327-B-7
1818 Forest Ave.
PRUD
David Lloyd

2001-0307

on Spreadsheet

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Planning Copy

2001-0307
Application I. D. Number

David Lloyd
Applicant

11/22/01
Application Date

48 Unum Wharf, Portland, ME
Applicant's Mailing Address

Forest Avenue Housing Development
Project Name/Description

Lloyd, David
Consultant/Agent

1818 - 1818 Forest Ave, Portland, Maine
Address of Proposed Site

Applicant Ph: (207) 772-6022 **Agent Fax:**
Applicant or Agent Daytime Telephone, Fax

327 B007001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☑ New Building ☐ Building Addition ☐ Change Of Use ☐ Residential ☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☑ Other (specify) **PRUD housing units**

46 units	**4.52 acres**	**R-5 & R-2**
Proposed Building square Feet or # of Units	Acreage of Site	Zoning

Check Review Required:

☑ Site Plan (major/minor)
☐ Subdivision # of lots ____
☐ PAD Review
☐ 14-403 Streets Review
☐ Flood Hazard
☐ Shoreland
☐ HistoricPreservation
☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB)
☐ Zoning Variance
☐ Other ____

Fees Paid: Site Plan **$500.00** Subdivision ____ Engineer Review ____ Date **11/22/01**

Planning Approval Status:

Reviewer ____

☐ **Approved**
☐ **Approved w/Conditions** See Attached
☐ **Denied**

Approval Date ____ Approval Expiration ____ Extension to ____ ☐ Additional Sheets Attached

☐ OK to Issue Building Permit ____ (signature) ____ (date) ____

Performance Guarantee ☐ **Required*** ☐ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted	____ date	____ amount	____ expiration date
☐ Inspection Fee Paid	____ date	____ amount	
☐ Building Permit Issue	____ date		
☐ Performance Guarantee Reduced	____ date	____ remaining balance	____ signature
☐ Temporary Certificate of Occupancy	____ date	☐ Conditions (See Attached)	____ expiration date
☐ Final Inspection	____ date	____ signature	
☐ Certificate Of Occupancy	____ date		
☐ Performance Guarantee Released	____ date	____ signature	
☐ Defect Guarantee Submitted	____ submitted date	____ amount	____ expiration date
☐ Defect Guarantee Released	____ date	____ signature	

Alterations to Land Cover

Changes in land cover and use will include removal of wooded and meadow areas through portions of the project site. Changes in land cover would include the addition of paved surfaces, buildings and lawn.

Modeling Assumptions

The stormwater management study evaluates three elements of the project as follows:

1. Analysis of predevelopment and post-development stormwater runoff rates.
2. Evaluation of water quality requirements.
3. Evaluation of storm drainage requirements.

The medium intensity soil survey prepared by the Cumberland County SCS was used as the basis for surficial conditions for offsite and onsite drainage areas. Hydrologic soils group A,C and D soils were mapped on the site. An excerpt from the Cumberland County SCS Medium Intensity Soils in the vicinity of the Project Location follows this page.

The SCS TR-20 methodology was employed by Gorrill-Palmer Consulting Engineers, Inc. to analyze predevelopment and post development conditions. A 24 hour, SCS Type III storm distribution for the two, ten, and twenty-five year storm frequencies were used for analysis. The corresponding rainfall amounts for these storms, as indicated in the City of Portland Technical and Design Standards and Guidelines, are 2.6", 4.5", and 5.4" respectively.

Design of the internal storm drainage system was based on the flows calculated by the TR-20 model for the ten year storm.

Culvert Inlet/Outlet apron and ditch scour protection was based upon a nomograph which provides a d_{50} stone size based upon the respective conditions.

Land use cover delineations of watershed hydraulic flow paths, and hydraulic soils data were obtained using the following data:

1. Portland West 7.5 Minute Quadrangle Map prepared by the U.S.G.S.
2. On-site topographic survey with 2 contour intervals.
3. Field Reconnaissance.
4. Soil Conservation Service Medium Intensity Soil Survey for Cumberland County.

Water Quantity Control

Predevelopment Conditions

The drainage study analyzes the watersheds in the predevelopment condition as depicted on Figure A, Predevelopment Watershed Map, contained in Attachment A. Off-site areas are shown on Figure C, Off-site Watershed Map, also contained in Attachment A.

The predevelopment condition was analyzed as two watersheds. Watershed 1 is the onsite watershed, which included the land west of the Maine Turnpike and south of Forest Avenue. Watershed 2 is a portion of Forest Avenue east of the Turnpike. Both watersheds are tributary to Point of Interest # 1 at the southern property line adjacent to the Riverton housing complex.

The predevelopment peak runoff flows were computed by cover type, land use, and hydrologic soil group. Cover type and land use was determined based upon review of aerial photographs and reconnaissance. Predevelopment time of concentrations were determined for the watershed using the procedure in the U.S.D.A. Soil Conservation Service TR-55 Urban Hydrology for Small Watershed, Second Edition, 1986. The flows for this watershed were calculated to Point of Interest # 1, where the stream crosses the southern property line. Predevelopment peak flows at Point of Interest # 1 for the 2, 10, and 25-year storm are presented below:

Table 1 – Predevelopment Peak Flows

Drainage Area	Peak Flow (cfs)		
	2 Year	10 Year	25 Year
Point of Interest #1	6	19	23

Copies of the calculations are included as Attachment B

Post Development Flows

The existing runoff conditions for the entire project site will be altered during the development of the site by the following changes:

Changes in Land Use:

Changes in land use will include the removal of wooded and meadow covered areas throughout the area to be replaced by access drives. Parking areas and buildings.

