditions

Longview had a 1995 population of 33,480 according to the 1995 Population Trends for Washington State by the State Office of Financial Management. Longview population was projected in the 1993 Comprehensive Plan to grow at an annual rate between 1.5 and 1.7 percent to the year 2000 when the growth rate is projected slightly lower at an annual rate of 1.2 to 1.4 percent. Population in Cowlitz County (1995 population of 89,400, per Population Trends) is projected to grow faster than the population of Longview according to the 1993 Comprehensive Plan. See Table 6 Population in Longview and Cowlitz County.

Table 6 Population in Longview and Cowlitz County

Year	Longview	Cowlitz County
1923	3,724	
1930	10,652	31,892
1940	12,385	40,211
1950	20,339	53,383
1960	23,349	57,794
1970	28,373	68,533
1980	31,052	79,620
1990	31,499	82,028
1995	32,000 to 34,500	86,000 to 93,500
2000	33,000 to 36,600	90,000 to 101,500
2005	34,000 to 39,000	94,500 to 111,000
2010	35,000 to 42,000	98,000 to 119,000
2015	35,500 to 43,000	102,000 to 128,000

Source: Longview Comprehensive Plan 1993
Low and high projections interpolated from figure 5 graph

Impacts

Development of the proposal site will create greater employment opportunity and population growth in Longview and Cowlitz County than would have occurred without the proposal. This will result from the Longview area being a more attractive location for new business than would have occurred without a major planned business park. The probable impact of the proposal on population is that population growth in Longview and Cowlitz County will be more likely to be closer to the moderate to high projections made in the Comprehensive Plan than the low projections.

The proposal helps implement economic development efforts of the City, Cowlitz Economic Development Council, Port of Longview and others to improve economic diversification and attract jobs to the Longview area.

Mitigating Measures

Population growth is not a negative impact which requires mitigation, but serving the needs of a new population with public services and housing may require expansion. These impacts are addressed in the appropriate sections of this EIS.

Unavoidable Adverse Impacts

None have been identified

Housing

Analysis prepared for the Comprehensive Plan in 1991, indicates that Longview had a stable housing situation. Vacancy rates for housing stock were within what are considered "normal" levels indicating that new construction of single and multiple family units is matching demand created by population growth. The average number of persons per household in Longview was about 2.40 in 1990 which is a decrease from 2.95 in 1970. This trend towards smaller households appears to be slowing and the 1990 ratio is expected to be relatively stable into the near future. Existing and projected housing units are shown in Table 7:

Table 7 Longview Housing Units

Year	Housing Units
1990	13,441
1995	14,583
2000	15,618
2005	16,668
2010	17,648
2015	18,635

Source: Longview Comprehensive Plan Table 11

Impacts

The proposal will have the effect of making more employment opportunities available close to housing north and east of the proposal site. This may increase the desirability of this housing resulting in upgrading of existing housing stock and more rapid infill of any vacant lots. This positive effect of infill on vacant residential lots and upgrading of existing housing will occur throughout the City.

The employment and population growth generated by development of the proposal site will create a need for additional housing in Longview and Cowlitz County. Since the proposal will be constructed over a long period of time, it is not expected to create any shortage of housing that cannot be met by normal construction activity.

Mitigating Measures

None are deemed necessary

Unavoidable Adverse Impacts

None have been identified.

Light and Glare

Existing Conditions

The site is largely undeveloped with no sources of light and glare. The major sources of light and glare in the proposal area are the industrial uses adjacent and south of the proposal site and headlights from vehicles on adjacent streets.

Impacts

There will be a long-term growth of light levels on the site and on adjacent streets resulting from site development. Street lights, vehicle headlights, and parking and building illumination all will increase light levels. During winter months, the residents to the north and east may notice a slight increase in ambient light (faint illumination) at night, resulting from site development. The growth of traffic loads on site and on 38th Ave and Industrial Way will lead to more headlight glare on these streets.

Mitigating Measures

The effect of on-site light sources on adjacent properties will be minimized by buffers on the north and east sides of the proposal site. Lights for streets and parking areas on site will be directed downward utilizing sharp cutoff fixtures to minimize light spillage beyond the area intended for illumination.

Lighting on the site which could be visible from Industrial Way will be shielded and/or directed according to RCW 47.36.180 to avoid any glare to the motorist on State Route 432.

Unavoidable Adverse Impacts

Headlights from traffic on 38th Avenue and Industrial Way will contribute light above current conditions, particularly noticeable during evening rush hour in winter. Development will slightly increase night time ambient illumination of the sky under overcast conditions.

Aesthetics

Existing Conditions

The Mint Farm site is largely in an open grass field condition. The site is nearly level, located in a relatively level area known as the Mint Valley. Two chemical companies are visually prominent adjacent to the southern portion of the site. Residential areas are located north and east of the proposal site, heavy industrial uses are located to the south and vacant land is located to the west.

The most dramatic topographic feature in the area is Mount Solo, a 500 foot high wooded hill located one half mile northwest of the proposal site.

Views into the site, from surrounding neighborhoods to the north and east are limited by a vegetative buffer along the north and east edges of the proposal site and by the elevated railroad grade along the east edge of the site. The railroad grade is flanked by an intermittent hedge. Views into the site are unrestricted from Industrial Way to the south and 38th Avenue on the northwest.

Views from the proposal site are limited by its level and low elevation topographic characteristics. The buffer and railroad grade mentioned above restrict low level views to the north and east. Offsite views at ground level from the site are enclosed by Mount Solo to the northwest, and by hills north and west of Longview. Views to the south are of industrial uses, located on site and across Industrial Way.

Impacts

Development of the Mint Farm site will alter the visual characteristics of the site. The open pasture land will be replaced by roads, parking, buildings, automobiles, signage, new landscaping and designed open spaces and water bodies. This development, over a projected 30 year period, will eliminate much of the grassy open character of the site and replace it with an urbanized setting.

The grove of hybrid poplars currently growing in the north west part of the site will be removed as a condition of the property sale to the City. Part or all of the nearby douglas fir plantation near the intersection of 300th avenue and Memorial Park Drive may also be removed as part of site development of the underlying parcels. These tree removal actions will be mitigated with measures described below.

Views into the site will be altered from roads to the south and west. Landscaping and buildings along these edges of the site will fonn the foreground views for drivers, pedestrians and bicyclists on Industrial Way and 38th Avenue.

Mitigating Measures

The Mint Farm proposal has been developed with aesthetic issues as an integral part of the planning process. Measures to directly mitigate impacts on adjacent properties include retention and augmentation of buffer landscaping along the north and east perimeter of the site. The Master Plan and Design Guidelines establish a buffer width of 20 feet along the north edge of the site south of and exclusive of the existing 40 foot CDID ditch #12 easement. The buffer along the east edge of the proposal site will be 30 feet directly west of the existing rail line. The buffers will supplement existing trees with new vegetation to create a sight obscuring planting. This new planting may be provided by the site developer, or be made a required condition of permit approval of the individual lots when they are developed.

A open space network owned in common is planned which accommodates ponds, walking trails and landscaping. This feature will provide visual identity for the proposal site as well as a feature providing an aesthetic resource for the general public.

Design guidelines have been developed to protect the surrounding neighborhoods and to contribute to the quality of the project. These guidelines have the following provisions which will directly contribute to improved project appearance:

- Landscape elements including street trees are provided along all major roads
- Parking lot plantings are required in the Design Guidelines in excess of those required in the zoning code.
- An approved list of trees for parking lots and street trees will aid in developing project identity and visual cohesiveness.
- Buiiding setbacks and private open space requirements in the Design Guidelines are in excess of those in the Zoning code to provide a more attractive and uniform development.
- Unimproved sites within the proposal site must be maintained with a clean and neat appearance.

A signing and advertising plan for areas along Industrial Way will be submitted to the Washington State Department of Transportation for review and approval.

Unavoidable Adverse Impacts

Existing undeveloped grassland will be replaced by a more urbanized setting.

Historic and Cultural Preservation

Existing Conditions

The existing site is undeveloped. In 1987, the Longview Historic Preservation Commission was formed. The Commission has nominated and approved twenty one buildings and two parks and one object as of the writing of the 1993 Comprehensive Plan. The List of registered and unregistered properties (including National Register of Historic Places) contained in the Comprehensive Plan does not contain the Mint Farm Site. The site has not been surveyed for cultural resources. The Washington State Historic Preservation Officer has reviewed the Washington State Inventory of Cultural Resources and indicates that no cultural resources have been identified in this area.

Impacts

During construction and development, articles of archeological and historical significance may be uncovered.

Mitigating Measures

During construction, if articles of archeological or historical significance are found, construction would be halted and the Washington State Office of Archeology and Historic Preservation consulted.

Unavoidable Adverse Impacts

Unknown articles of archeological and historical significance might be destroyed during construction before they are identified.

Transportation

Vehicular Traffic

Existing Conditions

The Mint Farm site is located in western Longview. Direct access to Interstate 5, Exit 36 is provided by state highways designated as Industrial Way and Tennant Way, through Longview. This route connects with Oregon Way about 2 miles east of the proposal site which provides access to Oregon Highways by way of the Lewis and Clark Bridge.

Access between the proposal site and business and residential areas in Longview, Kelso and Cowlitz County is provided by state highways and arterials. The routes which will carry most of the traffic to and from the proposal site include Industrial Way, Washington Way, Ocean Beach Highway and 38th Avenue. See Figure 1. Vicinity Map.

The proposal site is fronted on three sides by existing streets. The southwest edge is adjacent to Industrial Way/State Route 432, a four lane road managed by the Washington Department of Transportation (WSDOT). The northwest edge fronts on 38th Avenue, a high-capacity, two lane collector street. Neither street has curbs or sidewalks in the area of the project. The north project boundary is largely adjacent to Memorial Park Drive, a residential street, intended for local traffic. This street also provides an alternate commuter access from city center to the industrial uses along western Industrial Way. The volume and speed of this current commuter traffic is of concern to the neighborhood residents along Memorial Park Drive.

One intersection which could be affected by the project, 3rd Avenue and Tennant Way at the Frontage Road, is currently over capacity, experiencing significant delays during peak traffic.

Impacts

Project Features

The Mint Farm light industrial development is expected to be completed in four phases. Phase One includes the development of 125 acres. Phase Two will cover approximately 266 acres of land and is projected to occur in about six years. Phase Three includes the completion of 365 acres and is estimated to occur in twelve years. The fourth and the final phase is projected to occur in about twenty years, completing development of the 435 acres available.

The site will have two entrances through the end of Phase Three. One entrance will be on Industrial Way (SR 432), approximately half a mile east of an existing signalized intersection with 38th Avenue. The other entrance will be located on 38th Avenue just south of the intersection with Memorial Park Drive. A third entrance on Washington Way is assumed to be developed in Phase Four. Entrances will not be allowed on Memorial Park Drive, to help preserve the residential character of this street.

Phase One construction of the public streets within the project will provide full width improvements to meet future traffic demand. The main street, extending from Industrial Way to 38th Avenue through Phase One, will be a four lane arterial with turn pockets provided at the three intersections with cross streets. A planted median at the entry from Industrial Way will provide opportunity for an additional future turn pocket. The three cross streets, which eventually will connect into future phases of the industrial park, will be constructed with one through lane in each direction and a continuous left turn lane. All streets will have sidewalks set back from the curb behind a planting strip.

Project Effects

Potential Effect on Memorial Park Drive.

Without mitigating measures to address the impact of traffic on Memorial Park Drive, implementation of the proposal would significantly increase traffic on it. Because of the street pattern, Memorial Park Drive and Olive Way could provide a "shortcut" for traffic moving southwest/northeast between the Ocean Beach Highway and the proposal site. Increased commuting traffic on Memorial Park Drive, if allowed, would have a negative effect on the neighborhood.

Potential Effect on Surrounding Intersections.

A traffic study was prepared to evaluate the effect of the proposal on traffic in the area. (See appendix) The study evaluates ten intersections which are likely to be impacted by the growth of traffic from the Mint Farm site. These intersections are near the site on streets likely to carry most of the commuter traffic, or are key intersections between the site and the Interstate 5 corridor. For each intersection, the following were recorded in the field: the layout of the intersection (including number of lanes), the speed limit for the approaching traffic, number of turning lanes, the location of bus stops within the intersection area, pedestrian cross-walk, parking movements within the intersection areas, and/or any other element that may influence the traffic movements. For each phase, separate projections were made for A.M. and P.M. traffic. To determine impacts, the "worst case" was considered.

Phase One Effects:

The traffic analysis in the appendix indicates that traffic generated during the early stages of Phase One can be acceptably handled by current intersection configurations. As Phase One moves beyond about 75% of build out, an unacceptable level of service will be created at two nearby intersections:

1. Ocean Beach Highway at 38th Avenue
2. Industrial Way and Oregon Way

The projected congestion problems at these intersections result fiom existing and projected background traffic as well as traffic generated by the industrial park, however, problems at the above two intersections occur sooner with the Mint Farm project than without it.

Future Phase Effects

Additional traffic fiom full development of the 435 acre proposal site will create unacceptable level of service at the following additional intersections:

1. Industrial Way at Washington Way
2. Washington Way at 32nd Avenue
3. Ocean Beach Highway at 32nd Avenue
4. 15th Avenue/Oregon Way and Tennant Way/Nichols Boulevard

Although traffic modeling shows the two intersections of Memorial Park Drive at 38th Avenue and Ocean Beach Highway at Olive Way as having project induced capacity problems, these intersections are not included in the above list of intersections ultimately needing improvement. It is assumed that measures to prevent commuter use of Memorial Park Drive (see below) will prevent projected intersection congestion impacts fiom occumng.

Mitigating Measures

The purpose of the traffic study for the Mint Farm project is to provide information to the officials at the City of Longview, Council of Governments, and the Washington Department of Transportation so that appropriate capital improvements can be planned to address proposal impacts. Future studies reflecting actual growth and contribution of traffic by the proposal and other nearby sources may be needed to refine the timing and scope of future intersection improvements.

Measures Proposed for Phase One

Measures to mitigate the impacts of Phase One are considered specifically in this document to help respond to impacts which will occur fiom proposal development in the short term.

Intersection Improvements.

The analysis demonstrates Level of Service deficiencies at two nearby intersections triggered by late-stage development of Phase One of the project. In both instances, failure is not triggered until more than 75 percent of the Phase is built and generating traffic. The City of Longview should develop a Memo of Understanding with the Washington State Department of Transportation addressing the timing and respective responsibilities for increasing intersection capacities in a timely manner at:

1. Ocean Beach Highway at 38th Avenue
2. Industrial Way and Oregon Way.

Entry Improvement Measures

To minimize the effect on traffic on Industrial way, the project entry on Industrial Way will be signalized as part of initial construction. This will facilitate left turns into and out of the site. Final design of this intersection will be coordinated with the Washington Department of Transportation and will require approval from that agency.

Measures to limit Traffic on Memorial Park Drive

Memorial Park Drive impacts will be mitigated as part of initial construction. These measures will occur prior to occupancy of any buildings on the Mint Farm site. The exact nature of improvements is still in the planning stage but will include a program to implement some or all of the following approaches.

There are two basic approaches under consideration for mitigation of the impact of traffic on Memorial Park Drive:

1. Diversion. Traffic can be diverted with physical measures which make it difficult or impossible to drive directly through the area.
2. Speed Control. Traffic can be slowed or "calmed" through the use of physical measures to reduce the tendency and ability of drivers to speed through the area. This will reduce the number and speed of drivers using a Memorial Park Drive as a bypass route.

Diversionary approaches

Two examples are under consideration for diversionary approaches which could be applied to make it difficultor impossible to use Memorial Park Drive as a "shortcut":

Dead end

Memorial Park Drive could be made into a dead end near its intersection with 38th Avenue and Ocean Beach Highway, probably just east of the Natural High School. The residences along Memorial Park Drive would be accessed via Olive Way from Ocean Beach Kghway. This approach would make Memorial Park Drive a residential enclave with no possibility of using the street for through traffic or to bypass busy intersections such as 38th Avenue and Ocean Beach Kghway.

Local access only

An effective variation on the dead end approach is to post Memorial Park Drive as "local access only" at 38th Avenue and at Olive Way. This restriction would be reinforced by a barrier across one half of the street width which required drivers entering the neighborhood to stop and wait for out going traffic. This variation maintains convenient access and egress for local residents. The visibility of "through traffic" violations would be raised to the point where enforcement by police is possible.

Speed control measures

Speed control measures on Memorial Park Drive would make it less desirable to use this street and would reduce the impact of traffic which does use the street. There are several types of physical alterations to streets which help to achieve speed control. These range from measures which work primarily by "psychological" effect on the driver to those which physically restrict

vehicle speeds. Measures can be combined into an integrated plan for maximum effectiveness. Using a mixed variety of measures which require driver attentiveness and decisions can be the most effective approach in controlling speeds. Possible speed control measures on Memorial Park Drive include:

Centerline planted median

A centerline planted median will reduce lane width and enhance the residential appearance of the street. This will make drivers feel less confident about speeding. A median can be continuous or broken to allow left turns and "U" turns.

Bulbouts

Bulbouts are developed by extending the curbed area into the street, usually at crosswalks and usually to the depth of the parking lane. This narrows driving lane width for a short distance providing a visual clue for drivers to slow down and also provides pedestrians with safer crossing. Each bulbout may reduce on street parking by one or two spaces.

Traffic Circles

Traffic Circles are curbed, circular, raised areas which force drivers to slow down and drive around them at reduced speed. They may be placed at intersections and at mid-block.. In mid-block applications, each traffic circle will require eliminating a few parking spaces.

Speed Humps

Speed Humps are raised areas in the roadway which can be driven over comfortably at speeds of 25 to 30 miles per hour but which become uncomfortable for vehicle occupants at speeds above this. Speed humps are spaced closely to discourage rapid acceleration and braking.

Lane Weaves

Lane weaves are an improvement which directs the driving lane back and forth within the street in a weaving pattern which can only be negotiated comfortably at the desired speeds. This approach can be accomplished with paint and plastic lane markers but is most effective if street curbs are reconstructed to incorporate the lane weaves.

One way segments

One way segments are improvements where the street is narrowed to one lane width for a short section which drivers can see through. Drivers are required to stop and take turns with opposing traffic in proceeding through the one way segment. This approach may have safety problems if used in isolation in the middle of long straight roadway stretches.

Implementation Program

A program of neighborhood involvement, temporary "test" improvements, and ultimately, permanent improvements will be carried out by the City prior to allowing occupancy of Phase One parcels. The goal is to achieve a level of speed control and decrease in traffic counts that are acceptable to neighborhoods. This must be achieved while maintaining a level of mobility and access which is an appropriate balance of local resident and city wide needs.

Unavoidable Adverse Impacts

None have been identified.

Public Transportation

Existing Conditions

The Longview Kelso community is served by the Community Urban Bus Service (CUBS) a Public Transportation Benefit Area which provides service within the Longview Kelso City limits. The system currently has about 1,200 riders per day and serves the downtown, schools and major retail areas. The system has five routes operating Monday through Friday 7 AM to 7 PM and Saturday 9 AM to 6 PM. All routes leave the Triangle Mall Transit center at 15th Avenue and Ocean Beach Highway every hour on the hour and return on the hour.

CUBS Route 12 operates on the Ocean Beach Highway and runs within 400 feet of the northeast comer of the proposal site at Olive Way. However, pedestrian access from this point to businesses within the Mint Farm would require considerable walking- for example, the nearest part of Phase One development is 1/2 of a mile away via 38th Avenue.

Impacts

Development of the proposal may increase demand for use of public transit. Proposal site development may eventually create demand for new routes directly serving the Mint Farm. Development of the initial 125 acres of Phase One may not support sufficient demand to warrant direct service. However, buildout of the Park as described in this EIS could provide a significant basis for supporting new transit service. This impact is positive because it supports City policy 9.27 of the Comprehensive Plan which encourages reduced vehicular use by encouraging alternative means of travel.

Mitigating Measures

To facilitate increased transit use bus pullouts along potential bus routes adjacent to and through the site could be provided. The need for and location of such improvements will be determined through ongoing consultation with transit planners as the plans for new streets and improvements to existing streets are developed.

Increased transit use is considered a mitigating measure which reduces the increase in vehicular travel associated with development of the proposal site.

Unavoidable Adverse Impacts

CUBS service may need to be expanded in the future to serve development on the proposal site.

Rail Traffic

Existing Conditions

The proposal site is bounded on the east by the Columbia and Cowlitz Railroad operated by the Weyerhaeuser Company. The railroad provides an intertie to nationwide shipping routes via Burlington Northern.

Impacts

Development of the proposal will not affect travel or use of any railroad. Service to the proposal site could be provided by sidings from the Columbia and Cowlitz Railroad but no such service is planned.

Mitigating Measures

None are deemed necessary.

Unavoidable Adverse Impacts

None have been identified.

Public Services and Utilities

Fire

Existing Conditions

Fire protection to the proposal site is currently provided by the Longview Fire Department. The fire department operates out of two stations. The main station near downtown, built in 1975, is at Commerce Avenue and Tennant Way. The second station in the Mint Valley is at 38th Avenue and Ocean Beach Highway. The Mint Valley station is less than one mile from the proposal site entrance on 38th Avenue. The downtown station is about four miles from the entrance proposed on Industrial Way.

A mutual aid agreement is in effect with all the fire agencies of Cowlitz County. The major industries on the Columbia River provide their own fire protection in addition to outside aid agreements with the Longview Fire Department.

The main downtown station is staffed by five to six fire suppression members which operate an engine, rescue/aid unit or aerial truck as the need dictates. The Mint Valley station is a three person engine/aid company. Major equipment includes a telesquirt/pumper, aerial ladder truck, three pumpers, rescue/aid pumper, and a fire boat.

In addition to the fire chief and operations chief/training officer, the department is manned by a fire marshal, administrative assistant, mechanic and three platoons of suppression personnel. In 1992, the suppression crews are composed of three captains, four lieutenants, nine drivers and

eighteen fire fighters. Dispatching is controlled and coordinated through Cowlitz County's 911 Technical Service Center. The department provides emergency medical services and training to the public in addition to its fire suppression duties.

Impacts

Development of the proposal site will increase fire protection needs over a long period of time. Additional fire department personnel and equipment are expected to be required as the site is developed. The 1993 Comprehensive Plan indicates that ultimately four additional fire fighters and a fire inspector along with additional vehicles and equipment may be required as the City expands to its long term projected population.

Mitigating Measures

The site will be fully serviced with water mains and hydrants sized to provide adequate fire flows. The street layout will be planned in accordance with Fire Department standards to assure rapid access. On site containment will be the first-line of defense against fire and many of the structures on the Mint Farm Site are expected to be sprinklered. Requirements for building sprinklering are based on available fire flow volumes, type of construction and uses within the building.

Unavoidable Adverse Impacts

Demands for medical emergency response, fire suppression and fire prevention services from the Longview Fire Department will increase.

Police

Existing Conditions

Police protection for the Mint Farm site is provided by the Longview Police Department located in the Cowlitz County Hall of Justice on First Avenue and Washington Street. The Department has 55 total personnel in 1996.

The Comprehensive Plan reports that in 1992, the ratio of commissioned officers per thousand population was 1.6. This is lower than the state average reported by the U.S. Bureau of the Census of 2.17 officers per thousand population in Washington. The Police Department is a party to the Cowlitz Communications Center 911 emergency response service.

The police department provides community education and liaison services which include information on police activities, crime prevention, human service agencies, neighborhood watch, property identification and drug awareness.

Additional police personnel and equipment are expected to be needed as Longview grows in population.

Impacts

The proposed development will create demand for expanded police services to patrol the proposal site and respond to calls for assistance. This increased need will occur gradually over a long period of time. During phase 1, most employees will be recruited from unemployed persons currently in the **area.** A substantial need for new police services to serve new population to the City is not expected to be created during phase 1 implementation. Phase 2 development may support some immigration of new population to work at the proposal site and needs for Police services to residents will expand as population expands.

Mitigating Measures

The project will be designed to provide visibility between roads and buildings and parking areas to improve security.

Individual tenants can be encouraged to install alarm systems monitored by private security companies. This helps screen out false alarms and increases the efficiency and effectiveness of police services. Some businesses may contract for patrol by private security companies.

Unavoidable Adverse Impacts

Demands for property protection, traffic enforcement and emergency response will increase.

Schools

Existing Conditions

The City is served by the Longview School District No. 122 which had a total enrollment of 7,380 in May 1996. Major school district facilities include three high schools, two middle schools and seven elementary schools. The district owns a 40- acre site next to Roy Morse Park on Mount Solo Road for possible building of a new school but has no current plans for construction on this site. In addition to traditional K-12 academic programs the district offers training in Computer Aided Design and Drafting and wood products construction. The school district accommodates use of its facilities by the City and other groups to suppon parks, recreation and community activities.

Enrollment in the Longview school district declined slightly from the 1960's to the late 1980's mirroring national trends of declining binh rates and smaller families. Enrollment decline bottomed out in 1989 at a level slightly below 7,100 and has been gradually increasing. District projections show moderate growth in student enrollment overall.

While overall enrollment growth is gradual, the proportion of enrollment comprised by elementary age school children is increasing. This is creating a need for more elementary classrooms. In response, as of 1996, the district plans to construct two new elementary schools to replace existing facilities with larger ones. One closed elementary school will be reopened. The District is monitoring needs created by new housing development west of Longview and by the steel mill under construction in Kalama.

The Lower Columbia College serves the Longview area as part of the state's community college system. In addition to providing traditional two year degree programs the college offers a broad range of personal enrichment and enjoyment courses which serve a broad age group. The college maintains a close and cooperative relationship with local business and industry in vocational skills programs, with training offered at plant sites, local shops and union halls. Total enrollment for the College was about 8,000 students in 1991-92 of which, 60% were part time.

Impacts

The increases in school age population of families employed at the proposal site will require additional schools, personnel and educational materials. This impact is expected to be minor initially, assuming that existing Longview area workers form a large portion of the employees of Phase 1 businesses. During implementation of Phase 2, population increases associated with employment at the proposal site will have a more substantial effect on the need for new school facilities.

Increased business activity could create a demand for increased training at Lower Columbia College to retrain some workers for new job opportunities. This need may be especially evident during phase 1. As phase 2 development is implemented, training of first time job seekers will be a more prominent activity.

Mitigating Measures

Unavoidable Adverse lmpacts

The population of school children will increase, requiring new schools and staff in the Longview School District.

Parks or Other Recreational Facilities

Existing Conditions

Bicycle Trails

The proposal site is linked to Downtown Longview by an existing bicycle trail located along Ocean Beach Highway, Olive Way and Memorial Park Drive which is the northern boundary of the Proposal site. A potential extension of this bicycle trail is indicated in the Comprehensive Plan along 38th Avenue, past the proposed entrance to Phase 1. A bicycle trail from Lake Sacajawea Park extends along Washington Way to 32nd Avenue, less than one quarter mile from the southeast comer of the proposal site. A Potential bicycle trail is shown in the Comprehensive Plan extending along Hemlock Street to the east border of the site at its mid point.

The above mentioned trails connect to an extensive network of existing, planned and potential bicycle routes which will link the proposal site to most industrial and business areas of Longview. The system is particularly well suited to link the employment opportunities on the proposal site with existing residential areas to the north and east.

Potential bicycle/pedestrian paths are shown in the Longview Comprehensive Plan, (Figure 13). Routes adjacent to the proposal site include an alignment along the ditch which forms the west boundary of the site, and a trail along the south west side of Industrial Way A potential bicycle route is shown along 38th Avenue. A proposed future trail route follows the BPA power easement adjacent to the project's south boundary, turning north on a trail easement along the westerly boundary of the project.

Parks

The Longview Comprehensive Plan identifies park and recreation facilities in Longview. There are several recreational facilities located near the proposal site. The former Natural High School and the School Complex just east of Lake Sacajawea Park are the closest major facilities. Lake Sacajawea Park is about 3/4 mile from the eastern boundary of the proposal site assuming a direct pedestrian and bicycle access route crossing the existing railroad tracks and proceeding along Hemlock Street. Kellogg Park, a 1/2 acre neighborhood playlot is located just northeast of the proposal site at 33rd and Dorothy. No formal municipal park facilities are planned on the proposal site.

Impacts

Development of the proposal site may increase use of recreational facilities in Longview and to a lesser extent in Cowlitz County. This demand will be generated primarily during Phase 2 development by the increased population which employment on the proposal site supports. Need for new recreational facilities will primarily be generated in areas where new housing is developed during latter phases of site development.

Mitigating Measures

The proposal site will include a network of open spaces with ponds and trails which will be available to the public. This facility will help serve employee recreation needs and will help meet City wide needs for passive recreation. Activities at the proposal site will include walking, jogging, and wildlife observation. A looped system could be achieved through an additional trail along the existing south and west perimeter trail easements. On site recreation facilities of the type proposed are typically used by employees at lunchtime and by the public during evenings and weekends.

Unavoidable Adverse Impacts

Growth of population in Longview and Cowlitz County will create a need for new recreation facilities. Some of this need is indirectly attributable to activity on the proposal site.

Maintenance

Existing Conditions

The site in its current condition does not require maintenance by the City. However, existing roads that will serve the area are maintained by the City. Industrial Way is a State Highway maintained by the Washington State Department of Transportation.

Impacts

Roadways within the project area will be developed to meet or exceed City standards and will be dedicated to the City upon completion. Maintenance of new and existing roadways will increase.

Water and sanitary services will be developed to the required City design standards. Maintenance will be by the City.

The on-site storm drainage facilities including retention/detention facilities will be constructed as part of the project. Maintenance initially is expected to be through an owner's association with possible future transfer to the City drainage utility.

Maintenance of electrical, natural gas, phone and cable systems will be by the supplier.

Mitigating Measures

Tax revenues and user charges will help offset maintenance costs in the public sector.

Unavoidable Adverse Impacts

There will be an increase in maintenance of public facilities.

Communications

Existing Conditions

Telephone service in the proposal area is provided by US West Communications.
Cable service in the area is provided by Century Communications.

Impacts

Development of the proposal site will increase the demand for communications services,

Mitigating Measures

Special mitigating measures have not been identified, normal extensions of telephone and cable TV systems are expected to be adequate to serve the proposed development.

Unavoidable Adverse Impacts

None have been identified.

Water Supply

Existing Conditions

The project site is located within the City of Longview's water service area. The site will be fully served with water mains and fire hydrants located in the road right-of-ways. The type of industries that will be located within this development, and their associated water usage, is not yet known. It is assumed, however, that these businesses will be of low to moderate water usage in nature..

The City's water supply is drawn from the Cowlitz River at a treatment plant operated by the Longview and Cowlitz County Public Utility District No. 1 (PUD). Longview, Kelso and the PUD have a long-term "wheeling" arrangement whereby these three purveyors can share each other's facilities. After the 1980 eruption of Mt. Saint Helens, Longview and the Weyerhaeuser Corporation installed an emergency intertie connecting the City to Weyerhaeuser's water, which comes from the Columbia River. The City of Longview has eight water storage sites with a combined storage capacity of 18.87 million gallons.

Longview's Comprehensive Water Plan indicates that on a City wide basis, the distribution system has the capacity to meet anticipated demand. The existing water treatment plant is projected to be operating near its capacity by the year 2004, but has the potential for substantial expansion. Other options for making more water available for consumption include the implementation of; a system-wide leak detection program, a water auditing program, and water conservation measures such as the installation of water efficient plumbing fixtures and water efficient landscape imgation. The Comprehensive Water Plan also indicates that the City may expand its water rights on the Cowlitz River in order to assure continued adequate supplies of water.

Impacts

Preliminary hydraulic modeling of the development indicates that emergency water system capacity on site can be provided through a looped network of ductile iron water mains. A fire flow of up to 4000 gallons per minute will be provided throughout the development. The required fire flow for individual buildings is dependent on the type and square footage of the structure as well as weather or not the building is sprinkled.

Project water needs average daily flow are projected on the basis of 25 gallons per worker per day and ten workers per acre as follows:

Table 8 Projected Water Use

Phase	Gross Acres	Average Daily Flow in Gallons (Cumulative)
One	124	31,000
Two	137	65,250
Three	103	91,000
Four	71	108,750

For worst case planning purposes, volumes 50 to 100% higher than the above could occur in response to heavy imgation needs or higher than expected worker population.

Mitigating Measures

None are deemed necessary beyond those identified in the proposal.

Unavoidable Adverse Impacts

None have been identified.

Storm Water

Existing Conditions

Storm water service is provided by Consolidated Diking District Number 1 which receives runoff from the site and conveys it to the Columbia River through a system of ditches and pump stations. See the surface water section for more discussion.

Sewer

Existing Conditions

The proposal site is within the service area of the City of Longview but does not currently have municipal sewer service. Sewage from nearby areas is either treated at the City's West Longview sewage lagoon system, the Central, Regional Sewage Treatment Plant near Fibre Way or is treated on site. The major industries along the Columbia River operate their own collection and treatment systems.

Impacts

Development of the proposal site will create a need to extend sewer service to the proposal site. The City has determined that adequate capacity exists in the collection and treatment system to serve the proposal site. The proposal site lies at too low an elevation to provide service by gravity main to the Central Plant. A new lift station and force main will be needed to convey sewage from the proposal site part of the way to the Central Plant to a point where it can be conveyed by gravity.

Some industrial users which might locate on the proposal site could produce sewage of an industrial nature which would require pretreatment before discharge to the municipal system.

Mitigating Measures

The lift station and force main required to serve the proposal site are being designed concurrently by the City as part of a larger, regional collection system improving service throughout the western parts of Longview. These facilities will be in place to serve development on the proposal site as it occurs. A new lift station will be built on the proposal site and a force main constructed from the site to Oregon Way, parallel to Industrial Way.

On-site public gravity collection mains will be provided during project construction with stubs to serve individual lots.

Unavoidable Adverse Impacts

None have been identified.

Solid waste

Existing Conditions

Non hazardous solid waste is currently disposed of at the County operated regional processing and landfill site south of Tennant Way. A private site south of Mount Solo operated by Radakovich Company handles non-dangerous industrial and some commercial waste. Most collection is provided by Waste Control Recycling Company.

lmpacts

Businesses located on the proposal site will generate additional quantities of solid waste which must be disposed of at the County operated landfill. The exact volume of solid waste which will be generated by the proposed uses at the Mint Farm site is unknown because specific businesses have not been identified. In general, industrial uses of the type expected may generate 4 pounds of solid waste per worker per day. Full development of the site is expected to occur over a 30-year time span; therefore, the County will have time to plan for the disposal of the solid waste generated by the proposed development.

Mitigating Measures

The City of Longview participates in solid waste planning through its participation in the Council of Governments solid waste advisory committee.

Businesses on the proposal site will be encouraged to participate in recycling efforts to minimize the quantity of solid waste generated.

Unavoidable Adverse lmpacts

The solid waste generated at the proposal site will utilize capacity at the regional landfill. This will shorten the time within which alternative waste disposal facilities must be developed.

Electricity

Existing Conditions

The site area is served by Cowlitz County PUD. At present, there is little or no energy usage on the majority of the site because it is primarily used for pasture. The two chemical companies on the southern portion of the site utilize electrical energy.

lmpacts

Cowlitz County PUD indicates that new transmission facilities and an electrical substation may be required to serve the proposal site.

Mitigating Measures

New transmission and substation facilities will be provided as required to serve the proposal site.

Unavoidable Adverse lmpacts

None have been identified.

Other Governmental Services

Existing Conditions

Other Government services in Longview that will receive increased usage as a result of project site development include the Post Office, City Library, and agencies providing miscellaneous services such as health and human services, courts and City and County administration.

Impacts

The effect of proposal site development on other government services listed above is expected to be minor and occur slowly enough to allow normal adjustment to occur.

Mitigating Measures

None are deemed necessary

Unavoidable Adverse Impacts

None have been identified

Section 4. Distribution List

Bernie Chaplin
Dept of Transportation
Trans Bld/Mail Stop KFM
Olympia, WA 98504-5201

Dr. Robert G. Whitlam
Ofc of Comm Development
Ofc of Archeology, His Pres
Mail Stop KL-11
Olympia, WA 98504-5411

Steve Jacobson
Access Management
Dept of Transportation
P.O. Box 1709
Vancouver, WA 98668

John Daly
Dept of Agriculture
Mail Stop AX-41
Olympia, WA 98504-0641

Cow Co. Assn of Realtors
1717 Olympia Way
Longview, WA 98632

Cowlitz Co. Health Dist.
1516 Hudson
Longview, WA 98632

Paul Donahue
Dept of Social/Health Serv.
Cap Programs/Ofc Bldg #2
Mail Stop OB-23B
Olympia, WA 98504

Mike Drummond
Longview Daily News
P.O. Box 189
Longview, WA 98632

Gary Hall, Manager
Solvay Interox
3500 Industrial Way
Longwew, WA 98632

Gary Harder
Transportation/Utilities
Chandler Bldg.
1300 Evergreen Pk Dr So
Olympia, WA 98504

Cheryl Spencer
Lv Chamber of Commerce
1563 Olympia Way
Longview, WA 98632

J. M. Huber Corporation
P.O. Box 310 - Chem Div
Havre De Grace
MD 20178

David Heiser
Pks & Rec Comm
Mail Stop KY-11
Olympia, WA 98504-5711

Corps of Engineers
P.O. Box 2946
Portland, OR 97208-2946

Columbia and Cowlitz Railway
3401 Industrial Way
Longview, WA 98632

David Dietzman
Dept of Natural Resources
P.O. Box 47015
Olympia, WA 98504-7015

Corps of Engineers
P.O. Box C-3755
Seattle, WA 981242255

Clint Page, President
Cowlitz Economic Development C
P.O. Box 1278
Longwew, WA 98632

Jerry Opaz
Environm Protect Agency
Region 10, Env. Review
Mail Stop WD-136
Seattle, WA 98101

Dave Guenther
Soil Conserv. Service
1708 Allen Street
Kelso, WA 98626

Stephen Harvey, Director
Cowlitz - Wahkiakum Council of Governments
Administration Annex
207 North Fourth Avenue
Kelso, WA 98626-4195

Fred Weinmann
U.S. Army Corps of Eng.
Env. Resources Section
P.O. Box C-3755
Seattle, WA 98214

Martin Carty
Cow. Co. Public Works
207 No. 4th
Kelso, WA 98626

Bill Pfleeger, Engineer
Cowlitz PUD
960 Commerce Avenue
Longview, WA 98632

Mr. Roger Albin
Cascade Natural Gas
1332 Vandercook Way
Longview, WA 98632

Judy Fuller
League of Women Voters
2843 Mary'and
Longview, WA 98632

Ed Rheaume
Lv./Kelso Building Trades
P.O. Box 1076
Longview, WA 98632

Steve Manlo
Habitat Biologist
11203 N.E. 98th Street
Vancouver, WA 98662

Ross Graham
Weyerhaeuser Company
P.O. Box 188
Longview, WA 98632

Ken Stone, Engineer
Cowlitz County
207 North 4th Avenue
Kelso, WA 98626

Randy Bristlen
Longview Post Office
1603 Larch
Longview, WA 98632

Larry Frazier
Cow. Co. Bldg. & Plng.
207 No. 4th
Kelso, WA 98626

Fair Manager
Cowlitz Co. Fairgrounds
P.O. Box 722
Longview, WA 98632

Jim Elliott
Century Cable
750 11th Avenue
Longview, WA 98632

George Bell, Area Mngr.
Bonneville Power Admin.
P.O. Box 3621
Portland, OR 97208

Don Bales
Dept of Ecology/Env Review
Mail Stop PV-11
Olympia, WA 98504-7703

Ron Colbert
C.D.I.D. #1
5350 Pacific Way
Longview, WA 98632

Ken O'Hollaren
Port Longview
P.O. Box 1258
Longview, WA 98632

Kim Elwess, SW Region
Dept of Ecology/Env Review
7272 Cleanwater Lane
Olympia, WA 98504

Nicholas Seaver
Longview School District
2715 Lilac Boulevard
Longview, WA 98632

Ace Palmer, Engineer
U.S. West Comm.
1305 Washington Way
Longview, WA 98632

Ed McGuire
Depart. of Wildlife
Mail Stop FA-11
Olympia, WA 98504-1211

Joe Valenzuela, Chief
Fire District #2
P.O. Box 807
Kelso, WA 98626

Brian Peterson
Cow Co. Sheriff
207 North 4th
Kelso, WA 98626

Albert Elliott
SW Air Poll Cont Auth
1308 NE 134th, Suite D
Vancouver, WA 98685

Section 5 Comment letters received in response to scoping notice

Author	Agency	Date
Transportation Issues:		
Gerald Smith/Mary Legry	WA State Department of Transportation	May 23, 1996
Rosemary Brinson Siipola	Cowlitz-Wahkiakum Council of Governments	May 29, 1996
Gordon and Teny Sargent		May 28 1996
Carol Zonich		May 17, 1996
Richard and Dianna Holden		May 8, 1996
Land Use/Utility Issues		
Gary Naslund	Cowlitz County PUD	May 23, 1996
Julie K. Rose	US Department of Energy	May 6 1996
Wetlands/Wildlife/Drainage Issues		
Ruth Deery	Willapa Hills Audubon Society	May 25, 1996
O'Neill and Blair Families		May 28, 1996
Issues not requiring a response in the EIS		
Rosemary Brinson Siipola	Cowlitz-Wahkiakum Council of Governments	May 23, 1996
Ruth Deery		May 17, 1996

Response to Letters Received

WA State Department of Transportation
1. A signing plan for signs along State Highways will be submitted. See Aesthetics, Mitigating Measures.
2. Lighting will be shielded and directed as noted, see Light and Glare, Mitigating Measures.
3. A Traffic study has been prepared and is provided as an appendix to this EIS.
4. Comment noted. The proposed project entrance on Industrial Way is located 1/2 mile from 38th Avenue. See the Master Plan drawing in this EIS.
5. Comment noted. Only one access point is proposed from Industrial Way. See the Master Plan drawing in this EIS.

Cowlitz-Wahkiakum Council of Governments
1. The projection of employees suggested is substantially higher than anticipated by the City. See Employment, Impacts.
2. Comment noted. A traffic study is attached which addresses this impact.
3. Comment noted. See attached traffic study for streets studied.
4. Comment noted. Please see the Transportation, Public Transportation section for discussion.
5. Comment noted. See Parks or other Recreational facilities section for discussion.
6. Rail service to the proposal site is not planned at this time.
7. Comment noted.
8. Access has been limited to two points to reduce congestion. See attached transportation study for further discussion.
9. Please see the enclosed letter from the WSDOT.

Gordon and Terry Sargent
1. Comment noted. The Corps of Engineers has jurisdiction over filling of wetlands. Please see the Wetlands section of this EIS for more discussion.
2. Please see sections on traffic, noise, surface water and runoff, and air quality for discussion of these issues.
3(a). Comment noted. Access to the Industrial Park from Memorial Park or Olive Way is not provided in the Master Plan. Please see attached traffic study for projection of traffic impacts.
3(b) Comment noted.
3(c) Comment noted
3(d) Noise, air and water pollution are regulated by different agencies as indicated in the sections discussing these issues. Monitoring of violations occurs through a combination of citizen, federal and local agency efforts.
3(e) Buffers are proposed along Memorial Park Drive. See the section on Aesthetics for a description.

Carol A. Zonich
1. Please see traffic section and attached traffic report. Support uses such as lunch oriented restaurants will be allowed within the Industrial Park.

2. Please see traffic study and transportation section.
3. The project will not impact State plans to improve State Highway 432. Entrances are placed to minimize congestion.
4. This project is consistent with the City's long range Comprehensive Land Use Plan and Zoning Ordinance.

Richard and Dianna Holden
1. Please see the Land Use section for uses anticipated at the Mint Farm.
2. Access from Memorial Park Drive is not provided in the master plan.
3. No rail spurs from the Columbia and Cowlitz rail line are proposed.

Cowlitz County PUD
Comment noted. Please see the Public Utilities section of the EIS

Department of Energy (BPA)
An application for use of property within the transmission line right of way will be submitted as proposed.

Willapa Hills Audubon Society
Probable Adverse Impacts:
1. On site detention of stormwater will be provided to minimize impacts to CDID. Please see the drainage report included as an appendix to this EIS.
2. Please see the Surface Water section of this EIS. Runoff will be treated in grass lined swales wherever possible.
Mitigation:
1. A need for new drainage pumps is not anticipated at this time.
2. Wetland treatment of stormwater effluent will be provided.

O'Neill and Blair Families
1. Drainage detention facilities will be provided as part of the project to assure that offsite drainage problems are not made worse by the project. Phase One discharges are predominantly to the south and west.
2. Please see the Noise and Light and Glare sections for discussion of these issues.
3. Please see the Risk of Explosion or hazardous emissions section for a discussion of this issue.
4. Please see the Air Quality section. Specific uses and odor impacts are not known at this time.
5. A buffer zone will be maintained along the edges of the site, see the Aesthetics section.
6. Wildlife habitat impacts are discussed in the Plants and Animals section.
7. Comment noted.

Washington State Department of Transportation
Sid Morrison
Secretary of Transportation

Southwest Region
4200 Main Street
P.O. Box 1709
Vancouver, WA 98668-1709

(360) 905-2000
(360) 905-2222 Fax

May 23, 1996

Received
Planning & Building
City of Longview

Ed DeVries, Director of Planning
City of Longview Department of Planning
P. O. Box 128
Longview, WA. 98632-7080

Cowlitz, SR 432, MP 3.88
T8N R2W SEC 30, 31
The Mint Farm Light Industrial Park

Dear Mr. DeVries:

The Washington State Department of Transportation (WSDOT) staff has reviewed yam Request For Comments On Scope Of EIS for the Mint Farm Light Industrial Park site. Approval of this development will permit the construction of a 445 acre light industrial park. WSDOT would like w address our comments.

1. Signing and advertising adjacent to state highways are controlled by certain regulations and restrictions. Signing plans should be submitted to Mr. Dave Pirello of WSDOT's Southwest Region officefar review and approval. Please contact Mr. Pirello at (360) 905-2262.

2. Due to the proximity of this proposal w a state route. WSDOT will require that *any* lighting installed by *the* proponent must be of an appropriate wattage and be shielded and/or directed according to RCW 4736.180 to avoid my glare w the motorists on State Route (SR) 432.

The Washington State Transportation Commission has charged WSDOT to: "Mitigate congestion on urban highways in cooperation with local and regional jurisdictions when the peak LOS falls below LOS "D".

3. Therefore, it is the responsibility of the applicant to assure *the* WSDOT that the traffic generated by the proposed development will not create an unacceptable level of service on state's facilities. This assurance will require a formal traffic study. It may be sufficient to discuss the traffic generation with the State and agree that the level of service will be acceptable upon completion of the development. The traffic study should be of sufficient scope to determine the level of service before and after the completion of the proposed development Should the study determine that road conditions are inadequate to provide a minimum level of service "D" (or a significant traffic hazard would be caused or aggravated by the proposed development). the study should then proceed to recommend mitigation measures consistent with the impact of the development Mitigation measures approved by the stare, as a result of the study, will be m addition to any required improvements or right of way dedications required by the City of Longview. The study should be made by a licensed engineer with expertise in transportation. Roads to be included in the study are State Highways and city streets which provide access to the site from state highways.

4. The Access Management Law (Chapter 468-52 WAC) classifies this portion of SR 432 as a class 4 highway. The Access Management Law states: "In urban areas and developing areas where higher volumes are present a growth that will require signalization is expected in the foreseeable future, it is imperative that the location of any public access be planned carefully to ensure adequate signal progression. Where feasible, major intersecting roadways that ultimately require signalization shall be planned with a minimum of ant-half mile spacing. Addition of all new connections, public or private, that may require signalization will require an engineering analysis signed and sealed by a qualified professional engineer. registered in accordance with chapter 18.43 RCW.

5. The law further states: "No more than one access shall be provided to an individual parcel or to contiguous parcels under the same ownership unless it can be shown that additional access pints would not adversely affect the desired function of the state highway in accordance with the assigned access classification, and would not adversely affect the safety or operation of the state highway." It also states that: "The minimum distance to another public or private access connection shall be two hundred fifty feet. Nonconforming connection permits may be issued to provide access to parcels whose highway frontage, topography, or location would otherwise preclude issuance of a conforming connection permit."

WSDOT believes that these issues must be addressed in the EIS for the Mint Farm L i t Industrial Park.

Thank you for the opportunity to comment on this Request For Comments On Scope Of EIS for the above referenced project. If you have need of additional information. please contact Mr. Steve Jacobson. Southwest Region Development Review Engineer, at (360) 905-2050.

Sincerely,

GERALD E. SMITH. P. E.
Regional Administrator

Mary Legry

BY: MARY LEGRY
Regional Planning Manager

GES:jh
ML:jh
cc:Planning
C:WINWORD\DVLETTRS\COWLITZ\SR432\MINTFARM

Cowlitz-Wahkiakum Council of Governments

ADMINISTRATION ANNEX
207 NORTH FOURTH AVENUE
KELSO, WA 98626-4195

PHONE (360) 577-3031
SCAN 562-3011
FAX (360) 425-7760
TDD PHONE (360) 577-3061

COWLITZ COUNTY
CITY OF LONGVIEW
CITY OF KELSO
CITY OF CASTLE ROCK
CITY OF WOODLAND
CITY OF KALAMA
TOWN OF CATHLAMET
PORT OF LONGVIEW
PORT OF KALAMA
PORT OF WOODLAND
COWLITZ COUNTY PUD NO. 1
LONGVIEW SCHOOL DISTRICT
KELSO SCHOOL DISTRICT
WOODLAND SCHOOL DISTRICT
CASTLE ROCK SCHOOL DISTRICT
BEACON HILL SEWER DISTRICT
WAHKIAKUM COUNTY PORT NO. 1
WAHKIAKUM COUNTY PORT NO. 2
WAHKIAKUM COUNTY PUD NO. 1
WAHKIAKUM COUNTY

May 29, 1996

Ed DeVries
Planning Director
City of Longview
P. O. Box 128
Longview, Washington 98632

MAY 1996
Received
Planning & Building
City of Longview

Re: EIS Scoping for Mint Farm Development

Dear Ed:

As the transportation planner for the Longview-Kelso-Rainier, Oregon MPO area, it is my responsibility to respond to regional issues which arise from land use changes or major development impacts to the urban area. The development of the Mint Farm property by the City of Longview as an industrial park presents an opportunity to respond to regional transportation issues.

Transportation Elements

1. It is my understanding that at full build out of the Mint Farm property, there is the potential for up to 4.5 million square feet of space and up to 11,000 employees. This presents a series of challenges to the SR 432 Corridor and its connections to I-5 and Ocean Beach Highway. The EIS scoping should take into account the following transportation elements:

2. Capacity: The SR 432 Corridor is currently heavily impacted by over 500,000 truck trips per year from the major industrial users. The development of the Mint Farm property as a manufacturing area will substantially add to this truck traffic. The industry preference for "just in time delivery systems" essentially turn trucks into rolling warehouses and the ability of the Mint Farm property to compete will depend on the ability of trucks to access the area to deliver components for manufacturing. The additional commuter traffic will also impact this already heavily-traveled corridor.

3. Streets and roadways likely to be impacted include: 38th Avenue, 50th Avenue, Memorial Drive, Ocean Beach Highway, SR 432, Washington Way, Oregon Way and SR 411, and the I-5 Tennant Way Interchange.

4. Transit/Rideshare/Carpooling/Vanpooling: The Cowlitz Transit Authority in the recent update of their Transit Development Plan does not include expanding transit service to the employment centers in the SR 432 corridor for the next five years. The scoping should provide some guidance for providing alternate transportation access thus reducing the dependence on the single occupant vehicle for employees.

5. Bicycle/Pedestrian Connections: The Mint Farm property development represents a real opportunity to connect the close-in residential areas in Longview with pedestrian and bicycle amenities. Roadway improvements and the internal system within the property should include bicycle and pedestrian access between the major development sites and roadway design should also encourage bicycle and pedestrian use as a commuter alternative.

6. Rail Service: Rail service to the site is going to be a critical element in increasing the modal split of freight goods. Future improvements in the rail corridor east of Oregon Way to directly serve the Port of Longview and the IP site will have an impact on providing enhanced rail service to the properties west of Oregon Way. If the alternate rail corridor is constructed, its alignment could potentially be located underneath the new Lewis and Clark Bridge alignment, thus eliminating the need for grade separating the Industrial/Oregon Way intersection. Rail service to the site should be a transportation element component for the EIS scoping.

7. Lewis and Clark Bridge: Efforts are currently underway to replace the Lewis and Clark Bridge. The new bridge will be a four-lane facility and its location in the existing corridor will be determined through the EIS process. Plans are to have the bridge placed into the Oregon Public/Private Program during the 1997 session of the legislature.

8. Transportation System Management (Access Management, Signalization, etc.): In order to fully develop the property in the existing roadway network, special attention will have to be paid to access management, improved signalization, channelization and other transportation system management strategies. This should be determined during the EIS scoping process.

9. The Washington State Department of Transportation should be brought into the scoping process for the EIS since SR 432 is a State Route and is under their jurisdiction.

I appreciate the chance to comment on the EIS infrastructure scoping for the Mint Farm properties and look forward to participating in this vital process.

Sincerely,

Rosemary Brinson Siipola

Rosemary Brinson Siipola
Transportation Planner/Manager

RBS:nh

cc: Steve Harvey, CWCOG
Corky Gower, Public Works Director, City of Longview

623MFEIS.RS5

THE MINT FARM
PROPOSED LIGHT INDUSTRIAL PARK

MAY 1996
Received
Planning & Building
City of Longview

Mr. Ed DeVries
Director, Planning and Building
Longview City Hall, 1525 Broadway
Longview, WA 98632

Dear Mr. DeVries,

The industrial park could have a positive impact on the city and local community if certain precautions and safety measures are followed.

1. The Mint Valley area was a wetlands and swamp before the EPA was founded. The wetlands of the city and the Mint Valley area were filled in to promote development. Evidently the EPA does not feel the old swamp and Mint Farm fall into the wetlands category today.

2. As residents of Memorial Park Drive we are very concerned about traffic, noise, flooding, and air pollution. We have enough pollution in our area from the current industries.

3. (a) The potential increase in traffic concerns us. We have a large population of children that play on Memorial Park Drive and Olive Way. We have school bus pickups and drop offs 4 times a day. Our street is relatively quiet and off the main traffic routes. The industrial park could adversely impact our neighborhood and children's safety.

   <u>We do not want access from the industrial park onto Memorial Park or Olive Way.</u>

   (b) We would like to see a local access only sign placed at the beginning of Olive Way and Ocean Beach Hwy. and at 38th and Memorial Park Drive. This would be an easy measure to inact and it might alter some individuals driving patterns in our area.

   (c) We would like to see the speed limit dropped to 20 MPH. or at least enforce the 25 MPH. that is currently in place. (rarely is there

a speed trap set by the city.) The best times to monitor speeds is during the mills shifts.

(d) Pollution guidelines hopefully will be enforced. Weyerhauser or Reynolds blows its stacks at 2 or 3 in the morning waking up the neighborhood and avoiding air detection from the EPA. This has gone on during the 19 years I have lived in the neighborhood. This has been denied by the two companies and is impossible to prove because it happens at night and at unpredictable times.

New companies in the park would need close monitoring for noise, air, and water pollution. Who is going to do this?

(e) Noise is a major concern. If the industrial park keeps a large 300 foot buffer from Memorial Park Drive and Olive Way and has 50 foot trees and walls in place then the park would not be noticeable and noise would be muffled.

Our neighborhood has been very peaceful for the past 30 years. We want it to continue this way. It has been a perfect area for raising children. We are close to shopping and schools yet we are isolated from a lot of problems other parts of the city experience. (ie. crime, heavy traffic, excessive noise, and visual pollution.

Please consider the families when developing the Mint Farm. We have experienced enough of an inconsiderate government in our country whose only interest is the dollar and not the well being of the family and community.

Sincerely,

Gordon and Terry Sargent

Carol A. Zonich

1225 22nd Avenue
Longview, WA 98632

Telephone (360)425-5123
E Mail uonich@aol.com

Mr. Ed DeVries
City of Longview
1525 Broadway
Longview, WA 98632

MAY 1996
Received
Planning & Building
City of Longview

May 17, 1996

RE: Mint Farm Proposed Light Industrial Park

Dear Ed,

I'm afraid that I have a lot more questions than I do comments...

1. I feel that the EIS should take a close look at the type and flow of traffic that will be generated from this project. Will the design and capacity of existing roadways be improved to encourage the use of single occupant vehicles, or will it be improved to encourage workers to make choices on how they get to work, ie., bicycle, walk or mass transit? Will the design allow access to neighboring eating establishments that is pleasant and pedestrian friendly? Or will workers be forced to drive a circuitous route to eat lunch at a place they can see from their office window but can't get to from there?

2. What will new traffic flow created on Memorial Park Drive do to the families living there? Will increased traffic in the morning rush hour conflict with children going to school? How will traffic impact Washington Way, Industrial Way and Ocean Beach Highway? Again, will those routes be improved to encourage single occupant vehicles or choices on modes of transportation?

3. How does this project fit in with future state plans (if any) to improve SR 432? Will state and local agencies be paying for these improvements, or will businesses be required to

3. mitigate some of the costs? Will entrances/exits be placed strategically to minimize congestion?

4. And finally, how does this project tie in with ALL aspects of Longview's Vision of the Future? Are we paying attention to the entire scope of the vision, or just looking at parts piece meal?

Sincerely,

Carol A. Zonich

Carol A Zonich

MAR 3 1996

Richard & Dianna Holden
3450 Memorial Park Drive

Dear Sir,
My concerns are.

1) Your definition of light industrial?
2) No access from Memorial Park Drive. Industrial way and 38th only.

3) To maintaine the tree Line that parallels Memorial park Drive, and
* 4) No rail spurs from the Columbia & Cowlitz rail line.

Comment: Populations, communities and ecosystems, all have the ability to withstand changes or stresses (ie) some degree of stability. The stability of Memorial Park Drive will depend on your wisdom and concious stewardship so that all may benefit. I pray you are up to the task at hand. For if you fail we all pay the price.

COWLITZ COUNTY PUD
"CUSTOMER-OWNED for CUSTOMER BENEFIT"

960 COMMERCE AVENUE • BOX NO. 3007 • LONGVIEW, WASHINGTON 98632 • (360) 423-2210 FAX (360) 577-7559

Board of Commissioners:
EDWARD M. PIPER JOHN M. SEARING G W R. VAN CUREN

General Manager:
J. LEON SMITH

MAY 1996
Received
Planning & Building
City of Longview

May 23, 1996

Mr. Ed DeVries
Director of Planning and Building
City of Longview
P. O. Box 128
Longview, WA 98632

Dear Ed:

Proposed Mint Farm Light Industrial Park

We received the City's Determination of Environmental Significance dated May 8, 1996, for the proposed Mint Farm project. In reviewing our facilities, we find that the capacity of the existing electric circuitry in the vicinity of the project is near its upper limit. Under this existing condition, it is not possible to serve the electric load anticipated from this project. In order to meet the anticipated electric power needs, it will be necessary to extend 115,000 volt transmission facilities to the park, construct an electric substation within the industrial park and then install the electric feeder lines required to serve the individual customers. The transmission circuit will require a significant right-of-way and the substation will require approximately a one acre site. The cost of these facilities must be borne by the developer and will likely be in the range of several million dollars. It normally takes at least one full year to site, design, engineer and obtain necessary permits for facilities of this magnitude. The City should initiate this process with the District as soon as possible. At this late date, actual construction of these facilities may not be possible until 1998.

Construction of the 115,000 volt transmission facilities and the electric substation are not exempt actions under SEPA. These facilites must be addressed and included within the scope of the Environmental Impact Statement prepared for this project to preclude the need for additional review under SEPA.

Please contact Bill Pfleeger at (360) 577-7525 should you have any questions or require additional information at this time.

Very truly yours,

Gary M. Naslund

Gary M. Naslund, P.E.
Chief Engineer

scw/wjp/5/74

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

MAY 06 1996
TTRC

MAY 1996
Received
Planning & Building
City of Longview

Your reference: Mint Farm

Mr. Ed DeVries
Planning & Building
Longview City Hall
1525 Broadway
Longview, WA 98632

Dear Mr. DeVries:

Reference is made to your Notice of Public Information Meeting for a proposed industrial park. Bonneville Power Administration (BPA) has no objection to this proposed use, as long as our transmission line facilities will not be adversely affected.

Note that BPA imposes certain restrictions and/or prohibitions on the use of property encumbered by our transmission line rights-of-way. Applications must be submitted to BPA for anv use proposed within the rights-of-way. You may call me at 1-800-836-6619, toll free, or directly at (503) 230-3291 for information on this application process.

Thank you for the opportunity to comment on this proposal.

Sincerely,

Julie K. Rose

Julie K. Rose
Realty Specialist, Real Property Management

Willapa Hills Audubon Society

P. O. Box 93 – Longview, WA 98632

3148 Laurel Road
Longview, WA 98632
(360) 423-4658
25 May 1996

4
MAY 1996
Received

Ed DeVries, Planning and Building
Longview City Hall
1525 Broadway
Longview, WA 98632

Dear Mr. DeVries:

Re: proposed development of a 445 acre Light Industrial Park

The board of the Willapa Hills Audubon Society wishes to comment on probable adverse impacts of the proposed Light Industrial Park and possible mitigating measures.

Probable adverse impacts: Much of the site surface will necessarily be rendered impervious by its development as an industrial park which will, of course, mean more immediate runoff of stormwater. This will present two problems which need to be addressed in the EIS:

(1) need for added pumping facility by the CDID and

(2) need for measures to mitigate the pollution which is inevitable in runoff from an industrial site.

Mitigation: The board of the WHAS suggests that the following mitigation features be considered for inclusion in the EIS:

(1) A one-time impact fee to be levied at each phase of development in sufficient amount to cover the proportional cost of purchase and installation of new pump(s). This will be made necessary by a maximum storm event on the proposed acreage of impervious surface; and

(2) Wetland treatment of stormwater effluent as recommended in Seattle Metro's 1993 South Base Pond Report, Publication #775. This planned use of five wetland plants proven to be effective as uptake mechanisms for TPH and heavy metals. Wetland treatment appears to be a more environmentally desirable method of dealing with industrial pollutants than the more usual storm water retention ponds equipped with floating booms.

The board of the Willapa Hills Audubon Society thanks you for the opportunity of commenting on the forthcoming EIS.

Sincerely,

Ruth Deery

Ruth Deery, Conservation Chair
Willapa Hills Audubon Society

Copy to: Steve Manlo, Dept. of Wildlife
Ron Colbert, CDID
Barbara Ritchie, DOE

May 28, 1996

MAY 1996
Received
Planning & Building
City of Longview

TO: Ed DeVries, Dir. Planning + Bldg.
FROM: O'Neill & Blair Families, Dorothy St., Longview
RE: Mint Farm development proposal

We, the undersigned are opposed to the proposed Mint Farm development proposal for the following reasons:

1. Filling ANY area in the 450 acre site will raise the water level and flood our neighborhood as current drainage is not adequate.
2. Noise pollution will destroy our neighborhood's serenity, lights will be disturbin
3. TOXINS will affect our health
4. chicken Odor will be offensive to the extreme
5. a buffer zone between neighborhoods & heavy industry will be destroyed
6. a wildlife habitat will be eliminated.
7. property values will be lowered

The city has not been straightforward in its presentation of plans & we oppose any development except for agriculture office space or a wildlife habitat.

Yvette L. O'Neill Lawrence H. Blair Sr.

Cowlitz-Wahkiakum Council of Governments

ADMINISTRATION ANNEX
207 NORTH FOURTH AVENUE
KELSO, WA 98626-4195

PHONE (360) 577-3041
SCAN 562-3041
FAX (360) 425-7760
TDD PHONE (360) 577-3061

COWLITZ COUNTY
CITY OF LONGVIEW
CITY OF KELSO
CITY OF CASTLE ROCK
CITY OF WOODLAND
CITY OF KALAMA
TOWN OF CATHLAMET
PORT OF LONGVIEW
PORT OF KALAMA
PORT OF WOODLAND
COWLITZ COUNTY PUD NO. 1
LONGVIEW SCHOOL DISTRICT
KELSO SCHOOL DISTRICT
WOODLAND SCHOOL DISTRICT
CASTLE ROCK SCHOOL DISTRICT
BEACON HILL SEWER DISTRICT
WAHKIAKUM COUNTY PORT NO. 1
WAHKIAKUM COUNTY PORT NO. 2
WAHKIAKUM COUNTY PUD NO. 1
WAHKIAKUM COUNTY

May 23, 1996

MAY 1996
Received
Planning & Building
City of Longview

Ed DeVries
City of Longview
Planning and Building
Longview City Hall
1525 Broadway
Longview, WA 98632

Dear Ed:

I have received the notice to participate on the Mint Farm EIS program. I will be glad to participate and bring to the table the regional transportation issues and opportunities this development will bring to our region. Please let me know when and where the meetings will be held with other members of the EIS team. I look forward to working with you on this project.

Sincerely,

Rosemary

Rosemary Brinson Siipola
Transportation Planner/Manager

RS:nh

cc: Corky Gower, City of Longview Public Works Department
Steve Harvey, CWCOG

623MFEIS.RS5

3148 Laurel Road
Longview, WA 98632
(360) 423-4658
17 May 1996

Ed DeVries, Director, Planning and Building
Longview City Hall
1525 Broadway
Longview, WA 98632

1996
Received
Planning & Building
City of Longview

Dear Mr. DeVries:

I protest!

Today I received a document concerning the Mint Farm Proposed Light Industrial Park. The document states, "Comments must be received within 21 days of the date of this notice to be included in the EIS."

The document is dated May 8, postmarked May 15, and received today, May 17. This gives us 12 days, not 21, to assemble our response. Such belated notice almost guarantees an off-the-cuff, ill-thought-cut response.

Can the window be enlarged in view of this situation?

Sincerely,

Ruth Deery

Ruth Deery

Technical Appendices

Geotechnical Report

Wetlands Evaluation Study

Traffic Study

Stormwater Management Report

Wildlife Habitat Report

Sanitary Sewer Report

Water System Report

TECHNICAL APPENDICES TO THE

DRAFT
ENVIRONMENTAL IMPACT STATEMENT
FOR
MINT FARM INDUSTRIAL PARK

City of Longview
Longview Planning Department
Longview, WA

Geotechnical Report

Geotechnical Considerations
Environmental Impact Statement
Mint Farm Industrial Park,
Phase I
Longview, Washington

Prepared for
Richard Carothers Associates

September 23, 7996
J-4596

CONTENTS

	Page
INTRODUCTION	1
PURPOSE, SCOPE, *AND* LIMITATIONS OF OUR WORK	1
OUR UNDERSTANDING OF THE PROJECT	2
GENERAL GEOLOGY *AND* SUBSURFACE CONDITIONS	2
GEOTECHNICAL ENGINEERING ELEMENTS OF CONSTRUCTION	3
We Anticipate that Preloading will be Necessary	
We Anticipate that Structures will be Founded on Piles	
Utility Construction will Require Trench Excavations	
POTENTIAL IMPACTS TO SITE GEOTECHNICAL AND HYDROLOGICAL CONDITIONS	6
Placement of Fill Soils	6
Excavations	7
Effects of Structures and Pavement	7
Dewatering	8
Installation of Pile Foundations	8
Construction Equipment Traffic	8

FIGURE

1 Site and Exploration Plan

GEOTECHNICAL CONSIDERATIONS
ENVIRONMENTAL IMPACT STATEMENT
MINT FARM INDUSTRIAL PARK, PHASE I
LONGVIEW. WASHINGTON

INTRODUCTION

This report presents the results of our study of environmental impacts from geotechnical elements of the proposed Mint Farm development in Longview, Washington. It includes the following sections:

- Purpose. scope, and limitations of our work;
- Our understanding of the project;
- General geology and subsurface conditions;
- Geotechnical engineering elements of construction; and
- Potential impact to site geotechnical and hydrological conditions

PURPOSE, SCOPE, AND LIMITATIONS OF OUR WORK

The purpose of this work is to provide geotcchnical input to the Environmental Impact Statement (EIS) prepared by Richard Carothers Associates (RCA).

Our scope of work for this study, as well as for our geotechnical engineering design study (presented in a separate report), included the following:

- Review of previously conducted subsurface explorations on this site by our firm and by others;
- An exploration program consisting of twelve test pits and seven hollow-stem auger brings;
- Geotechnical laboratory index testing on selected soil samples;
- Formulation of geotechnical engineering recommendations and conclusions:
- Identification of potential environmental impacts from the geotechnical aspects of the proposed construction; and
- Preparation of this report.

Hart Crowser completed this work in general accordance with our contract dated June 28. 1996. between Richard Carothers Associates and Hart Crowser. We performed this work for the exclusive use of Richard Carothers Associates for specific application to this project and site. We completed this study in accordance with generally accepted geotechnical

practices for the nature and conditions of the work in the same or similar localities, at the time the work was performed. No other warranty, express or implied, is made.

OUR UNDERSTANDING OF THE PROJECT

The Mint Farm site in western Longview, Washington. is proposed for development of a 455-acre industrial park. Phase 1 encompasses about 125 acres in the north and northwest areas of the site. Development will include buildings; roadways; water, storm water and sewer systems: a d private utilities.

The Mint Farm site is covered by tall grass and has fairly flat topography. It is currently undeveloped.

GENERAL GEOLOGY AND SUBSURFACE CONDITIONS

Our interpretation of soil conditions is based on information presented in published literature and on subsurface explorations conducted by Hart Crowser and by others in the Phase I area. The published literature deals with soil types on a broad scale. while the explorations apply to very specific locations. Variation5 in subsurface conditions may be encountered during the course of development and construction.

According to the Soil Survey of the Cowlitz Area. Washington, by the USDA Soil Conservation Service, soils at the site consist of Snohomish silty clay loam. This is described as a poorly drained, silty. clayey. and peaty alluvium. formed in depressions and backwaters on the Columbia River floodplain. The representative soil profile is 15 inches of mottled, silty, clay loam over stratified layers of 'muck'. silty clay. and peat to a depth of 61 inches. The Snohomish silty clay loam has a low permeability. and the hazard of erosion is defined as 'none to slight.'

The locations of explorations conducted by Hart Crowser and others are presented on Figure I. These explorations primarily encountered soft to medium stiff silt and fine sandy silt which becomes medium stiff to stiff below depths of about 60 to 80 feet. A I- to 2-foot-thick layer of stiff. apparently desiccated. silt was commonly observed at the surface. Layers of loose to dense sands and silty sands were encountered at various depths in the explorations; these layers are relatively more permeable and less compressible and range from 4 feet to 20 feet in thickness. A consistent. 4- to 5-foot-thick layer of sandy volcanic ash was encountered at a depth of about 60 feet.

Our recent test pit excavations encountered groundwater seepage at depths ranging from 4 to 6 feet; groundwater levels measured in our recent borings at the time of drilling were I5 to 18 feet deep. Given the relatively low permeability of the site soils. we expect that groundwater levels in the borings would have risen slowly over rime, eventually reaching the shallower depths observed in the test pits. Explorations by others indicate groundwater depths of 2 to 7 feet. It is important to note that groundwater fluctuations will occur in response lo changes in rainfall. temperature, and other factors.

GEOTECHNICAL ENGINEERING ELEMENTS OF CONSTRUCTION

The predominant characteristic of the Mint Farm site with respect to geotechnical issues is the thick sequence of potentially compressible soils that underlies the area. The soft to medium stiff. fine-grained sediments which underlie the Mint Farm site are susceptible to settlement under loading from buildings. roadways, and utility trenches backfilled with denser sandy soils.

We Anticipate that Preloading will be Necessary

We expect that preloading will likely be uwd on this site. Preloading involves placing several feet of fill over the ground surface well in advance of building construction. We expect that preload thicknesses at this site will be in the range of 3 to 6 feet. The weight of the preload fill imposes a load on the compressible site soils. which then undergo compression at a rate that reduces with time. The amount of settlement that occurs during the first few months under a preload will be substantially greater than the incremental settlement that occurs subsequently. After a suitable length of time has passed. and the site soils have undergone compression under the preload. buildings can be constructed on the site. and the influence of their additional weight will be lessened. Essentially. the compressible soils will have done much of their consolidation prior to building construction.

The preloading effect can be accelerated by applying a surcharge fill. In this caw, an excess amount of preload fill is placed, and after some amount of time has passed. is removed just before the building is constructed. If the amount of removed fill is equivalent in weight to the constructed building. then the building will add no net load to the underlying soils. and post-construction settlements will be further reduced. Furthermore, the use of a surcharge reduces the amount of time needed for a sufficient amount of senlement to occur.

Floor slabs can be designed in one of two basic ways: as slabs-on-grade. in which they rely on the underlying ground surface for their support, or as structural slabs, in which their weight is supported by the building's footing or pile foundations. At this site. if floor slabs will be wnswcted as slabs-on-grade. then the subgrade may need to be preloaded because the soft and compressible site soils will settle as they compress under the weight of the slab and the load it supports. This can be especially damaging to a floor slab if differential settlements occur. which may cause the floor slab to crack. In general it can be expected that differential settlements will be in he range of one-half of the maximum settlement amount.

Paved roads, like floor slabs. are also susceptible to damage if the underlying soils settle. Differential settlement can cause cracking of the asphalt and dips in the grade. On sites which are underlain by compressible soils. roads are typically constructed on filled embankments. which provide a stabilized subgrade and cause compression of the underlying soils before the paving is done.

We recommend that all building slabs and paved areas be underlain by a layer of compacted structural fills that is at least 2 feet thick. We consider a clean, well-graded sand or sand and gravel containing less than five percent (by weight) passing the No. 200 sieve. to be suitable as structural fill. This material will need to be imported to the site. Below this 2-foot layer of structural fill. lower quality fill soils can be used provided that they can be compacted during placement.

We Anticipate that Structures will be Founded on Piles

Several options exist for building foundations, depending on the loads that the buildings impart to the underlying soils and on the ability of the buildings to accommodate settlements.

A common approach to foundation design on soft soils is to use deep foundations (piles). These are concrete. wood. or steel columns or pipes which extend to deeper, commonly more competent soils. upon which the building rests. The building loads are transferred to deeper soils through a combination of friction along the sides of the pile and resistance at the bottom of the pile. It may be possible at this site to extend piles through the soft silts to a more competent sand layer, so that the majority of the loads are carried by the sand, which is much less compressible than the fine-grained soils. However, since the sand layers appear to be scattered and non-continuous across he site. it may be necessary to 'float' the piles instead. In this caw. the piles do not necessarily reach a layer of firmer soil, but rather are designed to carry (heir loads primarily through friction

We recommend that slopes for embankments made of structural fill be no steeper than 2H:1V. These are estimates for planning purposes only; the maximum stable slopes may vary somewhat with different fill soil types and the presence of surface water and near-surface groundwater. The maximum slopes are intended to be stable against sloughing and shear failure. The existing topography of this site is generally nat except for minor slopes alongside ditches. We therefore cxpect that slope stability of existing site soils will not be an issue during construction.

Excavations

Excavations for utility lines and the pump house may be performed as open cuts. If this is the case. then we recommcnd that the side slopes be maintained at 1H:1V in cohesive silts and clays, and at 1.5H:1V in any granular soils that may be encountered. Again. this recommendation is intended for planning purposes only because actual slope stability will be somewhat dependent on site conditions at the rime of construction. If site geometry dictates that open cut slopes cannot be used, then temporary shoring or trench boxes will be needed.

We expect that h e soils that arc excavated from utility uenches will be primarily silt and therefore not usable as structural fill. This soil may be used to re-fill the deeper portion of the uench. but the near surface fill will need to be a higher-quality structural fill. We therefore expect that utility trench excavation will produce volumes of sitc soil that need disposal. The silty nature of these soils will mean that they probably will not have much value to other projects and will therefore need to be disposed of at a landfill.

Effects of Structures and Pavement

The Mint Farm sire is currently vegetated; the proposed development will result in a surface that is largely covered by buildings and pavement. This will substantially increase the amount of surface water runoff (or, equivalently, reduce surface watcr infiltration). This can be mitigated with appropriate design of the storm watcr system.

Water that runs over a paved surface will pick up chemicals from the pavement, including typical roadway contaminants such as oils and gasoline. The storm water collection system will need to be designed to retain appropriate volumes of runoff during storm events. and to minimize the discharge of oils to surface water. through the use of oil/water separators.

Dewatering

We anticipate that some amount of dewatering may be needed for temporary excavations. Water level reductions in compressible soils can cause consolidation by increasing the effective stress of the soil. The fine-grained silts and clays that generally exist at the sitc arc low-permeability soils and are therefore unlikely to transmit appreciable quantities of watcr. Any temporary drawdown of the water table for trench or building excavation will have a relatively small radius of influence. so we cxpect that any effects of water table drawdown will be limited in extent.

We expect that groundwater seepage can be controlled with sumps and pumps. Groundwater that is collected will require disposal. We expect fairly low volumes of watcr to be produced in small excavations owing to the low permeability of the fine-grained soils.

Sand layers arc known to occur in the subsurface at various depths and locations. These layers arc much more permeable than the fine-grained soils. so groundwatcr will move more readily within these sandy layers. If a sandy zone is encountered in an excavation. then the amount of generated groundwater may increase substantially. However. we expect that high flow rates will not persist for an extended length of time because the sand layers appear to be discontinuous, indicating that they hold a limited volume of water and will be slow to recharge. Groundwafer drawdown in a sand layer may cause slow consolidation of overlying compressible soils. We recommend this effect be mitigated by keeping the time of groundwafer pumping to a minimum. and backfilling excavations as soon as possible after excavating them.

Installation of Pile Foundations

Pile foundations can be driven with a hammer to their final embedment depth, or drilled and filled with concrete. Both options will affect h e environment. Driving piles is a very noisy operation, and it induces vibrations in the surrounding soil mass. which may be damaging to nearby structures. Since there are no existing structures or residences on the site, we expect that these effects will not be problematic. Drilling of piles will generate soil cuttings which will require disposal.

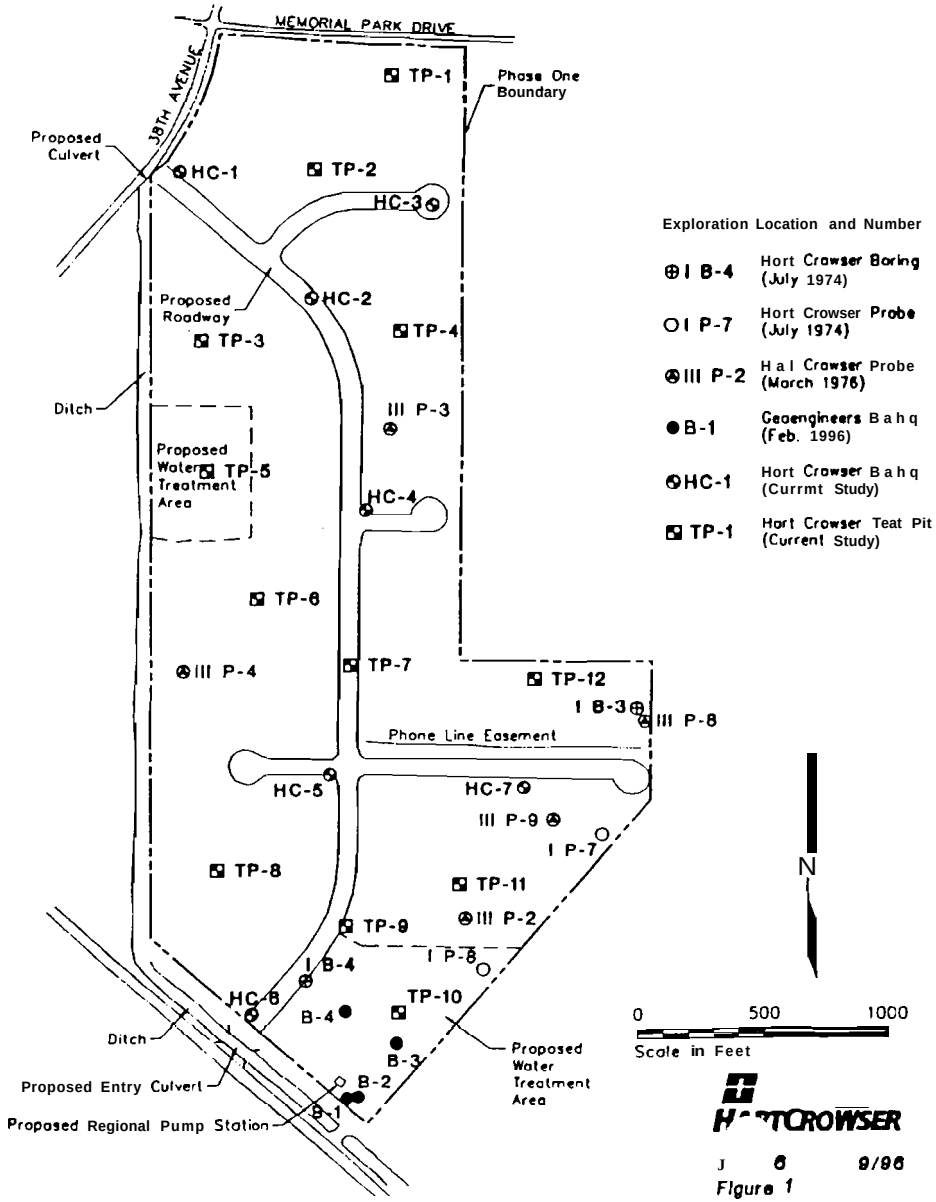
Construction Equipment Traffic

Construction equipment and vehicles may be fueled on site. Fuels and lubricants washed from equipment may end up on site soils and may percolate to the groundwater or be discharged to surface watcr along with

storm water runoff. The potential for spills can be mitigated through proper design and construction techniques.

MINTFARM.fr

Site and Exploration Plan



Wetlands Evaluation Study

WETLAND ASSESSMENT AND CONCEPTUAL COMPENSATORY MITIGATION PLAN

THE MINT FARM INDUSTRIAL PARK

CITY OF LONGVIEW, COWLITZ COUNTY, WASHINGTON

prepared for:

Mr. David Hepp, ASLA
Richard Carothers Associates, Ltd.
814 East Pike Street
Seattle, Washington 98122

prepared by:

WATERSHED DYNAMICS, INC.
1833 Auburn Way North, Suite F
Auburn, Washington 98002
(206) 735-4288

August 29,1996

TABLE OF CONTENTS

INTRODUCTION.....1
DOCUMENT PURPOSE.....1
PROJECT SITE DESCRIPTION.....2
ONSITE ASSESSMENT.....3
BACKGROUND INFORMATION.....3
ONSITE ANALYSIS.....4
WETLAND DETERMINATION.....6
WETLAND FUNCTION AND VALUE ASSESSMENT.....7
ONSITE WETLAND VALUATION.....8
SELECTED COMPENSATORY MITIGATION APPROACH.....9
ALTERNATIVES ANALYSIS.....9
GOAL AND OBJECTIVES OF THE WETLAND MITIGATION PLAN.....11
PERFORMANCE CRITERIA.....13
DETAILED DESCRIPTION OF THE COMPENSATORY MITIGATION PLAN.....15
MITIGATION REPLACEMENT/ENHANCEMENT RATIO.....16
SUMMARY TABLE OF WETLAND FUNCTION BENEFITS PROVIDED BY THE MITIGATION PLAN.....17
MITIGATION SITE SELECTION.....18
MITIGATION SITE CHARACTERISTICS.....18
CONSTRUCTION INSPECTION.....19
APPENDIX A...1987 NRCS SITE DETERMINATION.....
APPENDIX B...1996 CORPS VERIFICATION OF NRCS DETERMINATION.....
APPENDIX C...FIELD DATA FORMS.....
APPENDIX D...PROJECT SITE PLANT LIST.....
APPENDIX E...1996 SHALLOW GROUNDWATER MONITORING PROGRAM.....
APPENDIX F...NATIVE PLANTS LIST FOR INSTALLATION.....

INTRODUCTION

This report details the wetland site assessment, the conceptual wetland compensatory mitigation plan, and the associated monitoring program completed as an initial element within the planning and site development processes identified for the Mint Farm Industrial Park, City of Longview, Cowlitz County. Washington (northwest corner of Section 31 and the northeast corner of Section 30. Township 8 North. Range 2 West. W.M.)(Figure 1).

The Preferred Action Alternative for this approximately 125 acre project area focuses on the planning, design, and construction of the required infrastructure suitable for implementation of the proposed industrial park facility. Such infrastructure includes roadways, utilities, and stormwater management systems.

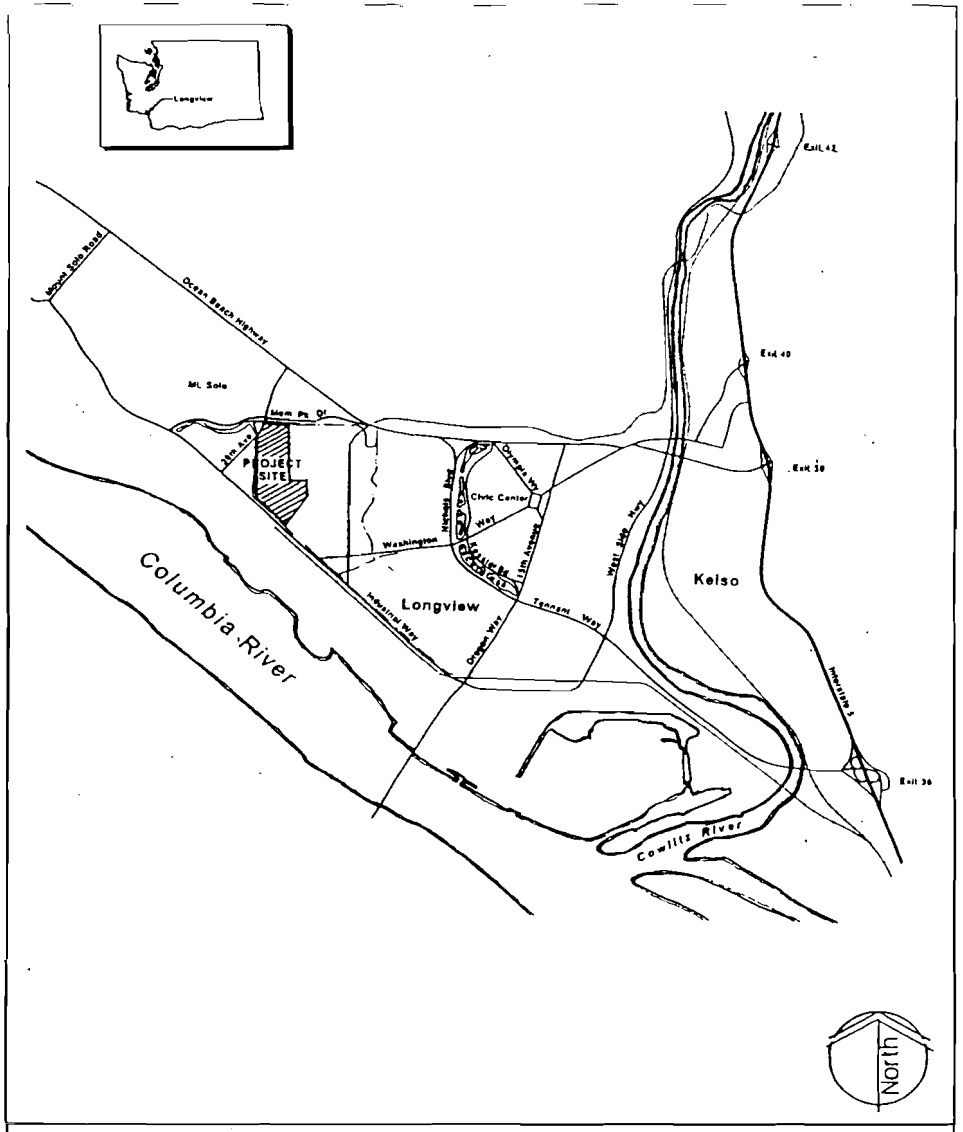
The Preferred Action *Alternative* also specifically addresses the requirements of "no net loss" of wetland resources while also achieving the specific facility mandate of the City of Longview. As presently proposed the selected site plan will require the unavoidable modification to approximately 2.7 acres of existing maintained agricultural ditches.

As compensation for this unavoidable Impact, approximately 4.1 acres of wetland area will be created in conjunction with the onsite stormwater management systems. The proposed wetland creation will provide an overall replacement of area at a ratio of 1.5 to 1 (replacement to modified) and will also increase the diversity of plant communities and wildlife habitats available within the project site.

The Preferred Action Alternative has been developed following the overall methodology of (1) impact avoidance, (2) impact minimization, and (3) compensation for impacts that can not be avoided. The proposed compensation will create and enhance existing wetland functions and include protective buffers, water quality protections, flow controls, and educational/recreational opportunities.