Changes in Watershed Size or Configuration

The development of the parcel results in a significant change to the configuration of the watershed, in the area that is to be developed. In post-development conditions, watershed 1 is separated into two drainage areas, watershed 1 and 11

Watershed 1 is the area located to the west of the drainage course, which bisects the site. Watershed 11 is the area located to the east of the drainage course and is tributary to the proposed detention basin. Watershed 2 remains unchanged in the post development condition, whereas it is an offsite area.

The post-development condition has been routed together to Point of Interest #1, where the drainage course crosses the property line. The flows to this point were calculated without detention to verify the need for detention. A post development watershed Map is enclosed in Attachment A as Figure B.

Post-development peak flows at Point of Interest # 1 for the 2, 10, and 25-year storm events without detention are presented below:

Table 2 – Post-development Peak Flows No Detention			
	Peak Flow (cfs)		
Drainage Area	2 Year	10 Year	25 Year
Point of Interest #1	7	21	26

Based upon comparison to predevelopment flows, it is evident that detention of a portion of the flows through stormwater management is required.

A stormwater detention pond will be constructed to attenuate flows in the post-development condition.

Attachment B includes the formal routing computations for the detention pond. The hydraulic performance for the pond is as follows:

Table 3 – Pond Performance			
	Storm Event		
	2 Year	10 Year	25 Year
Peak In Flow (cfs)	1.45	3.44	4.42
Peak Outflow (cfs)	0.12	0.96	1.78
Stage (Max. Elevation)	65.8	66.8	67.1
Storage (Max. cf)	4334	8508	9838
Depth above Outlet (ft)	1.5	2.5	2.8

Post-development peak flows at Point of Interest #1 for the 2, 10, and 25-year storm events with detention are presented below:

Table 4 – Post Development Peak Flow Rates			
	Peak Flow (cfs)		
Drainage Area	2 Year	10 Year	25 Year
Point of Interest # 1	6	19	23

A comparison of the flows at Point of Interest # 1 for the pre and post-development conditions is presented below:

Table 5 – Comparison of Peak lows (cfs			
	Storm Event		
Condition	2 Year	10 Year	25 Year
Predevelopment	6	19	23
Post Development	6	19	23

As can be seen, the post-development flows exiting the site have been reduced to at or below the predevelopment levels at each storm event. The proposed stormwater management facilities are therefore effective in controlling the peak discharge to the predevelopment levels.

Water Quality Control

General

The development is located within the watershed of the Presumpscot River. Under Chapter 500 & 502 of the MDEP Stormwater Law, the Presumpscot River is not listed as a watershed most at risk or a sensitive or threatened area. The construction of the project will result in approximately 1.78 acres of new non-vegetated surface. Therefore based upon Chapter 500 Stormwater Management from the MDEP, water quality treatment is not required apart from Best Management Practices for erosion control based upon the size of the project and the watershed it is located within.

The Applicant, due to their commitment to minimize the environmental impact of their project, has elected to implement water quality standards for this project.

Review of Current TSS Control Technology

MDEP has established methodologies for evaluating and controlling TSS export from development, as presented in the 1995 manual, Stormwater Management for Maine: Best Management Practices.

Gorrill-Palmer Consulting Engineers, Inc. has prepared a TSS control program for this project using the MDEP methodology established in the manual and regulations. TSS control often requires the integration of various reduction strategies. Common methods include the use of vegetated buffer strips, retention facilities, proprietary treatment devices and infiltration systems.

The following is a summary of the four primary TSS treatment methods, which are outlined in the MDEP methodology:

- **Vegetated Buffer Strips** - Buffer strips are naturally vegetated strips of land preserved downslope of developed areas. These strips intercept and store surface runoff, allowing it to infiltrate rather than flow off-site. Water needs to enter the buffer strips in a sheet flow regime since concentrated flows are not significantly treated by buffers.

- **Infiltration Systems** - Infiltration systems are more sophisticated. Runoff is collected from rooftop, driveway, and other impervious areas of a lot and then directed to an underground collection point, similar to a subsurface wastewater disposal area, from which it infiltrates into the soil.

- **Wet Ponds** – Wet ponds are generally used to treat runoff from a large area. They receive and retain stormwater from large drainage areas, allowing suspended solids to settle out. Generally, flows enter wet ponds in a concentrated flow regime.

- **Filters and Separators** – Filters and separators include treatment devices ranging from simple catch basin outlet hoods to proprietary filtering or settling units. Concentrated

flows enter the devices and are treated to remove TSS prior to discharge. Filters remove suspended solids by passing the stormwater through a filtering medium such as sand, fabric, peat, or composted leaves; separating units generally remove suspended solids through the use of gravity settling enhanced by system hydraulics or coalescing media.