DOCUMENT PURPOSE

This PURPOSE of this document is three fold. First, to present the observations and conclusions of project site assessment designed to evaluate the presence or absence of jurisdictional wetlands. Second, to provide a wnceptual mitigation plan designed to compensate for unavoidable impacts to jurisdictional wetlands Third, to identify the objectives and uiteria whereby the success of the completed mitigation will be determined.



WETLAND FILL APPLICATION FOR
THE MINT FARM INDUSTRIAL PARK
Longview, Cowlitz County, WA

FIGURE 1
GENERAL SITE VICINITY

Richard Carothers Associates
614 East Pike Street • Seattle, Wa. 98122
206/324-5500 FAX 326-1840

August 1996

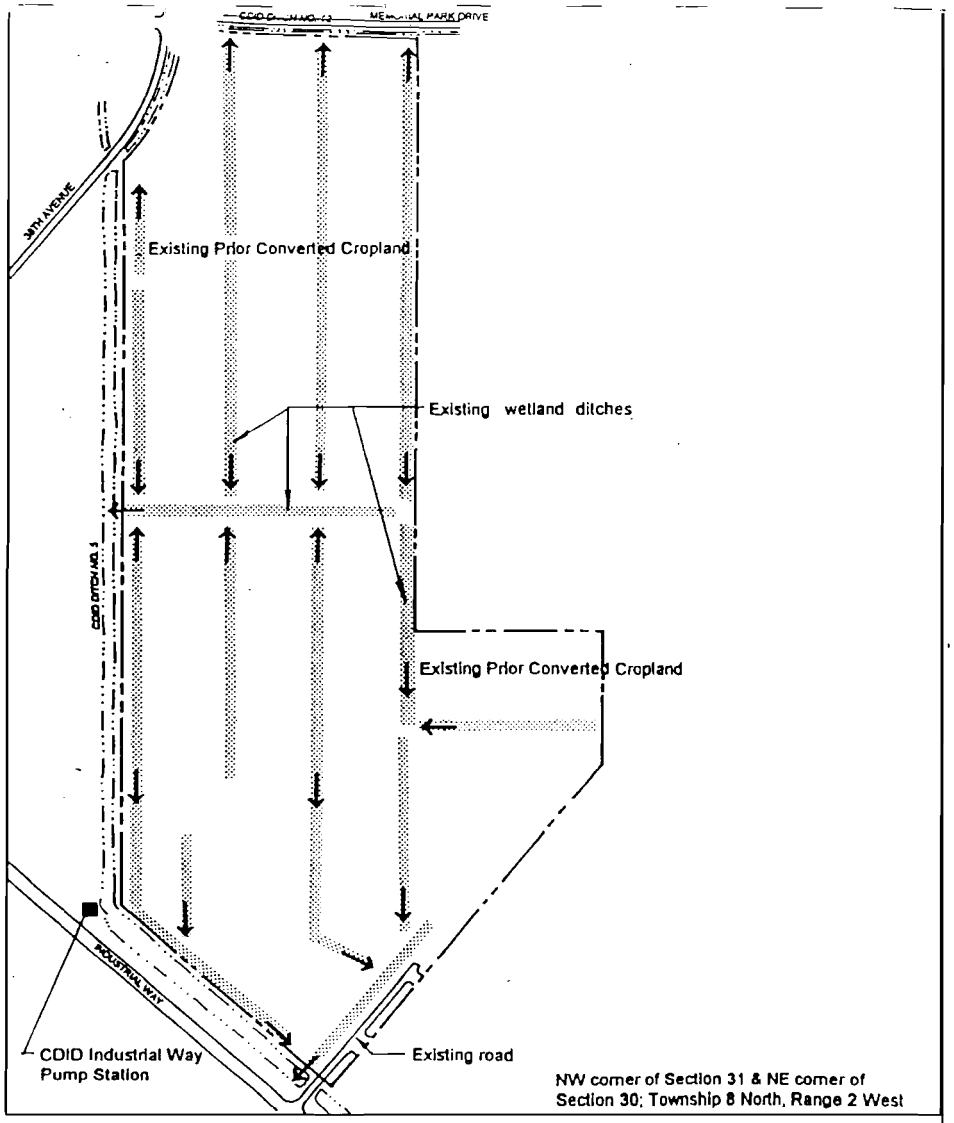
PROJECT SITE DESCRIPTION

The Mint Farm Industrial Park project sile is approximately 125 acres in size and comprises the western portion of the approximately 435 acre sile commonly referred to as the Weyerhaeuser 'Mint Farm.' This entire area has been actively used for the production of a number of agricultural crops for several decades. Past and ongoing agricultural activities have included clearing, plowing, seeding, annual commodity crop rotation, and routine maintenance of drainage dilchlines.

To facilitate this agricultural activity a network of internal and perimeter ditchlines have been constructed and maintained within the project area. Onsite surface stormwater Is directed via these internal and perimeter ditchlines towards large, constructed drainage district facilities along the northern (ditch #12), western (ditch #5), and southern (dilch U3) project boundaries. Surface water within these drainage district facilities Is pumped from the Industrial Way Pump Station located offsite of the soulhweslern corner of the project site into the Columbia River within a buried siphon (Figure 2).

The project site is generally flat and presently being used for livestock pasture and the production of pasture crops. The dominant onsile plant community is composed of seeded and invasive grasses and herbs. Observed species include bluegrass (*Poa* spp.), colonial bentgrass (*Agrostis tenuis*), meadow foxtail (*Alopecurus pratensis*), water foxtail (*Alopecurus geniculatus*), common orchardgrass (*Dactylis glomerata*), tall fescue (Festuca arundinacea), red fescue (Festuca *rubra*), velvet grass (Holcus *lanatus*), reed canarygrass (*Phalaris arundinacea*), softrush (Juncus *effusus*), load rush (*Juncus bufonius*), common horsetail (*Equisetum arvense*), bull thistle (*Cirsium* vulgare). fireweed (*Epilobium angustifloium*), creeping buttercup (*Ranunculus repens*), dandelion (Taraxacum *officinale*), red clover (*Trifolium* pratense). white clover (*Trifolium repens*), and vetch (*Vicia* spp.). Common cat-tail (Typha *latifolia*) Is present within the edges of the maintained ditchlines and Himalayan blackberry (*Rubus* procera) is beginning lo invade in scattered dumps throughout the project site.

The northeast corner of the project site has been planted with hybrid black cottonwood (*Populus* trichocarpa) lrees as a test for site production capabilities. In addition, a number of Douglas fir (*Pseudotsuga menziesii*) have been planted along the northern edge of the project site along ditch #12.



WETLAND FILL APPLICATION FOR
THE MINT FARM INDUSTRIAL PARK
Longview, Cowlitz County, WA

FIGURE 2
GENERAL SITE DESCRIPTION

August 1996

Richard Carothers Associates
814 East Pike Street - Seattle, Wa. 98122
206/324-5500 FAX 328-1880

ONSITE ASSESSMENT

BACKGROUND INFORMATION

Natural Resource Conservation Service **Site Determination**

During the summer of 1987 and at the request of the Weyerhaeuser Company, staff from Ihe Cowlitz Counly District Conservationist. U.S.D.A. Soils Conservation Service (now renamed the Natural Resource Conservation Service - NRCS) reviewed the Weyerhaeuser 'Mint Farm' property and conducted and assessment of the project sile. As a result of this 1987 review the 'Mint Farm' property was delermined Io be PRIOR CONVERTED CROPLAND and thus exempt from the provisions of the Food Security Act and the Clean Water Act (Appendix A). Prior converted croplands are Identified as wetlands that were drained, dredged, filled, leveled. or otherwise manipulaled before December 23, 1985, Io make production of an agricultural commodily possible. This site visit further noted that while the project site was dominated by Caples and Snohomish soils, these soils were not considered hydric since they have been drained prior to December 1985.

On January 6, 1994, a Memorandum of Agreemenl was signed between four federal agencies (U.S. Army Corps of Engineers, NRCS. U.S. Environmental Protection Agency, and U.S. Fish and Wildlife Service) which Identified the NRCS as the lead Federal agency for delineating wetlands on agricultural lands. As Identified within this agreemenl, delerminalions made by the NRCS prior Io January 1994 would be considered valid for purposes of Section 404 of the Clean Water Act as long a site conditions had not substantially changed.

U.S. Army Corps of Engineers **Verification**

On March 14, 1996, at the request of the City of Longview, the U.S. Army Corps of Engineers. Seattle District, provide notice of the acceptance of the NRCS determination concerning the 'Mint Farm' project sile (Appendix B). This notice included the following stipulations:

- The delermination that the projecl sile would be considered prior converted cropland and thus not subject to jurisdiction under Section 404 of the Clean Waler Act was valid only for the field portions of the projecl site.
- The existing ditches within Ihe projecl site would be considered waters of the United States and subject Io Corps of Engineers jurisdiction under Section 404 of the Clean Water Acl where evidence of both surface inundation during the growing season and hydric soils was sufficient to meet the established wetland criterion.

Project Site Soils Mapping

The NRCS has identified and mapped Ihe soils within Cowlitz County (Soil Survey of Cowlitz County, Washington, February 1974) (Figure 3). The primary soils within the project site are notes as:

Ce - Caples Silt loam: This soil series consists of somewhal poorly drained and poorly drained soils formed In alluvium on flood plains. The surface layer between 0 and 9 Inches Is dak-brown (10YR 313) sill loam lo light silly clay loam wilh many. moderate, dislind, slrong-brown (7.5YR 5/8) and gray (10YR 611) mollles Between 9 and 25 Inches the soils Is gray (5Y 511) heavy silty clay loam wilh many, fine, prominenl, yellowish-red (5Y 516) and dark reddish-brown (2.5YR 3/4) rnollles. This soil series Is considered hydric In Cowlitz Counly.

Ss - Snohomish silty clay loam: This soil series consists of poorly drained soils formed in alluvium in depresslons on the floodplain. The surface soils between 0 and 6 Inches la gray (5Y 511) silty clay loam with many. fine and medium, promlnenl dark-brown (7.5YR 314) mollles. Between 6 and 15 Inches Ihe soil Is gray (5Y 511) silly day loam with many fine and medium, prominent, dark-brown (7.5YR 4N) mollles. Between 15 and 25 Inches the soil Is pray (10YR 611) and dark reddish-brown (5YR 2/2) peaty muck with common, fine, dislind, dak-red (2.5YR 316) rnollles.

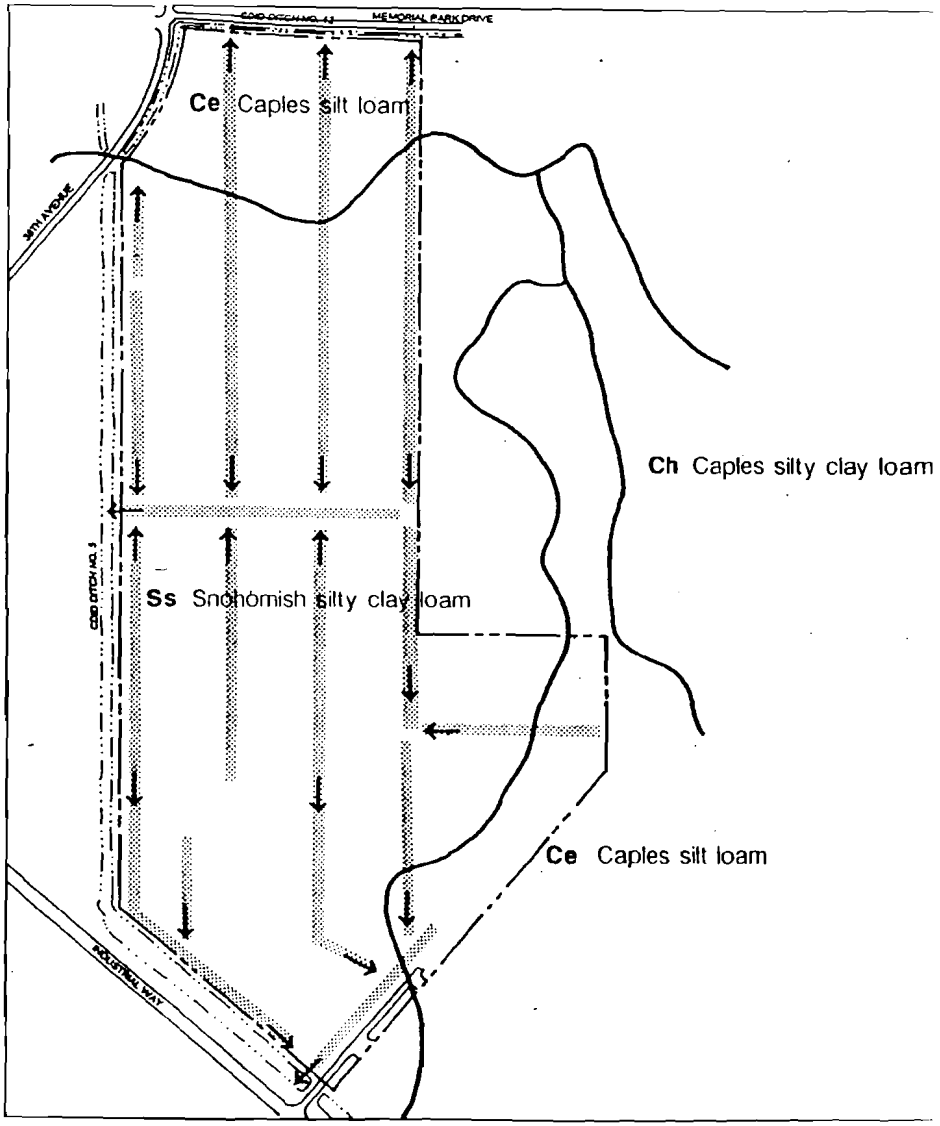
ONSITE ANALYSIS

Assessment Methodologies

Onsite evaluation of site characteristics was completed for Ihe Mint Farm Industrial Park site by Watershed Dynamics. Inc (WDI) between January 1996 and April 1996. Specific delineation of areas which meet the established wetland criteria as defined with the 1987 Corps of Engineers Wetland Delineation Manual (1987 Manual) was completed on April 19, 1996.

Since the project area is composed primarily of active agricultural lands, onsite analysis focused primarily on the evaluation and identification of soils characteristics and wetland hydrology as defined within the 1987 Manual. To assess the presence or absence of the wetland hydrology criteria (as discussed by the projecl team with NRCS staff during the fall and winter of 1995) a series of shallow groundwater monitoring wells were installed onsite by WDI during mid-February 1996. A total of 120 shallow wells were placed within a standardized grid pattern at approximate 200 foot by 100 foot intervals. These shallow groundwater monitoring wells were used to determine when the shallow free-water surface is within deplhs required for jurisdictional wetland determinalions and were installed as defined within WRP Technical Note HY-IA-3.1 (August 1993).

The depth of free-standing water within these wells was monitored twice a week between February 23, 1996 and March 16. 1996. However, this monitoring was terminated upon receipt of the Corps of Engineers' verification of the prior converted



WETLAND FILL APPLICATIONFOR
THE MINT FARM INDUSTRIAL PARK
Longview, Cowlitz County, WA

FIGURE 3
SOIL SERIES MAPPING
from Soils Survey of Cowlitz County, WA
USOA Feb 1974

Richard Carothers Associates
814 East Pine Street - Seattle, Wa. 98122
206/324-5500 FAX 324-1860

August 1996

cropland status of the fields within the project site. To resolve the issues within the Corps of Engineers' verification concerning the existing ditches, onsite assessment and evaluation of the wetland hydrology and soils characteristics within these maintained ditches was continued through April 19. 1996

Soils

Site specific analysis identified both hydric and non-hydric soils characteristics within the project site. Hydric soils are typically defined as soils which are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions within the upper soil horizons. Sample plots were established in which soils, vegetation, and hydrology were evaluated (Figure 4). Field data forms are provided in Appendix C. In addition, soils information was obtained throughout the field areas during the installation of the shallow ground water monitoring wells

In general, observed onsite soils followed the NRCS soil mapping. The northern portion of the project site was dominated by a surface layer of mixed silty clay loam and exhibited a soil matrix color of gray (10YR 411 and 10YR 511) and many prominent mottles. This surface layer exhibited evidence of past plowing activities. Below the surface layer the soil was a mixture of silty clay loam and peaty muck typical of the Snohomish silty clay loam soil series.

The central and southern portions of the project site were dominated by a surface layer of mixed silt loam and exhibited a soil matrix color of dark-brown (10YR 313 and 10YR 312) and many distinct mottles. As with the northern portion of the project site, the surface soil within these areas exhibited evidence of past plowing activities. Below the surface layer the soils was a mixture of silty clay loam, heavy silty clay loam, and clays typical of the Caples silt loam soil series.

Soils samples within the existing ditches exhibited evidence of past dilch maintenance activities and were very mixed in character. In many locations these ditchlines had been excavated to a depth greater than 5 feet below the elevation of the fields. The onsite ditches appear to have been excavated within soils typically considered to be hydric prior to drainage for agricultural purposes.

Hydrology

Surface and shallow ground water hydrology within the project site appeared to be provided by seasonal stormwater flow from onsite and offsite (primarily along the eastern project boundary), and from a seasonally high water table. Onsite hydrology was controlled by the presence of the maintained internal and external dilch systems A primary factor in this onsite hydrology control was the drainage district ditch system located directly offsite to the north, west, and south. Water surface elevations within this ditch system are controlled by a stormwater pump station located immediately southwest of the project site.

Surface water within the internal and external ditch systems was present through the spring of 1996. However, as noted onsite during the fall of 1995 the onsite ditch systems typically become dry during the summer and remain dry until the start of the falllwinter rain period. The large drainage district system directly offsite exhibits ponded surface water throughout the entire year.

Onsite water surface elevations during the early part of the growing season within the identified internal ditches appears controlled by the invert elevation of a number of culverts which have been installed and maintained to allow access for farm machinery and livestock across these ditches. Indicators of wetland hydrology wilhin these ditches included ponded surface, and damp or saturated soils.

Vegetation

As noted above the ditches are routinely maintained as a part of the ongoing agricultural activities. The most recent maintenance was completed during the fall and early winter of 1995. As such, the presence or absence of hydrophytic vegetation was not a useful indicator for wetland criteria assessment.

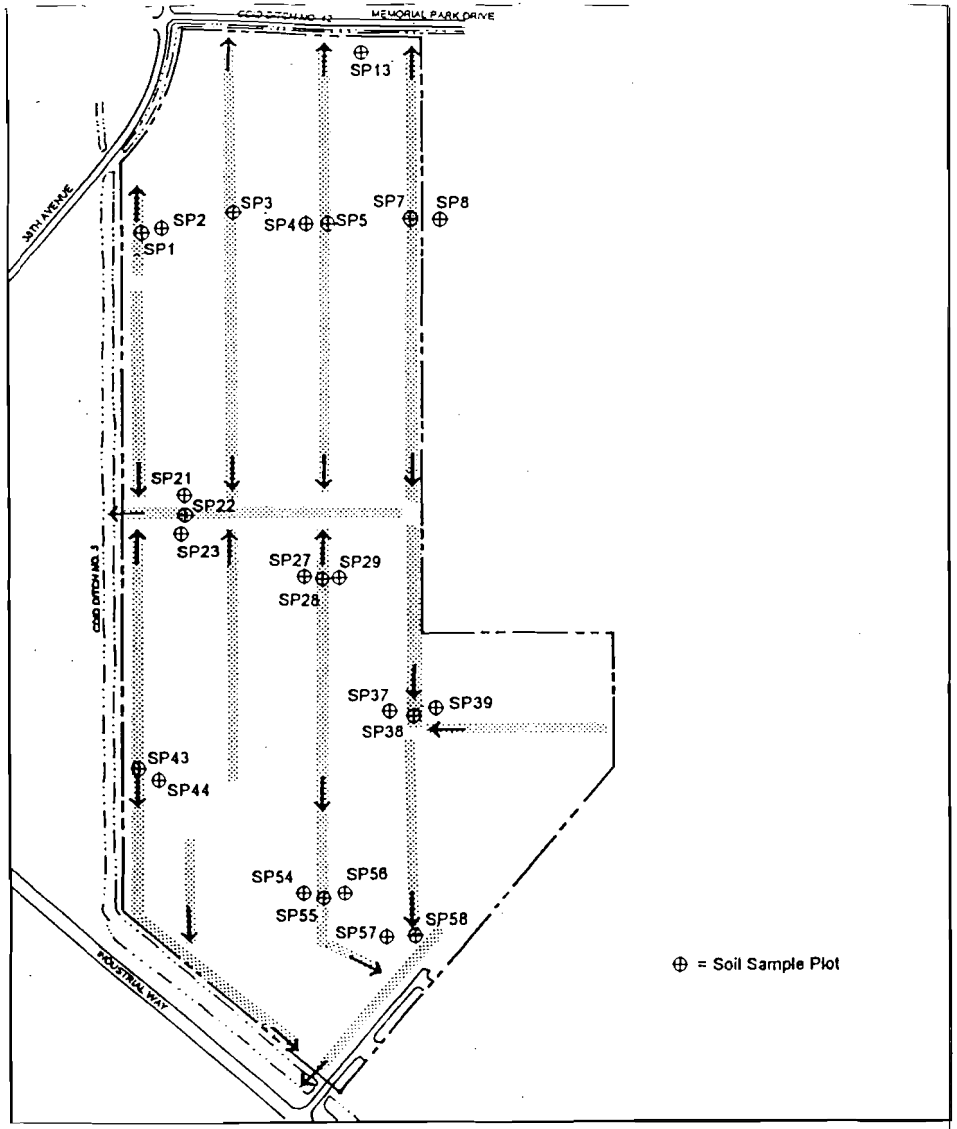
An assessment of the sidecast materials from the recent ditch maintenance identified the presence of common cat-tail. reed canarygrass. Himalayan blackberry, end softrush excavated from these ditches.

WETLAND DETERMINATION

Wetland determination centered on sample plots which exhibited the established criteria (hydrophytic vegetation, hydric soils, and wetland hydrology) in accordance with the 1987 Manual. Based on these methods, which Included onsite assessment completed between January through April 1996 and review of the background information, the existing onsite ditch systems were identified to meet all three aiteria for delineation as wetland (Figure 5).

The ditches appeared to meet the U.S. Fish and Wildlife Service classification (Cowardin, et. al, 1979) as:

PEMCx - Palustrine, emergent, seasonally flooded, excavated



WETLAND FILL APPLICATION FOR
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FIGURE 4
LOCATION OF WETLAND DELINEATION SAMPLE PLOTS

Richard Carothers Associates
814 East Pike Street - Seattle, Wa. 98122
206/324-5500 FAX 328-1880

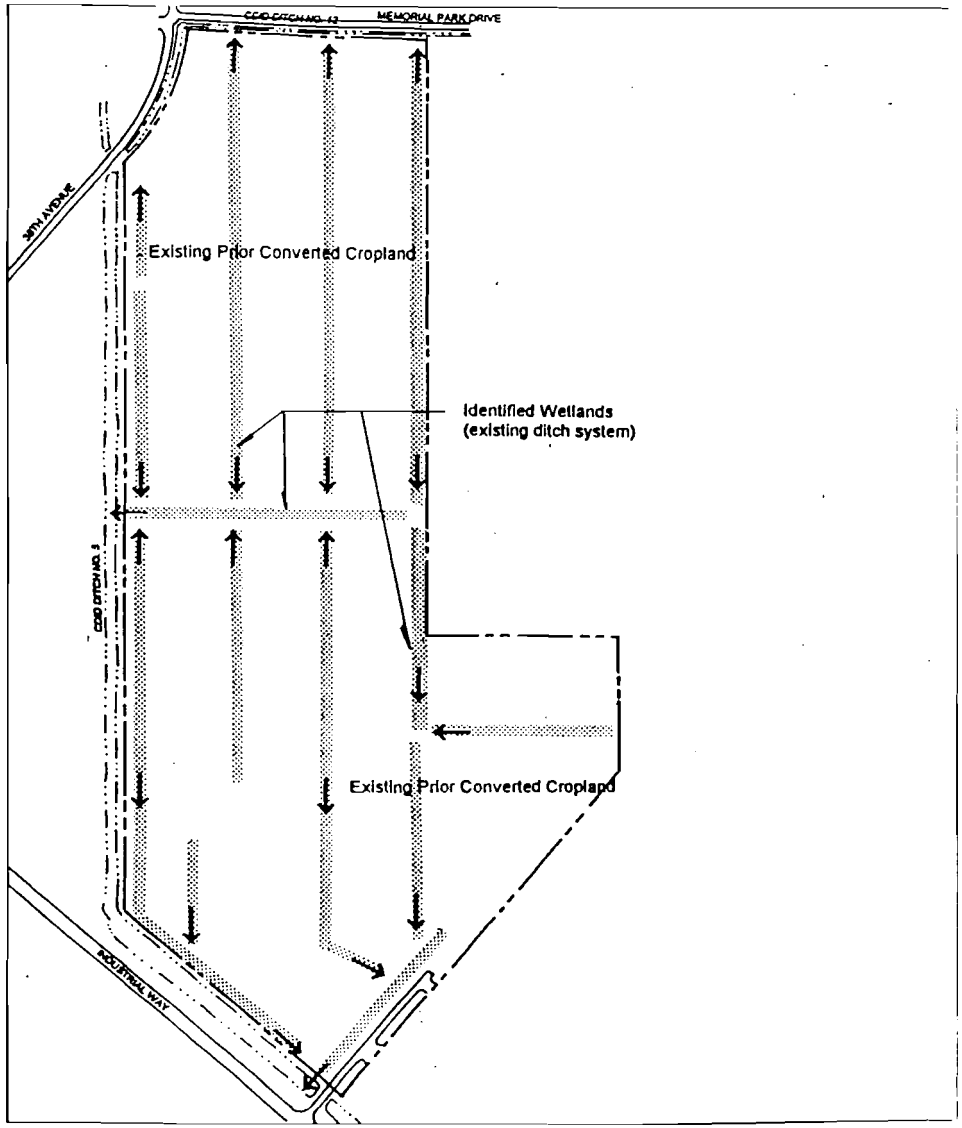

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FIGURE 5
IDENTIFIED WETLAND AREAS

Richard Carothers Associates
814 East Pike Street - Seattle, Wa. 98122
206/324-5500 FAX 328-1880

WETLAND FUNCTION AND VALUE ASSESSMENT

Wetlands are known to perform significant roles in the ecosystem, some of which are of immediate value to society. These roles vary greatly wilh the size, type, hydrology, vegetation, and location of wetland areas. Although the ecological functions performed by these wetlands are complex, interrelated, and difficult to assess and quantify, methods have been developed for the U.S. Army Corps of Engineers (Adamus et al 1987: Reppert et al. 1979). The functions provided by wetlands include hydrologic support, shoreline protection, stormwater and floodwater storage, water quality, groundwater recharge, and provision of wildlife habilat (Table 1).

The HYDROLOGIC SUPPORT FUNCTION Is defined by the measure of hydrologic stability and environmental inlegrily whlch the wetland provides. This function Is measured by Ihe frequency of inundalion and saluralion by lidal actions, slream flow. runoff, and precipilation. Wellands permanently inundated or saluraled. or intertidal wetlands are valued as high. Medium valued wellands are seasonally flooded or are open water systems lhal remain saturaled during most of the growing season. Wetlands lhal are intermitiently flooded or hydrologically isolated are considered of low value.

The SHORELINE PROTECTION FUNCTION is defined by the measure of shielding from wave aclion, erosion, or slorm damage which a wetland provides. This function is measured by Ihe location and width of the wetland along shoreline areas, lypes of vegelallon presenl, end the extent of developmenl along the shoreline. A high value Is glven to wellands along a shoreline lhal have a width grealer lhan 200 yards and dense woody vegelalion. A medium value Is given to a wetland with a wldlh of 100 lo 200 yards. spane woody vegelalion. end dense emergent vegelallon. Wellands less lhan 100 yards In widlh and emergent or lacking vegelalion are considered of low value.

The STORMWATER AND FLOODWATER STORAGE FUNCTION is defined by the ability of a wetland lo slore waler and retard flow during periods of flood or slorm dlscharge. Wellands of larger size are generally considered lo have grealer ability to provide this function. In addition, wetlands nearer lo urban or potentially developable areas are also considered lo provlde grealer flood protections than wellands whlch are In undeveloped areas.

The WATER QUALITY FUNCTION Is defined by the physical, biological, and chemical processes which wellands provlde to naturally purify water. This function removes organic and mineral parliculates lhrough natural filtration. In general, wellands of grealer size, more dense vegelalion, and lhose which are close lo poinl sources of pollulion are considered lo be of higher value. Wetlands which are small (<5 acres), lacking dense vegelalion. and not close lo point or non-point sources of pollulion are considered of low value

The GROUNDWATER RECHARGE FUNCTION is defined by the inieraclion of the underlying geology and soils, and the surface lopography This function provides for the movement of surface waler into groundwater systems. Important lo lhis function Is wetland slze, period of inundalion, and deplh of standing waler wilhin the wetland. High value is given lo permanently inundated wellands grealer lhan 10 acres In slze. Medium value is glven lo wellands whlch are seasonally flooded and 5 lo 10 acres Is size. Wellands less lhan 5 acres In slze. isolated, and temporarily saluraled are considered of low value.

The NATURAL BIOLOGICAL FUNCTION Is defined by the complexily of physical habitats and biological species within lhe wetland area. The value glven to a wetland depends upon its ability

lo provlde habitat for nesting (spawning). incubalion, feeding. rearing. and cover of aquatic end terrestrial animal and fish species. In addition, the ability of a wetland to provlde support for varying food chains is an Important element in value assessment. Wetlands of high species divenily, three or more habital lypes. unique habital features, large In size. and associated wilh a permanenl stream or lidal marsh are considered of high value. Wellands with moderale species diversily, two habital lypes, moderate in size, and assodaled with an intermittent stream or high salt marsh are considered of medium value. A low value Is given lo wetlands of low species divenily, small size, and Isolated.

These six functions are rated low, moderate, or high, based on the criteria outlined in Table 1. These criteria are guidelines compiled from Adamus (1987) and Reppert (1979) and professional judgment must be exercised In assessing these criteria. Overall values for a wetland are assigned, based on a synthesis of individual values.

In addition to intrinsic functions, extrinsic functions are also recognized. These extrinsic functions provide social values that have indirect benefits to wellands. Education and recreational opportunities are most often mentioned as extrinsic functions. Associated values are often in the eye of the beholder and are thus difficult to evaluate. As such, these functions are not rated, but are nonetheless important when considering creation, restoration, or enhancement projects.

ONSITE WETLAND VALUATION

The wetland areas identified within the project site were evaluated following the functional value assessment process noted above. As Identified in this assessment the identified onsite ditches which meet the criteria for designation as wellands would be considered to have the following overall value rating of LOW to MODERATE.

The primary features that achieve these overall ratings are in association with the following attributes:

- Waler Quality Benefits - The onsile ditch syslem appears smaller than 5 acres In total size and are located In a rapidly developing part of the City of Longvlew. This ditch system appeared lo retain less lhan 25% of the runoff whlch occurs and exhibited a managed vegelalion density less than 80%. The primary waler quality benefit provided by these wetlands includes the biofiltration of surface stormwater from onsile and offsite areas.
- Stormwater Storage - The onsile ditch system appears smaller than 5 acres In total size onslle end Is located In a rapidly developing parl of the City of Longvlew. A limited amount of slormwaler from onsite and offsile appean lo be retained onsile. The majority of the onsite slormwater Is transported offsite and controlled by en offsile stormwater pump station.
- Hydrologic Support - The onslle dilch syslem Is temporarily flooded/saturated by seasonal slorm events with ponding controlled during the early parl of the growing season by the inverl elevalions of a number of culverls placed within the ditch system to allow access. Evidence of shallow seasonal ponding and saturalion to lhe surface are present. During the summer and fall lhese ditches appear dry.

- **Natural Biological Function** - The plant community within this ditch system is routinely managed by ditch clearing activities. These areas exhibit a very limited range of plant diversity and vegetation complexity and have a single habitat type and no unique habitat features.

  During the spring of 1996 this ditch system was observed to provide habitat for muskrat (*Ondatra zibethicus*) and nutria (*Myocastor coypus*) which had developed runways and dens along the eastern and central ditches just above the elevation of the ponded water. Beaver (Castor canadensis) were noted in the large drainage district system to the west of the project site.

  The ditch system was also noted to provide brood rearing habitat for a number of hen mallards (*Anas platyrhynchos*) with young of the year between late-March through mid-April. These mallards appeared to be nesting along the offsite large drainage district system since onsite assessment failed to identify the presence of onsite nests during the early spring of 1996.

SELECTED COMPENSATORY MITIGATION APPROACH

Site planning for the Mint Farm Industrial Park has focused on the mandated hierarchy of wetland impact reduction: ***1) avoidance, 2) minimization, and 3) compensation***. These avoidance and minimization strategies included a review of alternative locations to undertake this project and site design to reduce impacts to onsite wetland systems.

Project related constraints (i.e. project size, location and size of the existing waters of the United States, internal facilities criteria and design, stormwater management and water quality protections, City of Longview health and safety regulations/standards) have been balanced in the final site plan to maximize impact avoidance and minimize the scale of unavoidable impacts.

The total amount of *Waters of the United States* (i.e. wetlands) to be modified for this project equals approximately 2.7 acres. Identified modifications include filling of existing ditches and placement of roadway culverts across existing ditches. As compensation for these unavoidable modifications and impacts, 4.1 acres of wetlands will be created onsite (a replacement ratio of 1.5:1 - created to impacted). In addition, a protective corridor will be established and planted with native trees and shrubs along the retained ditchline along the eastern project boundary (Figure 6).

ALTERNATIVES ANALYSIS

The project site was purchased by the City of Longview in July 1996 to carry out a policy commitment to develop land. This development reflects a strategy by the City Council to actively provide an expanded base for new jobs and tax revenue. It will

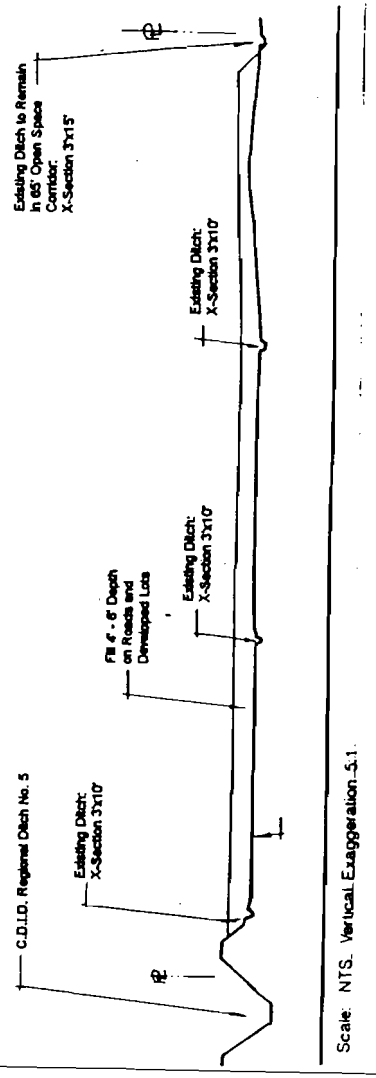

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FIGURE 6a
SECTION

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Richard Carothers Associates
814 East Pike Street - Seattle, Wa. 98122
206/324-5500 FAX 328-1880

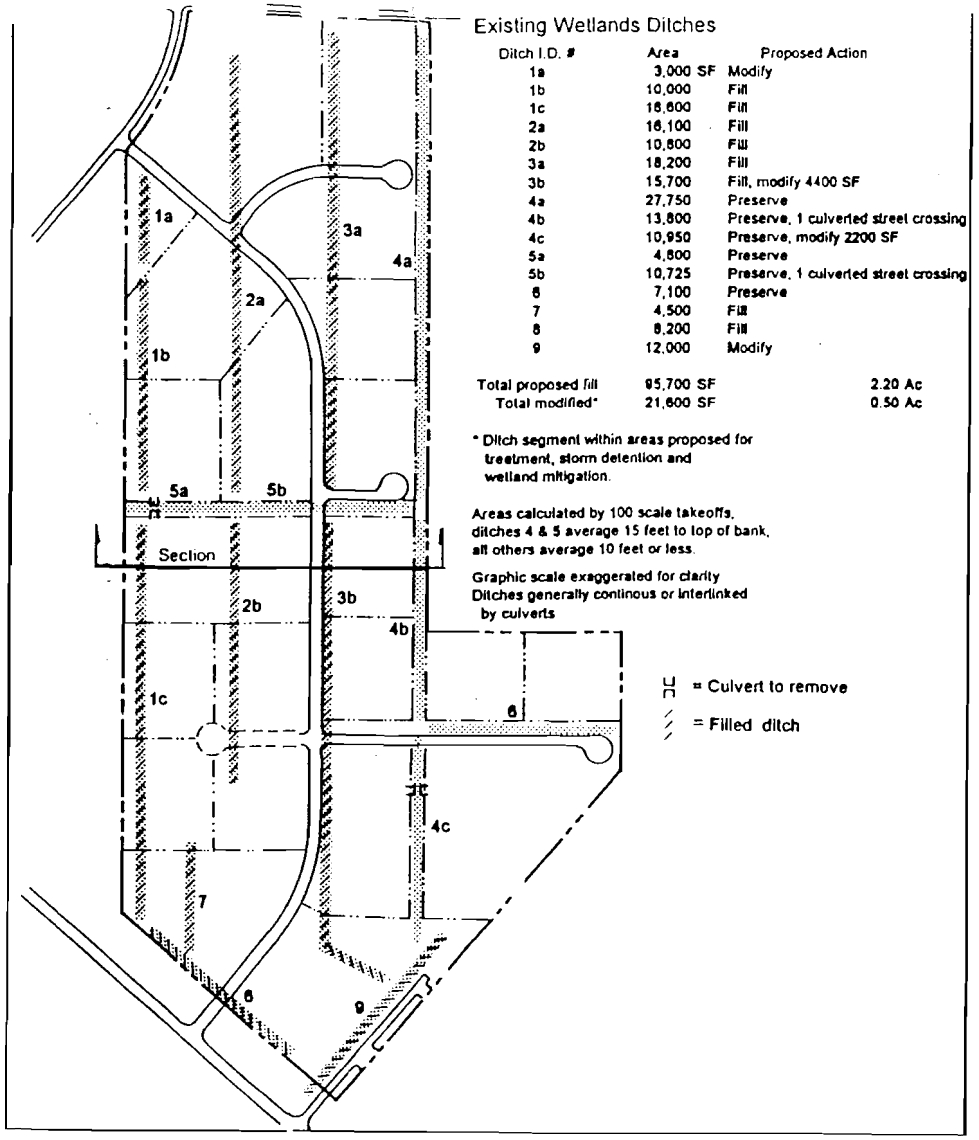

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FIGURE 6
PROPOSED PROJECT DESIGN AND WETLAND IMPACTS

100 0 500

Richard Carothers Associates
814 East Pike Street - Seattle, Wa. 98122
206/324-5500 FAX 328-1880

directly support the City's long range planning and economic growth programs set forth in the Comprehensive Plan, adopted in 1993.

The project site is located within the City's current boundaries on undeveloped land which has long been targeted for light industrial growth. The Comprehensive Plan identifies the site and adjacent land as Light Industrial in its Existing and Future Land Use -Figure 2. The site is zoned M-2, Heavy Industrial, but the City's intent is to support the less intense use set forth in the Comprehensive Plan. While the site is adjacent to heavy industrial uses to the south, it also lies adjacent to residential districts to the north and east. The light industrial usage will provide an appropriate transition between the established heavy industries and the residential areas.

The site is served by State Highway 432 which provides direct access to the Interstate 5 Corridor and other industrial locations within the City of Longview area.

Prior to the City's commitment to purchase the subject property, the City inventoried all vacant land within the City's boundaries with the objective of identifying alternative sites suitable to their development objectives. No comparable sites are available which meet the combined criteria of size, access, and conformance with zoning and the Comprehensive Plan. The City does not have the legal ability to buy or annex land outside its current boundaries for the express purpose of development. Hence the subject property is the only site available to the City to meet its development objectives.

The property purchased by the City is a part of a larger tract of approximately 435 acres owned by the Weyerhaeuser Corporation. The project site shares many characteristics with the balance of this area. Most is currently undeveloped and has been used for agricultural purposes since it was first cleared. This remainder of the Weyerhaeuser Mint Farm property has also been determined to be prior converted cropland by the NRCS. Development of sites in this area would also require modification of existing agricultural ditches which appear to meet the criteria for designation as waters of the United States.

The 125 acre site selected for purchase by the City from this larger area represents the westerly section of the overall property. It was chosen for its ready access to existing arterial streets. While the zoning and Comprehensive Plan envision the balance of the Weyerhaeuser property will eventually be developed in a similar manner, the City has no option or right of first refusal on any of the property not currently under its ownership.

Site planning within the proposed Mint Farm Industrial Park focuses on a number of strategies to avoid and minimize project related impacts to identified onsite areas considered to be *waters of the United States*. The onsite, agricultural dewatering ditches, which are the *waters of the United States*, under consideration, subdivide the property into a number on long linear strips not well suited to development as light industrial parcels. The site plan provides a roadway and lotting plan which gives

flexibility to the City in providing lot sizes between 2 and 25 acres. To the extent possible consistent with this need, onsile ditches were avoided. Overall, approximately *38* percent of the ditches will be set aside within open space tracts. These ditches will continue to be used to provide conveyance and storage of storm water.

Approximately one half of the onsite wetland ditches are proposed for filling, an unavoidable consequence of the land development plan. The balance of the wetlands, representing 11 percent of the total, will be modified from the current condition. These modifications are of two types. First, at two locations roads will cross existing ditches to remain using *75-85* foot culverts. One road is a four-lane configuration, the other a three-lane section. The balance of the modifications occur within open space areas supporting the stormwater quality and detention facilities. Here existing ditches will be reshaped, expanded, and otherwise modified as part of the multi-celled welpond and detention area systems. These are located at three points on the periphery of the site, for subsequent discharge of stormwater into the regional CDID drainage ditches.

The existing site plan identifies three areas where new wetland area may be created onsile. Each of these areas are collocated with proposed onsile slormwater facilities to assure adequate wetland hydrology. The southern most created new wetland area wilt be 4.1 acres in size and will serve as the compensalory mitigation for unavoidable onsite wetland impacts associated with the City of Longview Mint Farm Industrial Park. The remaining two stormwater facility parcels could provide for additional created wetland areas totalling approximately 5.0 acres in size. Part or all of these two sites may be constructed to serve as compensatory mitigation for future wetland impacts associated with City of Longview projects unrelated to the proposed Industrial Park. Such impacts have not been identified and may include such wetland impacts as part of roadways and utility projects.

GOAL AND OBJECTIVES OF THE WETLAND MITIGATION PLAN

The GOAL of the Compensatory Mitigation Plan is lo fully compensate for the required modification to a number of the identified onsite ditches. These ditches appear to meet the criteria for designation as *waters* of *the* United States. As such, proposed modification will required permit review and authorization by a number of federal, state, and local regulatory and resource agencies.

The new wetland area proposed for creation in the southern portion of the project sile will provide full compensation for unavoidable project impacts. The remaining two proposed wetland areas to be created (one near the western boundary and one near the northwest corner) will also follow the same identified objectives and criteria

To achieve the defined GOAL, the following OBJECTIVES are defined:

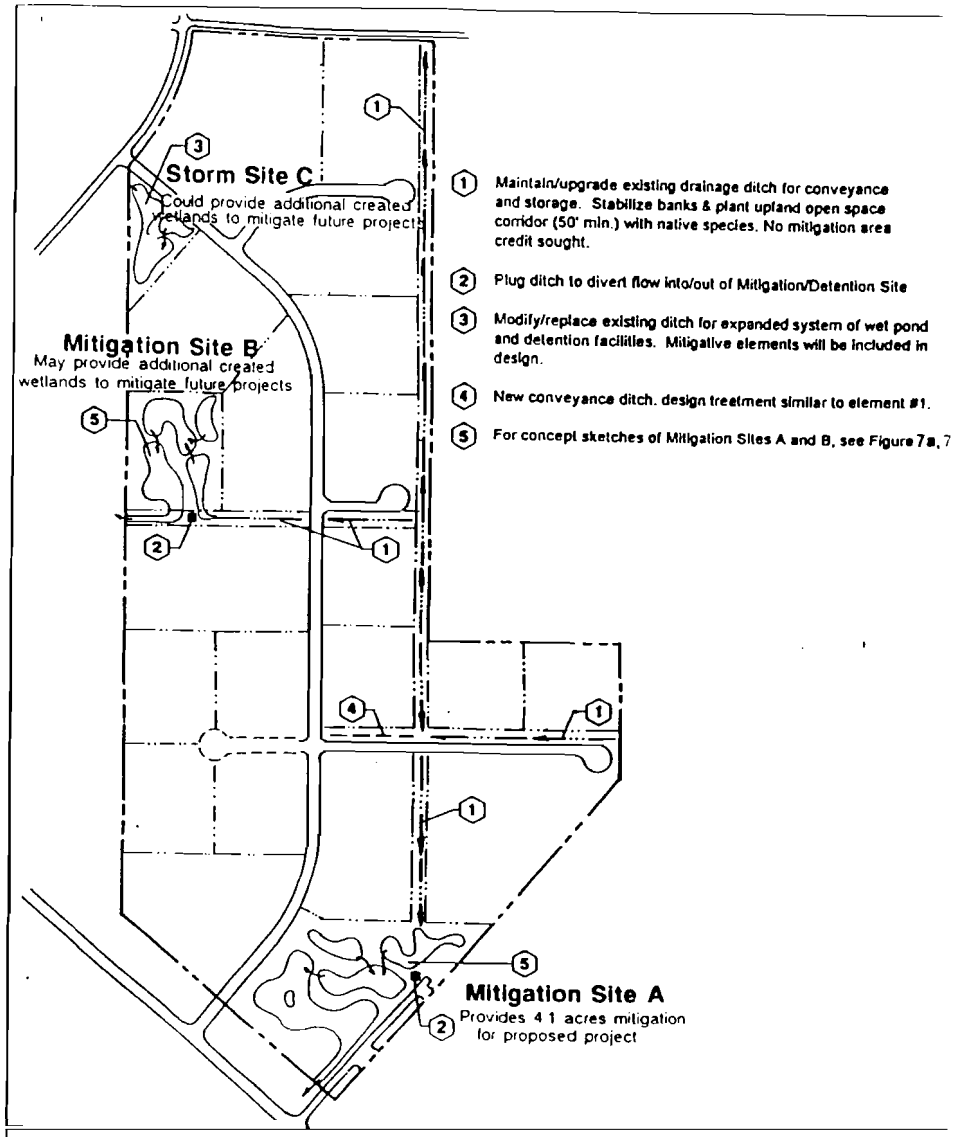

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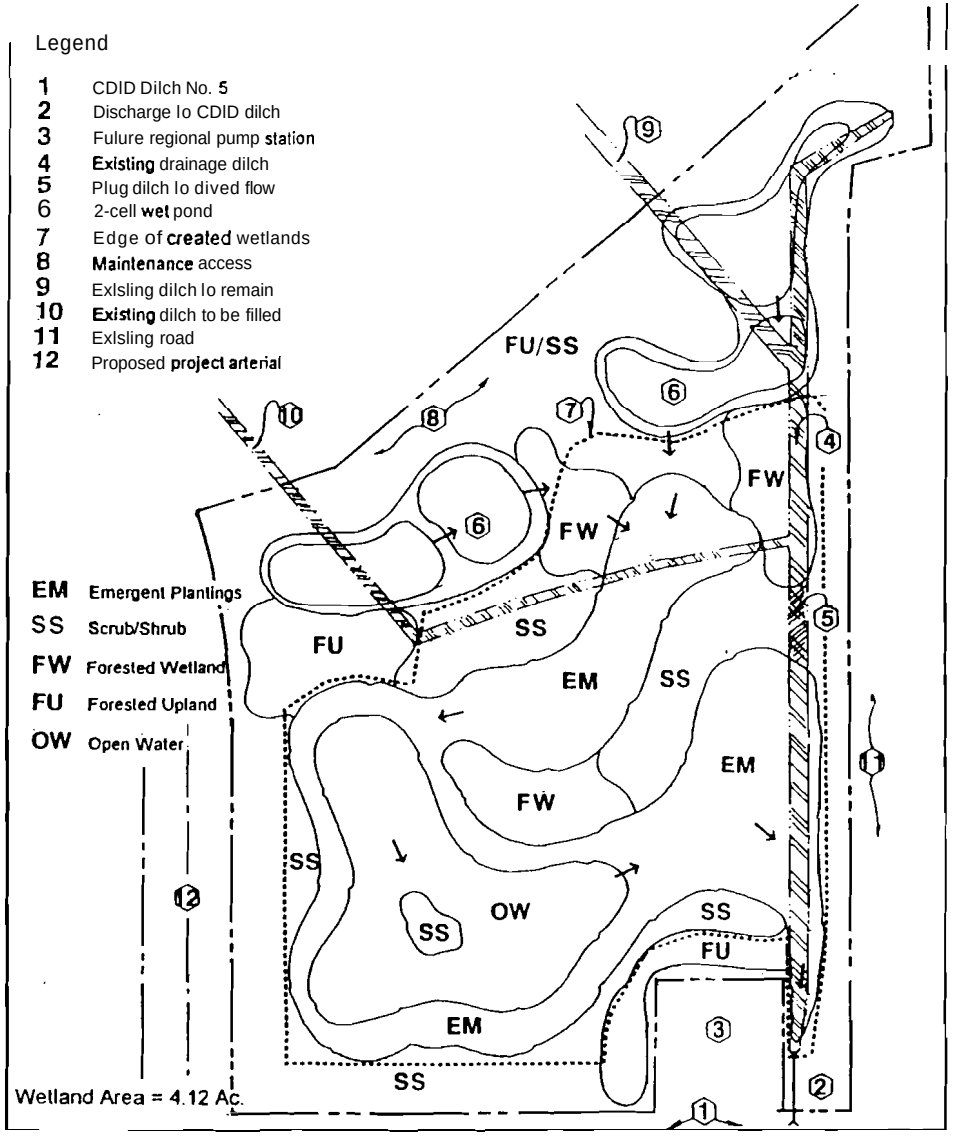
FIGURE 7
CONCEPTUAL WETLAND
MITIGATION PLAN

Richard Carothers Associates
814 East Pike Street - Seattle, Wa. 98122
206/324-5600 FAX 328-1860



WETLAND FILL APPLICATION FOR
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a

FIGURE 7a
CONCEPTUAL WETLAND
MITIGATION PLAN- SITE A

20 0 100

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814 East Pike Street - Seattle, Wa. 98122
206/324-5500 FAX 328-1880

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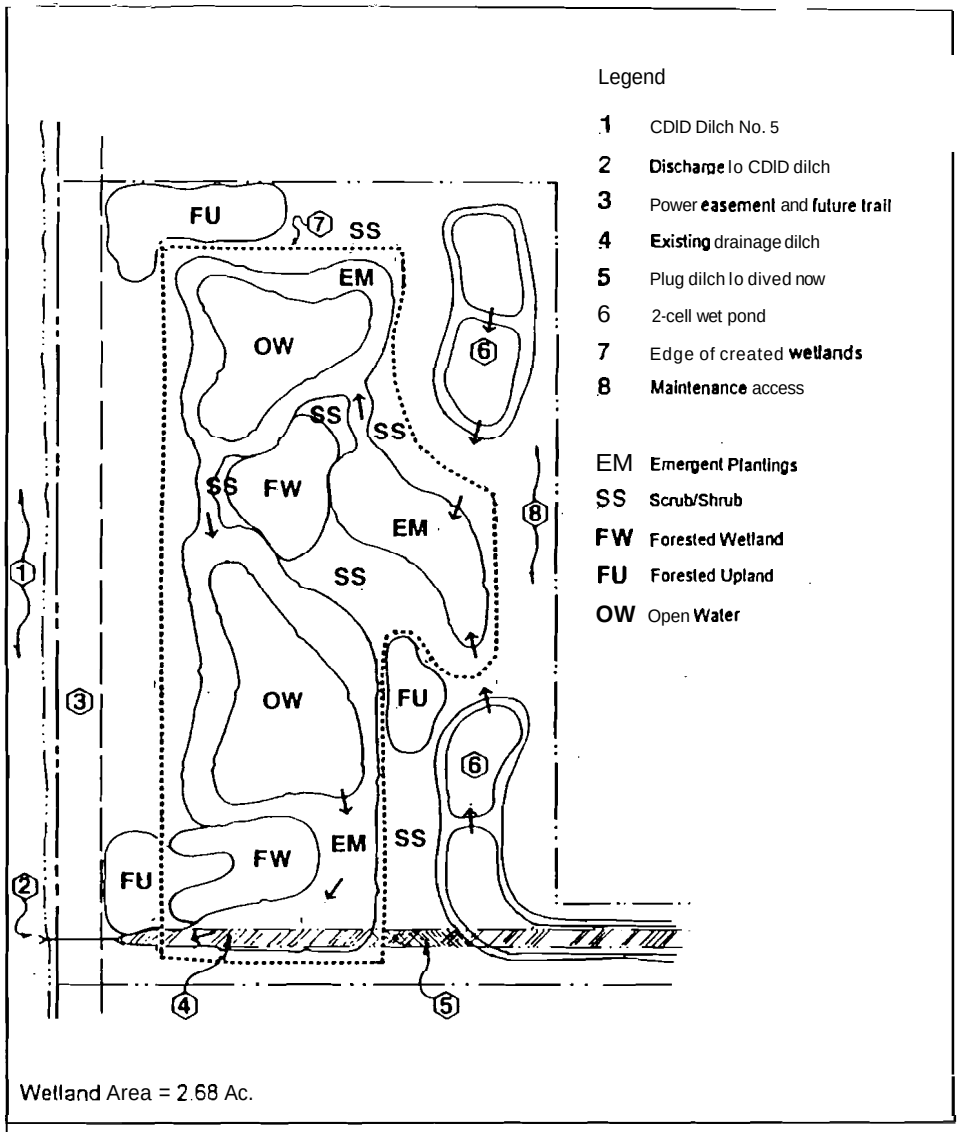

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FIGURE 7b
CONCEPTUAL WETLAND
MITIGATION PLAN- SITE B

20 0 100

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814 East Pike Street - Seattle, Wa. 98122
206/324 5500 FAX 328-1880

Augusl 1996

- Water Regime

A. The compensalory wetland area will total **4.1** acres in size Site design will focus on excavation and final surface elevations within the wetland area to establish an early growing season (March -April) water regime dominated by 6 lo **12** inches of standing water over approximately 80% of the created wetland area. This design will allow soil saturation within the rooting zone to occur through the summer and early fall periods. Standing water elevations may exceed **12** inches for short periods of time during the winter rainy season. In addition, approximately **20%** of the crealed wetland area will exhibit an early growing season water regime dominated by greater than **12** inches of standing water. In the area dominated by greater than **12** inches of standing water during the early growing season final design may include the creation of a pond which exhibits year-round standing waler (*i.e.* depth of greater that 6 feet during the end of the growing season) The created wetland will be hydrologically connected to the onsite stormwater management facilities and outflow into the drainage district ditch system.

The two additional created wetland areas would exhibit a similar water regime and design configuration.

- Plant Community Structure

B. The compensatory mitigation wetland area will total **4 1** acres in size and will exhibit emergent, scrublshrub, and sapling tree vegetation classes within five years following initial planting (palustrine, emergent - scrublshrub, seasonally flooded - PEMC, and PSSC). Created pond area will exhibit open water characteristics. The two additional created wetland areas would exhibit a similar plant community.

C. The established protective buffer around the compensatory mitigation wetland area will exhibit scrublshrub and sapling vegetation classes within five years following initial planting. The two additional crealed wetland areas would exhibit a similar plant community.

- Natural **Biological** Attributes

D. The compensatory mitigation wetland area will exhibit standing waler during the early growing season and provide spawning area for a least one species of amphibian within five years. The two additional created wetland areas would exhibit a similar biological attributes.

E. The compensatory mitigation wetland area will provide nesting and brood rearing habitat for at least one species of waterfowl within five years. The

two additional created wetland areas would exhibit a similar biological attributes.

F. The compensatory mitigation wetland areas will include the placement of snags and downed logs which provide nesting and cover habitat lor passerine birds common to the area within five years. The two additional created wetland areas would exhibit a similar biological attributes.

G. The buffer areas will provide nesting end cover habitat lor passerine birds common to the area within five years. The two additional crealed wetland areas would exhibit a similar biological attributes.

PERFORMANCE CRITERIA

To establish whether the defined project OBJECTIVES have been met by the wetland mitigation plan, the following PERFORMANCE CRITERIA have been established to apply to the compensatory mitigation wetland area The other two created wetland area which are not considered as mitigation for the Industrial Park will also meet these performance criteria.

Objective A The compensatory mitigation wetland area will total **4.1** acres In total size and will exhibit an early growing season (March - April) waler regime dominated by 6 to **12** inches of standing water over 80% of the wetland.

Performance Criteria: **4.1 acres** of compensatory mitigation wetland area will exhibit an early growing season (March -April) water regime of 6 to **12** inches of standing water throughout the aeated area. During the summer season these areas will exhibit saturated conditions within the upper **12** inches of soil.

Objective B. The compensatory mitigation wetland area will total **4.1** acres in size and will exhibit emergent, scrub/shrub, and sapling vegetation classes within five years following initial planting (palustrine, emergent and scrub/shrub, seasonally flooded - PEME, and PSSE).

Performance Criteria: As defined by Canopy Coverage Method sampling (0.25 m^2 plot frame) the emergent plant community within the 4.1 acres of the compensatory mitigation wetland area will exhibit at least an 80% coverage within five years following initial planting. As defined by Line-intercept Method sampling the scrub/shrub and sapling vegetation class will exhibit at least a 55% to 75% aerial coverage within five years following initial planting in those areas not identified as openwater.

DETAILED DESCRIPTION OF THE COMPENSATORY MITIGATION PLAN

1. Identified ditches (which meet the criteria for designalion as wetlands) within the City of Longview project site will be modified to allow development of the proposed industrial park and stormwater management facilities. This activity will result in the impact of approximately 2.7 acres of ditchlines through filling, the installation of a number of roadway culverts, and ditch modification within slormwater facilities and mitigation areas. Existing ditches to remain may be widened, graded to gentler sideslopes, and be plnated with erosion control seeding and native trees and shrubs.

2. As compensation for the unavoidable modification of onsile ditches identified as waters of the United Stales (approximately 2.7 acres) 4.1 acres of compensatory mitigation wetland area will be created and will be directly connected to the proposed storrnwaler management facilities. (Figures 7, 7a, and 7b).

3. The compensatory wetland will be created within areas presently dominated by active agricultural farmland which has been determined to be prior converted cropland. The existing vegetation community within the areas selected for wetland mitigation is dominated by seeded and invasive grasses and herds. Invasive shrubs (i.e. Himalayan blackberry) are also present within this existing community.

   Mitigation wetland area will be created through the excavation of specific areas, the redirection and refilling of present internal ditch lines, and surface water input controls. Site specific excavation will focus on the creation of a mixed and structurally complex plant community. Following excavation of the mitigalion area, hydric soils taken from onsite will be relocated into the excavated area and contoured to form desired wetland elevations. The relocation of existing hydric soils will help assure wetland creation success through the use of appropriate soils. These soils will contain the wetland plants, roots, and seeds lo help establish a wetland plant community.

4. The selected plant communities to be planted within the compensatory wetland area will contain a mixture of native emergent, shrub, and trees species common lo the local area. The selected species will increase species diversity and wildlife habitats (i.e. feeding, nesting, cover), while also enhancing the local and downstream waler quality through increased biofiltration

5. A protective buffer will be established along the boundaries of the newly created wetland. This buffer will be planted with a mixture of native shrubs and trees and will serve to protect the created wetland areas while also providing wildlife habitats and plant species diversity.

6. Water quality facilities will be located onsite These facilities will provide a primary source of hydrology with surface waters entering the created wetland at established

surface elevations. Final site grading will assure that the passage of surface waler does not become concentrated and result in localized erosion. Wetland hydrology will be provided by the movement of groundwater from the water quality facility and from adjacent properties.

7. The created wetland and buffer, once established, will not be mowed or regularly maintained

8. Temporary and long-term erosion control measures along the proposed buffer edge will be implemented. This includes seeding with appropriate grasses and the use of silt fencing during the period prior to the establishment of adequate buffer vegetation.

9. Invasive weed species will be removed from within the created wetland and buffer areas. This will include the efforts to remove Himalayan blackberry during initial wetland and buffer creation, as well as continued removal during the established monitoring period.

10. The diversity of wildlife habitats provided by the wetland and buffers will be enhanced by additional means. Such enhancement will include the placement of logs, slumps, and upright snags. These large woody debris habitat features will be placed at an approximate density of 15 to 20 per acre.

11. Monitoring of the created wetland and buffer areas for a five year period will occur lo assure that the restoration of the plant community successfully meets the GOAL and INTENT of the mitigation plan. This monitoring will Include a contingency plan to remedy created features which do not meet the project's GOAL and INTENT.

12. The wetland creation plan allows for the implementation of educational opportunities which can potentially be integrated into the Mint Farm Industrial Park and the City of Longview School District. In addition, short term and long term monitoring allows scientific evaluation of wetland mitigation procedures and plant/wildlife responses to habitat manipulations.

- The two additional wetland areas to be created *onsite adjacent* to *identified* stormwaler facililies will also follow lhis detailed descriplion.

MITIGATION REPLACEMENT/ENHANCEMENT RATIO

The selected mitigation plan focuses on the creation of 4.1 acres of new wetland area. This mitigation is proposed to compensale for the unavoidable modification of onsite waters of the United States totaling 2.7 acres. This replacement ratio is consistent with the recommended ratio for wetland area of 1.5 to 1 (created to lost) identified by the

Washington Stale Department of Ecology (DOE Publication #91-57) for emergent wetlands.

The selected mitigation area will make a substantial improvement to the functions and values offered by the existing ditchlines (wetlands) while also providing a wider range of functions and values not presently exhibited onsite

Primary features offered by the selected mitigalion plan includes a longer period of seasonal pondinglsoil saturation which is supported by the adjacent water quality facilities, a larger contiguous wetland area, greater waler quality proleclion to downstream resources (i.e. the Columbia River), greater opportunity for biofillration of surface waler. greater water storage capacity, greater diversity of plant species and plant community associations, greater diversity of wildlife habitats, and its adjacency to the water quality facilities. While the water quality facilities are not considered part of the mitigation replacement ratio, these facilities will provide habitat and open space for wildlife which is not presently provided onsite (i.e. a seasonal openwaler pond). In addition, the selected mitigation area offers the potential to include educational and recreational opportunities within the City of Longview.

Overall, the proposed mitigation plan will provide a hlgher quality and a wider range of functions and values per unit area that presently exiting onslte. Currenl on-site wetlands are managed as drainage ditches, are populated by exotic invasive plants, and are of generally limited habitat value. The proposed mitigation plan offers Ihe opportunity to replace existing onsite wetlands with an area of greater size and greater functions and values. In addition, provisions will be put into place which will allow for the long-term protection/preservation of the entire wetland mitigation area, together with moniloring to assure that the plant communities and wetland hydrology features are established.

SUMMARY TABLE OF WETLAND FUNCTION BENEFITS PROVIDED BY THE MITIGATION PLAN

MITIGATION ELEMENT	WETLAND FUNCTION BENEFITS
Establishment of a diverse plant community and habitat features within the created wetland and buffer areas.	• Natural Biological Function • Waler Quality
Crealion of Ihe mitigation wetland area through selective site excavation.	• Hydrologic Support • Stormwater 6 Floodwater Storage • Waler Quality • Natural Biological Function • Groundwater Recharge
Construction of a waler detention/quality facilities within the project and adjacent to the created wetland area.	• Hydrologic Support • Stormwater 6 Floodwater Storage • Waler Quality • Groundwater Recharge

Onsite technical inspection during construction and planting activities will be implemented by the combined efforts of the project biologist, the City of Longview staff, and participating agencies. The project biologist will perform construction oversight and address minor unforeseen construction difficulties to assure that the intent of the mitigation plan is met.

The project biologist shall be responsible for assuring that the species and sizes of native plants selected and noted within Ihe final planting plan are utilized during construction. If selected native species become unavailable, the project biologist shall consult with the City of Longview staff and participating agencies for substitute plant species to assure that the intent of the mitigalion plan is met.

Posl-construction site inspection/evaluation will include the preparation of construction "record drawings" which will be submitted to the City of Longview and participaling agencies.

PROJECT MONITORING

Following the successful completion of the proposed compensatory mitigation plan a five year monitoring and evaluation program will be undertaken. The purpose of this program Is to assure the success of the selected mitigation as measured by an eslablished set of threshold criteria. This moniloring will also provide valuable Information on the effectiveness of mitigation procedures.

THRESHOLD CRITERIA

The GOAL of the preferred action alternative is cenlered on the creation of a viable wetland mitigation area as compensation for unavoidable modification of onsite ditches. To determine whether this goal has been mel, the following threshold criteria have been established for use during onsite, post-construction monitoring. The program shall be judged to have met the staled project goals when, el the conclusion of Ihe monitoring program, the following are found to occur.

1. Establishment of a viable wetland and buffer mitigation area composed of e mixture of native plant communities. The canopy cover crileria of tree end shrub species combined will be as follows:

1 year after planting	10% - 15% minimum cover
2 years after planting	15% - 25% minimum cover
3 years after planting	25% - 45% minimum cover
4 years after planting	45% - 55% minimum cover

5 years after planting	55% - 75% minimum cover

2. Replacement at the end of the first year following project construction of all plants that did not survive this first year. Such replanting may be required prior to the end of the first year if onsite monitoring determines that greater than 80% (by species) have not survived. Such replanting shall be held to the same requirements as the initial planting.

3. That 80% of all trees and shrubs (by species) planted during the initial construction period are alive and healthy at the end of the five year monitoring period.

STANDARDS OF SUCCESS

VEGETATION

Sampling Methodology and Monitoring Schedule

Permanent vegetation sampling plots will be located within each planting community in areas representative of the communities being sampled. These sampling plots will be located along specific transects and at stationary identified points Observations and measurements will be recorded for all plant species in order of dominance based on the relative percent cover for each species within the various vegetation strata. Sampling for tree and shrub species will be completed in 30 foot radius sampling plots. Stratified methods will be used to increase the precision of sampling data while also maintaining elements necessary for statistical inferences.

The evaluation of the success of the enhancement program will be based on the expected cover percentages and the noted 80% survival rate. These defined threshold criteria will be applied at the times of yearly monitoring. The percent of aerial cover and the percent survival rate will be based on combined counts of existing and planted species during vegetation monitoring. Sample location will be shown on the design and the "record drawings" plans, and will correspond to identified photopoints. Trees and shrubs will be visually evaluated to determine the rate of survivorship, health, and vigor of each plant. The categories to be used will include live, stressed, tip die-back, basal sprouts, not found, apparently dead, and dead. Site vegetation monitoring will be undertaken as follows:

a. At completion of construction of the mitigation project.
b. 30 days following completion of construction.
c. Early in the first growing season following construction.
d. At the end of the first growing season following construction

e. Twice the second through fifth years following construction

Observations and evaluation will be accomplished by the project biologist. The monitoring program will be designed to assure that any required remedial actions will allow sufficient lead lime to develop and implement a plan of action during the appropriate planting season.

Individual sample plots will be established, enumerated, and identified in the field with a flagged marker. Information collected from each sample plot will include visual estimation of percent vegetation cover, absolute counts of species presence and mortality, measurement of new growth for selected indicator species, plant vigor and vitality, presence of invader plant species, percentage of exposed soils. and soil hydrology.

Upon the completion of each observation period and subsequent completion of the entire monitoring program the onsite biologist will produce and submit a report detailing all observations, evaluations, and data forms to the City of Longview, participating agencies, and local interest groups.

Selected Plant Communities

The plant species selected for planting in the wetland and buffer areas will be obtained as nursery stock. The specific regional nursery will vary according to plant species and nursery availability. The selected species are native and commonly occur in the local area. The plant species prescribed were selected to increase plant diversity, malch present onsite communities, and Increase wildlife habitats.

The proposed plant species list (Appendix F) presents a conceptual list of species common to the project area and the selected size and spacing for initial planting. All onsite activities during final site grading and plant installation will be supervised by the onsite biologist.

WILDLIFE OBSERVATIONS

Observations of wildlife will coincide with the onsite activities undertaken as part of the Vegetation Monitoring Program. The onsite team will document the extent of bird species abundance, nesting and feeding activities, and species diversity. In addition. documentation of terrestrial and aquatic reptiles, amphibians, and mammals observable without trapping will also be completed.

Wildlife observations will be documented within the Vegetation Monitoring Reports noted above.

VEGETATION MAINTENANCE PLAN

Maintenance of the created wetland and buffer plant communities may be required to assure the long-term health and welfare of the wetland's and buffer's environmental functions. Such maintenance would be identified during the monitoring period and undertaken only following discussion and coordination with the City of Longview staff and participating agencies. The overall objective is to establish undisturbed plant communities that do not require maintenance.

Activities may include, but are not limited to, the removal of invasive non-native vegetation and the irrigation of selected areas. Established maintenance activities include the removal of any trash within the buffer.

REMOVAL OF INVASIVE NON-NATIVE VEGETATION

As a contingency, should the removal of invasive non-native vegetation become necessary the project proponent will contact the City of Longview and participating agency wetland staff to establish and define specific actions to be taken. Resultant contingency plan activities will be implemented when the ongoing vegetation monitoring program indicates that plants listed in the Washington State Noxious Weed List. Himalayan blackberry. and Scot's broom are becoming dominant in the community

SEEDING FOR EXPOSED BUFFER AREA

Seeding for all exposed surfaces within the buffer will be completed within two weeks following the completion of onsite grading. Prior to application of seed, the proposed seed mixture and the amount of mulch added to the mix will be provided to the City of Longview and participating agencies for review and approval.

SEEDING MIXTURES

Wetland Area Soil Moisture Conditions

creeping red (chewing) fescue	*Festuca rubra*	40% be weight
redtop	*Agrostis alba*	30% by weight
birdsfoot trefoil	*Lotus corniculatus*	30% by weight

apply at the rale of 120 pounds per acre

Upland Buffer Area Soil Moisture Conditions

bluegrass	*Poa pratensis*	15% by weight
tall fescue	*Festuca arundincea*	40% by weight
perennial ryegrass	*Lolium perenne*	30% by weight
creeping red (chewing) fescue	*Festuca rubra*	15% by weight

apply at the rate of 200 pounds per acre

Temporary Erosion Control Seeding

redtop	*Agrostis alba*	10% by weight
creeping red (chewing) fescue	*Festuca rubra*	40% by weight
annual rye	*Lolium multiflorum*	40% by weight
while dutch clover	*Trifolium repens*	10% by weight

apply at the rate of 120 pounds per acre

CONTINGENCY PLAN

As a contingency, should the proposed compensatory mitigation plan fail to meet the THRESHOLD CRITERIA, the project proponent will undertake and complete required remedial actions. Where plant survival is the failing component, the project proponent will replant and assure the success of this second planting. Any second planting would be held to the same standard of success as measured by threshold criteria and monitoring processes.

Should additional remedial actions be required, the project proponent will meet with the City of Longview staff and participating agencies to establish and define actions to be taken to meet the desired goal of this program.

Traffic Study

TRAFFIC ANALYSIS
FOR
THE MINT FARM INDUSTRIAL PARK

prepared for:

City of Longview
Longview, WA

prepared by:

Richard Carothers Associates
814 East Pike Street
Seattle, Washington 98122
(206) 324-5500

September 12,1996

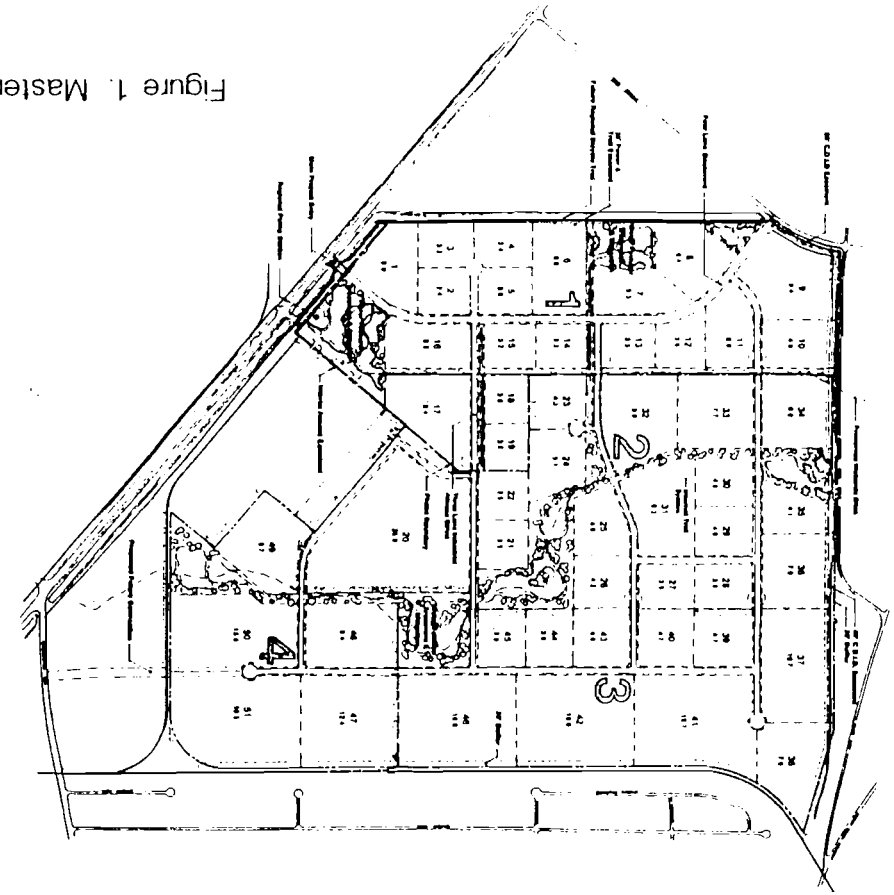


Figure 1. Master Plan

PURPOSE

The purpose of this report is to describe the methodology, results, findings, and recommendations of a traffic analysis prepared by Richard Carothers Associates for the proposed Mint Farm Industrial Park. It evaluates the impacts of full build-out of the site approximately 435 acres as envisioned by the Master Plan. The report addresses the following traffic-related issues:

- Existing traffic conditions in the vicinity of the project site.
- Estimated number of trips generated by each phase and the full build-out of the development.
- Estimated traffic volume projected for key intersections without the project.
- Traffic impacts of the proposed development, including Intersection Delay and Level of Service (LOS), during A.M. and P.M. peak hours at the key affected by the project.

This report is divided into six sections; 1) project description, 2) existing conditions, 3) methodology, 4) results of analysis, 5) conclusions, and 6) mitigation.

Based on the results of the traffic analysis described in this report, it is concluded that build-out of the first phase of the project would trigger unacceptable Level of Service (E or worse) at two nearby intersections- Ocean Beach Highway at 38th Avenue and the intersection of Industrial Way and Oregon Way. Additional intersections would be impacted by the full proposed build-out of 435 acres.

Project Description

The Mint Farm Project is a Light Industrial development that is expected to be completed in four phases, see Figure 1. Phase One includes the development of 125 acres that will immediately follow the completion of the appropriate studies and when required permits are issued. Phase One represents the land currently owned by the City of Longview. Future phases are provisional, with the expectation they will be developed by the city, by the current owner Weyerhaeuser, or by other parties. Phase Two would cover approximately 266 acres of land and is projected to occur in about six years. Phase Three includes the completion of 365 acres and is estimated to occur in twelve years. The fourth and the final phase is projected to occur in about twenty years, completing development of the 435 acres available.

The site will have two entrances through the end of Phase Three. One entrance will be on Industrial Way (SR 432), approximately half a mile east of the signalized intersection with 38th Avenue. The other entrance will be located on 38th Avenue just south of the intersection with Memorial Park Drive. Modeling for Phase Four assumes a third entrance to be introduced on Washington Way. For each given phase, there are separate projections for A.M. and P.M. traffic at each entrance. The directional distribution of traffic is indicated for each entrance.

Existing Conditions

The project is fronted on three sides by existing streets. The southwest edge is adjacent to Industrial Way/State Route 432, a four lane road managed by the Washington Department of Transportation (WSDOT). The northwest edge fronts on 38th Avenue, a high-capacity, two

lane collector slreet. Neither slreet has curbs or sidewalks in the area of the project. The north project boundary is largely adjacent lo Memorial Park Drive, a residential street, intended for the local traffic. This street also provides an alternate commuter access from city center lo the industrial uses along western Industrial Way. The volume and speed of lhis commuter traffic reportedly conflicts with the residential characler of the adjacent neighborhood.

This study evaluates ten intersections which are likely to be impacted by the growth of traffic from the Mint Farm site, see Figure 2. These intersections are nearby the site on streets likely lo carry most of the commuter traffic, or are key intersections between the site and the Interstate 5 comdor. For each intersection, the following were recorded in the field: the layout of the intersection (including number of lanes). the speed limit for the approaching traffic. number of turning lanes. the location of bus stops within the inlersection area, pedestrian cross-walk, parking movements within the intersection areas, and/or any other element that may Influence the traffic movements.

All intersections In this study are signalized except for intersections of 38th Avenue and Memorial Park Drive, and Ocean Beach Highway and Olive Way. All signalized Intersections included in this study are actuated except for the intersection of Washington Way and 32nd Avenue. However, lhis Information was not entered into the analysis method. Detailed information on the layout each intersection is graphically presented in the appendix.

Methodology

Assumptions

The Peak-Hour Factor (PHF) which is defined as the ratio of total hourly volume lo the maximum 15-min rate of flow within, was calculated for each intersection. The calculation was based on the current traffic volume available for each movement within the intersection. The assumption Is that the calculated PHF will remain the same for the future conditions as well.

The Highway Capacily Software (HCS) considers 2% heavy traffic within each movement. This number was adjusted for those intersections where the future traffic is expected to carry heavy vehicles at a rate higher than 2%.

The HCS program does not accept any number less than 7 or 8 for the traffic volume In analyzing traffic movements using signalized option. Therefore some traffic volumes had to be manually adjusted In order to utilize the software.

Data Collection

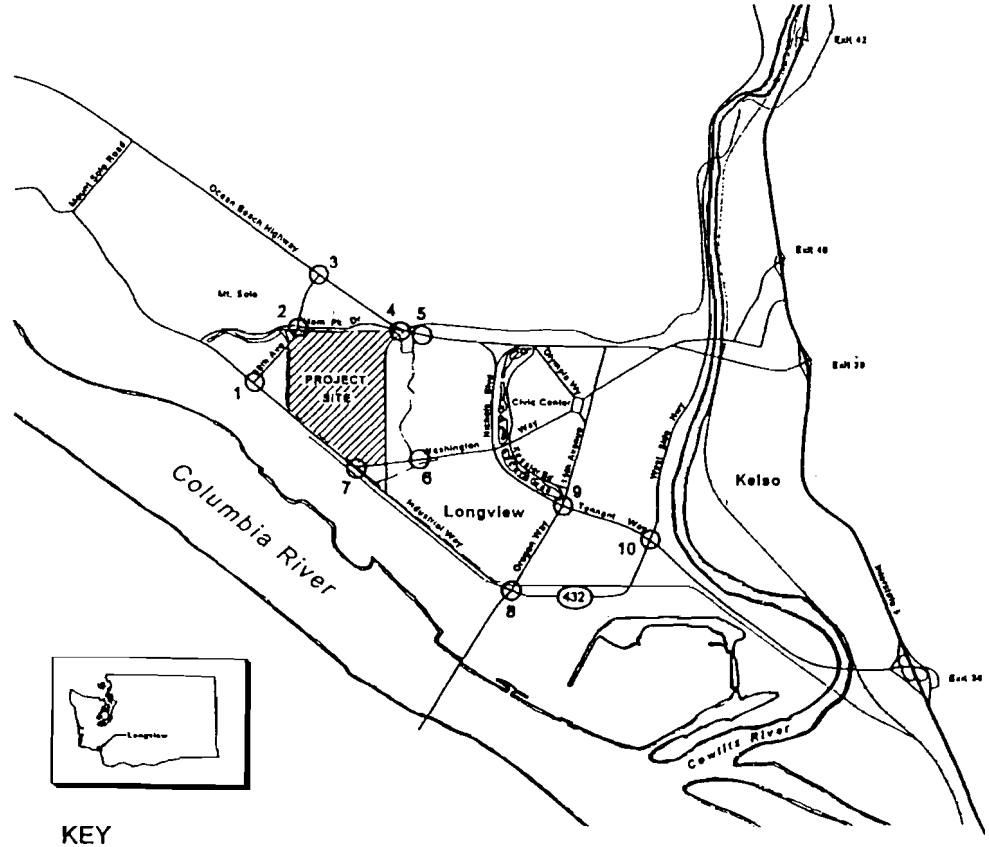
Phased potential impacts of the project were evaluated at ten key Intersections. TraMc counts of the current condition were conducted by the City of Longvlew crew. Traffic counts were taken for the following interseclions except for the T-intersection of Ocean Beach Highway and Olive Way:

Industrial Way (SR 432) & Washington Way

Industrial Way & 38th Avenue

38th Avenue & Memorial Park Drive

38th Avenue & Ocean Beach Hwy. (SR 4)



KEY

1 - INDUSTRIAL WAY 6 38TH AVENUE
2 - 38TH AVENUE 6 MEMORIAL PARK DRIVE
3 - 38TH AVENUE & OCEAN BEACH HWY.
4 - OCEAN BEACH HWY. 6 OLIVE WAY
5 - OCEAN BEACH HWY. & 32ND AVENUE
6 - 32ND AVENUE 6 WASHINGTON WAY
7 - WASHINGTON WAY 6 INDUSTRIAL WAY
8 - INDUSTRIAL WAY 6 OREGON WAY
9 - TENNANT WAY 6 15TH AVENUE
10 - 3RD AVENUE 6 TENNANT WAY (FRONTAGE ROAD)

Figure 2. Intersection Study Locations

Ocean Beach Hwy. 8 Olive Way	Ocean Beach Hwy. 8 32nd Avenue
32nd Avenue & Washington Way	Industrial Way & Oregon Way
3rd Avenue & Tennant Way (frontage road)	Tennant Way & 15th Avenue

The traffic counts were taken on weekdays, Tuesday through Thursday, by the mechanical method of road tubes and subsurface detectors for a twelve hour period, 6:00 A.M. to 6:00 P.M.

Traffic Proiection

Future traffic projection from the proposed development of the Mint Farm site is based on the Trip Generation Manual by the Institute of Transportation Engineers (ITE). 5th Edition. Land Use 130. Industrial Park. Is characterized as a mix of manufacturing, services, and warehouse facilities. The average vehicle trip end versus acres indicates an average rate of 10.09 per acre for the morning peak hour. This rate is estimated based on the peak hour of adjacent street traffic. The directional distribution for the morning peak hour is 82% entering, and 18% exiting the site. The estimated traffic rate for the aftemoon peak hour Is 10.48 per acre. Thls rate is also based on the peak hour of adjacent street traffic per ITE manual. The directional distribution rate for the aftemoon peak is 21% entering, and 79% exiling.

As shown in Figure 3, there are two entrances to the site through the end of phase three. Industrial Way (SR 432) is the location of entrance 'A.' It is assumed that 60% of the total tralfic generated by the development of the Mint Farm site will use this entrance for entering and exiting the site. The other assumption is that approximately 70% of the proposed generated trips, originated at this entrance, would come from baffic moving to and from the east. The remaining 30% originate from traffic traveling to and from the west.

The proposed entrance on 38th Avenue is entrance 'B' in this study This proposed enbance is approximately 500 feet south of the intersection of 38th Avenue and Memorial Park Drive. Based on the above assumption, the remaining 40% of the traffic generated by the project will use this entrance for entering and exiting the site through the beginning of development lor Phase Four. Again, 70% of the generated trips at this entrance will originate from those coming from and destined north. The remaining 30% originate from those coming from and destined south.

The third enbance on Washington Way is assumed to be constructed during the development of Phase Four. It is assumed that once this enbance Is developed, approximately 35% of the total traffic generated by the build-out condition will enter and exit through this exit. The proportion of the traffic for the other two entrance will be 35% at enbance 'B' and 30% at entrance 'A'. From the total traffic volume at entrance 'C' about fifty percent of the generated trips will originate from and be destined to the east. The remaining 50% will be from those heading to and from the west. These assumptions are carried on for Phase One through Phase Four. which is the build-out condition.

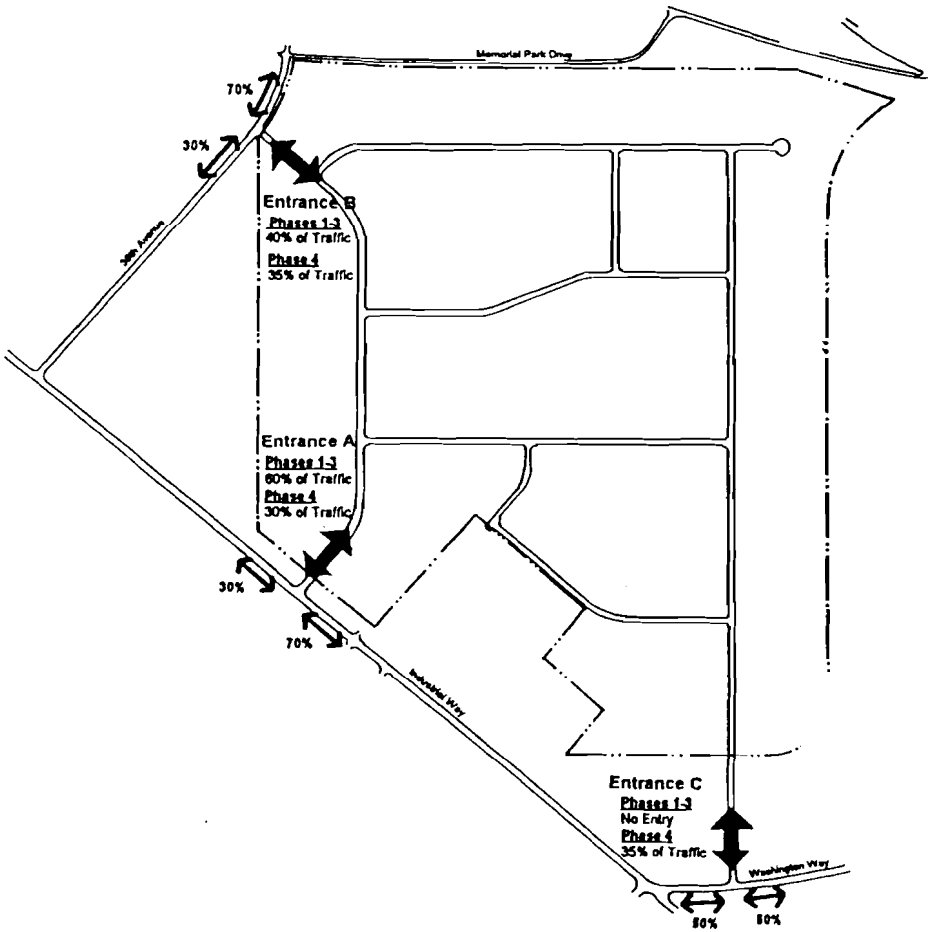


Figure 3. Traffic Distribution

Entrance 'A'		Phase I			Phase II		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	96	534	630	396	924	1320
	Out	86	41	127	203	87	290
PM	In	50	115	165	105	246	351
	Out	559	62	621	925	396	1321

Entrance 'B'		Phase I			Phase II		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	289	124	413	616	264	880
	Out	27	64	91	58	136	194
PM	In	77	33	110	164	70	234
	Out	124	290	414	264	617	881

Entrance 'A'		Phase III			Phase IV		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	544	1268	1812	325	757	1082
	Out	278	120	398	167	71	238
PM	In	145	337	482	87	200	287
	Out	1269	544	1813	758	325	1083

Entrance 'B'		Phase III			Phase IV		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	846	362	1208	884	379	1263
	Out	80	185	265	83	194	277
PM	In	225	96	321	235	101	336
	Out	363	846	1209	379	885	1264

Entrance 'C'		Phase I			Phase II		
		Left Turn	Right	Total	Left Turn	Right Turn	Total
AM	In	---			---	---	---
	Out	---	---	---	---	---	---
PM	In	---	---	---	---	---	—
	Out	—	---	---	---	—	—

Entrance 'C'		Phase III			Phase IV		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	—	---	—	631	632	1263
	Out	—	---	---	139	138	277
PM	In	—	---	---	168	168	336
	Out	---	---	---	632	632	1264

Method of Analysis

Analysis of the capacity and level of service for the above intersections is based on the ***Planning Analysis*** method of the Highway Capacity Manual. The main goal of this report Is to project whether or not the intersections are likely to be over saturated. This method provides reasonably detailed results that determine the advance planning requirements to reduce the adverse impacts of the development of the Mint Farm project.