Approach and Analysis for Control

The overall project strategy has been to determine the level of TSS treatment that would be required under the Stormwater Management Rules Sliding Scale TSS standard, and to devise a treatment regimen that would achieve the proper level of treatment.

Treatment Required - As noted above, removal is not required based upon MDEP requirements. The applicant has elected to implement water quality treatment to potentially meet the sliding scale TSS requirements.

Treatment Methods –

In evaluating the project site for compliance with 51% TSS removal standard, it is apparent that treatment of the non-vegetated surfaces can be attained based on the topography and grading of the property and surrounding area. The use of a separator was selected as the practicable manner in which to provide treatment for a large portion of the site. The detention pond will treat the remaining portion of the site. Also, it is proposed that "Casco" traps be installed on all storm drain structures with outlet pipes 15" or smaller.

Treatment Summary –

Based upon the treatment levels accepted by the MDEP for the Vortechnic Units of s 50% removal rate and a 10% removal rate for both the detention pond and Casco traps, a removal rate of 54.3% will be attained on the site. If the project were required to meet the sliding scale TSS removal rate, the 54.3% is greater than the 51% required. Therefore, the project would meet the MDEP requirement.

Construction BMPs

Additional water quality treatment will be provided during construction by best management practices (BMP). Standard BMPs to be employed include siltation fencing around the downslope construction perimeter, riprap pipe inlet and outlet protection, and erosion control fabrics applied to grassed slopes prior to revegetation. Plantings suited to the site soils and hydrology have been selected to stabilize areas to be revegetated.

Maintenance of Facilities

The stormwater facility will be maintained by the applicant, or their assigned, heirs after construction is completed. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion Control Report. Long-term operation/maintenance planned for the stormwater management facilities is presented below.

From: James Seymour <jseymour@sebagotechnics.com>
To: "Jonathan Spence (E-mail)" <jspence@ci.portland.me...
Date: Fri, May 24, 2002 4:38 PM
Subject: 1818 Forest Avenue- Wellesley Estates

Jonathan,
I have conducted another review of the Wellesley Estates PRUD project located at 1818 Forest Avenue and feel that only a few items need clarification to the plans.
They are as follows:

1. The applicant has stated that a that a guardrail/railing has been added but I did not receive Sheet SD-3, and did not see the improvement on any other design sheet.
2. The stormwater outlet control structure elevations are different in the actual calculations than what was shown in the detail on sheet SD-6. The orifice inverts appear to have been revised in the calculations but not on the detail sheet.
3. The material shown as spillway bedding in the spillway detail shall require a specification comparable to an MDOT standard aggregate or material.
4. The inlet end of the 24 inch culverts shall be built with a trash rack to protect the culvert from debris blocking the culvert end. This is a common application used by MeDEP for culverts of this size.
5. On sheet SD-3A the recommended finish floor grades are listed in a table, however the unit numbers corresponding to the elevations are in the table, but are not shown on the plans. The plans need to indicate the intended unit numbering.
6. Please make sure that the applicant includes a maintenance plan for the stormwater treatment system and detention/drainage facilities with the Homeowners agreement. The application states that the homeowners are responsible for these amenities, and we believe that maintenance plan should be reflected in the actual documents for your review.
7. Lastly, you should check with Larry Ash regarding the proximity of the existing driveway curb cut so close to the proposed entrance on Forest Avenue. I understand that the applicant has an agreement in place for this curb cut and garage relocation, but the leaving of this opening so close to the entrance is not a good practice. It would leave a potential confusing access area where safety could be jeopardized by either parked vehicles in the driveway or vehicles backing out of the driveway into Forest Avenue in front of a turning vehicle exiting or entering the sites access road. This does not appear to be a safe solution to leave the driveway opening. If the owner wishes to have additional driveway space extend the turnout area of the new driveway towards Forest Avenue and curb the existing opening. I will leave discretion of this matter with you, Larry and the Planning Board.

Please contact me if you have any addition questions or concerns.
Jim Seymour P.E.

CC: "01P307 (E-mail)" <01P307@SEBAGOTECHNICS.COM>

A R C H E T Y P E

May 14, 2002

Mr. Jonathan Spence
City of Portland
389 Congress Street
Portland, Maine 04101

Dear Mr. Spence,

We are asking to appear before the Planning Board for a Public Hearing on May 28, 2002. In preparation for which we are resubmitting our documents with the following changes based on our meeting with you on April 23, 2002.

1. Details of Tot Lot.
   A detail plan of the Tot Lot is shown on Drawing SD-3.

2. Detail of Private Patios.
   The private patios are called out on Drawing L-1.

3. Detail pf Picnic Table
   A cut of the picnic table is attached.

4. Railing at culvert Fire Department.
   We propose the railing at the culvert be the same as Drawing SD-3.

5. Location of Emergency Access Gate.
   We have noted the gate be located at the direction of the Portland Fire Department.

6. Fence between Grange Hall and Access Drive.
   We believe the low railing shown on SD-3 to be the most unobtrusive.

7. Road cross section.
   A specification for the road and parking area is attached.

8. Statement of Financial Capacity
   A Statement is attached.

9. Raised garden.
   A detail of the raised garden is shown on Drawing SD-3.

We believe we have addressed all other outstanding issues in our letter of April 23, 2002. Please let me know what we may be missing.