Level Of Service (LOS) analysis was performed for each signalized intersection for the existing condition and for the future scenarios from Phase One through the ultimate developed condition. To evaluate traffic conditions at the study Intersections, capacity analyses were conducted using Highway Capacity Software (HCS) programs that are based on the 1985 Highway Capacity Manual. Print outs of the analysis forms are provided In the appendix.

According to Ihe *Highway* Capacity Manual:

> Capacity at Intersections is defined for each traffic approach. Intersection approach capacity is the maximum rate of flow (for the subject approach) which may pass through the intersection under prevailing traffic, roadway, and signalization conditions. The rate of flow is generally measured or projected for a 15-minute period, and capacity Is stated in vehicles per hour.
>
> Level of service for signalized intersections Is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Specifically, level-of-service criteria are stated In terms of h e average stopped delay per vehicle for a 15-minute analysis period. The criteria are given In the following table.

Level of Service	Stopped Delay Per Vehicle (sec)
A	≤ 5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	> 60.0

> Delay is a complex measure. and Is dependent on a number of variables, Including the quality of progression, the cycle length, the green ratio, and the *v/c* (volume/capacity) ratio for the lane group or approach in question.
>
> Level-of-sem'ce A describes operations with very low delay. I e., less than 5 0 sec per vehicle This occurs when progression is extremely favorable, and most vehicles arrive during the green phase
>
> Level-of-semce *B* describes operations with delay in the range of 5 1 to 15 0 sec per vehicle This generally occurs with good progression and/or short cycle lengths More vehicles stop than for LOS A, causing higher levels of average delay

Level-of-service C describes operations with delay In the range of 15.1 to 25.0 sec per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level-of-service D describes operations with delay in the range of 25.1 to 40.0 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level-of-service E describes operations with delay in the range of 40 1 to 60.0 sec per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

Level-of-senice F describes operalions with delay In excess of 60.0 sec per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Level of service for unsignalized intersections is defined as follows:

Level of Service Criteria for Unsignalized Intersections

Level of Service (LOS)	Slopped Delay Per Vehicle (sec)
A	≤ 5.0
B	5.0 and ≤ 15.0
C	> 10.0 and ≤ 20.0
D	> 20.0 and ≤ 30.0
E	> 30.0 and ≤ 45.0
F	> 45.0

For each intersection only the largest traffic volume of peak hour in the morning or afternoon Is considered

To estimate the directional distribution of the trips that would be generated by the proposed development, it was assumed that the trips would be distributed In proportion to the traffic volumes already modeled by transportation planners of Cowlitz-Wahkiakum Council of Government (CWCOG) for the entire region. Therefore, the projection of the proposed traffic generated throughout the development of the Mint Farm project was distributed thmugh the intersections according to the computer modeling already in place by CWCOG.

The traffic modeling of the projected Lraffic was done using TMODEL2 Lransportation modeling system by TMODEL Corporation. The TMODEU system may be used to model a regional system or to analyze the impact of a localized development based on the land use. TMODEL2 distributes trips according to the most likely paths or route between zones and Is designed to develop a peak hour model.

In order to Indude the projected traffic counts in the County system, they were converted fmm the peak hour traffic to average daily traffic (ADT) count. According to CWCOG, the factor of 10% has been used by different consultants and agencies for the traffic study In the city area. Therefore. the conversion factor used in this study to convert peak hour traffic to ADT Is 10% as well. Once the results of the Lraffic modeling were available. they were converted back into Peak Hour traffic counts in order to be studied with the rest of the information.

RESULTS OF ANALYSIS

Each Interseclion selected for analysis is described below. Current conditions are described In detail. Graphic plans of these configurations are included In the appendix to this report. Tabulations of current and projected turning movements through each Intersection are shown. compositing traffic generated by the project with existing loads and projected background growth. Lastly, Intersection Delay and Level of Service are tabulated, both with and without the phased project.

Memorial Park Drive at 38th Avenue

The intersection of Memorial Park Drive and 38th Avenue is an unsignalized intersection with 38th Avenue as the road with the main traffic. Unprotected left turn lanes are provided on 38th Avenue. This street also has a pedestrian crosswalk on the north end of the intersection. Memorial Park Drive, east of 38th Avenue, is an urban road with two wide lanes, street curbs on both sides, and a set-back sidewalk on the north side. To the west of 38th Avenue, Memorial Park Drive remains as a secondary undeveloped road. The pavement is narrower on this section and there are no curbs or sidewalks. At the time of the site visit, there were no cars parked on Memorial Park Drive near this intersection, although parking is permitted on both sides.

There are sidewalks on each side of 38th Avenue, north of Memorial Park Drive. Two foot shoulders extend out from the edges of the travel lanes on 38th Avenue. south of Memorial Park Drive. There are no sidewalks or any type of adjacent development on the road between Industrial Way and Memorial Park Drive

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	5	132	8	12	1	5	5	324	42	5	2	1	542
Phase I	29	602	4	35	1	5	5	423	51	5	2	1	1392
Phase II	35	911	4	43	2	5	5	433	56	5	2	1	1502
Phase III	35	1003	4	43	2	7	5	623	56	5	2	1	1784
Phase IV	47	1142	7	59	4	14	8	794	78	7	3	2	2163

Memorial Park Drive at 38th Avenue	INTERSECTION DELAY (sedveh)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	0.4 (LOS = A)	2.1 (LOS = A)	5 8 (LOS = B)	24.8 (LOS = C)	194.2 (LOS = F)
Without Project	LOS = A	LOS = A	LOS = A	LOS = A	LOS = A

Industrial Way at 38th Avenue

Industrial Way and 38th Avenue Is a signalized Intersection with protected left turn lanes on all legs of the intersection. Industrial Way (SR 432) is a four lane major arterial before and after this intersection. The four lanes are supplemented by a 4 foot shoulder for turning movements on each side, a drainage channel on the north side and a railroad track along the south side. There is a deceleration lane provided for the traffic westbound on SR 432 that becomes a free right turn lane at the intersection. There is a pedestrian crosswalk with high vicinity marking crossing SR 432 at the west leg of the intersection. There Is a railroad crossing immediately south of the intersection on 38th Avenue.

South of the intersection, 38th Avenue becomes the main entrance to Reynold's Aluminum site. Each side of the road has street curbs and open space. 38th Avenue becomes wider at the Intersection to accommodate the following: a right turn lane onto southbound SR 432. a through lane for traffic going to the Reynold's Aluminum site, a protected left lane to SR 432 for southbound traffic, a single lane lor northbound traffic from the Reynold's Aluminum site, and the traffic turning left from eastbound 38th Avenue onto southbound SR 432. A striped Island that separates the right turn traffic from the southbound traffic on 38th Avenue.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	2	28	21	1	190	33	229	142	6	75	72	80	879
Phase I	526	58	274	3	369	150	250	167	9	71	81	67	2025
Phase II	534	58	282	3	371	155	253	167	12	77	83	64	2059
Phase III	545	56	288	3	290	157	253	167	12	77	85	64	2099
Phase IV	567	58	309	6	405	164	253	178	12	79	88	83	2204

Industrial Way at 38th Avenue	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = 8	LOS = C	LOS = C	LOS = C	LOS = D
Without Project	LOS = B	LOS = B	LOS = B	LOS = 8	LOS = B

Industrial Way at Washinqton Way

Industrial Way is a four lane arterial road before and after the intersection. The far right lane of weslbound traffic turns into a deceleration lane and then becomes a right turn lane onto Washington Way. A raised island separates this lane from the rest of the intersection immediately before Washington Way. All four legs of this signalized intersection include protected left lanes.

Eastbound Industrial Way (SR 432) becomes three lanes at the intersection; a free right turn, a through lane, and a protected left lane. A painted island separates the right turn lane from the rest of the intersection. Located on SR 432, at the east side of the intersection, is a pedestrian crosswalk. SR 432 includes a four foot paved shoulder on each side of the pavement.

Washington Way is a two lane road that widens at its intersection with SR 432. The far right southbound lane divides into a free right turn lane onto SR 432 end a through lane. Heading westbound, there is also a protected left turn lane into SR 432. On the north side of the Intersection, a wide single lane accepts traffic from the righl turn lane of eastbound SR 432 and left turn lane traffic of weslbound SR 432. In addition. the through traffic from northbound Washington Way enters this lane after dearing the intersection. There is also a railroad crossing on Washington Way, immediately south of the intersection

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	30	22	133	23	373	134	16	84	32	149	249	7	1252
Phase I	173	656	15	45	35	141	37	496	222	19	93	46	1978
Phase II	188	682	15	49	37	141	41	469	235	21	95	52	2025
Phase III	196	695	19	58	42	141	41	558	243	21	95	52	2161
Phase IV	255	705	24	74	57	412	53	709	254	32	102	65	2742

Industrial Way at Washington Way	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = B	LOS = B	LOS = B	LOS = E
Without Project	LOS = B	LOS = B	LOS = C	LOS = C	LOS = D

Ocean Beach Highway at Olive Way

This Is an existing three-way, unsignalized intersection. It has an unprotected left turn lane for the northwest bound traffic on Ocean Beach Highway onto Olive Way. and e stop sign on Olive Way for the traffic entering Ocean Beach Highway. About 175 feet from this intersection to the south. Nebraska Street intersects Ocean Beach Highwey In another three-way Junction.

Ocean Beach Highway is a four lane urban road with a two-way turning lane In the middle. The two-way turning lane becomes an unprotected left turn lane for the traffic traveling northwest bound making a turn onto Olive Way. The left turn option is prohibited to southeast bound traffic on Ocean Beach Highway. There is no parking allowed on either side of Ocean Beach Highway, in the vicinity of this Intersection.

Olive Way is a two Jane residential street with street parking on both sides except in the vicinity of the intersection.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present													
Phase I				76	1134		35		47		1707	3	3078
Phase II				88	1230		38		54		1719	3	3132
Phase III				102	1598		43		64		1723	7	3544
Phase IV				144	1503		56		73		1723	14	3513

Ocean Beach Highway at Olive Way	INTERSECTIONDELAY (sedveh)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	NIA (Not Available)	6.9 (LOS = B)	10.9 (LOS = C)	21.9 (LOS = D)	62.9 (LOS = F)
Without Project	NIA	—	—	—	—

Washington Way at 32nd Avenue

This is a signalized intersection with a single phase traffic signal and protected left turn lanes at the intersection on 32nd Avenue. Washington Way remains a four lane road at this intersection with no separate left turn from through lanes. This intersection is located within a residential neighborhood and the pedestrian crossing volume is higher than any other intersection covered in this study.

Sidewalks and handicap ramps are located on all four sides of this intersection 32nd Avenue is a two lane collector road.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	57	105	32	43	273	116	23	112	28	91	285	15	1180
Phase I	65	139	40	49	235	289	31	158	37	103	311	21	1478
Phase II	78	156	47	57	287	390	35	163	42	116	323	25	1699
Phase III	84	167	47	64	306	393	42	171	46	129	348	42	1839
Phase IV	87	173	52	94	548	478	90	184	54	231	550	87	2610

Washington Way at 32nd Avenue	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = B	LOS = B	LOS = 8	LOS = * over capacity
Without Projed	LOS = B	LOS = B	LOS = B	LOS = B	LOS = B

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

Ocean Beach Highway at 32nd Avenue

The signalized intersection of Ocean Beach Highway and 32nd Avenue contains controlled left turns on Ocean Beach Highway moving in both directions. All four directions of traffic have protected left turn lanes. A railroad crosses 32nd Avenue north of Ocean Beach Highway, and also Ocean Beach Highway east of 32nd Avenue.

32nd Avenue is a two lane collector road whose speed limit is 35 mph. Ocean Beach Highway is a four lane urban road that has a two-way turning lane in the center. The center lane then turns into a protected left turn lane at the intersection. East of 32nd Avenue. Ocean Beach Highway's speed limit is 35 mph, and 40 mph west of 32nd Avenue.

Crosswalks line every side of the Intersection except on the west. Handicap ramps ere at every comer of the intersection that includes a crosswalk. A plant strip separates a side walk/bike route that lines both sides of Ocean Beach Highway, and the urban road. The sidewalks along 32nd are not set-back

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	40	44	41	103	997	28	227	888	109	40	780	74	2571
Phase I	39	74	25	217	701	33	42	394	50	222	906	263	2966
Phase II	44	82	31	223	803	43	42	397	55	232	912	261	3126
Phase III	47	85	34	226	614	43	47	404	65	235	1012	267	3279
Phase IV	56	106	44	248	1035	57	56	479	82	336	1102	275	3876

Ocean Reach Highway at 32nd Avenue	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = C	LOS = C	LOS = C	LOS = E
Without Project	LOS = B	LOS = B	LOS = B	LOS = D	LOS = C

Ocean Beach Highway at 38th Avenue

All sides of the signalized intersection of Ocean Beach Highway and 38th Avenue have protected left turns. North of the intersection, 38th Avenue is a two lane road with a two-way turning lane in the center. Ocean Beach Highway is a five lane road including a center two-way turning lane.

Sidewalks line bolh sides of 38th Avenue and Ocean Beach Highway In addition, there is a bike route on the north edge of Ocean Beach Highway There are crosswalks on all four sides of the intersection, and handicap ramps on all four comers.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	109	64	66	143	628	109	193	117	58	57	558	90	2192
Phase I	157	260	109	271	584	34	232	127	67	116	630	602	3189
Phase II	163	317	109	285	592	34	224	127	74	116	654	602	3297
Phase III	163	325	109	321	811	34	236	134	83	116	733	632	3697
Phase IV	178	436	115	335	873	47	321	157	96	123	745	648	4074

ocean Beach Highway at 38th Avenue	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = E	LOS = F	LOS = * over capacity	—
Without Project	LOS = B	LOS = C	LOS = C	LOS = C	LOS = D

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection

3rd Avenue at Tennant Way Frontage Road

As one drives west on the off ramp of SR 432, they approach the Intersection of 3rd Avenue and Tennant Way Frontage Road. The street west of the intersection Is Tennant Way Frontage Road, and running north and south Is 3rd Avenue. Northbound 3rd Avenue's protected left turn lane at this intersection is uncontrolled. 3rd Avenue southbound Is the only street that does not provide a protected turn lane at the Intersection. To the east. the off ramp is one way, so there is no left turn allowed.

3rd Avenue and Tennant Way Frontage Road are both two lane roads and the lanes widen at the Intersection. The north and westbound traffic of the intersection has right turn lanes. Tennant Way Frontage Road's right turn lane must yield, and a raised median separates it from the left turn lane. A painted median separates 3rd Avenue's north and southbound traffic, on the intersection's north side.

The intersection provides no crosswalks or sidewalks. The speed limits are: 30 mph on the off ramp. 35 mph on Tennant Way Frontage Road. and 35 mph on 3rd Avenue.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	0	525	193	0	0	0	0	417	647	51	0	7	1840
Phase I	0	772	112	773	319	223	704	531	0	813	0	309	4556
Phase II	0	783	115	773	323	235	713	533	0	813	0	309	4597
Phase III	0	795	126	790	337	248	728	542	0	825	0	316	4707
Phase IV	0	833	139	795	340	247	731	558	0	836	0	324	4803

3rd Avenue at Tennant Way Frontage Road	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS=* over capacity	over capacity	—	—	—
Without Project	LOS = *	over capacity	—	—	—

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

Oregon Way at Industrial Way

This is a signalized intersection with protected left lanes on all four legs of the intersection. Each left turn is controlled. Industrial Way is a four lane road before and alter the intersection. On the far right of the east bound traffic, there is a deceleration lane, and it becomes a yielded right turning lane onto Oregon Way. A raised traffic island separates this lane from the rest of the intersection. The lane then becomes an acceleration lane and merges into Oregon Way's traffic.

Set-back sidewalks and street curbs line Oregon Way except for the southbound side, south of Industrial Way. Crosswalks are on the east. west, and north sides of the intersection. There are railroad crossings immediately north and east of the intersection.

should be 68

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	91	526	57	331	312	244	122	409	350	687	236	119	2865
Phase I	176	1110	88	369	493	251	153	507	600	171	726	412	5056
Phase II	175	1176	84	379	502	263	156	523	613	178	726	422	5197
Phase III	189	1208	97	386	547	276	167	536	624	185	746	422	5383
Phase IV	211	1401	104,	413	562	285	175	547	642	304	820	501	5965

Oregon Way at Industrial Way	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = C	LOS = * over capacity	—	—	—
Without Project	LOS = C	LOS = C	LOS = C	LOS = D	LOS = E

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection

15th Avenue/Oregon Way and Tennant Way/Nichols Boulevard

At this signalized intersection, each of the four streets has protected left turn lanes, and speed limits of 35 miles per hour. Each street also has two through lanes, excepl for Tennant Way. which has one Between Oregon Way's left turn lane and left through lane is a raised divider. A raised median divides that same turn lane from southbound, oncoming traffic. A raised divider separates left turn lanes and oncoming traffic on Nichols Boulevard and Tennant Way. Northbound Oregon Way has a fourth lane at the intersection for right turns only (no turning on red lights). Tennant Way. 15th Avenue, and Nichols Boulevard, also develop right turn lanes that separate traffic by a raised island. Right turns from Nichols to Oregon, and 15th to Nichols, have yield signs posted

Crosswalks are at each street except Tennant Way. Every comer Involving a crosswalk has handicap comers. The bike route runs north and south along 15th Avenue and Oregon Way.

Immediately following the intersection on the east side, a one way street. California Way, branches off Tennant Way Another road (unknown name) bisects the angle between Oregon Way and Nichols Boulevard This road contains two-way traffic.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	169	448	101	204	453	276	47	468	183	70	374	31	2824
Phase I	211	609	99	126	369	251	42	394	50	222	906	263	3542
Phase II	202	620	104	138	379	251	42	397	55	232	912	261	3367
Phase III	214	645	113	146	385	259	47	404	65	235	1012	267	3792
Phase IV	229	732	125	176	433	308	56	479	82	336	1102	275	4333

15th Avenue/ Oregon Way and Tennant Way/ Nichols Boulevard	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS=C	LOS=C	LOS = C	LOS = D	LOS = E
Without Project	LOS = C	LOS = C	LOS = C	LOS = C	LOS = D

City of Longview

Location: International Way and Industrial Way - South Leg
Count Interval: 15 minutes
Count Date: Thursday - September 7, 1995/Friday - September 8, 1995

Time	Southbound Volume	Northbound Volume	Total Volume
10:00 - 10:59	52	49	101
11:00 - 11:59	48	35	83
12:00 - 12:59	53	49	102
13:00 - 13:59	77	38	115
14:00 - 14:59	60	55	115
15:00 - 15:59	50	62	112
16:00 - 16:59	53	60	113
17:00 - 17:59	27	51	78
18:00 - 18:59	19	26	45
19:00 - 19:59	4	5	9
20:00 - 20:59	6	7	13
21:00 - 21:59	2	3	5
22:00 - 22:59	10	17	27
23:00 - 23:59	0	2	2
Mid - 12:59	1	1	2
1:00 - 1:59	0	1	1
2:00 - 2:59	0	0	0
3:00 - 3:59	0	0	0
4:00 - 4:59	2	0	2
5:00 - 5:59	4	5	9
6:00 - 6:59	39	12	51
7:00 - 7:59	83	27	110
8:00 - 8:59	73	34	107
9:00 - 9:59	46	42	88
ADT	709	581	1290
AM Peak Time :	7:15- 8:15	10:30-11:30	7:30- 8:30
AM Peak Volume:	91	51	117
PM Peak Time :	13:00-14:00	15:30-16:30	13:30-14:30
PM Peak Volume:	77	68	129

SUMMARY OF LEVEL OF SERVICES (with project)					
Intersection	Existing	Phase I	Phase II	Phase III	Phase IV
Memorial Park Drive at 38th Avenue	LOS=A	LOS=A	LOS=B	LOS=C	LOS=F
Industrial Way at 38th Avenue	LOS=B	LOS=C	LOS=C	LOS=C	LOS=D
Industrial Way at Washington Way	LOS=B	LOS=B	LOS=B	LOS=B	LOS=E
Ocean Beach Highway at Olive Way	N/A (not available)	LOS=B	LOS=B	LOS=C	LOS=F
Washington Way at 32nd Avenue	LOS=B	LOS=B	LOS=B	LOS=B	LOS=*
Ocean Beach Highway at 32nd Avenue	LOS=B	LOS=C	LOS=C	LOS=C	LOS=E
Ocean Beach Highway at 38th Avenue	LOS=B	LOS=E	LOS=F	LOS=*	—
3rd Avenue at Tennant Way Frontage Road	LOS=* over capacity	—	—	—	—
Oregon Way at Industrial Way	LOS=C	LOS=*	—	—	—
15th Avenue/ Oregon Way at Tennant Way/Nichols Boulevard	LOS=C	LOS=C	LOS=C	LOS=D	LOS=E

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

SUMMARY OF LEVEL OF SERVICES (without project)					
Intersection	Existing	Phase I	Phase II	Phase III	Phase IV
Memorial Park Drive at 38th Avenue	LOS=A	LOS=A	LOS=A	LOS=A	LOS=A
Industrial Way at 38th Avenue	LOS=B	LOS=B	LOS=B	LOS=B	LOS=B
Industrial Way at Washington Way	LOS=B	LOS=B	LOS=C	LOS=C	LOS=D
Ocean Beach Highway at Olive Way	N/A	—	—	—	—
Washington Way at 32nd Avenue	LOS=B	LOS=B	LOS=B	LOS=B	LOS=B
Ocean Beach Highway at 32nd Avenue	LOS=B	LOS=B	LOS=B	LOS=D	LOS=C
Ocean Beach Highway at 38th Avenue	LOS=B	LOS=C	LOS=C	LOS=C	LOS=D
3rd Avenue at Tennant Way Frontage Road	LOS=* over capacity	—	—	—	—
Oregon Way at Industrial Way	LOS=C	LOS=C	LOS=C	LOS=D	LOS=E
15th Avenue/ Oregon Way at Tennant Way/Nichols Boulevard	LOS=C	LOS=C	LOS=C	LOS=C	LOS=D

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

Conclusions

Of the ten key intersection evaluated in this report, all but one are currently operating at Level of Service C or better. The intersection of 3rd Avenue and Tennant Way is currently over capacity.

In addition, the results of the analysis indicate that two of the intersections currently operating at acceptable LOS will function at LOS E or worse as a result of build-out of Phase One:

- Ocean Beach Highway at 38th Avenue
- Oregon Way at Industrial Way

Additional analysis, based on the assumption of linear growth of Phase One, demonstrates that the LOS failures would occur only near completion of the Phase. At both locations, LOS E or worse is not triggered until more than 75% of the projected build-out of Phase One. Therefore traffic generated in the earlier years of Phase One lot developments can be acceptably handled by the current intersection configurations. The modeled congestion results from existing and projected background traffic growth as well as traffic generated by the industrial park, however intersection failure would occur at these locations at a later date without the Mint Farm project. The specific turning movements which fail are shown in diagrams included in the appendix.

See the appendix for the graphical presentation of traffic movements for the above intersections including identification of the specific turning movements which fail.

Analysis of additional intersections predicts failure (LOS E or worse) in approximately 20 years, with the build-out of Phase Four. In each case, the intersection would continue to have adequate LOS without the full development of the Mint Farm:

- Memorial Park Drive at 38th Avenue
- Industrial Way at Washington Way
- Ocean Beach Highway at Olive Way
- Washington Way at 32nd Avenue
- Ocean Beach Highway at 32nd Avenue
- 15th Avenue/Oregon Way and Tennant Way/Nichols Blvd.

Timing of LOS failure is subject to the actual rate of site development and increased traffic from the project. It is also understood that within the time frame of this analysis other developments will occur that may contribute to the future traffic condition. These may have a greater, or lesser, effect on traffic volumes than accounted for by the assumed background growth.

This study allows officials at City of Longview, Cowlitz County, and WSDOT to factor into capital improvements planning those impacts from the development of each phase of the Mint Farm project. Future studies reflecting the actual growth and contribution of traffic by the project and other nearby sources will be needed to target timing and scope of those future intersection improvements.

Mitigation

Phase One of the Mint Farm project provides mitigation for associated traffic impacts. The main entry to the project from Industrial Way (SR-432) is located one half mile east of the existing intersection of Industrial Way and 38th Avenue. This conforms to the WSDOT policy for separation of signalized intersections on state highways. This intersection will be signalized as part of the initial construction of Phase One. The minimum distance from this entry street to other public or private connections with Industrial Way is greater than two hundred fifty feet. Configurations for the intersections entering Phase One have not yet been determined. Design of those entries shall be designed to provide adequate projected Level of Service through all four phases. Configuration of the entry from Industrial Way (SR 432) will require review and approval by WSDOT.

Phase One construction of the public streets within the project will provide full width improvements to meet future traffic demand. The main street, extending from Industrial Way to 38th Avenue through Phase One, will be a four lane arterial with turn pockets provided at the three intersections with cross streets. A planted median at the entry from Industrial Way will provide opportunity for an additional future turn pocket. The three cross streets, which eventually will connect into future phases of the industrial park, will be constructed with one through lane in each direction and a continuous left turn lane. All streets will have sidewalks set back from the curb behind a planting strip.

The analysis demonstrates Level of Service deficiencies at two nearby intersections triggered by late-stage development of Phase One of the project. In both instances, failure is not triggered until more than 75 percent of the Phase is built and generating traffic. The City of Longview should develop a Memo of Understanding with the Washington State Department of Transportation addressing the timing and respective responsibilities for increasing intersection capacities in a timely manner.

Stormwater Management Report

Preliminary Stormwater Hydraulics Report
for
Phase One
The Mint Farm Industrial Park

prepared for:

City of Longview
Longview, Washington

prepared by:

Richard Carothers Associates
814 East Pike Street
Seattle, Washington 98122
(206) 324-5500

September 19, 1996

Mint Farm Industrial Park Master Planning Phase One Development Preliminary Stormwater Hydraulics Report

Section 1: Introduction

This preliminary stormwater hydraulics report is being developed in conjunction with the preliminary design and construction for the proposed Mint Farm Industrial Park, Phase One. To accommodate funding and property acquisition limitations, the design and construction of the Mint Farm Industrial Park (445 acres) is projected to consist of four phases. Phase One design and construction of the Mint Farm Industrial Park proposes the development of approximately 125 acres of pasture land fronting Industrial north and east of CDID Ditch #5. Approximately 12 acres of this area will be used for the detention of stormwater in ponds. The project location is shown in 1.1.

Phase Two, Three, and Four entail the design and construction of the remaining 320 acres of the industrial park. Future phases have start and completion schedules projected for sometime after the year 2000. The master plan for Phase One of the Mint Farm Industrial Park is shown in Figure 1.2.

This stormwater hydraulics report documents the preliminary design of the proposed drainage system consisting of catchbasins, storm sewers, water quality and detention facilities to collect, convey, treat, and dispose of stormwater in accordance with Washington Department of Ecology (Ecology) standards and with reference to the standards of King County. It is our understanding that the City of Longview and the Consolidated Diking Improvement District (CDID) plan to eventually adopt Ecology's Stormwater Management Manual. The final report will include the preliminary detailed calculations and the hydrologic and hydraulic models for the design of the Phase One drainage improvements. An analysis of inlet spacing to ensure that gutter flows meet design criteria may need to be prepared later.

The preliminary designs have been developed by RCA, under a contract with the City of Longview. The majority of the preliminary design work for this project has been conducted by RCA.

Section 2: Existing Conditions

Existing Drainage

The proposed site for Phase One of the Mint Farm Industrial Park is undeveloped, open pasture enclosed by the following ditches: the northern side, Ditch #12; the western side and the southern sides, Ditch #5. The east boundary is adjacent to a private agricultural drainage ditch. Therefore, there is no upstream tributary area which drains to the proposed project site. Any runoff flowing towards the project site is intercepted by one of these ditches. The only surface runoff to be concerned with is the runoff concentrating within the project boundaries.

Current site conditions consist of grassy, open pasture with fairly flat topography within the Phase One project area. Past uses of the site consist of agricultural activities such as clearing, plowing, seeding, and annual commodity crop rotation.

Downstream runoff consists of surface flows draining into agricultural ditches which ultimately flow into Ditch #5 maintained by the Consolidated Diking Improvement District #1 (CDID). All surface runoff within the project site ultimately flows through these ditches. Ultimately, all surface flows from Ditch #5 are pumped into the Columbia River.

Potential drainage problems in the project area include surface ponding during the wet season at certain areas of the site. This results from the minimal soil infiltration capacity, fairly flat slopes, and a seasonally high groundwater table. Groundwater elevations are controlled in large part by the pumping program of CDID in the adjacent regional drainage ditches. Groundwater is also reportedly influenced by tidal action in the Columbia River. A geotechnical study is currently being conducted by Hart Crowser which provides a detailed analysis of the soil properties. A wetlands study has been performed by Watershed Dynamics which provides near surface analysis of soils and hydrogeologic conditions.

Precipitation

According to precipitation data recorded by the City of Longview, precipitation in the project area averages 45 inches per year. Historically since 1925, December has had the highest monthly precipitation with an average of 7.09 inches. But in the past 10 years, November has had the highest average monthly precipitation. Historically, the average monthly precipitation in November is 6.42 inches.

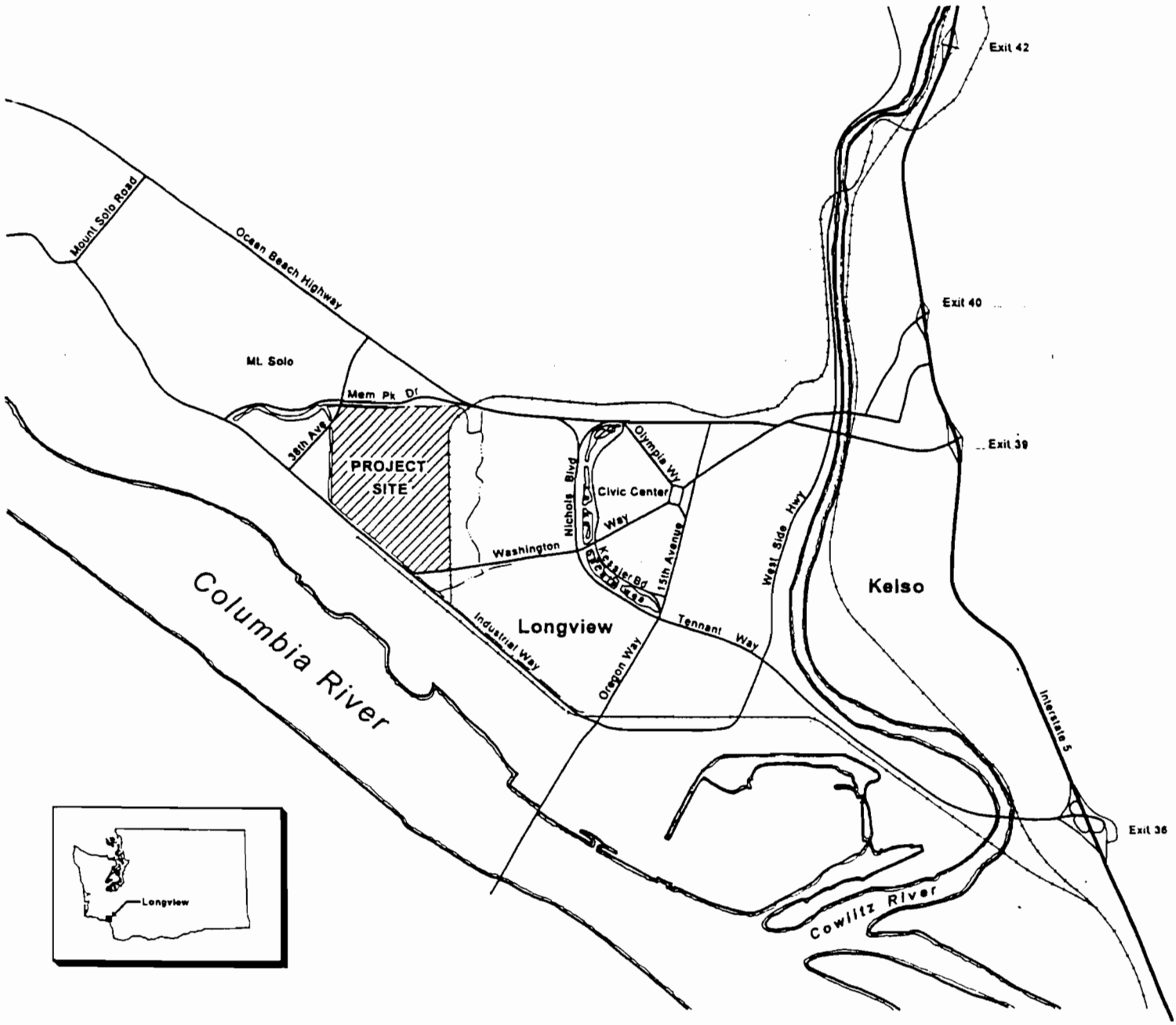
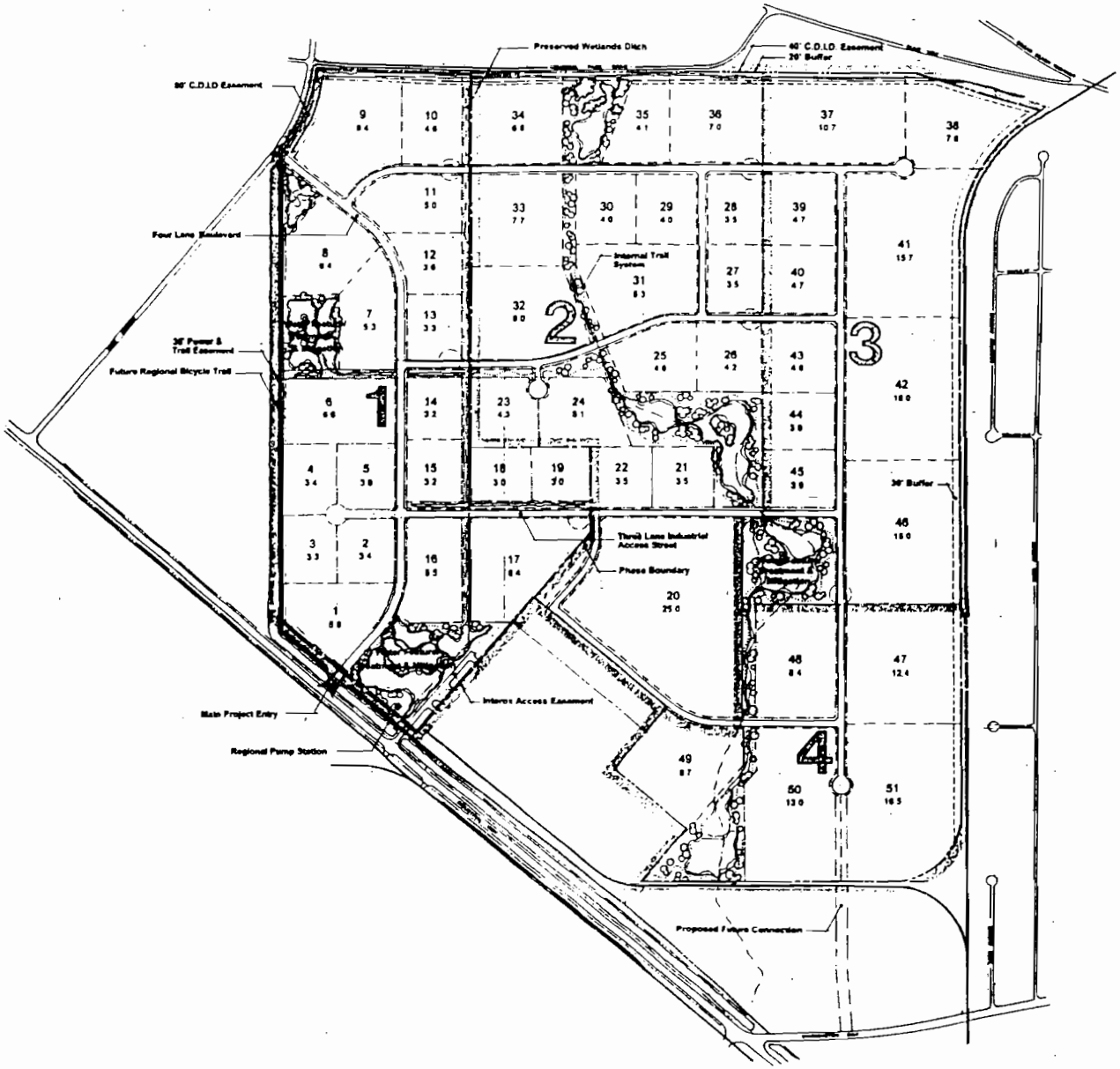


Figure 1.1 Vicinity Map



THE MINT FARM INDUSTRIAL PARK

CITY OF LONGVIEW, WASHINGTON

Site Data

Net Developable Lot Area	*344.2 Acres*
Street Rights-of-Way	*30.4*
Dedicated Open Space	*52.7*
Easements	*8.5*
Diking District Ditch Easements	—
PUD Power Easement	—
City Trail Easement	—
Interox Access Easement	—
Total Master Plan Area	*435.8 Acres*

Phasing Plan

	Developable Area Acres	Building Area Yield
Phase One	*88.2*	*1.6 million SF*
Phase Two	*111.2*	*1.9 million SF*
Phase Three	*85.8*	*1.5 million SF*
Phase Four	*59.0*	*1.0 million SF*

Master Development Plan

RICHARD CAROTHERS ASSOCIATES, LTD.

Figure 1.2 Master Plan

Existing Floodplains

According to a Federal Emergency Management Agency (FEMA) flood insurance map for the City of Longview, the project site is within the limits of Zone X specified floodplains. Zone X specification by FEMA indicates the site has the following characteristics: areas of 500 yr. flood; areas of 100 year flood with an average depth of less than 1 ft; drainage area is less than 1 square mile; special flood hazard areas inundated by a 100 yr. flood; and, any areas protected by levees for a 100 year flood. The project site lies within an area protected by levees for a 100 year flood.

Existing Stream Crossings

There are no stream crossings on this project.

Existing Channels/Ditches

The project site contains a network of internal and perimeter ditchlines which capture and convey all the surface runoff from the site to the larger CDID maintained ditches, Ditch #5 and Ditch #12. The on-site ditches were constructed and maintained for agricultural purposes. Surface water from Ditch #5 is pumped from the Industrial Way Pump Station located offsite of the southwestern corner of the project site into the Columbia River.

On-site there are four main ditch lines running north to south and interconnected by culverts. Running east to west in the center of the two innermost ditch lines (inner), is a center ditch connected by culvert to the third outer (most eastern) ditch line and Ditch #5. The two inner ditches also appear to drain into this center ditch. Just south of this center ditch but east of the third outer (most eastern) ditch is another ditch running east to west and connected to this third outer ditch.

These two inner ditch lines and the westerly ditch line along the toe of the CDID containment dike will be filled (and mitigated) during Phase One design and construction. According to the CDID, the average water elevation through these ditches is approximately -1.5 ft. (CDID datum). These site ditches are shown in Figure 2-1.

Existing Wetlands

A wetlands study was performed by Watershed Dynamics Inc. (WDI) in July 1996. Jurisdictionally, the wetlands on the site consist of the network of internal constructed agricultural ditches draining the project site. Wetlands on the project site total approximately 4.16 acres. The dominant onsite plant community is composed of seeded and invasive grasses and herbs.

The preliminary site plan will require the modification and filling of approximately 2.7 acres of the existing maintained agricultural ditches. The currently proposed mitigation for this modification of existing wetlands will include the creation of approximately 4.1 acres of new wetlands. This will provide an overall replacement of area at a ratio of 1.5 to 1.

Existing Soils

A wetland report conducted by WDI in July, 1996, indicate that the near surface conditions consist of the presence of hydric and non-hydric soils on the site. Hydric soils are typically defined as soils which are saturated, flooded, and ponded long enough during the growing season to develop anaerobic conditions.

The northern portion of the project site consists primarily of a surface layer of mixed silty clay loam and exhibits a soil matrix color of gray and many prominent mottles. The central and southern portions of the project site consist of a surface layer of mixed silt loam and exhibit a soil matrix color of dark-brown and many distinct mottles.

A geotechnical study of the near surface and deep soil conditions was conducted by Hart Crowser in August, 1996. The soils have minimal infiltration characteristics.

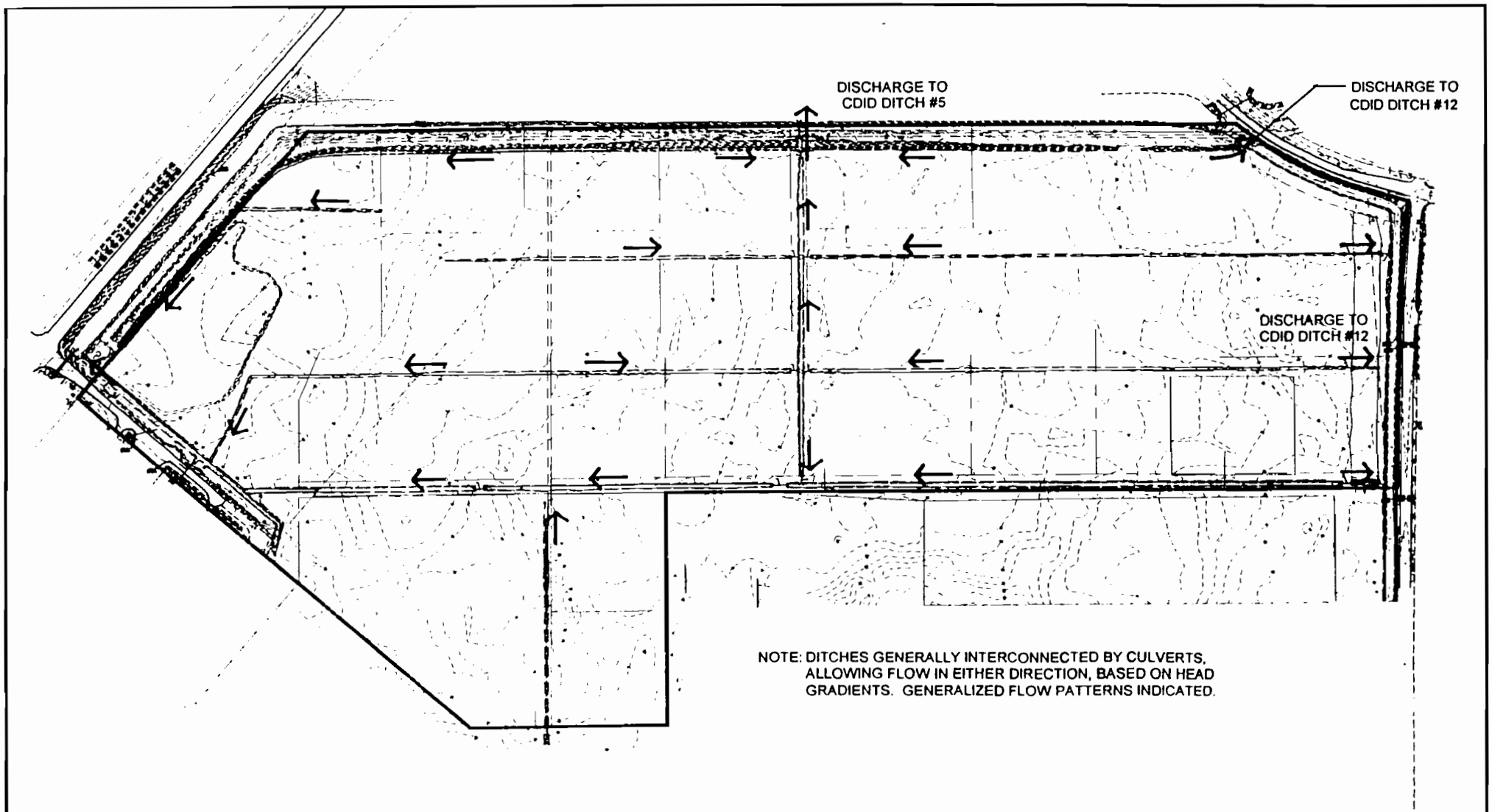
Existing Subsurface Flows

According to the CDID, visual observations of the ditches indicate that the average water elevation in (the ditches) is approximately -1.5 feet. This water elevation in the ditch is approximately equivalent to the groundwater table elevation. Seasonal groundwater elevations on this site have been high, which in turn compromises the ability of the soils to infiltrate soils. Seasonal high groundwater elevations occurs in the late winter months.

Groundwater observations by Watershed Dynamics (see Wetlands Evaluation Study) indicate that the on-site ditches effectively draw down the groundwater after storms, conveying it to the regional drainage system. This analysis, conducted between February 23, 1996 and March 16, 1996, indicates that the average water elevation of the site during the wet month of February is approximately 2.0 ft. Depth to groundwater from existing ground surface varies from zero to more than 30 inches in these late winter months.

Existing Storm Sewers

The site is undeveloped. There are no existing storm sewers.



Land Planning
Civil Engineering
Landscape Architecture
Surveying
Environmental Services

Richard Carothers Associates
Founded 1960 814 E. Pike St. Seattle, WA 98122 206/324-5500 Fax 328-1880

JOB NO.	1-96048
DATE	September 7, 1996
DESIGNED	ARS
DRAFTED	GMD
CHECKED	
SCALE	0 50 100 200 FEET

EXISTING DRAINAGE

DRAWING NO.
FIG 2.1
SHEET NO.
OF

Plotted by GMD-Seattle on 04 Sep 1996 - 14:6pm

Existing Bridges

There are no existing bridges on the project site.

Existing Culvert Crossings

There are two existing culvert crossings of the CDID regional ditches onto the project site. One, located on the northwestern corner of the project site, is a 84 inch corrugated metal pipe allowing farm access from 38th Avenue. The second culvert is large corrugated metal pipe in the access drive to the Solvay Interox plant.

Onsite there are numerous small diameter pipes interconnecting the agricultural ditches and providing access between fields for farm equipment and animals.

Section 3: Design Requirements

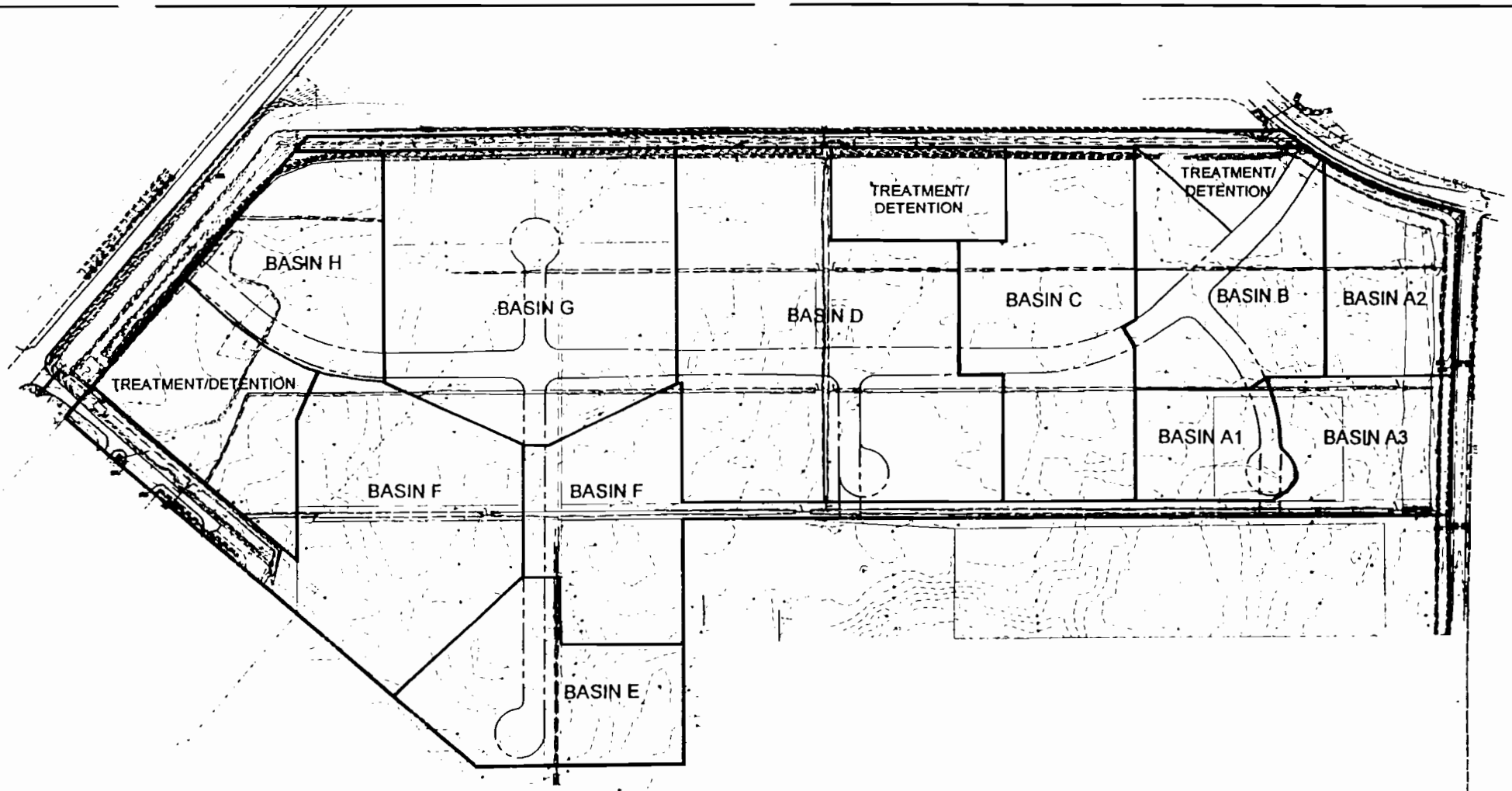
Proposed Drainage

The 125 acres to be developed in Phase One can be separated into eight separate drainage basins each draining to its own discharge point. The discharge point is either to a ditch which flows into a treatment/detention pond or directly into the pond. Approximately 12 acres of the total area to be developed will be used for detention and water quality ponds. The smaller drainage areas and their discharge points are detailed in Table 3-1. These drainage areas are shown in Figure 3.1. The proposed drainage system consists primarily of catchbasins, storm sewer pipes, ditches, and detention ponds providing storage and water quality benefits. The proposed drainage system is shown in Figure 3.2. There will be a total of three treatment/detention areas on the site which will ultimately drain into Ditch #5.

Table 3-1
DRAINAGE AREAS

Drainage Area	Area (acres)	Discharge Point
A	1.52	Pond
B	11.04	Pond
C	5.29	Ditch
D	13.94	Ditch
E	3.24	Ditch
F	2.82	Ditch
G	19.67	Ditch
H	10.42	Pond

Phase One design and construction also proposes that the three westerly ditch lines running north to south in the site will be filled. The eastern ditch running north to south, the center ditch running east to west, and the southerly east-west ditch will be retained and widened to increase storage and conveyance capacity. Culverts within these ditches will be removed and replaced by open ditch. Replacing these connecting culverts with open ditch reduces the possibility of overflow through the system if flows exceed the inlet capacity of the culvert. In addition, new ditches will be created at areas requiring conveyance into one of the ponds.



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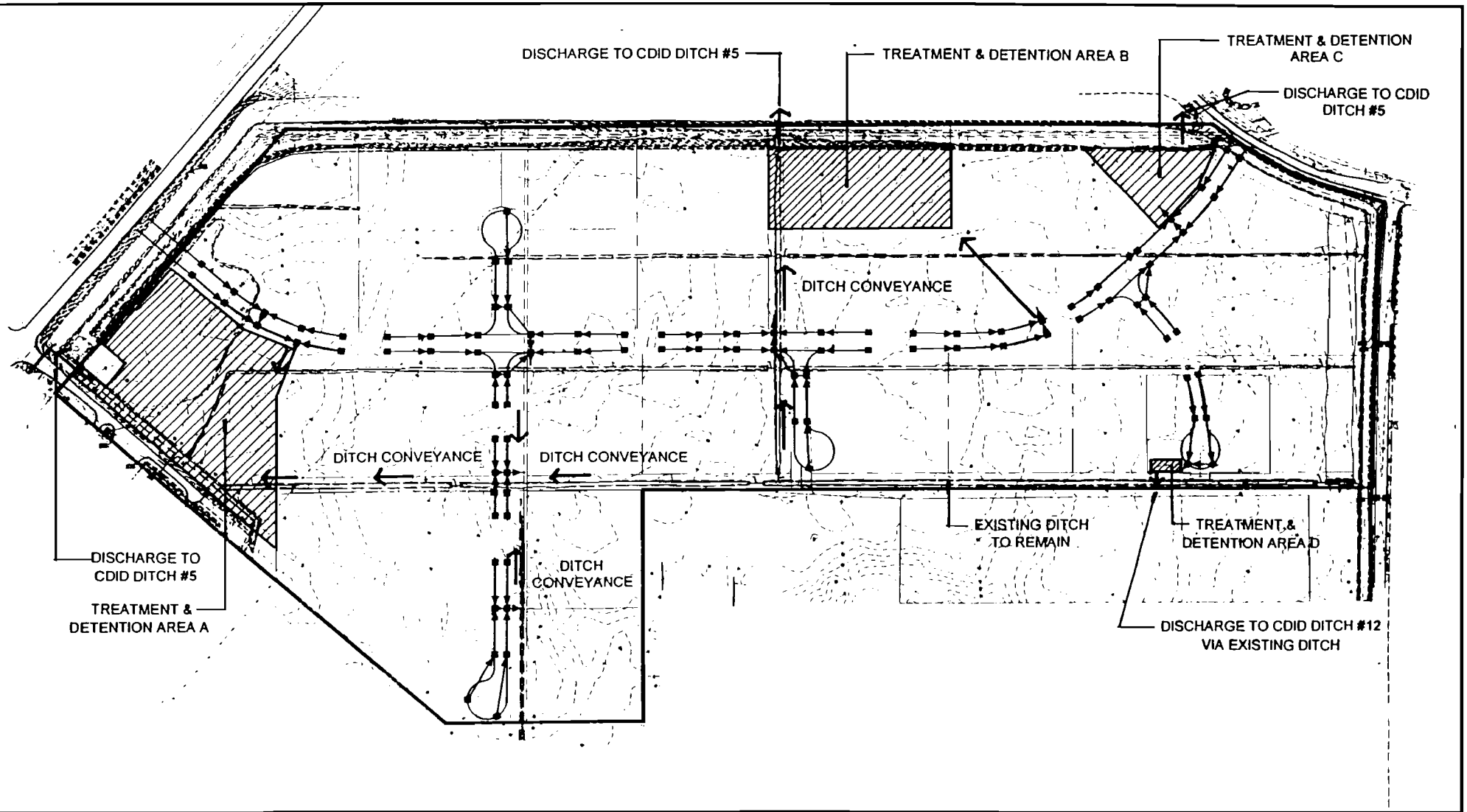
SCALE	

0 50 100 200 FEET

DRAINAGE SUB-AREAS

DRAWING NO.
FIG 3.1
SHEET NO.
OF



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JOB NO.	1-96048
DATE	September 7, 1996
DESIGNED	ARS
DRAFTED	GMD
CHECKED	
SCALE	

0 50 100 200 FEET

PROPOSED DRAINAGE SYSTEM

DRAWING NO.

FIG 3.2

SHEET NO.

OF

Plotted by GMD-Seattle on 04 Sep 1996 - 11:30am

Design Criteria

The criteria used for preliminary design development are based on the following documents and information:

- *Puget Sound Stormwater Management Manual* (Technical Manual), Washington State Department of Ecology, February 1192.
- *Hydraulics Manual*, Washington State Department of Transportation (WSDOT HM), May 1989.
- King County, *Surface Water Design Manual* (Design Manual), King County Surface Water Management, 1990
- Conversations with and data provided by the CDID #1 and the City of Longview
- Wetlands Study, Watershed Dynamics Inc., July, 1996
- Geotechnical Study, Hart Crowser, August, 1996

Hydrology

The project is expected to be constructed in phases. Since the future phases will occur in a subsequent and uncertain date, each stormwater runoff facility will be sized to carry the flow from the maximum build-out condition of that particular phase.

Project area topography and existing land use will be that which is shown on the project map developed from City of Longview maps and drawings. Determination of drainage area boundaries and runoff flow paths from this base map's topography will be supplemented by field observations and field survey data. Future runoff created by the development of surrounding areas during later phases will be handled by separate systems.

There is no City of Longview regulation which requires the detention of stormwater, but the CDID recommends a particular release rate into their ditches. A controlled release rate and consequent temporary storage is required in order to discharge runoff to Ditch #5 and prevent overtaxing of this existing ditch. The recommended discharge rate requires matching the pre-development 25-year 24-hour storm event runoff rate with the 100-year 24-hour post-development condition.

Three detention pond systems will be built based on the sub-basins draining into each of the ponds. The pond/area breakdown is shown in Table 3-2:

Table 3-2
SUB-BASIN AREAS

Sub-basins	Area (acres)
1	63.9
2	35.3
3	14.0

The detention ponds will be sized for a 100-year 24-hour storm and gradually release into Ditch #5 of the CDID. A correction factor of 1.2 for consideration of longer storm events, as recommended in Appendix AIII1.2 of the *Technical Manual* will be applied to the calculated basin volume to arrive at the design volume. The outflow will be released at a rate equivalent to the 25 year predeveloped storm. Based on a phone conversation with Ron Colbert of the CDID on August 8, 1996, a mean high water elevation of 2.0 ft will be assumed at the outfalls of the detention ponds.

According to the CDID, the last major storm event occurred in February, 1990. Precipitation data indicates that during a 12 hour period between February 9th and 10th of 1990, approximately 2.46 inches of rainfall fell in the close proximity of the project site. Precipitation for a 100-year 24-hour storm is approximately 4.95 inches. Between February 9th and 10th, about 2.46 inches fell in only a 12 hour period which is about one-half the 100-year storm in half the time. According to the CDID, the peak water elevation observed 2 hours after the rainfall on February 10th at the Industrial Way Pump Station was about 1.8 feet. Therefore, it is assumed in the design calculations, that the tailwater elevations at all outfalls (i.e., ponds and ditches). Since the entire project site is fairly flat, the mean high water elevation for the whole site is assumed to be about 2.0 feet.

No specific analysis or comparison has been developed to estimate the storage requirements for the 100-year 7-day storm.

Stormwater runoff up to the peak discharge calculated for the water quality design will be routed through runoff treatment facilities prior to their discharge to Ditch #5.

Temporary (i.e., during construction) and permanent erosion and sediment control measures and procedures (TESCP) will follow WSDOE standard specifications. These TESCP measures will be explained further in Section 5.

According to *the Lower Cowlitz River Flood Control Master Plan Volume 1* done by James Montgomery Consulting Engineers, the National Oceanic Atmospheric and Administration (NOAA) values for precipitation may be understated when applied to the project site. Historical storm records show that within the past 26 years, three storms have occurred that nearly equaled or exceeded the 100-year precipitation as defined in the NOAA Atlas. We have attempted to accommodate this uncertainty in our factor of safety.

Requirements of Volume 1 Section 1 of the *Technical Manual* (and the *Design Manual*) will be followed:

- **Determination of Pre- and Postdeveloped Runoff Rates** - The Santa Barbara Urban Hydrograph (SBUH) method shall be used for all detention/retention basin sizing calculations. The SCS Type 1A , 24-hour precipitation distribution as derived from the NOAA Atlas 2 will be used. For predeveloped conditions, almost the entire site is pervious, open grass area and only a fraction of area is impervious due to the ditches. For post developed conditions, a relationship of 80% impervious and 20% pervious was used for each of the 8 drainage areas. The precipitation used are as follows: 6-month 24-hour storm, 1.6 inches; 2-year 24-hour storm, 2.5 inches; 25-year 24-hour storm, 4.0 inches; 100-year 24-hour storm, 4.95 inches. The curve numbers used for pre- and postdeveloped are 90 for pervious and 98 for impervious.

- **Storage Volume and Release Rate Calculations** - Storage volume calculations shall be based on the manual on the SBUH method outlined in the Technical Manual.

- **Water quality ponds** - 6-month, 24-hour storm SBUH method.

- **Detention ponds** - 100-year 24-hour storm storage and 25-year 24-hour storm predeveloped release. Level pool routing was done by using Waterworks computer model.

Hydraulics

The conveyance system consists of 8 separate subdrainage systems each containing catchbasins and storm sewer pipes running in parallel and draining either into a detention pond or a ditch (which drains into the pond). At the outfalls from the conveyance systems (either into a pond or ditch), the mean high water elevation (2.0 ft) will be assumed. The City of Longview and the CDID are not on the same datum. The City of Longview has a datum which is .07 greater than the datum used by the CDID.

In consideration of the unlikely coincidence of onsite and Ditch #5 peak flows, the 100-year flows were routed through the most sensitive drainage system (B) to determine impacts on

roadway flooding. The entire drainage system will be sized for a 25-year 24-hour storm with a minimum 1 foot of freeboard between the water surface elevation and top of structure.

- **Stormsewers** - Pipes will be sized using the Rational Method as outlined in Chapter 4.3.3 of the *Design Manual*. The values used for calculations are as follows:

Land Cover Types	C	Hydrologic Soil Group D (silty clays)
Open lawns	.60	90
Parking lots, pavement roofs	.90	98
Open water bodies	1.00	98

Catchbasin Locations - The catchbasins were placed at low points and spaced approximately every 150 feet along the roadway as specified by the *Design Manual* Table 4.3.4A whenever possible.

Section 4: Offsite Analysis

A review was conducted to evaluate any drainage system problems (i.e., ponding water, high/low flows, siltation, erosion, etc.) upstream, onsite, and downstream of the proposed project. The offsite analysis did not indicate that the proposed project would result in a drainage problem or simply augment an existing one. According to the CDID, meeting downstream drainage requirements required only that the maximum outflow from the ponds would not exceed the 25-year predeveloped storm.

The proposed site for Phase One of the Mint Farm Industrial Park is undeveloped, open pasture enclosed by the following ditches: the northern side, Ditch #12; the western side, Ditch #5; the southern side, Ditch #5; and the eastern side, a private agricultural ditch. Therefore, there is no upstream tributary area which drains to the proposed project site. Any runoff flowing towards the project site will be intercepted by one of these ditches and eventually drain into the Columbia River.

The only surface runoff to be concerned with is the runoff concentrating within the project boundaries. Generally the soils in the project area have a very high runoff potential given the prevalence of silty clays on the surface layer. Past observations by CDID personnel indicate the presence of ponding water on the site during wet seasons. This is due to the low infiltration potential of the soils, the seasonally high water table, and the relatively flat topography of the project site. The proposed project will result in steeper ground surface slopes to decrease the amount of ponding water by directing flows into inlets. A groundwater study conducted by WDI in March, 1996 indicates that the existing drainage ditch system is effective in draining much of the project site. A field visit of the project site on July 3, 1996 (sunny and clear) did not indicate any visible flooding, siltation, erosion, or scouring (ditch) problems within the project site.

Currently, onsite surface stormwater is intercepted by a network of agricultural ditches for conveyance into one of the large, constructed ditches maintained by the CDID (Ditch #5 or #12). The surface water in these larger, CDID maintained ditches is eventually pumped from the Industrial Way Pumping Station located offsite of the southwestern corner of the project site into the Columbia River. The proposed project is designed to direct all surface runoff from the project site via detention pond and outflow pipe into Ditch #5. As recommended by the CDID, the outflow from the detention ponds will be restricted to the predeveloped 25-year 24-hour flows to prevent any downstream problems such as overtaxing the system, erosion, or scouring.

Section 5: Erosion and Sediment Control Plan

Temporary (i.e., during construction) and permanent erosion and sediment control measures and procedures (TESCP) will follow WSDOE standard specifications. Erosion and sedimentation control will be addressed briefly in this preliminary design report. The final design report will demonstrate compliance with the Minimum Requirements of the *Technical Manual* by addressing two issues.

First, a temporary erosion and sediment control plan to control pollution generated during the construction phase only, primarily erosion and sediment. Although the site as a whole is fairly flat and thus less vulnerable to erosion than steep exposed slopes, steps must still be taken to prevent large amount of soils to be eroded.

Clearing, grading, and vegetative restabilization in these areas can be timed so that the extent of exposed area and the duration of exposure is minimized. These areas require prompt vegetative restabilization. Temporary seeding or mulching is required where large areas will not be permanently stabilized within the recommended time limits. Diversions, barriers, and sediment traps or ponds constructed on the lower side of large disturbed area may be used to intercept and collect sediment. Areas requiring fill resulting in an increase in slope may need silt fences or straw bales to minimize erosion.

Areas being prepared for paving should be properly compacted to make the exposed surface less vulnerable to erosion. Cleared rights-of-way may be covered with crushed aggregate or seeded if it is not used for construction traffic. Gravel or stone filter berms which can be driven upon by construction equipment , should be used at intervals along the gradient rights-of-way to slow down, intercept runoff and redirect it into drainage ways, stabilized areas, or enclosed inlets.

Secondly, a plan to provide permanent measures or best management practices (BMPs) to provide permanent control of pollution from stormwater runoff after actual construction is completed. Permanent measures proposed for the design of the Mint Farm Industrial Park include vegetating all exposed soils which are not paved, minimizing slopes, and developing an enclosed piped conveyance system to intercept runoff from the entire site and redirecting it into a detention pond providing water quality benefits (6-month storm) for controlled release into Ditch #5.

Wildlife Habitat Report

7 August 1996

Mr. Carl Stixrood, Richard Carothers Associates, Ltd.

Seattle, Washington 98122
FAX 1-206-328-1880

pages 8

RE: Longview Project Wildlife

Dear Mr. Stixrood,

As we discussed, I have put together the following information about wildlife and wildlife habitats within the Longview Project Area.

Site Description (entire 450 acre site):

This entire area has been actively used for the production of a number of agricultural crops for several decades. Past and ongoing agricultural activities have included clearing, plowing, seeding, annual commodity crop rotation, and routine maintenance of drainage ditchlines. To facilitate this agricultural activity a network of internal and perimeter ditchlines have been constructed and maintained within the project area.

A remnant stream channel is present through the central portion of the site. This channel has been isolated through the development of the drainage district facilities around the perimeter of the site. Onsite surface stormwater is directed via internal and perimeter ditchlines towards large, constructed drainage district facilities along the project boundaries. Surface water within these drainage district facilities is pumped from the Industrial Way Pump Station located offsite of the southwestern corner of the project site into the Columbia River within a buried siphon. **No onsite evidence was found to define a direct surface water connection which would allow the passage of fish and other aquatic wildlife between the project site and the Columbia River.**

The project site is generally flat and presently being used for livestock pasture and the production of pasture crops. A homesite and associated outbuilding are present onsite along the north-central boundary. The dominant onsite plant community is composed of seeded and invasive grasses and herbs. Observed species include bluegrass (*Poa* spp.), colonial bentgrass (*Agrostis tenuis*), meadow foxtail (*Alopecurus pratensis*), water foxtail (*Alopecurus geniculatus*), common orchardgrass (*Dactylis glomerata*), tall fescue (*Festuca arundinacea*), red fescue (*Festuca rubra*), velvet grass (*Holcus lanatus*), reed canarygrass (*Phalaris arundinacea*), softrush (*Juncus effusus*), toad rush (*Juncus bufonius*), common horsetail (*Equisetum arvense*), bull thistle (*Cirsium vulgare*), fireweed (*Epilobium angustifloium*), creeping buttercup (*Ranunculus repens*), dandelion (*Taraxacum officinale*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), and vetch (*Vicia* spp.). Common cat-tail (*Typha latifolia*) is present within the edges of

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1833 Auburn Way N. Suite F • Auburn, WA 98002 • (206) 735-4288, FAX (206) 735-4289

the maintained ditchlines and Himalayan blackberry (*Rubus procera*) is beginning to invade in scattered clumps throughout the project site.

A grove of hybrid black cottonwood (*Populus trichocarpa*) trees has been planted onsite as a test for site production capabilities and is located within one of the defined fields in the northwestern portion of the site. In addition, a number of Douglas fir (*Pseudotsuga menziesii*) have been planted along the northwest corner of the project site along ditch #12. The area immediately west of the existing homesite is presently being used for the production of ornamental evergreen trees and shrubs.

A few mature trees are present along the remnant stream channel. Observed species include big leaf maple (*Acer macrophyllum*) and Oregon ash (*Fraxinus latifolia*).

Onsite habitats are dominated primarily by open field/open pasture character of the site. Additional habitats are provided by the onsite and offsite ditch systems, the invasion of shrubs into the open field area, the homesite, the presence of a number of trees along the old onsite stream corridor, and by the presence of the black cottonwood production area.

Background Information

WDI has contacted several people in an effort to obtained background information about the project site. Individuals contacted include local and regional staff from the Washington Department of Fish and Wildlife, members of the local Willapa Hills Audobon Society, and staff that did the original wetland inventory for the City of Longview. In addition, WDI obtained a copy of the Priority Habitats and Species (PHS) database information for the Longview area.

The PHS database identified that the ditch systems around the Mint Farm, together with the surrounding drainage ways, continued the notation "priority fish present." WDI contacted Mr. Steve Manlow, WDFW, in an effort to determine which priority fish this notation pertained. Mr. Manlow stated that all game fish were given the priority status during the PHS mapping and that large mouth bass (*Micropterus salmonides*), which is a game fish present in Lake Sacajawea and surrounding ditch systems.

Further discussions with Mr. Manlow, Bob Bicknell (WDFW regional biologist), Ms. MaryJane Melink, and Ms. Ruth Deery (Willapa Hills Audobon Society), identified the presence of large concentrations of waterfowl (primarily Canada geese and mallards) within the Mint Farm Area especially during the winter and early spring, and that there is no direct surface water connection between the Columbia River and the ditch systems which would provide access to anadromous fish. This brings about a concern about upland bird habitats which would be displaced by the proposed project.

All of those individuals contacted identified the degraded character of the ditch system around the project site. All are interested in the proposed project and potential mitigation/enhancement possibilities.

WDI Field Observations

During the late winter and early spring of 1996, WDI staff visited the project site several times. A list of identified species is attached.

During this period the area was used by a number of migratory waterfowl, primarily Canada geese and mallards. Discussions with WDFW regional biologists note that some of these Canada geese remain in the local area to nest on the islands within the Columbia River. Several mallards remain to nest and rear young within the area ditch systems.

Following your review of this information please call with any questions.

Thomas Deming

08/20/96 16:44 FAX 206 735 4289 WATERSHED DYNAMIC ??? MCA 003

QUADCODE: 4012220

MAP LEGEND

NATIONAL WETLANDS INVENTORY

- Open Water
- Marine Wetlands
- Esturine Wetlands
- Riverine Wetlands
- Lacustrine Wetlands
- Palustrine Wetlands

WILDLIFE & HABITAT DATA

- PHS Polygons
- HRTG Point (SPPCODE/CRIT)
- PHS Point (EOFORM)
- Seabird Colony (Speich ID)
- Kelp Beds

RESIDENT & ANADROMOUS FISH

- Critical Spawning Habitat For Resident Fish
- Anadromous Fish Runs
- Priority Fish Present

ADMINISTRATIVE DATA

- Township Lines
- Section Lines
- Quadrangle Border

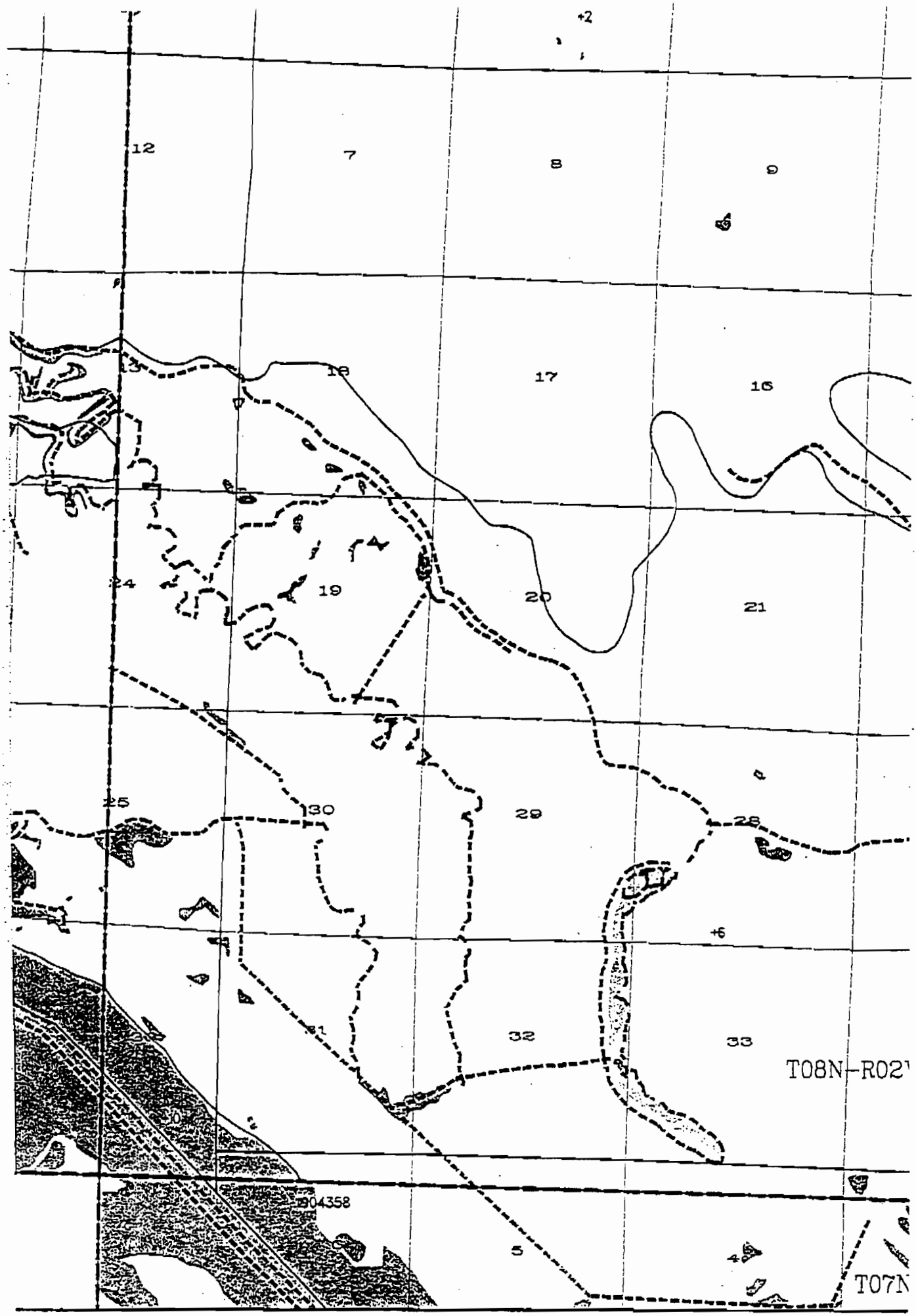
*** PHS POLYGONS & POINTS ***

FORM#	SP/HAB	USE	COMMON NAME
900000			
902176	WET		WETLANDS
902184	WET		WETLANDS
905322	CAKED	RC	CAVITY-NESTING DUCKS
905337	HALE	RLC	BALD EAGLE

******** HRTG POINTS ********

SPCODE	USE	COMMON NAME
PLDU	10	DUNN'S SALAMANDER

06/20/90 10:40 FAX 206 735 4289 WATERSHED DYNAMC +++ RCA 004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WILDLIFE SPECIES OBSERVED ONSITE, OR POTENTIALLY PRESENT BASED ON HABITAT TYPES, WITHIN EACH OF THI IDENTIFIED HABITAT TYPES WITHIN THE LONGVIEW PROJECT AREA

SPECIES NAME	SCIENTIFIC NAME	IDENTIFIED HABITAT TYPE					ST *
		1	2	3	4	5	
great blue heron	*Ardea herodias*		a	a,f			SM
belted kingfisher	*Ceryle alcyon*			a,c,f			
pied-billed grebe	*Podilymbus podiceps*			a,c,e, f			
horned grebe	*Podiceps auritus*			a,e			SM
bufflehead	*Bucephala albeola*			a,b,e			G
common mallard	*Anus platyrhynchos*	a,b,e	a,b,e	a,b,c ,d,e			G
Canada goose	*Branta canadensis*	a,e	a,e	a,e			G
Northern shoveler	*Anas clypeata*	e	e	e			G
cinnamon teal	*Anas cyanoptera*	e	e	e			G
blue-winged teal	*Anas discors*	a,b,e	a,b,e	a,b,c ,d,e			G
gadwall	*Anas streparta*	e	e	e			G
ring necked duck	*Aythya collaris*	e	e	e			G
common goldeneye	*Bucephala clangula*			e			G
glaucous-winged gull	*Larus hyperboreus*	a	a	a			
Western gull	*Larus ossidentalis*	a	a	a			
bald eagle	*Haliaeetus leucocephalus*						ST
osprey	*Pandion haliaetus*						SM
Western screech owl	*Otus kennicottii*	a	a	a			
great horned owl	*Bubo virginianus*	a	a	a			
red-tailed hawk	*Buteo jamaicensis*	a	a	a			
American kestrel	*Falco sparverius*	a	a	a			
red winged blackbird	*Agelaius phoeniseus*		a	a,b,c ,d			
marsh wren	*Cistothorus palustris*		a	a,b,c ,d			
common snipe	*Gallinago gallinago*		a	a,c,d			
barn swallow	*Hirundo rustica*	a	a	a	a,b,c ,d		
tree swallow	*Tachycineta bicolor*	a	a	a	a,b,c ,d		
violet-green swallow	*Tachycineta thallassina*	a	a	a	a,b,c ,d		
rough-winged swallow	*Stelgidopteryx serripennis*	a	a	a	a,b,c ,d		
Bewick's wren	*Thryomanes bewickii*		a,d	a,b,c ,d			

08/20/98 16:46 FAX 206 733 4289 WATERSHED DYNAMC ### WCA 006

American robin	*Turdus migratorius*	a,c	a,c	a,c	a,b,c,d	a,c,d	
song sparrow	*Melospiza melodia*	a,d	a,c	a,c,d	a,b,c,d		
white-crowned sparrow	*Zonotrichia leucophrys*	a,d	a,c	a,c,d	a,b,c,d		
dark-eyed junco	*Junco hyemalis*	a,c	a,c	a,c,d	a,b,c,d		
American goldfinch	*Carduelis tristis*	a,c	a,c	a,c	a,c		
house sparrow	*Passer domesticus*	a,c	a,c	a,c	a,b,c,d		
purple finch	*Carpodacus purpureus*	a,c	a,c	a,c	a,b,c,d		
yellow warbler	*Dendroica petechia*	a,b,d	a,c	a,c,d	a,b,c		
lazuli bunting	*Passerina amoena*	a,c	a,c	a,c			
varied thrush	*Ixoreus naevius*	a	a	a,b,c	a		
common yellowthroat	*Geothlypis trichas*	a	a	a,b,c	a	a	
starling	*Sturnus vulgaris*	a	a	a	a,b,c,d	a,c,d	
American crow	*Corvus brachyrhynchos*	a	a	a	a,c,f	c	
common raven	*Corvus corax*	a	a	a	a,c,f	c	
brown-headed cowbird	*Molothrus ater*	a	a	a,c,d	a,c,d		
rock dove	*Columbia livia*	a			a,b,c,d,e		
California quail	*Callipepla californica*			a,c			G
mourning dove	*Zenaida macroura*	a,c	a,c	a,c			G
Northern flicker	*Colaptes auratus*					a	
Steller's jay	*Cyanocitta stelleri*	a	a	a,c	a		
killdeer	*Charadrius vociferus*	a,b,c,d					
American coot	*Fulica americana*		a,b,c,d	a,b,c,d			
vagrant shrew	*Sorex vagrans*	a,b,c,d	a,b,c,d	a,b,c,d	a,b,c,d		
deer mouse	*Peromyscus maniculatus*	a,b,c,d	a,b,c,d	a,b,c,d	a,b,c,d		
Norway rat	*Rattus norvegicus*			a,b,c,d	a,b,c,d		
black rat	*Rattus rattus*			a,b,c,d			
eastern cottontail	*Sylvilagus floridanus*	a,b,c,d	a,b,c,d	a,b,c,d			
Townsend's mole	*Scapanus townsendii*	a,b,c,d					
long-eared myotis	*Myotis evotis*	a	a	a	a,d,f		
big brown bat	*Eptesicus fuscus*	a	a	a	a,d,f		
silver-haired bat	*Lasionycteris noctivagans*	a	a	a	a,d,f		
hoary bat	*Lasiurus cinereus*	a	a	a	a,d,f		
Townsend's vole	*Microtus californicus*	a,b,c,d	a,b,c,d	a,b,c,d			

08/20/96 16:47 FAX 206 735 4289 WATERSHED DIXAMC ==> RCA 007

long-tailed vole	*Microtus longicaudus*	a	a,c	a,b,c ,d	a		
opossum	*Didelphis virginianus*	a	a,c	a,b,c ,d	a		
muskrat	*Ondatra zibethicus*	a	a,b,c ,d	a,b,c ,d			
spotted skunk	*Mus musculus*	a	a,b,c	a,b,c ,d	a		
stripped skunk	*Mephitis mephitis*	a	a,b,c	a,b,c ,d	a		
beaver	*Castor canadensis*		a,c	a,b,c ,d			G
nutria	*Myocastor coypus*		a,b,c ,d	a,b,c ,d			
raccoon	*Procyon lotor*	a	a,b,c	a,b,c ,d	a		
coyote	*Canis latrans*	a	a,b,c	a,c,c	a		
black-tailed deer	*Odocoileus hemionus*			a			G
Pacific treefrog	*Hyla regilla*		a,c,d	a,c,d			
bullfrog	*Rana catesbeiana*		a,c	a,c,d			G
western toad	*Bufo boreas*		a,c	a,c,d			
Northwestern salamander	*Ambystoma gracile*			a,c,d			
roughskin newt	*Taricha granulosa*			a,c,d			
common garter snake	*Thamnophis sirtalis*	a,c,d	a,c,d	a,c,d			
Western pond turtle	*Clemmys marmorata*			a,c,d			S'

IDENTIFIED HABITAT TYPES

1. Open field/pasture areas onsite
2. Internal ditch systems (includes remant stream channel)
3. External drainage district ditch systems
4. Onsite homesite and outbuildings
5. Onsite black cottonwood production unit

IDENTIFIED LIFE HISTORY

a. feeding
b. brood rearing
c. cover
d. nesting
e. winter migration (i.e. feeding, resting, staging)
f. roosting

* STATUS
SE = STATE ENDANGERED
ST = STATE THREATENED
SS = STATE SENSITIVE
FT = FEDERALLY THREATENED
SC = STATE CANDIDATE
SM = STATE MONITORED
G = game species, subject to hunting/fishing regulations

Sanitary Sewer Report

SANITARY SEWER REPORT

for

THE MINT FARM INDUSTRIAL PARK

for

City of Longview
P.O. Box 128
LONGVIEW, WASHINGTON 98632-7080

Contact:
Lowell Marsh
(360) 577-3372

Prepared by:
Richard Carothers Associates, Ltd
814 East Pike Street
Seattle, Washington 98122
(206) 324-5500
Francis J. Wall, P.E.

August 19, 1996

TABLE OF CONTENTS

I SANITARY SEWER REPORT 1

II SANITARY SEWER DESIGN SUMMARY 2

APPENDIX 1

SANITARY SEWER SYSTEM

A 36 inch sanitary sewer trunk main has been design to convey domestic sewage from the west side of the City to a proposed Pump Station located in the southeast corner of the Mint Farm Industrial Park. The trunk main flows south from 38th Avenue down the centerline of a proposed four lane road through the subject property and to the pump station. Sanitary sewer service for the proposed development will be provided through a series of service stubs tying directly into the trunk main and by three mains intersecting the trunk main at the three road intersections as proposed on the preliminary plat. This report addresses the design of the three mentioned mains. It is assumed the sewage flows provided by the City of Longview will be adequately conveyed in the 36 inch trunk main.

The following assumptions were used to establish sewage flows from the properties within the Industrial Park:

- Light Industrial Land Use
- Design Flow - 15 gallons per day per capita
- Industrial Density - 20 people per acre
- Industrial Use Flow - 2,500 gallons per acre per day
- 10 hour work day
- Infiltration/Inflow - 1,500 gallons per acre per day
- Peaking Factor - 4 (for domestic flows)

The three main are labeled South, Middle and North with the South lateral being located in the first intersection north of Industrial Way. The minimum sizes for the three mains are shown in the following Sanitary Sewer Design Summary. The support calculations are included in Appendix 1.

City of Longview
Mint Farm Industrial Park
Sanitary Sewer Design Summary

	Basin Area (acres)	Peak Basin Flow (cfs)	Require Pipe Size (inches)	Velocity Check (ft/sec)
Lateral South	143.2	2.76	18	2.26
Lateral Middle	87.2	1.68	18	2.02
Lateral North	41.7	0.81	12	2.11

Notes:

1. Due to lack of defined road names at this time, the sewer mains for the roads within the Industrial Park have been labeled South, Middle, and North. The South Lateral being the main for the first road north of Industrial Way.

2. Per the W.D.O.E. the minimum flow velocity in a sewer main is 2.0 ft/sec

Mint Farm Industrial Park
Worksheet for Circular Channel

Project Description	
Project File	j:\96041\smd\mintsew.fm2
Worksheet	Sewer Capacity
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Full Flow Capacity

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.002200	ft/ft
Diameter	12.00	in

Results		
Depth	1.00	ft
Discharge	1.67	cfs
Flow Area	0.79	ft^2
Wetted Perimeter	3.14	ft
Top Width	0.00	ft
Critical Depth	0.55	ft
Percent Full	100.00	
Critical Slope	0.006435	ft/ft
Velocity	2.13	ft/s
Velocity Head	0.07	ft
Specific Energy	FULL	ft
Froude Number	FULL	
Maximum Discharge	1.80	cfs
Full Flow Capacity	1.67	cfs
Full Flow Slope	0.002200	ft/ft

Notes:

Full Flow Capacity

APPENDIX 1

Richard Carothers Associates
Planning/Civil Engineering/Landscape Architecture/Surveying
814 East Pike Street, Seattle, WA 98122 206/324-5500 FAX 328-1880
705 South 9th, #301, Tacoma, WA 98405 206/627-9131 FAX 627-4730
4315-6th Ave. SE, #F, Lacey, WA 98503 206/493-0140 FAX 493-0180

JOB NAME [illegible]
JOB NO. [illegible] SHEET ___ OF ___
CALC. BY SMD DATE 8/19/96
CHECKED BY FJW DATE 8/19/96
SUBJECT

SEWAGE FLOWS:

I. DESIGN CRITERIA - DOE

- 400% OF AVERAGE DAY WET WEATHER DESIGN FLOW
- 5" MINIMUM
- 300' MAX. SPACING BETWEEN MANHOLES
- "n" = .013
- MIN V = 2.0 ft/sec

  8" → MIN S = .40 %
  12" → MIN S = .22 %
  18" → MIN S = .12 %

- MATCH ELEVATION: @ .8 ϕ
- DESIGN FLOW → 15 gpd/c (BASED ON DOE)
- DENSITIES → 20 cap/acre

AREAS: — DOMESTIC FLOWS

LATERAL SOUTH - 15 + 7.8 + 30 + 12.4 + 16.5 + 13 + 5.7 + 5.4 + 25 + 8.4 = 143.2 ac

(20 cap/ac)(143.2 ac)(15 gpd/cap) = 42,960 gpd

LATERAL MIDDLE - 4.3 + 5.1 + 4.8 + 4.2 + 4.6 + 15.7 + 7.6 + 10.7 + 4.7 + 4.7 + 3.5 + 8.3 + 9.0 = 87.2 ac.