Sincerely,

David Lloyd

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

City of Portland Site Plan Application

If you or the property owner owes real estate or personal property taxes or user charges on any property within the City, payment arrangements must be made before permits of any kind are accepted.

Location/Address of Construction: 1816-1822 Forest Ave. Portland, ME		
Total Square Footage of Proposed Structure	Square Footage of Lot: 4.52	
Tax Assessor's Chart, Block & Lot Chart# MAP 327 Block# B Lot# 7-8	Property owner, mailing address: Adam Mack / Minat Corp. Preble St. Portland ME 04101	Telephone: 774 8013
Consultant/Agent, mailing address, phone & contact person: ~~Wilson~~ David Lloyd Architype 48 Union Wharf Portland ME	Applicant name, mailing address & telephone: David Lloyd 48 Union wharf Portland ME 772 6022	**Project name:** 18 Forest Ave. Housing Development

Proposed Development (check all that applies) X New Building ___Building Addition ___Change of Use
X Residential ___Office ___Retail ___Manufacturing ___Warehouse/Distribution ___Parking lot
___Subdivision, amount of lots_____
___Other:_____

Major Development X **$500.00** **Minor Development**_____ **$400.00**

Who billing will be sent to:
Mailing address: Minat Corp
State and Zip: 34 Preble St. Portland ME 04101
Contact person: Adam Mack
Phone: 774 8013

Nine (9) separate packets must include the following:

a. copy of application
b. cover letter stating the nature of the project
c. site plan containing the information found in the attached sample plans check list

All plans must be folded neatly and in packet form

Section 14-522 of the Zoning Ordinance outlines the process, copies are available at the counter at .25 per page, you may also visit the web site: ci.portland.me.us chapter 14

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant:	Date: 11-21-01

NOV 21 2001

This application is for site review ONLY, a building Permit application and associated fees will be required prior to construct

COPY AH. # 2

OPTION TO PURCHASE

This Agreement is made this 31st day of August, 2001 by and between Daniel N. Link, of East Waterboro, Maine, with a mailing address of HCR 72, Box 3161, E. Waterboro, ME 04030 (hereinafter called "Seller") and Adam Development Co., or it's assigns, a Maine corporation with a place of business in Portland, Maine and mailing address of 34 Preble Street, Portland, Maine 04101 (hereinafter referred as "Buyer").

1. **PREMISES:** This option affects the premises of the Seller as described in deed to Grantor dated May 10, 2000 and recorded at the Cumberland County Registry of Deeds in Book 15620, Page 122, but excluding the portion of the Premises fronting at 1816-1822 Forest Avenue, Portland, and extending back from Forest Avenue the minimum distance required to constitute legal lots for zoning requirements, which excludes all buildings on the Premises (Land to be Retained).

2. **OPTION TO PURCHASE:** The Buyer shall have the option to purchase the Premises upon the following terms and conditions:

a. **OPTION PRICE:** Buyer agrees to pay for the Option $5,000.00 upon execution of this agreement. All option payments are nonrefundable and do not apply to the purchase price.

b. **EXERCISE OF OPTION:** Buyer may exercise the option to purchase the property by providing notice to Seller of its intent to purchase the property. Said notice shall be given no later than one year from the date of this agreement.

c. **RIGHT OF ENTRY:** Buyer shall have the right to enter the Premises during the Option period in order to survey, take soil samples and otherwise test and conduct its due diligence investigations. Buyer shall also indemnify and hold Seller harmless for any damage, injury or liens occasioned by such entry. Buyer shall at Buyer's expense return the property to substantially the same condition it was in prior to such activities. This paragraph shall survive the closing.

d. **RECORDING OF OPTION:** The Seller shall execute a memorandum of option for recording at the Registry of Deeds upon request of Buyer.

3. **EXCERSISING THE OPTION:** If Buyer decides to exercise this option he will do so as follows:

a. **NOTICE:** Any time before the expiration of this option Buyer may notify Seller of his intension to purchase the property.

b. **PURCHASE PRICE:** The purchase price for the property shall be $295,000.00.

c. **CLOSING:** The closing of this transaction shall take place within sixty days of the notice from Buyer to Seller of the exercise of the Option.

d. **CASH AT CLOSING:** The purchase price, adjusted for any other costs as described in section #6. shall be paid in certified check, wire transfer or other immediately available funds, at time of closing.

4. **TITLE:** Seller shall convey the Premises to Buyer at the closing by Warranty Deed in fee simple with good and marketable title, subject to easements, privileges, restrictions, and agreements of record so long as such encumbrances do not affect Buyer's intended use of Premises. If counsel for the Buyer shall be of the opinion, given in good faith, that the title to the property is defective or is otherwise not free and clear of all encumbrances, or is not marketable, the closing shall be postponed for a reasonable period of time during which Seller shall diligently pursue the removal of such defect or encumbrance at his own expense, to the reasonable satisfaction of counsel for Buyer. If the title proves defective and if Seller shall fail to remove such defect or encumbrance within thirty (30) days after notice from Buyer of the nature of the defect or encumbrance, Buyer may, at its election, either: (i) close this transaction notwithstanding the existence of any such defect or encumbrance and without a deduction in the purchase price; or (ii) terminate this Agreement, in which event Seller shall return the deposit to Buyer, and the parties hereto shall thereafter have no further rights or obligations hereunder.

5. **SELLER'S WARRANTIES AND REPRESENTATIONS:** Seller hereby represents and warrants that as of the date hereof, and as of the date of the closing hereunder:

a. Seller has no knowledge of the existence, at any time, of any violations of laws and regulations affecting the Premises. Seller has not received any notice or inquiry from any federal, state or local government authority or representative thereof claiming or inquiring into the existence of any such violations.

b. Seller has no knowledge of any pending or threatened actions or proceedings regarding condemnation of or encumbrances on the ownership, use or possession of the Premises or any party thereof.

c. There are no underground storage tanks on the

Premises.

d. Seller represents that the Premises shall be free from any mechanic or material men liens.

6. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS:**

a. All water and sewer charges, rents, current real estate taxes, municipal and sewer assessments against the Premises and all utilities shall be apportioned pro rata between Seller and Buyer as of the date of closing. Real estate taxes and assessments shall be prorated on the basis of the City of Portland tax year.

b. The Maine Real Estate Transfer Tax shall be paid for by Seller and Buyer according to Maine statutory law.

c. The preparation of the Deed shall be paid by the Seller. Buyer shall prepare the legal description. If there is any discrepancy between the historical description and the legal description of the property, such discrepancy will be passed by quitclaim deed without warranty covenants.

d. The Buyer shall pay for surveys and inspections, the title search, recording the deed, and closing services.

7. **POSSESSION:** Seller shall deliver possession of Premises to Buyer at transfer of title free and clear of all leases, tenancies or occupancies by any person.

8. **INDEMNITY:** Buyer and Seller agree to indemnify and hold each other harmless from and against any and all damages, claims, losses, obligations, liabilities and expenses, including reasonable attorney's fees, incurred as a result of the breach of any representation contained in this Contract. The warranties of this Contract shall survive the closing hereunder.

9. **RISK OF LOSS:** The risk of loss or damage to the property by any cause, or of a taking of all or any part of the property by eminent domain, prior to the closing, shall be on Seller. In the event that, prior to the closing, the property or any portion is taken by eminent domain, Buyer shall have the option of either (i) terminating this Agreement and receiving back the deposit, or (ii) accepting the insurance proceeds payable be reason of such damage or destruction, or the condemnation award payable by reason of such taking, and closing the transaction contemplated by this Agreement notwithstanding the same, and without reduction in the purchase price.

10. **REMEDIES FOR BREACH:**

a. If Buyer defaults in its performance under this contract, the Seller shall retain the deposit. If Buyer fails to return the property to substantially the same condition it was in prior to having work done, or a lien was placed on the property from work Buyer had done, Seller may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

b. If Seller defaults in his performance under this contract, the Buyer may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

11. **NOTICE:** All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been given on the date of service if delivered personally to the party to whom notice is to be given, or on the date of mailing. If mailed, all notices are to be sent by First Class Mail postage prepaid, certified with return receipt requested, addressed as provided above.

12. **BROKERAGE:** Seller and Buyer represent to one another that neither has dealt or had contact with any broker in connection with this transaction and each agrees to indemnify and hold harmless the other from any and all costs, expenses or damages resulting from any claims for brokerage fees or other similar forms of compensation made by any real estate broker or any other person or entity because of the sale of the Premises hereunder.

13. **RETAINED PROPERTY DESCRIPTION:** If Seller requires a description of the land to be retained (as described in section 1 of this Option) for sale, refinancing, or other reasonable purpose the buyer shall within 30 days upon receiving a written notice from the Seller, provide the seller with a description of the land to be retained.

14, **RELEASE OF RIGHT OF FIRST REFUSAL**: Upon the signing of this option, the right of first refusal dated 4/25/2001 between Dan Link and Adam Development Co. is hereby released.

15. **RIGHT OF WAY:** Upon transfer of title Seller shall upon Buyers request provide Buyer with an easement extending from Forest Avenue, along the property line bordering the Maine Turnpike, across the Land to be Retained for underground utility purposes. This would include sewer, water, or any other utilities that may be necessary for the development of the Buyers land. Utilities shall be in one easement area, which shall be

the minimum width required for said purposes. Any use or disturbance to the easement area by Buyer, its successors or assigns, shall require Buyer, its successors or assigns, to return the property to substantially the same condition it was in prior to such use or disturbance. Seller will have access to hook into any utilities buyer may install at seller's own cost.

16. **WITHHOLDING**: The Seller is aware that Maine law requires Buyer to withhold two and one-half percent (2.5%) of the sale proceeds unless the Seller certifies he is a resident of Maine at the time of closing or is otherwise exempt from the provisions of 36 M.R.S.A. Section 5250-A.

17. **SELLER NOT A FOREIGN PERSON:** The Seller warrants and represents to the Buyer that the Seller is not a "foreign person" as that term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended.