(20 %)(87.2 ac)(15 gpd/c) = 26,160 gpd

LATERAL NORTH - 7.7 + 8 + 3.5 + 7 + 4.1 + 6.8 + 4.6 = 41.7 ac

(20)(41.7)(15) = 12,510 gpd

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705 South 9th, #301, Tacoma, WA 98405 206/627-9131 FAX 627-4730
4315-6th Ave. SE, #F, Lacey, WA 98503 206/493-0140 FAX 493-0180

JOB NAME LONGVIEW
JOB NO. 1-9604 SHEET 2 OF
CALC. BY SMD DATE 8/19/96
CHECKED BY FJW DATE 8/19/96
SUBJECT

INDUSTRIAL FLOWS

ASSUME – 2,500 gpd/ac – LIGHT INDUSTRY (SEE ATTACHED REFERENCE)

1,500 gpd/ac – INFILTRATION / INFLOW (SEE ATTACHED REFERENCE)

LATERAL SOUTH - [4,000 gpd/ac][143.2 ac] = 572,800 gpd

LATERAL MIDDLE - [4,000 gpd/ac][87.2 ac] = 348,800 gpd

LATERAL NORTH - [4,000 gpd/ac][41.7 ac] = 166,800 gpd

TOTAL SEWAGE FLOWS:

LATERAL SOUTH:

$$[572{,}800 \text{ gpd} + 42{,}960(4)]\left[\frac{.1337 \text{ cf}}{\text{gal}}\right]\left[\frac{10 \text{ hr/day}}{36{,}000 \text{ sec}}\right]$$

(4) ← PEAKING

= 2.76 cfs PEAK WET WEATHER FLOW

LATERAL MIDDLE:

$$[348{,}800 \text{ gpd} + 26{,}160 \text{ gpd}(4)]\left[\frac{.1337 \text{ cf}}{\text{gal}}\right]\left[\frac{10 \text{ hr day}}{36{,}000 \text{ sec}}\right]$$

= 1.68 cfs PWWF

LATERAL NORTH:

$$[166{,}800 + 12{,}510(4)][.1337]\left[\frac{10 \text{ hr day}}{36{,}000 \text{ s}}\right]$$

= .81 cfs PWWF

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814 East Pike Street, Seattle, WA 98122 206/324-5500 FAX 328-1880
705 South 9th, #301, Tacoma, WA 98405 206/627-9131 FAX 627-4730
4315-6th Ave. SE, #F, Lacey, WA 98503 206/493-0140 FAX 493-0180

JOB NAME LONGVIEW
JOB NO. 1-9601 SHEET 3 OF
CALC. BY SMD DATE 8/19/96
CHECKED BY FJW DATE 8/19/96
SUBJECT

PIPE DESIGN:

LATERAL SOUTH - USE 18", S = 0.0012 ft/ft
"n" = .013
Q_{max} = 3.64 cfs
Q_{PEAK} = 2.76 cfs
V_{Qp} = 2.26 ft/s > 2.0 ft/sec ∴ OK

LATERAL MIDDLE - USE 18", S = 0.0012 ft/ft
"n" = .013
Q_{max} = 3.64 cfs
Q_{PEAK} = 1.68 cfs
V_{Qp} = 2.02 ft/sec > 2.0 ft/sec ∴ OK

LATERAL NORTH - USE 12", S = 0.0022 ft/ft
"n" = .013
Q_{max} = 1.67 cfs
Q_{PEAK} = .81 cfs
V_{Qp} = 2.11 ft/sec > 2.0 ft/s ∴ OK

Mint Farm Industrial Park
Worksheet for Circular Channel

Project Description	
Project File	j:\96041\smd\mintsew.fm2
Worksheet	Sewer Capacity
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.001200	ft/ft
Diameter	18.00	in
Discharge Q DFAL	1.68	cfs

Results		
Depth	0.72	ft
Flow Area	0.83	ft^2
Wetted Perimeter	2.29	ft
Top Width	1.50	ft
Critical Depth	0.49	ft
Percent Full	47.73	
Critical Slope	0.004912	ft/ft
Velocity	2.02	ft/s
Velocity Head	0.06	ft
Specific Energy	0.78	ft
Froude Number	0.48	
Maximum Discharge	3.91	cfs
Full Flow Capacity	3.64	cfs
Full Flow Slope	0.000256	ft/ft
Flow is subcritical.		

Notes:

Velocity Check for Middle Lateral

Mint Farm Industrial Park
Worksheet for Circular Channel

Project Description	
Project File	j:\96041\smd\mintsew.fm2
Worksheet	Sewer Capacity
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Full Flow Capacity

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.001200	ft/ft
Diameter	18.00	in

Results		
Depth	1.50	ft
Discharge	3.64	cfs
Flow Area	1.77	ft^2
Wetted Perimeter	4.71	ft
Top Width	0.00	ft
Critical Depth	0.73	ft
Percent Full	100.00	
Critical Slope	0.005301	ft/ft
Velocity	2.06	ft/s
Velocity Head	0.07	ft
Specific Energy	FULL	ft
Froude Number	FULL	
Maximum Discharge	3.91	cfs
Full Flow Capacity	3.64	cfs
Full Flow Slope	0.001200	ft/ft

Mint Farm Industrial Park
Worksheet for Circular Channel

Project Description	
Project File	j:\96041\smd\mintsew.fm2
Worksheet	Sewer Capacity
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.001200	ft/ft
Diameter	18.00	in
Discharge	2.76	cfs

Results		
Depth	0.98	ft
Flow Area	1.22	ft^2
Wetted Perimeter	2.82	ft
Top Width	1.43	ft
Critical Depth	0.63	ft
Percent Full	65.13	
Critical Slope	0.005076	ft/ft
Velocity	2.26	ft/s
Velocity Head	0.08	ft
Specific Energy	1.06	ft
Froude Number	0.43	
Maximum Discharge	3.91	cfs
Full Flow Capacity	3.64	cfs
Full Flow Slope	0.000690	ft/ft
Flow is subcritical.		

Notes:

Velocity Check for South Lateral

Mint Farm Industrial Park
Worksheet for Circular Channel

Project Description	
Project File	j:\96041\smd\mintsew.fm2
Worksheet	Sewer Capacity
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.013	
Channel Slope	0.002200	ft/ft
Diameter	12.00	in
Discharge Q PEAK	0.81	cfs

Results		
Depth	0.49	ft
Flow Area	0.38	ft^2
Wetted Perimeter	1.55	ft
Top Width	1.00	ft
Critical Depth	0.38	ft
Percent Full	49.10	
Critical Slope	0.005697	ft/ft
Velocity	2.11	ft/s
Velocity Head	0.07	ft
Specific Energy	0.56	ft
Froude Number	0.60	
Maximum Discharge	1.80	cfs
Full Flow Capacity	1.67	cfs
Full Flow Slope	0.000517	ft/ft
Flow is subcritical.		

Notes:

Velocity Check for North Lateral

Metcalf & Eddy

THIRD EDITION

Wastewater Engineering

TREATMENT DISPOSAL & REUSE

McGraw Hill

Metcalf & Eddy

THIRD EDITION

Wastewater Engineering

TREATMENT DISPOSAL REUSE

wastewater to water supply

rates from various domestic
bution are presented in this
d before collection systems

mmunity are the residential
s include institutional and
ate data should be obtained
hods of estimating flowrates
flowrates for small systems
tly from larger systems and

ater flowrates are commonly
erage per capita contribution
es are given in Table 2-9. For
owrates on the basis of land-
ssible, these rates should be
ntial areas, preferably in the

tions for use in estimating
ne engineer, but today such
ate planning agencies. If the
be prepared, Ref. 5 may be

rates are generally expressed
ticipated future development
for commercial developments
14 m^3/ha · d). Because unit
ery effort should be made to
tain commercial sources may

institutional facilities, essen-
in, it is stressed that flowrates

TABLE 2-9
Typical wastewater flowrates from residential sources[a]

Source	Unit	Flow, gal/unit · d Range	Typical
Apartment:			
High-rise	Person	35–75	50
Low-rise	Person	50–80	65
Hotel	Guest	30–55	45
Individual residence:			
Typical home	Person	45–90	70
Better home	Person	60–100	80
Luxury home	Person	75–150	95
Older home	Person	30–60	45
Summer cottage	Person	25–50	40
Motel:			
With kitchen	Unit	90–180	100
Without kitchen	Unit	75–150	95
Trailer park	Person	30–50	40

[a] Adapted in part from Ref. 7.
Note: gal × 3.7854 = L

vary with the region, climate, and type of facility. The actual records of institutions are the best sources of flow data for design purposes.

Recreational Facilities. Wastewater flowrates from many recreational facilities are highly seasonal. Typical data on wastewater flowrates from recreational facilities are presented in Table 2-12.

Sources and Rates of Industrial (Nondomestic) Wastewater Flows

Nondomestic wastewater flowrates from industrial sources vary with the type and size of the facility, the degree of water reuse, and the onsite wastewater treatment methods, if any. Extremely high peak flowrates may be reduced by the use of detention tanks and equalization basins. Typical design values for estimating the flows from industrial areas that have no or little wet-process type industries are 1000 to 1500 gal/acre · d (9 to 14 m^3/ha · d) for light industrial developments and 1500 to 3000 gal/acre · d (14 to 28 m^3/ha · d) for medium industrial developments. Alternatively, for estimating industrial flowrates where the nature of the industry is known, data such as those reported in Table 2-6 can be used. For industries without internal recycling or reuse programs, it can be assumed that about 85 to 95 percent of the water used in the various operations and processes will become wastewater. For large industries with internal water-reuse programs, separate estimates must be made. Average domestic

TABLE 2-12
Typical wastewater flowrates from recreational facilities[a]

Facility	Unit	Flow, gal/unit · d Range	Typical
Apartment, resort	Person	50–70	60
Cabin, resort	Person	8–50	40
Cafeteria	Customer	1–3	2
	Employee	8–12	10
Campground (developed)	Person	20–40	30
Cocktail lounge	Seat	12–25	20
Coffee shop	Customer	4–8	6
	Employee	8–12	10
Country club	Member present	60–130	100
	Employee	10–15	13
Day camp (no meals)	Person	10–15	13
Dining hall	Meal served	4–10	7
Dormitory, bunkhouse	Person	20–50	40
Hotel, resort	Person	40–60	50
Store, resort	Customer	1–4	3
	Employee	8–12	10
Swimming pool	Customer	5–12	10
	Employee	8–12	10
Theatre	Seat	2–4	3
Visitor Center	Visitor	4–8	5

[a] Adapted in part from Ref. 7.

Note: gal × 3.7854 = L

(sanitary) wastewater contributed from industrial facilities may vary from 8 to 25 gal/capita · d (30 to 95 L/capita · d).

Infiltration/Inflow

Extraneous flows in sewers, described as infiltration and inflow, are illustrated in Fig. 2-1 and are defined as follows:

Infiltration. Water entering a sewer system, including sewer service connections, from the ground through such means as defective pipes, pipe joints, connections, or manhole walls.

Steady inflow. Water discharged from cellar and foundation drains, cooling-water discharges, and drains from springs and swampy areas. This type of inflow is steady and is identified and measured along with infiltration.

Direct inflow. Those types of inflow that have a direct stormwater runoff connection to the sanitary sewer and cause an almost immediate increase in wastewater flows. Possible sources are roof leaders, yard and areaway drains, manhole covers, cross connections from storm drains and catch basins, and combined sewers.

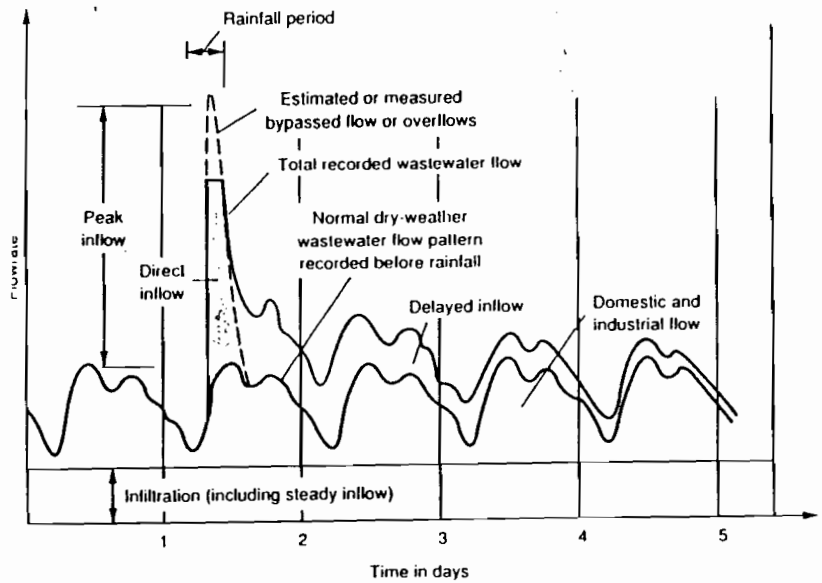


FIGURE 2-1
Graphic identification of infiltration/inflow.

Total inflow. The sum of the direct inflow at any point in the system plus any flow discharged from the system upstream through overflows, pumping station bypasses, and the like.

Delayed inflow. Stormwater that may require several days or more to drain through the sewer system. This category can include the discharge of sump pumps from cellar drainage as well as the slowed entry of surface water through manholes in ponded areas.

The initial impetus for defining and identifying infiltration/inflow was the Federal Water Pollution Control Act Amendments of 1972. As a condition of receiving a federal grant for the design and construction of wastewater treatment facilities, grant applicants have to demonstrate that their wastewater collection systems are not subject to excessive infiltration/inflow. A cost-effectiveness analysis has to be made to determine if it is more economical to make repairs to the collection system to correct infiltration/inflow or to design the treatment facilities for larger flows. By correcting infiltration/inflow problems and "tightening" the collection system, the community benefits with (1) no overloaded or surcharged sewers and the associated problems of wastewater backups and overflows, (2) more efficient operation of wastewater treatment facilitie ·nd (3) the use of the collection system hydraulic capacity for wastewater requi treatment instead of for infiltration/inflow.

Detailed procedures for making an analysis of infiltration/inflow, including an

ing treatment plant flowrates, a discussion of excessive infiltration/inflow is includ in this section. For additional information on infiltration/inflow requirements, Ref. may be consulted.

Infiltration into Sewers. One portion of the rainfall in a given area runs quick into the storm sewers or other drainage channels; another portion evaporates or absorbed by vegetation; and the remainder percolates into the ground, becomi groundwater. The proportion of the rainfall that percolates into the ground depen on the character of the surface and soil formation and on the rate and distribution the precipitation. Any reduction in permeability, such as that due to buildings, pav ments, or frost, decreases the opportunity for precipitation to become groundwat and increases the surface runoff correspondingly.

The amount of groundwater flowing from a given area may vary from a neg gible amount for a highly impervious district or a district with a dense subsoil to 25 30 percent of the rainfall for a semipervious district with a sandy subsoil permitti rapid passage of water. The percolation of water through the ground from rivers other bodies of water sometimes has considerable effect on the groundwater tabl which rises and falls continually.

The presence of high groundwater results in leakage into the sewers and in increase in the quantity of wastewater and the expense of disposing of it. The amou of flow that can enter a sewer from groundwater, or infiltration, may range fr 100 to 10,000 gal/d · in-mi (0.0094 to 0.94 $m^3/d \cdot mm\text{-}km$) or more. The numb of inch-miles (millimeter-kilometers) in a wastewater collection system is the su of the products of sewer diameters, in inches (millimeters), times the lengths, miles (kilometers), of sewers of corresponding diameters. Expressed another wa infiltration may range from 20 to 3000 gal/acre · d (0.2 to 28 $m^3/ha \cdot d$). Duri heavy rains, when there may be leakage through manhole covers, or inflow, as well infiltration, the rate may exceed 50,000 gal/acre · d (470 $m^3/ha \cdot d$). Infiltration/infl is a variable part of the wastewater, depending on the quality of the material a workmanship in constructing the sewers and building connections, the character the maintenance, and the elevation of the groundwater compared with that of t sewers.

The sewers first built in a community usually follow the watercourses in t bottoms of valleys, close to (and occasionally below) the beds of streams. As result, these old sewers may receive comparatively large quantities of groundwat whereas sewers built later at high elevations will receive relatively small quantit of groundwater. With an increase in the percentage of area in a community that paved or built over comes (1) an increase in the percentage of stormwater conduct rapidly to the storm sewers and watercourses and (2) a decrease in the percenta of the stormwater that can percolate into the earth and tend to infiltrate the sanit sewers.

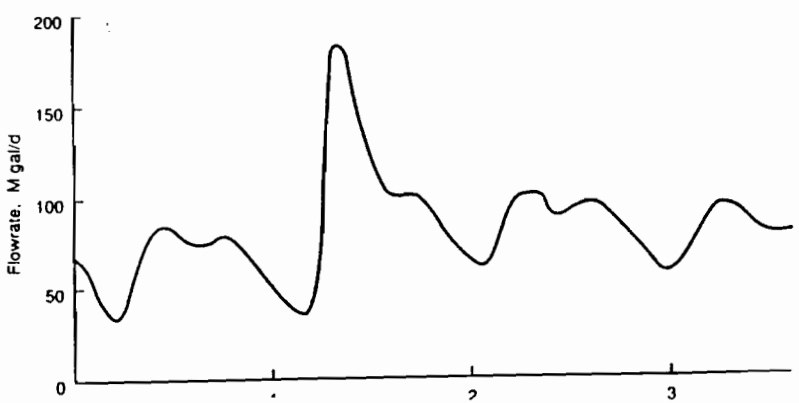
The rate and quantity of infiltration depend on the length of sewers, the a served, the soil and topographic conditions, and, to a certain nt, the populati density (which affects the number and total length of house connections). Althou

ercolating into the ground, the leakage through defective joints, porous concrete, nd cracks has been large enough, in some cases, to lower the groundwater table to ıe level of the sewer.

Most of the pipe sewers built during the first half of this century were laid vith cement mortar joints or hot-poured bituminous compound joints. Manholes were lmost always constructed of brick masonry. Deterioration of pipe joints, pipe-to-ıanhole joints, and the waterproofing of brickwork has resulted in a high potential or infiltration into these old sewers. The use of high-quality pipe with dense walls, ›recast manhole sections, and joints sealed with rubber or synthetic gaskets is standard ›ractice in modern sewer design. The use of these improved materials has greatly educed infiltration into newly constructed sewers, and it is expected that the increase ›f infiltration rates with time will be much slower than has been the case with the ›lder sewers.

nflow into Sewers. As described previously, the type of inflow that causes a 'steady flow" cannot be identified separately, so it is included in the measured ınfiltration. The direct inflow can cause an almost immediate increase in flowrates in sanitary sewers. The effects of inflow on peak flowrates that must be handled by a wastewater treatment plant are shown in Example 2-2.

Example 2-2 Computing infiltration/inflow from wastewater flow records. A large city has measured high flowrates during the wet season of the year. The flowrate during the dry period of the year, when rainfall is rare and groundwater infiltration is negligible, averages 33.8 Mgal/d (128,000 m^3/d). During the wet period when groundwater levels are elevated, the flowrate averaged 63.4 Mgal/d (240,000 m^3/d) excluding those days during and following any significant rainfall events. During a recent storm, hourly flowrates were recorded during the peak flow period, as well as several days following the storm. The flowrate plots are shown in the accompanying figure. Compute the infiltration and inflow and determine if the infiltration is excessive. Excessive infiltration is defined by the local regulatory agency as rates over 8000 gal/d · in-mi (0.752 m^3/d · mm-km) of sewer. The composite diameter-length of the sewer system is 6600 in-mi (270,000 mm-km).



Solution

1. Determine the infiltration and inflow components during the wet season.

   (*a*) Because infiltration is low during dry periods, high groundwater infiltration is compu as peak flowrate minus base (dry-weather) flowrate:

$$\text{Infiltration} = (63.4 - 33.8)\ \text{Mgal/d}$$
$$= 29.6\ \text{Mgal/d}\ (112{,}000\ \text{m}^3/\text{d})$$

   (*b*) The maximum hourly inflow is graphically determined from the accompanying fig as the difference between the maximum hourly wet-weather flowrate during the sto and the comparable flowrate on the preceding day. In this case, the maximum inflow

$$\text{Inflow} = (180 - 80)\ \text{Mgal/d}$$
$$= 100\ \text{Mgal/d}\ (378{,}500\ \text{m}^3/\text{d})$$

2. Determine if the infiltration is excessive.

   (*a*) Calculate the infiltration by dividing the calculated flowrate in gal/d by the compo diameter-length of the sewer system.

$$\text{Infiltration} = \frac{29{,}600{,}000\ \text{gal/d}}{6{,}600\ \text{in-mi}}$$
$$= 4485\ \text{gal/d} \cdot \text{in-mi}\ (0.415\ \text{m}^3/\text{d} \cdot \text{mm-km})$$

   (*b*) Using the regulatory agency criterion of 8000 gal/d · in-mi (0.752 m^3/d · mm-km), infiltration is not excessive.

Comment. In this example, the peak flowrate during the storm period was 5.3 times average dry-weather flowrate. As discussed in Chap. 5, the peak flowrate factor is high fo system of this size. Because inflow represents over 50 percent of the peak flow and requi oversizing of the hydraulic capacity of the treatment plant, methods of inflow reduction sho be investigated to decrease the hydraulic load on the sewer system and treatment facilities.

Variations in Wastewater Flowrates

Short-term, seasonal, and industrial variations in wastewater flowrates are bric discussed here. The analysis of flowrate data and the definition of flowrate variati are discussed in Sec. 2-4.

Short-Term Variations. The variations in wastewater flowrates observed at tre ment plants tend to follow a somewhat diurnal pattern, as shown in Fig. 2-2. Minim flows occur during the early morning hours when water consumption is lowest when the base flow consists of infiltration and small quantities of sanitary wastewat The first peak flow generally occurs in the late morning when wastewater from peak morning water use reaches the treatment plant. A second peak flow genera occurs in the early evening between 7 and 9 p.m., but this varies with the size of community and the length of the sewers.

When extraneous flows are minimal, wastewater-discharge curves closely p allel water-consumption curves, but with a lag of several hours. In the absence o day when home laundering is done, the variation in weekday flowrates is negligil

e. No extension of the 6-inch line will be possible at a later date.

f. The minimum slope allowable for 6-inch lines will be 1.0 feet per 100 feet.

g. Six-inch pipe used in collection systems shall be PVC conforming to ASTM D 3034, SDR 35, ABS conforming to ASTM D 2680 or Ductile Iron Class 50 conforming to ASTM A 21.51.

h. The design is subject to all other design requirements as noted in this chapter.

2.312 Depth

Generally, sewers should not be less than three feet deep, but should be sufficiently deep to prevent freezing and physical damage and should receive sewage from existing dwellings by gravity.

2.313 Roughness Coefficient

An "n" value of 0.013 shall be used in Manning's formula for the design of all sewer facilities (regardless of pipe material) except inverted siphons, where an "n" value of up to 0.015 can be used.

2.314 Slope

All sewers shall be designed and constructed to give mean velocities, when flowing full, of not less than 2.0 feet per second. The following minimum slopes should be provided; however, slopes greater than these are desirable:

Sewer Size (inches)	Minimum Slope (feet per 100 feet)
8	0.40
10	0.28
12	0.22
14	0.17
15	0.15
16	0.14
18	0.12
21	0.10
24	0.08
27	0.07
30	0.06
36	0.05

Water System Report

PHASE 1 - WATER SYSTEM REPORT

THE MINT FARM INDUSTRIAL PARK

CITY OF LONGVIEW, COWLITZ COUNTY, WASHINGTON

prepared for:

The City of Longview
1525 Broadway
Longview, WA 98632-7080

prepared by:

Richard Carothers Associates, Ltd.
814 East Pike Street
Seattle, WA 98122
(206) 324-5500

September 23, 1996

GENERAL

This report is intended to provide design parameters and determine a practical and feasible design solution for providing water service to Phase 1 of the City of Longview's Mint Farm Industrial Park. To accomplish this goal it is necessary to consider water needs as expansion of the development progresses from Phase One to total build-out. Fire flow requirements, as defined by the 1994 Uniform Fire Code, have been used to determine flow projections for the sizing of the water mains.

BACKGROUND

The project site is located within the City of Longview's water service area. The development will be fully served with proposed water mains and fire hydrants located within the roadway right-of-ways. The type of industries that will be located within this development, and their associated water usage, is not yet known. It is assumed, however, that many of these businesses will be of low to moderate water usage with the potential for large industrial water users (1 MG+) to occupy several lots throughout the development.

Public Water Supply is currently available to the Mint Farm from Longview's distribution mains at the following locations:

12" D.I.P.-	Intersection of 38th Avenue & Memorial Park Drive
8" D.I.P.-	Memorial Park Drive west of Shelley Place
12" D.I.P.-	Along Industrial Way
20" D.I.P.-	City of Longview transmission main, South of Olive Way between Memorial Park Drive and the Columbia and Cowlitz Railroad tracks
12" D.I.P.-	Along the Columbia and Cowlitz Railroad tracks turning eastward on to Washington Way

WATER AVAILABILITY

The City's water supply is drawn from the Cowlitz River at a treatment plant operated by the Longview and Cowlitz County Public Utility District No. 1 (PUD). Longview, Kelso and the PUD have a long-term "wheeling" arrangement whereby these three purveyors can share each other's facilities. After the 1980 eruption of Mt. Saint Helens, Longview and the Weyerhaeuser Corporation installed an emergency intertie connecting the City to Weyerhaeuser's water, which comes from the Columbia River. The City of Longview has eight water storage sites with a combined storage capacity of 18.87 million gallons.

Longview's Comprehensive Water Plan, currently under revision, indicates that on a City wide basis, the distribution system has the capacity to meet anticipated water demand. The existing water treatment plant is projected to be operating near its capacity by the year 2004, but has the potential for substantial expansion. Other options for making more water available for consumption include the implementation of a system-wide leak detection program, a water auditing program, and water conservation measures such as the installation of water efficient plumbing fixtures and water efficient landscape irrigation. The Comprehensive Water Plan also indicates that the City may expand its water rights on the Cowlitz River in order to assure continued adequate supplies of water.

The Washington State Department of Ecology's Criteria for Sewage Design Works documents that an industrial facility may contribute, on the average, approximately 25 gallons of water per worker per shift to the sewer system. The estimated number of workers in Phase 1, based on the assumption of ten workers per acre, is projected to be 1,240. The estimated number of workers for all four phases combined is projected to be 4,350. Based on these assumptions, the water usage in through all phases is projected as shown in Table W-1 below:

Table W-1 - Projected Water Use

Phase	Gross Acres	# Workers	Projected Flow Per Shift (Gallons)
One	124	1240	31,000
Two	137	1370	34,250
Three	103	1030	25,750
Four	71	710	17,750
		TOTAL	108,750

As discussed in 'Background' section of this report, the projected water consumption by companies that will locate here it is not known. There is the potential that future property owners may consist of industries whose processes may consume in excess of 1 million gallons per day. This potential for the use of large quantities of water in this development should be addressed by the City in the update of their Comprehensive Water Plan.

FIRE FLOW REQUIREMENTS

Preliminary hydraulic modeling of the development indicates that emergency water system capacity can be provided through a looped network of ductile iron water mains. A fire flow of up to 4000 gallons per minute with a minimum residual pressure of 20 psi will be provided throughout the development.

The fire flow requirement was determined by assuming that a larger sized building within this development may be up to an 80,000 square foot Type II One-HR structure, without sprinklers. From Table No. A-III-A-1 of the 1994 Uniform Fire Code, the minimum required fire flow for this type of structure is 4000 gpm, (see Appendix). The actual required fire flow for individual buildings is determined by a number of factors including but not limited to the type of construction, usage, square footage, and whether or not sprinklers are used.

HYDRAULIC MODELING

The Phase 1 improvement to the Mint Farm site is proposed to consist of 124 acres of light industrial property. The Phase 1 water system will be supplied by the City's existing water main located in Industrial Way and from the water main located in 38th Avenue, north of Memorial Park Drive, (see Figure 1). The City's hydraulic computer simulation indicates that the Phase 1 water system will maintain an adequate residual pressure of a minimum of 20 psi during fire flow conditions.

Since future water supply conditions may change, hydraulic modeling for future phases of this development should be examined prior to the implementation of the water system design of these phases.

DESIGN GUIDELINES

The following are the water system-related design criteria that is proposed to be employed in the development of the Mint Farm Industrial Park. These improvements are intended to address those facilities that will be located within the City's roadway right-of-ways.

Item	Design Criteria	Origin
Fire Flow	4000 gpm w/20 psi residual	Uniform Fire Code (see Appendix)
Hydrant Spacing	500' max. separation, & within 250' of dead end	City of Longview
Pipe Material	CL. 52 D.I.P. cement mortar lined	City of Longview
Fire Hydrants	Mueller	City of Longview

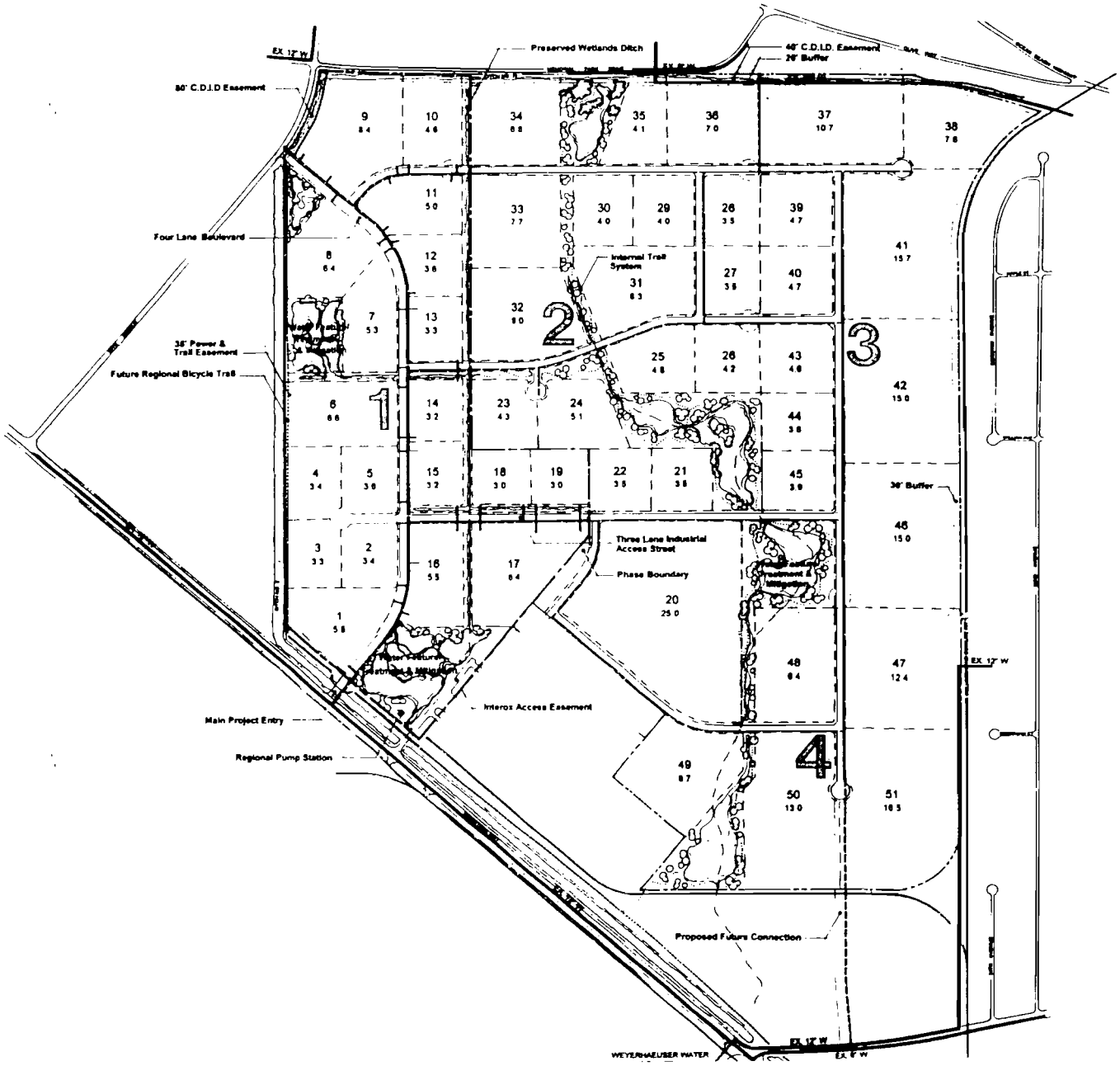
As determined by discussions with the City, the water main will be located beneath sidewalk wherever possible. Location of valve boxes and other water appurtenances within handicap ramps shall be avoided.

A minimum of two 8-inch water service stubs will be provided to each property. The allowance of two stubs will allow for flexibility in the case that the water system within the lot must be 'looped', or if the lot is divided in the future.

The roadways within the development will be constructed upon fill. The proposed water main can be constructed in either the roadway fill or at a greater depth into the native soil. The 8-inch service stubs to the individual lots shall terminate fifteen feet beyond the back of sidewalk and be constructed with a minimum depth of cover of three feet.

The adequacy of the native soils to support standard concrete thrust blocking will be examined upon completion of the Geotechnical Report, being prepared for this project by Hart Crowser.

Discussions with the City Utilities Administrator revealed that there has been no indication of premature cast iron or ductile iron pipe corrosion within the valley in which the Mint Farm Development is located. Based on the City's past experience, and the absence of organic materials being discussed in the Geotechnical Report, there does not appear to be a need for providing special corrosion protection to the ductile iron water main.



THE MINT FARM INDUSTRIAL PARK

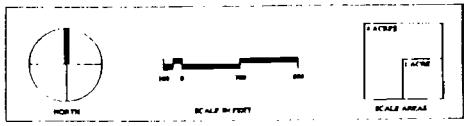
CITY OF LONGVIEW, WASHINGTON

LEGEND

- EX 12" W — EX CITY OF LONGVIEW WATER MAINS
- PROPOSED PHASE I WATER MAINS
- PROPOSED PHASE I WATER SERVICES
- PROJECTED FUTURE PHASE WATER MAINS
- PHASE I BOUNDARY

Water System

Master Development Plan



RICHARD CAROTHERS ASSOCIATES, LTD.

LAND PLANNING CIVIL ENGINEERING LANDSCAPE ARCHITECTURE SURVEYING & ENVIRONMENTAL SERVICES

APPENDIX

Division III
FIRE PROTECTION
APPENDIX III-A
FIRE-FLOW REQUIREMENTS FOR BUILDINGS
(See U.F.C. Section 903.3)

SECTION 1 — SCOPE

The procedure determining fire-flow requirements for buildings or portions of buildings hereafter constructed shall be in accordance with Appendix III-A. Appendix III-A does not apply to structures other than buildings.

SECTION 2 — DEFINITIONS

For the purpose of Appendix III-A, certain terms are defined as follows:

FIRE AREA is the floor area, in square feet, used to determine the required fire flow.

FIRE FLOW is the flow rate of a water supply, measured at 20 psi (137.9 kPa) residual pressure, that is available for firefighting.

SECTION 3 — MODIFICATIONS

3.1 Decreases. Fire-flow requirements may be modified downward by the chief for isolated buildings or a group of buildings in rural areas or small communities where the development of full fire-flow requirements is impractical.

3.2 Increases. Fire flow may be modified upward by the chief where conditions indicate an unusual susceptibility to group fires or conflagrations. An upward modification shall not be more than twice that required for the building under consideration.

SECTION 4 — FIRE AREA

4.1 General. The fire area shall be the total floor area of all floor levels within the exterior walls, and under the horizontal projections of the roof of a building, except as modified in Section 4.

4.2 Area Separation. Portions of buildings which are separated by one or more four-hour area separation walls constructed in accordance with the Building Code, without openings and provided with a 30-inch (762 mm) parapet, are allowed to be considered as separate fire areas.

4.3 Type I and Type II-F.R. Construction. The fire area of buildings constructed of Type I and Type II-F.R. construction shall be the area of the three largest successive floors.

SECTION 5 — FIRE-FLOW REQUIREMENTS FOR BUILDINGS

5.1 One- and Two-Family Dwellings. The minimum fire flow and flow duration requirements for one- and two-family dwellings having a fire area which does not exceed 3,600 square feet (344.5 m^2) shall be 1,000 gallons per minute (3785.4 L/min.). Fire flow and flow duration for dwellings having a fire area in excess of 3,600 square feet (344.5 m^2) shall not be less than that specified in Table A-III-A-1.

EXCEPTION: A reduction in required fire flow of 50 percent, as approved by the chief, is allowed when the building is provided with an approved automatic sprinkler system.

5.2 Buildings other than One- and Two-Family Dwellings. The minimum fire flow and flow duration for buildings other than one- and two-family dwellings shall be as specified in Table A-III-A-1.

EXCEPTION: A reduction in required fire flow of up to 75 percent, as approved by the chief, is allowed when the building is provided with an approved automatic sprinkler system. The resulting fire flow shall not be less than 1,500 gallons per minute (5677.5 L/min.).

heavy timber

TABLE A-III-A-1—MINIMUM REQUIRED FIRE FLOW AND FLOW DURATION FOR BUILDINGS

Assorted types

Residential

Fire on site

FIRE AREA (square feet) ≈ 0.0929 for m^2					FIRE FLOW (gallons per minute)[2] ≈ 3.785 for L/min.	FLOW DURATION (hours)
Type I-F.R. II-F.R.[1]	Type II One-HR. III One-HR.[1]	Type IV-H.T. V-One-HR.[1]	Type II-N III-N[1]	Type V-N[1]		
Up to 22,700	Up to 12,700	Up to 8,200	Up to 5,900	Up to 3,600	1,500	2
30,200	17,000	10,900	7,900	4,800	1,750	
38,700	21,800	12,900	9,800	6,200	2,000	
48,300	24,200	17,400	12,600	7,700	2,250	
59,000	33,200	21,300	15,400	9,400	2,500	
70,900	39,700	25,500	18,400	11,300	2,750	
83,700	47,100	30,100	21,800	13,400	3,000	3
97,700	54,900	35,200	25,900	15,600	3,250	
112,700	63,400	40,600	29,300	18,000	3,500	
128,700	72,400	46,400	33,500	20,600	3,750	
145,900	82,100	52,500	37,900	23,300	4,000	4
164,200	92,400	59,100	42,700	26,300	4,250	
183,400	103,100	66,000	47,700	29,300	4,500	
203,700	114,600	73,300	53,000	32,600	4,750	
225,200	126,700	81,100	58,600	36,000	5,000	
247,700	139,400	89,200	65,400	39,600	5,250	
271,200	152,600	97,700	70,600	43,400	5,500	
295,900	166,500	106,500	77,000	47,400	5,750	
Greater	Greater	115,800	83,700	51,500	6,000	
"	"	125,500	90,600	55,700	6,250	
"	"	135,500	97,900	60,200	6,500	
"	"	145,800	106,800	64,800	6,750	
"	"	156,700	113,200	69,600	7,000	
"	"	167,900	121,300	74,600	7,250	
"	"	179,400	129,600	79,800	7,500	
"	"	191,400	138,300	85,100	7,750	
"	"	Greater	Greater	Greater	8,000	

[1]Types of construction are based upon the Building Code.

[2]Measured at 20 psi (137.9 kPa). See Appendix III-A, Section 2.

APPENDIX III-B
FIRE HYDRANT LOCATIONS AND DISTRIBUTION
(See U.F.C. Section 903.4.2)

SECTION 1 — SCOPE

Fire hydrants shall be provided in accordance with Appendix III-B for the protection of buildings, or portions of buildings, hereafter constructed.

SECTION 2 — LOCATION

Fire hydrants shall be provided along required fire apparatus access roads and adjacent public streets.

SECTION 3 — NUMBER OF FIRE HYDRANTS

The minimum number of fire hydrants available to a building shall not be less than that listed in Table A-III-B-1. The number of fire hydrants available to a complex or subdivision shall not be less than that determined by spacing requirements listed in Table A-III-B-1 when applied to fire apparatus access roads and perimeter public streets from which fire operations could be conducted.

SECTION 4 — CONSIDERATION OF EXISTING FIRE HYDRANTS

Existing fire hydrants on public streets are allowed to be considered as available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads.

SECTION 5 — DISTRIBUTION OF FIRE HYDRANTS

The average spacing between fire hydrants shall not exceed that listed in Table A-III-B-1.

EXCEPTION: The chief may accept a deficiency of up to 10 percent where existing fire hydrants provide all or a portion of the required fire hydrant service.

Regardless of the average spacing, fire hydrants shall be located such that all points on streets and access roads adjacent to a building are within the distances listed in Table A-III-B-1.

TABLE A-III-B-1—NUMBER AND DISTRIBUTION OF FIRE HYDRANTS

FIRE-FLOW REQUIREMENT (gpm)	MINIMUM NO. OF HYDRANTS	AVERAGE SPACING BETWEEN HYDRANTS[1,2,3] (feet)	MAXIMUM DISTANCE FROM ANY POINT ON STREET OR ROAD FRONTAGE TO A HYDRANT[4]
= 3.785 for L/min.		= 304.8 for mm	
1,750 or less	1	500	250
2,000-2,250	2	450	225
2,500	3	450	225
3,000	3	400	225
3,500-4,000	4	350	210
4,500-5,000	5	300	180
5,500	6	300	180
6,000	6	250	150
6,500-7,000	7	250	150
7,500 or more	8 or more[5]	200	120

[1]Reduce by 100 feet (30 480 mm) for dead-end streets or roads.

[2]Where streets are provided with median dividers which can be crossed by firefighters pulling hose lines, or arterial streets are provided with four or more traffic lanes and have a traffic count of more than 30,000 vehicles per day, hydrant spacing shall average 500 feet (152.4 m) on each side of the street and be arranged on an alternating basis up to a fire-flow requirement of 7,000 gallons per minute (26 495 L/min.) and 400 feet (122 m) for higher fire-flow requirements.

[3]Where new water mains are extended along streets where hydrants are not needed for protection of structures or similar fire problems, fire hydrants shall be provided at not less than 1,000-foot (305 m) spacing to provide for transportation hazards.

[4]Reduce by 50 feet (15 240 mm) for dead-end streets or roads.

[5]One hydrant for each 1,000 gallons per minute (3785 L/min.) or fraction thereof.

Chapter 6
TYPES OF CONSTRUCTION

SECTION 601 — CLASSIFICATION OF ALL BUILDINGS BY TYPES OF CONSTRUCTION AND GENERAL REQUIREMENTS

601.1 General. The requirements of this chapter are for the various types of construction and represent varying degrees of public safety and resistance to fire. Every building shall be classified by the building official into one of the types of construction set forth in Table 6-A. Any building which does not entirely conform to a type of construction set forth in Table 6-A shall be classified by the building official into a type having an equal or lesser degree of fire resistance.

A building or portion thereof shall not be required to conform to the details of a type of construction higher than that type which meets the minimum requirements based on occupancy even though certain features of such building actually conform to a higher type of construction.

When specific materials, types of construction or fire-resistive protection are required, such requirements shall be the minimum requirements, and any materials, types of construction or fire-resistive protection which will afford equal or greater public safety or resistance to fire, as specified in this code, may be used.

For additional limitations or allowances for special uses or occupancies, see the following:

SECTION	SUBJECT
402	Atria
403	High-rise office buildings and Group R, Division 1 Occupancies
404	Malls
405	Open parking structures
307.11	Group H, Division 6 Occupancies
411	Aviation control structures
413	Agricultural buildings
3111	Membrane structures

601.2 Mixed Types of Construction. When a building contains more than one distinct type of construction, the area of the entire building shall not exceed the least area permitted for the types of construction involved.

EXCEPTION: Each portion of a building separated by one or more area separation walls as specified in Section 504.6 may be considered a separate building for the purpose of classification of types of construction. The fire-resistive time period for such type of construction separation shall not be less than the most restrictive requirement in Section 504.6.2 based on the types of construction involved.

601.3 Standards of Quality. The standards listed below labeled a "U.B.C. standard" are also listed in Chapter 35, Part II, and are part of this code. The other standards listed below are recognized standards. (See Sections 3502 and 3503.)

1. **Building paper.**
   - 1.1 U.B.C. Standard 14-1, Kraft Waterproof Building Paper
   - 1.2 Asphalt-saturated Rag Felt, Underwriters Laboratories Inc. Standard Specification 55A, Materials for Construction of Built-up Roof Coverings
2. **Potential heat of building materials.**
   U.B.C. Standard 26-1, Test Method to Determine Potential Heat of Building Materials
3. **Foam plastic tests.**
   - 3.1 U.B.C. Standard 26-2, Test Method for the Evaluation of Thermal Barriers, Standard of [illegible]

   - 3.2 Factory Mutual Standard Fire Test Standard for Insulated Roof Deck Construction
   - 3.3 Underwriters Laboratories Inc. 1256, Fire Test Standard for Insulated Roof Deck Construction
   - 3.4 U.B.C. Standard 26-3, Room Fire Test Standard for Interior Foam Plastic Systems, Standard of the International Conference of Building Officials
   - 3.5 U.B.C. Standard 26-4, Method of Test for the Evaluation of Flammability Characteristics of Exterior, Nonload-bearing Wall Panel Assemblies Using Foam Plastic Insulation, Test Standard of the International Conference of Building Officials
4. **Roof coverings.**
   - 4.1 Underwriters Laboratories Inc. Standard Specification 55A, Materials for Use in Construction of Built-up Roof Coverings
   - 4.2 U.B.C. Standard 15-2, Test Standard for Determining the Fire Retardancy of Roof Covering Material
5. **Surface-burning characteristics and fire resistance of building materials and assemblies.**
   - 5.1 U.B.C. Standard 8-1, Test Method for Surface-burning Characteristics of Building Materials
   - 5.2 U.B.C. Standard 7-1, Fire Test of Building Construction and Materials
6. **Self-ignition properties of plastics.**
   ASTM D 1929, Ignition Properties of Plastics
7. **Fire dampers.**
   UL 555, Fire Dampers

601.4 Structural Frame. The structural frame shall be considered to be the columns and the girders, beams, trusses and spandrels having direct connections to the columns and all other members which are essential to the stability of the building as a whole. The members of floor or roof panels which have no connection to the columns shall be considered secondary members and not a part of the structural frame.

601.5 Exceptions to Table 6-A.

601.5.1 General. The provisions of this section are exceptions to the construction requirements of Table 6-A, Chapter 3 and Sections 602 through 606.

601.5.2 Fixed partitions.

601.5.2.1 Stores and offices. Interior nonload-bearing partitions dividing portions of stores, offices or similar places occupied by one tenant only and which do not establish a corridor serving an occupant load that would require it to be of fire-resistive construction under the provisions of Section 1005.7 may be constructed of:

1. Noncombustible materials.
2. Fire-retardant-treated wood.
3. One-hour fire-resistive construction.
4. Wood panels or similar light construction up to three fourths the height of the room in which placed; when more than three fourths the height of the room, such partitions shall not have less than the upper one fourth of the partition constructed of glass.

[illegible] Interior nonload-bearing partitions within individual dwell-

rooms or suites are separated from each other and from corridors by not less than one-hour fire-resistive construction may be constructed of:

1. Noncombustible materials or fire-retardant-treated wood in buildings of any type of construction; or

2. Combustible framing with noncombustible materials applied to the framing in buildings of Type III or V construction.

Openings to such corridors shall be equipped with doors conforming to Section 1005.8 regardless of the occupant load served.

For use of plastics in partitions, see Section 2603.10.

601.5.3 Folding, portable or movable partitions. Approved folding, portable or movable partitions need not have a fire-resistive rating, provided:

1. They do not block required exits (without providing alternative conforming exits) and they do not establish an exit corridor.

2. Their location is restricted by means of permanent tracks, guides or other approved methods.

3. Flammability shall be limited to materials having a flame-spread classification as set forth in Table 8-B for rooms or areas.

601.5.4 Walls fronting on streets or yards. Regardless of fire-resistive requirements for exterior walls, certain elements of the walls fronting on streets or yards having a width of 40 feet (12 192 mm) may be constructed as follows:

1. Bulkheads below show windows, show-window frames, aprons and showcases may be of combustible materials, provided the height of such construction does not exceed 15 feet (4572 mm) above grade.

2. Wood veneer of boards not less than 1-inch (25 mm) nominal thickness or exterior-type panels not less than $^3/_8$-inch (9.5 mm) nominal thickness may be applied to walls, provided the veneer does not exceed 15 feet (4572 mm) above grade, and further provided such veneer shall be placed either directly against noncombustible surfaces or furred out from such surfaces not to exceed $1^5/_8$ inches (41 mm) with all concealed spaces fire-blocked as provided in Section 708. Where boards, panels and furring as described above comply with Section 207 as fire-retardant-treated wood suitable for exterior exposure, the height above grade may be increased to 35 feet (10 668 mm).

601.5.5 Trim. Trim, picture molds, chair rails, baseboards, handrails and show-window backing may be of wood. Unprotected wood doors and windows may be used except where openings are required to be fire protected.

Foam plastic trim covering not more than 10 percent of the wall or ceiling area may be used, provided such trim (1) has a density of no less than 20 pounds per cubic foot (320.4 kg/m^3), (2) has a maximum thickness of $^1/_2$ inch (12.7 mm) and a maximum width of 4 inches (102 mm) and (3) has a flame-spread rating no greater than 75.

Materials used for interior finish of walls and ceilings, including wainscoting, shall be as specified in Chapter 8.

601.5.6 Loading platforms. Exterior loading platforms may be of noncombustible construction or heavy-timber construction with wood floors not less than 2-inch (51 mm) nominal thickness. Such wood construction shall not be carried through the exterior walls.

601.5.7 Insulating boards. Combustible insulating boards may be used under finished flooring.

SECTION 602 — TYPE I FIRE-RESISTIVE BUILDINGS

602.1 Definition. The structural elements in Type I fire-resistive (F.R.) buildings shall be of steel, iron, concrete or masonry.

Walls and permanent partitions shall be of noncombustible fire-resistive construction except that permanent nonbearing partitions of one-hour or two-hour fire-resistive construction, which are not part of a shaft enclosure, may have fire-retardant-treated wood (see Section 207) within the assembly.

Materials of construction and fire-resistive requirements shall be as specified in Section 601 and Chapter 7.

602.2 Structural Framework. Structural framework shall be of structural steel or iron as specified in Chapter 22, reinforced concrete as in Chapter 19, or reinforced masonry as in Chapter 21.

For additional requirements for Group H Occupancies, see Section 307.2.

602.3 Exterior Walls and Openings.

602.3.1 Exterior walls. Exterior walls and all structural members shall comply with the requirements specified in Section 503 and Table 5-A and the fire-resistive provisions set forth in Table 6-A.

602.3.2 Openings in walls. All openings in exterior walls shall conform to the requirements of Section 503.2 and Table 5-A.

602.4 Stairway Construction. Stairways shall be constructed of reinforced concrete, iron or steel with treads and risers of concrete, iron or steel. Brick, marble, tile or other hard noncombustible materials may be used for the finish of such treads and risers.

Stairways shall comply with the requirements of Chapter 10.

602.5 Roofs. Except in retail sales and storage areas classified as Groups M and S, Division 1 Occupancies and in Group H Occupancies, roofs and their members, other than the structural frame, may be of unprotected noncombustible materials when every part of the roof framing, including the structural frame, is 25 feet (7620 mm) or more above the floor, balcony or gallery immediately below. Heavy-timber members in accordance with Section 605.6 may be used for such unprotected members in one-story buildings.

When every part of the structural framework of the roof of a Group A or E Occupancy or of an atrium is not less than 25 feet (7620 mm) above any floor, balcony or gallery, fire protection of all members of the roof construction, including those of the structural frame, may be omitted. Heavy-timber members in accordance with Section 605.6 may be used for such unprotected members in one-story buildings.

Roofs of unprotected noncombustible or heavy-timber construction conforming to Section 605.6.4 may be less than 25 feet (7620 mm) above any floor, balcony or gallery of a Group A, Division 2.1 Occupancy having an occupant load of 10,000 or more when all of the following conditions are met:

1. The building is not more than one story in height, except for multilevel areas located under the roof and used for locker rooms, exiting, concession stands, mechanical rooms and others accessory to the assembly room.

2. The area in which the roof clearance is less than 25 feet (7620 mm) does not exceed 35 percent of the area encompassed by the exterior walls.

3. An approved supervised automatic sprinkler system shall be installed throughout.

Where every part of the structural steel framework of the roof of a Group A or E Occupancy is more than 18 feet (5486 mm) and less than 25 feet (7620 mm) above any floor, balcony or gallery, the roof construction shall be protected by a ceiling of not less than one-hour fire-resistive construction.

Roof coverings shall be as specified in Chapter 32.

SECTION 603 — TYPE II BUILDINGS

603.1 Definition. The structural elements in Type II-F.R. buildings shall be of steel, iron, concrete or masonry.

The structural elements of Type II One-hour or II-N buildings shall be of noncombustible materials.

Floor construction of Type II One-hour and Type II-N buildings shall be of noncombustible material, provided, however, that a wood surface or finish may be applied over such noncombustible material.

Walls and permanent partitions of Type II-F.R. buildings shall be of noncombustible fire-resistive construction, except that permanent nonbearing partitions of one-hour or two-hour fire-resistive construction, which are not part of a shaft enclosure, may have fire-retardant-treated wood (see Section 207) within the assembly.

Type II One-hour buildings shall be of noncombustible construction and one-hour fire resistive throughout except that permanent nonbearing partitions may use fire-retardant-treated wood (see Section 207) within the assembly, provided fire-resistive requirements are maintained.

Walls and permanent partitions of Type II-N buildings shall be of noncombustible materials.

Materials of construction and fire-resistive requirements shall be as specified in Section 601.

For requirements due to occupancy, see Chapter 3.

603.2 Structural Framework. Structural framework shall be as specified in Chapter 22 for iron and steel, Chapter 19 for concrete and Chapter 21 for masonry.

603.3 Exterior Walls and Openings.

603.3.1 Exterior walls. Exterior walls and all structural members shall comply with the requirements specified in Section 503 and Table 5-A and the fire-resistive provisions set forth in Table 6-A.

603.3.2 Openings in walls. All openings in exterior walls of Type II-F.R. buildings shall conform to the requirements of Section 503.2 and Table 5-A.

603.4 Stairway Construction. Stairways of Type II-F.R. buildings shall be constructed of reinforced concrete, iron or steel with treads and risers of concrete, iron or steel. Brick, marble, tile or other hard noncombustible materials may be used for the finish of such treads and risers. Stairways of Type II One-hour and Type II-N buildings shall be of noncombustible construction.

Stairways shall comply with the requirements of Chapter 10.

603.5 Roofs. Roofs shall be of noncombustible construction, except that in Type II-F.R. and Type II One-hour buildings, roofs may be as specified in Section 602.5.

Roof coverings shall be as specified in Chapter 15.

SECTION 604 — TYPE III BUILDINGS

604.1 Definition. Structural elements in Type III buildings may be of any materials permitted by this code.

Type III One-hour buildings shall be of one-hour fire-resistive construction throughout.

604.2 Structural Framework. Structural framework shall be of steel or iron as specified in Chapter 22, concrete as in Chapter 19, masonry as in Chapter 21, or wood as in Chapter 23 and this chapter.

604.3 Exterior Walls, Openings and Partitions.

604.3.1 Exterior walls. Exterior walls shall be constructed of noncombustible materials and shall comply with the fire-resistive requirements set forth in Section 503 and Tables 5-A and 6-A.

604.3.2 Openings in walls. Openings in exterior walls shall conform to the requirements of Sec-

604.3.3 Partitions. Bearing partitions, when constructed of wood, shall comply with Section 2318.

604.4 Stairway Construction.

604.4.1 General. Stairways shall comply with the requirements of Chapter 10.

604.4.2 Interior. Interior stairways serving buildings not exceeding three stories in height may be constructed of any material permitted by this code.

In buildings more than three stories in height, interior stairways shall be constructed as required for Type I buildings.

604.4.3 Exterior. Exterior stairways shall be of noncombustible material except that on buildings not exceeding two stories in height, they may be of wood not less than 2 inches (51 mm) in nominal thickness.

604.5 Roofs. Roof coverings shall be as specified in Chapter 15.

Except in retail sales and storage areas classified as Group M or S, Division 1 Occupancies and in Group H Occupancies, roofs and their members other than the structural frame may be of unprotected noncombustible materials when every part of the roof framing, including the structural frame, is 25 feet (7620 mm) or more above the floor, balcony or gallery immediately below. Heavy-timber members in accordance with Section 605.6 may be used for such unprotected members in one-story buildings.

SECTION 605 — TYPE IV BUILDINGS

605.1 Definition. Structural elements of Type IV buildings may be of any materials permitted by this code.

Type IV construction shall conform to Section 605.6 except that permanent partitions and members of the structural frame may be of other materials, provided they have a fire resistance of not less than one hour.

605.2 Structural Framework. Structural framework shall be of steel or iron as specified in Chapter 22, concrete as in Chapter 19, masonry as in Chapter 21, or wood as in Chapter 23 and this chapter.

605.3 Exterior Walls, Openings and Partitions.

605.3.1 Exterior walls. Exterior walls shall be constructed of noncombustible materials and shall comply with the fire-resistive requirements set forth in Section 503 and Tables 5-A and 6-A.

605.3.2 Openings in walls. Openings in exterior walls shall conform to the requirements of Section 503.2 and Table 5-A.

605.3.3 Partitions. Bearing partitions, when constructed of wood, shall comply with Section 2318.

605.4 Stairway Construction.

605.4.1 General. Stairways shall comply with the requirements of Chapter 10.

605.4.2 Interior. Interior stairways serving buildings not exceeding three stories in height may be constructed of wood or as required for Type I buildings. If constructed of wood, treads and risers shall not be less than 2 inches (51 mm) in thickness, except where built on laminated or plank inclines as required for floors, where they may be of 1-inch (25 mm) thickness. Wood stair stringers shall be a minimum of 3 inches (76 mm) in thickness and not less than 10 inches (254 mm) in depth.

605.4.3 Exterior. Exterior stairways shall be of noncombustible material except that on buildings not exceeding two stories in height they may be of wood not less than 2 inches (51 mm) in nominal thickness.

605.5 Roofs. Roof coverings shall be as specified in Chapter 15.

605.6 Heavy-timber Construction.

605.6.1 General. Details of heavy-timber construction shall be in accordance with the provisions of this section. Unless otherwise specified, all dimensions are nominal as defined in Section 2302.

605.6.2 Columns. Wood columns may be of sawn timber or structural glued-laminated timber not less than 8 inches (203 mm) in any dimension when supporting roof or floor loads except as specified in Section 605.6.4.

Columns shall be continuous or superimposed and connected in an approved manner.

605.6.3 Floor framing. Beams and girders may be of sawn timber or structural glued-laminated timber and shall not be less than 6 inches (152 mm) in width and not less than 10 inches (254 mm) in depth.

Framed sawn timber or structural glued-laminated timber arches, which spring from the floor line and support floor loads, shall not be less than 8 inches (203 mm) in any dimension.

Framed lumber or structural glued-laminated timber trusses supporting floor loads shall have members of not less than 8 inches (203 mm) in any dimension.

605.6.4 Roof framing. Framed sawn timber arches or structural glued-laminated timber arches for roof construction, which spring from the floor line and do not support floor loads, shall have members not less than 6 inches (152 mm) in width and not less than 8 inches (203 mm) in depth for the lower half of the height and not less than 6 inches (152 mm) in depth for the upper half.

Framed sawn timber or structural glued-laminated timber arches for roof construction, which spring from the top of walls or wall abutments, framed lumber or structural glued-laminated timber trusses, and other roof framing which does not support floor loads, shall have members not less than 4 inches (102 mm) in width and not less than 6 inches (152 mm) in depth. Spaced members may be composed of two or more pieces not less than 3 inches (76 mm) in thickness, when blocked solidly throughout their intervening spaces, or when such spaces are tightly closed by a continuous wood cover plate of not less than 2 inches (51 mm) in thickness, secured to the underside of the members. Splice plates shall not be less than 3 inches (76 mm) in thickness. When protected by an approved automatic sprinkler system under the roof deck, framing members shall not be less than 3 inches (76 mm) in thickness.

605.6.5 Floors. Floors shall be without concealed spaces. Floors shall be of planks, splined or tongue and groove, of not less than 3 inches (76 mm) in thickness covered with 1-inch (25 mm) tongue-and-groove flooring laid crosswise or diagonally, or $^{15}/_{32}$-inch (12 mm) wood structural panels, or of plank not less than 4 inches (102 mm) in width set on edge close together and well spiked, and covered with 1-inch (25 mm) flooring or $^{15}/_{32}$-inch (12 mm) wood structural panels. The lumber shall be laid so that no continuous line of joints will occur except at points of support. Floors shall not extend closer than $^{1}/_{2}$ inch (13 mm) to walls. Such $^{1}/_{2}$-inch (13 mm) space shall be covered by a molding fastened to the wall and so arranged that it will not obstruct the swelling or shrinkage movements of the floor. Corbeling of masonry walls under floors may be used in place of such molding.

605.6.6 Roof decks. Roofs shall be without concealed spaces and roof decks shall be of planks, splined or tongue and groove, of not less than 2-inch (51 mm) thickness, or $1^{1}/_{8}$-inch (29 mm) tongue-and-groove wood structural panels with exterior glue, or of a double thickness of 1-inch (25 mm) boards with tongue-and-groove joints, or with staggered joints, of lumber not less than 3 inches (76 mm) nominal in width, set on edge close together and laid as required for floors.

605.6.7 Construction details. Approved wall plate boxes or hangers shall be provided where wood beams, girders or trusses rest on masonry or concrete walls.

Girders and beams shall be closely fitted around columns, and adjoining ends shall be cross tied to each other, or intertied by caps or ties, to transfer horizontal loads across the joints. Wood bolsters may be placed on top of columns which support roof loads only.

Where intermediate beams are used to support a floor, they shall rest on top of the girders, or shall be supported by ledgers or blocks securely fastened to the sides of the girders, or they may be supported by approved metal hangers into which the ends of the beams shall be closely fitted.

In heavy-timber roof construction, every roof girder and at least every alternate roof beam shall be anchored to its supporting member; roof decks, where supported by a wall, shall be anchored to such wall at intervals not exceeding 20 feet (6096 mm); every monitor and every sawtooth construction shall be anchored to the main roof construction. Such anchors shall consist of steel or iron bolts of sufficient strength to resist vertical uplift of the roof.

605.6.8 Mechanically laminated floors and roof decks. Mechanically laminated floors and roof decks conforming to Section 2323 may be used as heavy-timber floors or roof decks, provided the minimum thickness and other applicable requirements of the section are followed.

605.6.9 Partitions. Partitions shall be of solid wood construction formed by not less than two layers of 1-inch (25 mm) matched boards or laminated construction of 4-inch (102 mm) thickness, or of one-hour fire-resistive construction.

SECTION 606 — TYPE V BUILDINGS

606.1 Definition. Type V buildings may be of any materials allowed by this code.

Type V One-hour buildings shall be of one-hour fire-resistive construction throughout.

Materials of construction and fire-resistive requirements shall be as specified in Section 601.

For requirements due to occupancy, see Chapter 3.

606.2 Structural Framework. Structural framework shall be of steel or iron as specified in Chapter 22, concrete as in Chapter 19, masonry as in Chapter 21, or wood as in Chapter 23 and this chapter.

606.3 Exterior Walls and Openings. Exterior walls shall comply with fire-resistive requirements set forth in Section 503 and Tables 5-A and 6-A. Openings in exterior walls shall conform to requirements of Section 503.2 and Table 5-A.

606.4 Stairway Construction.

606.4.1 General. Stairways shall comply with the requirements of Chapter 10.

606.4.2 Interior. Interior stairways may be constructed of any materials permitted by this code.

606.4.3 Exterior. Exterior stairways shall be constructed of wood not less than 2 inches (51 mm) in nominal thickness, or may be of noncombustible materials.

606.5 Roofs. Roof coverings shall be as specified in Chapter 15.

Except in retail sales and storage areas classified as Group M or S, Division 1 Occupancies and in Group H Occupancies, roofs and their members other than the structural frame may be of unprotected noncombustible materials when every part of the roof framing, including the structural frame, is 25 feet (7620 mm) or more above the floor, balcony or gallery immediately below. Heavy-timber members in accordance with Section 605.6 may be used for such unprotected members in

TABLE 6-A—TYPES OF CONSTRUCTION—FIRE-RESISTIVE REQUIREMENTS (In Hours)
For details, see occupancy section in Chapter 3, type of construction sections in this chapter and sections referenced in this table.

BUILDING ELEMENT	TYPE I	TYPE II			TYPE III		TYPE IV	TYPE V	
		Noncombustible			Combustible				
	Fire-resistive	Fire-resistive	1-Hr.	N	1-Hr.	N	H.T.	1-Hr.	N
1. Bearing walls—exterior	4 Sec. 602.3.1	4 Sec. 603.3.1	1	N	4 Sec. 604.3.1	4 Sec. 604.3.1	4 Sec. 605.3.1	1	N
2. Bearing walls—interior	3	2	1	N	1	N	1	1	N
3. Nonbearing walls—exterior	4 Sec. 602.3.1	4 Sec. 603.3.1	1 Sec. 603.3.1	N	4 Sec. 604.3.1	4 Sec. 604.3.1	4 Sec. 605.3.1	1	N
4. Structural frame[1]	3	2	1	N	1	N	1 or H.T.	1	N
5. Partitions—permanent	1[2]	1[2]	1[2]	N	1	N	1 or H.T.	1	N
6. Shaft enclosures[3]	2	2	1	1	1	1	1	1	1
7. Floors and floor-ceilings	2	2	1	N	1	N	H.T.	1	N
8. Roofs and roof-ceilings	2 Sec. 602.5	1 Sec. 603.5	1 Sec. 603.5	N	1	N	H.T.	1	N
9. Exterior doors and windows	Sec. 602.3.2	Sec. 603.3.2	Sec. 603.3.2	Sec. 603.3.2	Sec. 604.3.2	Sec. 604.3.2	Sec. 605.3.2	Sec. 606.3	Sec. 606.3
10. Stairway construction	Sec. 602.4	Sec. 603.4	Sec. 603.4	Sec. 603.4	Sec. 604.4	Sec. 604.4	Sec. 605.4	Sec. 606.4	Sec. 606.4

N—No general requirements for fire resistance. H.T.—Heavy timber.

[1]Structural frame elements in an exterior wall that is located where openings are not permitted or where protection of openings is required, shall be protected against external fire exposure as required for exterior bearing walls or the structural frame, whichever is greater.

[2]Fire-retardant-treated wood (see Section 207) may be used in the assembly, provided fire-resistance requirements are maintained. See Sections 602 and 603.

[3]For special provisions, see Sections 304.6, 306.6 and 711.

Date of Issue:	September 25, 1996
Date Comments Due	October 25, 1996
Date of Final Action	Preliminary Plat Approval Winter 1996/1997
Subsequent Environmental Review	None is anticipated
Location of Prior EIS	None have been prepared
Cost of Copy	None

TABLE OF CONTENTS

FACT SHEET **4**

SUMMARY **8**

DESIGN CONCEPTS 12
SUMMARY OF IMPACTS AND MITIGATING MEASURES 12
ENVIRONMENTAL CHOICES AMONG ALTERNATIVES 13
IMPACTS THAT CANNOT BE MITIGATED 13

SECTION 1 THE PROPOSED ACTION AND ALTERNATIVES **14**

CITY OBJECTIVE 14
PROPOSED ACTION 14
Construction Schedule *14*
Major Aspects of the Proposal *14*
Grading 15
Storm Drainage 15
Sanitary Sewer 15
Water 15
Power 15
Telephone 16
Roads 16
Traffic 16
Amenities 16
Relationship of the Proposal to Existing Plans and Regulations 16
ALTERNATIVES 20
Alternative 1, No City Action. *20*
Alternative 2:-Development of Another Site *20*
COMPARISON OF IMPACTS OF ALTERNATIVES 21
BENEFITS AND DISADVANTAGES OF RESERVING IMPLEMENTATION FOR SOME FUTURE TIME 21

SECTION 2 AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS AND MITIGATING MEASURES23

THE NATURAL ENVIRONMENT 23
Earth *23*
Soils and geology, topography, unique physical features 23
Air *25*
Water *28*
Surface Water and Runoff 28
Groundwater 29
Plants and Animals *30*
Wetlands 31
Energy and Natural Resources *33*
THE BUILT ENVIRONMENT 34
Environmental Health *34*
Noise 34
Risk of Explosion and Hazardous Emissions 35
Land Use *36*
Relationship to existing land use plans and to estimated population 36
Population Employment and Housing *40*
Employment 40
Population 44
Housing 45
Light and Glare *46*

Aesthetics *46*
Historic and Cultural Preservation *48*
Transportation *49*
Vehicular Traffic 49
Public Transportation 54
Rail Traffic 55
Public Services and Utilities *55*
Fire 55
Police 56
Schools 57
Parks or Other Recreational Facilities 58
Maintenance 60
Communications 60
Water Supply 61
Storm Water 62
Sewer 62
Solid waste 63
Electricity 64
Other Governmental Services 64

SECTION 4. DISTRIBUTION LIST 65

SECTION 5 COMMENT LETTERS RECEIVED IN RESPONSE TO SCOPING NOTICE 67

RESPONSE TO LETTERS RECEIVED 68

TABLE OF FIGURES

FIGURE 1 VICINITY MAP 10
FIGURE 2 MINT FARM MASTER PLAN 11
FIGURE 3 STORM DRAINAGE AND OPEN SPACE SCHEMATIC 17
FIGURE 4 SANITARY SEWER SCHEMATIC 18
FIGURE 5 WATER SUPPLY SCHEMATIC 19

TABLE OF TABLES

TABLE 1 MINT FARM LAND USE (FULL BUILDOUT) 9
TABLE 2 MINT FARM PHASING 12
TABLE 3 TOTAL EMPLOYMENT IN COWLITZ COUNTY 42
TABLE 4 COWLITZ COUNTY EMPLOYMENT BY INDUSTRY, 1990 42
TABLE 5 MAJOR EMPLOYERS IN THE LONGVIEW AREA, 1992 42
TABLE 6 POPULATION IN LONGVIEW AND COWLITZ COUNTY 44
TABLE 7 LONGVIEW HOUSING UNITS 45
TABLE 8 PROJECTED WATER USE 62

TECHNICAL APPENDICES

Geotechnical Report
Wetlands Evaluation Study
Traffic Study
Stormwater Management Report
Wildlife Habitat Report
Sanitary Sewer Report
Water System Report

Summary

This Environmental Impact Statement (EIS) provides environmental information to the public and to governmental decision makers concerning the Mint Farm proposal. The current application consists of a subdivision of the property to accommodate Phase One development. The project is proposed to implement the City's comprehensive plan. The Comprehensive Plan contains the following City Policies which are relevant to the proposal:

2.06 The City will continually strive to preserve the existing industrial land that is viable and attractive to new and existing industry.

5.11 Development of professionally designed industrial parks as opposed to separate piecemeal industrial development is encouraged in order to make efficient use of public services and facilities, to maximize compatibility with adjacent non-industrial uses, and to maintain the urban area's overall attractiveness.

Since the project will require subdivision of property, Land Development and Subdivision Goals and Policies are applicable:

1.01 If a preliminary subdivision plat represents a phase of a potentially larger development, the city should require that a master plan showing all phases of the entire potential development be submitted concurrently with the preliminary plat of the first phase.

1.04 Preliminary plats should be reviewed for the traffic circulation patterns they will create and for their impact on adjoining streets and highways.

1.15 Subdivisions should provide public and/or private open space as acceptable to the City in order to fulfill needs for active and passive recreation, for separation of conflicting activities, for preservation of sensitive areas, and for provision of adequate light, air, and privacy.

This EIS is written to encompass analysis of full development of the proposal. The Master Plan is a generalized description of land uses, circulation elements and utilities plans. Detailed design is being done for the Phase One area infrastructure which is expected to illustrate the type of infrastructure development which will occur in future phases. Refinement of detail and/or variations from the Master Plan may occur in the future. However, it is anticipated that such minor modifications will not require further environmental review if they are compatible with the original intent of the master plan analyzed herein and are consistent with the codes of governing jurisdictions.

The project is located in the western portion of the City of Longview (Figure 1 Vicinity Map) in an area which is designated in the City's Comprehensive Plan for light industrial use. The site is currently used as pasture. Uses expected to locate on the site include light manufacturing,

warehousing, and distribution with auxiliary office uses. The master plan (Figure 2) calls for subdivision of the Mint Farm site into 51 lots ranging in size from three to twenty five acres with about half of the lots in the 3 to 5 acre size range and seven lots in the ten to 20 acre size range. A central open space corridor and two separate open space tracts are proposed to provide drainage/wildlife/wetland/recreation functions. Site access and egress are located on industrial/commercial streets to the south and west to avoid impacting residential areas to the north and east. Landscape buffers are planned adjacent to residential areas along the north and east edges of the site. At full buildout the Mint Farm Project as proposed is projected to have the land use characteristics shown in Table 1:

Table 1 Mint Farm Land Use (Full Buildout)

Use	Area in acres
Total Site Area in Master Plan	435
Proposed Street Rights-of-Way	30.4
Proposed Dedicated Open Space	52.7
Diking District Easements	8.5
Net Developable Lot Area	344.2

Figure 1 Vicinity Map

Figure 2 Mint Farm Master Plan

(11x17 Foldout)

The phasing for the Mint Farm Proposal anticipates an incremental growth over the next 30 years. with the approximate timing and areas shown in Table 2.

Table 2 Mint Farm Phasing

Phase	Implementation (years)	Developable Area (acres)	Gross Area (acres)	Number of Lots	Lot Size (acres)
One	0 to 6	87.0	124	19	3 to 8
Two	6 to 12	112.4	137	16	3.5 to 25.
Three	12 to 20	85.8	103	10	3.9 to 15.7
Four	20 plus	59.0	71	5	8.4 to 16.5

Design concepts

The City proposes development of an orderly business park planned to reflect public input and concerns, existing drainage and street patterns and a priority of minimizing impact to adjacent residential areas. The overall plan strives to:

- create a quality working environment through sound planning
- ensure a harmonious relationship among the different uses within the development and between the development and its surroundings
- develop an employment center which will meet or exceed applicable local, state and federal code requirements
- provide long term recreation, wildlife and open space benefits to the Longview Kelso community
- support planning goals of the city for employment, land use, trails, open space, and utilities
- create a development with pleasing visual qualities which are unique and distinctive.

Summary of impacts and mitigating measures

The site will be converted, over a period of years, from open pastureland to developed business park. This will reduce wildlife habitat on the site to about 30% of its current extent but will increase the diversity of this habitat by providing open water, and vegetated edges in dedicated open space tracts.

Traffic to and from the proposal site will increase as site development occurs. However, location of site entries on heavily traveled industrial/commercial roads will minimize the traffic impact. Off site improvements will be carried out as needed to divert or "calm" traffic through nearby residential areas. Traffic impacts are minimized by the site's location which is feasible to serve with mass transit and bicycle modes of transportation.

Development of the site will increase the quantity and rate of stormwater runoff generated within the site. Discharge rates from the site will be controlled to the requirements of The Consolidated Diking Improvement District #1, which provides stormwater/drainage pumping for the Longview

Kelso area. Discharges for Phase One will be to regional conveyance ditches south and west of the proposed site.

The site is located in an area planned for light industrial use and development of the proposal site is not expected to have an adverse impact on land use trends in the vicinity.

Environmental choices among alternatives

Development of this proposal site, which is close to existing housing, potential employees and services creates employment opportunities at the lowest environmental and fiscal cost. If the same quantity of development were to occur on scattered sites or on a large site in a more remote location, vehicle miles driven in the region would be higher and impacts on air and water quality and streets would be higher as a result.

Impacts that cannot be mitigated

- The number of migratory birds using the proposal site will be reduced from the levels that are supported by the current pasture use.
- Vehicular traffic on adjacent commercial and industrial streets will increase.
- A slight degradation in quality of water running off of the site is unavoidable.

Section 1 The Proposed Action and Alternatives

This environmental impact statement presents a description and evaluation of the proposed action and any reasonable alternative actions that could feasibly attain the objective of the proponent. Reasonable alternatives are those actions that approximate the objective of the proposal but at a lower environmental cost or decreased level of environmental degradation.

City Objective

The City Objective is to attract companies and jobs to Longview. Availability of readily developable, adequately sized parcels of serviced land in a business park setting is intended to provide companies (primarily from outside the County) with incentive to move to Longview. The project implements Comprehensive Land Use Plan policies (see land use section).

Proposed Action

The City of Longview has prepared a Master Plan addressing future development of the entire 435 acre Mint Farm Site. The Plan envisions subdivision into approximately 51 lots varying in size from 3 to 25 acres. (Figure 2 Mint Farm Master Plan) The lots will be sold to individual developers for business use. Road, utility, drainage and open space improvements will be made prior to sale of individual lots. Current City ownership is limited to approximately 124 acres designated as Phase One, located along the western edge of the site. The site is located in the southwest portion of the City of Longview (see vicinity map, Figure 1.)

The City is proposing a comprehensive approach to development of the Mint Farm site. Roads and utilities will be provided in a planned and coordinated fashion. Measures to mitigate development impacts such as traffic and aesthetic impacts on adjacent property are included as an integral part of the proposal. Drainage facilities will be provided in a coordinated system which provides open space benefits to the City as a whole. Overall impacts and mitigating measures associated with the Master Plan for the entire site are identified to encompass a range of proposed land use. Development plans for each lot are not known at this time. However, covenants will be made part of the deeds to regulate use, architectural character and landscaping. The development of these individual parcels is expected to be done without further environmental review if they are in conformance with the Master Plan.

Construction Schedule

Activities preparatory to major construction (preloading of road sections in Phase One) is scheduled for fall of 1996. Construction of Phase 1 roads and utilities is scheduled for 1997. Phase 2 through 4 are expected to occur after the year 2000.

Major Aspects of the Proposal

A brief description of major aspects of the proposal follows. Please refer to the elements of the environment section of this document for more detail. The proposal is a plat of 51 business park lots with over 57 acres in open space and diking district easements. Historically, all 435 acres of the proposal site have been privately owned. The City of Longview recently purchased the 124

acres in Phase 1. Phase 1 access to the site (and all future phase access) will be limited to 38th Avenue and Industrial Way. Ownership of open space and drainage facilities (approximately 48.8 acres) will be by an association of the property owners who will be financially responsible for maintenance and repairs. Slightly over 30 acres of the site will be in public street right of way, owned and maintained by the City of Longview.

Grading

Grading on the property will be necessary within road rights-of-way and to construct drainage facilities in the open space. Roadbeds will be filled to a level that places them above flood events. The filling and grading of individual lots will be the responsibility of individual lot developers.

Storm Drainage

The storm drainage system proposed for the project will consist of enclosed systems for roads and individual parcels. Drainage inlets will be located at regular intervals in the curbed roadway section and on individual parcels. (Figure 3 Storm Drainage and Open Space Schematic) The enclosed system will discharge to existing and proposed open ditches which lead to retention/detention ponds. The conveyance and detention systems for Phase One will be sized to accommodate discharge from the development lots as well as the public rights of way. The ponds will discharge to existing Diking District ditches along the south, west and north boundaries of the site which are equipped with pumping facilities. The on site system is designed to assure that any current off site drainage problems in the project vicinity are not worsened by site development.

Sanitary Sewer

The sanitary sewer service for the project will be provided by the City of Longview. On site collection will be through a gravity system located in the road rights of way. (Figure 4 Sanitary Sewer Schematic) This system will discharge to a lift station currently being designed by the City, and located at the southeast corner of the Phase One development. The lift station will convey effluent to the Central Regional Sewage Treatment Plant. Individual parcels will connect to the public system at stubs provided at each lot.

Water

Water for the project will be provided by the City of Longview. The site will be fully served with water mains and fire hydrants located in the road rights of way. (Figure 5 Water Supply Schematic) Water system capacity is provided to accommodate sprinklering of buildings on individual parcels for fire protection.

Power

Electrical power will be provided by Cowlitz County PUD. The onsite distribution system will be located underground with connection points provided at lot corners.

Telephone

Telephone service will be provided by US West Communications. Main trunk lines will be located in the road right of way with connection points at individual lot corners.

Roads

Access to the site will be provided at two points, one on 38th Avenue and one on Industrial Way. Rights of way will be cleared and "preloaded" with fill as necessary for construction of the road surface, and utilities. Asphaltic concrete road surfaces are planned, with curbing for containment of runoff. Road width will vary depending on location and use. Pavement section will, as a minimum conform to City of Longview specifications.

Traffic

A full discussion of traffic impacts is included in the traffic section of this EIS. Measures to reduce traffic impacts are discussed in that section.Traffic on Memorial Park Drive will be limited through a program of planning for diversion or "calming". Project entries will not be provided off Memorial Park Drive. As phase 1 nears completion, intersection improvements to Ocean Beach Highway at 38th Street and Industrial Way at Oregon Way will be provided, The need for intersection improvements to support future phases is discussed in tthe traffic section and Traffic report in the technical appendices.

Amenities

The proposal has been planned with emphasis on use of drainage features as major open spaces. (Figure 3) A major drainage/open space corridor is provided in a north south direction through the site. Other retention/detention facilities are located near the edges of the proposal site in locations which provide visual amenities for drivers on Industrial Way and 38th Avenue.

Relationship of the Proposal to Existing Plans and Regulations

The Comprehensive Plan designation for the proposal site is for light industrial use. Uses planned for the site are consistent with this designation. The site is zoned M-2, Manufacturing District, which allows the business park uses proposed for the site.

The project will require a "404" permit from the US Army Corps of Engineers to alter the existing drainage ditch areas of the site.

The proposal will conform with the City of Longview land subdivision regulations.

Figure 3 Storm Drainage and Open Space Schematic

Figure 4 Sanitary Sewer Schematic

Figure 5 Water Supply Schematic

Alternatives

Alternative 1, No City Action.

If no City action is taken, the Mint Farm site will probably develop in a "piecemeal" fashion. Land parcels would be sold or leased to individual companies probably over a long period of time. Property would be developed under current Manufacturing District zoning. Utility service would be extended gradually to serve individual parcels. Development of the perimeter of the site would probably occur first with several access points to maximize use of existing streets and utilities. Development permits for each proposal would be considered one at a time. This approach creates a long platting and environmental review process before a business can design its project and apply for building permits. Several environmental impact statements might be needed as development proposals were received. The overall effect of this alternative is to reduce the attractiveness of the Longview site and area relative to other locations where environmental, land subdivision and utility issues have been resolved.

This alternative limits the ability of the City to directly address traffic and other neighborhood concerns because mitigating measures have to be identified and implemented as part of individual parcel impact analysis rather than as part of a larger more comprehensive full site analysis. Overall impact on adjacent properties would likely be higher under this approach than under the preferred Master Planned approach which identifies and addresses cumulative impacts from site development.

Some new business from outside the County would locate on currently vacant sites in the City. However the level of new business attracted to the City and overall growth in jobs is expected to be lower under this alternative than with the preferred alternative.

Another drawback of this alternative is that opportunity to develop site amenities such as a central open space/drainage feature is reduced or foregone. Treatment and detention of storm water on an individual parcel basis will have higher overall costs than a central facility accommodated under the preferred alternative, and may in aggregate perform less adequately.

Alternative 2:-Development of Another Site

Development of a similar project on another site was considered. The City has looked for and considered other sites but has not found any within the City boundaries which would be of sufficient size or appropriate location to attract business to the Longview area. Since this alternative does not achieve the objective of attracting new jobs to the Longview area, it has been dropped from further consideration.

Comparison of impacts of alternatives

The proposal is intended to mitigate major impacts of site development through inherent design measures such as location of entries, buffer landscaping, drainage/open space features and Codes/ Covenants and Restrictions placed on individual parcel use.

Alternative 1, No City Action, would likely produce greater impacts to surrounding areas. Development would occur around site edges first. Mitigating measures in the areas of traffic, buffering, drainage and open space would be limited in scope to those that could be required of an individual project proponent. Development and administrative costs would be higher because of a need for a greater number of permits and reviews.

Alternative 2, Development of Another Site. This alternative would produce greater impacts in the areas of traffic and utility costs. There are no other sites of comparable size within reach of urban utilities and services in the Longview area. Development of another site or sites would increase the length of commuting trips over the proposed action.

Benefits and disadvantages of reserving implementation for some future time.

Development of the proposal will create some localized impacts which will be mitigated through measures that are part of the proposal. These impacts must be weighed against the impacts that will occur if the project is delayed or not implemented. Since the proposal site is one of the only remaining large tracts of land within the Longview Kelso urban area, if this site is not developed, development will occur elsewhere, farther from available labor force and urban services. Development of the proposal site appears to be the lowest impact approach to meeting the region's job needs in the near future. Reserving implementation for a future time may reduce the region's ability to attract employment with a resulting lower level of social and economic well being in the area.

There are few real future options for use of the site which are foreclosed by developing the proposal site at the current time. The site has been used for agricultural purposes in the past, however, the site is within an urban area that is planned and zoned for business and industrial uses and it is unlikely that the site will be used for agricultural uses far into the future. Studies to date have not indicated any environmental attributes of the site which are not common to other lands nearby which have less potential for urban development.

On a regional level, delaying implementation has the disadvantage of potentially increasing the amount of development that might occur further from established housing and utility systems. Delaying implementation of the proposal could increase the overall expense of urban development and government services. Travel in the area would likely be higher with resulting need for more roads. Delaying implementation of the proposal might create long term higher regional impacts on air pollution from commuting, and on water quality from increased road runoff.

Delaying implementation increases the likelihood that piecemeal development of the edges of the proposal site will take place. This will reduce the ability to provide mitigation measures such as perimeter buffers, traffic "calming" and drainage, comprehensive design, open space and wildlife features. Piecemeal development around the edges of the site will have multiple access points and will increase traffic impacts over the preferred Master Plan action. A piecemeal approach to development of the edges of the proposal site might slow the rate at which wildlife habitat in the center of the proposal site is affected. However, without a coordinated plan for open space, in the long run, the overall level of wildlife habitat on the site might be lower without the implementation under a coordinated Master Plan.

Implementation of the proposal at the current time has the benefit of accommodating some of the statewide need for light industrial growth within an urban area which has underutilized workforce capacity and a high level of urban services. The proposal site is planned and zoned for the proposed use. If the proposal is delayed, development of other land in the State with higher environmental and fiscal costs than the proposal site might occur.

Section 2 Affected Environment, Significant Impacts and Mitigating Measures

The Natural Environment

Earth

Soils and geology, topography, unique physical features

Existing conditions

The existing site topography is generally flat except for minor slopes alongside ditches. Soils are classified as Snohomish silty clay loam[1], a poorly drained, silty, clayey, and peaty alluvium. The soil has a low permeability and the hazard of erosion is low due to the flat nature of the site. A geotechnical engineering firm, Hart Crowser, has explored soils on site (see appendices) and has prepared engineering recommendations for accommodating the proposed development. Physical site soils explorations were limited to the Phase 1 area but the general nature of soils is expected to be similar throughout the site. Additional site specific investigation may need to be done for the development of individual parcels and for the development of roads and utilities in future phases.

Soils explorations primarily encountered soft to medium stiff silt and fine sandy silt which becomes medium stiff to stiff below about 60 to 80 feet. A one to two foot thick layer of stiff, apparently desiccated, silt was commonly observed at the surface. Layers of loose to dense sands and silty sands were encountered at various depths in the explorations; these layers are relatively more permeable and less compressible and range from 4 feet to 20 feet in thickness. A consistent, 4 to 5 foot thick layer of sandy volcanic ash was encountered at a depth of about 60 feet.

Groundwater elevations recorded during site explorations vary from 2 to eighteen feet. Groundwater fluctuations occur in response to changes in rainfall, temperature and other factors. See Stormwater Hydraulics Report appendix for further information. Dewatering may be needed for temporary excavations such as utility trenches. Due to the low permeability of the existing soil, inflow to excavations will be low except where a permeable sand layer is encountered. Groundwater seepage of the levels expected can be controlled with sumps and pumps.

The soils which underlie the Mint Farm site are susceptible to settlement under loading from buildings, roadways, and utility trenches. Due to the compressible nature of existing site soils, construction on the site will require measures to assure that development is not subject to excessive differential settlement. Several measures have been identified to reduce settlement problems.

[1] USDA Soil Conservation Service, Soil Survey of Cowlitz County

1. "Preloading" to compact soils before roads and buildings are constructed. Preload will generally consist of soil placed to a depth of three to six feet several months prior to construction. This allows time for compaction of the subsurface materials and minimizes settling of structures following construction. "Surcharge" fill may be used in which additional soil approximating the weight of the final load is placed to speed up the compaction of existing soils is then removed prior to building construction. It is expected that building slabs and paved areas will be underlain by a suitable layer of compacted structural fill.
2. Piles will be used to support structures. Since there is no consistent firm bearing soil layer at the site, piles will probably be the "friction" type which rely on soil friction against the pile side for support.
3. Overexcavation of soft soils and backfill with compacted granular fill may help to support small, light structures and some utilities.

Impacts

In order to develop the site, excavation, clearing and fill will be required for building foundations, utility trenches and roads and parking areas. Construction and development will cause increases in soil compaction and potential for soil erosion. The proposed development will require excavation and covering of existing soils with fill. The thickness of fill will probably be on the order of three to over ten feet, with finish grades shaped to collect and convey runoff to the project stormwater management system.

Fill will occur in stages rather than all at once. For example, for development of Phase 1, preload will be imported and placed in roadway right of ways to facilitate roadway and utility construction. Approximately 175,000 cubic yards of imported structural fill will be required under Phase 1 roads to depths ranging from 3 to over ten feet. As individual building sites are prepared for development, they will be filled, generally to a depth of 3 to 6 or more feet. If excess "surcharge" fill beyond that ultimately required to support buildings and parking areas is used, this material can be moved from building site to building site to minimize the amount of material imported to the site.