18. **GENERAL PROVISIONS:** This agreement constitutes the entire agreement between Seller and Buyer, and there are no other agreements, understandings, warranties or representations. This agreement will inure to the benefit of and bind the respective heirs, successors and assigns of Seller and Buyer. This agreement may be simultaneously executed in any number of counterparts, each of which, when so executed and delivered shall be deemed an original. This agreement shall be governed by and construed in accordance with the laws of the State of Maine. The signature of a party upon a facsimile copy shall be deemed to be an original. This Option may be recorded at the election of the Buyer.

Dated this 31st day of August, 2001

Witness

Daniel N. Link

Adam Development Co.

Witness

Adam Mack, Vice President

COPY

OPTION TO TRADE PROPERTY

This Agreement is made this 18th day of December, 2001 by and between James A. Rodway (006-54-5763), of Portland, Maine, with a mailing address of 1832 Forest Avenue, Portland, ME 04103 (hereinafter called "Seller") and Adam Development Co. (01-046-7941), and assigns, a Maine corporation with a place of business in Portland, Maine and mailing address of 34 Preble Street, Portland, Maine 04101 (hereinafter referred as "Buyer").

1. PREMISES: This option affects part of the premises of the Seller as described in a deed recorded at the Cumberland County Registry of Deeds in Book 13306, Page 147. This option also affects property Buyer has an option on and currently owned by Dan Link and Service Master of Maine registered in the Cumberland County Registry of Deeds Book 15620 Page 122. The land is further described in Exibit A. Buyer shall obtain frontage on Forest Ave for a total of 52 feet including other property. Seller shall obtain land in back bringing his total area to 12,260 Square Feet.

2. **OPTION TO PURCHASE**: The Buyer shall have the option to trade the Premises upon the following terms and conditions:

a. **OPTION PRICE:** Buyer agrees to pay for the Option $1.00 upon execution of this agreement. All option payments are nonrefundable and do apply to the purchase price.

b. **EXERCISE OF OPTION:** Buyer may exercise the option to trade the property by providing notice to Seller of its intent to purchase the property. Said notice shall be given no later than one year from the date of this agreement.

c. **RIGHT OF ENTRY**: Buyer and Seller shall have the right to enter the Premises during the Option period in order to survey, take soil samples and otherwise test and conduct its due diligence investigations. Buyer and Seller shall also indemnify and hold each other harmless for any damage, injury or liens occasioned by such entry. Buyer or Seller shall at their own expense return the property to substantially the same condition it was in prior to such activities they may have done. This paragraph shall survive the closing.

d. **RECORDING OF OPTION**: The Seller shall execute a memorandum of option for recording at the Registry of Deeds upon request of Buyer.

3. **EXCERSISING THE OPTION:** If Buyer decides to exercise this option he will do so as follows:

a. **NOTICE:** Any time before the expiration of this

option Buyer may notify Seller of his intension to trade the property.

b. **PURCHASE PRICE:** The purchase price for the property shall be $1.00. In addition Buyer will pay have Sellers garage removed from the property and a new one constructed to the approximate position in exhibit A. Buyer shall have 3 months from closing to arrange to have the new garage designed and built. Buyer shall arrange and pay to have the entry to the garage paved when Buyer has other pavement work done on Buyers property. The entry shall be from a road Buyer may build along the 52-foot strip. The pavement shall be the width of the garage plus 2 feet on each side, and the space on Sellers retained property where the garage is to be moved from shall be paved. Buyer shall also give seller a Right of Way across Buyers property to access the garage. The new garage will be approximately the same dimensions as the existing garage. It will have electrical service and 3, 9 foot by 8 foot garage doors. The garage will have vinyl siding with a color to be agreed upon by Buyer and Seller. Buyer also agrees to put either fencing or a line of evergreen trees or shrubs (to be agreed upon by both Buyer and Seller) within 10 feet of the new property lines on both the property lines to witch Buyer and Seller shall be adjoining.

c. **CLOSING:** The closing of this transaction shall take place within sixty days of the notice from Buyer to Seller of the exercise of the Option.

d. **CASH AT CLOSING:** The purchase price, adjusted for any other costs as described in section #6. shall be paid in certified check, wire transfer or other immediately available funds, at time of closing.

4. **TITLE:** Seller and Buyer shall convey the Premises to each other at the closing by Warranty Deed in fee simple with good and marketable title, subject to easements, privileges, restrictions, and agreements of record so long as such encumbrances do not affect Buyer's or Seller's intended use of Premises. If counsel for the Buyer shall be of the opinion, given in good faith, that the title to the property is defective or is otherwise not free and clear of all encumbrances, or is not marketable, the closing shall be postponed for a reasonable period of time during which Seller shall diligently pursue the removal of such defect or encumbrance at his own expense, to the reasonable satisfaction of counsel for Buyer. If the title proves defective and if Seller shall fail to remove such defect or encumbrance within thirty (30) days after notice from Buyer of the nature of the defect or encumbrance, Buyer may, at its election, either: (i) close this transaction notwithstanding the existence of any such defect or encumbrance and without a deduction in the purchase price; or (ii) terminate this

Agreement, in which event Seller shall return the deposit to Buyer, and the parties hereto shall thereafter have no further rights or obligations hereunder.

5 a). **SELLER'S AND BUYER'S WARRANTIES AND REPRESENTATIONS:** Seller and Buyer hereby represents and warrants that as of the date hereof, and as of the date of the closing hereunder:

a. Seller or Buyer has no knowledge of the existence, at any time, of any violations of laws and regulations affecting the Premises. Seller or Buyer has not received any notice or inquiry from any federal, state or local government authority or representative thereof claiming or inquiring into the existence of any such violations.

b. Seller or Buyer has no knowledge of any pending or threatened actions or proceedings regarding condemnation of or encumbrances on the ownership, use or possession of the Premises or any party thereof.

c. There are no underground storage tanks on the Premises.

d. Buyer & Seller represents that the Premises shall be free from any mechanic or material men liens.

e. The Premises are now and will be as of the closing in full compliance with applicable building codes, zoning, environmental and land use laws and all other applicable laws, ordinances and regulations.

5 b). **PROPERTY SOLD AS IS:** Except as described above in section #5. Buyer and Seller agree to trade property as is including any fences, trees, children's play equipment or any thing else that may be on the property. Buyer and Seller further assume all risk as to the condition, legality or safety of any of the property they are to receive or of the above-described items or other items that may be on the property.

6. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS:**

a. All water and sewer charges, rents, current real estate taxes, municipal and sewer assessments against the Premises and all utilities shall be apportioned pro rata between Seller and Buyer as of the date of closing. Real estate taxes and assessments shall be prorated on the basis of the City of Portland tax year.

b. The Maine Real Estate Transfer Tax shall be paid

for by Seller and Buyer according to Maine statutory law.

c. The preparation of the Deed shall be paid by the Buyer. Buyer shall prepare the legal description

d. The Buyer shall pay for surveys and inspections, the title search, recording the deed, and closing services.

e. Any costs associated with adjusting Sellers mortgage shall be paid for by Buyer (up to $500.00).

d. Any deeds, permitting or other regulatory costs of the trade and construction of the garage shall be paid for by Buyer.

7. **POSSESSION:** Seller and Buyer shall deliver possession of Premises to each other at transfer of title free and clear of all leases, tenancies or occupancies by any person.

8. **INDEMNITY:** Buyer and Seller agree to indemnify and hold each other harmless from and against any and all damages, claims, losses, obligations, liabilities and expenses, including reasonable attorney's fees, incurred as a result of the breach of any representation contained in this Contract. The warranties of this Contract shall survive the closing hereunder.

9. **RISK OF LOSS:** The risk of loss or damage to the property by any cause, or of a taking of all or any part of the property by eminent domain, prior to the closing, shall be on Seller and Buyer respectively for the pieces of land they will trade. In the event that, prior to the closing, the property or any portion is taken by eminent domain, Buyer or Seller shall have the option of either (i) terminating this Agreement and receiving back the deposit, or (ii) accepting the insurance proceeds payable be reason of such damage or destruction, or the condemnation award payable by reason of such taking, and closing the transaction contemplated by this Agreement notwithstanding the same, and without reduction in the purchase price.

10. **REMEDIES FOR BREACH:**

a. If Buyer defaults in its performance under this contract, the Seller shall retain the deposit. If Buyer or Seller fails to return the property to substantially the same condition it was in prior to having work done, or a lien was placed on the property from work Buyer or Seller had done, Seller or Buyer may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

11. **NOTICE:** All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been given on the date of service if delivered personally to the party to whom notice is to be given, or on the date of mailing. If mailed, all notices are to be sent by First Class Mail postage prepaid, certified with return receipt requested, addressed as provided above.

12. **BROKERAGE:** Seller and Buyer represent to one another that neither has dealt or had contact with any broker in connection with this transaction and each agrees to indemnify and hold harmless the other from any and all costs, expenses or damages resulting from any claims for brokerage fees or other similar forms of compensation made by any real estate broker or any other person or entity because of the sale of the Premises hereunder.

13. **WITHHOLDING:** The Seller is aware that Maine law requires Buyer to withhold two and one-half percent (2.5%) of the sale proceeds unless the Seller certifies he is a resident of Maine at the time of closing or is otherwise exempt from the provisions of 36 M.R.S.A. Section 5250-A.

14. **SELLER NOT A FOREIGN PERSON:** The Seller warrants and represents to the Buyer that the Seller is not a "foreign person" as that term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended.

15. **GENERAL PROVISIONS:** This agreement constitutes the entire agreement between Seller and Buyer, and there are no other agreements, understandings, warranties or representations. This agreement will inure to the benefit of and bind the respective heirs, successors and assigns of Seller and Buyer. This agreement may be simultaneously executed in any number of counterparts, each of which, when so executed and delivered shall be deemed an original. This agreement shall be governed by and construed in accordance with the laws of the State of Maine. The signature of a party upon a facsimile copy shall be deemed to be an original. This Option may be recorded at the election of the Buyer.

Dated this 18th day of December, 2001

Witness

James A. Rodway

Adam Development Co.

Witness

Adam Mack, Vice President

Att. 3

OPTION TO PURCHASE

This Agreement is made this 28 day of December, 2001 by and between Presumpscott Grange #15, of Portland, Maine, with a mailing address of 1844 Forest Ave., Portland, ME 04103 (hereinafter called "Seller") and Adam Development Co., and assigns, a Maine corporation with a place of business in Portland, Maine and mailing address of 34 Preble Street, Portland, Maine 04101 (hereinafter referred as "Buyer").