The transport of fill material is expected to be by truck and trailer. Potential suppliers are the Port of St. Helens pit, across the Longview bridge in Oregon and existing stockpiles of sands dredged from the Cowlitz River which are in Lexington (about 3 miles away) and in Castle Rock (about 10 miles away). Another possible option for structural fill at this site is to convey dredged materials from the Columbia River directly to the site through a hydraulic pipeline. Transport of fill material to the site will occur over a long period of time as road and lot areas are prepared for construction.

Some soft soils excavated from under roadways, utility trenches and under building spread footings may not be suitable for reuse on site and may be taken to an off site disposal area. For example, construction of Phase 1 roads will generate 1,000 to 15,000 cubic yards of such material.

Pumping to control groundwater in excavations will have a relatively small radius of influence because of the low permeability of the soils. A general lowering of the groundwater table as a result of project development is not expected. Water pumped from excavations will be laden with silt.

Pile driving to support structures can generate substantial noise and vibration. This is not expected to cause significant off site impact during Phase 1 because this area is remote from adjacent residences. An optional method of installation is to drill for piles and fill the holes with concrete. This approach has lower noise and vibration impacts.

Mitigating Measures

To minimize the potential for erosion and sedimentation, a plan will be developed to protect fill slopes from the elements and from surface runoff by the use of plastic sheeting, drainage ditches, silt fences, straw bale barriers, vegetation or other appropriate erosion control practices. It is anticipated that dust will be controlled by spraying with water trucks during dry conditions. Temporary treatment to filter silt from runoff water before discharge will be provided. Temporary treatment will also be provided to filter silt from water pumped from excavations.

Truck loads can be covered to prevent dust blowing out of truck beds en route. Mud buildup on adjacent streets will be controlled through the installation of rock construction entrances on site which help clean truck tires as they leave the site.

Traffic impacts can be minimized by requiring haul routes which avoid residential streets such as Memorial Park Drive and Olive Way.

Noise and vibration from pile driving could be minimized by using drilled piles adjacent to residential areas.

Unavoidable Adverse Impacts

Site topography will be unavoidably altered by fill required for construction of roads, utilities, buildings and parking at the proposal site but there are no significant adverse impacts that cannot be mitigated by the proposed methods.

Air

Existing Conditions

The climate of the Longview area is a West Coast marine type with moist air and a small daily range in temperature. Summers are warm and generally dry, winters are wet and mild. The major climate influences are the position and intensity of large high and low pressure centers in the north Pacific Ocean. These centers bring a prevailing westerly or northwesterly flow of air into the area in summer, and a southwesterly flow in winter. This circulation results in a rainy season beginning in fall, reaching a peak in winter, then decreasing in spring to a dry summer season.

Average annual precipitation in Longview is 45 inches. Average monthly precipitation in Longview ranges from a high of 7.56 inches in December to a low of 0.75 inch in July. Snowfall is light, with an average annual total of 7.2 inches. January is the coldest month with an average daily high of 44.5 degrees F. and a low of 31.8 degrees F. July and August are the warmest months with average daily high of 77-78 degrees F and lows of 50-51 degrees F. Minimum temperatures drop below freezing on 50 to 80 nights each year.

Strongest winds are generally from the south or southwest. Velocities of 40 to 50 miles per hour can be expected each year. The number of clear or partly cloudy days ranges from less than 10 per month in winter to 15 in spring and fall to more than 20 in midsummer.

Longview's air quality is monitored by the Southwest Air Pollution Control Authority and the Department of Ecology. According to the Longview Comprehensive Plan of 1993, the area is not classified as a federal non-attainment area for particulates or carbon monoxide.

Impacts

Construction:

Impacts to air quality due to construction result from clearing and grading operations and general construction activities. Impacts include dust from exposed soils, hydrocarbon emissions from paving, and emissions from construction and delivery vehicles and equipment.

Evaporation of hydrocarbons during priming and paving operations does not release sufficient amounts of vapors to produce toxic concentrations, although they may be odorous. These operations should be carried out under well ventilated weather conditions.

If large areas of soils are exposed during the dry summer months substantial amounts of airborne dust could be created.

Industrial Uses:

No specific industrial users are identified. Recent business park development and business trends suggest that the majority of uses developed will involve warehousing, light assembly, distribution, packaging, offices and other uses which have few discernible emissions. Some potential industries wanting to locate at the Mint Farm may discharge materials into the atmosphere. The impacts of such industry and mitigative responses available, must be evaluated at such time as the potential user is identified, and applies for project approval.

Traffic:

The effect of the proposal on air quality in the Longview area may be negligible or positive. If the proposal site were not developed, some or all of the business activity would locate elsewhere

within and around Longview. This could result in more travel and Air Quality impact than is the case with the proposal which is located near existing residential and business areas.

Travel to and from the site could contribute to localized areas where carbon is increased. Such concentrations are most likely to occur along heavily traveled routes or at busy intersections during periods of peak traffic. Such impacts are expected to be of short duration during morning and evening rush hours.

Mitigating Measures

Construction activities: The site will be sprinkled with water during construction to reduce dust.

Industrial uses: Industrial emissions will be regulated by the Covenants Conditions and Restrictions (CC&R's) placed on the individual parcels. These CC&R's prohibit individual businesses in the Park from creating nuisances including air pollution, dust emission, odorous, toxic or non-toxic matter including steam. Each tenant will have incentive to monitor other users in the park for compliance with the CC&R's to protect their property value and quality of business location.

Traffic:

Regulation of emissions from vehicles is beyond the scope of the project, however, measures in the Master Plan will encourage reduced use of vehicles. Such measures include:

- Provide a central open space trail system which can be linked into the City's overall pedestrian and bicycle system;
- Provide on site sidewalks where feasible to promote ride sharing and use of transit;
- Provide roadway widths which are conducive to safe bicycle travel;
- Concentrate worker intensive uses to allow more efficient use of transit and ride sharing.
- Public transit (CUBS) service could be expanded to serve the interior of the site once sufficient population is on site.

The location of the proposal site is less than two miles from the Longview Civic Center and many of the City's businesses and residences are within walking distance. This locational factor will reduce the number and length of trips to and from the site compared with a more distant location.

Unavoidable Adverse Impacts

The travel to and from the developed site will generate larger quantities of air pollutants than would be the case with the undeveloped site. Increased travel associated with this project is not directly linked to worsening air quality. As time passes, the emissions per vehicle mile are expected to decline as cars continue to become cleaner and the older, more polluting cars leave the fleet of cars on the road.

Water

Surface Water and Runoff

Existing Conditions

The site is primarily in a grassy open condition, characteristic of active pasture lands with fairly flat topography. Surface flows drain to agricultural ditches which ultimately flow into Ditch #5 and Ditch #12 maintained by the Consolidated Diking Improvement District # 1. Field observations indicate that portions of the site have ponding water during wet seasonal periods because of the site's flat slopes and high ground water levels. The site is protected from floods by the diking and pumping system maintained by Consolidated Diking Improvement District #1(CDID). The CDID recommends a particular release rate to their ditches to prevent overtaxing the system.

Impacts

During construction, runoff from disturbed areas could be laden with silt. If this water were allowed to flow offsite before treatment, increased amounts of silt and sand could be carried into the CDID ditch system.

Development of roads, sidewalks, parking areas and buildings will increase impervious surface area. This will significantly increase both the rate and quantity of runoff generated within the site. The water running off from paved areas on site may contain some oil and other contaminants.

Mitigating Measures

The project contains a comprehensive approach to stormwater management through open space reserves, and total system design for the site. Permanent storm facilities will be constructed throughout the site to collect storm water, separate oil, grit, and other contaminants in catch basins and wet ponds, and transport the water to controlled release detention ponds. Catch basins will be placed approximately every 150 feet along proposed roadways and as needed to drain individual parcels. The water collected in these structures will be conveyed to nearby existing and newly constructed ditches and swales which provide water quality treatment. The master plan provides strategically located "neighborhood" detention ponds rather than small individual detention systems. This provides for the lowest facility cost and most efficient approach to supervision and maintenance of stormwater facilities. The detention facilities will incorporate permanent ponds and newly created wetlands with the added values of wildlife support and visual amenity. Please see the Drainage Report in the Appendices for more detail.

The rate at which runoff is released from the site will be controlled at a rate equivalent to that which would naturally occur during a 25 year storm.[2] This control will be achieved through the

[2] under existing conditions. This rate is set by CDID to meet currently available pumping capacity in the regional system.

NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

SEPA CHECKLIST

TAB 5: MINT FARM CC&Rs

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Page: 1 of 25
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AMEND 32.00 Cowlitz County

OCTOBER, 2001
AMENDED and RESTATED
DECLARATION OF PROTECTIVE COVENANTS, CONDITIONS, RESTRICTIONS, EASEMENTS, AND AGREEMENTS
FOR
THE MINT FARM INDUSTRIAL PARK, PLAT NO. 1

ARTICLE I
DECLARATION

1.1 This Declaration is made on the date hereinafter set forth by The City of Longview, Washington, which is owner of all that certain real property located in Longview, Washington, commonly know as The Mint Farm Industrial Park, Plat No. 1, (referred to as "The Park" herein), and more particularly described on Schedule A, attached hereto and incorporated herein by this reference. This Declaration amends, restates and replaces the original Mint Farm Industrial Park Declaration recorded under Cowlitz County Auditor's file No. 3007472.

1.2 The City of Longview. Washington ("Declarant") hereby declares that EXCEPT for specific "Utility Parcels" identified on the plat, all of the real property within The Park shall be held, sold, and conveyed subject to the following easements, restrictions, covenants, conditions, reservations, charges, and liens (hereinafter collectively referred to as "Covenants"). Such Covenants shall benefit The Park and are for the purpose of enhancing and protecting the value, desirability, and attractiveness of The Park. The Covenants shall inure to the benefit of and shall burden the real property within The Park and shall run with the land, and shall apply to and be binding upon all of the parties having or acquiring any right, title, or interest in The Park or any part thereof, and shall be binding upon their heirs, successors, and assigns, in perpetuity.

1/1/01
Orig - Clerk
copy - Dave

ARTICLE II
DEFINITIONS

For purposes of this declaration, certain words and phrases have particular meanings which are as follows:

2.1 "Architectural Committee" - shall mean and refer to the Architectural Control Committee referred to and provided for in this Declaration.

2.2 "Articles" - shall mean the Articles of Incorporation of The Mint Farm Industrial
Park Property Owners' Association.

2.3 "Association" - shall mean The Mint Farm Industrial Park Property Owners' Association, a Washington non-profit corporation, its successors and assigns, and composed of owners of real property within The Park. The Association may not be dissolved without written authorization from the City of Longview.

2.4 "Board" - shall mean the Board of Directors of the Association which shall be elected by the Association from among its members.

2.5 "Building lot area" - shall mean the total Lot excluding required setbacks.

2.6 "Common Areas" - shall mean and refer to:

Tracts A, B, C, D, E, and F as shown on the plat which shall be conveyed to the Association pursuant to terms of this Declaration,

Entry signage and directory easement areas at the Industrial Way entrance to The Park and at the 38th Avenue entrance to The Park,

Any and all additional interests in real property within The Park conveyed to the Association including, without limitation, easements, licenses, leases, and other similar real property interests.

2.7 "Declaration" - shall mean this Amended and Restated Declaration of Protective Covenants, Conditions, Restrictions, Easements and Agreements for the Mint Farm Industrial Park, and any amendments thereto.

2.8 "Declarant" - shall mean The City of Longview, Washington, its successors and assigns designated by it as Declarant for The Park.

2.9 "Improvement"- shall mean any structure or other building, sign, landscaping or other planting, parking area, driveway, storm water

retention system, and any other improvements located on a Lot, tract or common area.

2.10 "Lot" - shall mean any legal subdivision of land within The Park and include Lots 1 through and including17 as shown on the face of the Plat, together with all appurtenances of said Lot. It is anticipated that the Lots will be of a variety of sizes and shapes and that the lines dividing such Lots may be adjusted to accommodate the needs of Owners thereof. The term "Lot" "does not include "Tracts" or "Utility Parcels."

2.11 "Owner" - shall mean the record owner of a Lot, whether one or more persons or entities, but excluding entities or individuals having such interest merely as security. A purchaser under a recorded real estate contract shall be deemed an Owner as against its respective seller.

2.12 "The Park" - shall mean The Mint Farm Industrial Park.

2.13 "Plat" - shall mean Plat No. 1 of The Park recorded in Volume 13 of Plats pages 71 and 72 records of Cowlitz County, Washington, a copy of which is attached hereto as Exhibit "A".

2.14 "Streetscape Area" - shall mean that portion of a Lot, Tract, or Common Area as shown on the face of the Plat that contains public sidewalks and landscaped areas which lie within the public right-of-way and a strip of land ten feet (10') in width lying beyond the public right-of-way.

2.15 "Tract" shall mean a defined area of land shown on the plat which is not available for private development, is indicated by a letter rather than a number, and which is to be owned and maintained by the Property Owners Association" as a common area.

2.16 "Utility Parcel" shall mean a defined area of land shown on the plat which not available for private development, is indicated as a "Utility Parcel" and which is to be owned and maintained by the City of Longview; provided, however, that the term "Utility Parcel" shall not include the Southeasterly 80 feet of the tract of land adjacent to the Southeasterly line of Lot 17 and described as "Utility Parcel" as shown on the face of the Plat.

ARTICLE III
RESTRICTIONS AND USE OF PROPERTY

3.1 DEVELOPMENT STANDARDS. All Improvements constructed within The Park shall be constructed consistent with procedures, goals, objectives and standards set forth in this Declaration.

PERMITTED USES.

(a) Light Industrial Uses. This category would include such operations as machine shops, metal fabricating plants, and similar uses.

(b) Heavy Industrial Uses. This category would include such operations as manufacturing, assembling, and fabricating of machinery, equipment, tools, vehicles, and other similar uses, the processing or refinement of chemicals, and the generation and sale of electrical energy.

(c) Commercial Uses. This category would include storage, wholesaling, and distributing facilities and the display of products or commodities that are manufactured, assembled or created on the premises. This use does not include retailing, unless it was intended for the incidental benefit of the Light Industrial uses, Heavy Industrial uses and Commercial uses permitted in the Mint Farm Industrial Park, nor does it permit the display or wholesaling of products or commodities not manufactured, assembled, created, or associated with a product line of a business on the premises.

3.3 INTERIOR SIDEWALKS. On-site pedestrian circulation systems shall be provided to meet the needs of the Owner. Such systems should be an integrated part of the overall architectural and site design concept. Connections shall be made between the on-site and public pedestrian circulation systems.

3.4 BULK AND HEIGHT OF BUILDINGS. The gross floor area of any building, excluding that portion which is used for parking, shall not exceed two times the total Lot area. Buildings up to 20 feet in height shall be permitted to be constructed no closer than 20 feet from an interior (side and rear) property line Adjacent to dedicated to open space, no building shall be permitted to be constructed closer than 50 feet.

3.5 HEIGHT OF STRUCTURES OTHER THAN BUILDINGS. Antennas, towers, and container-structures designed for storage or treatment of commodities and not designed for human occupancy, may be constructed and maintained within rear yard set back areas, subject to prior approval by the Architectural Committee.

3.6 LAND COVERAGE. The minimum floor area of the principal building on a Lot shall cover at least 20 percent of the total buildable Lot area, exclusive of setbacks. The minimum floor area of the principle building may be established at a lesser percent of the total buildable Lot area, subject to a variance approved by the Architectural Committee. Covered parking and storage apart from and not connected to the principal building shall not be considered to fulfill part of this requirement.

3.7 BUILDING STANDARDS. Pre-engineered metal buildings and metal clad buildings, will be permitted, however, "tilt-up" Concrete buildings are preferred. Roof overhangs may extend a maximum of 24 inches into the interior setbacks.

3.8 STREET FRONTING REQUIRED. Every principal structure shall front on or be located on property which fronts upon a street which is dedicated to and maintained by a municipal corporation.

3.9 SETBACKS. For every principal building allowed in The Park there shall be a front yard having a depth of not less than 60 feet and a side yard on each side of the building of not less than 20 feet in width, except that a side yard of a corner Lot shall be not less than 50 feet in width along the side street property line and a rear yard of not less than 20 feet. A strip of land at least 10 feet in width abutting the street right-of-way shall be landscaped with evergreen plants in accordance with the provisions of section 3.15(a) hereof. The set-back areas between the building lines and the property lines are to be used either for landscaped areas or for off-street surfaced parking and loading operations. A gatehouse shall be permitted in the set-back area provided the structure is limited to one story and 100 square feet in floor area. All setback areas shall be fully planted in a manner compatible and complementary to the architectural style of the building. A maximum slope of 3:1 is allowed in the setback areas. A transition shall be provided at the top and bottom of all slopes. The construction of streets outside the boundaries of the Plat shall not have the effect of converting any lot within the Plat to a corner lot.

3.10 OUTSIDE STORAGE. Outside storage shall not be permitted within the required setback areas between any public right of way and any building abutting thereon but shall be allowed within the buildable Lot area and within the setback areas along interior property lines; provided stored materials within the buildable Lot area shall be screened from view from the public right of way upon which any building abuts by means of a fence or wall or landscaping of approved nature no less than five and not more than 15 feet in height. Outside storage shall be permitted only for materials which are associated with the principle use conducted on the premises. The height of the stockpile shall not exceed the height of the obscuring fence. Such storage shall be screened on all sides visible from adjacent public streets using materials designed to harmonize with the architectural design.

3.11 FENCES AND WALLS. No fence or wall shall be constructed closer than 10 feet from the right-of-way of a public street, and no fence or wall shall be constructed within a drainage easement. All fences and walls shall be designed and constructed in a manner that is complimentary to the architectural design of the building. Except for walls or fences constructed

to screen areas as required herein, no fence or wall shall exceed 10 feet in height, plus appropriate barbed wire or other security devices,

3.12 OFF-STREET PARKING. Every permitted land use within The Park shall provide off-street parking facilities for automobiles, as required by Chapter 19.78 of the Longview, Washington, Municipal Code. No parking shall be permitted to be closer than 7 feet from an interior property line. Adjacent to dedicated open space, no parking or pavement shall be permitted closer than 15 feet. No parking is permitted on public streets.

3.13 LOADING. Any establishment where the loading and unloading of trucks is a normal part of its operation shall provide off-street truck loading facilities as follows:

(a) Loading berths shall be permitted in the building setback areas, except that portion of a corner Lot formed by connecting two points 60 feet from the intersection of the street property lines.

(b) No berth shall be so located as to require direct entry and exit to the street.

3.14 SIGNS. Any signs of any kind to be displayed to the public view on any Lot shall be subject to the review of the Architectural Committee; provided however, that Declarant shall have the right, without approval of the Association or the Architectural Committee, to advertise The Park and any Lot within it for sale or lease by signs displayed to the public until such time as all Lots within The Park have been sold by Declarant. Provided, further, that any Lot Owner shall have the right to place signs upon such Owner's Lot in accordance with advertising such premises for said or lease. No signs shall be placed or maintained in or on the common areas, within the public rights-of-way, or within Utility Parcels except for directional, street or traffic control signs and devices of the City of Longview. All signs are subject to applicable Laws and Ordinances of the City of Longview, Washington.

Signs which serve to identify a business or a use shall be permitted, subject to the following requirements:

A. Attached signs:

(a) No attached sign shall exceed 1,000 square feet and no more than two attached signs shall be permitted for each building. No more than one building-mounted business identification sign shall be permitted for each street frontage. Provided, however, that a building containing more than one business occupant may also maintain an attached directory sign not exceeding 40 square feet.

(b) No sign shall protrude beyond the highest point of the building to which it is affixed, and shall not extend more than five feet from the wall of the building.

(c) All signs shall be stationary, and the stop and support structure shall be of permanent construction and attractive in appearance.

(d) Signs which restrict the view of adjoining properties or create confusion relative to interpretation of traffic signals shall not be permitted.

(e) Building-mounted identification signs shall be limited to the display of the building name or the name and/or symbol of the occupant of the site. No message or advertising of any kind, including the advertising of products, services or job openings, shall be permitted.

(f) Business or building identification signs may be mounted on any vertical surface of a building or building-associated wall, provided such signs appear as an integral part of the overall architectural and site design.

(h) Building-mounted identification signs may be illuminated by internal illumination or "backlighting" providing that the color or intensity of such lighting appears as an integral part of the overall architectural and site design. No sign illumination shall cast a glare which will be visible from any street or access drive, and no flashing or animated signs are permitted. Illuminated signs shall be of constant intensity.

B. Detached signs:

(a) No more than one detached business identification sign may be permitted on each street frontage of a developed Lot.

(b) Detached business identification signs shall be located within 20 feet of a fronting street and the access drive and shall not exceed 30 inches in height above the adjacent street grade if located in the first 10 feet adjacent to access drive closest to the street.

(c) Off premises commercial signs are prohibited.

(d) No detached sign shall exceed a surface area (each side) of 50 square feet. The sign area is the area of the surface or surfaces which displays letters or symbols identifying the business, businesses or occupants of the site, or, when the sign is of free standing letters, the single rectangular area which fully encloses all letters or symbols identifying the business,

businesses or occupants of the site. The sign area shall not include the base or pedestal to which the sign is mounted.

(f) No plot plan shall be approved until the building department has found the signs to be in conformance with these regulations.

(g) All detached business identification signs shall be of such materials and design to be compatible with the building architecture and design.

(h) Detached business identification signs may be illuminated by "backlighting" or ground lighting. Signs may not be lit by internal illumination except as approved by the Architectural Committee. No flashing or animated signs shall be permitted.

3.15 LANDSCAPING.

(a) LANDSCAPING PLANTINGS, AND THE EXTENT THEREOF: The purpose of requiring landscaping and the planting of trees, shrubs, ground cover, grass and other planting materials is to develop and maintain The Park as an attractive area. It is intended that the amount, location, quality and quantity of such landscaping plantings shall be similar to and no greater than the location, quality and quantity thereof that is maintained within the area between curbs and sidewalks in residential areas of the City.

(b) Setbacks:

(1) A strip at least 10 feet in width shall be landscaped with evergreen plants from an approved list of plant material. The remainder of area between the curb and the private property line shall be planted and maintained in a like manner by the property owner.

(2) The setback along interior property lines shall be at least 20 feet in width and, where deemed necessary by the Architectural Committee, shall be landscaped with approved plant material with visual screening characteristics.

(c) Parking Areas:

(1) Parking areas shall be landscaped with deciduous trees and evergreen ground covers to relieve monotony of pavement expanses. Areas abutting public rights-of-way shall be landscaped as provided in Longview, Washington, Municipal Code chapter 19.78.

(2) Parking areas shall be screened from public and private view as determined by the Architectural Committee.

(d) Buildings and Structures: All buildings and structures, where practical, shall have a five foot minimum planting strip around them to soften architectural lines.

(e) Landscape Maintenance: All landscaping shall be maintained in a neat appearing, healthy condition during all seasons and shall have provisions for irrigation.

(f) The landscaping standards set forth in this section provide generalized guidelines for obtaining harmony and continuity in the general character of the Mint Farm Industrial Park use district. Specific details pertaining to methods of installation, acceptable plant materials, irrigation standards other pertinent information relative to landscaping, shall be determined by the Architectural Committee after consultation with the parks and recreation director of the City of Longview.

3.16 CONSTRUCTION OF IMPROVEMENTS. Construction of any improvements shall be diligently pursued and completed once such construction has commenced.

3.17 NO TEMPORARY DWELLINGS. No trailer, shack, or other outbuilding, or any other structure of a temporary character shall be used on any Lot, Tract or Common Area at any time provided, however, that temporary sales or construction offices or other such structures shall be permitted on any Lot during the sales or construction period upon the approval of the same by the Architectural Committee.

3.18 VACANT LOTS. Vacant Lots and any Lots upon which improvements are under construction shall be maintained by their respective Owners in an orderly condition. Debris, weeds, or other waste material shall be removed or controlled on a regular basis by the Owner. Lots that are not improved or built upon shall be maintained in a clean and neat appearance so as to not detract from the overall appearance of The Park. Weeds, brush, and trash shall be removed at least twice a year - once in the Spring and once in the Autumn.

3.19 TRASH. No garbage, refuse, or rubbish shall be deposited or kept on any Lot or building except in a suitable enclosed container. All areas for the deposit, storage, removal, or collection of garbage or trash shall be screened from other Lots and from the public roads or Common Areas. All equipment and containers for the storage or disposal of trash, garbage, or other waste shall be kept in a clean and sanitary condition. No refuse container shall be permitted between a street and the building.

3.20 LIGHTING: All lighting potentially visible from and adjacent street except bollard lighting less than 42 inches high, shall be indirect or shall incorporate a full cut-off shield type feature.

ARTICLE IV
ARCHITECTURAL CONTROL COMMITTEE

4.1 ESTABLISHMENT. An Architectural Control Committee ("Architectural Committee") is hereby established for the purpose of ensuring consistency in the design of any and all Improvements upon the Lots, and preserving the landscaping and native vegetation of the same and ensuring proper maintenance of the property and its appurtenances. The Architectural Committee shall have three members, consisting only of City staff personnel and Lot owners or persons employed and designated by Lot owners; Lot owners shall be fairly represented on said committee. The members shall be appointed and may be removed by Declarant. The members of the Architectural Committee shall designate one of their number to serve as chairman of the Architectural Committee and shall adopt such procedures and guidelines as they deem necessary for the orderly administration of their duties. Decisions rendered by the Declarant prior to the establishment of the Architectural Committee shall be binding upon the Architectural Committee.

4.2 IMPROVEMENTS. No Improvement shall be erected, placed, altered or Lot line adjusted or parcel segregated on any Lot, until the Lot line adjustment or segregation or building plans, specifications, and plot plan (hereafter called "The Proposal"), showing the nature, kind, shape, height, materials, and locations of such building structure, segregation or other Improvement have been submitted and approved in writing by the Architectural Committee.

4.3 CRITERIA FOR IMPROVEMENTS. The Architectural Committee shall consider the following criteria in approving, rejecting, or modifying the plans for the Proposal submitted to it:

(a) The harmony of the external design, color, and appearance of the Proposal in relation to the other developments within The Park.

(b) The conformance and compatibility of the Proposal with this Declaration, particularly in light of the following criteria: site coverage, building setbacks, landscape standards, parking and access requirements, architectural standards, screening requirements, lighting requirements, utilities service requirements and other elements contained in this Declaration.

(c) The location of the Proposal on the Lot with regard to slopes, soil conditions, existing trees and vegetation, drainage ditches, roads and surfaces, and existing buildings and other structures.

(d) The relationship of the Proposal to the surrounding development.

(e) The compliance of the Proposal with the covenants contained in this Declaration.

(f) The compliance of the Proposal with the provisions of the relevant ordinances of the City of Longview applicable to The Park.

(g) The compliance of the Proposal with the Plat and the conditions thereof.

(h) The harmony of the landscaping indicated in the Proposal with shrubs, bushes, hedges and ground cover on other Lots.

4.4 PROCEDURE. The Architectural Committee shall approve or reject all Proposals submitted to it within thirty (30) days from the date of the submission of the Proposal to the Committee unless the Owner submitting the Proposal consents to an extension of the time for a decision. The Architectural Committee shall have the right to reject any Proposal which it decides is not suitable or desirable based on the above criteria or other relevant criteria. The Architectural Committee's decision shall be in writing, and if a Proposal is not approved, the decision shall include a brief statement of the reasons for the Committee's action. The Architectural Committee shall have the right to approve a Proposal subject to compliance with the above established criteria and conditions established by the Committee. The Owner acknowledges and is aware, that approval by the Architectural Committee hereunder shall not be deemed approval by the City of Longview or any other applicable governmental agency. In the event the Architectural Committee rejects a Proposal or any portion thereof, an Owner may resubmit such Proposal, modified accordingly, at any time for a review by the Architectural Committee. Failure of the Architectural Committee to respond within such 30 day period shall be deemed to be approval of the Proposal.

4.5 PROPOSALS. Proposals submitted to the Architectural Committee shall contain sufficient information to enable a decision to be made. The Architectural Committee shall have the authority to request additional information, drawings, specifications, and data, and to delay its response until receipt thereof followed by sufficient time to consider the same. Minimum information required to be submitted with all proposals includes the following:

(a) A scaled site plan including calculations on Lot size, building footprints, locations of exterior process equipment, pertinent coverage ratio calculations, identification and dimensions of setbacks, fencing, parking space calculations, trash enclosures, identification of surface types (gravel, paving, etc.).

(b) Landscaping print.

(c) Board with samples of exterior materials, color chips, etc.

(d) Elevations with dimensions, including fencing details.

(e) All signage details, including locations, lighting and dimensions.

4.6 NO LIABILITY. The members of the Architectural Committee shall have no personal liability for any action by or decision of the Architectural Committee. By acceptance of a deed to any Lot within The Park, the Owner of that Lot agrees and covenants to not bring or maintain any action against any member of the Architectural Committee which seeks to hold that member or Declarant personally or individually liable for costs or damages relating to or caused by any action of or decision by the Architectural Committee or Declarant in accordance with the provisions of this Declaration.

4.7 FEES. The Architectural Committee shall have the authority to establish reasonable fees for the review of Proposals to compensate the members of the Architectural Committee and to pay the costs and expenses of the Architectural Committee. Approval of any Proposal may be withheld pending payment of such fees. Such fee shall be chargeable to the Owner of the Lot submitting such Proposal to the Architectural Committee for approval.

4.8 TERMINATION OF ARCHITECTURAL COMMITTEE. There shall be no termination of the Architectural Committee until such time as no Lot is owned by Declarant and all construction of Improvements has been completed on all Lots; provided that Declarant may at its option terminate the Architectural Committee prior to that time. Termination of the Architectural Committee shall not be effective until authorized in writing by the Declarant. Upon the termination of the Architectural Committee, the Association shall assume the obligations imposed upon the Architectural Committee by the terms of this Declaration. The Association and the Owners of Lots within The Park may, after termination of the Architectural Committee, at their election, elect or appoint a separate group to perform the obligations of the Architectural Committee hereunder. Notification of the termination of the Architectural Committee by the Declarant shall be given, in writing, to all owners of record, and Property Owners'

Association, and the City of Longview, at least 30 days prior to the effective date thereof and such termination shall not occur until the Association has assumed the duties of such Architectural Committee by the formation of and appointment of persons to its own similar committee.

ARTICLE V
PROPERTY OWNERS' ASSOCIATION

5.1 MEMBERSHIP. Every person or entity who is an Owner of any Lot shall become a member of the Association. Membership shall be appurtenant to and may not be separated from ownership of any Lot and shall not be assigned or conveyed in any way except upon the transfer of title to said Lot and then only to the transferee of such title to the Lot. All Owners shall have rights and duties as specified in this Declaration.

5.2 VOTING RIGHTS. Owners, including the Declarant, shall be entitled to one vote for each 10,000 square feet in each Lot, or major fraction thereof, owned by any Owner; provided that so long as Declarant owns any Lot, Declarant shall have three (3) votes for each 10,000 square feet, or major fraction thereof, then owned by Declarant. Should the calculation of any Owner's votes result in a figure for total votes applicable to that Owner other than a whole number, the number of votes applicable to that particular Owner shall be such that the number of total votes shall be the nearest whole number. When more than one person or entity owns an interest in any Lot, the vote for such Lot shall be exercised as they among themselves determine, but in no event shall any vote be divided among the Owners. The voting rights of any Owner may be suspended as provided in this Declaration, or Articles or By-Laws of the Association.

5.3 MANAGEMENT OF COMMON AREAS AND ENFORCEMENT OF DECLARATIONS. With the exception of the City of Longview's authority to enforce certain provisions of this Declaration as set forth in paragraph 8.4, the Association shall have the sole authority and obligation to manage and administer the Common Areas and to enforce the terms of this Declaration. Such authority shall include all authority provided for in the Association's Articles, By-Laws, rules and regulations as initially adopted, or as hereinafter amended, and all the authority granted to the Association by this Declaration, either directly or by necessary implication.

5.4 AUTHORITY OF THE BOARD. The Board, for the benefit of The Park and the Owners, shall enforce the provisions of this Declaration, shall manage and operate the Common Areas and Improvements thereon and shall acquire and shall pay for, out the Common Expense Fund, all goods and services requisite for the proper functioning of The Park and the Common Areas, and any other facet of The Park and shall have all the rights,

powers and authorities more particularly stated in the Articles and By-Laws. The Board shall have the power to adopt and enforce rules and from time-to-time regulations governing the use of The Park, its Common Areas, and Streetscape Areas, by Owners and their guests. Any such rules and regulations shall become effective thirty (30) days after promulgation or amendment and shall be mailed to all Owners within thirty (30) days after promulgation or amendment. A copy of the rules and regulations then in force shall be retained by the Secretary of the Association.

5.5 PROPERTY RIGHTS IN COMMON AREAS AND STREETSCAPE AREA. Every Owner, its employees, tenants, business invitees and licensees shall have a right and easement of enjoyment in and to and an easement for ingress and egress over and upon the Streetscape Area and Common Areas for the common use of all Owners which right shall be appurtenant to and shall pass with the title to every Lot subject to the following restrictions:

(a) The rights reserved to the Declarant in this Declaration,

(b) The other restrictions, limitations and reservations contained or provided for in this Declaration and in the Articles and By-Laws of the Association, and

(c) Any restrictions of use imposed by the City of Longview in approval of the Plat.

ARTICLE VI
MAINTENANCE AND COMMON EXPENSE

6.1 MAINTENANCE OF COMMON AREAS. The Association shall maintain all Improvements in the Common Areas and appurtenances thereto, including but not limited to, all storm drainage channels, the open space areas and the landscaped street medians within the public rights-of-way of The Park.

6.2 MAINTENANCE OF UTILITY PARCELS. The City of Longview, as the owner of the Utility Parcels, shall maintain said parcels and any improvements thereon in a manner equal to its maintenance of public parks located in the City of Longview.

6.3 OWNERSHIP AND MAINTENANCE OF COMMON AREAS. Tracts A, B, C, D, E, and F, shall remain in Association ownership and shall be maintained by the Association to standards as established in the landscaping plan submitted to the City of Longview. In addition, the Association shall comply with and pay the cost of maintaining said tracts in accordance with the requirements of the U.S. Army Corps of Engineers as set forth in Permit No. 96-4-00177.

6.4 MAINTENANCE OF LOTS, UTILITIES AND STREETSCAPE AREAS.
(a) The maintenance, upkeep, and repair of individual Lots and the Improvements and utilities thereon shall be the sole responsibility of the Owners thereof. Any action necessary or appropriate to the maintenance and upkeep of such individual Lots, the landscaping, irrigation, sewer and water systems, storm drainage systems, other utility systems, all improvements including, but not limited to, building exteriors and roofs, recreation areas, signage, parking areas and sidewalks, gas, telephone, or electrical or television facilities, and property taxes shall be the sole responsibility of the individual Lot Owners.

(b) The Association shall be solely responsible for maintenance of landscape and the cost of maintenance, repair and operation of the irrigation system and sidewalk facility within the Streetscape Area. The Association may contract with a landscape maintenance firm for all the Association's maintenance responsibilities and may, at the Association's sole discretion, similarly contract with such firm for maintenance of all or a portion the Streetscape Area landscaping on each Lot or tract, but, in such event, each Owner shall be responsible for payment of all costs and expenses in connection with maintenance of such Owner's Streetscape Area by the Association which cost shall be added to the annual assessment for Common Expenses and prorated to each Owner on the basis of their front footage of Streetscape Area. The Association may, at its sole discretion, accept responsibility to maintain all or a portion of the landscaping and/or to pay the monthly water service charge for irrigating the Streetscape Area.

6.5 MAINTENANCE RESPONSIBILITIES. Each Owner hereby covenants and agrees to maintain its respective Lot and Improvements located thereon in a neat and orderly manner consistent with that of similar first class

industrial parks in the Pacific Northwest and other Lots within The Park. If any Owner should fail to maintain its Lot in such a condition, the Association shall have the right to notify said Owner in writing of the maintenance required. If said maintenance is not performed within thirty (30) days of the date of such notice, the Association shall have the right to enter onto the offending Lot, provide such maintenance and levy an assessment against the Lot Owner and its Lot for the cost of providing such maintenance. Said assessment shall constitute a lien against the Lot owned by the nonperforming Lot Owner and may be collected in the same manner as any other monthly or special assessment and, if not paid within thirty (30) days after said assessment is levied, the Association shall have all remedies for collection as provided for in this Declaration.

6.6 MAINTENANCE OF STORM DETENTION SYSTEM. All Owners shall maintain in proper working order all roof drains, storm drains and drainage swales located on or in the Lot, including but not limited to, the individual storm detention and conveyance system. Should any Owner fail to maintain its detention and conveyance system in a manner consistent with standards of The Park the City of Longview or other agencies having requisite jurisdiction, the Association shall have the right to perform such maintenance and make such assessment in a manner set forth in Section 6.5, above.

6.7 ASSOCIATION EXPENSES. Certain expenses shall be paid by the Association for the benefit of all Owners and shall be referred to as "Common Expenses". The Common Expenses shall be paid by the Association from the Common Expense Fund established by assessments paid by Lot Owners as herein provided. Costs for work performed on or improvements or services provided with respect to any portion of a Lot that is not part of the Common Areas will not be included in Common Expenses unless so approved by the Association and the Lot owners. The Common Expense Fund shall include, but shall not be limited to, funds for the following:

(a) The expense of maintaining the Common Areas,

(b) The real property and other taxes and all governmental benefit assessments upon the Common Areas,

(c) The cost of maintaining liability insurance coverage on the Common Areas,

(d) The cost of maintaining landscaped street median areas within the dedicated rights-of-way of streets located within the Plat,

(e) The cost of any repairs to or replacement of improvements within the

Common Areas,

(f) Utility charges attributable to the Common Areas,

(g) The cost of maintaining entrance improvements to the Park including, but not limited to, directories, signs, lights, fences, walls, plantings, landscaping,

(h) Any other expense reasonably related to the health, safety and welfare of the Owners, guests, business invitees, employees and licensees of The Park and which shall be designated as a Common Expense in the Declaration or fromtime-to-time by the Association.

(i) The cost of maintaining any common drainage facilities both temporary and permanent which are provided by the City of Longview or by Consolidated Diking Improvement District No. 1, or their successors.

(j) The cost of maintaining air quality and water quality monitoring programs if established pursuant to City of Longview Approval Conditions or those of SWAPCA.

(k) The cost of business park security measures as deemed appropriate by the Association.

(l)The administration of the Association and the expenses incurred in carrying out its powers and duties, including the cost of any contractors employed by the Association to perform any of its duties.

6.8 IMPROVEMENT OF THE COMMON AREAS. The Declarant hereby agrees that it will construct certain improvements on Tracts A, B, C, D, E and F of the Common Area in accordance with the requirements of the City of Longview. Upon completion of those improvements, or at a date at the option of the Declarant, such Tracts shall be conveyed and deeded to the Association, and shall remain as common open space in perpetuity. Permanent public access shall be available subject to the requirements of the City of Longview.

ARTICLE VII
ASSESSMENTS

7.1 ANNUAL ASSESSMENTS. Each Lot shall be subject to annual assessments or charges and certain special assessments in an amount to be determined by the Association. Annual assessments shall commence on a date to be determined by the Association. Subsequent assessments

shall be due and payable on a schedule established by the Association. Provided, however, that until such time as the Association becomes organized and determines the amount of the annual assessments, the Declarant shall have the right to determine the amount thereof. Common Areas and Utility Parcels shall be exempt from assessment.

7.2 ASSESSMENTS TO BE PAID IN ADVANCE. In order that the Association may have funds with which to pay Common Expenses in a timely manner, all annual assessments shall be paid by Property Owners in increments equal to the assessments of 6 months' or more, in advance. Within 30 days after becoming a Property Owner, payment shall be made to the Association of a sum equal to the assessments chargeble to the Property Owner's Lot for the then ensuing period of 6 months. All Lots within The Mint Farm Industrial Park, Plat No. 1, until sold by the Declarant, shall be subject to all assessments and shall be paid by the Declarant to the Association, in advance, on a monthly basis.

7.3 BOARD DETERMINATION OF THE AMOUNT OF ASSESSMENTS. The Board of Directors of the Association shall determine the amount of assessments necessary to pay Common Expenses. The amount of assessments may be increased or decreased periodically as may be necessary from time-to-time to properly provide for payment of the Common Expenses. The share of Common Expenses allocated to each Lot shall be the ratio that the proportionate square footage of the Lot bears to the total square footage of all Lots.

7.4 ASSESSMENT CERTIFICATES. The Association shall, upon written request, furnish a certificate in writing setting forth whether the assessment on a specified Lot has been paid. A reasonable charge may be made for issuance of such certificates.

7.5 SPECIAL ASSESSMENTS. In addition to the regular assessments authorized above, the Association, by and through its Board of Directors, may levy in any year a special assessment applicable to that year only for purposes of defraying in whole or in part the cost of the following, including but not limited to, any construction or reconstruction, unexpected repair or replacement of facilities in the Common Areas including the necessary fixtures and personal property related thereto, or of facilities or improvements of common benefit to the Park where located.

7.6 ADDITIONAL LOTS. In the event that additional Lots are added to The Park by reason of division of large Lots into smaller Lots, all such additional Lots shall be subject to this Declaration and thereafter the share of assessments for all Lots subject to assessments shall be adjusted accordingly.

7.7 CREATION OF LIEN AND PERSONAL OBLIGATION. Each Owner of a Lot within The Park, by acceptance of the deed to or other conveyance of that Lot, shall be deemed to covenant and agree to pay any and all assessments provided for herein. Any assessment or any portion thereof not paid when due, together with any interest and costs and attorney's fees for collection, shall be a continuing lien upon the Lot within The Park which may be foreclosed by the Association in the manner provided by law for the foreclosure of a mortgage on real property. Each Lot Owner shall also be personally obligated to pay the amount of any assessment levied against their interest, and costs and attorney's fees for collection of that assessment. This personal obligation shall not be released by any transfer of the Lot subsequent to the effective date of the assessment.

ARTICLE VIII
ENFORCEMENT

8.1 PROCEDURE. If any assessment is not paid according to the procedures established by the Association, the amount of the assessment shall bear interest at the rate of 8 % per annum and the Association may file a lien on the Lot subject to the unpaid assessment for the amount of the assessment plus interest. The Association may bring an action at law to enforce payment of delinquent assessments against the Owner of the Lot subject to the unpaid assessment in order to recover the amount of the assessment and the Association may also take whatever measures are provided for by law to foreclose or collect on the lien filed on the Lot subject to the assessment. If a legal action is initiated to enforce or collect any assessment, the prevailing party shall be entitled to recover court costs, actual attorney's fees and other expenses of litigation.

8.2 PAYMENTS IN ARREARS. If any Owner shall be in arrears on the payment of an assessment due or should be in default in the performance of any of the terms of the Declaration, the rules or regulations of the Association or the By-Laws for a period of thirty (30) days, said member's right to vote shall be suspended and shall remain suspended until all payments are brought current and all defaults remedied. In addition, the Association shall have any other remedies against such delinquent Owners as may be provided for by the Articles, By-Laws or Declaration.

8.3 OWNERS AND ASSOCIATION RIGHTS AND REMEDIES. Any Owner of any Lot and the Association shall have all rights and remedies available to it in law and in equity to enforce this Declaration, the Articles and By-Laws against any Owner not in compliance therewith. The prevailing party in any action brought to enforce the Covenants contained in this Declaration

shall have the right to collect attorney's fee court costs, and other expenses of litigation, in addition to any damages which may be awarded.

8.4 ENFORCEABILITY BY CITY OF LONGVIEW. The City is a third-party beneficiary to this Declaration and shall have the right but not the obligation to enforce the provisions of this Declaration listed below:

ARTICLE:	SECTION:
III	3.1
III	3.2
III	3.3
III	3.4
III	3.5
III	3.6
III	3.7
III	3.8
III	3.9
III	3.10
III	3.11
III	3.12
III	3.13
III	3.14
III	3.15
III	3.16
III	3.17
III	3.18
III	3.19
III	3.20
IV	4.2
IV	4.8
VI	6.1
VI	6.2
VI	6.3
VI	6.5
VI	6.7
XI	11.8

8.5 Each Owner shall indemnify, defend and hold the Association harmless from and against all losses, liabilities, claims (including mechanics or materialmen losses), costs (including attorneys fees), actions or damages incurred by the Association as a result of any breach of this Declaration by such Owner or arising out of any personal injury or property damage caused by or arising out of such Owner's use of the Common Area.

ARTICLE IX
UTILITIES

There is reserved to the utility district or utility company providing utility service, when such utility district or utility company serves The Park, the right to connect improvements upon the Lots with the utility service lines, for which service the Owner shall pay the then prevailing price for such connections as charged by such utility district or utility company.

ARTICLE X
INSURANCE

The Association shall have the authority to and may obtain insurance for the Common Areas against loss or damage by fire or other hazards in an amount sufficient to cover the full replacement in the event of damage or destruction. It may also obtain a broad form public liability policy covering the Common Areas. All such insurance coverage shall be written in the name of the Association as trustee for the Owners. Cost of the insurance shall be a Common Expense.

ARTICLE XI
MISCELLANEOUS

11.1 RULES AND REGULATIONS. The Association and/or its Board of Directors is hereby authorized and empowered to adopt rules and regulations governing the use of the Common Areas. All Owners shall be given written notice of such rules and regulations.

11.2 WAIVER. The failure to enforce any Covenant contained in this Declaration shall not be deemed a waiver of the right to enforce such a Covenant.

11.3 SEVERABILITY. If any Covenant contained in this Declaration is held invalid, the remainder of the Declaration shall not be affected and shall continue in full force and effect.

11.4 CAPTIONS. The captions in the Declaration are inserted only as a matter of convenience and for reference, and in no way describe, define, or limit the intent of this Declaration. The captions are not to be used in interpreting this Declaration.

11.5 MUNICIPAL ORDINANCES. These Covenants shall in no way restrict the effect of any ordinance adopted by a municipal corporation having jurisdiction over any portion of the Property subject to this Declaration.

11.6 INTERPRETATION. Except as to the City of Longview, the Association shall have the right to determine all questions arising in connection with this Declaration and to construe and interpret the provisions of this Declaration. Its reasonable determination, construction, or interpretation of this Declaration shall be final and binding on all parties except the City of Longview.

11.7 AMENDMENT. This Declaration may be amended only by a written instrument duly recorded with the Cowlitz County Auditor's office. A proposed amendment must be approved by a simple majority of the total votes of owners (including the City of Longview to the extent of its ownership of Lots) and shall not contravene any condition of the plat approval established by the City of Longview. Notification of any termination, extension, modification, or amendment shall be provided to the Longview Department of Community and Economic Development, and if the termination extension, modification, or amendment constitutes a major change such termination, extension, modification, or amendment shall not become effective until approved by the City of Longview after review and recommendations by the Longview Planning Commission. Any amendment to this Declaration imposing more onerous restrictions or any method of imposing or amount of assessments other than as permitted herein as to any Lot, shall require the unanimous approval of the Owners.

11.8 CERTAIN AMENDMENTS SUBJECT TO APPROVAL BY WEYERHAEUSER CORPORATION OR ITS SUCCESSOR.
The provisions of Article III, Section 3.2 may not be amended or modified without the approval of 70% of all of the Owners of Lots, and the written approval of Weyerhaeuser Company or its successor.

11.9 ADDITIONAL AMENDMENTS SUBJECT TO APPROVAL BY CITY OF LONGVIEW.
The covenants listed in Article 8.4 herein shall not be modified, amended or deleted without approval by the Longview City Council. Further, if by way of amendment to this Declaration, the maintenance of storm drainage facilities, landscaping street medians and street rights-of-way beyond the pavement edge is materially modified, such amendment shall not become effective until approved by the City of Longview Department of Community and Economic Development, such approval not to be unreasonably withheld.

IN WITNESS WHEREOF, the undersigned Declarant has executed this October 2001, Amended and Restated Declaration this day of 10/9/, 2001.

City of Longview, Washington

By: _____
City Manager

Attest: _____
City Clerk

Approved as to form:

_____
City Attorney

APPROVAL OF AMENDMENT

The foregoing "OCTOBER, 2001 AMENDED and RESTATED DECLARATION OF PROTECTIVE COVENANTS, CONDITIONS, RESTRICTIONS, EASEMENTS, AND AGREEMENTS FOR THE MINT FARM INDUSTRIAL PARK, PLAT NO. 1" is hereby approved by the following property owners, each having the number of votes as indicated below:

Dated this 2 day of October, 2001.
City of Longview, Washington
Owner of 29.21 acres, and having 127 votes:

By: _____
City Manager

Dated this 2 day of October, 2001.
Prudential Steel, Inc,
Owner of 34.71 acres, and having 151 votes:

By: _____
VP GM
Title

Dated this __day of October, 2001.
Nitta Gelatin, Inc,
Owner of 8.93 acres, and having 39 votes:

By: _____ for KENJI KAMEDA
NITTA
Title

Dated this __day of October, 2001.
Mint Farm Generation, LLC
Owner of 11.42 acres, and having 50 votes:

By: _____

_____
Title

Dated this __day of October, 2001.
Toyocom Devices of America, Inc,
Owner of 8.40 acres, and having 37 votes:

By: _____

PRESIDENT
Title

Dated this __day of October, 2001.
Mint Farm Generation, LLC
Owner of 11.42 acres, and having 50 votes:

By: _____
VICE PRESIDENT
Title

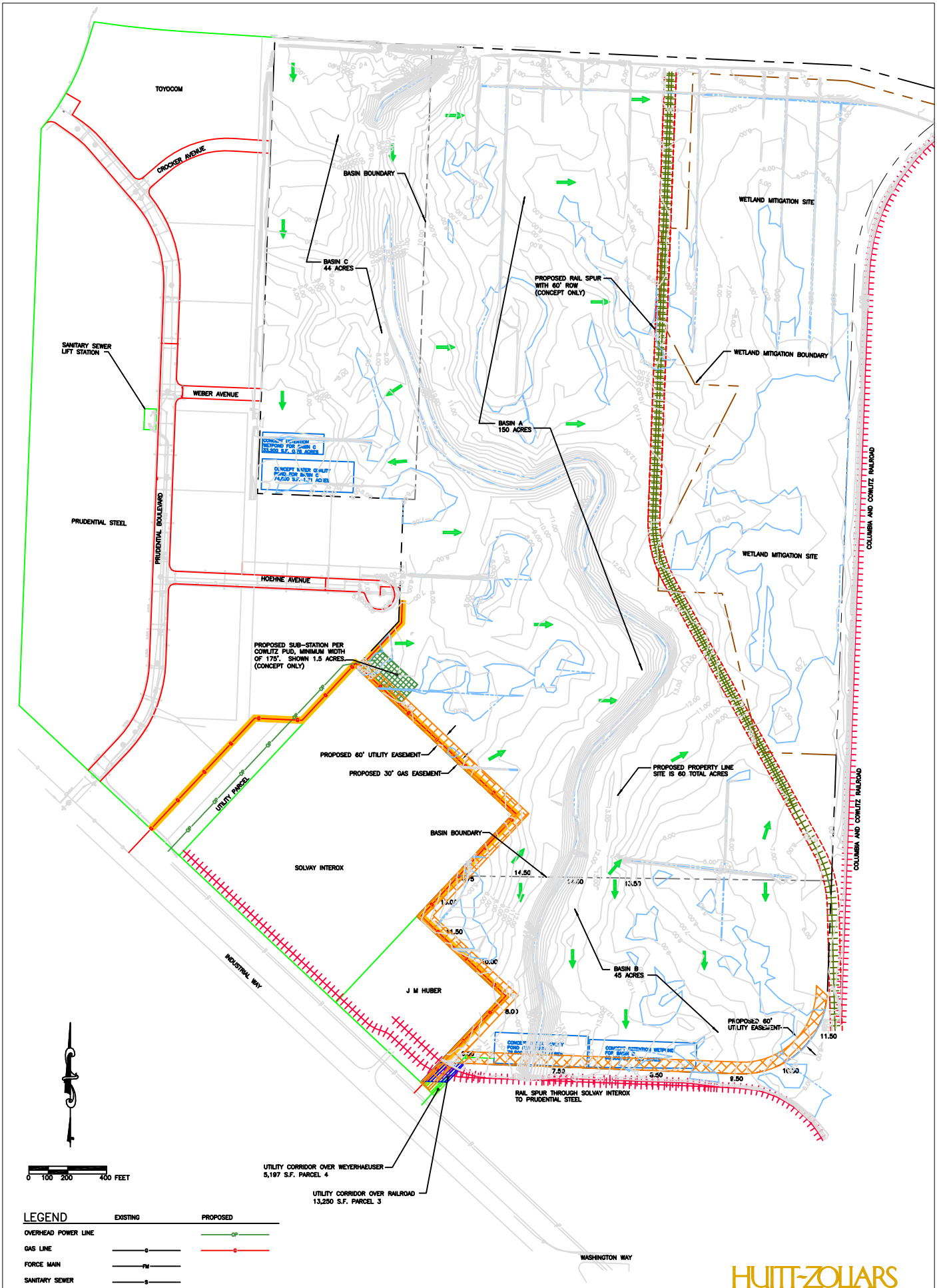
Dated this __day of October, 2001.
Toyocom Devices of America, Inc,
Owner of 8.40 acres, and having 37 votes:

By: _____
PRESIDENT
Title

NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

SEPA CHECKLIST

TAB 6: MINT FARM PHASE II STORMWATER DRAINAGE PLAN



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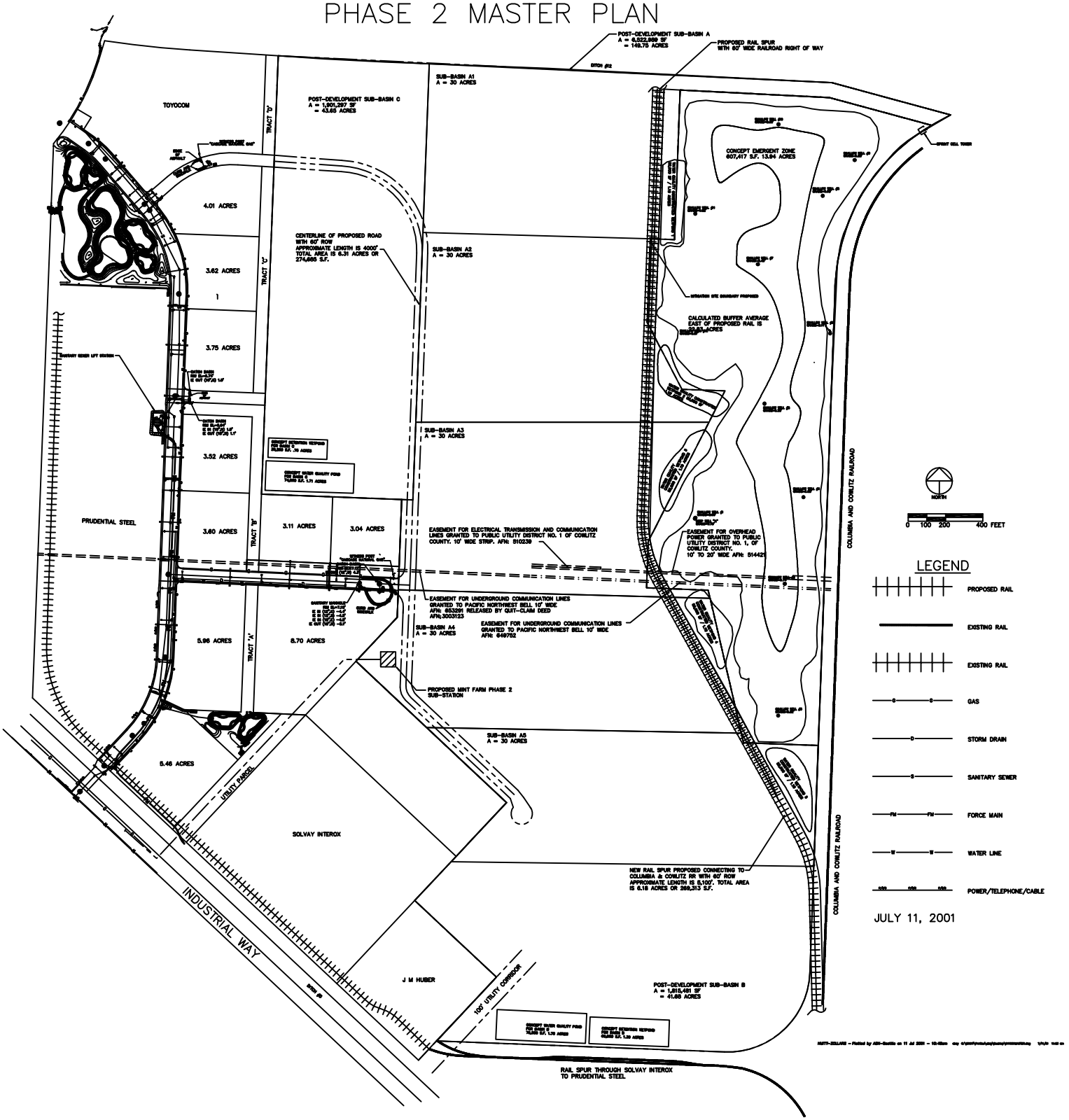
PHASE 2 MASTER PLAN



NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

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TAB 7: MINT FARM WETLAND MITIGATION SUMMARY

MITIGATION SUMMARY
PHASE TWO- THE MINT FARM INDUSTRIAL PARK
CITY OF LONGVIEW, COWLITZ COUNTY, WASHINGTON

This Section contains a brief summary of the wetland mitigation permits. The permits should be reviewed for actual requirements.

Phase Two of the Mint Farm Industrial Park project site is approximately 300 acres in size and comprises the central and eastern portions of the approximately 445 acre site commonly referred to as the "Mint Farm". Phase One, the western approximately 125 acres of the "Mint Farm," is owned by the City of Longview and is currently being developed into the first part of this overall industrial park facility. The services, utilities, infrastructure, and associated roadways planned and developed as a part of Phase One have been sized to support and facilitate the Phase Two development. Phase One filling was authorized by Department of the Army Permit Number 1996-4-00177.

An assessment of the Phase Two project area was completed between 1996 and 1999. This assessment resulted in the identification of 35 wetland areas totaling 47.8 acres onsite. This assessment program included an evaluation of the functions and value ratings for each identified area.

The Preferred Action Alternative will unavoidably impact 25.35 acres of onsite wetland area. As compensation for this unavoidable impact a total of 22.5 acres of existing onsite wetland will be restored/enhanced and a total of 29.2 acres of new wetland area will be created onsite. This scenario will provide a wetland area replacement ratio of better than 1.5 to 1 (replacement to modified) and a wetland restoration ratio of 3.0 to 1.0 (restored to modified). In addition, this scenario will increase diversity of plant communities and wildlife habitats available within the project site while creating a single contiguous wetland and associated buffer area. To help determine if the wetland creation/restoration project successfully meets the established performance criteria a ten-year monitoring program will be undertaken. This monitoring program includes contingency provisions should any of the performance criteria not be met.

TOTAL AMOUNT OF ONSITE WETLAND	TOTAL AMOUNT OF WETLAND UNAVOIDABLY IMPACTED	TOTAL AMOUNT OF WETLAND BEING CREATED ONSITE	TOTAL AMOUNT OF WETLAND BEING RESTORED/ENHANCED ONSITE	TOTAL AMOUNT OF AREA ESTABLISHED ONSITE AS A PART OF THE MITIGATION PROGRAM (WETLAND AND BUFFER)
47.8 acres	25.4 acres	29.2 acres	22.5 acres	66-67 acres

MITIGATION SITE CHARACTERISTICS

Existing Conditions: The site selected for the compensatory mitigation area has managed for agricultural activities for several decades. These activities have not been abandoned and an actively managed and actively grazed pasture plant community presently dominates the project site.

Mitigation Site Hydrology: Onsite assessments have identified that the majority of the area does not exhibit ponded surface water into the growing season, though these areas do appear ponded for short periods during seasonal storm events. The onsite wetlands exhibit a seasonally flooded water regime. Such seasonal flooding appears to be prolonged by the invert elevations of culverts installed within the ditches and the level of surface water within the adjacent regional drainage ditch system. The onsite wetlands are generally dry, but often saturated to near the surface, from early to mid-summer through fall.

While the upland portions of the proposed mitigation site are somewhat drier than other areas within Phase Two, the difference is based on elevation differences of only a couple feet. These areas are intricately intermixed with associated wetlands that comprise one-third of the proposed mitigation site. Site grading and augmentation of flows from stormwater conveyance systems are proposed to provide the hydrology necessary to support the proposed wetlands mitigation habitats. We estimate drainage from approximately 150 acres can be directed to and through the mitigation site, after pre-treatment in treatment ponds at the site's periphery.

Mitigation Site Vegetation: Seeded and invasive grasses and herbs dominate the plant community identified within the selected mitigation area. Himalayan blackberry is also invading this area, primarily in the higher areas. The onsite plant community is actively managed for the production of pasture for domestic livestock. Such management actions include the mowing of invasive weeds and shrubs, and the maintenance of the field ditches.

The northern boundary of the project area, immediately north of the selected mitigation area, is dominated by a band of Douglas fir trees. These trees were densely planted to provide a screen between the project area and the single-family residential area north of the project site.

Mitigation Site Soils: Onsite assessment defined the soil characteristics within the proposed mitigation site as hydric in character. Soil texture was silty loam, silty clay loam, and peaty loam. Faint and very week redoximorphic feature were present (i.e. mottles, concretions). Past onsite land uses have included clearing, plowing, seeding, and ditching and appeared to have acted to influence the hydric character of the soil within the selected mitigation wetland area.

The hydric character of the soils within the proposed mitigation areas will benefit the establishment of a viable wetland community once wetland hydrology is reestablished. Existing surface soils within the project area will be used to re-contour the final grading of the created mitigation areas.

DETAILED DESCRIPTION OF THE COMPENSATORY MITIGATION PLAN

1. As compensation for the unavoidable modification of onsite wetlands approximately 29.2 acres of compensatory mitigation wetland area is intended to be created and directly connected to the proposed stormwater management facilities (Sheet 11). In addition, 22.5 acres of existing wetlands will be preserved and enhanced.

2. The compensatory wetland is proposed to be created within an area presently dominated by active agricultural pasturage. The existing vegetation community within the area selected for wetland mitigation is dominated by seeded and invasive grasses and herds. Invasive shrubs (i.e. Himalayan blackberry) are also present within this existing community.

The mitigation wetland will be created through the excavation of specific onsite areas and surface water input controls as a part of the onsite stormwater management plan. By suggestion of both COE and DOE staff, permanent open water features will not be created. This mitigation area is intended to be hydrologically connected to the adjacent regional drainage system via a direct surface water connection. In addition, the selected location for the mitigation wetland will allow movement of wildlife into adjacent habitats without the need to cross a substantial development (i.e. paved roadway). Site-specific excavation will focus on the creation of a mixed and structurally complex plant community. Following excavation of the mitigation area, hydric soils taken from onsite will be relocated into the excavated area and contoured to form desired wetland elevations. The relocation of existing hydric soils will help wetland creation success through the use of appropriate soils. These soils will likely contain the wetland plants, roots, and seeds to help establish a wetland plant community.

3. The selected plant communities proposed to be planted within the compensatory wetland area are proposed to contain a mixture of native emergent, shrub, and trees species common to the local area. Characteristics of several wetland and upland habitats will be targeted by the re-grading and planting activities (see Sheets 14 and 15). The selected species are planned to increase species diversity and wildlife habitats (i.e. feeding, nesting, cover), while also enhancing the local and downstream water quality through increased biofiltration.

4. Currently, the City of Longview proposes a construction schedule that provides most of the mitigation ahead of the associated wetland filling. The City has stated they're committed to constructing all of the necessary mitigation in three successive construction seasons. The first phase is proposed to include sufficient mitigation to offset fills required to construct initial project infrastructure occurring during the same construction season. The size of the initial mitigation as well as the subsequent phases are planned to be sufficient to pre-mitigate for impacts of subsequent filling on individual development pads. The intent is to delay filling of those pads to the extent possible consistent with limitations to the length of permit issued by the Corps.

   Onsite planting is planned to be undertaken in two parts. This phased approach is intended to allow for the better establishment of selected communities and place particular attention on the ability of a particular species to survive once planted. Those species more tolerant of direct sunlight at initial planting (i.e. Oregon ash, rose, snowberry) is proposed to be planted during the first planting phase. Those species less tolerant of direct sunlight at initial planting (i.e. Western red cedar, Pacific ninebark) is proposed to be planted during the second planting phase. As presently proposed, the second planting phase will be undertaken at the end of the second year following mitigation site development. The actual timing for the second planting will be dependent upon the results noted during the first and second year monitoring and the overall success of the first planting.

5. A protective buffer along the restored and enhanced wetland and along the retained existing onsite wetlands is intended to be established as a part of this plan. The buffer area is intended to average in excess of 75 feet. These buffer areas are proposed to be planted with a mixture of native shrubs and trees and are planned to serve to protect the created wetland areas while providing additional wildlife habitat and plant species diversity. The establishment of native trees and shrubs will likely assist in the control of reed canarygrass through shading.

6. Water quality facilities are proposed to be located adjacent to, and outside of, the new wetland complex. These facilities will provide a source of hydrology with surface waters entering the created wetland at established surface elevations following biofiltration. Several two-celled wet ponds are proposed to treat and attenuate stormwater prior to release into the wetland complex. Final site grading is planned to allow the passage of surface water without becoming concentrated. Wetland hydrology is intended to be provided by the movement of groundwater on-site and from the direct connection to the adjacent regional drainage system.

7. The created wetland and buffer, once established, should not be mowed or regularly maintained.

8. Temporary and long-term erosion control measures along the proposed buffer edge should be implemented. This includes but is not limited seeding with appropriate grasses and the use of silt fencing during the period prior to the establishment of adequate buffer vegetation.

9. Invasive weed species are proposed to be removed from within the created/restored wetland and buffer areas. This should include the removal Himalayan blackberry during initial wetland and buffer creation, as well as continued removal during the established monitoring period. Special emphasis should be placed on the potential growth of reed canarygrass within the restored wetland and enhanced buffer areas. Removal methods for reed canarygrass is proposed to be implemented should onsite monitoring determine that reed canarygrass has become greater than 10% of the aerial coverage over the site. The grass species selected for initial site seeding have been noted to exhibit success on similar wetland creation/restoration projects to deter the establishment of reed canarygrass.

10. The diversity of wildlife habitats provided by the wetland and buffers are proposed to be enhanced by additional means. Such enhancement is proposed to include the placement of logs, stumps, and upright snags. These large woody debris habitat features are proposed to be placed at a density no less than 5 per acre.

11. Monitoring of the created wetland and buffer areas for a ten year period is planned to assist in determining if the restoration of the wetland and buffers successfully meets the GOAL of the mitigation plan. On-site monitoring should include the formulation of reports which will be provided to the involved agencies. These reports should identify such project elements as the monitoring methods and observations, use of the areas by wildlife, notations about invasive plant species, the need for potential remedial actions, plant community establishment, plant growth and general health, site hydrology characteristics, and photo documentation of the site at consistent locations. This monitoring is proposed to include a contingency plan to remedy created features that do not meet the project's GOAL.

12. The wetland and buffer restoration and enhancement plan allows for the implementation of educational opportunities that can potentially be integrated into the Mint Farm Industrial Park and the City of Longview School District. In addition, short term and long term monitoring allows scientific evaluation of wetland mitigation procedures and plant/wildlife responses to habitat manipulations.

NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

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TAB 8: TRAFFIC ANALYSIS FOR MINT FARM INDUSTRIAL PARK (9-12-96)

Traffic Study

TRAFFIC ANALYSIS
FOR
THE MINT FARM INDUSTRIAL PARK

prepared for:

City of Longview
Longview, WA

prepared by:

Richard Carothers Associates
814 East Pike Street
Seattle, Washington 98122
(206) 324-5500

September 12,1996

PURPOSE

The purpose of this report is to describe the methodology, results, findings, and recommendations of a traffic analysis prepared by Richard Carothers Associates for the proposed Mint Farm Industrial Park. It evaluates the impacts of full build-out of the site (approximately 435 acres) as envisioned by the Master Plan. The report addresses the following traffic-related issues:

- Existing traffic conditions in the vicinity of the project site.
- Estimated number of trips generated by each phase and the full build-out of the development.
- Estimated traffic volume projected for key intersections without the project.
- Traffic impacts of the proposed development, including Intersection Delay and Level of Service (LOS), during A.M. and P.M. peak hours at the key affected by the project.

This report is divided into six sections; 1) project description, 2) existing conditions, 3) methodology, 4) results of analysis, 5) conclusions, and 6) mitigation.

Based on the results of the traffic analysis described in this report, it is concluded that build-out of the first phase of the project would trigger unacceptable Level of Service (E or worse) at two nearby intersections- Ocean Beach Highway at 38th Avenue and the intersection of Industrial Way and Oregon Way. Additional intersections would be impacted by the full proposed build-out of 435 acres.

Project Description

The Mint Farm Project is a Light Industrial development that is expected to be completed in four phases, see Figure 1. Phase One includes the development of 125 acres that will immediately follow the completion of the appropriate studies and when required permits are issued. Phase One represents the land currently owned by the City of Longview. Future phases are provisional, with the expectation they will be developed by the city, by the current owner Weyerhaeuser, or by other parties. Phase Two would cover approximately 266 acres of land and is projected to occur in about six years. Phase Three includes the completion of 365 acres and is estimated to occur in twelve years. The fourth and the final phase is projected to occur in about twenty years, completing development of the 435 acres available.

The site will have two entrances through the end of Phase Three. One entrance will be on Industrial Way (SR 432), approximately half a mile east of the signalized intersection with 38th Avenue. The other entrance will be located on 38th Avenue just south of the intersection with Memorial Park Drive. Modeling for Phase Four assumes a third entrance to be introduced on Washington Way. For each given phase, there are separate projections for A.M. and P.M. traffic at each entrance. The directional distribution of traffic is indicated for each entrance.

Existing Conditions

The project is fronted on three sides by existing streets. The southwest edge is adjacent to Industrial Way/State Route 432, a four lane road managed by the Washington Department of Transportation (WSDOT). The northwest edge fronts on 38th Avenue, a high-capacity, two

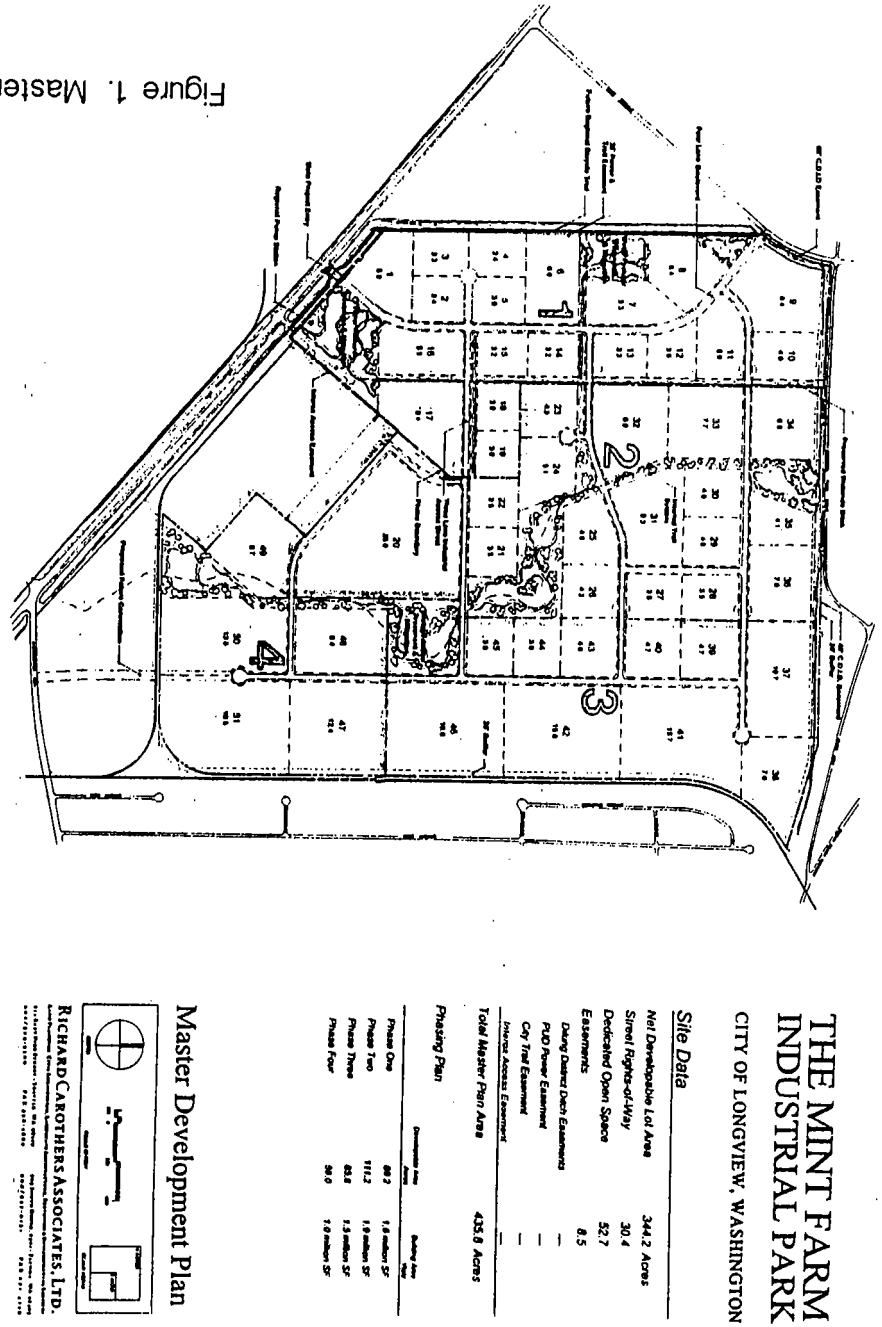


Figure 1. Master Plan

lane collector street. Neither street has curbs or sidewalks in the area of the project. The north project boundary is largely adjacent to Memorial Park Drive, a residential street, intended for the local traffic. This street also provides an alternate commuter access from city center to the industrial uses along western Industrial Way. The volume and speed of this commuter traffic reportedly conflicts with the residential character of the adjacent neighborhood.

This study evaluates ten intersections which are likely to be impacted by the growth of traffic from the Mint Farm site, see Figure 2. These intersections are nearby the site on streets likely to carry most of the commuter traffic, or are key intersections between the site and the Interstate 5 corridor. For each intersection, the following were recorded in the field: the layout of the intersection (including number of lanes), the speed limit for the approaching traffic, number of turning lanes, the location of bus stops within the intersection area, pedestrian cross-walk, parking movements within the intersection areas, and/or any other element that may influence the traffic movements.

All intersections in this study are signalized except for intersections of 38th Avenue and Memorial Park Drive, and Ocean Beach Highway and Olive Way. All signalized intersections included in this study are actuated except for the intersection of Washington Way and 32nd Avenue. However, this information was not entered into the analysis method. Detailed information on the layout each intersection is graphically presented in the appendix.

Methodology

Assumptions

The Peak-Hour Factor (PHF) which is defined as the ratio of total hourly volume to the maximum 15-min rate of flow within, was calculated for each intersection. The calculation was based on the current traffic volume available for each movement within the intersection. The assumption is that the calculated PHF will remain the same for the future conditions as well.

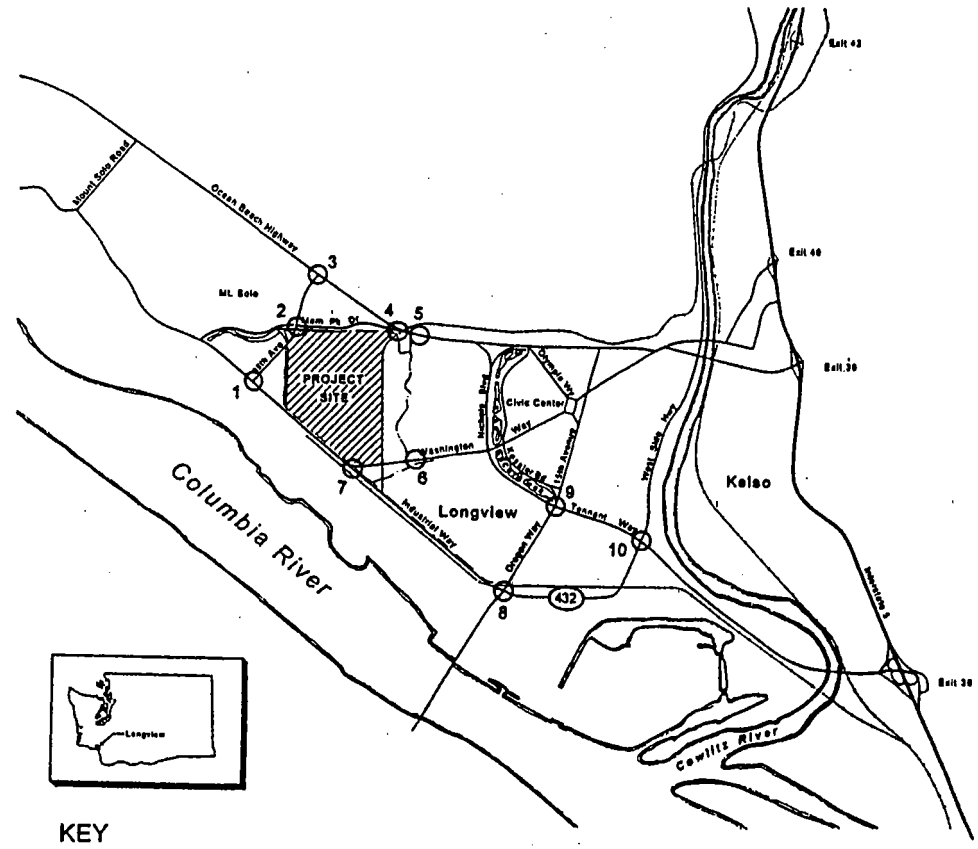
The Highway Capacity Software (HCS) considers 2% heavy traffic within each movement. This number was adjusted for those intersections where the future traffic is expected to carry heavy vehicles at a rate higher than 2%.

The HCS program does not accept any number less than 7 or 8 for the traffic volume in analyzing traffic movements using signalized option. Therefore some traffic volumes had to be manually adjusted in order to utilize the software.

Data Collection

Phased potential impacts of the project were evaluated at ten key intersections. Traffic counts of the current condition were conducted by the City of Longview crew. Traffic counts were taken for the following intersections except for the T-intersection of Ocean Beach Highway and Olive Way:

Industrial Way (SR 432) & Washington Way	Industrial Way & 38th Avenue
38th Avenue & Memorial Park Drive	38th Avenue & Ocean Beach Hwy. (SR 4)



KEY

1 - INDUSTRIAL WAY & 38TH AVENUE
2 - 38TH AVENUE & MEMORIAL PARK DRIVE
3 - 38TH AVENUE & OCEAN BEACH HWY.
4 - OCEAN BEACH HWY. & OLIVE WAY
5 - OCEAN BEACH HWY. & 32ND AVENUE
6 - 32ND AVENUE & WASHINGTON WAY
7 - WASHINGTON WAY & INDUSTRIAL WAY
8 - INDUSTRIAL WAY & OREGON WAY
9 - TENNANT WAY & 15TH AVENUE
10 - 3RD AVENUE & TENNANT WAY (FRONTAGE ROAD)

Figure 2. Intersection Study Locations

Ocean Beach Hwy. & Olive Way	Ocean Beach Hwy. & 32nd Avenue
32nd Avenue & Washington Way	Industrial Way & Oregon Way
3rd Avenue & Tennant Way (frontage road)	Tennant Way & 15th Avenue

The traffic counts were taken on weekdays, Tuesday through Thursday, by the mechanical method of road tubes and subsurface detectors for a twelve hour period, 6:00 A.M. to 6:00 P.M.

Traffic Projection

Future traffic projection from the proposed development of the Mint Farm site is based on the Trip Generation Manual by the Institute of Transportation Engineers (ITE), 5th Edition, Land Use 130, Industrial Park, is characterized as a mix of manufacturing, services, and warehouse facilities. The average vehicle trip end versus acres indicates an average rate of 10.09 per acre for the morning peak hour. This rate is estimated based on the peak hour of adjacent street traffic. The directional distribution for the morning peak hour is 82% entering, and 18% exiting the site. The estimated traffic rate for the afternoon peak hour is 10.48 per acre. This rate is also based on the peak hour of adjacent street traffic per ITE manual. The directional distribution rate for the afternoon peak is 21% entering, and 79% exiting.

As shown in Figure 3, there are two entrances to the site through the end of phase three. Industrial Way (SR 432) is the location of entrance 'A.' It is assumed that 60% of the total traffic generated by the development of the Mint Farm site will use this entrance for entering and exiting the site. The other assumption is that approximately 70% of the proposed generated trips, originated at this entrance, would come from traffic moving to and from the east. The remaining 30% originate from traffic traveling to and from the west.

The proposed entrance on 38th Avenue is entrance 'B' in this study. This proposed entrance is approximately 500 feet south of the intersection of 38th Avenue and Memorial Park Drive. Based on the above assumption, the remaining 40% of the traffic generated by the project will use this entrance for entering and exiting the site through the beginning of development for Phase Four. Again, 70% of the generated trips at this entrance will originate from those coming from and destined north. The remaining 30% originate from those coming from and destined south.

The third entrance on Washington Way is assumed to be constructed during the development of Phase Four. It is assumed that once this entrance is developed, approximately 35% of the total traffic generated by the build-out condition will enter and exit through this exit. The proportion of the traffic for the other two entrance will be 35% at entrance 'B' and 30% at entrance 'A'. From the total traffic volume at entrance 'C' about fifty percent of the generated trips will originate from and be destined to the east. The remaining 50% will be from those heading to and from the west. These assumptions are carried on for Phase One through Phase Four, which is the build-out condition.

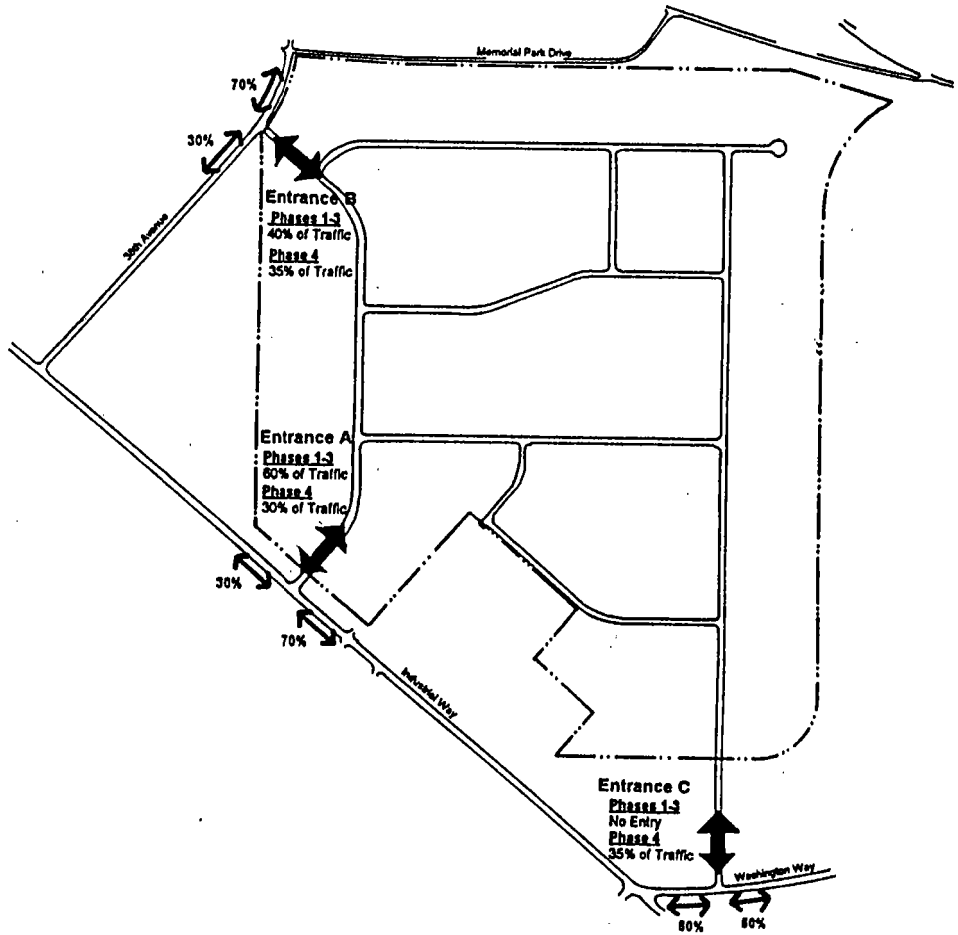


Figure 3. Traffic Distribution

Entrance 'A'		Phase I			Phase II		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	96	534	630	396	924	1320
	Out	86	41	127	203	87	290
PM	In	50	115	165	105	246	351
	Out	559	62	621	925	396	1321

Entrance 'A'		Phase III			Phase IV		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	544	1268	1812	325	757	1082
	Out	278	120	398	167	71	238
PM	In	145	337	482	87	200	287
	Out	1269	544	1813	758	325	1083

Entrance 'B'		Phase I			Phase II		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	289	124	413	616	264	880
	Out	27	64	91	58	136	194
PM	In	77	33	110	164	70	234
	Out	124	290	414	264	617	881

Entrance 'B'		Phase III			Phase IV		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	846	362	1208	884	379	1263
	Out	80	185	265	83	194	277
PM	In	225	96	321	235	101	336
	Out	363	846	1209	379	885	1264

Entrance 'C'		Phase I			Phase II		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	---	---	---	---	---	---
	Out	---	---	---	---	---	---
PM	In	---	---	---	---	---	---
	Out	---	---	---	---	---	---

Entrance 'C'		Phase III			Phase IV		
		Left Turn	Right Turn	Total	Left Turn	Right Turn	Total
AM	In	---	---	---	631	632	1263
	Out	---	---	---	139	138	277
PM	In	---	---	---	168	168	336
	Out	---	---	---	632	632	1264

Method of Analysis

Analysis of the capacity and level of service for the above intersections is based on the ***Planning Analysis*** method of the Highway Capacity Manual. The main goal of this report is to project whether or not the intersections are likely to be over saturated. This method provides reasonably detailed results that determine the advance planning requirements to reduce the adverse impacts of the development of the Mint Farm project.

Level Of Service (LOS) analysis was performed for each signalized intersection for the existing condition and for the future scenarios from Phase One through the ultimate developed condition. To evaluate traffic conditions at the study intersections, capacity analyses were conducted using Highway Capacity Software (HCS) programs that are based on the 1985 Highway Capacity Manual. Print outs of the analysis forms are provided in the appendix.

According to the *Highway Capacity Manual*:

> *Capacity* at intersections is defined for each traffic approach. Intersection approach capacity is the maximum rate of flow (for the subject approach) which may pass through the intersection under prevailing traffic, roadway, and signalization conditions. The rate of flow is generally measured or projected for a 15-minute period, and capacity is stated in vehicles per hour.
>
> Level of service for signalized intersections is defined in terms of *delay*. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Specifically, level-of-service criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period. The criteria are given in the following table.

Level of Service	Stopped Delay Per Vehicle (sec)
A	≤ 5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	> 60.0

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the *v/c* (volume/capacity) ratio for the lane group or approach in question.

Level-of-service A describes operations with very low delay, i.e., less than 5.0 sec per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase.

Level-of-service B describes operations with delay in the range of 5.1 to 15.0 sec per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

Level-of-service C describes operations with delay in the range of 15.1 to 25.0 sec per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level-of-service D describes operations with delay in the range of 25.1 to 40.0 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high *v/c* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level-of-service E describes operations with delay in the range of 40.1 to 60.0 sec per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high *v/c* ratios. Individual cycle failures are frequent occurrences.

Level-of-service F describes operations with delay in excess of 60.0 sec per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high *v/c* ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Level of service for unsignalized intersections is defined as follows:

Level of Service Criteria for Unsignalized Intersections

Level of Service (LOS)	Stopped Delay Per Vehicle (sec)
A	≤ 5.0
B	5.0 and ≤ 15.0
C	>10.0 and ≤ 20.0
D	> 20.0 and ≤ 30.0
E	> 30.0 and ≤ 45.0
F	> 45.0

For each intersection only the largest traffic volume of peak hour in the morning or afternoon is considered.

To estimate the directional distribution of the trips that would be generated by the proposed development, it was assumed that the trips would be distributed in proportion to the traffic volumes already modeled by transportation planners of Cowlitz-Wahkiakum Council of Government (CWCOG) for the entire region. Therefore, the projection of the proposed traffic generated throughout the development of the Mint Farm project was distributed through the intersections according to the computer modeling already in place by CWCOG.

The traffic modeling of the projected traffic was done using TMODEL2 transportation modeling system by TMODEL Corporation. The TMODEL2 system may be used to model a regional system or to analyze the impact of a localized development based on the land use. TMODEL2 distributes trips according to the most likely paths or route between zones and is designed to develop a peak hour model.

In order to include the projected traffic counts in the County system, they were converted from the peak hour traffic to average daily traffic (ADT) count. According to CWCOG, the factor of 10% has been used by different consultants and agencies for the traffic study in the city area. Therefore, the conversion factor used in this study to convert peak hour traffic to ADT is 10% as well. Once the results of the traffic modeling were available, they were converted back into Peak Hour traffic counts in order to be studied with the rest of the information.

RESULTS OF ANALYSIS

Each intersection selected for analysis is described below. Current conditions are described in detail. Graphic plans of these configurations are included in the appendix to this report. Tabulations of current and projected turning movements through each intersection are shown, compositing traffic generated by the project with existing loads and projected background growth. Lastly, Intersection Delay and Level of Service are tabulated, both with and without the phased project.

Memorial Park Drive at 38th Avenue

The intersection of Memorial Park Drive and 38th Avenue is an unsignalized intersection with 38th Avenue as the road with the main traffic. Unprotected left turn lanes are provided on 38th Avenue. This street also has a pedestrian crosswalk on the north end of the intersection. Memorial Park Drive, east of 38th Avenue, is an urban road with two wide lanes, street curbs on both sides, and a set-back sidewalk on the north side. To the west of 38th Avenue, Memorial Park Drive remains as a secondary undeveloped road. The pavement is narrower on this section and there are no curbs or sidewalks. At the time of the site visit, there were no cars parked on Memorial Park Drive near this intersection, although parking is permitted on both sides.

There are sidewalks on each side of 38th Avenue, north of Memorial Park Drive. Two foot shoulders extend out from the edges of the travel lanes on 38th Avenue, south of Memorial Park Drive. There are no sidewalks or any type of adjacent development on the road between Industrial Way and Memorial Park Drive.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	5	132	8	12	1	5	5	324	42	5	2	1	542
Phase I	29	802	4	35	1	5	5	423	51	5	2	1	1392
Phase II	35	911	4	43	2	5	5	433	56	5	2	1	1502
Phase III	35	1003	4	43	2	7	5	623	56	5	2	1	1784
Phase IV	47	1142	7	59	4	14	6	794	78	7	3	2	2163

Memorial Park Drive at 38th Avenue	INTERSECTION DELAY (sec/veh)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	0.4 (LOS = A)	2.1 (LOS = A)	5.8 (LOS = B)	24.6 (LOS = C)	194.2 (LOS = F)
Without Project	LOS = A	LOS = A	LOS = A	LOS = A	LOS = A

Industrial Way at 38th Avenue

Industrial Way and 38th Avenue is a signalized intersection with protected left turn lanes on all legs of the intersection. Industrial Way (SR 432) is a four lane major arterial before and after this intersection. The four lanes are supplemented by a 4 foot shoulder for turning movements on each side, a drainage channel on the north side and a railroad track along the south side. There is a deceleration lane provided for the traffic westbound on SR 432 that becomes a free right turn lane at the intersection. There is a pedestrian crosswalk with high vicinity marking crossing SR 432 at the west leg of the intersection. There is a railroad crossing immediately south of the intersection on 38th Avenue.

South of the intersection, 38th Avenue becomes the main entrance to Reynold's Aluminum site. Each side of the road has street curbs and open space. 38th Avenue becomes wider at the intersection to accommodate the following: a right turn lane onto southbound SR 432, a through lane for traffic going to the Reynold's Aluminum site, a protected left lane to SR 432 for southbound traffic, a single lane for northbound traffic from the Reynold's Aluminum site, and the traffic turning left from eastbound 38th Avenue onto southbound SR 432. A striped island that separates the right turn traffic from the southbound traffic on 38th Avenue.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	2	28	21	1	190	33	229	142	6	75	72	80	879
Phase I	526	58	274	3	369	150	250	167	9	71	81	67	2025
Phase II	534	58	282	3	371	155	253	167	12	77	83	64	2059
Phase III	545	58	288	3	290	157	253	167	12	77	85	64	2099
Phase IV	567	58	309	8	405	164	253	178	12	79	88	83	2204

Industrial Way at 38th Avenue	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = C	LOS = C	LOS = C	LOS = D
Without Project	LOS = B	LOS = B	LOS = B	LOS = B	LOS = B

Industrial Way at Washington Way

Industrial Way is a four lane arterial road before and after the intersection. The far right lane of westbound traffic turns into a deceleration lane and then becomes a right turn lane onto Washington Way. A raised island separates this lane from the rest of the intersection immediately before Washington Way. All four legs of this signalized intersection include protected left lanes.

Eastbound Industrial Way (SR 432) becomes three lanes at the intersection; a free right turn, a through lane, and a protected left lane. A painted island separates the right turn lane from the rest of the intersection. Located on SR 432, at the east side of the intersection, is a pedestrian crosswalk. SR 432 includes a four foot paved shoulder on each side of the pavement.

Washington Way is a two lane road that widens at its intersection with SR 432. The far right southbound lane divides into a free right turn lane onto SR 432 and a through lane. Heading westbound, there is also a protected left turn lane into SR 432. On the north side of the intersection, a wide single lane accepts traffic from the right turn lane of eastbound SR 432 and left turn lane traffic of westbound SR 432. In addition, the through traffic from northbound Washington Way enters this lane after clearing the intersection. There is also a railroad crossing on Washington Way, immediately south of the intersection.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	30	22	133	23	373	134	16	84	32	149	249	7	1252
Phase I	173	656	15	45	35	141	37	496	222	19	93	46	1978
Phase II	188	682	15	49	37	141	41	469	235	21	95	52	2025
Phase III	196	695	19	58	42	141	41	558	243	21	95	52	2161
Phase IV	255	705	24	74	57	412	53	709	254	32	102	65	2742

Industrial Way at Washington Way	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = B	LOS = B	LOS = B	LOS = E
Without Project	LOS = B	LOS = B	LOS = C	LOS = C	LOS = D

Ocean Beach Highway at Olive Way

This is an existing three-way, unsignalized intersection. It has an unprotected left turn lane for the northwest bound traffic on Ocean Beach Highway onto Olive Way, and a stop sign on Olive Way for the traffic entering Ocean Beach Highway. About 175 feet from this intersection to the south, Nebraska Street intersects Ocean Beach Highway in another three-way junction.

Ocean Beach Highway is a four lane urban road with a two-way turning lane in the middle. The two-way turning lane becomes an unprotected left turn lane for the traffic traveling northwest bound making a turn onto Olive Way. The left turn option is prohibited to southeast bound traffic on Ocean Beach Highway. There is no parking allowed on either side of Ocean Beach Highway, in the vicinity of this intersection.

Olive Way is a two lane residential street with street parking on both sides except in the vicinity of the intersection.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present													
Phase I				76	1134		35		47		1707	3	3078
Phase II				88	1230		38		54		1719	3	3132
Phase III				102	1598		43		64		1723	7	3544
Phase IV				144	1503		56		73		1723	14	3513

Ocean Beach Highway at Olive Way	INTERSECTION DELAY (sec/veh)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	N/A (Not Available)	6.9 (LOS = B)	10.9 (LOS = C)	21.9 (LOS = D)	62.9 (LOS = F)
Without Project	N/A	—	—	—	—

Washington Way at 32nd Avenue

This is a signalized intersection with a single phase traffic signal and protected left turn lanes at the intersection on 32nd Avenue. Washington Way remains a four lane road at this intersection with no separate left turn from through lanes. This intersection is located within a residential neighborhood and the pedestrian crossing volume is higher than any other intersection covered in this study.

Sidewalks and handicap ramps are located on all four sides of this intersection. 32nd Avenue is a two lane collector road.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	57	105	32	43	273	116	23	112	28	91	285	15	1180
Phase I	65	139	40	49	235	289	31	158	37	103	311	21	1478
Phase II	78	156	47	57	267	390	35	163	42	116	323	25	1699
Phase III	84	167	47	64	306	393	42	171	46	129	348	42	1839
Phase IV	87	173	52	94	548	478	90	184	54	231	550	87	2610

Washington Way at 32nd Avenue	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = B	LOS = B	LOS = B	LOS = * over capacity
Without Project	LOS = B	LOS = B	LOS = B	LOS = B	LOS = B

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

Ocean Beach Highway at 32nd Avenue

The signalized intersection of Ocean Beach Highway and 32nd Avenue contains controlled left turns on Ocean Beach Highway moving in both directions. All four directions of traffic have protected left turn lanes. A railroad crosses 32nd Avenue north of Ocean Beach Highway, and also Ocean Beach Highway east of 32nd Avenue.

32nd Avenue is a two lane collector road whose speed limit is 35 mph. Ocean Beach Highway is a four lane urban road that has a two-way turning lane in the center. The center lane then turns into a protected left turn lane at the intersection. East of 32nd Avenue, Ocean Beach Highway's speed limit is 35 mph, and 40 mph west of 32nd Avenue.

Crosswalks line every side of the intersection except on the west. Handicap ramps are at every corner of the intersection that includes a crosswalk. A plant strip separates a side walk/bike route that lines both sides of Ocean Beach Highway, and the urban road. The sidewalks along 32nd are not set-back

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	40	44	41	103	997	28	227	888	109	40	780	74	2571
Phase I	39	74	25	217	701	33	42	394	50	222	906	263	2966
Phase II	44	82	31	223	803	43	42	397	55	232	912	261	3126
Phase III	47	85	34	226	814	43	47	404	65	235	1012	267	3279
Phase IV	56	106	44	248	1035	57	56	479	82	336	1102	275	3876

Ocean Beach Highway at 32nd Avenue	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = C	LOS = C	LOS = C	LOS = E
Without Project	LOS = B	LOS = B	LOS = B	LOS = D	LOS = C

NODE 118

Ocean Beach Highway at 38th Avenue

All sides of the signalized intersection of Ocean Beach Highway and 38th Avenue have protected left turns. North of the intersection, 38th Avenue is a two lane road with a two-way turning lane in the center. Ocean Beach Highway is a five lane road including a center two-way turning lane.

Sidewalks line both sides of 38th Avenue and Ocean Beach Highway. In addition, there is a bike route on the north edge of Ocean Beach Highway. There are crosswalks on all four sides of the intersection, and handicap ramps on all four corners.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	109	64	66	143	628	109	193	117	58	57	558	80	2192
Phase I	157	260	109	271	584	34	232	127	67	116	630	602	3189
Phase II	163	317	109	285	592	34	224	127	74	116	654	602	3297
Phase III	163	325	109	321	811	34	236	134	83	116	733	632	3697
Phase IV	178	436	115	335	873	47	321	157	98	123	745	648	4074

MATCH T.A.M.

MATCH CO. MAP

Ocean Beach Highway at 38th Avenue	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = B	LOS = E	LOS = F	LOS = * over capacity	—
Without Project	LOS = B	LOS = C	LOS = C	LOS = C	LOS = D

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

NODE 275

3rd Avenue at Tennant Way Frontage Road

As one drives west on the off ramp of SR 432, they approach the intersection of 3rd Avenue and Tennant Way Frontage Road. The street west of the intersection is Tennant Way Frontage Road, and running north and south is 3rd Avenue. Northbound 3rd Avenue's protected left turn lane at this intersection is uncontrolled. 3rd Avenue southbound is the only street that does not provide a protected turn lane at the intersection. To the east, the off ramp is one way, so there is no left turn allowed.

3rd Avenue and Tennant Way Frontage Road are both two lane roads and the lanes widen at the intersection. The north and westbound traffic of the intersection has right turn lanes. Tennant Way Frontage Road's right turn lane must yield, and a raised median separates it from the left turn lane. A painted median separates 3rd Avenue's north and southbound traffic, on the intersection's north side.

The intersection provides no crosswalks or sidewalks. The speed limits are: 30 mph on the off ramp, 35 mph on Tennant Way Frontage Road, and 35 mph on 3rd Avenue.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	0	525	193	0	0	0	0	417	647	51	0	7	1840
Phase I	0	772	112	773	319	223	704	531	0	813	0	309	4556
Phase II	0	783	115	773	323	235	713	533	0	813	0	309	4597
Phase III	0	795	126	790	337	248	728	542	0	825	0	316	4707
Phase IV	0	833	139	795	340	247	731	558	0	836	0	324	4803

3rd Avenue at Tennant Way Frontage Road	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS=* over capacity	over capacity	—	—	—
Without Project	LOS = *	over capacity	—	—	—

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

NODE 165

Oregon Way at Industrial Way

This is a signalized intersection with protected left lanes on all four legs of the intersection. Each left turn is controlled. Industrial Way is a four lane road before and after the intersection. On the far right of the east bound traffic, there is a deceleration lane, and it becomes a yielded right turning lane onto Oregon Way. A raised traffic island separates this lane from the rest of the intersection. The lane then becomes an acceleration lane and merges into Oregon Way's traffic.

Set-back sidewalks and street curbs line Oregon Way except for the southbound side, south of Industrial Way. Crosswalks are on the east, west, and north sides of the intersection. There are railroad crossings immediately north and east of the intersection.

60

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	91	526	57	331	312	244	122	409	350	687	236	119	2865
Phase I	176	1110	88	369	493	251	153	507	600	171	726	412	5056
Phase II	175	1176	84	379	502	263	156	523	613	178	726	422	5197
Phase III	189	1208	97	386	547	276	167	536	624	185	746	422	5383
Phase IV	211	1401	104	413	562	285	175	547	642	304	820	501	5965

Oregon Way at Industrial Way	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS = C	LOS = * over capacity	—	—	—
Without Project	LOS = C	LOS = C	LOS = C	LOS = D	LOS = E

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

220 ADT
24 = 916/HR

NODE 184

15th Avenue/Oregon Way and Tennant Way/Nichols Boulevard

At this signalized intersection, each of the four streets has protected left turn lanes, and speed limits of 35 miles per hour. Each street also has two through lanes, except for Tennant Way, which has one. Between Oregon Way's left turn lane and left through lane is a raised divider. A raised median divides that same turn lane from southbound, oncoming traffic. A raised divider separates left turn lanes and oncoming traffic on Nichols Boulevard and Tennant Way. Northbound Oregon Way has a fourth lane at the intersection for right turns only (no turning on red lights). Tennant Way, 15th Avenue, and Nichols Boulevard, also develop right turn lanes that separate traffic by a raised island. Right turns from Nichols to Oregon, and 15th to Nichols, have yield signs posted

Crosswalks are at each street except Tennant Way. Every corner involving a crosswalk has handicap corners. The bike route runs north and south along 15th Avenue and Oregon Way.

Immediately following the intersection on the east side, a one way street, California Way, branches off Tennant Way. Another road (unknown name) bisects the angle between Oregon Way and Nichols Boulevard. This road contains two-way traffic.

Traffic Flow	Southbound			Westbound			Northbound			Eastbound			Total
	L	T	R	L	T	R	L	T	R	L	T	R	
Present	169	448	101	204	453	276	47	466	183	70	374	31	2824
Phase I	211	609	99	126	369	251	42	394	50	222	906	263	3542
Phase II	202	620	104	138	379	251	42	397	55	232	912	261	3367
Phase III	214	645	113	146	385	259	47	404	65	235	1012	267	3792
Phase IV	229	732	125	176	433	308	56	479	82	336	1102	275	4333

15th Avenue/ Oregon Way and Tennant Way/ Nichols Boulevard	LEVEL OF SERVICE (LOS)				
	Existing	Phase I	Phase II	Phase III	Phase IV
With Proposed Project	LOS=C	LOS=C	LOS = C	LOS = D	LOS = E
Without Project	LOS = C	LOS = C	LOS = C	LOS = C	LOS = D

SUMMARY OF LEVEL OF SERVICES (with project)					
Intersection	Existing	Phase I	Phase II	Phase III	Phase IV
Memorial Park Drive at 38th Avenue	LOS=A	LOS=A	LOS=B	LOS=C	LOS=F
Industrial Way at 38th Avenue	LOS=B	LOS=C	LOS=C	LOS=C	LOS=D
Industrial Way at Washington Way	LOS=B	LOS=B	LOS=B	LOS=B	LOS=E
Ocean Beach Highway at Olive Way	N/A (not available)	LOS=B	LOS=B	LOS=C	LOS=F
Washington Way at 32nd Avenue	LOS=B	LOS=B	LOS=B	LOS=B	LOS=*
Ocean Beach Highway at 32nd Avenue	LOS=B	LOS=C	LOS=C	LOS=C	LOS=E
Ocean Beach Highway at 38th Avenue	LOS=B	LOS=E	LOS=F	LOS=*	—
3rd Avenue at Tennant Way Frontage Road	LOS=* over capacity	—	—	—	—
Oregon Way at Industrial Way	LOS=C	LOS=*	—	—	—
15th Avenue/ Oregon Way at Tennant Way/Nichols Boulevard	LOS=C	LOS=C	LOS=C	LOS=D	LOS=E

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

SUMMARY OF LEVEL OF SERVICES (without project)					
Intersection	Existing	Phase I	Phase II	Phase III	Phase IV
Memorial Park Drive at 38th Avenue	LOS=A	LOS=A	LOS=A	LOS=A	LOS=A
Industrial Way at 38th Avenue	LOS=B	LOS=B	LOS=B	LOS=B	LOS=B
Industrial Way at Washington Way	LOS=B	LOS=B	LOS=C	LOS=C	LOS=D
Ocean Beach Highway at Olive Way	N/A	—	—	—	—
Washington Way at 32nd Avenue	LOS=B	LOS=B	LOS=B	LOS=B	LOS=B
Ocean Beach Highway at 32nd Avenue	LOS=B	LOS=B	LOS=B	LOS=D	LOS=C
Ocean Beach Highway at 38th Avenue	LOS=B	LOS=C	LOS=C	LOS=C	LOS=D
3rd Avenue at Tennant Way Frontage Road	LOS=* over capacity	—	—	—	—
Oregon Way at Industrial Way	LOS=C	LOS=C	LOS=C	LOS=D	LOS=E
15th Avenue/ Oregon Way at Tennant Way/Nichols Boulevard	LOS=C	LOS=C	LOS=C	LOS=C	LOS=D

*When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection.

Conclusions

Of the ten key intersection evaluated in this report, all but one are currently operating at Level of Service C or better. The intersection of 3rd Avenue and Tennant Way is currently over capacity.

In addition, the results of the analysis indicate that two of the intersections currently operating at acceptable LOS will function at LOS E or worse as a result of build-out of Phase One:

- Ocean Beach Highway at 38th Avenue
- Oregon Way at Industrial Way

Additional analysis, based on the assumption of linear growth of Phase One, demonstrates that the LOS failures would occur only near completion of the Phase. At both locations, LOS E or worse is not triggered until more than 75% of the projected build-out of Phase One. Therefore traffic generated in the earlier years of Phase One lot developments can be acceptably handled by the current intersection configurations. The modeled congestion results from existing and projected background traffic growth as well as traffic generated by the industrial park, however intersection failure would occur at these locations at a later date without the Mint Farm project. The specific turning movements which fail are shown in diagrams included in the appendix.

See the appendix for the graphical presentation of traffic movements for the above intersections including identification of the specific turning movements which fail.

Analysis of additional intersections predicts failure (LOS E or worse) in approximately 20 years, with the build-out of Phase Four. In each case, the intersection would continue to have adequate LOS without the full development of the Mint Farm:

- Memorial Park Drive at 38th Avenue
- Industrial Way at Washington Way
- Ocean Beach Highway at Olive Way
- Washington Way at 32nd Avenue
- Ocean Beach Highway at 32nd Avenue
- 15th Avenue/Oregon Way and Tennant Way/Nichols Blvd.

Timing of LOS failure is subject to the actual rate of site development and increased traffic from the project. It is also understood that within the time frame of this analysis other developments will occur that may contribute to the future traffic condition. These may have a greater, or lesser, effect on traffic volumes than accounted for by the assumed background growth.

This study allows officials at City of Longview, Cowlitz County, and WSDOT to factor into capital improvements planning those impacts from the development of each phase of the Mint Farm project. Future studies reflecting the actual growth and contribution of traffic by the project and other nearby sources will be needed to target timing and scope of those future intersection improvements.

Mitigation

Phase One of the Mint Farm project provides mitigation for associated traffic impacts. The main entry to the project from Industrial Way (SR-432) is located one half mile east of the existing intersection of Industrial Way and 38th Avenue. This conforms to the WSDOT policy for separation of signalized intersections on state highways. This intersection will be signalized as part of the initial construction of Phase One. The minimum distance from this entry street to other public or private connections with Industrial Way is greater than two hundred fifty feet. Configurations for the intersections entering Phase One have not yet been determined. Design of those entries shall be designed to provide adequate projected Level of Service through all four phases. Configuration of the entry from Industrial Way (SR 432) will require review and approval by WSDOT.

Phase One construction of the public streets within the project will provide full width improvements to meet future traffic demand. The main street, extending from Industrial Way to 38th Avenue through Phase One, will be a four lane arterial with turn pockets provided at the three intersections with cross streets. A planted median at the entry from Industrial Way will provide opportunity for an additional future turn pocket. The three cross streets, which eventually will connect into future phases of the industrial park, will be constructed with one through lane in each direction and a continuous left turn lane. All streets will have sidewalks set back from the curb behind a planting strip.

The analysis demonstrates Level of Service deficiencies at two nearby intersections triggered by late-stage development of Phase One of the project. In both instances, failure is not triggered until more than 75 percent of the Phase is built and generating traffic. The City of Longview should develop a Memo of Understanding with the Washington State Department of Transportation addressing the timing and respective responsibilities for increasing intersection capacities in a timely manner.

THE MINT FARM INDUSTRIAL PARK

Supplemental Traffic Study

Prepared for:

Richard Carothers Associates

March 20, 1996

Prepared by:

The TRANSPO Group, Inc.
14335 NE 24th Street, Suite 201
Bellevue, WA 98007-3737
(206) 641-3881
FAX: (206) 747-3688

TABLE OF CONTENTS

Page

INTRODUCTION 1
- Project Description 1
- Existing Street System 2
- Traffic Volume Data 4

TRAFFIC SIGNAL WARRANT ANALYSIS 7
- Methodology 7
- Findings 7
- Recommendations 10

CHANNELIZATION RECOMMENDATIONS 11
- Methodology 11
- Findings 11

SITE ACCESS DESIGN STANDARDS 15

CONCLUSIONS AND RECOMMENDATIONS 16

APPENDIX A: Signal Warrant Analysis Results and MUTCD Figures

APPENDIX B: Level of Service Results

FIGURES

1. Site Plan 3
2. With-Project Traffic volumes AM Peak Hour (By Development Phase) 5
3. With-Project Traffic Volumes PM Peak Hour (By Development Phase) 6
4. Industrial Way/Mint Farm Entrance A - Initial Intersection Channelization 13
5. Industrial Way/Mint Farm Entrance A - Final Intersection Channelization 14

TABLES

1. Signal Warrant Analysis Results 8
2. AM and PM Peak Hour Levels of Service at Industrial Way/Entrance A - Based on Proposed Channelization 12

INTRODUCTION

The following summarizes the findings of a supplemental traffic analysis conducted at the intersection of Industrial Way (SR 432) and the proposed site access of the Mint Farm Industrial Park. The Mint Farm Industrial Park would be located in Longview, Washington, bounded by Industrial Way (SR 432) to the south, 38th Avenue to the west, Memorial Park Drive to the north, and 33rd Avenue to the east. Figure 1 shows the proposed site plan. A traffic study was prepared by Richard Carothers Associates (RCA) as part of requirements set forth by the city and WSDOT, titled "Traffic Analysis for The Mint Farm Industrial Park," September 12, 1996. The RCA study addressed impacts to the operation of several intersections in the vicinity of the proposed project. However, the RCA study did not specifically address traffic operations and possible improvements of the Mint Farm site access road at its intersection with Industrial Way (herein referred to as "Entrance A"). The following study has been developed to address these issues.

The analysis in this report was conducted to determine whether a traffic signal would be warranted with construction of the Industrial Park. Secondly, intersection channelization recommendations were identified based on phased levels of development within the industrial park itself. Finally, the intersection was evaluated with regard to design standards for intersection spacing.

Project Description

The Mint Farm Industrial Park is planned to be constructed in four stages. Phase I would include development of roughly 125 acres (which is currently owned by the City of Longview), and was assumed to be operational in the year 1998. Phases II, III, and IV are provisional, and will likely be developed by Weyerhaeuser (the current owner), the City of Longview, or another developer. Phase II was assumed to be operational roughly 6 years after completion of Phase I (2004), and would include development of an additional 141 acres. Phase III was assumed to be operational roughly 12 years after completion of Phase I (2010), and would include development of an additional 99 acres beyond Phase II. Finally, Phase IV was assumed to be operational roughly 20 years after completion of Phase I (2018), and would include full buildout of the site, totaling 435 acres.

Access to the Mint Farm Industrial Park under Phases I through III would be provided in two locations. The first entrance, referred to as "Entrance A" (the focus of this study) in the RCA study, is located on Industrial Way, approximately one-half mile east of the Industrial Way/38th Avenue intersection. The second entrance, referred to as "Entrance B", would be located on 38th Avenue, roughly one-half mile north of the Industrial Way/38th Avenue intersection. Access to the Mint Farm Industrial Park under Phase IV would include a third entrance, in addition to entrances A and B described above. The third entrance, referred to as "Entrance C", would be located on Washington Way, approximately 500 feet east of the Washington Way/Industrial Way intersection.

Existing Street System

In the vicinity of the proposed Mint Farm entrance, Industrial Way (SR 432) is a four-lane roadway (two lanes each direction), with a posted speed limit of 45 mph, and narrow gravel shoulders (1 to 2 feet) along both sides of the roadway. The shoulder along the south side of the roadway transitions into a slope, which meets railroad tracks approximately 30 feet south of the southern roadway edge. Similarly, the shoulder along the north side of the roadway transitions into a slope, which meets a drainage ditch approximately 10 feet north of the northern edge of the roadway. The drainage ditch and railroad tracks likely preclude widening of Industrial Way to accommodate additional lanes on Industrial Way. These limitations are further addressed under the "Channelization Recommendations" section of this report.

Figure 1. Site Plan

Traffic Volume Data

Existing 12-hour manual count data was provided by the City of Longview for the Industrial Way/38th Avenue and Industrial Way/Washington Way intersections. Additional AM and PM peak hour manual traffic counts were conducted by Myles Cunneen for TRANSPO at the Industrial Way/Longview Mill Driveway, roughly 500 feet east of the proposed Mint Farm Entrance A. Since there are no additional driveways between the Longview Mill access and the proposed Entrance A, these AM and PM peak hour manual counts were used to determine eastbound and westbound AM and PM peak hour through volumes in the vicinity of the proposed Entrance A. The counts conducted for TRANSPO were verified for consistency with the 12 hour manual counts provided by the city. Existing AM and PM peak hour traffic volumes were adjusted to reflect future year baseline conditions based on an annually compounded growth rate of 2 percent per year. This growth rate was derived from COG traffic model analyses, which were used to determine future year traffic volumes in the RCA study. Project generated AM and PM peak hour traffic volumes into and out-of the proposed Entrance A were obtained directly from the RCA study for the various development phases. Project traffic volumes for each development phase were added to the appropriate future-year baseline traffic volumes, to arrive at future year with-project traffic volumes. Figures 2 and 3 show with-project traffic volumes at Entrance A for the AM and PM peak hours, respectively.

Figure 2. With-Project Traffic volumes AM Peak Hour (By Development Phase)

Figure 3. With-Project Traffic Volumes PM Peak Hour (By Development Phase)

TRAFFIC SIGNAL WARRANT ANALYSIS

A traffic signal warrant analysis was conducted at the Industrial Way/Entrance A intersection to determine whether signalization would be necessary with development of the Mint Farm Industrial Park.

Methodology

Signal warrants for the proposed Industrial Way/Mint Farm Entrance A intersection were evaluated based on methodologies presented in the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD describes 11 warrants for determining whether an intersection should be signalized. The MUTCD states that traffic signals should not be installed unless one or more of the signal warrants in the Manual are met.

The traffic signal warrants for the proposed intersection require data relating to the speed limit of Industrial Way, as well as the population characteristics of the surrounding area. In addition, data relating to the peak 8-hour traffic volumes entering the intersection (i.e., the 8 highest hours of traffic that would enter the proposed intersection on a typical weekday) were developed for the Phase I condition. The peak 8-hour traffic volumes were calculated by applying hourly distribution factors from the nearby Industrial Way/Washington Way intersection, to the AM and PM peak hour with-project traffic volumes described in the "Traffic Volume Data" section above. Hourly distribution factors were determined from the 12 hour counts at the Industrial Way/Washington Way intersection, which were provided by the city. The distribution factors are ratios which relate the number of vehicles entering the intersection for the hour in question, to the sum of the vehicles entering the intersection for the 12 hour period. Given the AM and PM peak hour volumes at the proposed intersection, as well as the corresponding hourly distribution factors for the nearby Industrial Way/Washington Way intersection, the remaining hours hourly traffic volumes at the proposed intersection were estimated, from which the peak 8 hours were selected.

Findings

Table 1 summarizes the results of the signal warrant analysis for traffic at the proposed Industrial Way/Entrance A intersection under Phase I conditions. As shown in the table, with construction of the proposed Entrance A, the Industrial Way/Entrance A intersection would meet the criteria for Warrants #2, #9, #10, and #11, and would therefore merit signalization. The signal warrants were not conducted for development beyond Phase I, as additional project development and background traffic growth would continue to satisfy signal warrants. A brief description of the evaluation for each warrant follows the table. A summary of signal warrant analysis results can be found in Appendix A.

Table 1. Signal Warrant Analysis Results

Signal Warrant	Warrant Met?
Warrant 1: Minimum Vehicular Volume	No
Warrant 2: Interruption of Continuous Traffic	**Yes**
Warrant 3: Minimum Pedestrian Volume	N/A
Warrant 4: School Crossing	N/A
Warrant 5: Progressive Movement	N/A
Warrant 6: Accident Experience	N/A
Warrant 7: Systems Warrant	N/A
Warrant 8: Combination of Warrants	No
Warrant 9: Four Hour Volumes	**Yes**
Warrant 10: Peak Hour Delay	**Yes**
Warrant 11: Peak Hour Volume	**Yes**

Warrant 1: Minimum Vehicular Volume - NOT MET

This warrant is applicable where traffic volumes on the intersecting minor street is the principal consideration for installation of a signal. The warrant is met when, for each of any 8 hours of an average day, 1) total traffic volumes for both approaches of the major street meet or exceed 420 vehicles *and* 2) traffic volumes on the higher volume approach of the minor street meet or exceed 140 vehicles.

The minimum traffic volume of 663 vehicles on the two approaches of Industrial Way during the eight highest-volume hours of the day would exceed the MUTCD threshold of 420 for the major street. On the minor street approach, the minimum traffic volume of 102 vehicles during the eight highest-volume hours would not exceed the MUTCD threshold of 140 vehicles. As a result, the intersection would not satisfy Warrant #1.

Warrant 2: Interruption of Continuous Traffic - MET

This warrant applies to situations where traffic volumes on the major street are so high that traffic on the minor intersecting street suffers excessive delay or hazard in entering or crossing the major street. The warrant is satisfied when, for each of any 8 hours of an average day, 1) total traffic volumes for both approaches of the major street meet or exceed 630 vehicles *and* 2) traffic volumes on the higher volume approach of the minor street meet or exceed 70 vehicles.

This warrant is met. During the 8th highest hour, traffic volumes on Industrial Way (SR 432) are estimated at 663, which exceeds the 630 vehicle criteria. The traffic volume criteria on the minor street is 102 vehicles, exceeding the 70 vehicle minimum threshold.

Warrant 3: Minimum Pedestrian Volume - NOT APPLICABLE

Warrant #3 applies when pedestrian volumes crossing the major street are 1) 100 or more for any four hours of the day or 2) 190 or more during any one hour. Since there are no

pedestrian facilities along Industrial Way, this warrant was deemed not applicable to this analysis.

Warrant 4: School Crossing - NOT APPLICABLE

This warrant was deemed not applicable, as there are no established school crossings in the immediate vicinity of the intersection.

Warrant 5: Progressive Movement - NOT APPLICABLE

This warrant is intended for situations where control of vehicle platoons and speed is desired, and where adjacent signals do not provide the control desired. The warrant is not applicable in this case, since the proposed and adjacent signals would not constitute a progressive signal system.

Warrant 6: Accident Experience - NOT APPLICABLE

This warrant is applies to locations which experienced five or more reported accidents of types susceptible to correction by a traffic signal within a 12-month period. The warrant applies to existing intersections for which accident data is available, and in this case, the intersection does not currently exist.

Warrant 7: Systems Warrant - NOT APPLICABLE

This warrant is intended for situations where traffic signals are needed to organize traffic flow networks at the intersections of two or more major routes. The warrant is not applicable in this case, since Industrial Way is the only major route.

Warrant 8: Combination of Warrants - NOT MET

Warrant #8 is intended for conditions which do not satisfy any single warrant but where Warrants #1 and #2 are satisfied to the extent of 80 percent or more. The warrant is not applicable in this case where several individual warrants are met, including Warrant #2.

Warrant 9: Four Hour Volumes - MET

This warrant is met when, for any four hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach fall above the appropriate curve shown in Appendix A

The minimum volume during the four highest-volume hours of the day with the proposed project would be 920 vehicles on Industrial Way and 130 vehicles at the project driveway. The plotted point corresponding to these volumes is well above the appropriate curve (2 or more lanes on both streets) shown in Appendix A, Figure 4-8, MUTCD, 1988 Edition.

Warrant 10: Peak Hour Delay - MET

This warrant is intended for application where for one hour of the day, minor street traffic suffers undue delay in entering or crossing the major street. The warrant is met when 1) total delay experienced by traffic on one minor street approach equals or exceeds five vehicle hours, and 2) the volume on the same minor street approach equals or exceeds 100 vehicles during the hour, and 3) the total volume entering the intersection equals or exceeds 800 or more vehicles during the hour.

Peak hour delays at the intersection were calculated based on procedures presented in the Transportation Research Board's *1994 Highway Capacity Manual* for unsignalized intersections. The resulting delays indicate that outbound vehicles on the southbound approach to the intersection would experience a total 180 vehicle hours of delay during the peak hour without signalization. This is well in excess of the warrant criteria of 5 vehicle hours. Traffic volumes would be 621 vehicles on the minor street approach and 1,587 vehicles entering the intersection, exceeding the corresponding warrant criteria of 150 and 650 vehicles, respectively.

Warrant 11: Peak Hour Volume - MET

This warrant is also intended for application where for one hour of the day, minor street traffic suffers undue delay in entering or crossing the major street. The warrant is met when, for any one hour of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher volume minor street approach fall above the appropriate curve shown in Appendix A.

The peak hour traffic volume with the proposed project would be 1,460 vehicles on Industrial Way and 130 vehicles at the project driveway. The plotted point corresponding to these volumes falls well above the appropriate curve (2 or more lanes on both streets) shown in the Appendix A, Figure 4-6, MUTCD, 1988 Edition.

Recommendations

Based on the above analysis, installation of a traffic signal at the Industrial Way/Entrance A intersection is recommended with development of the first phase of the proposed Mint Farm Industrial Park. With construction of the Industrial Way/Entrance A intersection, MUTCD Signal Warrants #2, #9, #10, and #11 would be met.

CHANNELIZATION RECOMMENDATIONS

An analysis was conducted to determine the most efficient channelization of the proposed Industrial Way/Entrance A intersection, for each of the four development phases of the Mint Farm Industrial Park. Level of service methodologies were employed to develop optimal lane configurations and signal phasing at the time of opening of each development phase. Recommendations were developed in light of design constraints, both in terms of available roadway facilities and predicted design acceptance by the WSDOT.

Methodology

AM and PM peak hour levels of service (LOS) were calculated using *Highway Capacity Software*, which is based on procedures presented in the 1994 Updated *Highway Capacity Manual, Special Report 209* (Transportation Research Board). Level of service is used to evaluate and quantify operating conditions and traffic congestion at intersections. Levels of service values range from LOS A, which is indicative of good operating conditions with little or no delay, to LOS F, indicative of extreme congestion and long vehicle delays. The WSDOT requires a minimum LOS D at any state route intersection. Therefore, design alternatives yielding LOS E or LOS F (for either the AM or PM peak hours) were deemed unacceptable. The following are assumptions and design constraints used to narrow the design alternatives.

- There is no available room for widening of Industrial Way in the vicinity of the proposed entrance, due to the adjacent drainage ditch to the north and the adjacent railroad tracks to the south. Therefore, under all design alternatives, the geometrics of the Industrial Way legs of the intersection were assumed to remain as-existing (i.e., two eastbound lanes and two westbound lanes).
- Based on the large number of eastbound and westbound through traffic volumes on Industrial Way under existing and future conditions, as well as the high vehicle travel speeds, both the eastbound and westbound approaches of Industrial Way at the intersection were assumed to continue to accommodate two through-lanes of traffic. Therefore, alternatives which would require elimination of through lanes in either direction, whether as an eastbound exclusive left-turn pocket, or a westbound exclusive right-turn pocket, were not examined.
- Cycle lengths were assumed at 90 seconds for all analysis cases. The green times allotted to each phase were optimized for each analysis case, implying that the signal will be actuated.
- Protected-permissive phasing for all analysis cases was assumed for the eastbound-to-northbound left turn movement of the proposed traffic signal.

Findings

The following summarizes the proposed channelization for the Industrial Way/Entrance A intersection for each of the development phases. Level of service summary sheets at the intersection for traffic volumes corresponding to each development phase are provided in Appendix B

Phase I: Figure 4 shows the proposed channelization of the intersection at the time of opening of Phase I of the Mint Farm Industrial Park. Eastbound traffic would be facilitated by a left-through lane and a through lane. A right-through lane and a through lane would serve westbound traffic. Southbound traffic out of the site would be facilitated by a left-turn lane and a right-turn lane. To accommodate the long-term needs of the Mint Farm, the site access roadway would be constructed as a 5-lane section (two lanes each direction, with a center-left turn lane). To meet future capacity requirements (under later development phases), a planter strip could be installed in the southbound leg of the intersection, and later replaced by a second southbound left-turn lane, when needed. Based on the channelization plan shown in Figure 4, the intersection would operate at LOS A during the AM peak hour, and LOS B during the PM peak hour, with operation of Phase I of the Mint Farm Industrial Park.

Phase II: The proposed channelization under Phase II conditions is the same as that for Phase I conditions (see figure 4). The intersection would operate at LOS B during the AM peak hour, and LOS C during the PM peak hour.

Phase III: The RCA traffic study indicated that the Mint Farm Industrial Park would continue to operate with two entrances through completion of Phase III. The forecast traffic volumes for Phase III result in an LOS F condition during the AM peak hour at the Industrial Way/Entrance A intersection, with either single or dual southbound left-turn lanes. This LOS F condition would not meet the WSDOT standards of LOS D with completion of Phase, and could not be readily improved, given the roadway widening constraints on Industrial Way. Therefore, it is proposed that with construction of Mint Farm Phase III, a third entrance be opened to relieve congestion at the proposed Industrial Way/Entrance A intersection. With the opening of a third entrance (Entrance C), the Industrial Way/Entrance A intersection would operate at LOS B during the AM peak hour, and LOS C during the PM peak hour with the channelization shown in Figure 4. This is based on the same project trip distribution assumed in the RCA study under Phase IV conditions.

Phase IV: With development of Phase IV of the Mint Farm Industrial Park, a second southbound left-turn lane out of the site would be required. Figure 5 shows the proposed channelization of the Industrial Way/Entrance A intersection. Installation of a second southbound left-turn lane would require removal of the planter strip, which would be present under Phases I, II, and III. With the proposed channelization, the intersection would operate at LOS B during the AM peak hour, and LOS C during the PM peak hour. Without the additional southbound left-turn lane, the intersection would operate at LOS F during the PM peak hour.

Table 2 provides a summary of AM and PM peak hour level of service conditions with each phase of development.

Table 2. AM and PM Peak Hour Levels of Service at Industrial Way/Entrance A - Based on Proposed Channelization

Development Phase	AM Peak Hour LOS	PM Peak Hour LOS
1[1]	A	B
2[1]	B	C
3[1]	B	C
4[2]	B	C

1. Based in intersection channelization shown in Figure 4.
2. Based on intersection channelization shown in Figure 5.

Figure 4. Industrial Way/Mint Farm Entrance A - Initial Intersection Channelization

Figure 5. Industrial Way/Mint Farm Entrance A - Final Intersection Channelization

SITE ACCESS DESIGN STANDARDS

The proposed Entrance A/Industrial Way intersection would be located approximately one-half mile east of the Industrial Way/38th Avenue signalized intersection, and over one-half mile west of the Industrial Way/Washington Way intersection. The intersection would be placed approximately 500 feet east of the nearest driveway to the west, and approximately 500 feet west of the nearest driveway to the east.

The Access Management Law (Chapter 468-52 WAC) provides restrictions on placement of access on state routes based on the arterial classification of the route. The arterial classification of a route is determined based on its functional characteristics and posted speed limit. In the vicinity of the proposed project, Industrial Way (SR 432) is classified as Arterial Class 4. A Class 4 roadway is functionally described as follows:

"Moderate speeds, moderate volumes, short trips serving intercity, intracity, intercommunity travel. Balance between land access and mobility. Used where level of development is more intensive and major land use changes less likely than on Class 3. Posted speed limit of 35 mph to 45 mph, with non-restrictive median treatment." (*Source: Access Control Classification System Chapter 468-52 WAC, 7-14-94*)

The required signalized intersection spacing is 0.5 miles for a Class 4 roadway, with a minimum driveway spacing of 250 feet. Based on these requirements, the proposed Industrial Way/Entrance A intersection would comply with Class 4 Roadway intersection and driveway spacing.

CONCLUSIONS AND RECOMMENDATIONS

The following is a summary of the conclusions and recommendations presented in this report:

- A traffic signal would be warranted at the proposed Industrial Way/Entrance A intersection with any development of the Mint Farm Industrial Park. MUTCD signal warrants #2, #9, #10, and #11 would be met with Phase I project traffic.
- The proposed initial intersection channelization is shown in Figure 4, and would include an eastbound left-through lane, an eastbound through lane, a westbound right-through lane, a westbound through lane, a southbound left-turn lane, and a southbound right-turn lane. This initial plan would accommodate traffic under Phase I (1998) and II (2004) conditions at acceptable levels of service.
- Under Phase III (2010) development conditions, the Industrial Way/Entrance A intersection would operate at an unacceptable level of service, unless a third project entrance is provided. With a third access and the proposed initial channelization shown in Figure 4, the intersection of Industrial Way/Entrance A would operate at an acceptable level of service.
- The proposed final intersection channelization is shown in Figure 5 and would include a second southbound left-turn lane out of the site, in addition to the initial proposed channelization. The additional left-turn lane would provide acceptable traffic operations through buildout of Phase IV (2018).
- In the vicinity of the proposed site, Industrial Way is designated as a Class 4 roadway. The Industrial Way/Entrance A intersection would comply with all driveway and intersection spacing requirements designated for a Class 4 roadway.

NORTHWEST RENEWABLE, LLC – ETHANOL PLANT

SEPA CHECKLIST

TAB 9: PHASE I ENVIRONMENTAL SITE ASSESSMENT (JUNE 2006)

Phase One
Environmental Site Assessment

31.7 Acres on the Mint Farm Industrial Park
Longview, Washington

Prepared for:
Makad Corporation Development Group
Vancouver, Washington

June 2006
Project #: 70495.000 Task 0002

1310 Main Street
Vancouver, WA 98660
360.690.4331 MAIN
360.696.9064 FAX
888.873.7273 TOLL FREE

ENGINEERING AND ENVIRONMENTAL
www.pbsenv.com

PHASE ONE
ENVIRONMENTAL SITE ASSESSMENT

31.7 Acres on the Mint Farm Industrial Park
Longview, Washington

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Vancouver, Washington

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Prepared by
PBS Engineering and Environmental
1310 Main Street
Vancouver, Washington 98660
(360) 690-4331

PBS Project No: 70495.000 Task 0002

June 2006

TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1
2.0 INTRODUCTION 3
2.1 Location and Client Information 3
2.2 Purpose 3
2.3 Scope of Work 3
2.4 Non-ASTM Method Scope of Work 3
2.5 Significant Assumptions 4
2.6 Limitations and Exceptions 4
2.7 Special Terms and Conditions 5
2.8 User Reliance 5
3.0 SITE DESCRIPTION 6
3.1 Location and Legal Description 6
3.2 Site and Vicinity General Characteristics 6
3.3 Current Use of the Subject Property 6
4.0 USER-PROVIDED INFORMATION 7
4.1 Title Records 7
4.2 Environmental Liens or Activity and Use Limitations 7
4.3 Specialized Knowledge 7
4.4 Valuation Reduction for Environmental Issues 7
4.5 Owner, Property Manager and Occupant Information 7
4.6 Reason for Performing the Phase One 7
4.7 Other Information Provided by the User 7
5.0 RECORDS REVIEW 8
5.1 Standard Environmental Record Sources 8
5.2 Additional Environmental Record Sources 9
5.3 Physical Setting Source(s) 10
5.4 Historical Use Information 11
6.0 SITE RECONNAISSANCE 16
6.1 Methodology and Limiting Conditions 16
6.2 General Site Setting 16
6.3 Exterior and Interior Observations 16
6.4 Current Use of Adjoining Properties 17
7.0 INTERVIEWS 18
7.1 Interview with Owner 18
7.2 Interview with Site Manager 18
7.3 Interview with Local Government Officials 18
7.4 Interview with Others 18
8.0 EVALUATION 20
8.1 Findings and Opinion 20
8.2 Conclusions/Recommendation and Signatures of Environmental Professionals 22

SUPPORTING DATA

Figures.....**Tab 1**

Figure 1 – Site Location Map
Figure 2 – Site Vicinity Plan

Project Photographs .....**Tab 2**

Documentation .....**Tab 3**
Glossary
References
Questionnaire Completed by Property Owner Representative
Field Checklist
Resumes

APPENDICES

Appendix A – PBS Proposal/Contract to Provide a Phase One Environmental Site Assessment

Appendix B – Standard Environmental Records Search Report
Environmental FirstSearch

Appendix C – Research Documentation
Historic Air Photos
Sanborn Maps

1.0 EXECUTIVE SUMMARY

Note: The report should be read in its entirety before decisions are made based on the summarized findings provided below.

A Phase One Environmental Site Assessment was conducted by PBS for the property located on 31.7 Acres on the Mint Farm Industrial Park in Longview, Washington. The project was performed in general accordance with ASTM Standard E 1527-00, *Standard Practice for Environmental Site Assessments; Phase One Environmental Site Assessment Process.*

Historical sources indicate that the subject property was in agriculture field crop and partial dairy use or pasture by the 1930s until approximately 2003. From at least 1953 to the early 2000s, the subject property contained two clusters of farm buildings or residences. Since approximately 2003, the subject property has been vacant.

Adjoining sites to the north were in agriculture use as row crops by the 1930s until the 1990s. From the 1990s to 2003, the property was used for cattle pasture. The south-adjacent properties were in industrial use from the late 1930s to present. Adjoining sites to the east were in residential use throughout by the 1940s. Properties adjoining to the west were in agricultural use as row crops or orchard from at least the 1930s to the late 1980s when it was developed into a heavy industrial plant. No specific concerns for the site due to past or present adjoining property uses were identified.

EPA and state environmental databases were reviewed to identify sites that pose a potential environmental concern to the subject property due to contaminant migration. Based on a review of the listed sites, none appear to pose a significant environmental concern to the subject property.

Numerous spills have occurred on the Weyerhaeuser mill located on the southwest adjoining property. There is a possibility of contamination migrating onsite. Based on our current understanding of subject property history, it is believed that the state agency would not hold the owner of the subject property liable for migrating groundwater contamination.

Groundwater is relatively shallow in this area. If significant contamination has migrated onsite, it may present issues related to certain types of site redevelopment or occupancy.

The limited scope of this Phase One does not allow PBS to weight the likelihood that contamination has migrated onsite, or to what degree. If the client wishes to further define this risk, groundwater testing could be performed at both the upgradient and down gradient property lines.

There is a potential for an historical heating oil tank to be present at the subject property. Based on residential use this is considered a low environmental concern. If a heating oil storage tank is discovered in the vicinity of the historic structures, it should be decommissioned in accordance with Washington regulations. Extreme care should be exercised while clearing and developing this area.

Due to the size and inaccessibility of the site, it was not possible to view all areas. Extreme care should be exercised while clearing these areas. Soils should be observed for staining or

contamination. If contamination is encountered, the material should be tested and disposed of at an appropriate facility.

Based upon the finding of this study, this assessment has revealed no evidence of recognized environmental conditions with the property. No additional environmental investigation appears to be warranted at this time.

2.0 INTRODUCTION

2.1 Location and Client Information

Site Location:	**Client Data:**
	Makad Corporation Development Group
31.7 Acres on the Mint Farm Industrial Park	805 Broadway, Suite 747
Longview, Washington	Vancouver, Washington
	ATTN: Tawni Camarillo

2.2 Purpose

A Phase One Environmental Site Assessment was conducted by PBS for the above-referenced site. The purpose of the Phase One was to identify *recognized environmental conditions* associated with the subject property, that is, to assess the likelihood that contamination from *hazardous substances* or *petroleum products* may exist on the subject property either from past or present use of the subject property or nearby properties. The project was performed in general accordance with the ASTM Standard Practice for conducting Phase One Environmental Site Assessments (Designation E 1527-00).

2.3 Scope of Work

The scope of work for the project included the items listed below:

1. Subject property identification and visual survey for the presence of hazardous substances and petroleum products;
2. Review federal, state and local agency listings regarding the subject property and adjacent areas, using a commercial database search provider;
3. Review of historic maps, historic occupants and the nature of past property usage;
4. Review of available soils, geology or environmental reports for the subject property or in the vicinity of the subject property;
5. Interviews with persons knowledgeable about the subject property;
6. Preparation of the report which summarizes observations, sources utilized, and findings, conclusions and recommendations relating to the presence or likely presence of hazardous substances or petroleum products on the subject property.

The reader is referred to PBS's proposal/contract (Appendix A) to provide a Phase One Environmental Site Assessment for a detailed description of our Scope of Work.

2.4 Non-ASTM Method Scope of Work

No non-ASTM method scope issues were addressed during this study.

2.5 Significant Assumptions

This study is intended to reduce, but not eliminate, uncertainty regarding the potential for *recognized environmental conditions* in connection with the subject property, within reasonable limits of time and cost. It is assumed that the user has provided PBS with any specialized knowledge or experience that is material to *recognized environmental conditions* in connection with the property, including the reason why the property may have a significantly lower purchase price than comparable properties, if applicable. (ASTM 1527-00, Section 5.0)

In general, groundwater flow direction has been determined based on topography in the area of the subject property, i.e. the assumption is that shallow groundwater flow will follow topography. No site-specific field measurements of groundwater flow direction, e.g. installation of groundwater monitoring wells, have been performed.

Based on this interpretation, PBS has reviewed regulatory agency information for sites that are located in a presumed upgradient direction that, based on proximity and knowledge of potential contaminant fate and transport, may present a potential to impact the subject property.

2.6 Limitations and Exceptions

Unless noted otherwise, the scope of work is limited to elements of the ASTM standard. Non-ASTM scope issues (e.g. asbestos, lead-based paint, radon, wetlands, compliance audits, geotechnical investigations, etc.) were not addressed unless noted above in Section 2.4 and in our contract provided in Appendix A.

The ASTM method does not require a search interval of less than 5 years; this search interval is not guaranteed to identify all prior tenants or occupants of the subject property.

“Recognized Environmental Conditions" are defined at paragraph 1.1.1 of ASTM E 1527-00 and the complete text is included in the Glossary of this document. The vague and ambiguous nature of *recognized environmental conditions* as defined by the ASTM may result in reasonable minds differing as to whether any observed condition at a site is a *recognized environmental condition*. There may be other conditions noted in this report that could be considered *recognized environmental conditions* by other persons. Accordingly, the user is advised that no warranty is given that other experts may agree as to whether site conditions noted herein are *recognized environmental conditions*. Users of this report are encouraged to review the report in its entirety and specifically to consider the existence of all site conditions described in this report and not merely those classified herein as *recognized environmental conditions.*

When an assessment is completed without surface exploration or chemical screening of soil and groundwater beneath the site, as in this study, no statement of scientific certainty can be made regarding latent subsurface conditions, which may be the result of on-site or off-site sources. PBS is not able to represent that the site or adjoining land contains no hazardous

waste, oil, or other latent conditions beyond that detected or observed by PBS during the study.

The findings and conclusions of this report, therefore, are not scientific certainties, but rather, are based on professional judgment concerning the significance of the data gathered during the course of the Phase One. The conclusions in this report are not to be considered a legal opinion as to the client's duty concerning due diligence relating to potential liabilities in leasing, owning, or purchasing real estate.

The ASTM standard requires that all *obvious* uses of the subject property be identified from the present, back to the property's obvious first developed use, or back to 1940, whichever is earlier. This requires that the investigator review sources that are *publicly available, are available within a reasonable time and cost, and are reasonably ascertainable and considered practically reviewable,* as defined under the ASTM standard. In addition, these criteria are applied keeping in mind sources that are likely to provide information concerning possible recognized environmental conditions at the subject property. PBS has reviewed all sources of information that we consider meeting these criteria. In cases where the history of the property is not traced to prior to its first developed use, this condition is considered a *data failure,* and not an exception to the required scope of work.

There were no exceptions to the referenced Scope of Work.

2.7 Special Terms and Conditions

PBS's standard Terms and Conditions may be found in Appendix A; there are no special terms and conditions.

2.8 User Reliance

PBS acknowledges that the client ("User") may rely upon the information, findings, opinion and conclusions set forth in this report, subject to the conditions and limitations contained in this report and as set forth in our contract (see Appendix A). The report provides information on the subject property only as specified in the scope of work based on conditions at the time of the study. It was prepared in accordance with the standard of care of our profession. No warranties express or implied are made.

Reliance on this report by all other parties will require a written agreement from PBS.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

Site Address:	31.7 Acres on the Mint Farm Industrial Park, Longview, Washington
Map, Tax Lot:	Cowlitz County Map No. 30-8-2W; Parcel Numbers 101930300 and 101930301, Tax Number 400, Account Number R033414
Township, Range, Section:	T8N, R2W, NE ¼ of Section 31 (Willamette Meridian)
Area:	Approximately 32 acres

A Site Location Map is included with this report under Tab 1.

3.2 Site and Vicinity General Characteristics

The subject property is located in an industrial area of northwest Longview, Washington.

The Site Vicinity Map is included under Tab 1. Photographs depicting the general character of the site are included under Tab 2.

3.3 Current Use of the Subject Property

The site is vacant and overgrown with vegetation.

4.0 USER-PROVIDED INFORMATION

4.1 Title Records

Review of a title report was not included in the scope of this project.

4.2 Environmental Liens or Activity and Use Limitations

The Property-Owner Representative Questionnaire was completed by Scott Dahlquist on June 1, 2006. It was not returned by the time of report submittal. Scott Dahlquist indicated no knowledge of environmental liens against the subject property, or limitations related to environmental conditions.

4.3 Specialized Knowledge

Scott Dahlquist indicated no specialized knowledge or experience that may be material to PBS's identification of recognized environmental conditions on the subject property.

4.4 Valuation Reduction for Environmental Issues

Scott Dahlquist indicated that the property value or purchase price has not been devalued, compared to comparable properties, based on environmental conditions at the subject property or surrounding properties.

4.5 Owner, Property Manager and Occupant Information

The subject property owner and manager is Weyerhaeuser Real Estate Development Group. The property is currently vacant.

4.6 Reason for Performing the Phase One

This Phase One has been requested by Makad Corporation Development Group as part of their environmental due diligence prior to purchase of the property.

4.7 Other Information Provided by the User

No other information was provided by Makad Corporation Development Group.

5.0 RECORDS REVIEW

5.1 Standard Environmental Record Sources

A search of State environmental agency and U.S. Environmental Protection Agency (EPA) listings was performed by a commercial database search provider (a copy of the database search report is included in Appendix B). The purpose of this search is to identify potential, suspected, or known sources of contamination on, or in the area of, the subject property. Various agency listings were searched for different approximate minimum search distances from the subject property as established in the ASTM method.

Only those sites that appear to pose a potential environmental concern to the subject property are discussed below. All other listed sites are considered to be of low concern to the subject property based on presumed groundwater flow direction, distance from the site, regulatory status (e.g. the agency file is closed) or other physical factors.

Subject Property

The subject property does not appear on any of the database listings.

Adjoining Property

No adjoining properties appear on any of the database listings.

Surrounding Properties

Weyerhaeuser Co Hg Chlor Alk, 3535 Industrial Way, Longview, Washington
Confirmed and Suspected Contaminated Site (CSCR) # 28, approximately 0.30 mile northwest and downgradient of subject property
Groundwater and soil contamination was confirmed onsite. Remedial action is in progress. Due to the distance from the subject property and downgradient location, contamination to the subject property is not likely.

Unmappable Sites (*Environmental FirstSearch "Non-Geocoded" sites*); this refers to properties that have inaccurate or incomplete site addresses and cannot be mapped with records provided by the agency. PBS has reviewed and in some cases has generally located these unmappable sites. They are as follows:

Longview Yard, Train Traveling on the Main Line, MP 100, Longview, Washington
ERNS (Emergency Response Notification Site) 521322, mile-post 100, Non-Geocoded
On February 27, 2000, a freight train struck a railroad car. Fifteen cars were derailed on a Burlington Northern railroad track and an unknown amount of diesel was spilled onto the ballasts. No further location information was noted in the files maintained at the Washington Department of Ecology. According to interviews, the tracks adjacent to the site are not Burlington Northern railroad tracks.

Weyerhaeuser Paper Company, PO Box 188, 3401 Industrial Way, Longview, Washington
ERNS 188403, Non-Geocoded (Address is south and southwest adjacent to property)
On December 5, 1990, approximately 80 pounds of mercury were reported released onto the ground beneath the mercury cell process building. The freestanding mercury was vacuumed up and testing was performed to determine the extent of contamination to the soil. No other information was provided in the FirstSearch. No other location information was provided by the Washington Department of Ecology records specialist. According to the Regional Service Manager in Weyerhaeuser, the mercury cell process building is located approximately 0.25 miles southeast and downgradient to the subject property. This site poses a low environmental concern.

ERNS 301214, Non-Geocoded
On January 7, 1993, an unknown amount of polychlorinated biphenyls was reported released into the soil from an old transformer site. The concrete floor was removed and the level of contamination has not been determined. No other location information was provided by the Washington Department of Ecology records specialist. According to the Regional Service Manager in Weyerhaeuser, the old transformer site building is located approximately 0.25 miles southeast and downgradient to the subject property. This site poses a low environmental concern to the subject property.

Based upon the presumed location or reported regulatory status, the listed unmappable sites are considered of *de minimis* concern.

5.2 Additional Environmental Record Sources

Washington State Department of Ecology (DOE) Hazardous Sites List The DOE website was reviewed at http://www.ecy.wa.gov/services/as/iss/fsweb/fshome.html on June 19, 2006; the subject property was not listed. The following adjoining properties were listed:

Citadel Architectural Prod Inc, 3401 Industrial Way, Longview, Washington
Ecology Identifier 68584763, south and southwest adjacent property, crossgradient
This site hazardous water generator status is no longer active. No violations or enforcements are listed or found in the file maintained at the Washington Department of Ecology.

Weyerhaeuser Co. Longview, 3401 Industrial Way, Longview, Washington
Ecology Identifier 27 and 61943495, south and southwest adjacent property, crossgradient
This site is listed as a Washington Department of Ecology Hazardous Waste Identifier, listed on the Toxics Release Inventory and Emergency/Hazardous Chemicals Report Tier 2, and a State Cleanup Site. There are several enforcements listed on this site, but all affect the main Weyerhaeuser Mill located 0.25 mile southwest of subject property.

Solvay Interox, 3500 Industrial Way, Longview, Washington
Ecology Identifier 67696464, northwest adjacent property, upgradient
This site is listed on the Washington Department of Ecology Emergency/Hazardous Chemical Report (Tier 2) list, Toxic Release Inventory, Hazardous Waste Generator, and as

an industrial site. No violations are enforcements are listed or found in the file maintained at the Washington Department of Ecology.

State/Local Health Department The Washington Department of Health maintains an online list of known drug labs at http://www.doh.wa.gov/ehp/ts/CDL/cdlsitelist.xls. The list was reviewed on June 19, 2006. Neither the subject property nor adjacent properties were listed.

Fire Department The Longview Fire Department was contacted on June 19, 2006. Information was requested regarding underground storage tanks and hazardous material incidents on the subject property and adjoining properties, including the railroads. The fire department is required to maintain records for incident response for the past 3 years. Records are searchable by address or date. No records were found.

State-Registered Water Well Logs The Washington Department of Ecology well log database (http://apps.ecy.wa.gov/welllog/textsearch.asp) was accessed on June 19, 2006. Two soil borings were listed for a property NE of 3400 Industrial Way (possibly the subject property). The logs for these wells indicate silty clay from 0 to 45 feet below ground surface (bgs), silts from 45 to 175 feet bgs, and sand from 175 to 180 feet bgs. Groundwater was not reported encountered. Nearby water wells indicate the depth to groundwater is 3 feet bgs.

Local Electric Utility Company (Physical condition is reported in 6.3) Onsite electrical transformers are the property of the local utility, Cowlitz Public Utility District.

5.3 Physical Setting Source(s)

Topography The USGS 7.5-minute topographic map for the site indicates the subject property is approximately 10 feet above mean sea level and is relatively flat. Railroad tracks are present to the south and east of the subject property. A stream extends south through the western portion of the property and there are two structures adjacent to the stream onsite. A road is visible adjacent to the structures.

Soils and Geology According to the Soil Survey for Cowlitz County, Washington, the area of the subject property is underlain predominantly by Caples silty clay loam type soils. Caples silty clay loam soils are characterized as typically being in floodplains with a 0 to 3% slope and are found up to 60 inches bgs. Surface soils are underlain by sands and gravels deposited during Pleistocene catastrophic flood events which are, in turn, underlain by silts, sands and gravels of the Troutdale Formation. Columbia River Basalt is present at depth.

Surface Water The nearest surface water is located in a ditch that is located between Industrial Way and the subject property. The Columbia River is located approximately 0.30 mile southwest of the subject property.

Groundwater Based on adjacent well logs, the shallowest occurrence of groundwater is expected to be at approximately 3 to 5 feet below the ground surface. Based on topography, the direction of shallow, unconfined groundwater flow is expected to be towards the

southwest towards the Columbia River. Therefore, properties to the northeast are considered to be up gradient to the subject property.

5.4 Historical Use Information

Aerial Photographs Aerial photographs maintained by the University of Oregon Map Library in Eugene, Oregon, were reviewed for the years 1953, 1963, 1970, 1980, 1994, and 2000. Photograph scales are typically small and detailed information is not generally obtained from the photographs.

1953: A road extends north through the subject property. A few structures are present onsite along the driveway. The remaining property is in agricultural use. The east adjacent properties are in low-density residential use. The properties to the north, south, and west are in agricultural use. Weyerhaeuser is visible on the southwest adjoining property.

1963: Several residential structures or agricultural buildings in two clusters are visible along the driveway. A creek or drainage ditch is visible west of the structures. The remaining subject property is in agricultural use as row crops. No significant changes are noted to the adjoining properties.

1970: No significant changes are noted to the subject property or surrounding properties. Weyerhaeuser is visible southwest of the subject property.

1980: The south adjacent property contains one small residence. Storehouses are also visible on this property. 34th Street is visible to the east of the subject property. The remaining surrounding properties are in agricultural use as row crops or are vacant.

1994: The northern cluster of structures onsite are no longer visible. Two structures are visible in the southern cluster. Railroad tracks are present at the south property boundary and tracks veer to the south once they approach the southeast property boundary. The property appears to be vacant. The northwest adjacent property contains several industrial structures.

2000: No structures are visible on the subject property. However, a cleared area is present in the approximate location of the south cluster of houses. No other significant changes are noted to the surrounding properties.

Fire Insurance Maps Historical Sanborn Fire Insurance Maps are maintained at the Multnomah County Library in Portland, Oregon. The maps include general historical information regarding occupants, addresses, and prior land uses. No Sanborn coverage was available for the subject property from these sources.

Local Street Directories Polk and Cole City Directories for Longview, Washington are located at the Longview Public Library in Longview, Washington. The directories were reviewed for information regarding past occupants at the subject property and adjoining

properties that may have been associated with the use of hazardous materials. No city directories were available from 1941 to 1945 due to World War II efforts. **Bold print denotes subject property**. The following range of street addresses was searched: 845-1045 33rd Avenue, 800-900 34th Avenue, 3353-3370 Washington Way, and 3400-3535 Industrial Way.

YEAR	ADDRESS	LISTED OCCUPANT(S)
1936	*No listings for the address ranges*	
1940	*3361 Washington Way*	*Residence and Halverson Auto Repair*
1946	*Washington Way*	
	3357	Vacant
	3361	Bystrom's Self-Service Station
	3362	Residences
	West end	Weyerhaeuser and Reynold's Metal
1951	*No listings for Industrial Way, 33rd or 34th Avenue*	
	Washington Way	
	3361	Bystrom's Self-Service Station
	3368, 3370, 3372	Residence
	West end	Weyerhaeuser and Reynold's Metal
1955	*Washington Way*	
	3361	Bystrom's Self-Service Station
	3368, 3370, 3372	Residences
	West end	Weyerhaeuser Timber Co.; Reynold's Metals Co., R W Paper Co.
1961	*Washington Way*	
	3361	Jim's Union Serv. Gas Sta
	3368, 3370, 332	Residences
	3461	Fleming's Serv Ur Self
	West end	Bonneville Power, Weyerhaeuser Co., Reynold's Co., R W Paper Co. Mfrs
1966	*Washington Way*	
	3361	Jim's Union Serv. Gas Sta
	3365	S and M Equip Tractor Sls
	3368, 3370	Residences
	3461	Fleming's Serv Ur Self
	Industrial Way	
	3401	Weyerhaeuser Co.
	3535	
	33rd Avenue	
	875, 885	Under Construction
	894-1045	Residences
1971	*Washington Way*	
	3361	Jim's Union Serv. Gas Sta
	3365	Vacant
	3368, 3370	Residences
	Industrial Way	
	3401	

YEAR	ADDRESS	LISTED OCCUPANT(S)
	3535	
	875-1045 33rd Avenue	*Residences*
1976	*Washington Way*	
	3360	Swinerton and Wallberg Warehouse genl contr
	3361	Residence
	3365	Vacant
	3368, 3370	Residences
	Industrial Way	
	3401	Weyerhaeuser Co. (whol lbr div)
	3535	RW Paper Co Mfs
	33rd Avenue	
	944-972	Apartments
	972-1045	Residences and Not Provided (NP)
1981	*Washington Way*	
	3353	Woodshed rest
	3360	Weyerhaeuser
	Industrial Way	
	3401	Weyerhaeuser Co (whol lbr div)
	3535	Weyerhaeuser R-W mfs
	33rd Avenue	
	944-972	Apartments
	972-1045	Residences and NP
1987	*Washington Way*	
	3353	Woodshed Restaurant
	3357	Minit Mart Qck Shp
	3370	Residence
	Industrial Way	
	3535	Becon Const, Weyerhaeuser
	33rd Avenue	
	874-925	Residences and NP
	944, 972	Apartments
	975-1044	Residences and NP
	34th Avenue	
	805-865	Residences and NP
1991	*Washington Way*	
	3353	Woodshed Rest
	3357	Minit Mart Qck Shp
	3370	NP
	Industrial Way	
	3401	Allwaste Asbestos, Triad Mechanical
	3410	Baugh Indstrl Cntr
	3500	Interox America
	3535	Pfizer Spec Minrls, Weyerhaeuser
	33rd Avenue	
	875-925	Residences and NP
	944, 972	Apartments
	1014-1045	Residences and NP

YEAR	ADDRESS	LISTED OCCUPANT(S)
	34th Avenue	
	805-865	Residences and NP
1996	*Washington Way*	
	3353	Eldos Pizza
	3357	Wa Way Market
	3370	NP
	Industrial Way	
	3400	JMJbr Crp Cheml, Wyrhsr Clmb and Cwltz, Mt St Hlns Frst, Thermal Serv Inc, N Pacific Ppr Corp
	3500	Interox America, Solvay Interox, Interox America
	3515	Spclty Mnrls Inc
	3535	Pfizer Spec Minrls, Weyerhaeuser
	33rd Avenue	
	875-925	Residences and NP
	944, 972	Apartments
	1014-1045	Residences and NP
	34th Avenue	
	805-876	Residences and NP
2001	*Washington Way*	
	3353	Wdshd Pizz Inc
	3357	Wa Way Market
	Industrial Way	
	3400	JM Hbr Crp Cheml
	3401	Clmb and Cowlitz, N Pacific Ppr Corp, Wyrhsr Clmb and Cwltz, Wyrhsr CN Pac Ppr
	3500	Interox Solvay, Interox America
	3515	Spclty Mnrls Inc
	3535	Wyrhsr Co. Fn. Ppr
	33rd Avenue	
	875-925	Residences and NP
	944, 972	Apartments
	1014-1045	Residences and NP
	34th Avenue	
	805-876	Residences and NP
2006	*Washington Way*	
	3353	Wdshd Pizz Inc
	3357	Washington Way Market
	Industrial Way	
	3401	Columbia and Cowlitz Railway Co.
	3451	Equa Chlor Marketting Llc
	3500	Solvay Chemical
	3515	Specialty Minerals Inc.
	3535	Weyerhaeuser
	33rd Avenue	
	875-925, 1014-1045	Residences and NP

YEAR	ADDRESS	LISTED OCCUPANT(S)
	944, 972	Apartments
	34th Avenue	
	805-876	Residences and NP

Building Department Records Information was requested from the City of Longview for records regarding past activity at the subject property located on 31.7 Acres on the Mint Farm Industrial Park, Longview, Washington. Only the subject property parcel number could be provided. No information was found.

Other Historical Records Available records on file at Cowlitz County Building Department's online database (http://www.co.cowlitz.wa.us) were reviewed for information regarding past activity at the subject property located on 31.7 Acres on the Mint Farm Industrial Park in Longview, Washington. The Cowlitz County GIS Department maintains a digital parcel map with property addressed at http://www.co.cowlitz.wa.us/gis/images/Maps/COWLITZ_PARCELS.dwf. The address for the subject property is not listed. However, the property occupies the southern portion of a much larger property. The south adjoining property is addressed at 3401 Industrial Avenue and 3370 Washington Way. The west adjoining property is 3400 Industrial Way.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

A site reconnaissance was conducted by Christina Johnson of PBS on June 15, 2006, to observe and document site conditions and visible indications of existing environmental conditions. The reconnaissance was performed unaccompanied. The subject property was extremely overgrown with tall, thick vegetation. Only areas accessible by trail were accessed. Site photographs are included under Tab 2.

6.2 General Site Setting

Topography

The subject property is on relatively flat ground and there is a regional slope to the southwest towards the Columbia River.

Structures The site is vacant.

Utilities

Water Supply:	None available onsite
Sewage System:	None available onsite
Stormwater:	Overland
Electrical Utility:	None available onsite
Natural Gas:	Company unknown

6.3 Exterior and Interior Observations

Note: The PBS Field Checklist (Tab 3) details additional ASTM-related field observations not shown below.

Hazardous Substances, Petroleum Products or Unidentified Containers The subject property is vacant. None of these materials was observed.

Underground and Aboveground Storage Tanks (USTs and ASTs) No indications of USTs or ASTs, such as vent pipes or fill pipes, were observed on the subject property grounds during the site reconnaissance.

PCBs No evidence of transformers or other suspect electrical equipment was observed on the subject property or on adjacent properties.

Floor Drains, Catch Basins, Sumps, Oil-Water Separators None of these structures were observed on the subject property.

Pits, Ponds, Lagoons, Surface Impoundments, Stained Soils, Odors None of these were observed on the subject property.

Solid Waste Disposal No indications of improper solid waste disposal were observed during the site reconnaissance.

Other Conditions of Concern

A marshy area was observed in the southeast corner of the subject property and extended along the east property boundary margin. Sheen was observed on the surface water. No odors were detected. It is likely the sheen was organic in nature.

6.4 Current Use of Adjoining Properties

North: Vacant lot
South: Weyerhaeuser
East: Residences
West: JM Huber Corp. Engineered Material, Specialty Minerals

These properties were viewed from the subject property or the nearest public right-of-way. No conditions of environmental concern were observed, however the site is located in a heavy industrial area. Weyerhaeuser is listed in the Washington State Department of Ecology (DOE) Hazardous Sites List and/or the *FirstSearch Environmental* Report as having multiple spills to the environment (Appendix B). Descriptions of these incidences are described in Sections 5.1 and 5.2.

7.0 INTERVIEWS

7.1 Interview with Owner

Scott Dahlquist, representative to Weyerhaeuser Real Estate Development Group, (253) 924-3006 was interviewed via telephone on June 8 and June 20, 2006. The interview is summarized as:

- Weyerhaeuser purchased the subject property in the 1960s and transferred it to the Weyerhaeuser Real Estate Development Group in the 1990s. To his knowledge, the subject property has always been vacant. Up until sometime in the 1980s, it was leased and farmed for mint and then until 2003, cattle grazed onsite.
- Mr. Dahlquist does not know of any onsite spills or derailments are association with the railroad.

7.2 Interview with Site Manager

See interview with owner in Section 7.1.

7.3 Interview with Local Government Officials

Katrina Harris, specialist at the Longview Fire Department, (360) 442-5088 was interviewed via telephone on June 20, 2006. The interview is summarized as:

- The Longview Fire Department database is only searchable by date or address. Ms. Harris searched the database for any incidences along Industrial Way and Washington Way, including along railroad tracks. Records are maintained for city incident response up to three years. Companies such as Weyerhaeuser and Specialty Minerals do not pay taxes. City charges them separately if they respond to an emergency. The invoices are kept on records indefinitely. She did not find any records for the subject property.

7.4 Interview with Others

Walter Marthaller, son of prior subject property owner, (360) 423-7742 was interviewed via telephone on June 19, 2006. The interview is summarized as:

- The Fry's in conjunction with Antone Marthaller owned what is now the Mint Farm Industrial Park and farmed it for mint from 1932 to the 1960s. A portion of the property was in dairy farm use from the 1930s to the 1940s. The dairy herd had a 20-30 head count. Manure from the herd was spread over the crops. Grain and grass were raised over the years since Weyerhaeuser purchased the site.
- The Marthallers grew peppermint onsite until approximately 1965 when Weyerhaeuser purchased the property. DDT, samalofion, and other available pesticides were applied to the crops using a helicopter. Mr. Marthaller is not aware of any mixing pesticides onsite.
- Reynold's purchased the dairies in the 1960s when the cow's teeth reportedly began to fall out when fluorine or fluoride gas was released from the adjacent property.

Mike Karnoski, Weyerhaeuser mill land manager, (360) 578-4862 was interviewed via telephone on June 20, 2006. The interview is summarized as:

- Mr. Karnoski was the environmental manager for Weyerhaeuser from 1992 and 1995. He has been employed for 33 years at the Longview location of the company. The subject property was an active mint farm until the 1980s. He is not aware of any onsite dairies.
- A barn was located onsite that was used by the mint farm. He is not aware if the structures had underground storage tanks on them.
- In early 1990s, Weyerhaeuser leased the property to Ken Croser for cattle grazing and growing hay.
- He is not aware of any train derailment that caused spilling of material. He does not think any spills on Weyerhaeuser mill property had any impact to the subject property. He is not aware of any wells onsite.

Brian Wood, Environmental Manager for Weyerhaeuser in 2000, (360) 636-7080 was interviewed via telephone on June 20, 2006. The interview is summarized as:

- Mr. Wood is not familiar with any train derailments or dumping onsite.

8.0 EVALUATION

8.1 Findings and Opinion

Recognized Environmental Conditions No *recognized environmental conditions* were identified in connection with the subject property.

Historical Recognized Environmental Conditions No *historical recognized environmental conditions* were identified in connection with the subject property.

Other Issues of Concern The following issues, although not included as *recognized environmental conditions*, were identified during this study. Although these issues could potentially result in adverse environmental impacts to the subject property, they are not included as *recognized environmental conditions* because insufficient evidence was collected during the course of this study to come to the conclusion that the condition(s) has resulted in the "presence or likely presence" of contamination to soil and/or groundwater on the subject property.

1. Numerous spills have occurred on the Weyerhaeuser mill located on the southwest adjoining property. There is a possibility of contamination migrating onsite. Based on our current understanding of subject property history, it is believed that the state agency would not hold the owner of the subject property liable for migrating groundwater contamination. The owner may, however, be subject to claims from third parties, e.g. located down gradient, or to request for access from others pursuing investigation of the contamination. Further, the new owner must not add to, or exacerbate, the contamination, if present. The client may wish to review this situation with legal counsel.

   Groundwater is relatively shallow in this area and can be susceptible to tidal influences. If significant contamination has migrated onsite, it may present issues related to certain types of site redevelopment or occupancy.

   The limited scope of this Phase One does not allow PBS to weight the likelihood that contamination has migrated onsite, or to what degree. If the client wishes to further define this risk, groundwater testing could be performed at both the upgradient and down gradient property lines.

2. Residential concerns are generally related to possible use of septic systems and water wells. It is not known if these features were previously used at the property in association with the prior farm buildings or residences. Based on residential usage, this is considered a *de minimis* condition.

3. There is a potential for an historical heating oil tank to be present at the subject property. Based on residential use this is considered a low environmental concern. If a heating oil storage tank is discovered near the historic structures, it should be

decommissioned in accordance with Washington regulations. Extreme care should be exercised while clearing and developing this area.

4. Due to the size and inaccessibility of the site, it was not possible to view all areas. Extreme care should be exercised while clearing these areas. Soils should be observed for staining or contamination. If contamination is encountered, the material should be tested and disposed of at an appropriate facility.

5. Use of agricultural chemicals on the subject property: Historical records indicate the site was in agricultural field crop and dairy use from the 1930s to the 1970s. The use of regulated agricultural chemicals (e.g. organochlorine pesticides and/or arsenical herbicides) is considered an acceptable practice. Spillage, mixing, or handling of these chemicals in bulk quantities or intense usage can result in hazardous soil conditions requiring remedial action in accordance with state or federal agencies.

   No information was available indicating these conditions exist on the subject property therefore this is considered a *de minimis* environmental condition.

8.2 Conclusions/Recommendation and Signatures of Environmental Professionals

PBS has performed a Phase One Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-00 for the property on 31.7 Acres on the Mint Farm Industrial Park, the *property*. Any exceptions to, or deletions from, this practice are described in Section 2.6 of this report.

Based upon the finding of this study, this assessment has revealed no evidence of recognized environmental conditions with the property. No additional environmental investigation appears to be warranted at this time.

6/21/06

Christina Johnson
PBS Project Geologist

Date

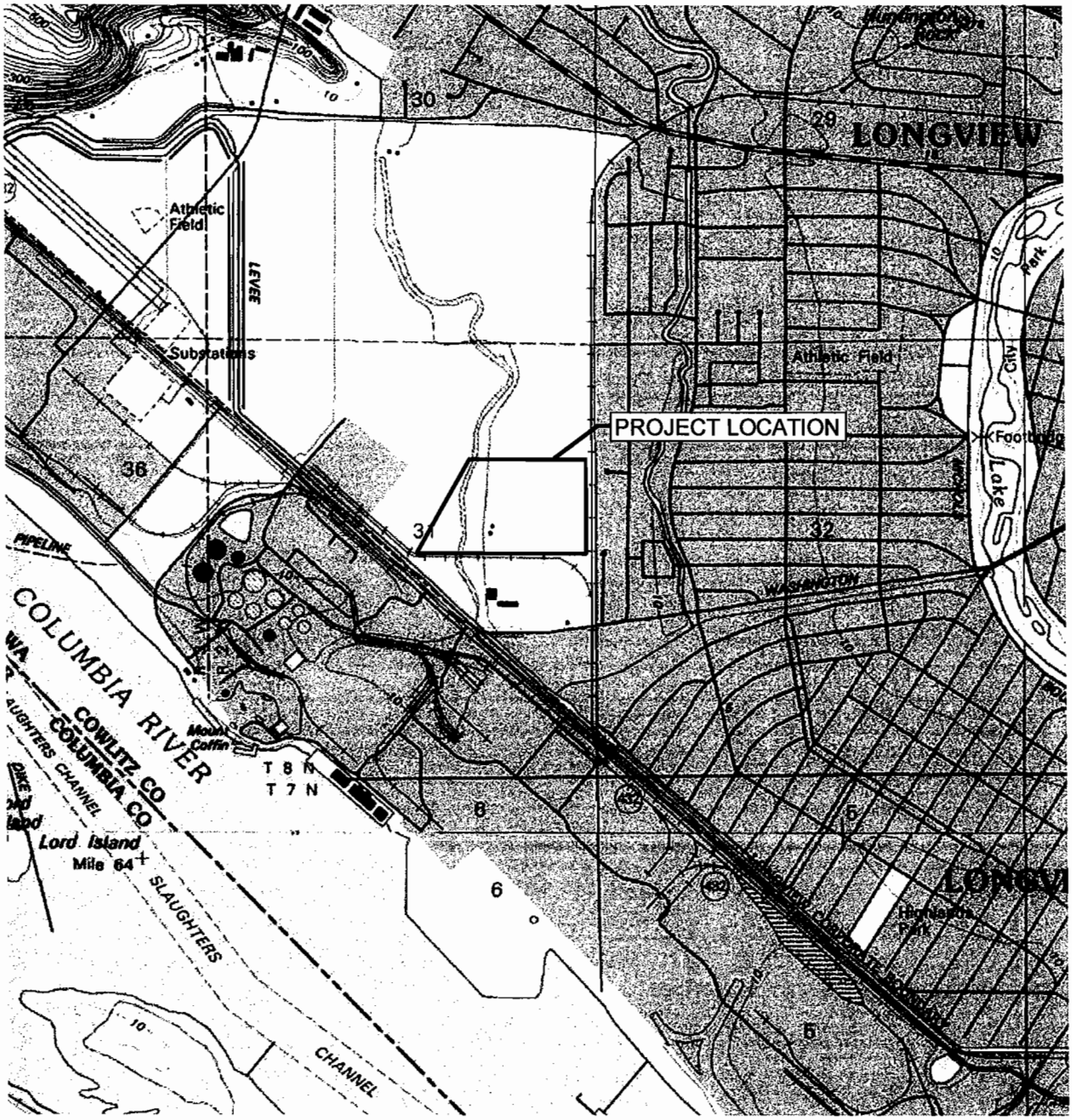
Dulcy A. Berri, R.G.
Principal/Senior Hydrogeologist

Dulcy A. Berri, RG
PBS Senior Reviewer

Date

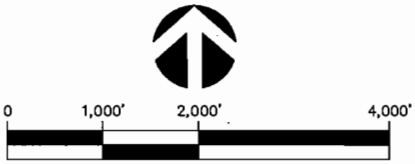
State of Washington
Hydrogeologist
157
Licensed Geologist
DULCY A. BERRI

FIGURES



SOURCE: USGS KELSO QUADRANGLE, WA. 1990

WASHINGTON



SCALE: 1" = 2,000'

Prepared for: MINT FARM INDUSTRIAL PARK

PBS	Project #: 70495.000 Date: JUNE 2006	SITE LOCATION MAP 31.7 ACRES, MINT FARM INDUSTRIAL PARK LONGVIEW, WASHINGTON	FIGURE 1

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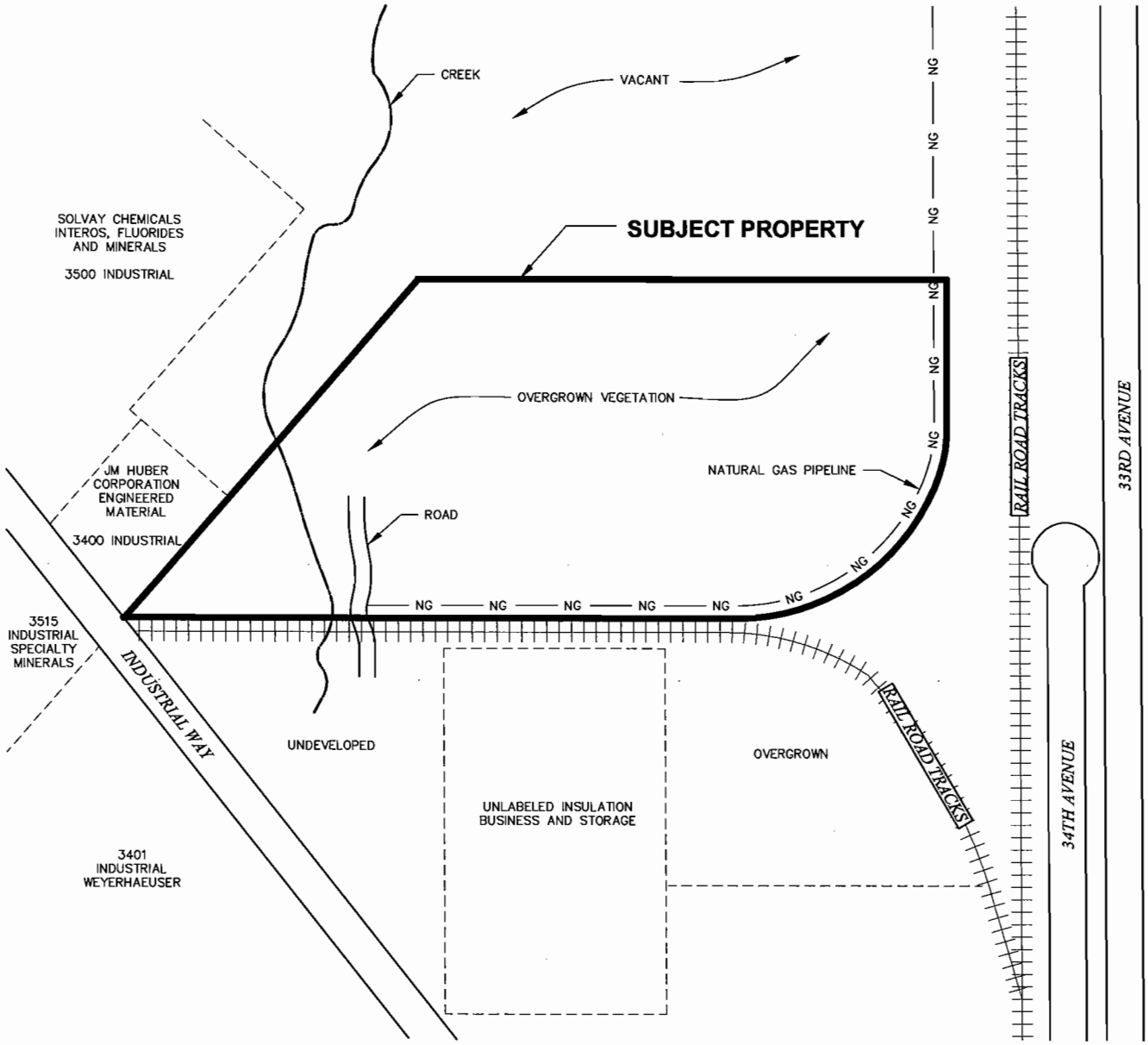

NOT TO SCALE

Prepared for: MINT FARM INDUSTRIAL PARK

PBS	Project #: 70495.000 Date: JUNE 2006	SITE VICINITY PLAN 31.7 ACRES, MINT FARM INDUSTRIAL PARK LONGVIEW, WASHINGTON	FIGURE 2

6/19/06 16:16 P:\70000\70495\70495.000_phase1.dwg

PHOTO DOCUMENTATION

PHOTO 1: View northeast from southwest property boundary.

PHOTO 2: View north towards unnamed creek from south property boundary.

PHOTO 3: View northeast from south center of the subject property.

PHOTO 4: Marshy area in southeast property boundary. Water contains sheen.

PHOTO 5: View south from approximate southwest property boundary corner.

PHOTO 6: View southeast towards Weyerhauser.

PHOTO 7: View west from southeast property boundary.

PHOTO 8: View southeast towards Industrial Way.

PHOTO 9: View northeast towards approximate location of historic onsite buildings.

PHOTO 10: View south towards southeast corner of subject property.

DOCUMENTATION

Glossary
References
Questionnaire Completed by Property Owner Representative
Field Checklist
Resumes

Glossary

Adjoining Properties- Any real property or properties the border of which is contiguous or partially contiguous with that of the subject property, or that would be contiguous or partially contiguous with the subject property but for a street, road, or other public thoroughfare separating them.

All Appropriate Inquiry (AAI)- Previously an undefined requirement to establish the "innocent landowner defense" under CERCLA, AAI has been defined by the US EPA as mandated by the federal Brownfield law passed in 2004. AAI rules now represent the federal standard for conducting Phase One Environmental Site Assessments, and extend protections to also include "contiguous property owners" and "bonafide prospective purchasers". The rule became final in November 2005 for implementation by November 2006. In the interim, ASTM Methods 1527-00 or 1527-05 are approved by the EPA.

Approximate Minimum Search Distance- The area for which records must be obtained and reviewed pursued pursuant to Section 7 of ASTM Standard Practice E 1527-00 subject to the limitations provided in that section. This may include areas outside the subject property and shall be measured from the nearest property boundary.

CERCLA- The Comprehensive Environmental Response, Compensation And Liability Act, as amended including amended by the Superfund Amendments and Reauthorization Act (SARA), 42 USC 9601 *et seq.*

Contaminated Aquifer Policy- Oregon and Washington environmental agencies will not hold a property owner liable for groundwater contamination that has migrated from an upgradient property. This indemnity is granted under the assumption that the property owner is not responsible for the release of the contamination, is not financially associated with the property from which the contamination originated, and did nothing to exacerbate the problem. Certain restrictions might be placed on the use of groundwater on the site (e.g. an irrigation or drinking water well could not be installed on the property). The property owner should ensure that the contamination does not present a health risk to onsite occupants.

De minimis *condition-* Condition that generally does not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not *recognized environmental conditions.*

Hazardous Substance- A substance defined as a hazardous substance pursuant to CERCLA 42 USC 9601 (14), as interpreted by EPA regulations and the courts: "(A) any substance designated pursuant to Section 1321 (b)(2)(A) of Title 33, (B) any element, compound, mixture, solution, or substance designated pursuant to Section 9602 of this title, (C) any hazardous waste having the characteristics identified under or pursuant to Section 3001 of the Solid Waste Disposal Act (42 USC 6921) (but not including any waste the regulation of which under the Solid Waste Disposal Act (42 USC 6901 *et seq.)* has been suspended by act of Congress), (D) any toxic pollutant listed under Section 1317(a) of Title 33, (E) any hazardous air pollutant listed under Section 112 of the Clean Air Act (42 USC 7412), and (F) any imminently hazardous chemical substance or mixture with respect to which the administrator (of EPA) has taken action pursuant to Section 2606 of Title 15."

Note: The term *hazardous substances*, as it is used in this report, is used to describe both *hazardous substances* and *petroleum products*.

Historical recognized environmental condition- An environmental condition which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently. If a past release of any hazardous substances or petroleum products has occurred in connection with the property and has been remediated, with such remediation accepted by the responsible regulatory agency (for example, as evidenced by the issuance of a no further action letter or equivalent), this condition should be considered an historical recognized environmental condition.

Innocent Purchaser Landowner Defense- A defense to CERCLA liability provided in 42 USC 9601 (35) and 9607(b)(3). One of the requirements of this defense is that the parties make "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial and customary practice". There are additional requirements to this defense.

Petroleum Products- Products included within the meaning of the terms within the *petroleum exclusion* to CERCLA, 42 USC 9601 (14), as interpreted by the courts and EPA, that is: petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed under Subparagraphs (A) through (F) of 42 USC 9601 (14), natural gas natural gas liquids, liquefied natural gas, and synthetic gas usable for fuel (or mixtures of natural gas and synthetic gas). {The word "fraction" refers to certain distillates of crude oil including gasoline, kerosene, diesel oil, jet fuels, and fuel oil pursuant to *Standard Definitions of Petroleum Statistics, American Petroleum Institute, Fourth Edition, 1988*}.

Practically Reviewable- Information that is practically reviewable means that information is provided by the source in a manner and in a form that, upon examination, yields information relevant to the subject property without the need for extraordinary analysis of irrelevant data. The form of the data shall be such that the user can review the records for a limited geographical area.

Recognized Environmental Condition- The presence or likely presence of any *hazardous substances* or *petroleum products* on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any *hazardous substances* or *petroleum products* into structures on the property or into the ground, groundwater, or surface water of the property. The term includes *hazardous substances* or *petroleum products* even under conditions in compliance with laws.

Subject Property- The real property that is the subject of this environmental site assessment. Real property includes buildings and other fixtures and improvements located on the property and affixed to the land.

References

REFERENCES

Trimble, D. E., 1963, Geology of Portland, Oregon and Adjacent Areas, United States Geological Survey, Bulletin 1119, 119 p.

United States Geological Survey (USGS), 1990, Topographic map of the 7.5-minute Quadrangle of Kelso, Washington.

Walsh, T. J., Korosec, M. A., Phillips, W. M., Logan, R. L. and Schasse, H. W., 1987, Geologic Map of Washington-Southwest Quadrant, Washington Division of Geology and Earth Resources, Geologic Map GM-34, 1:100,000 scale.

United States Department of Agriculture, Natural Resources Conservation Service (NRCS), Washington State Soil Survey Reports for Cowlitz County. http://www.or.nrcs.usda.gov/pnw_soil/or_data.html; accessed June 2006.

Questionnaire Completed by Property Owner Representative

Fax to: (360) 696-9064

PBS

PORTLAND
SEATTLE
VANCOUVER
EUGENE
BEND
TRI-CITIES

June 1, 2006

Scott Dahlquist
Weyerhaeuser Real Estate Development Division
Federal Way, Washington

Via e-mail: scott.dahlquist@weyerhaeuser.com

Re: Phase One Environmental Site Assessment – Questionnaire
31.70 Acres in the Mint Farm Industrial Park, Longview, Washington

Dear Mr. Dahlquist,

As you may be aware, PBS Engineering and Environmental is currently conducting a Phase One Environmental Site Assessment for the property located at the above address. It is our understanding that you are a knowledgeable owner-representative of the property. The enclosed questionnaire will enable us to be more thorough in our investigation. *While completing the form, please initial the lower right corner of pages 1-5*. Please return as soon as possible to:

PBS Engineering and Environmental
1310 Main Street
Vancouver, Washington 98660
(360) 690-4331

Attn: Christina Johnson

If possible, we would prefer that the questionnaire be faxed back to this office at (360) 696-9064. Thank you for your time concerning this matter.

Sincerely,

Christina Johnson
Staff Geologist

Encl: Questionnaire

1310 Main Street
Vancouver, WA 98660
360.690.4331 MAIN
360.696.9064 FAX
888.873.7273 TOLL FREE

31.70 Acres in the Mint Farm Industrial Park
Longview, Washington
Makad Corporation
June 1, 2006

Please complete and return by fax to (360) 696-9064

PBS

ENVIRONMENTAL QUESTIONNAIRE

The following questionnaire will help PBS in conducting a more thorough investigation during our Phase One Environmental Site Assessment. Please answer the following questions to the best of your ability, *initial at the bottom of each page*, and return via mail or FAX if possible. Where appropriate, please include copies of citations, permits, maps, etc. If necessary, please use the space provided on page 5 to further explain "Yes" responses or include additional information needed to clarify answers (please reference question number).

1. ***Property Ownership;*** Are you the legal owner of the subject property ("property")?

   ☑ Yes (Owner's Representative) Approximate Years owned? 9 Previous Owners Name? Weyerhaeuser

   ☐ No ☐ Legal Owner _____ Owner contact phone _____

   Please provide a description of the past and current use of the property to the best of your knowledge.

   Open space, agricultural land. Property was used to form Mint. Property has also had cattle on it.

2. ***Present or Past Industrial Use;*** Is the property or adjoining properties in industrial use? Any known past uses?

   ☐ No ☑ Yes ☐ Property (specify) _____ ☑ Adjoining property (specify) Solvay Interox

3. ***Other Property Uses;*** Is the property or adjoining properties in gasoline station, automotive repair, commercial printing, dry cleaners, photo developing laboratory, junkyard, landfill or waste treatment, storage, disposal, processing or recycling facility use? Any known past uses?

   ☑ No (none known) ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

4. ***Hazardous Material Storage;*** Is the property or adjoining properties presently being used to store damaged or discarded automotive or industrial batteries, pesticides, paints, or other hazardous chemicals in industrial drums (e.g. 55-gallon or 208 liter capacity) or sacks? Any known past storage of these materials?

   ☑ No (none known) ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

5. ***Fill Dirt;*** To the best of your knowledge, has fill dirt been brought onto the property that originated from a known contaminated site or from an unknown location/origin?

   ☑ No (none known) ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

Initials: SMD

14. ***Use of Petroleum Products;*** Are there any hazardous substances or petroleum products on the property or associated with any facility located on the property? Any past uses? If yes, please clarify

☑ No ❑ Yes ❑ Specify none known

15. ***Water Well Use;*** Is the property served by a private well or non-public water system? If so, have contaminants been identified in the well or system that exceed state or federal guidelines or has the well been designated as 'contaminated' by any government environmental/health agency?

☑ No ❑ Yes ❑ Specify _____

16. ***Liens and/or Property Use Restrictions;*** Do you have any knowledge of environmental liens or activity/use limitations, such as deed restrictions, associated with the property?

❑ No ☑ Yes ❑ Specify Requirement to mitigate for wetland filling on-site. Seller will be responsible for wetland mitigation.

17. ***Devaluing of the Property;*** Has the property value or purchase price been devalued (lowered), relative to comparable properties, as a result of environmental conditions at the property or surrounding properties?

☑ No ❑ Yes ❑ Property (specify) _____ ❑ Surrounding property (specify) _____

18. ***Environmental Violations;*** Do you have any knowledge of past or recurrent violations of environmental laws with respect to the property or any facility located on the property resulting in governmental notification?

☑ No ❑ Yes ❑ Specify _____

19. ***Past Environmental Assessments;*** Have any past environmental site assessments of the property/facility indicated the presence of hazardous substances or petroleum products or subsurface contamination? If so, was further environmental assessment of the property performed and/or recommended?

☑ No ☑ Yes ❑ Specify ~~BAS~~ EIS complete for site, but no petroleum identified.

20. ***Proceedings Related to Release of Hazardous Substances;*** Do you have any knowledge of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substances or petroleum products on the property?

☑ No ❑ Yes ❑ Specify _____

Initials: SMD

6. ***Pits, Ponds, Lagoons or Depressions;*** Are there currently, or have there been previously, any pits, ponds, lagoons or depressions located on the property and used with any kind of waste treatment or waste disposal?

   ☑ No ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

7. ***Stained Soil(s);*** Are there currently, or have there been previously, any stained soils on the property or adjoining properties (other than typical automotive engine oil residue)?

   none known
   ☑ No ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

8. ***Storage Tanks;*** Are there currently any registered or unregistered storage tanks (above or underground) located on the property or adjoining properties? Any past storage tank use on the site to the best of your knowledge?

   none known
   ☑ No ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

9. ***Vent/Fill Pipes and Access Ways;*** Are there presently any vent pipes, fill pipes or access ways protruding from the ground on the property or adjacent to any structure located on the property? Any removed vent or fill pipes?

   none known
   ☑ No ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

10. ***Stained Flooring, Drains, Walls or Foul Odors;*** Are there any flooring, floor drains, catch basins or walls located on the property or within the facilities that are stained by substances other than water? Any emitting foul odors? Do you recall any past staining of these structures or associated foul odors?

    none known
    ☑ No ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

11. ***Wastewater;*** Is wastewater (other than storm water) presently discharged on, or adjacent to the property, or is the property served by an on-site septic system (e.g. septic tank or cesspool)?

    ☑ No ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

12. ***Dumping of Waste;*** Have any hazardous substances or petroleum products, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the property? Any past disposal on the property or adjoining properties?

    ☑ No ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

13. ***PCB Containing Equipment;*** Are there electrical transformers, capacitors or any other oil-filled equipment known to contain PCBs on the property? Any past uses of PCB-containing oil on the site or adjoining sites?

    ☑ No ☐ Yes ☐ Property (specify) _____ ☐ Adjoining property (specify) _____

Initials: SWD

31.70 Acres in the Mint Farm Industrial Park
Longview, Washington
Makad Corporation
June 1, 2006

21. Please indicate below if you can provide, or are aware of any of the following pertaining to the property:

- ❑ Prior environmental site assessment reports, including asbestos survey or abatement reports
- ❑ Environmental audit reports
- ❑ Environmental permits (e.g. solid waste disposal, hazardous waste or wastewater permits, NPDES permits)
- ❑ State or federal registrations for above or underground storage tanks
- ❑ Community right-to-know plan
- ❑ Safety plans, preparedness and prevention plans, spill prevention plans, etc.
- ❑ Hydrogeologic reports
- ❑ Notices/correspondence from governmental agencies (past or current violations of environmental laws)
- ❑ Hazardous waste generator reports
- ❑ Geotechnical studies

Additional comments relating to #21 (above) here:
All related reports have been provided to the Purchaser. ESA has been completed on overall Mint Farm.

For any questions that were answered "Yes", or which otherwise require additional explanation, please provide *question number(s)* and details here:
As you have requested, I have completed the questionnaire. On behalf of Weyerhaeuser Real Estate Development Company, I reviewed our files pertaining to the property and have provided responses to the best of my actual knowledge. Please let me know if you would like to review our files and I would be glad accommodate your review.

The undersigned represents that to the best of his/her knowledge the responses, statements and facts given in this questionnaire are true and correct and no material facts have been suppressed or misstated.

Scott Dahquist
Name (Please Print)

Weyerhaeuser Real Estate Development Company
Company (Representing)

Signature

6/19/06
Date

Owner's Representative
Relationship with the Property

Initials: SMD

Field Checklist

PHASE ONE FIELD CHECKLIST - page 1

Project No.: 70495.000 **Date:** 6/14/06

Completed By: [illegible]

Site Name: Mint Farm Industrial **Site Address:** none (31.70 acres)

Site Contact/Title: Scott Dahlquist

Tenant(s): none

Site Description: empty field - old Mint Farm

Past usage: Mint Farm / cattle Grazing

Past owner: Marshalers

Building Type: none - vacant

Date of Construction: ____ **Major Renovations:** ____ **Lot size:** ____

Elevator? ____ **Hydraulic?** ____ **Escalator?** ____ **Hydraulic?** ____

Frame: ____ **Foundation:** ____

Walls: ____ **Ceilings:** ____

Floors: ____ **Roof:** ____

Heating System: ____

Fluorescent lights? ____

Natural Gas: ____ **Provider:** ____

Electric: ____ **Provider:** ____

Water: ____ **Provider:** ____

Sewer: ____ **Provider:** ____

Storm: ____ **Provider:** ____

Sampling: Asbestos? ____ Description: ____

Location: ____

Lead? ____ Description: ____

Location: ____

Other? ____ Description: ____

Location: ____

Adjacent Properties:

North: vacant

South: unknown storage buildings

East: residential

West: JM Huber Weyerhaeuser

PHASE ONE FIELD CHECKLIST - page 2

Site Features:

Nearest Body of Water: ~~drain~~ ditch south of subject property <1/4 mile, Columbia River 1/4-1/2 south

Topography/slope: ~~flat~~ gently sloping south

Wetlands, ponds, lakes: wetlands (marshy)

Rivers, streams, creeks: Columbia River 1/4-1/2 mile south

Wildlife, livestock: deer hoof prints

Discolored/disturbed soils: none

Mounding or piles of soil:

Depressions:

Stressed vegetation:

Discolored water: yes in marshy area - ~~s~~ organic sheen

Solid waste: none

Landfills:

Railroad spurs: yes East & South prop boundary

Trails, dead end roads: yes - along creek through sp.

Stored chemicals, hazmats: none

Drums, containers:

Lagoons, surface impoundments:

Repair, maintenance activities:

Unusual odors:

Floor drains:

Catch basins, sumps:

Dry wells:

Oil-water separators:

Water wells:

Septic tanks:

Monitoring wells:

Boreholes:

Buried utilities: ~~Z~~ yes - natural gas line

PHASE ONE FIELD CHECKLIST - page 3

USTs or ASTs: none

vents:

fill pipes:

Pits or foundations:

Transformers: Type: Pole-Mounted/Pad-Mounted/Vault (circle one)

ID No. (transformer): none anywhere ID No. (Pole)

condition: label:

Type: Pole-Mounted/Pad-Mounted/Vault (circle one)

ID No. (transformer): ID No. (Pole)

condition: label:

Type: Pole-Mounted/Pad-Mounted/Vault (circle one)

ID No. (transformer): ID No. (Pole)

condition: label:

Onsite interviews:

Name: none - unaccompanied

Information:

Areas not accessed/Why:

Notes:

Resumes

PBS

DULCY A. BERRI, RG, LG, LHG
PROJECT PRINCIPAL/SENIOR HYDROGEOLOGIST

Education	Oregon Graduate Institute, 1989, Contaminant Hydrology Portland State University, M.S., 1982, Geology University of Oregon, B.S., 1979, Geology
Accreditation	2004, WDOE UST Site Assessor 2001, Registered Professional Geologist/Hydrogeologist No. 157, WA 2000, DEQ Heating Oil Tank Supervisor No. 18710 1994, Registered Professional Geologist No. 846, Idaho 1991, DEQ UST Soil Cleanup Supervisor No. 12780 1990, Registered Geologist No. 1167, Oregon 1991, 8-Hour Hazardous Waste Site Supervisor 1990, 40-Hour Hazardous Materials Handling and Response

Dulcy Berri is a senior hydrogeologist with over 15 years experience performing studies throughout the Northwest. She has managed complex site assessment and remediation projects for major oil company properties, the Oregon Department of Corrections, the Port of Portland, and many private commercial and industrial clients. Her experiences routinely involve complex risk analysis, cost estimating, public relations and regulatory agency interactions. She has been contract manager for PBS's environmental services contract with the Portland Development Commission, and for our contract with Multnomah County, for the past three years.

Dulcy's technical experience includes managing complex due diligence issues; aquifer testing, design, installation and testing of groundwater monitoring and water supply wells; feasibility testing, design, construction and operation of soil and groundwater remediation systems; successful agency closure on numerous cleanup projects, including institutional controls, Risk-Based Cleanups, Prospective Purchaser Agreements, Voluntary Cleanup and Independent Cleanup programs.

Highlights of Project Experience

- Project Manager, PDC, Phase Two subsurface assessment of PSU Carpool Parking Lot, included evaluation of potential environmental costs to be encountered by site redevelopment with subsurface parking structure.
- Contract Manager, US Corps of Engineers subcontractor performing Soil Survey at Camp Bonneville, former Army weapons range in SW Washington; Sampling and Analysis and Health and Safety Plans approved by EPA and Washington DOE, UXO subcontractor.
- Project Manager, boatworks site on the Columbia River; contaminated sediments study, in DEQ VCP Program (ongoing).
- Project Manager, Glenbrook Nickel Company sites in Oregon (Riddle and Coos Bay) undergoing closure of operations; DEQ NFA achieved at Riddle smelter site, currently working with DEQ VCP on upland and sediments at Coos Bay site.
- Project Manager, Linfield College LUST site; groundwater monitoring wells and compliance monitoring following remediation work, negotiated with DEQ for deed restriction on a portion of the site where gasoline constituents were elevated but could not be reasonably remediated; received DEQ NFA.
- Project Manager, Agripac, Inc.; Managed delineation of hydrogeology and contaminant plumes via monitoring well networks, several large-acreage sites; achieved DEQ ICP closure.
- Project Manager/Hydrogeologist, Former Dry Cleaners site, Hillsboro, Oregon. Soil and groundwater studies of PCE, TCE and degradation products; discovered pocket of Stoddard solvent contamination; angle-borings under the building, evaluating *Vapor Intrusion into Buildings* risk pathway; DEQ Independent Cleanup Pathway Program; NFA expected January 2004.
- Project Geologist, Oregon Department of Corrections facilities in Salem and Pendleton, Oregon. Reviewed Preliminary Assessment findings; conducted expanded Pas under Consent Order.
- Project Manager/Senior Hydrogeologist, ARCO Products Company and Unocal CERT Group, managed over 30 Pacific Northwest sites.

PBS

CHRISTINA M. JOHNSON
STAFF GEOLOGIST

Education:	2002	University of Washington, B.S., Geological Sciences
Accreditation:	2004	OSHA 40-Hour Hazardous Waste Handling and Emergency Response (current)
	2005	AHERA Building Inspector (current)
	2004	First Aid/CPR certification
Continuing Education	2004	University of Idaho GIS course using ArcView 9.0

Christina Johnson's broad range of educational and professional experience provides a unique contribution to PBS. She has mapped geologic structures in southwest Montana and collected GPS and hydrologic information from recovering Mt. Pinatubo river systems in the Philippines. Using Arcview, a GIS based mapping program, she created a historic abandoned landfill inventory by geo-referencing site locations and collecting site information photo-documentation for the U.S. Forest Service. As a volunteer with the U.S. Geological Survey, she designated line placement, transported materials, coordinated team efforts, and participated in charge detonation on a seismic line survey team. She also has working skills with MapInfo and ArcView. Ms. Johnson has experience dealing and managing large databases utilizing SQL querying, MS Access and MS Excel.

Representative Experience and Projects:

- Bunker Hill Superfund Site- Supervised the proofing process of approximately 40,000 soil, water, and dust samples for the Basin yard sampling program; assisted with the Bunker Hill Superfund Site (Box) House Dust Data Summary Report and drafted the 2003 and 2004 Coeur d'Alene Basin Sampling QA/QC memoranda.
- Department of Housing and Urban Development (HUD)- Participated in study comparing the CERCLA and HUD lead sampling techniques; helped i) solicit residents by discussing the project with them, ii) select participants by using given criteria and completing questionnaires, and iii) scheduled and conducted the sampling.
- Port of Tillamook- Phase I Site Assessment, Tillamook, Oregon
- Green Gables Syndicate- Phase I Site Assessment Update
- Oregon Pacific Investments- Phase I Site Assessment Update
- U.S. Bank-Several Phase I Site Assessments, assisted with asbestos and mold assessment
- SRC Investments (Portland)-Phase I Site Assessment, McCall, Idaho
- Idaho Department of Transportation-Couer d'Alene- Asbestos inspection, Sandpoint, Idaho
- Pullman Developmental Council- Phase I Site Assessment, Pullman, Washington
- Camas Creek Winery- Assisted with mold inspection and sampling, Moscow, Idaho
- Colville Confederated Tribe-Lead-based paint risk assessment, Colville, Washington

APPENDIX A

PBS Proposal/Contract to Provide a Phase One Environmental Site Assessment

makad

Facsimile Transmittal Sheet

Makad Corp.
Mailing Address: 805 Broadway, Suite 747, Vancouver, WA 98660
Confirmation: (360) 699-3002 Fax: (360) 699-3007

Date:	**May 31, 2006**
Attention:	**Guy Neal**
Company:	**PBS**
Fax Number:	**503-248-0223**
From:	**Tabitha Beattie**

Total Number of Pages Including Cover: 8

CONFIDENTIAL

Dear Mr. Neal,

Pursuant to your phone conversation on May 23, 2006 with Tawni Camarillo attached please find the Proposal to provide engineering and environmental services for the Mint Farm Project, Longview, Washington. If any further information is needed please feel free to call our office.

Thank you,

MAKAD CORP.

Tabitha Beattie
Administrative Assistant

" THE INFORMATION CONTAINED IN THIS FAX IS INTENDED ONLY FOR THE PERSONAL AND CONFIDENTIAL USE OF THE DESIGNATED RECIPIENT(S) NAMED ABOVE. This message may be an attorney-client communication, and as such, is privileged and confidential. If the reader of this message is not the intended recipient, you are hereby notified that you have received this document in error, and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately. Thank you."

site or adjoining land. Interviews with past owners, occupants and operators of the site will also be conducted. An environmental questionnaire will be submitted to the current owner for completion, as well as other persons identified as having specific knowledge of the site. It is understood that the client will provide all known environmental information, including former site use, hazardous wastes, and contact information, etc.

2. AGENCY FILE CHECK: Using a commercial database search provider, obtain a search of regulatory agency listings per ASTM 1527-00 to identify known hazardous substance violations, contaminant discharges and other environmental problems for varying distances based upon their relative potential impact to the subject property.

3. GEOLOGIC RESEARCH: Review available soils, geology, engineering, groundwater or other reports regarding the property and the immediate vicinity.

4. HISTORICAL REVIEW: Review aerial photographs of the site and adjacent property to assess previous site conditions and operations (if available). Other historical information that may be reviewed includes Sanborn fire maps, city directories, building permits, or property title information (if provided by the client)) to determine history of usage. A review of the chain-of-title documents may be recommended if a significant data gap is identified, resulting in an additional fee. Whenever feasible, the history of the property will be traced to 1940 or to a time prior to its earliest developed use, whichever is earlier.

5. PHYSICAL INSPECTION: PBS will conduct one site visit, during which the property and any structures will be visually inspected for potentially hazardous materials, existing in the past or present. A field checklist will be completed, and pertinent observations related to potential environmental conditions will be recorded. Interviews with on-site personnel, tenants or other persons familiar with the history of the area will be conducted.

6. REPORT: A final report will be prepared containing observations and conclusions relating to the apparent environmental conditions of the site. The report will include a description of site, CAD vicinity plan, conditions encountered, and documentation of resources including regulatory and historic records reviewed and conclusions. If appropriate, recommendations will be included unless PBS is directed otherwise by the client.

State Environmental Protection Act (SEPA) Checklist:

The purpose of the SEPA is to ensure that environmental values are considered during decision-making by local and state agencies. PBS will complete a State Environmental Policy Act (SEPA) Checklist for the proposed Fuel Production Facility at the Mint Farm Industrial Park. The Mint Farm Industrial Park Environmental Impact Statement (EIS) will serve as a primary source of information to aid in the completion of a SEPA Environmental Checklist.

PBS

PORTLAND
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May 16, 2006

Makad Corp.
Development Group
Attn: Ms. Tawni Camarillo
805 Broadway, Suite 747
Vancouver, WA 98660

Re: Proposal to Provide Engineering and Environmental Consulting Services for the Mint Farm Project, Longview, Washington

Dear Ms. Camarillo:

PBS is pleased to submit the following proposal for assisting Makad Corporation (Client) with various consulting services for the proposed Mint Farm development. The following describes the proposed services discussed in our meeting yesterday at your Vancouver offices.

PROJECT APPROACH:

Based on information provided to PBS during our meeting on May 16, 2006, it is our understanding that the Client is currently completing engineering and permitting steps towards the development of a new ethanol production facility to be located on the Mint Farm Industrial Park, Longview, Washington. The client is requesting PBS complete a Phase One Environmental Site Assessment, SEPA Checklist, and Air Quality Permit Application. The following scope of services describes the work that we are currently proposing to complete for the Client.

SCOPE OF SERVICES:

Phase One Environmental Site Assessment (ESA):

The purpose of the Phase One ESA is to identify environmental concerns which may present a potential liability under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and which may require further investigation.

The scope of work currently meets requirements to establish protection from CERCLA liability for innocent landowners, bona fide prospective purchasers and contiguous property owners. The work will be performed in accordance with ASTM Standard 1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process.

1. INITIAL MEETING: Meet or talk with the property owner or other key personnel to further discuss the project and to obtain any information that may be relevant to the

1310 Main Street
Vancouver, WA 98660
360.690.4331 MAIN
360.696.9064 FAX
888.873.7273 TOLL FREE

site or adjoining land. Interviews with past owners, occupants and operators of the site will also be conducted. An environmental questionnaire will be submitted to the current owner for completion, as well as other persons identified as having specific knowledge of the site. It is understood that the client will provide all known environmental information, including former site use, hazardous wastes, and contact information, etc.

2. AGENCY FILE CHECK: Using a commercial database search provider, obtain a search of regulatory agency listings per ASTM 1527-00 to identify known hazardous substance violations, contaminant discharges and other environmental problems for varying distances based upon their relative potential impact to the subject property.

3. GEOLOGIC RESEARCH: Review available soils, geology, engineering, groundwater or other reports regarding the property and the immediate vicinity.

4. HISTORICAL REVIEW: Review aerial photographs of the site and adjacent property to assess previous site conditions and operations (if available). Other historical information that may be reviewed includes Sanborn fire maps, city directories, building permits, or property title information (if provided by the client)) to determine history of usage. A review of the chain-of-title documents may be recommended if a significant data gap is identified, resulting in an additional fee. Whenever feasible, the history of the property will be traced to 1940 or to a time prior to its earliest developed use, whichever is earlier.

5. PHYSICAL INSPECTION: PBS will conduct one site visit, during which the property and any structures will be visually inspected for potentially hazardous materials, existing in the past or present. A field checklist will be completed, and pertinent observations related to potential environmental conditions will be recorded. Interviews with on-site personnel, tenants or other persons familiar with the history of the area will be conducted.

6. REPORT: A final report will be prepared containing observations and conclusions relating to the apparent environmental conditions of the site. The report will include a description of site, CAD vicinity plan, conditions encountered, and documentation of resources including regulatory and historic records reviewed and conclusions. If appropriate, recommendations will be included unless PBS is directed otherwise by the client.

State Environmental Protection Act (SEPA) Checklist:

The purpose of the SEPA is to ensure that environmental values are considered during decision-making by local and state agencies. PBS will complete a State Environmental Policy Act (SEPA) Checklist for the proposed Fuel Production Facility at the Mint Farm Industrial Park. The Mint Farm Industrial Park Environmental Impact Statement (EIS) will serve as a primary source of information to aid in the completion of a SEPA Environmental Checklist.

We are assuming that the following information will be provided to aid in providing all required information for the SEPA:

1) Copies of all applicable background documents;
2) A site plan;
3) A basic project description and specific information on the following:
    a. Descriptions and quantities of air emissions;
    b. Amount of material to be used as fill or removed from wetlands/waters, including the source of fill;
    c. Quantities of any surface water withdrawals;
    d. Volumes of discharge to surface water;
    e. Quantities of groundwater withdrawals or discharges;
    f. Information regarding the proposed stormwater system;
    g. Approximate numbers of jobs to be created; and
    h. Heights of structures (existing and proposed).

The preparation of an Environmental Report may be necessary to accompany the SEPA Checklist. The City of Longview has indicated that the Washington Department of Ecology will be the Lead Agency for the SEPA Review (per WAC 197-11-938(9). The requirements of the Department of Ecology vis-à-vis this project is not known at this time, therefore we are not including completion of an Environmental Report in this proposal. We will continue to research these requirements and will supply an addendum to this proposal when clarity on this issue has been achieved.

Air Quality Permit Application:

We have reviewed the emission unit information contained in the Oregon Standard Air Contaminant Discharge Permit for an installation similar to your proposed development. Based on this permit, we understand there will be approximately 15 individual emission units plus various fugitive emission sources that are part of the planned development and seven air pollution control units. Additionally, there will be approximately 15 processes that will make up the new facility's operation. PBS will assist with the preparation of application material to be submitted to the Southwest Clean Air Agency (SWCAA) to facilitate their preparation of an air permit for your new facility.

PBS will complete the following tasks:

1. EMISSIONS INVENTORY: PBS will complete an emissions inventory to determine emissions of regulated pollutants expected to be produced from the facility and individual emission units. We will utilize published emission factors and/or any available source test results that are made available to us. This information will be utilized to prepare the Notice of Construction permit applications required by SWCAA

2. BACT DETERMINATION: PBS will complete an analysis of Best Available Control Technology (BACT) for the facility. The BACT analysis will be completed

in accordance with EPA guidelines. We will also include SWCAA's input on the BACT process for this facility.

3. MEETINGS: In order to prepare an accurate and complete application package, we envision meeting with the client and SWCAA at various stages to discuss the facility processes and emission units, and to discuss strategies for incorporating maximum permitting flexibility into the operational permit. We are including up to five meetings at either the client's offices or SWCAA's offices in our proposed fee.

4. DRAFT APPLICATION: PBS will complete the necessary permit application forms and materials for submittal to the client for review. We will use SWCAA approved forms to prepare our application. We will submit a draft of the application for client review and approval prior to developing a final package for SWCAA submittal.

5. FINAL APPLICATION: PBS will incorporate the client's comments into a final application package to be submitted to SWCAA for their review. We will respond to any comments that their air permitting personnel may have regarding the application and we will facilitate preparation and submittal of additional information. We assume the client will be responsible for payment of all application fees associated with this project.

We are assuming that the development will not be considered a major source of air pollutants requiring a Title V permit, nor will the facility require emissions modeling to evaluate compliance with air quality regulations. This proposal does not include the costs for any compliance testing, monitoring, or recordkeeping associated with the operation of the facility. If modeling is determined to be required during completion of the permit application process, we will provide a separate proposal to complete this work.

This proposal assumes availability of an adequate site plan in ACAD format showing location of emission units and process diagrams.

LIMITATIONS:

Phase One Environmental Site Assessment:
The purpose of this phase of the work is to determine if more in-depth studies are to be developed. Observations will be made based on the best available information by trained professionals. It is not intended to be a comprehensive determination of all potential liabilities associated with a particular property, nor is it represented as a legal opinion as to the client's performance of "due diligence" concerning the purchase of real estate. Unless otherwise specified, the scope of work does not include a review/opinion of legal instruments such as indemnification agreements, purchase and sale agreements, liens, etc. Its cursory nature is to be noted by all parties.

Unless otherwise specified in this proposal, the scope of work for the project does not address the following items: hazardous materials audit, environmental permit compliance (unless directly related to potential CERCLA liability); indoor air quality, mold or radon; wetlands and other land use issues, geotechnical or geologic hazards, nor does it include subsurface exploration or

chemical screening of soil and groundwater beneath the site which is needed to determine site contamination with scientific certainty.

PBS will utilize a commercial database search provider in the conduct of this project. Their report is subject to the limitations, constraints, inaccuracies and incompleteness of government information and of computer mapping data and conventions.

SEPA and Air Quality Permit Application:
The findings and conclusions of this report are not scientific certainties but, rather, probabilities based on professional judgment concerning the significance of the data gathered during the course of the Environmental Site Assessment. PBS is not able to represent that the subject property or adjoining land contains no hazardous waste, oil or other latent condition beyond that detected or observed by PBS during the ESA. The possibility always exists for contaminants to migrate undetected through surface water, air or groundwater. The ability to accurately address the environmental risk associated with transport in these media is beyond the scope of this study.

FEE:

PBS will provide our services on a fee basis as indicated below. We will not exceed the fee without your approval.

1. Phase One Environmental Site Assessment ..... [redacted]

2. SEPA Checklist ..... [redacted]

3. Air Quality Permit Application Process ..... [redacted]

Total Fee ..... [redacted]

The fee and the terms under which our services are provided will be in accordance with the attached General Terms and Conditions for Professional Services ("Terms and Conditions") dated 9/2005, which together with this proposal comprise the entire agreement between the parties. The Terms and Conditions may not be changed without the prior written consent of the parties.

This proposal, its terms and conditions may not be assigned without the prior written consent of the other party. Such consent shall not be unreasonably withheld.

SCHEDULE:

We anticipate that our services can be started immediately upon receipt of a signed copy of this proposal. The individual items will be completed as follows:

Phase One Environmental Site Assessment – 2 Weeks

SEPA Checklist – 2 Weeks

Air Quality Permit Process – The first meeting can occur with 3 days, draft applications materials will be prepared within 4 Weeks.

Please indicate acceptance of this agreement by returning a signed copy of this agreement or a purchase order incorporating the terms of the agreement.

We appreciate this opportunity to submit our proposal to you and look forward to your favorable consideration. Please contact us if you have any questions.

Sincerely,

Guy M. Neal, P.E.
Principal Engineer

ACCEPTED BY:
MAKAD CORP.

Tawni Camarillo
Name

By: Tawni Camarillo
Signature

City of Stayton 5-18-06
Title Date

Attachments: General Terms and Conditions for Professional Services (Rev. 9/2005)

PBS

GENERAL TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES

Attached to and part of our letter agreement to client outlining our specific scope of services:

The purpose of these General Terms and Conditions is to identify basic contractual obligations of PBS and Client for various professional consulting services, whereby PBS would be acting in the role of Consultant/Owner Representative for Client. Individual projects may require additional detailed descriptions of services to be provided as a supplement to this agreement.

1. **RIGHT OF ENTRY:** Unless otherwise agreed, the Client will furnish PBS right-of-entry on real property and be responsible for the propriety of the time, place, and manner of our entry upon the real property where we are to perform our services. PBS will take reasonable precautions to minimize damage to the real property from use of equipment, but have not included in the fee the cost of restoration, unless specifically included in our scope of work. If the Client desires PBS to restore the real property to its approximate former condition, we will accomplish this and add the cost plus 15 percent to our fee.

2. **BURIED UTILITIES:** PBS field personnel are trained to initiate field testing, drilling and/or sampling within a reasonable distance of each designated utility location. PBS field personnel will avoid hazards or utilities that are observed by them at the site. If PBS is advised in writing of the presence or potential presence of underground or overground obstructions, such as utilities, we will give special instructions to our field personnel. PBS is not responsible for any damage or loss due to undisclosed or unknown surface or subsurface conditions owned by client or third parties. The client will hold PBS and PBS subcontractors harmless from any loss resulting from inaccuracy of markings, of plans, or lack of plans, relating to the location of utilities. Note: Utility locates typically requires 2 full working days advance notice.

3. **WORKER'S COMPENSATION INSURANCE:** PBS will provide Worker's Compensation insurance (and/or Employer's Liability insurance) as required by state statutes.

4. **LIABILITY INSURANCE:** PBS carries comprehensive General Liability insurance which, subject to its terms and limits, may provide protection against liability arising out of bodily injury or property damage arising out of PBS operations. PBS makes no representations or warranties concerning the effect, applicability or scope of such insurance. Upon request in writing by Client to PBS, PBS will request its insurer to name Client as an additional insured on such policies and to issue certificates to Client to that effect. PBS makes no representations or warranties regarding any act by its insurer(s), and shall not be responsible for performing any act with respect to such insurance not specifically called for by this paragraph.

5. **PROFESSIONAL LIABILITY AND LIMITATION THEREOF:** This paragraph relates only to Professional Liability and not General Liability. In performing our professional services, we will use that standard of care and skill ordinarily recognized under similar circumstances by members of our profession in the state and region at the time the services are performed. No other warranty, either expressed or implied, is made in connection with our rendering of professional services.

6. **CONTRACTED WORK:** PBS, including its subconsultants, are retained hereunder for the limited purpose of performing certain environmental surveys, providing the results of such surveys to client, and making recommendations with respect to the data produced by the surveys. PBS is not responsible for the overall environmental status of Client's project, for the interpretation of the survey results by others, for any use of its reports by Client or others except as specifically set forth herein, or for any other matter not encompassed in the specific assignment given to PBS by Client. Any unauthorized use or distribution of PBS's work shall be at the Client and recipient's sole risk. If Client desires to release, or for PBS to provide, our report(s) to a third party not described above for that party's reliance, PBS will agree to such a release provided we receive written acceptance from such third party to be bound by acceptable terms and conditions similar to this agreement, in addition to a fee for extending our liability to a new party. The Client shall indemnify, defend and hold harmless PBS and its subconsultants from any claims, damages, costs, losses and expenses, including but not limited to attorney fees and costs on arbitration, trial or appeal arising out of unauthorized or third party use of PBS' reports.

7. **SAMPLES:** All samples will be discarded 30 days after submission of our final report unless other arrangements are made.

8. **PAYMENTS TO CONSULTANT:** Invoices will be submitted periodically for prior services. An account will become delinquent 30 days after date of billing. It is agreed that a late charge will be added to delinquent accounts at the rate of one-and-one-half percent (1-1/2%) for each thirty days delinquent (provided the rate of such late charge shall not exceed the maximum allowable by the laws of the state in which our office submitting the invoice is located).

9. **RATE SCHEDULE:** Fees for services are based on the number of hours expended on the project, including travel, by PBS personnel plus any reimbursable expenses. Our hourly rates will be billed as stated in our proposal or at our current hourly rates (available upon request).

PBS

10. REIMBURSABLE EXPENSES:

A. Outside Services. Subcontracted services such as subconsultants, labor, and technical services will be invoiced at cost plus 15 percent. Examples of services that may be subcontracted include other professional disciplines, soil boring, well installation, heavy and specialty equipment operators, geophysical surveys, and computer programming.

B. Supplies. Charges for items not ordinarily furnished by PBS such as expendable equipment, rental equipment, subsistence, travel expenses, tolls, special fees, reproduction, permits, licenses, priority mail fees, and long-distance and wireless telephone calls will be invoiced at cost plus 10%.

C. Equipment. Certain PBS-owned equipment (for sampling, testing, personal protective equipment, vehicle mileage, photocopying, etc.) may be required to complete the project. These will be invoiced at our standard rates without markup (rates available upon request).

D. Laboratory. PBS utilizes both in-house and outside laboratories for sample analysis. We maintain a list of standard rates for sample analyses commonly utilized in conjunction with our services (available upon request).

11. OTHER PROVISIONS: Neither party shall hold the other responsible for delay in performance caused by acts of God, strikes, lockouts, weather, accidents, or other events beyond the control of the other or the other's employees and agents.

Waivers by either party of any provision, term, condition or covenant, shall not be construed by the other party as a waiver of a subsequent breach of the same by the other party by providing written notice. This agreement supersedes any contract language which may be issued by client as a matter of standard purchasing protocol without regard to the unique nature of professional services.

An opinion of construction, remediation and restoration costs prepared by PBS represents our judgment as a professional. Since we have no control over the cost of labor and material, or over competitive bidding or market conditions, we do not guarantee the accuracy of our opinion as compared to contractor bids of actual cost to the Client.

It is understood and agreed by both parties that PBS, in performing professional services for the Client with respect to hazardous or microbial substances, will make recommendations to the Client but does not have the authority or responsibility to decide where disposal or treatment takes place, nor to designate how or by whom the hazardous or microbial substances are to be transported for disposal or treatment. It is understood that PBS is not the generator or site operator and does not own the hazardous waste discovered, handled or removed from the owner's property. Client agrees under advice from client's counsel to timely disclosure to appropriate public agencies as required by law; any information that may be necessary to prevent damage to human health, safety, or the environment. Client agrees that PBS and its consultants are not responsible for the creation of the condition(s) PBS is being asked to investigate and that it would be unfair for PBS to be exposed to claims of injury or damage as a result of the conditions. In addition, Client understands that it is possible that exploration and investigation may fail to reveal the presence, location or source of the condition(s) being investigated even when the condition(s) is assumed or expected to exist. Client understands that PBS's failure to discover and/or locate the condition(s) or the spread of the condition(s) through appropriate and mutually agreed upon techniques does not guarantee that the condition(s) does or does not exist. Client agrees that it would be unfair to hold PBS liable for creating the condition(s) or the spread of the condition(s) providing PBS meets a reasonable standard of care and/or as described by supplemental proposal. Accordingly, Client waives any resulting claims against PBS and its consultants, and agrees to defend, indemnify and hold harmless PBS and its consultants from any and all claims or liability for injury or loss arising from the creation of the original condition(s) or the unintentional exacerbation of the original condition(s) by PBS, the exacerbation of hazardous conditions by others, the discovery of any condition, location of any condition and/or allowing any condition to exist. Client also agrees to fairly compensate PBS and its consultants for any time spent and expenses incurred in the defense of any such claim.

PBS does not provide legal opinions, and recommends client seek legal counsel for advice on issues such as the appropriateness of a particular scope of work to minimize legal liability, potential cost recovery from responsible parties, and to assess the value of maintaining attorney/client privilege for work conducted under this agreement.

In the event there is a dispute between PBS and the Client concerning the performance of any provision in this agreement, the losing party shall pay the prevailing party reasonable attorney's fees and costs on trial or appeal. In addition, Client agrees to pay PBS for all employee time, costs, and witness costs incurred for collection activity.

This agreement can be terminated at any time by either party. If terminated prior to the completion of a scope of work, PBS shall be entitled to its portion of fees for any work performed in accordance with the above rate schedule.

APPENDIX B

Standard Environmental Records Search Report
Environmental FirstSearch

TRACK ➤ INFO SERVICES, LLC

Environmental FirstSearch™ Report

TARGET PROPERTY:

PRUDENTIAL BLVD

LONGVIEW WA 98632

Job Number: 70495.001

PREPARED FOR:

PBS Engineering and Environmental

4412 SW Corbett Avenue

Portland, OR 97239

06-06-06

Tel: (866) 664-9981 *Fax: (818) 249-4227*

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Environmental FirstSearch
Search Summary Report

Target Site: PRUDENTIAL BLVD
LONGVIEW WA 98632

FirstSearch Summary

Database	Sel	Updated	Radius	Site	1/8	1/4	1/2	1/2>	ZIP	TOTALS
NPL	Y	04-10-06	1.00	0	0	0	0	0	0	0
CERCLIS	Y	03-08-06	0.50	0	0	0	0	-	0	0
NFRAP	Y	03-08-06	0.50	0	0	0	0	-	0	0
RCRA TSD	Y	02-16-06	0.50	0	0	0	0	-	0	0
RCRA COR	Y	02-16-06	1.00	0	0	0	0	0	0	0
RCRA GEN	Y	02-16-06	0.25	0	0	0	-	-	2	2
RCRA NLR	Y	02-16-06	0.12	0	0	-	-	-	1	1
ERNS	Y	12-31-05	0.12	0	0	-	-	-	4	4
State Sites	Y	04-13-06	1.00	0	0	0	0	5	3	8
Spills-1990	Y	04-11-05	0.12	0	0	-	-	-	0	0
SWL	Y	04-07-05	0.50	0	0	0	0	-	0	0
REG UST/AST	Y	04-13-06	0.25	0	0	0	-	-	0	0
Leaking UST	Y	04-13-06	0.50	0	0	0	0	-	0	0
Federal Land Use	Y	01-27-05	0.50	0	0	0	0	-	2	2
Brownfield	Y	10-18-05	0.50	0	0	0	0	-	0	0
- TOTALS -				0	0	0	0	5	12	17

Notice of Disclaimer

Due to the limitations, constraints, inaccuracies and incompleteness of government information and computer mapping data currently available to TRACK Info Services, certain conventions have been utilized in preparing the locations of all federal, state and local agency sites residing in TRACK Info Services's databases. All EPA NPL and state landfill sites are depicted by a rectangle approximating their location and size. The boundaries of the rectangles represent the eastern and western most longitudes; the northern and southern most latitudes. As such, the mapped areas may exceed the actual areas and do not represent the actual boundaries of these properties. All other sites are depicted by a point representing their approximate address location and make no attempt to represent the actual areas of the associated property. Actual boundaries and locations of individual properties can be found in the files residing at the agency responsible for such information.

Waiver of Liability

Although TRACK Info Services uses its best efforts to research the actual location of each site, TRACK Info Services does not and can not warrant the accuracy of these sites with regard to exact location and size. All authorized users of TRACK Info Services's services proceeding are signifying an understanding of TRACK Info Services's searching and mapping conventions, and agree to waive any and all liability claims associated with search and map results showing incomplete and or inaccurate site locations.

Environmental FirstSearch
Site Information Report

Request Date:	06-06-06	**Search Type:**	COORD
Requestor Name:	Claudia Byes-Lund	**Job Number:**	70495.001
Standard:	AAI		**Filtered Report**

TARGET ADDRESS: PRUDENTIAL BLVD
LONGVIEW WA 98632

Demographics

Sites: 17 **Non-Geocoded:** 12 **Population:** NA

Radon: -0.3 - 8.2 PCI/L

Site Location

	Degrees (Decimal)	Degrees (Min/Sec)		UTMs
Longitude:	-122.985833	-122:59:9	**Easting:**	501094.297
Latitude:	46.137478	46:8:15	**Northing:**	5109104.461
			Zone:	10

Comment

Comment:31 ACRES, NEAR INDUSTRIAL WAY

Additional Requests/Services

Adjacent ZIP Codes: 0 Mile(s)

ZIP Code	City Name	ST	Dist/Dir	Sel

Services:

	Requested?	Date
Sanborns	No	
Aerial Photographs	Yes	06/06/06
Historical Topos	No	
City Directories	No	
Title Search	No	
Municipal Reports	No	
Online Topos	Yes	06/06/06

Environmental FirstSearch
Sites Summary Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

TOTAL: 17 **GEOCODED:** 5 **NON GEOCODED:** 12 **SELECTED:** 0

Page No.	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map ID
1	STATE	REYNOLDS METALS CSCR:29	4029 INDUSTRIAL LONGVIEW WA 98632	0.59 NW	1
3	STATE	REYNOLDS METALS CO LONGVIEW REDUCT NFA:30	4029 INDUSTRIAL WAY LONGVIEW WA 98632	0.59 NW	1
3	STATE	CHINOOK VENTURES INC LONGVIEW NFA:29	4029 INDUSTRIAL WAY LONGVIEW WA 98632	0.59 NW	1
4	STATE	LONGVIEW AUTO WRECKING CSCR:5808650	2001 38TH AVE LONGVIEW WA 98632	0.64 NW	2
5	STATE	WEYERHAEUSER CO HG CHLOR ALK CSCR:28	3535 INDUSTRIAL WAY LONGVIEW WA 98632	0.95 SE	3

Longview fine
paper operation

Environmental FirstSearch
Sites Summary Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

TOTAL: 17 **GEOCODED:** 5 **NON GEOCODED:** 12 **SELECTED:** 0

Page No.	DB Type	Site Name/ID/Status	Address	Dist/Dir	Map ID
7	ERNS	MILE POST 105.5 NRC-760320/RAILROAD NON-RELEASE	LONGVIEW WA	NON GC	
10	ERNS	LONGVIEW YARD. TRAIN TRAVELING ON NRC-521322/RAILROAD	MP100 LONGVIEW WA	NON GC	
14	ERNS	WEYERHAEUSER PAPER CO 188403/FIXED FACILITY	PO BOX 188 3401 INDUSTRIAL LONGVIEW WA	NON GC	
15	ERNS	WEYERHAUSER PAPER CO 301214/FIXED FACILITY	BASEMENT UNDER NO 4 PAPER M LONG VIEW WA 98632	NON GC	
16	LANDUSE	ENDANGERED SPECIES 53015-98632/NEPA	LONGVIEW WA 98632	NON GC	
19	LANDUSE	BUREAU OF INDIAN AFFAIRS CONTACT I BIA-98632/NEPA CONTACT	WA 98632	NON GC	
20	RCRAGN	PRUDENTIAL STEEL WAH000017665/LGN	1205 PRUDENTIAL BLVD LONGVIEW WA 98632	NON GC	
21	RCRAGN	GRESHAM TRANSFER SPILL SITE 2002 8 WAH000019984/LGN	INDUSTRIAL WAY & WA 433 SW LONGVIEW WA 98632	NON GC	
22	RCRANLR	PRUDENTIAL STEEL WAH000017665/NLR	1205 PRUDENTIAL BLVD LONGVIEW WA 98632	NON GC	
23	STATE	FLEXIBLE FOAM PRODUCTS INC NFA:83629153	1205 PRUDENTIAL BLVD LONGVIEW WA 98632	NON GC	
24	STATE	PRUDENTIAL STEEL CSCR:83629153	1205 PRUDENTIAL BLVD LONGVIEW WA 98632	NON GC	
26	STATE	WILCOX & FLEGEL NFA:1096	SR 432 LONGVIEW WA 98632	NON GC	

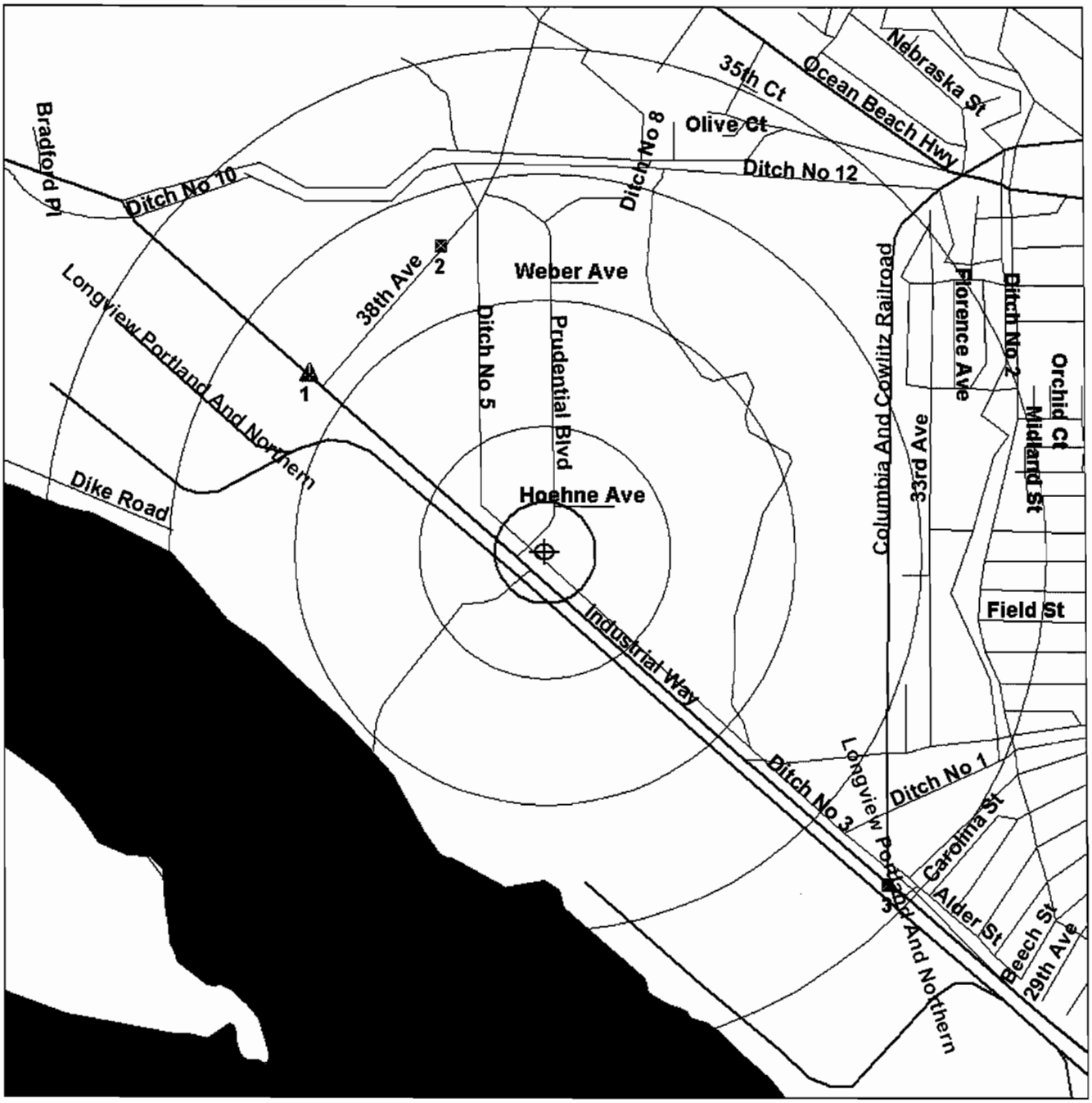
Industrial
Cathy
Vermillion
360-407-
6916

Environmental FirstSearch

1 Mile Radius

Single Map:

PRUDENTIAL BLVD, LONGVIEW WA 98632



Source: U.S. Census TIGER Files

Target Site (Latitude: 46.137478 Longitude: -122.985833) .....

Identified Site, Multiple Sites, Receptor .....

NPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste

Railroads .....

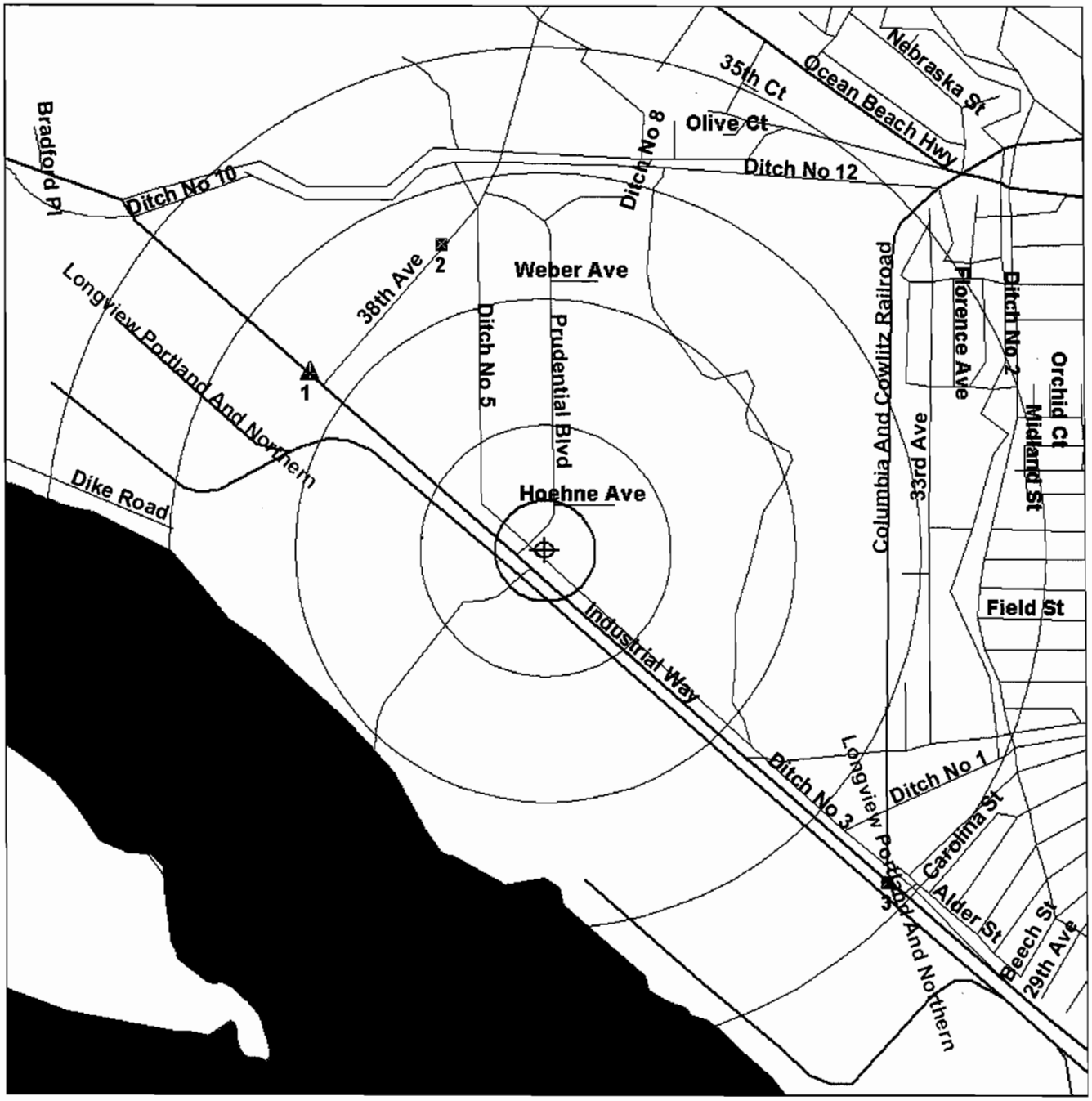
Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Environmental FirstSearch

1 Mile Radius

AAI: NPL, RCRACOR, STATE

PRUDENTIAL BLVD, LONGVIEW WA 98632



Source: U.S. Census TIGER Files

Target Site (Latitude: 46.137478 Longitude: -122.985833) .....

Identified Site, Multiple Sites, Receptor .....

NPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste

Railroads .....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Fed. Land Use: Wilderness Areas, Wildlife Preserves .....

Fed. Land Use: Amer. Indian Sacred Sites, Endangered Species' Habitats..

Environmental FirstSearch

.5 Mile Radius

AAI: Multiple Databases

PRUDENTIAL BLVD, LONGVIEW WA 98632

Source: U.S. Census TIGER Files

Target Site (Latitude: 46.137478 Longitude: -122.985833) .....

Identified Site, Multiple Sites, Receptor .....

NPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste

Railroads .....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Fed. Land Use: Wilderness Areas, Wildlife Preserves .....

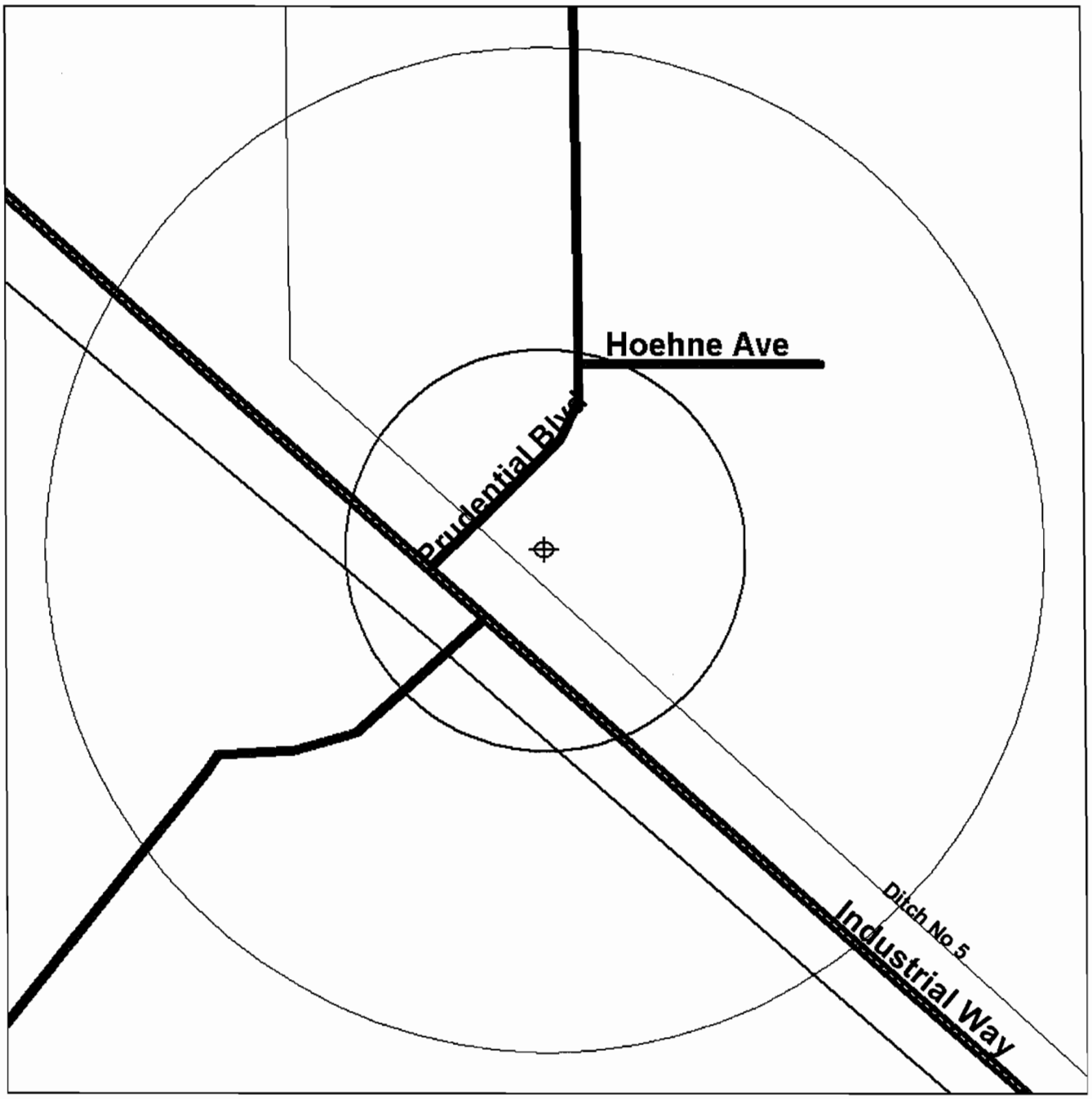
Fed. Land Use: Amer. Indian Sacred Sites, Endangered Species' Habitats..

Environmental FirstSearch

.25 Mile Radius

AAI: RCRAGEN, UST

PRUDENTIAL BLVD, LONGVIEW WA 98632



Source: U.S. Census TIGER Files

Target Site (Latitude: 46.137478 Longitude: -122.985833) .....

Identified Site, Multiple Sites, Receptor .....

NPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste

Railroads .....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Fed. Land Use: Wilderness Areas, Wildlife Preserves .....

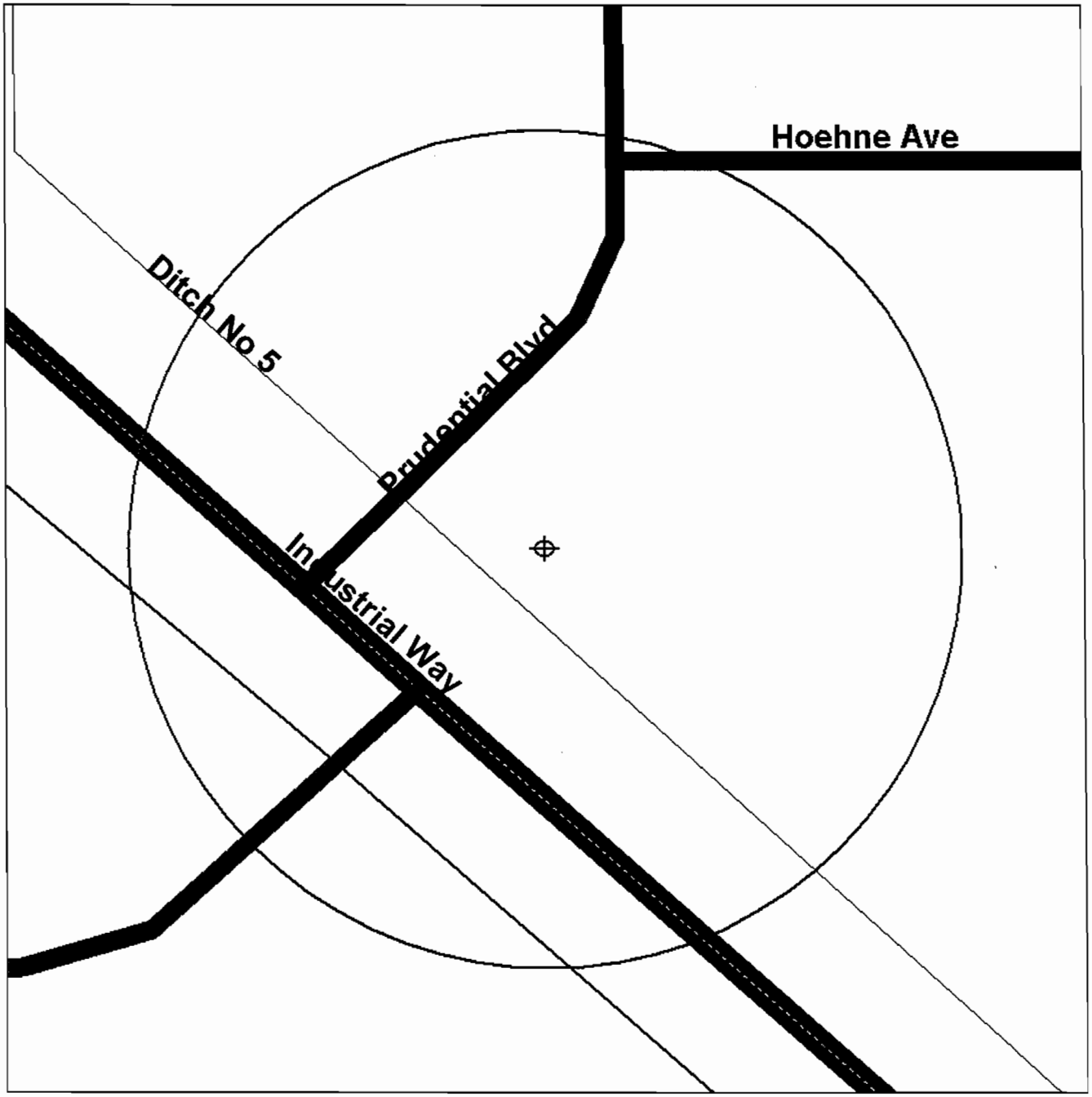
Fed. Land Use: Amer. Indian Sacred Sites, Endangered Species' Habitats..

Environmental FirstSearch

.12 Mile Radius

AAI: SPILLS90, ERNS, RCRANLR

PRUDENTIAL BLVD, LONGVIEW WA 98632



Source: U.S. Census TIGER Files

Target Site (Latitude: 46.137478 Longitude: -122.985833) .....

Identified Site, Multiple Sites, Receptor .....

NPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste

Railroads .....

Black Rings Represent 1/4 Mile Radius; Red Ring Represents 500 ft. Radius

Fed. Land Use: Wilderness Areas, Wildlife Preserves .....

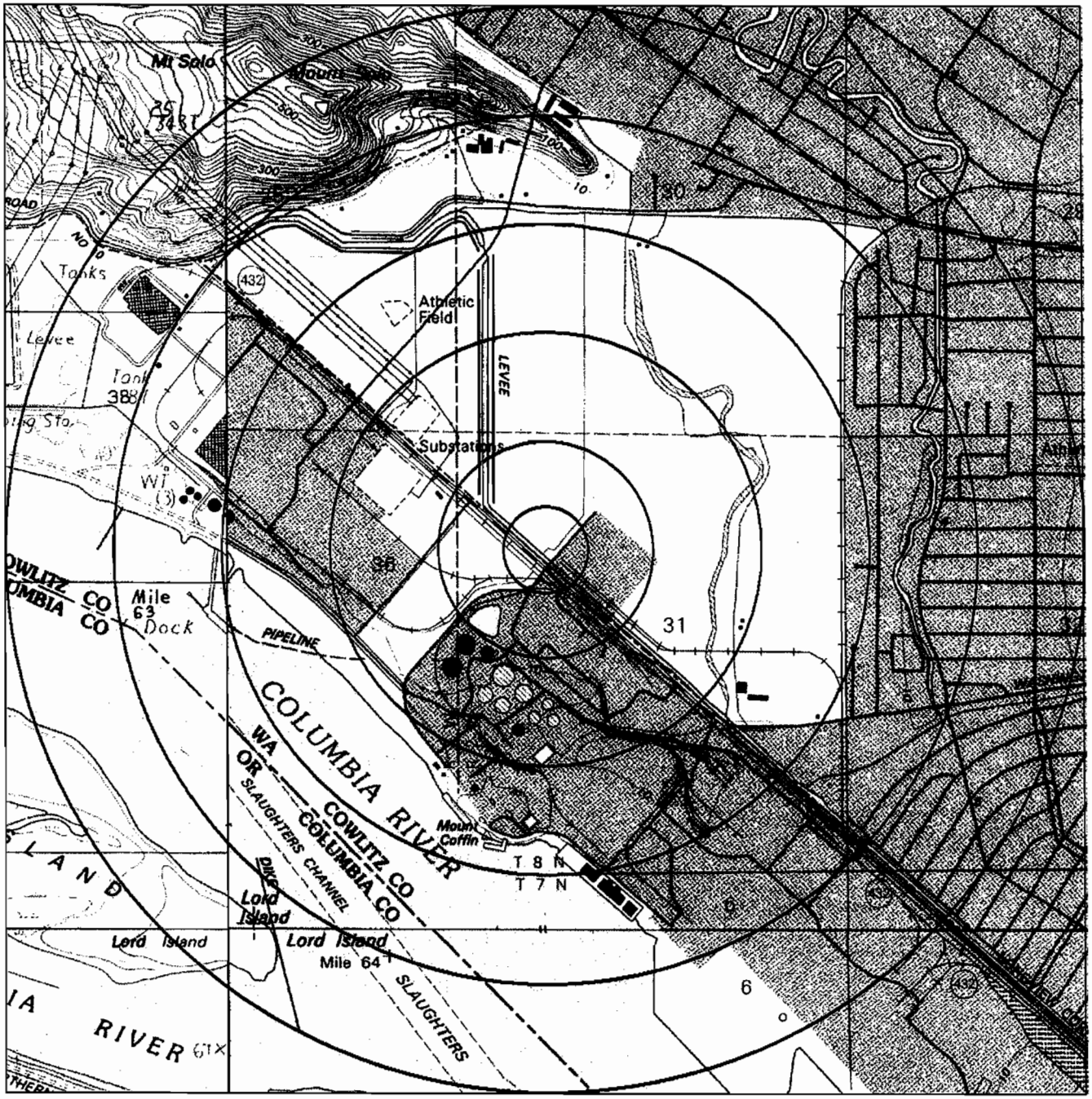
Fed. Land Use: Amer. Indian Sacred Sites, Endangered Species' Habitats..

Environmental FirstSearch

Topo : 1.25 Mile Radius

Site Locus Map

PRUDENTIAL BLVD, LONGVIEW WA 98632



Source:

Target Site (Latitude: 46.137478 Longitude: -122.985833) .....

Identified Site, Multiple Sites, Receptor .....

NPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste

Map Name: RAINIER Date Created: 1990-- Date Revised: None--

Map Reference Code: 46122-A8-TF-024

Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

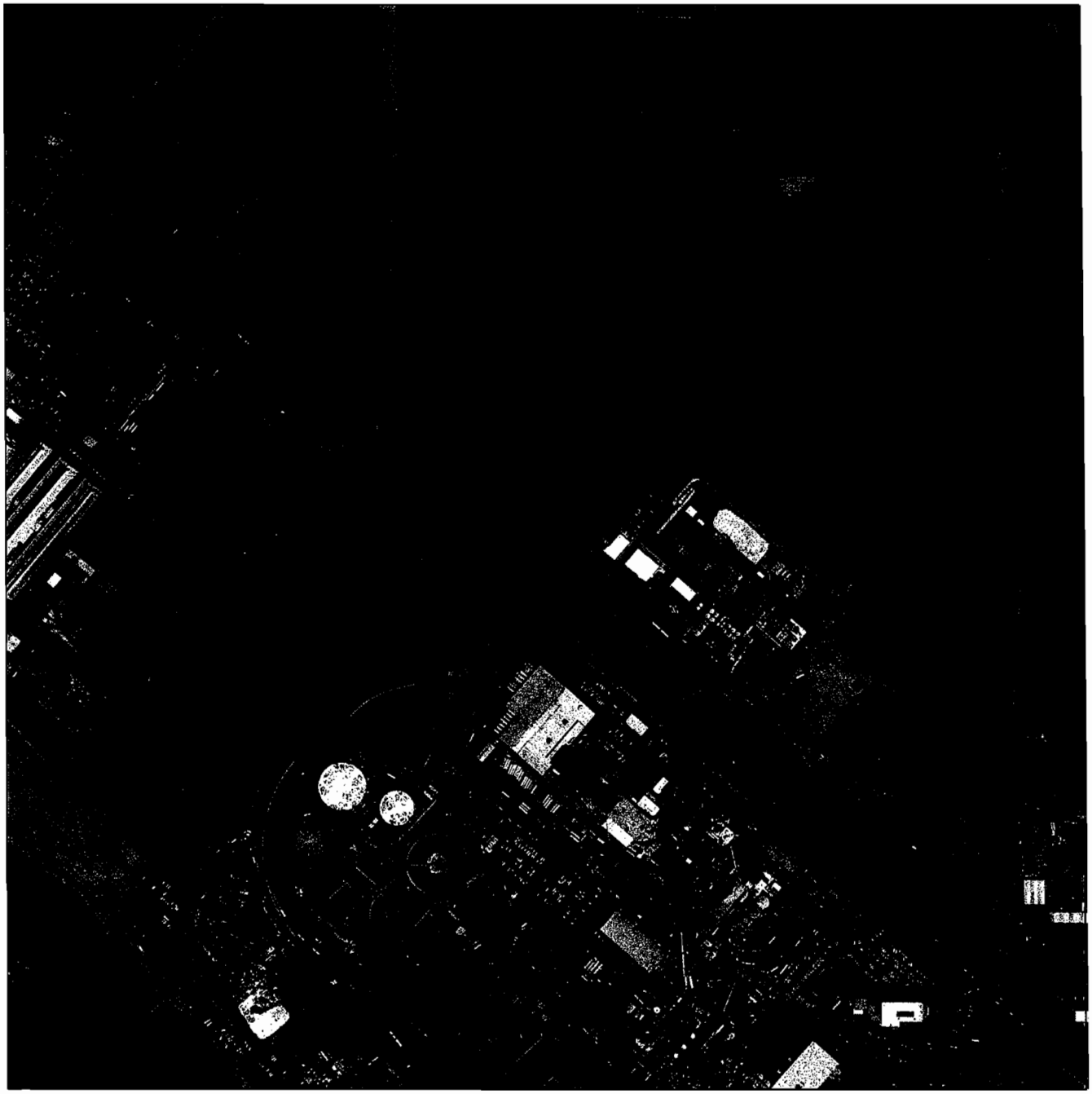
COPYRIGHT: MAPTECH INC.

Environmental FirstSearch

Aerial : Current Map 0.5 Mile Radius

Current Aerial Map

PRUDENTIAL BLVD, LONGVIEW WA 98632



Source:

Target Site (Latitude: 46.137478 Longitude: -122.985833) .....

Identified Site, Multiple Sites, Receptor .....

NPL, Brownfield, Solid Waste Landfill (SWL) or Hazardous Waste

Fed. Land Use: Wilderness Areas, Wildlife Preserves .....

Fed. Land Use: Amer. Indian Sacred Sites, Endangered Species' Habitats

Map Name: KELSO SW Date Created: 1994-05-23 Date Revised: 1994-05-23

Map Reference Code: 46122-B8-04-PHT

Black Rings Represent 1/4 Mile Radii; Red Ring Represents 500 ft. Radius

COPYRIGHT: MAPTECH INC.

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 3 **DIST/DIR:** 0.59 NW **MAP ID:** 1

NAME: REYNOLDS METALS
ADDRESS: 4029 INDUSTRIAL
LONGVIEW WA 98632
CONTACT:

REV: 06/14/00
ID1: CSCR:29
ID2:
STATUS:
PHONE:

GENERAL INFORMATION

Ecology Status:	*Remedial Action in Progress*
Independent Status:	
Responsible Unit:	*INDUSTRIAL SECTION*
WARM Bin Number:	*5*
Affected Media Name:	*GROUNDWATER*
Affected Media Status Code:	*Confirmed*
Agency Recorded Latitude:	*46829*
Agency Recorded Longitude:	*1225946*

GENERAL INFORMATION

Ecology Status:	*Remedial Action in Progress*
Independent Status:	
Responsible Unit:	*INDUSTRIAL SECTION*
WARM Bin Number:	*5*
Affected Media Name:	*SOIL*
Affected Media Status Code:	*Confirmed*
Agency Recorded Latitude:	*46829*
Agency Recorded Longitude:	*1225946*

Base/ Neutral/ Acid Organics:
Halogenated Organics:
Metals, Priority Pollutants:
Metals, Other:
Poly-Chlorinated bi-Phenyls:
Pesticides:
Petroleum Products:
Phenolic Compounds:
Non-Halogenated Solvents:
Dioxins:
Polynuclear Aromatic Hydrocarbons:
Reactive Wastes:
Corrosive Wastes:
Radioactive Wastes:
Conventionals, Organic:
Asbestos:
Arsenic:
MTBE:
Phenolic Compounds:

Base/ Neutral/ Acid Organics:
Halogenated Organics:
Metals, Priority Pollutants:
Metals, Other:
Poly-Chlorinated bi-Phenyls:
Pesticides:
Petroleum Products:
Phenolic Compounds:
Non-Halogenated Solvents:
Dioxins:
Polynuclear Aromatic Hydrocarbons:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 3 **DIST/DIR:** 0.59 NW **MAP ID:** 1

NAME: REYNOLDS METALS
ADDRESS: 4029 INDUSTRIAL
LONGVIEW WA 98632
CONTACT:

REV: 06/14/00
ID1: CSCR:29
ID2:
STATUS:
PHONE:

Reactive Wastes:
Corrosive Wastes:
Radioactive Wastes:
Conventionals, Organic:
Asbestos:
Arsenic:
MTBE:
Phenolic Compounds:

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 4 **DIST/DIR:** 0.59 NW **MAP ID:** 1

NAME: REYNOLDS METALS CO LONGVIEW REDUCTION PL
ADDRESS: 4029 INDUSTRIAL WAY
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 01/03/06
ID1: NFA:30
ID2:
STATUS:
PHONE:

GENERAL INFORMATION

Ecology Status: *INDEPENDENT REMEDIAL ACTION*
Independent Status: *FINAL INDEPENDENT REMEDIAL ACTION REPORT RECEIVED*
Program Plan:
WARM Bin Number:
NFA Determination: *NFA AFTER ASSESSMENT IRAP OR VCP*
NFA Date: *10/24/1989*

STATE SITE

SEARCH ID: 1 **DIST/DIR:** 0.59 NW **MAP ID:** 1

NAME: CHINOOK VENTURES INC LONGVIEW
ADDRESS: 4029 INDUSTRIAL WAY
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 01/03/06
ID1: NFA:29
ID2:
STATUS:
PHONE:

GENERAL INFORMATION

Ecology Status: *REMEDIAL ACTION IN PROGRESS*
Independent Status:
Program Plan:
WARM Bin Number: *5*
NFA Determination: *NFA AFTER ASSESSMENT IRAP OR VCP*
NFA Date: *2/19/2003*

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 2 **DIST/DIR:** 0.64 NW **MAP ID:** 2

NAME: LONGVIEW AUTO WRECKING
ADDRESS: 2001 38TH AVE
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 04/13/06
ID1: CSCR:5808650
ID2:
STATUS:
PHONE:

GENERAL INFORMATION

Ecology Status: *Awaiting Site Hazard Assessment (SHA)*
Independent Status:
Responsible Unit: *SOUTHWEST REGION*
WARM Bin Number:
Affected Media Name: *Soil*
Affected Media Status Code: *Confirmed*
Agency Recorded Latitude: *46.149028*
Agency Recorded Longitude: *-122.9875*

Base/ Neutral/ Acid Organics:
Halogenated Organics:
Metals, Priority Pollutants:
Metals, Other:
Poly-Chlorinated bi-Phenyls:
Pesticides:
Petroleum Products: *Confirmed*
Phenolic Compounds:
Non-Halogenated Solvents:
Dioxins:
Polynuclear Aromatic Hydrocarbons:
Reactive Wastes:
Corrosive Wastes:
Radioactive Wastes:
Conventionals, Organic:
Asbestos:
Arsenic:
MTBE:
Phenolic Compounds:

Wood Debris:
Bioassay Benthic Failures:
TBT:
UXO:
Other Deleterious Substances:

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 5 **DIST/DIR:** 0.95 SE **MAP ID:** 3

NAME: WEYERHAEUSER CO HG CHLOR ALK
ADDRESS: 3535 INDUSTRIAL WAY
LONGVIEW WA 98632
CONTACT:

REV: 04/13/06
ID1: CSCR:28
ID2:
STATUS:
PHONE:

GENERAL INFORMATION

Ecology Status:	*Remedial Action in Progress*
Independent Status:	
Responsible Unit:	*INDUSTRIAL SECTION*
WARM Bin Number:	*1*
Affected Media Name:	*Groundwater*
Affected Media Status Code:	*Confirmed*
Agency Recorded Latitude:	*46.13171*
Agency Recorded Longitude:	*-122.9785*

GENERAL INFORMATION

Ecology Status:	*Remedial Action in Progress*
Independent Status:	
Responsible Unit:	*INDUSTRIAL SECTION*
WARM Bin Number:	*1*
Affected Media Name:	*Soil*
Affected Media Status Code:	*Confirmed*
Agency Recorded Latitude:	*46.13171*
Agency Recorded Longitude:	*-122.9785*

Base/ Neutral/ Acid Organics:	
Halogenated Organics:	
Metals, Priority Pollutants:	*Confirmed*
Metals, Other:	
Poly-Chlorinated bi-Phenyls:	
Pesticides:	
Petroleum Products:	
Phenolic Compounds:	
Non-Halogenated Solvents:	
Dioxins:	
Polynuclear Aromatic Hydrocarbons:	
Reactive Wastes:	
Corrosive Wastes:	
Radioactive Wastes:	
Conventionals, Organic:	
Asbestos:	
Arsenic:	
MTBE:	
Phenolic Compounds:	

Base/ Neutral/ Acid Organics:	
Halogenated Organics:	
Metals, Priority Pollutants:	*Confirmed*
Metals, Other:	
Poly-Chlorinated bi-Phenyls:	
Pesticides:	
Petroleum Products:	
Phenolic Compounds:	
Non-Halogenated Solvents:	
Dioxins:	
Polynuclear Aromatic Hydrocarbons:	

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 5 **DIST/DIR:** 0.95 SE **MAP ID:** 3

NAME: WEYERHAEUSER CO HG CHLOR ALK
ADDRESS: 3535 INDUSTRIAL WAY
LONGVIEW WA 98632
CONTACT:

REV: 04/13/06
ID1: CSCR:28
ID2:
STATUS:
PHONE:

Reactive Wastes:
Corrosive Wastes:
Radioactive Wastes:
Conventionals, Organic:
Asbestos:
Arsenic:
MTBE:
Phenolic Compounds:

Wood Debris:
Bioassay Benthic Failures:
TBT:
UXO:
Other Deleterious Substances:

Wood Debris:
Bioassay Benthic Failures:
TBT:
UXO:
Other Deleterious Substances:

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 10 **DIST/DIR:** NON GC **MAP ID:**

NAME: MILE POST 105.5
ADDRESS:
LONGVIEW WA
WAHKIAKUM
CONTACT: UNKNOWN

REV: 12/31/05
ID1: NRC-760320
ID2:
STATUS: RAILROAD NON-RELEASE
PHONE:

SITE INFORMATION

THIS INFORMATION WAS OBTAINED FROM THE NATIONAL RESPONSE CENTER

DATE RECEIVED: 5/29/2005 2:54:06 PM **DATE COMPLETE:** 5/29/2005 3:01:28 PM
CALL TAKER: KWC2316 **CALL TYPE:** INC

RESPONSIBLE PARTY: UNKNOWN
PHONE #1:
PHONE #2:
PHONE #3:

RESPONSIBLE COMPANY:
ORGANIZATION TYPE: UNKNOWN

ADDRESS:
XX

SOURCE: TELEPHONE

INCIDENT INFORMATION

INCIDENT DESCRIPTION: THE CALLER IS REPORTING A TRESPASSER FATALITY

INCIDENT TYPE: RAILROAD NON-RELEASE **INCIDENT CAUSE:** UNKNOWN
INCIDENT DATE: 5/29/2005 11:05:00 AM **INCIDENT DATE DESC:** OCCURRED
DISTANCE FROM CITY:
DIRECTION FROM CITY:
LOCATION TOWNSHIP:
DISTANCE UNITS:
LOCATION SECTION:
LOCATION RANGE:

AIRCRAFT TYPE:
AIRCRAFT ID:
AIRCRAFT FUEL CAPACITY UNITS:
AIRCRAFT FUEL ON BOARD UNITS:
AIRCRAFT HANGER:
ROAD MILE MARKER:
TYPE OF FIXED OBJECT:
GENERATING CAPACITY:
NPDES:
PIPELINE TYPE:
PIPELINE ABOVE GROUND: ABOVE
PIPELINE COVERED: U
LOCATION SUBDIVISION: SEATTLE
TYPE VEHICLE INVOLVED:
DEVICE OPERATIONAL: Y

AIRCRAFT MODEL:
AIRCRAFT FUEL CAPACITY:
AIRCRAFT FUEL ON BOARD:
AIRCRAFT SPOT NUMBER:
AIRCRAFT RUNWAY NUM:
BUILDING ID:
POWER GEN FACILITY: U
TYPE OF FUEL:
NPDES COMPLIANCE: U
DOT REGULATED: U
EXPOSED UNDERWATER: N
GRADE CROSSING: N
RAILROAD MILEPOST: 105.5
CROSSING DEVICE TYPE:

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 10 **DIST/DIR:** NON GC **MAP ID:**

NAME: MILE POST 105.5
ADDRESS:
LONGVIEW WA
WAHKIAKUM
CONTACT: UNKNOWN

REV: 12/31/05
ID1: NRC-760320
ID2:
STATUS: RAILROAD NON-RELEASE
PHONE:

DOT CROSSING NUMBER:		**BRAKE FAILURE:**	N
TANK ABOVE GROUND:	ABOVE	**TRANSPORTABLE CONTAINER:**	U
TANK REGULATED:	U	**TANK REGULATED BY:**	
TANK ID:		**CAPACITY OF TANK:**	
CAPACITY OF TANK UNITS:		**ACTUAL AMOUNT:**	
ACTUAL AMOUNT UNITS:		**PLATFORM RIG NAME:**	
PLATFORM LETTER:		**LOCATION AREA ID:**	
LOCATION BLOCK ID:			

DESCRIPTION OF TANK:

OCSG NUMBER:		**OCSP NUMBER:**	
STATE LEASE NUMBER:		**PIER DOCK NUMBER:**	
BERTH SLIP NUMBER:		**CONTIN RELEASE TYPE:**	
INITIAL CONT RELEASE NUM:		**CONT RELEASE PERMIT:**	
ALLISION:	N	**TYPE OF STRUCTURE:**	
STRUCTURE NAME:		**STRUCT OPERATIONAL:**	U
AIRBAG DEPLOYED:		**DATE NORMAL SERVICE:**	
SERVICE DISRUPT TIME:		**SERVICE DISRUPT UNITS:**	
TRANSIT BUS FLAG:		**CR BEGIN DATE:**	
CR END DATE:		**CR CHANGE DATE:**	
FIRE INVOLVED:	N	**FIRE EXTINGUISHED:**	U
ANY EVACUATIONS:	N	**NUMBER EVACUATED:**	
WHO EVACUATED:		**RADIUS OF EVACUATION:**	
ANY INJURIES:	N	**NUMBER INJURED:**	
NUMBER HOSPITALIZED:		**ANY FATALITIES:**	Y
NUMBER FATALITIES:	1	**ANY DAMAGES:**	N
DAMAGE AMOUNT:		**AIR CORRIDOR CLOSED:**	N
AIR CORRIDOR DESC:		**AIR CLOSURE TIME:**	
WATERWAY CLOSED:	N	**WATERWAY DESC:**	
WATERWAY CLOSURE TIME:		**ROAD CLOSED:**	N
ROAD DESC:		**ROAD CLOSURE TIME:**	
CLOSURE DIRECTION:		**MAJOR ARTERY:**	N
TRACK CLOSED:	Y	**TRACK DESC:**	MAIN LINE
TRACK CLOSURE TIME:	1	**MEDIA INTEREST:**	NONE
MEDIUM DESC:	RAIL REPORT (N/A)		**ADDTL MEDIUM INFO:**
BODY OF WATER:		**TRIBUTARY OF:**	
NEAREST RIVER MILE MARK:		**RELEASE SECURED:**	Y
EST DUR OF RELEASE:		**RELEASE RATE:**	
TRACK CLOSE DIR:	ALL	**ST AGENCY ON SCENE:**	
ST AGENCY RPT NUM:		**OTHER AGENCY NOTIFIED:**	
WEATHER CONDITIONS:	PARTLY CLOUDY		**AIR TEMPERATURE:**
61			
WIND SPEED:		**WIND DIRECTION:**	
WATER SUPPLY CONTAM:	U	**SHEEN SIZE:**	
SHEEN COLOR:		**DIR OF SHEEN TRAVEL:**	
SHEEN ODOR DESCRIPTION:		**WAVE CONDITION:**	

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 10 **DIST/DIR:** NON GC **MAP ID:**

NAME: MILE POST 105.5
ADDRESS:
LONGVIEW WA
WAHKIAKUM
CONTACT: UNKNOWN

REV: 12/31/05
ID1: NRC-760320
ID2:
STATUS: RAILROAD NON-RELEASE
PHONE:

CURRENT SPEED:
WATER TEMPERATURE:
CURRENT DIRECTION:

DESC OF REMEDIAL ACTION: INVESTIGATION UNDERWAY

EMPL FATALITY:		**PASS FATALITY:**	
COMMUNITY IMPACT:	N	**WIND SPEED UNITS:**	
EMPLOYEE INJURIES:		**PASSENGER INJURIES:**	
OCCUPANT FATALITY:		**CURRENT SPEED UNITS:**	
ROAD CLOSURE UNITS:		**TRACK CLOSURE UNITS:**	
SHEEN SIZE UNITS:		**STATE AGENCY NOTIFIED:**	
FED AGENCY NOTIFIED:		**NEAREST RIVER MILE MARK:**	
SHEEN SIZE LENGTH:		**SHEEN SIZE LENGTH UNITS:**	
SHEEN SIZE WIDTH:		**SHEEN SIZE WIDTH UNITS:**	
OFFSHORE:	N	**DURATION UNIT:**	
RELEASE RATE UNIT:		**RELEASE RATE RATE:**	

ADDITIONAL INFO: THE CALLER HAD NO ADDITIONAL INFORMATION

MATERIAL INFORMATION

OTHER MATERIAL INFORMATION

MOBILE DETAILS INFORMATION

TRAIN INFORMATION

TRAIN NAME/NUMBER:	503 5-29-05	**RAILROAD NAME:**	AMTRAK WEST
TRAIN TYPE:	PASSENGER	**TRACK SPEED:**	79
TRAIN SPEED:	0	**TRAIN DIRECTION:**	S
NUMBER OF LOCOMOTIVES:	1	**NUMBER OF CARS:**	14
NUMBER DERAILED:		**NON COMPLIANCE WITH HAZMAT:**	N

VESSEL INFORMATION

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 9 **DIST/DIR:** NON GC **MAP ID:**

NAME:	LONGVIEW YARD. TRAIN TRAVELING ON THE MAIN LINE	**REV:**	12/31/00
ADDRESS:	MP100	**ID1:**	NRC-521322
	LONGVIEW WA	**ID2:**	
	COWLITZ	**STATUS:**	RAILROAD
CONTACT:	UNKNOWN	**PHONE:**	

SITE INFORMATION

THIS INFORMATION WAS OBTAINED FROM THE NATIONAL RESPONSE CENTER

DATE RECEIVED:	28-FEB-00	**DATE COMPLETE:**	28-FEB-00
CALL TAKER:	DLS9220	**CALL TYPE:**	INC

RESPONSIBLE PARTY: UNKNOWN
PHONE #1:
PHONE #2:
PHONE #3:

RESPONSIBLE COMPANY: UNION PACIFIC TRAIN
ORGANIZATION TYPE: UNKNOWN

ADDRESS:
XX

INITIALLY REPORTED BY:
PHONE:

INIT REPORTED COMPANY:
ON BEHALF OF: Y
SOURCE: UNAVAILABLE

INCIDENT INFORMATION

INCIDENT DESCRIPTION: FREIGHT TRAIN STRUCK A RAILROAD CAR FOULING MAIN TRACK

INCIDENT TYPE:	RAILROAD	**INCIDENT CAUSE:**	UNKNOWN
INCIDENT DATE:	27-FEB-00	**INCIDENT DATE DESC:**	OCCURRED
DISTANCE FROM CITY:		**DISTANCE UNITS:**	
DIRECTION FROM CITY:		**LOCATION SECTION:**	
LOCATION TOWNSHIP:		**LOCATION RANGE:**	
WMD CHEM FLAG:	F	**RAD FLAG:**	F
BIO FLAG:	F	**OIL FLAG:**	
POTENTIAL_FLAG:		**AMT MATERIAL FLAG:**	
MILITARY ORG FLAG:	N	**LNG FLAG:**	

AIRCRAFT TYPE:	**AIRCRAFT MODEL:**
AIRCRAFT ID:	**AIRCRAFT FUEL CAPACITY:**
AIRCRAFT FUEL CAPACITY UNITS:	**AIRCRAFT FUEL ON BOARD:**
AIRCRAFT FUEL ON BOARD UNITS:	**AIRCRAFT SPOT NUMBER:**
AIRCRAFT HANGER:	**AIRCRAFT RUNWAY NUM:**
ROAD MILE MARKER:	**BUILDING ID:**
TYPE OF FIXED OBJECT:	**POWER GEN FACILITY:**
GENERATING CAPACITY:	**TYPE OF FUEL:**

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 9 **DIST/DIR:** NON GC **MAP ID:**

NAME:	LONGVIEW YARD. TRAIN TRAVELING ON THE MAIN LINE	**REV:**	12/31/00
ADDRESS:	MP100	**ID1:**	NRC-521322
	LONGVIEW WA	**ID2:**	
	COWLITZ	**STATUS:**	RAILROAD
CONTACT:	UNKNOWN	**PHONE:**	

NPDES:		**NPDES COMPLIANCE:**	U
PIPELINE TYPE:		**DOT REGULATED:**	U
PIPELINE ABOVE GROUND:	ABOVE	**EXPOSED UNDERWATER:**	N
PIPELINE COVERED:	U	**RAILROAD HOTLINE:**	N
GRADE CROSSING:	N	**LOCATION SUBDIVISION:**	SEATTLE
RAILROAD MILEPOST:	100	**TYPE VEHICLE INVOLVED:**	
CROSSING DEVICE TYPE:		**DEVICE OPERATIONAL:**	Y
DOT CROSSING NUMBER:		**BRAKE FAILURE:**	N
TANK ABOVE GROUND:	ABOVE	**TRANSPORTABLE CONTAINER:**	U
TANK REGULATED:	U	**TANK REGULATED BY:**	
TANK ID:		**CAPACITY OF TANK:**	
CAPACITY OF TANK UNITS:		**ACTUAL AMOUNT:**	
ACTUAL AMOUNT UNITS:		**PLATFORM RIG NAME:**	
PLATFORM LETTER:		**LOCATION AREA ID:**	
LOCATION BLOCK ID:			
DESCRIPTION OF TANK:			
OCSG NUMBER:		**OCSP NUMBER:**	
STATE LEASE NUMBER:		**PIER DOCK NUMBER:**	
BERTH SLIP NUMBER:		**CONTIN RELEASE TYPE:**	
INITIAL CONT RELEASE NUM:		**CONT RELEASE PERMIT:**	
ALLISION:	N	**TYPE OF STRUCTURE:**	
STRUCTURE NAME:		**STRUCT OPERATIONAL:**	U
AIRBAG DEPLOYED:		**DATE NORMAL SERVICE:**	
SERVICE DISRUPT TIME:		**SERVICE DISRUPT UNITS:**	
TRANSIT BUS FLAG:		**CR BEGIN DATE:**	
CR END DATE:		**CR CHANGE DATE:**	
FIRE INVOLVED:	N	**FIRE EXTINGUISHED:**	U
ANY EVACUATIONS:	N	**NUMBER EVACUATED:**	
WHO EVACUATED:		**RADIUS OF EVACUATION:**	
ANY INJURIES:	N	**NUMBER INJURED:**	
NUMBER HOSPITALIZED:		**ANY FATALITIES:**	N
NUMBER FATALITIES:		**ANY DAMAGES:**	N
DAMAGE AMOUNT:		**AIR CORRIDOR CLOSED:**	N
AIR CORRIDOR DESC:		**AIR CLOSURE TIME:**	
WATERWAY CLOSED:	N	**WATERWAY DESC:**	
WATERWAY CLOSURE TIME:		**ROAD CLOSED:**	N
ROAD DESC:		**ROAD CLOSURE TIME:**	
CLOSURE DIRECTION:		**MAJOR ARTERY:**	N
TRACK CLOSED:	Y	**TRACK DESC:**	BNSF MAINLINE
TRACK CLOSURE TIME:		**MEDIA INTEREST:**	NONE
MEDIUM DESC:	BALLAST	**ADDTL MEDIUM INFO:**	
BODY OF WATER:		**TRIBUTARY OF:**	
NEAREST RIVER MILE MARK:		**RELEASE SECURED:**	U
EST DUR OF RELEASE:		**RELEASE RATE:**	
TRACK CLOSE DIR:	ALL	**ST AGENCY ON SCENE:**	
ST AGENCY RPT NUM:		**OTHER AGENCY NOTIFIED:**	

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 9 **DIST/DIR:** NON GC **MAP ID:**

NAME: LONGVIEW YARD. TRAIN TRAVELING ON THE MAIN LINE
ADDRESS: MP100
LONGVIEW WA
COWLITZ
CONTACT: UNKNOWN

REV: 12/31/00
ID1: NRC-521322
ID2:
STATUS: RAILROAD
PHONE:

WEATHER CONDITIONS:
WIND SPEED:
WATER SUPPLY CONTAM: U
SHEEN COLOR:
SHEEN ODOR DESCRIPTION:
CURRENT SPEED:
WATER TEMPERATURE:

AIR TEMPERATURE:
WIND DIRECTION:
SHEEN SIZE:
DIR OF SHEEN TRAVEL:
WAVE CONDITION:
CURRENT DIRECTION:

DESC OF REMEDIAL ACTION: INVESTIGATION ON GOING

EMPL FATALITY:
COMMUNITY IMPACT: N
EMPLOYEE INJURIES:
OCCUPANT FATALITY:
ROAD CLOSURE UNITS:
SHEEN SIZE UNITS:
FED AGENCY NOTIFIED:
TYPE OF STRUCTURE:
STRUCTURE OPERATIONAL:
SHEEN SIZE LENGTH:
SHEEN SIZE WIDTH:
OFFSHORE: N
RELEASE RATE UNIT:

PASS FATALITY:
WIND SPEED UNITS:
PASSENGER INJURIES:
CURRENT SPEED UNITS: M
TRACK CLOSURE UNITS:
STATE AGENCY NOTIFIED: WAS PUC
STRUCTURE NAME:
ALLISION:
NEAREST RIVER MILE MARK:
SHEEN SIZE LENGTH UNITS:
SHEEN SIZE WIDTH UNITS:
DURATION UNIT:
RELEASE RATE RATE:

BNSF
Weyerhauser ~~woods~~ woods
~~Tacoma~~ RR
Columbian Cowlitz
Weyerh

ADDITIONAL INFO: UNION PACIFIC FREIGHT TRAIN TRAVELING ON BNSF LINE STRUCK CAR. 15 CARS DERAILED CAR NUMBERS UNK

MATERIAL INFORMATION

CHRIS CODE: ODS
UN NUMBER:

CASE NUMBER: 000000-00-0
REACHED WATER: NO

NAME OF MATERIAL: OIL: DIESEL
AMOUNT OF MATERIAL: 0 UNKNOWN AMOUNT
AMOUNT IN WATER:

OTHER MATERIAL INFORMATION

MOBILE DETAILS INFORMATION

TRAIN INFORMATION

TRAIN NAME/NUMBER: ZAPSE24
TRAIN TYPE: FREIGHT
TRAIN SPEED: 40
NUMBER OF LOCOMOTIVES: 3
NUMBER DERAILED: 18

RAILROAD NAME: UNION PACIFIC
TRACK SPEED: 50
TRAIN DIRECTION: N
NUMBER OF CARS: 103
NON COMPLIANCE WITH HAZMAT: N

- Continued on next page -

TRAIN NAME/NUMBER: ZAPSE24 **CAR NUMBER:** UP7257LOCOMOTI

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 9 **DIST/DIR:** NON GC **MAP ID:**

NAME: LONGVIEW YARD. TRAIN TRAVELING ON THE MAIN LINE
ADDRESS: MP100
LONGVIEW WA
COWLITZ
CONTACT: UNKNOWN

REV: 12/31/00
ID1: NRC-521322
ID2:
STATUS: RAILROAD
PHONE:

POSITION IN TRAIN: 2
CAR CONTENT: DIESEL
DERAILED TYPE: LOCOMOTIVE

TRAIN NAME/NUMBER: ZAPSE24
POSITION IN TRAIN: 1
CAR CONTENT: DIESEL
CAR NUMBER: UP8243LOCOMOTIV
DERAILED TYPE: LOCOMOTIVE

TRAIN NAME/NUMBER: ZAPSE24
POSITION IN TRAIN: 1
CAR CONTENT: DIESEL
CAR NUMBER: UP6638LOCOM
DERAILED TYPE: CAR

TRAIN NAME/NUMBER: ZAPSE24
POSITION IN TRAIN: 3
CAR CONTENT: DIESEL
CAR NUMBER: UP6638LOCOMOTI
DERAILED TYPE: LOCOMOTIVE

VESSEL INFORMATION

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 11 **DIST/DIR:** NON GC **MAP ID:**

NAME: WEYERHAEUSER PAPER CO
ADDRESS: PO BOX 188 3401 INDUSTRIAL WAY
LONGVIEW WA
COWLITZ
CONTACT:

REV: 12/5/90 0:
ID1: 188403
ID2:
STATUS: FIXED FACILITY
PHONE:

SPILL INFORMATION

DATE OF SPILL: 12/5/1990 **TIME OF SPILL:** 1600

PRODUCT RELEASED (1): MERCURY
QUANTITY (1): 80
UNITS (1): LBS

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

by rwi

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR: NO **GROUNDWATER:** NO
LAND: YES **FIXED FACILITY:** NO
WATER: NO **OTHER:** NO
WATERBODY AFFECTED BY RELEASE:

CAUSE OF RELEASE

DUMPING: NO **EQUIPMENT FAILURE:** NO
NATURAL PHENOMENON: NO **OPERATOR ERROR:** NO
OTHER CAUSE: NO **TRANSP. ACCIDENT:** NO
UNKNOWN: NO

ACTIONS TAKEN: ARE DOING TESTING TO FIND OUT THE EXTENT OF CONTAMINATION. ARE VACUUMING UP FREE STANDING MERCURY AND WILL EXCAVATE SOIL
RELEASE DETECTION: MERCURY CELL PROCESS BUILDING / DISCOVERED MATERIAL IN SOIL
MISC. NOTES: WILL CALL THE STATE DEPT OF ECOLOGY

} core alcolic

DISCHARGER INFORMATION

DISCHARGER ID: 188403 **DUN & BRADSTREET #:**
TYPE OF DISCHARGER: PRIVATE ENTERPRISE
NAME OF DISCHARGER: WEYERHAEUSER PAPER CO
ADDRESS: PO BOX 188 3401 INDUSTRIAL WAY
LONGVIEW WA 98632

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

EMERGENCY RESPONSE NOTIFICATION SITE

SEARCH ID: 12 **DIST/DIR:** NON GC **MAP ID:**

NAME: WEYERHAUSER PAPER CO
ADDRESS: BASEMENT UNDER NO 4 PAPER MACHINE, 3401 INDUSTRIAL
LONG VIEW WA 98632
COWLITZ
CONTACT:

REV: 1/7/93
ID1: 301214
ID2:
STATUS: FIXED FACILITY
PHONE:

On ~~plant~~ plant site well so

SPILL INFORMATION
DATE OF SPILL: 1/7/1993 **TIME OF SPILL:** 1200

PRODUCT RELEASED (1): POLYCHLORINATED BIPHENYLS
QUANTITY (1): 0
UNITS (1): UNK

PRODUCT RELEASED (2):
QUANTITY (2):
UNITS (2):

PRODUCT RELEASED (3):
QUANTITY (3):
UNITS (3):

MEDIUM/MEDIA AFFECTED

AIR:	NO	**GROUNDWATER:**	NO
LAND:	YES	**FIXED FACILITY:**	NO
WATER:	NO	**OTHER:**	NO

WATERBODY AFFECTED BY RELEASE: SOIL

CAUSE OF RELEASE

DUMPING:	NO	**EQUIPMENT FAILURE:**	NO
NATURAL PHENOMENON:	NO	**OPERATOR ERROR:**	NO
OTHER CAUSE:	NO	**TRANSP. ACCIDENT:**	NO
UNKNOWN:	NO		

ACTIONS TAKEN: REMOVED CONCRETE FLOOR, WILL CONDUCT FURTHER CLEANUP
RELEASE DETECTION: TRANSFORMER SUBSTATION/PCB CONTAMINATION DISCOVERED AT OLD TRANSFORMER SITE
MISC. NOTES: LEVEL OF CONTAMINATION HAS NOT BEEN DETERMINED

DISCHARGER INFORMATION
DISCHARGER ID: 301214 **DUN & BRADSTREET #:**
TYPE OF DISCHARGER: PRIVATE ENTERPRISE
NAME OF DISCHARGER: WEYERHAUSER PAPER CO
ADDRESS: POB 188
LONG VIEW WA 98632

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

FEDERAL LAND USE

SEARCH ID: 17 **DIST/DIR:** NON GC **MAP ID:**

NAME: ENDANGERED SPECIES
ADDRESS:
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 12/31/99
ID1: 53015-98632
ID2: 53015
STATUS: NEPA
PHONE:

EPA ENDANGERED SPECIES

COMMON NAME: WOLF, GRAY
SCIENTIFIC NAME:
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** ENDANGERED, THREATENED, CRITICAL HABITAT
TAXONOMIC GROUP : MAMMAL **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** CANIDAE
FINAL FWS LISTING: 90-11-30

COMMON NAME: STEELHEAD, LOWER COLUMBIA RIVER POPULATION
SCIENTIFIC NAME: ONCORHYNCHUS MYKISS, (LOWER COLUMBIA ESU)
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : FISH **ACTION:** PROPOSED
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE
FINAL FWS LISTING: 96-08-09

COMMON NAME: SALMON, CHINOOK (SNAKE RIVER SPRING/SUMMER)
SCIENTIFIC NAME: ONCORHYNCHUS TSHAWYTSCHA
EXISTENCE OF SPECIES: KNOWN-M **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : FISH **ACTION:**
DATE FILE RELEASED: 1/31/2000 **FAMILY:**
FINAL FWS LISTING: 92-04-22

COMMON NAME: SALMON, SOCKEYE (SNAKE RIVER POPULATION)
SCIENTIFIC NAME: ONCORHYNCHUS NERKA
EXISTENCE OF SPECIES: KNOWN-M **SPECIES STATUS:** ENDANGERED
TAXONOMIC GROUP : FISH **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:**
FINAL FWS LISTING: 92-01-03

COMMON NAME: STEELHEAD, SNAKE RIVER BASIN POPULATION
SCIENTIFIC NAME: ONCORHYNCHUS MYKISS, (SNAKE RIVER BASIN ESU)
EXISTENCE OF SPECIES: KNOWN-M **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : FISH **ACTION:**
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE
FINAL FWS LISTING: 97-08-19

COMMON NAME: SALMON, CHINOOK (LOWER COLUMBIA RIVER)
SCIENTIFIC NAME: ONCORHYNCHUS TSHAWYTSCHA
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : FISH **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE
FINAL FWS LISTING: 99-03-24

COMMON NAME: SALMON, CHINOOK (UPPER COLUMBIA RIVER SPRING)
SCIENTIFIC NAME: ONCORHYNCHUS TSHAWYTSCHA
EXISTENCE OF SPECIES: KNOWN-M **SPECIES STATUS:** ENDANGERED
TAXONOMIC GROUP : FISH **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

FEDERAL LAND USE

SEARCH ID: 17 **DIST/DIR:** NON GC **MAP ID:**

NAME: ENDANGERED SPECIES
ADDRESS:
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 12/31/99
ID1: 53015-98632
ID2: 53015
STATUS: NEPA
PHONE:

FINAL FWS LISTING: 99-03-24

COMMON NAME: STEELHEAD, UPPER WILLAMETTE RIVER POPULATION
SCIENTIFIC NAME: ONCORHYNCHUS MYKISS
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : FISH **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE
FINAL FWS LISTING: 99-03-25

COMMON NAME: EAGLE, BALD
SCIENTIFIC NAME: HALIAEETUS LEUCOCEPHALUS
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : BIRD **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** ACCIPITRIDAE
FINAL FWS LISTING: 78-02-14

COMMON NAME: STEELHEAD, UPPER COLUMBIA RIVER POPULATION
SCIENTIFIC NAME: ONCORHYNCHUS MYKISS, (UPPER COLUMBIA ESU)
EXISTENCE OF SPECIES: KNOWN-M **SPECIES STATUS:** ENDANGERED
TAXONOMIC GROUP : FISH **ACTION:**
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE
FINAL FWS LISTING: 97-08-18

COMMON NAME: TROUT, BULL
SCIENTIFIC NAME: SALVELINUS CONFLUENTUS
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : FISH **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE
FINAL FWS LISTING: 99-11-01

COMMON NAME: OWL, NORTHERN SPOTTED
SCIENTIFIC NAME: STRIX OCCIDENTALIS CAURINA
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED, CRITICAL HABITAT
TAXONOMIC GROUP : BIRD **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** STRIGIDAE
FINAL FWS LISTING: 90-06-26

COMMON NAME: STEELHEAD, MIDDLE COLUMBIA RIVER POPULATION
SCIENTIFIC NAME: ONCORHYNCHUS MYKISS
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : FISH **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE
FINAL FWS LISTING: 99-03-25

COMMON NAME: SALMON, CHUM (COLUMBIA RIVER POPULATION)
SCIENTIFIC NAME: ONCORHYNCHUS KETA
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : FISH **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** SALMONIDAE
FINAL FWS LISTING: 99-03-25

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

FEDERAL LAND USE

SEARCH ID: 17 **DIST/DIR:** NON GC **MAP ID:**

NAME: ENDANGERED SPECIES
ADDRESS:
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 12/31/99
ID1: 53015-98632
ID2: 53015
STATUS: NEPA
PHONE:

COMMON NAME: CHECKER-MALLOW, NELSON S
SCIENTIFIC NAME: SIDALCEA NELSONIANA
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED
TAXONOMIC GROUP : PLANT **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** MALVACEAE
FINAL FWS LISTING: 93-02-12

COMMON NAME: MURRELET, MARBLED
SCIENTIFIC NAME: BRACHYRAMPHUS MARMORATUS
EXISTENCE OF SPECIES: KNOWN **SPECIES STATUS:** THREATENED, CRITICAL HABITAT
TAXONOMIC GROUP : BIRD **ACTION:** LISTING
DATE FILE RELEASED: 1/31/2000 **FAMILY:** ALCIDAE - BIRD
FINAL FWS LISTING: 92-10-01

ENDANGERED SPECIES INFORMATION IS OBTAINED AT THE COUNTY LEVEL AND MAY OR MAY NOT BE APPLICABLE TO THIS TARGET SITE.

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

FEDERAL LAND USE

SEARCH ID: 16 **DIST/DIR:** NON GC **MAP ID:**

NAME:	BUREAU OF INDIAN AFFAIRS CONTACT INFORMATION	**REV:**	8/15/05
ADDRESS:		**ID1:**	BIA-98632
	WA 98632	**ID2:**	
	COWLITZ	**STATUS:**	NEPA CONTACT
CONTACT:		**PHONE:**	

BUREAU OF INDIAN AFFAIRS CONTACT INFORMATION

OFFICE:	NORTHWEST REGIONAL OFFICE
CONTACT:	STANLEY SPEAKS,REGIONAL DIRECTOR
ADDRESS:	THE FEDERAL BUILDING 911 NE 11TH AVENUE PORTLAND OR 97232
PHONE:	Phone: 503-231-6702
FAX:	Fax: 503-231-2201

The Native American Consultation Database (NACD) is a tool for identifying consultation contacts for Indian tribes, Alaska Native villages and corporations, and Native Hawaiian organizations. The database is not a comprehensive source of information, but it does provide a starting point for the consultation process by identifying tribal leaders and NAGPRA contacts. This database can be accessed online at the following web address http://www.cast.uark.edu/other/nps/nacd/

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

RCRA GENERATOR SITE

SEARCH ID: 7 **DIST/DIR:** NON GC **MAP ID:**

NAME: PRUDENTIAL STEEL
ADDRESS: 1205 PRUDENTIAL BLVD
LONGVIEW WA 98632
WA015
CONTACT: DANNY D HARRIS

REV: 4/16/06
ID1: WAH000017665
ID2:
STATUS: LGN
PHONE: 8707765229 5229

SITE INFORMATION

CONTACT INFORMATION: DANNY HARRIS
PO BOX 248
ARMOREL AR 72310

PHONE: 8707765229 5229

UNIVERSE INFORMATION:

NAIC INFORMATION

331111 - IRON AND STEEL MILLS

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

RCRA GENERATOR SITE

SEARCH ID: 6 **DIST/DIR:** NON GC **MAP ID:**

NAME: GRESHAM TRANSFER SPILL SITE 2002 829 - no file
ADDRESS: INDUSTRIAL WAY & WA 433 SW COR
LONGVIEW WA 98632
WA009
CONTACT: KEITH LOWE

REV: 4/16/06
ID1: WAH000019984
ID2:
STATUS: LGN
PHONE: 5032557900 121

SITE INFORMATION

CONTACT INFORMATION: KEITH LOWE
PO BOX 699
FAIRVIEW OR 97024

PHONE: 5032557900 121

UNIVERSE INFORMATION:

NAIC INFORMATION

48411 - GENERAL FREIGHT TRUCKING, LOCAL

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

RCRA NLR SITE

SEARCH ID: 8 **DIST/DIR:** NON GC **MAP ID:**

NAME:	PRUDENTIAL STEEL	**REV:**	2/9/04
ADDRESS:	1205 PRUDENTIAL BLVD	**ID1:**	WAH000017665
	LONGVIEW WA 98632	**ID2:**	
	COWLITZ	**STATUS:**	NLR
CONTACT:	STAN MOURNING	**PHONE:**	3605040037

SITE INFORMATION

CONTACT INFORMATION: STAN MOURNING

1205 PRUDENTIAL BLVD
LONGVIEW WA 98632

PHONE: 3605040037

UNIVERSE TYPE:

SIC INFORMATION:

ENFORCEMENT INFORMATION:

VIOLATION INFORMATION:

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 13 **DIST/DIR:** NON GC **MAP ID:**

NAME: FLEXIBLE FOAM PRODUCTS INC
ADDRESS: 1205 PRUDENTIAL BLVD
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 01/03/06
ID1: NFA:83629153
ID2:
STATUS:
PHONE:

GENERAL INFORMATION

Ecology Status: *INDEPENDENT REMEDIAL ACTION*
Independent Status: *RELEASE REPORT RECEIVED. AWAITING ASSESSMENT BY THE POTENTIALLY LIABLE PERSON*
Program Plan: *VOLUNTARY CLEANUP PROGRAM SITE*
WARM Bin Number:
NFA Determination: *NFA AFTER ASSESSMENT IRAP OR VCP*
NFA Date: *1/27/2005*

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 14 **DIST/DIR:** NON GC **MAP ID:**

NAME: PRUDENTIAL STEEL
ADDRESS: 1205 PRUDENTIAL BLVD
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 12/31/02
ID1: CSCR:83629153
ID2:
STATUS:
PHONE:

GENERAL INFORMATION

Ecology Status:	*Independent Remedial Action*
Independent Status:	*Release report received, awaiting assessment by PLP (PLP = Potentially Liable Person)*
Responsible Unit:	*SOUTHWEST REGION*
WARM Bin Number:	
Affected Media Name:	*GROUNDWATER*
Affected Media Status Code:	*Confirmed*
Agency Recorded Latitude:	*46840*
Agency Recorded Longitude:	*1225348*

GENERAL INFORMATION

Ecology Status:	*Independent Remedial Action*
Independent Status:	*Release report received, awaiting assessment by PLP (PLP = Potentially Liable Person)*
Responsible Unit:	*SOUTHWEST REGION*
WARM Bin Number:	
Affected Media Name:	*SOIL*
Affected Media Status Code:	*Confirmed*
Agency Recorded Latitude:	*46840*
Agency Recorded Longitude:	*1225348*

Base/ Neutral/ Acid Organics:	
Halogenated Organics:	*Suspected*
Metals, Priority Pollutants:	
Metals, Other:	
Poly-Chlorinated bi-Phenyls:	
Pesticides:	
Petroleum Products:	*Confirmed*
Phenolic Compounds:	
Non-Halogenated Solvents:	
Dioxins:	
Polynuclear Aromatic Hydrocarbons:	
Reactive Wastes:	
Corrosive Wastes:	
Radioactive Wastes:	
Conventionals, Organic:	
Asbestos:	
Arsenic:	
MTBE:	
Phenolic Compounds:	

Base/ Neutral/ Acid Organics:	
Halogenated Organics:	*Suspected*
Metals, Priority Pollutants:	
Metals, Other:	
Poly-Chlorinated bi-Phenyls:	
Pesticides:	
Petroleum Products:	*Confirmed*
Phenolic Compounds:	
Non-Halogenated Solvents:	
Dioxins:	
Polynuclear Aromatic Hydrocarbons:	

- Continued on next page -

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 14 **DIST/DIR:** NON GC **MAP ID:**

NAME: PRUDENTIAL STEEL
ADDRESS: 1205 PRUDENTIAL BLVD
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 12/31/02
ID1: CSCR:83629153
ID2:
STATUS:
PHONE:

Reactive Wastes:
Corrosive Wastes:
Radioactive Wastes:
Conventionals, Organic:
Asbestos:
Arsenic:
MTBE:
Phenolic Compounds:

Environmental FirstSearch
Site Detail Report

TARGET SITE: PRUDENTIAL BLVD
LONGVIEW WA 98632

JOB: 70495.001
31 ACRES, NEAR INDUSTRIAL WAY

STATE SITE

SEARCH ID: 15 **DIST/DIR:** NON GC **MAP ID:**

NAME: WILCOX & FLEGEL
ADDRESS: SR 432
LONGVIEW WA 98632
COWLITZ
CONTACT:

REV: 01/03/06
ID1: NFA:1096
ID2:
STATUS:
PHONE:

GENERAL INFORMATION

Ecology Status: *INDEPENDENT REMEDIAL ACTION*
Independent Status: *FINAL INDEPENDENT REMEDIAL ACTION REPORT RECEIVED*
Program Plan:
WARM Bin Number:
NFA Determination: *NFA AFTER ASSESSMENT IRAP OR VCP*
NFA Date: *11/14/1995*

Environmental FirstSearch Database Descriptions

NPL: ***EPA*** NATIONAL PRIORITY LIST - Database of confirmed, proposed or deleted Superfund sites.

CERCLIS: ***EPA*** COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM - Database of current and potential Superfund sites currently or previously under investigation.

NFRAP: ***EPA*** COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY INFORMATION SYSTEM ARCHIVED SITES - database of Archive designated CERCLA sites that, to the best of EPA's knowledge, assessment has been completed and has determined no further steps will be taken to list this site on the National Priorities List (NPL). This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

RCRA TSD: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM TREATMENT, STORAGE, and DISPOSAL FACILITIES. - Database of facilities licensed to store, treat and dispose of hazardous waste materials.

RCRA COR: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of RCRA facilities with reported violations and subject to corrective actions.

RCRA GEN: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of facilities that generate or transport hazardous waste or meet other RCRA requirements.LGN - Large Quantity GeneratorsSGN - Small Quantity GeneratorsVGN – Conditionally Exempt Generator.Included are RAATS (RCRA Administrative Action Tracking System) and CMEL (Compliance Monitoring & Enforcement List) facilities.

RCRA NLR: ***EPA*** RESOURCE CONSERVATION AND RECOVERY INFORMATION SYSTEM SITES - Database of facilities not currently classified by the EPA but are still included in the RCRIS database. Reasons for non classification:Failure to report in a timely matter.No longer in business.No longer in business at the listed address.No longer generating hazardous waste materials in quantities which require reporting.

ERNS: ***EPA/NRC*** EMERGENCY RESPONSE NOTIFICATION SYSTEM - Database of emergency response actions. Data since January 2001 has been received from the National Response System database as the EPA no longer maintains this data.

STATE SITES: ***WA DOE*** CONFIRMED & SUSPECTED CONTAMINATED SITES REPORT- Within 90 days of learning of a potentially contaminated site, the Dept. of Ecology conducts and initial investigation of each site. If the initial investigation shows that further action is needed, the site will appear in the Confirmed &

Suspected Contaminated Sites (CSCS) Report. Once remedial action has been completed, the Toxics Cleanup Program's management determines the removal of a site from the CSCS Report. The Hazardous Sites List is a subset of the CSCA Report. It contains those sites that have been ranked using the Washington Ranking Method.The WARM BIN # indicates the outcome of the Washington Ranking Model (WARM). The WARM BIN Number will be a number between 0 and 5.NO FURTHER ACTION (NFA) REPORT- A list maintained by the Washington Department of Ecology that contains information on sites previously listed on the Confirmed and Suspected list. The DOE description of this data notes: Because it is necessary to maintain historical records of sites that have been investigated and cleaned up, sites are not deleted from the database when cleanup activities are completed. Instead, a No Further Action code is entered based upon the type of NFA determination the site received.

SPILLS-1990: ***WA DOH*** A list maintained by the Washington Department of Health that contains information on sites identified as contaminated by hazardous chemicals produced during use of the property as a site for clandestine drug lab processes.

SWL: ***WA DOE/COUNTY*** WA DOE SOLID WASTE LANDFILLS LISTING- The Solid Waste Facility Database contains disposal information for landfills and incinerators. The types of facilities that are included are those that are permitted under chapter 173-304 WAC, Minimum Functional Standards for Solid Waste Handling and chapter 173-351 WAC, Criteria for Municipal Solid Waste Landfills.SEATTLE-KING COUNTY ABANDONED LANDFILL STUDY- The Seattle-King County Department of Public Health maintains lists of landfills owned by the city of Seattle or King county that have been abandoned or closed. These facilities were surveyed in 1984 to determine what, if any, public health problems they present. Facilities listed by the Seattle-King County DOH are assigned an id which begins with the letters WA_ALS followed by a number. Please note, that some facilities could not be geocoded because of poor locational information. These have been included in the database and will appear in a search as non-geocoded records within the relevant zip code.SEATTLE-KING COUNTY ABANDONED LANDFILL TOXICITY/HAZARD ASSESSMENT PROJECT- This list presents the results of a 1986 follow-up study by the Seattle-King County DOH of two city owned and four county owned abandoned landfills previously surveyed by the agency in 1984. These facilities are assigned an id beginning WA_ALT followed by a number.TACOMA-PIERCE COUNTY CLOSED LANDFILL SURVEY- The Tacoma-Pierce County Health Department maintains a list of closed landfills and dumpsites located in Pierce County. These facilities were surveyed by the TPCHD to determine what, if any, public health hazards they present and whether further investigation was necessary. Facilities listed by TPCHD are assigned an id which begins with the letters WA_CLS followed by a number. Please note, that some facilities could not be geocoded because of poor locational information. These have been included in the database and will appear in a search as non-geocoded records within the relevant zip code.

REG UST/AST: ***WA DOE/EPA*** UNDERGROUND STORAGE TANKS- An inventory maintained by the WA DOE of regulated underground storage tanks.INDIAN LANDS UNDERGROUND STORAGE TANKS- The US EPA Region 10 maintains an inventory of Indian Land underground storage tanks currently under federal administration.

LEAKING UST: ***WA DOE/EPA*** WASHINGTON STATE LEAKING UNDERGROUND STORAGE TANKS- An inventory maintained by the WA DOE of known leaking underground storage tanks.INDIAN LANDS LEAKING UNDERGROUND STORAGE TANKS- The US EPA Region 10 maintains an inventory of Indian Land leaking underground storage tanks currently under federal administration.

FEDERAL LAND USE: ***USGS/EPA*** FEDERAL LANDS OF THE UNITED STATES - Database of lands owned or administered by the Federal Government, including the Bureau of Land Management, the Bureau of Reclamation, the U.S. Department of Agriculture Forest Service, the Department of Defense, the U.S. Fish and Wildlife Service, the National Park Service, the Tennessee Valley Authority, and other agencies. Only areas of 640 acres or more are included. Descriptive information includes the name and type of the Federal land and the

administering agency.INDIAN LANDS OF THE UNITED STATES - Areas administered by the Bureau of Indian Affairs shows areas of 640 acres or more, administered by the Bureau of Indian Affairs. Included are Federally-administered lands within a reservation which may or may not be considered part of the reservation.ENDANGERED SPECIES PROTECTION PROGRAM DATABASE – List of the Endangered Species by county and the species status.

BROWNFIELD: ***WA DOE/EPA*** INSTITUTIONAL CONTROLS LISTING- An inventory of sites maintained by the WA DOE's Toxic Cleanups Program that have institutional controls associated with themBrownfields Management System (BMS) is an analytical database designed to assist EPA in collecting, tracking, and updating information, as well as reporting on the major activities and accomplishments of the various Brownfield grant Programs.

RADON: ***NTIS*** NATIONAL RADON DATABASE - EPA radon data from 1990-1991 national radon project collected for a variety of zip codes across the United States.

Environmental FirstSearch Database Sources

NPL: ***EPA*** Environmental Protection Agency

Updated quarterly

CERCLIS: ***EPA*** Environmental Protection Agency

Updated quarterly

NFRAP: ***EPA*** Environmental Protection Agency.

Updated quarterly

RCRA TSD: ***EPA*** Environmental Protection Agency.

Updated quarterly

RCRA COR: ***EPA*** Environmental Protection Agency.

Updated quarterly

RCRA GEN: ***EPA*** Environmental Protection Agency.

Updated quarterly

RCRA NLR: ***EPA*** Environmental Protection Agency

Updated quarterly

ERNS: ***EPA/NRC*** Environmental Protection Agency

Updated semi-annually

STATE SITES: ***WA DOE*** The Washington Department of Ecology, Toxics Cleanup Program
The Washington Department of Ecology
Phone Numbers:
Headquarters: (360) 407-6112
NORTHWEST REGION: (425) 647-7000
SOUTHWEST REGION: (360) 407-6300
CENTRAL REGION: (509) 575-2490

Updated biannually

SPILLS-1990: ***WA DOH*** The Washington State Department of Health

Updated when available

SWL: ***WA DOE/COUNTY*** The Washington Department of Ecology
Phone Numbers:
Headquarters: (360) 407-6112
NORTHWEST REGION: (425) 647-7000
SOUTHWEST REGION: (360) 407-6300
CENTRAL REGION: (509) 575-2490
EASTERN REGION: (509) 456-2926
The Seattle-King County Department of Public Health: (206) 296-4785

Updated annually/when available

REG UST/AST: ***WA DOE/EPA*** The Washington Department of Ecology
Phone Numbers:
Headquarters: (360) 407-6112
NORTHWEST REGION: (425) 647-7000
SOUTHWEST REGION: (360) 407-6300
CENTRAL REGION: (509) 575-2490
EASTERN REGION: (509) 456-2926
The United States Environmental Protection Agency Region 10, Ground Water Protection Unit.

Updated biannually/when available

LEAKING UST: ***WA DOE/EPA*** The Washington Department of Ecology
Phone Numbers:
Headquarters: (360) 407-6112
NORTHWEST REGION: (425) 647-7000
SOUTHWEST REGION: (360) 407-6300
CENTRAL REGION: (509) 575-2490
EASTERN REGION: (509) 456-2926
The United States Environmental Protection Agency Region 10, Ground Water Protection Unit.

Updated biannually/when available

FEDERAL LAND USE: ***USGS/EPA*** U.S. Geological Survey

Updated annually

BROWNFIELD: ***WA DOE/EPA*** The Washington Department of Ecology
Phone Numbers:
Headquarters: (360) 407-6112
NORTHWEST REGION: (425) 647-7000
SOUTHWEST REGION: (360) 407-6300
CENTRAL REGION: (509) 575-2490
EASTERN REGION: (509) 456-2926

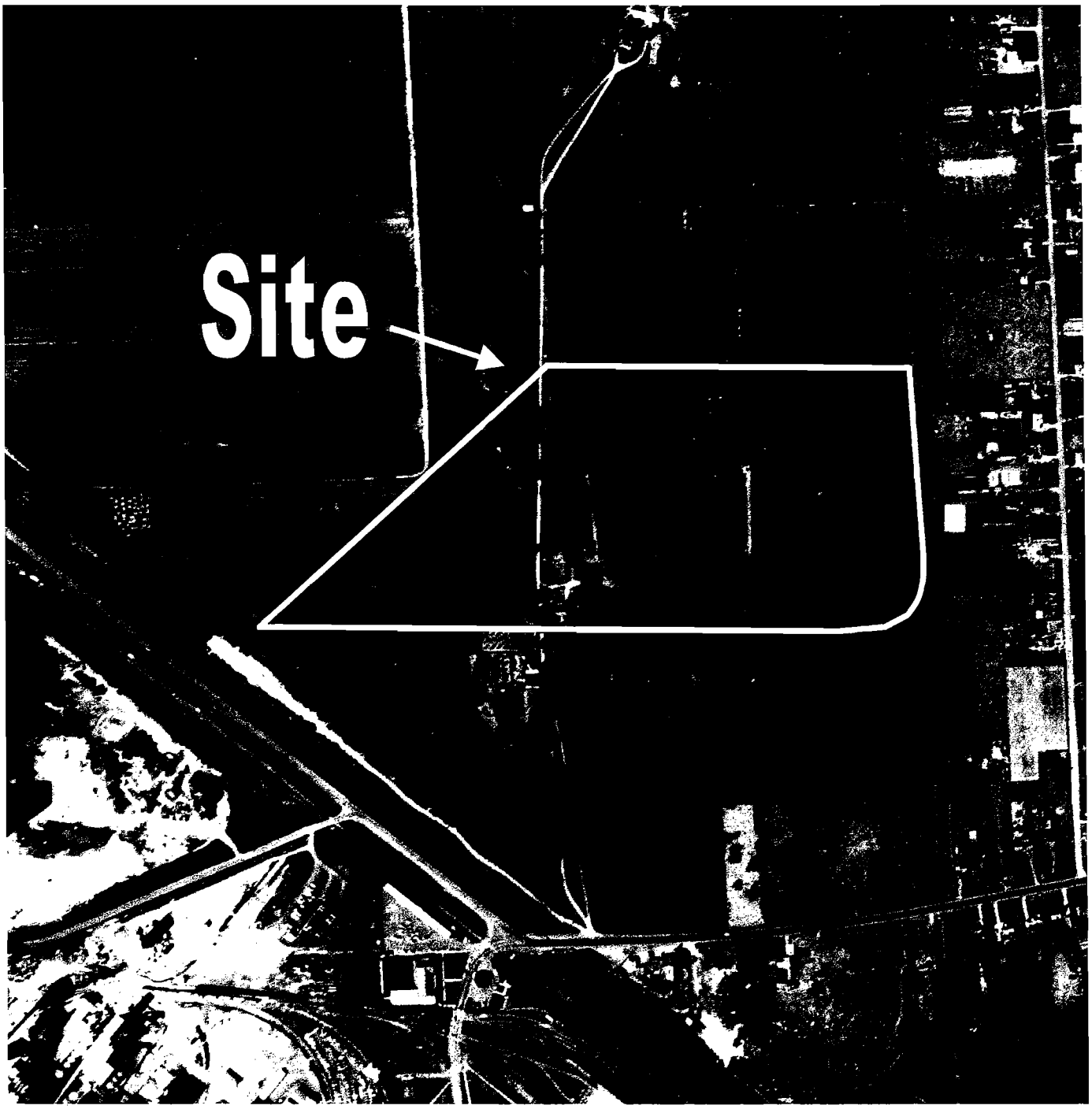
Updated when available

RADON: ***NTIS*** Environmental Protection Agency, National Technical Information Services

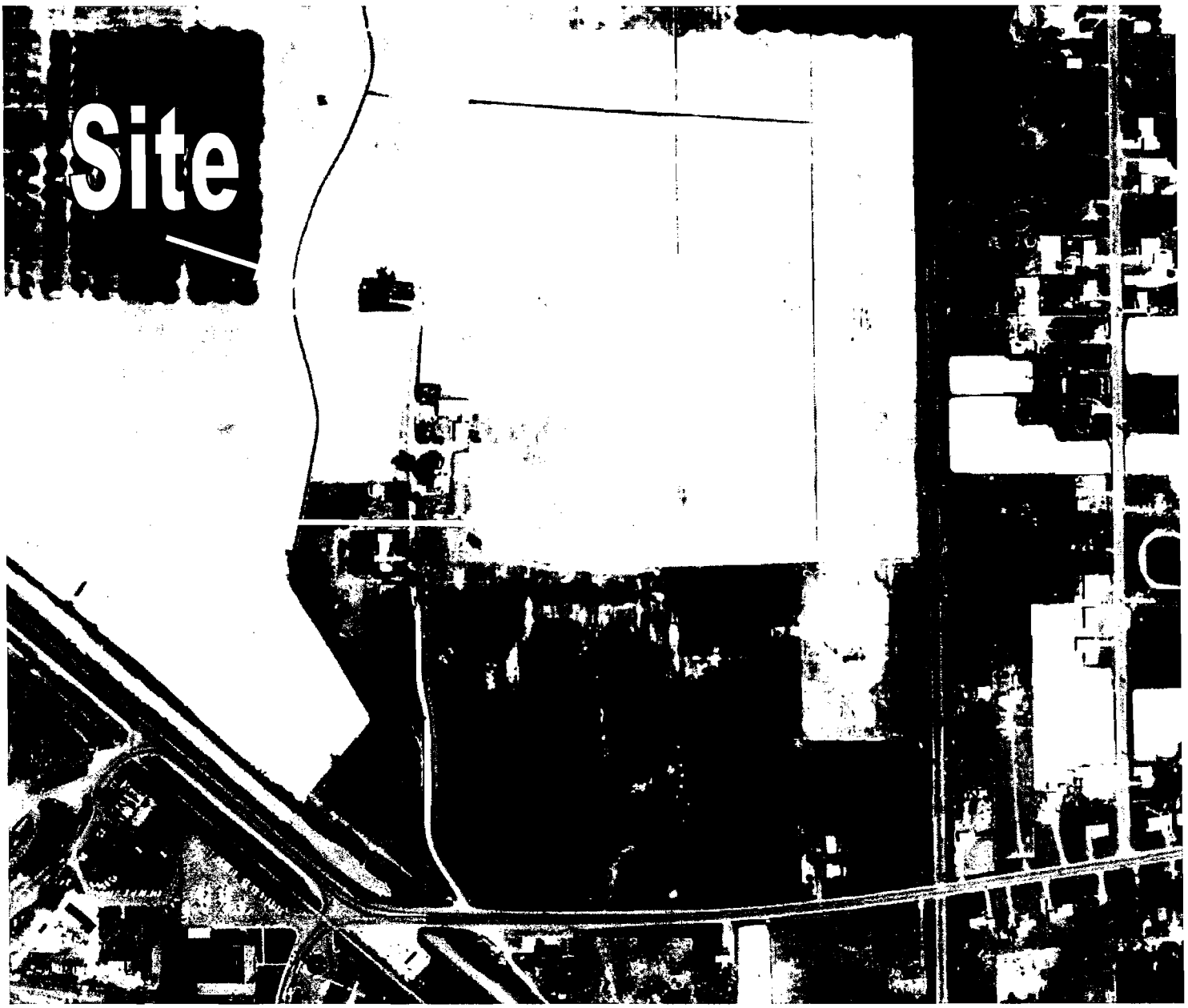
Updated periodically

APPENDIX C

Research Documentation
Historic Air Photos
Sanborn Maps
Real Estate Plat Maps

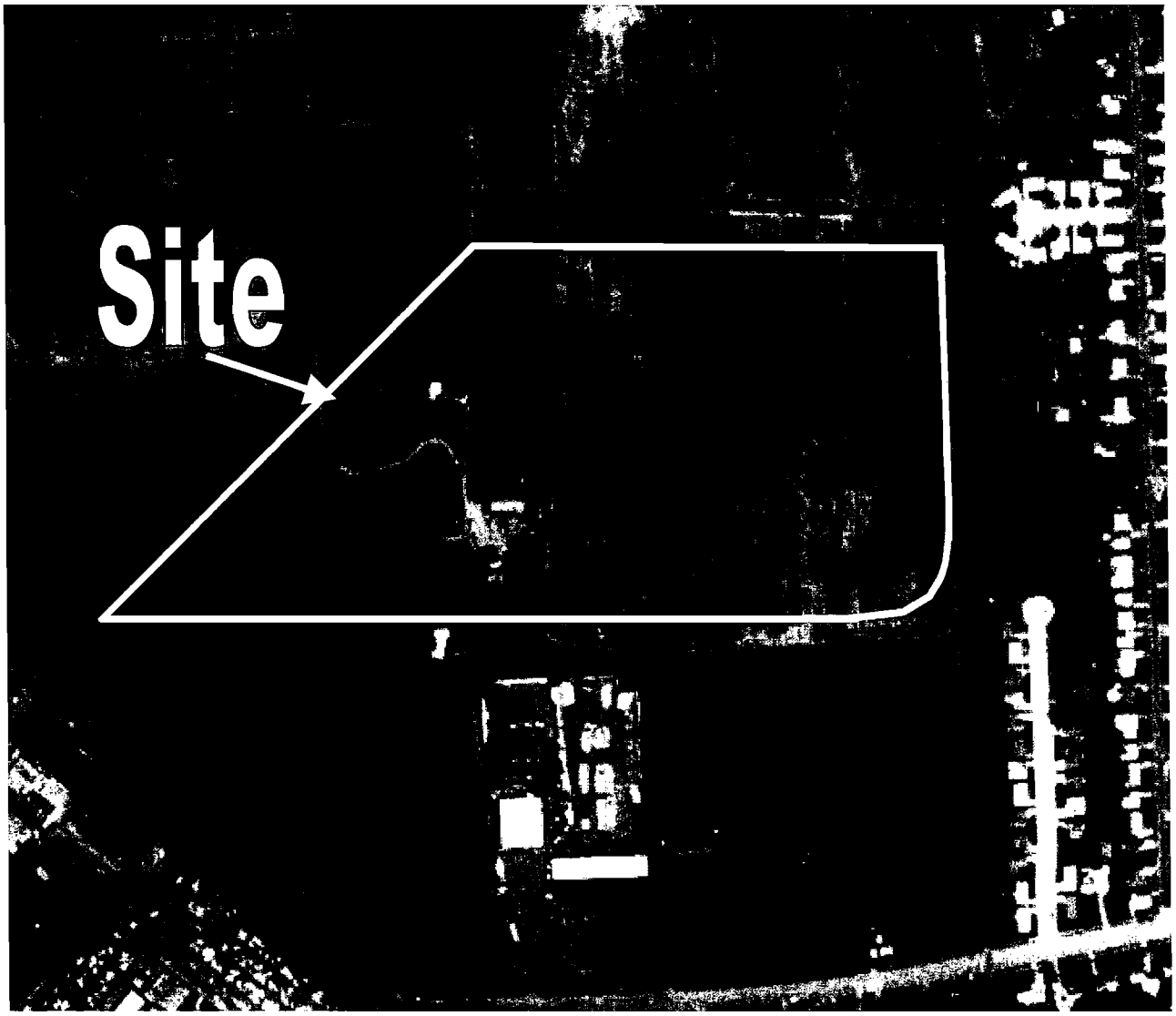


1953 Aerial Photograph

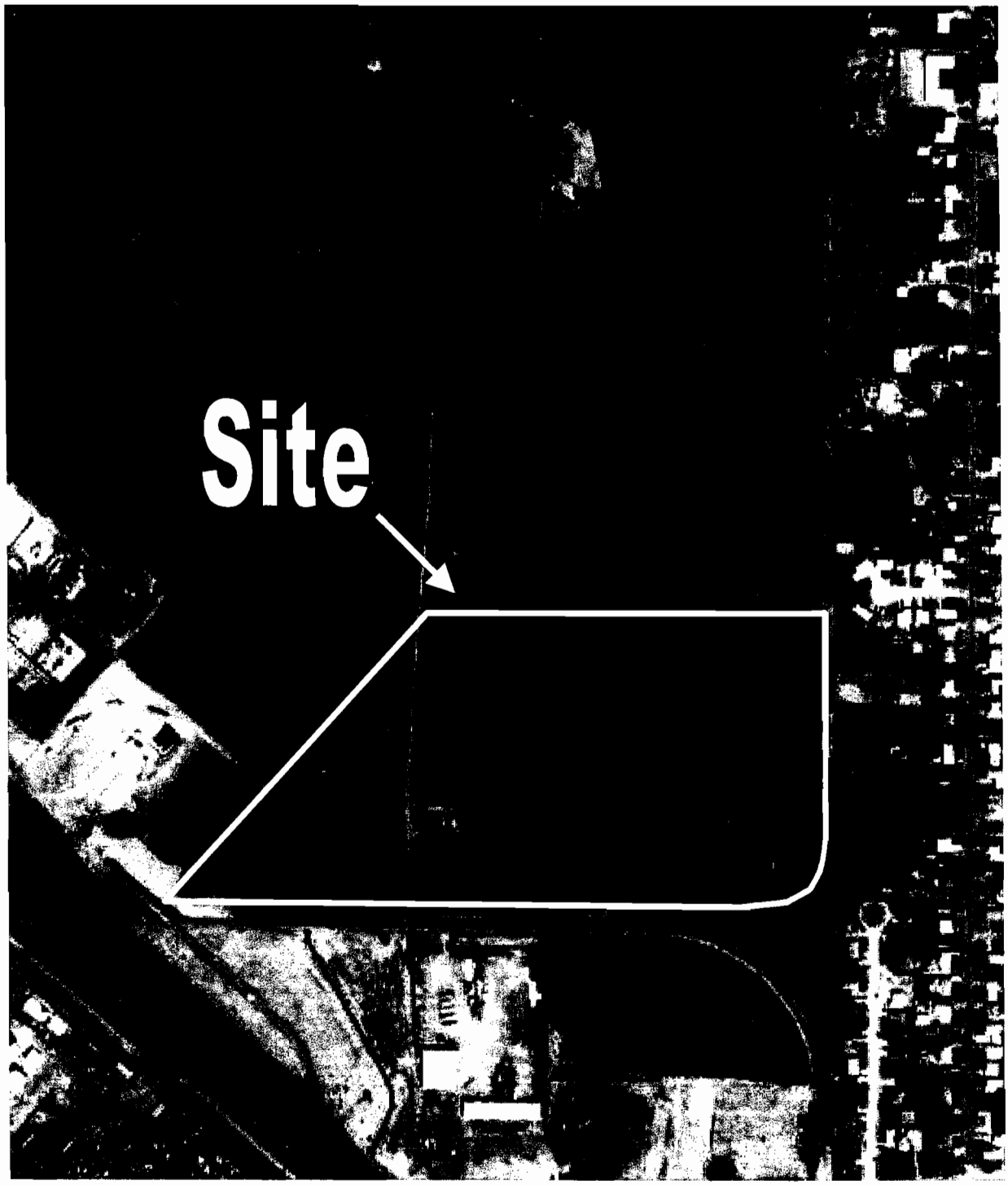


1963 Aerial Photograph

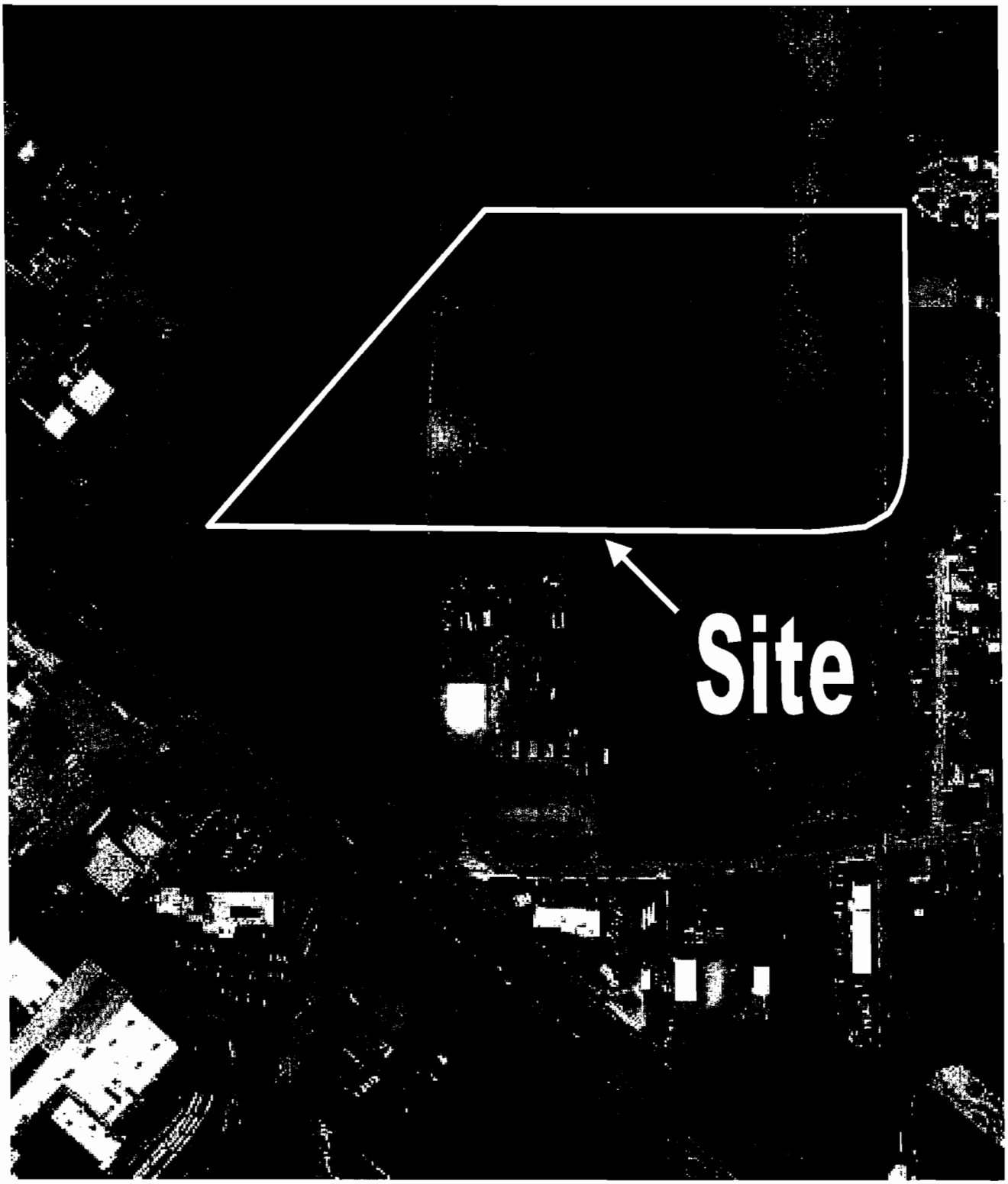
1970 Aerial Photograph



1980 Aerial Photograph



1994 Aerial Photograph



2000 Aerial Photograph

Washington State Department of Ecology : Facility/Site Home : Facility/Site Query

A maximum of one thousand records will be returned. If you exceed the maximum, please use the Advanced Options to narrow your search.

The database used by Facility/Site Query is updated each weekend. Please take note of the Department's disclaimer concerning the data it contains.

HOME

NEW QUERY

BOTTOM

ID	NAME	COUNTY	ZIP CODE
68584763	Citadel Architectural Prod Inc – ok	COWLITZ	98632
3939777	EQUAPAC CAUSTIC TERMINAL – ok	COWLITZ	98632
67696464	SOLVAY INTEROX → request	COWLITZ	98632-9482
51229354	US DOE BPA Longview Substati	COWLITZ	98632
28	WEYERHAEUSER CO HG CHLOR ALK – ok (request - not adjacent)	COWLITZ	98632
27	Weyerhaeuser Co Longview – adjac. - request	COWLITZ	98632
98542613	Weyerhaeuser Longview Waste Liquor Pond	COWLITZ	98632
61943495	WEYERHAEUSER PLYWOOD MILL INTAKE – adjacent [illegible]	COWLITZ	98632-7117

Display map of All sites above

Your query returned 8 records.

TOP

Facility/Site Detail

Facility/Site Name: Citadel Architectural Prod Inc **Ecology Identifier:** 68584763

Facility/Site Location

Geographic Location	Latitude/Longitude
Street Address or Location 3401 INDUSTRIAL WAY ARCH PANELS BLDG **City:** LONGVIEW **ZIP Code:** 98632 **County:** COWLITZ **Congressional District:** 3 **Legislative District:** 19	**Latitude:** Deg: 46 Min: 7 Sec: 52.68 **Longitude:** Deg: 122 Min: 58 Sec: 44.58 **Decimal Equivalents** **Latitude:** 46.1313 **Longitude:** 122.9791 **Accuracy Level:** Unknown

Display the location of this site and all other sites of interest to the Department of Ecology that are approximately within a one half mile radius.
Display the location of this site only, but do it via a controllable version of the map.

Reason for Interaction with the Department of Ecology

Interaction Description	Responsible Organization	Ecology Contact Phone #	Status
Hazardous Waste Generator	HAZWASTE	(360) 407-6023	Inactive

Industrial Classification

SIC Code	SIC Code Description
9999	NONCLASSIFIABLE ESTABLISHMENTS

Mailing Address of Facility/Site

No Address Information Available at this Time

Facility/Site Detail

Facility/Site Name: SOLVAY INTEROX **Ecology Identifier:** 67696464

Facility/Site Location

Geographic Location	Latitude/Longitude
Street Address or Location 3500 INDUSTRIAL WAY **City:** LONGVIEW **ZIP Code:** 98632-9482 **County:** COWLITZ **Congressional District:** 3 **Legislative District:** 19	**Latitude:** Deg: 46 Min: 8 Sec: 17.00 **Longitude:** Deg: 122 Min: 59 Sec: 4.00 **Decimal Equivalents** **Latitude:** 46.1381 **Longitude:** 122.9844 **Accuracy Level:** Unknown

Display the location of this site and all other sites of interest to the Department of Ecology that are approximately within a one half mile radius.
Display the location of this site only, but do it via a controllable version of the map.

inventor tier2 - stored onsite program look for release or discharge

Reason for Interaction with the Department of Ecology

Interaction Description	Responsible Organization	Ecology Contact Phone #	Status
Emergency/Haz Chem Rpt TIER2	HAZWASTE	(360) 407-6729	Active
Toxics Release Inventory	HAZWASTE	(360) 407-6727	Active
Hazardous Waste Generator	HAZWASTE	(360) 407-6023	Active
Air Qual Synth Minor Source	AIRQUAL	(360) 407-6806	Active
Hazardous Waste Planner	HAZWASTE	(360) 407-6731	Active
GENERAL PERMIT INDUSTRIAL	WATQUAL	(360) 407-6400	Active
Industrial Sites	SWFAP	(360) 407-6930	Active
GENERAL PERMIT STORM WATER IND	WATQUAL	(360) 407-6400	Active

Industrial Classification

SIC Code	SIC Code Description

2819	INDUSTRIAL INORGANIC CHEMICALS, NEC

Mailing Address of Facility/Site

No Address Information Available at this Time

Facility/Site Detail

Facility/Site Name: WEYERHAEUSER CO HG CHLOR ALK **Ecology Identifier:** 28

Facility/Site Location

Geographic Location	Latitude/Longitude
Street Address or Location 3535 INDUSTRIAL WAY **City:** LONGVIEW **ZIP Code:** 98632 **County:** COWLITZ **Congressional District:** 3 **Legislative District:** 19	**Latitude:** **Deg:** 46 **Min:** 7 **Sec:** 54.00 **Longitude:** **Deg:** 122 **Min:** 58 **Sec:** 42.00 **Decimal Equivalents** **Latitude:** 46.1317 **Longitude:** 122.9785 **Accuracy Level:** +/- 10 feet (3 meter)

Display the location of this site and all other sites of interest to the Department of Ecology that are approximately within a one half mile radius.
Display the location of this site only, but do it via a controllable version of the map.

Reason for Interaction with the Department of Ecology

Interaction Description	Responsible Organization	Ecology Contact Phone #	Status
State Cleanup Site	TOXICS	(360) 407-7224	Active
MAJOR INDUSTRIAL	WATQUAL	(360) 407-6400	Active

Industrial Classification

SIC Code	SIC Code Description
2611	PULP MILLS

Mailing Address of Facility/Site

No Address Information Available at this Time

Facility/Site Detail

Facility/Site Name: Weyerhaeuser Co Longview - Cathy **Ecology Identifier:** 27

32 spills listed in ERTS - 3401 Industrial

Facility/Site Location

Geographic Location		Latitude/Longitude					
Street Address or Location		**Latitude:**	**Deg:**	46	**Min:**	7	**Sec:** 54.00
3401 INDUSTRIAL WAY		**Longitude:**	**Deg:**	122	**Min:**	58	**Sec:** 42.00
City:	LONGVIEW	**Decimal Equivalents**					
ZIP Code:	98632	**Latitude:** 46.1317	**Longitude:** 122.9785				
County:	COWLITZ						
Congressional District:	3	**Accuracy Level:**	+/- 10 feet (3 meter)				
Legislative District:	19						

Display the location of this site and all other sites of interest to the Department of Ecology that are approximately within a one half mile radius.
Display the location of this site only, but do it via a controllable version of the map.

Reason for Interaction with the Department of Ecology

Interaction Description	Responsible Organization	Ecology Contact Phone #	Status
Air Qual Oper Permit Source	AIRQUAL	(360) 407-6806	Active
Hazardous Waste Generator	HAZWASTE	(360) 407-6023	Active
Toxics Release Inventory	HAZWASTE	(360) 407-6727	Active
Emergency/Haz Chem Rpt TIER2	HAZWASTE	(360) 407-6729	Active
Hazardous Waste Planner	HAZWASTE	(360) 407-6731	Active
Oil Facility Contingency Plan	SPILLS	(360) 407-6375	Active
State Cleanup Site	TOXICS	(360) 407-7224	Active
Industrial Sites	SWFAP	(360) 407-6930	Active
Sediments	TOXICS	(360) 407-6069	Active
NON ENFORCEMENT FINAL	INDUSTRIAL	(360) 407-6712	Active
ENFORCEMENT FINAL	INDUSTRIAL	(360) 407-6712	Active

ENFORCEMENT FINAL	SPILLS	(360) 407-6712	Active
ENFORCEMENT FINAL	SWFAP	(360) 407-6712	Active

Industrial Classification

SIC Code	SIC Code Description
2421	SAWMILLS AND PLANING MILLS, GENERAL
2436	SOFTWOOD VENEER AND PLYWOOD
2499	WOOD PRODUCTS, NEC
2611	PULP MILLS
2621	PAPER MILLS
2631	PAPERBOARD MILLS
28	CHEMICALS AND ALLIED PRODUCTS
2821	PLASTICS MATERIALS AND RESINS

Mailing Address of Facility/Site

No Address Information Available at this Time

Facility/Site Detail

Facility/Site Name: WEYERHAEUSER PLYWOOD MILL INTAKE -Cathy

Ecology Identifier: 61943495

Facility/Site Location

Geographic Location		Latitude/Longitude					
Street Address or Location		**Latitude:**	**Deg:**	46	**Min:**	7	**Sec:** 54.00
3401 INDUSTRIAL WAY		**Longitude:**	**Deg:**	122	**Min:**	58	**Sec:** 42.00
City:	LONGVIEW	**Decimal Equivalents**					
ZIP Code:	98632-7117	**Latitude:** 46.1317	**Longitude:** 122.9785				
County:	COWLITZ						
Congressional District:	3	**Accuracy Level:**	+/- 10 feet (3 meter)				
Legislative District:	19						

Display the location of this site and all other sites of interest to the Department of Ecology that are approximately within a one half mile radius.
Display the location of this site only, but do it via a controllable version of the map.

Reason for Interaction with the Department of Ecology

Interaction Description	Responsible Organization	Ecology Contact Phone #	Status
State Cleanup Site	TOXICS	(360) 407-7224	Active
Sediments	TOXICS	(360) 407-6069	Active

Industrial Classification

SIC Code	SIC Code Description
	No SIC Code Information Available

Mailing Address of Facility/Site

No Address Information Available at this Time

Facility/Site Detail

Facility/Site Name: Weyerhaeuser Longview Waste Liquor Pond **Ecology Identifier:** 98542613

Facility/Site Location

Geographic Location	Latitude/Longitude
Street Address or Location	**Latitude:** Deg: 46 Min: 8 Sec: 5.40 **Longitude:** Deg: 122 Min: 59 Sec: 34.40
City: LONGVIEW **ZIP Code:** 98632 **County:** COWLITZ	**Decimal Equivalents** **Latitude:** 46.1348 **Longitude:** 122.9929
Congressional District: 3 **Legislative District:** 19	**Accuracy Level:** +/- 250 feet

Display the location of this site and all other sites of interest to the Department of Ecology that are approximately within a one half mile radius.
Display the location of this site only, but do it via a controllable version of the map.

Reason for Interaction with the Department of Ecology

Interaction Description	Responsible Organization	Ecology Contact Phone #	Status
Dam Site	WATRES	(360) 407-6623	Active

Industrial Classification

SIC Code	SIC Code Description
4952	SEWERAGE SYSTEMS

Mailing Address of Facility/Site

No Address Information Available at this Time

SOIL BORING REPORT

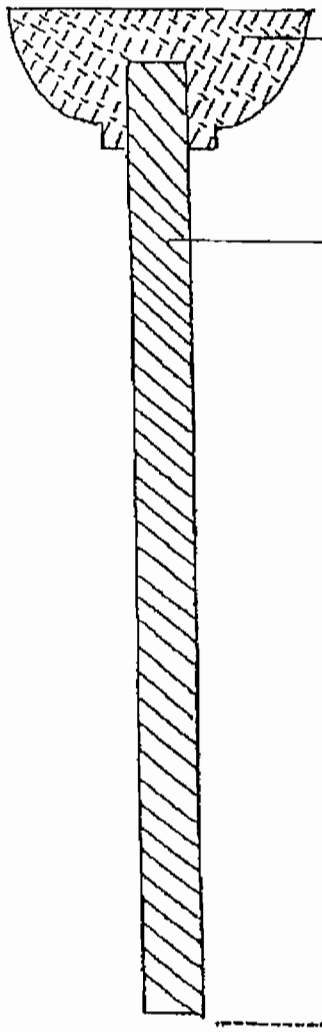
93358

Notification # S 07513

Project Name: Longview
Drilling Method: Rotary Mud
Driller: Larry Inselman
Firm: GEO-TECH EXPLORATIONS, INC.
Signature: Larry Inselman
Consulting Firm: Golder Associates
Representative: Ron Bleyan

County: Cowlitz
Location: NW 1/4 NW 1/4 Sec 31 T 8N R 2W
Street Address of Boring: NE of 3400 Industrial Way
Water Level Elevation: N/A
Ground Surface Elevation: N/A
Date of Drilling: 4-3-01

Invoice #

AS BUILT	WELL DATA	FORMATION DESCRIPTION
	Concrete Surface Seal 4 1/2" Rotary Mud 0 - 180	0 - 45 ft. Silty Clay
	Backfill Bentonite 0 - 180 28 bags	45 - 175 ft Silts
	RECEIVED APR 30 2001 DEPARTMENT OF ECOLOGY WELL DRILLING UNIT	175 - 180 ft Sand
	Depth of Boring 180 ' "	

SCALE 1" = _____

PAGE 1 OF 2

ECY 050-12 (Rev 11/89)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

SOIL BORING REPORT

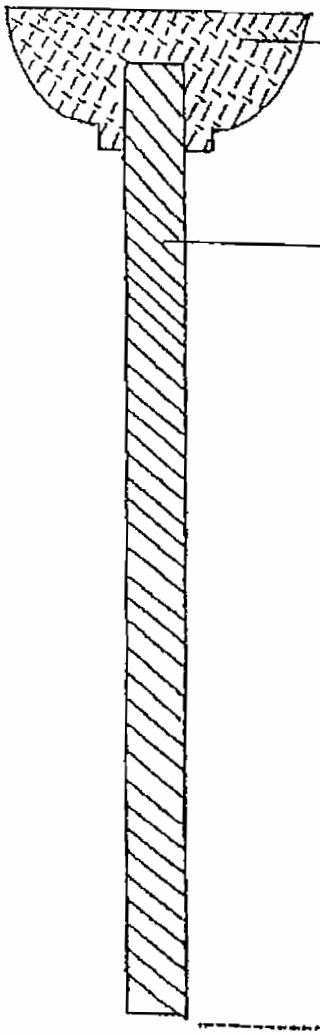
93358

Notification # S 07513

Project Name: Longview
Drilling Method: Rotary Mud
Driller: Larry Inselman
Firm: GEO-TECH EXPLORATIONS, INC.
Signature: Larry Inselman
Consulting Firm: Golder Associates
Representative: Ron Blegan

County: Cowlitz
Location: SW 1/4 NW 1/4 Sec 31 T 8N R 2W
Street Address of Boring:
NE of 3400 Industrial Way
Water Level Elevation: N/A
Ground Surface Elevation: N/A
Date of Drilling: 4-3-01

Invoice #

AS BUILT	WELL DATA	FORMATION DESCRIPTION
	Concrete Surface Seal 4½" Rotary Mud 0-180	0-45 ft. Silty Clay
	Backfill Bentonite 0-180 28 bags	45-175 ft Silts
	RECEIVED APR 30 2001 DEPARTMENT OF ECOLOGY WELL DRILLING UNIT	175-180 ft Sand
	Depth of Boring 180 ' "	

SCALE 1" = _____

PAGE 1 OF 2

ECY 050-12 (Rev 11/89)

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

The Department of Ecology does NOT Warranty the Data and/or the Information on this Well Report.

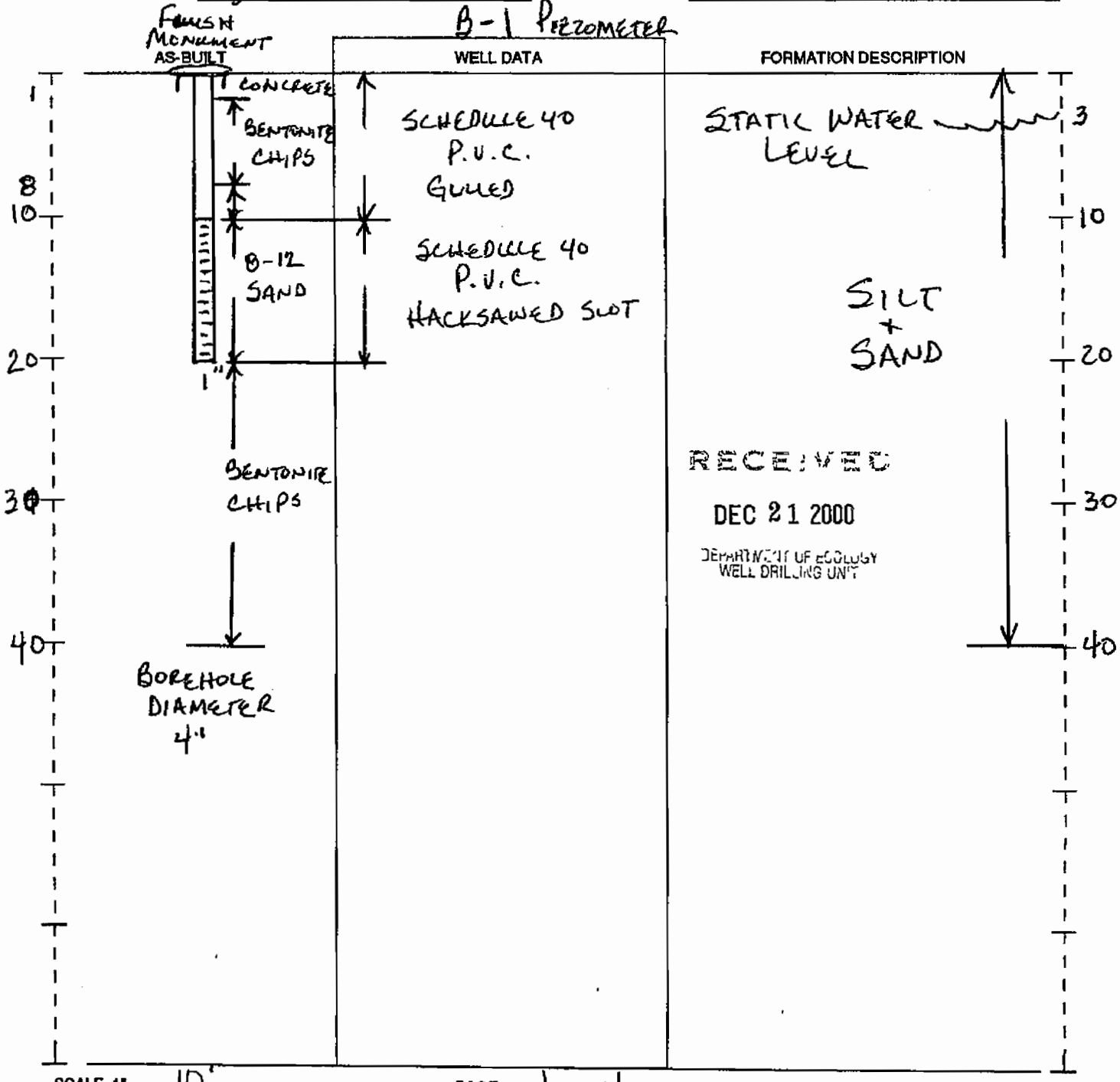
RESOURCE PROTECTION WELL REPORT

START CARD NO R44640

PROJECT NAME Longview
WELL IDENTIFICATION NO AEM 077
DRILLING METHOD Mud Rotary
DRILLER David Abernathy
FIRM Geo-Tech Explorations
SIGNATURE David Abernathy
CONSULTING FIRM Golder
REPRESENTATIVE Dave Rankin

COUNTY Cowlitz
LOCATION NW¼ SE¼ Sec 31 Twn 8N R 2W
STREET ADDRESS OF WELL SW Corner of Prudential Blvd - vacant lot
WATER LEVEL ELEVATION 3'
GROUND SURFACE ELEVATION
INSTALLED 10/23/00
DEVELOPED

B-1 Piezometer



RECEIVED
DEC 21 2000
DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

SCALE 1" = 10'

PAGE 1 OF 1

ECY 050-12 (Rev 11/89) 84357

Owner Name/Address

Account R033414	N
Asmt Yr 2006	Tax Code 400
Neighborhood 80	St A

WEYERHAEUSER REAL ESTATE DEVE CO

EC 3-3C8, PO BOX 9777
FEDERAL WAY WA 98063-9777

Parcel Number	Status Code	OS code
101930300	T	

Street No	Dir	Street Name	Type	No#

Location City	?	Location Zip	Use Code	MPC
			907	

SI Code	C/I	Life Estate	Map No
			30-8-2W

Business Name
ALSO SEE 101930301

Legal Description

SECT,TWN,RNG:30-8N-2W DESC: LVOL 155,155C-5,155D-1,155E,157F,158,169,170 IN 30/31-8-2W
PARCEL: 101930300

CREATED PARCEL 101930301 TO HANDLE
ADDITIONAL VALUE FOR 2002 ON THIS PARCEL
THAT MAGIC CAN'T ACCOMODATE.DV
AC CHANGE FROM 321.99 TO 302.16 PER GIS.DV

Version	V. Date	Time	ID	Appl	New Version
20060609001	09-JUN-2006	04:38 PM	JS	AIMS	20060615000

☒ Name	☒ Tax Items	☐ Protes(T)	☒ CAM(A)
☐ Situs	☐ Pre/Suc	☐ M(o)bile Auth	☐ P(e)rmit
☐ Mobile	☒ Remarks	☐ Value	☐ (P)ersonal
☒ Tract	☐ Tax (S)ale	☐ State Asd	
☐ Condo	☒ Spc Asmt	☐ Control	
☐ Block	☐ Short Plat		
☒ Sales	☐ Si(b)ling		☐ P(h)oto
☐ Misc (M)	☒ Flags	☐ Exemptio	☐ Sketch
☐ Mail (F)	☐ Tax (C)h	☒ Mtg Trac(k)	

(V)alue Sum

TYPE	ACTUAL	ASSD	ACRES	SQ FT
LAND	9,999,000	9,999,000	302.160	
TOTAL	9,999,000	9,999,000	302.160	

Queries

ACCOUNT

Current Year	Prior VersionQ	Tax Trx
Prior (Y)ear	Ne(x)t Version	Abatement
(N)ext Year	Characteristics	Property Card
Inquiry Only	Clear	Exit

Owner Name/Address

Account R051523	N
Asmt Yr 2006	Tax Code 400
Neighborhood 80	St A

WEYERHAEUSER REAL ESTATE DEVE CO

EC 3-3C8, PO BOX 9777
FEDERAL WAY WA 98063-9777

Parcel Number	Status Code	OS code
101930301	T	

Street No	Dir	Street Name	Type	No#

Location City	?	Location Zip	Use Code	MPC
			907	

SI Code	C/I	Life Estate	Map No
			31-8-2W

Business Name
ALSO SEE 101930300

Legal Description

SECT,TWN,RNG:31-8N-2W DESC: LVOL 155,155-C,155D-1,155E,157F,158,169,170 IN 30/31-8-2W
PARCEL: 101930301

PARCEL CREATED TO HANDLE ADDITIONAL VALUE FOR 2002 OF PARCEL 101930300 THAT MAGIC CAN'T ACCOMODATE.DV

Version	V. Date	Time	ID	Appl	New Version
20060609001	09-JUN-2006	04:38 PM	JS	AIMS	20060615000

TYPE	ACTUAL	ASSD	ACRES	SQ FT
LAND	3,766,400	3,766,400	0.000	
TOTAL	3,766,400	3,766,400	0.000	

- [x] Name
- [x] Tax Items
- [ ] Protes(T)
- [x] CAM(A)
- [ ] Situs
- [ ] Pre/Suc
- [ ] M(o)bile Auth
- [ ] P(e)rmit
- [ ] Mobile
- [x] Remarks
- [ ] Value
- [ ] (P)ersonal
- [x] Tract
- [ ] Tax (S)ale
- [ ] State Asd
- [ ] Condo
- [x] Spc Asmt
- [ ] Control
- [ ] Block
- [ ] Short Plat
- [x] Sales
- [ ] Si(b)ling
- [ ] P(h)oto
- [ ] Misc (M)
- [x] Flags
- [ ] Exemptio
- [ ] Sketch
- [ ] Mail (F)
- [ ] Tax (C)h
- [ ] Mtg Trac(k)

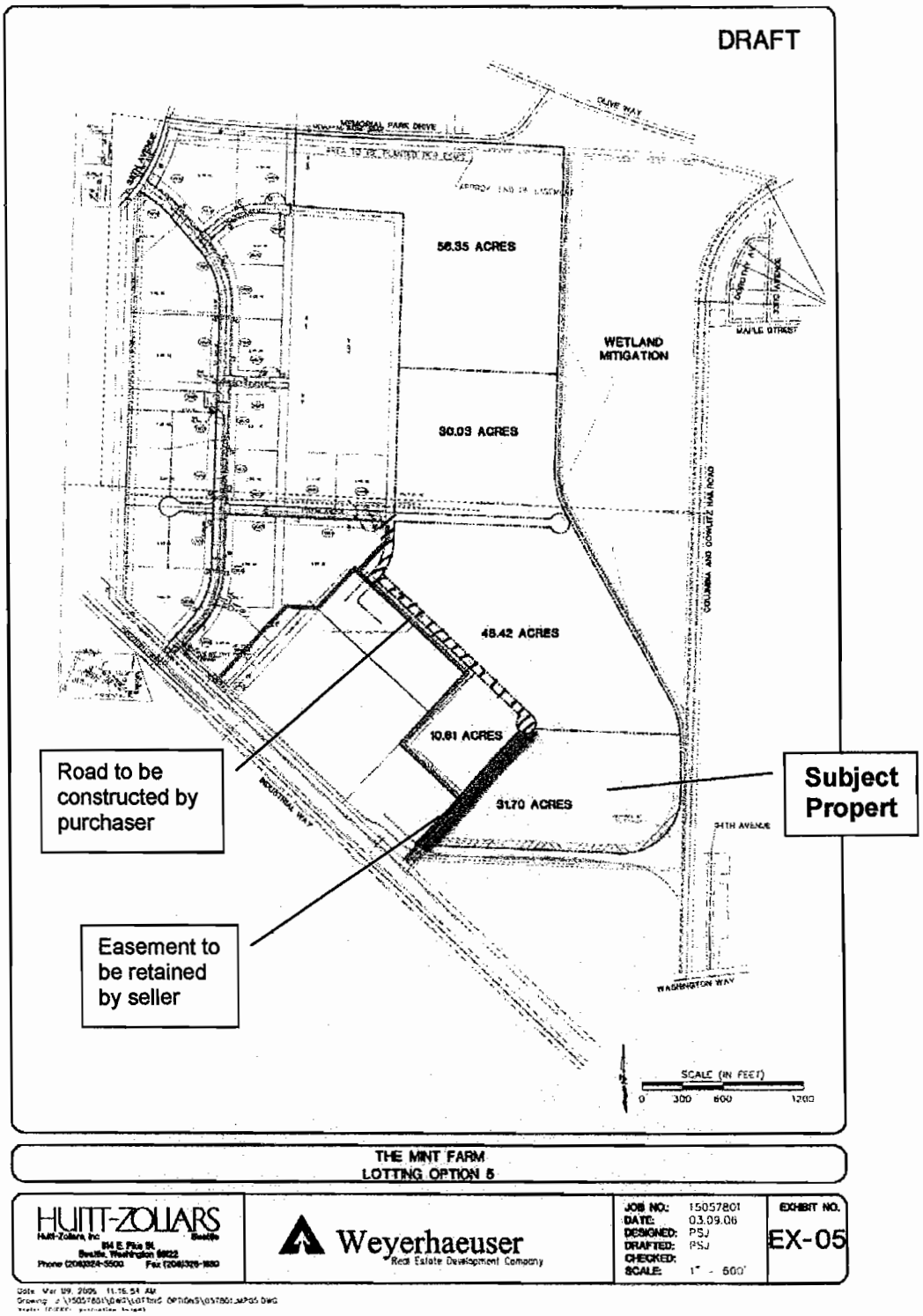
(V)alue Sum

Queries

ACCOUNT

Current Year	Prior VersionQ	Tax Trx
Prior (Y)ear	Ne(x)t Version	Abatement
(N)ext Year	Characteristics	Property Card
Inquiry Only	Clear	Exit

EXHIBIT A



Note:

- Designate road to be built
- Designate easement area