1. PREMISES: This option affects part of the premises of the Seller as described in deed dated August 21, 1947 and recorded at the Cumberland County Registry of Deeds in Book 1871, Page 406, The part to be transferred is a 16 foot strip (exhibit A) along the land owned by Forest Ave. Assoc. The property will extend from Forest Ave. to land currently owned by Dan Link and Service Master of Maine.

16
AM
VE

2. **OPTION TO PURCHASE**: The Buyer shall have the option to purchase the Premises upon the following terms and conditions:

a. **OPTION PRICE:** Buyer agrees to pay for the Option $ 2,500.00 upon execution of this agreement. All option payments are nonrefundable and do apply to the purchase price.

b. **EXERCISE OF OPTION:** Buyer may exercise the option to purchase the property by providing notice to Seller of its intent to purchase the property. Said notice shall be given no later than one year from the date of this agreement.

c. **RIGHT OF ENTRY**: Buyer shall have the right to enter the Premises during the Option period in order to survey, take soil samples and otherwise test and conduct its due diligence investigations. Buyer shall have the right after closing to place a construction office (trailer) on the retained grange property close to the property line Buyer obtained. Buyer shall also indemnify and hold Seller harmless for any damage, injury or liens occasioned by such entry. Buyer shall at Buyer's expense return the property to substantially the same condition it was in prior to such activities. This paragraph shall survive the closing.

d. **RECORDING OF OPTION**: The Seller shall execute a memorandum of option for recording at the Registry of Deeds upon request of Buyer.

3. **EXCERSISING THE OPTION:** If Buyer decides to exercise this option he will do so as follows:

a. **NOTICE:** Any time before the expiration of this

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option Buyer may notify Seller of his intension to purchase the property.

b. **PURCHASE PRICE:** The purchase price for the property shall be $ 17,500.00. In addition Seller shall within 4 months of closing have the Grange Building located on a neighboring property (CCRD Book 1088 Page 163) fitted with vinyl siding or painted. Paint or siding color shall be chosen and approved by both Buyer and Seller.

c. **CLOSING:** The closing of this transaction shall take place within sixty days of the notice from Buyer to Seller of the exercise of the Option.

d. **CASH AT CLOSING:** The purchase price, adjusted for any other costs as described in section #6, shall be paid in certified check, wire transfer or other immediately available funds, at time of closing.

4. **TITLE:** Seller shall convey the Premises to Buyer at the closing by Warranty Deed in fee simple with good and marketable title, subject to easements, privileges, restrictions, and agreements of record so long as such encumbrances do not affect Buyer's intended use of Premises. If counsel for the Buyer shall be of the opinion, given in good faith, that the title to the property is defective or is otherwise not free and clear of all encumbrances, or is not marketable, the closing shall be postponed for a reasonable period of time during which Seller shall diligently pursue the removal of such defect or encumbrance at his own expense, to the reasonable satisfaction of counsel for Buyer. If the title proves defective and if Seller shall fail to remove such defect or encumbrance within thirty (30) days after notice from Buyer of the nature of the defect or encumbrance, Buyer may, at its election, either: (i) close this transaction notwithstanding the existence of any such defect or encumbrance and without a deduction in the purchase price; or (ii) terminate this Agreement, in which event Seller shall return the deposit to Buyer, and the parties hereto shall thereafter have no further rights or obligations hereunder.

5. **SELLER'S WARRANTIES AND REPRESENTATIONS:** Seller hereby represents and warrants that as of the date hereof, and as of the date of the closing hereunder:

a. Seller has no knowledge of the existence, at any time, of any violations of laws and regulations affecting the Premises. Seller has not received any notice or inquiry from any federal, state or local government authority or representative thereof claiming or inquiring into the existence of any such

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violations.

b. Seller has no knowledge of any pending or threatened actions or proceedings regarding condemnation of or encumbrances on the ownership, use or possession of the Premises or any party thereof.

c. There are no underground storage tanks on the Premises.

d. Seller represents that the Premises shall be free from any mechanic or material men liens.

e. The Premises are now and will be as of the closing in full compliance with applicable building codes, zoning, environmental and land use laws and all other applicable laws, ordinances and regulations.

6. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS:**

a. All water and sewer charges, rents, current real estate taxes, municipal and sewer assessments against the Premises and all utilities shall be apportioned pro rata between Seller and Buyer as of the date of closing. Real estate taxes and assessments shall be prorated on the basis of the City of Portland tax year.

b. The Maine Real Estate Transfer Tax shall be paid for by Seller and Buyer according to Maine statutory law.

c. The preparation of the Deed shall be paid by the Seller. Buyer shall prepare the legal description

d. The Buyer shall pay for surveys and inspections, the title search, recording the deed, and closing services.

7. **POSSESSION:** Seller shall deliver possession of Premises to Buyer at transfer of title free and clear of all leases, tenancies or occupancies by any person.

8. **INDEMNITY:** Buyer and Seller agree to indemnify and hold each other harmless from and against any and all damages, claims, losses, obligations, liabilities and expenses, including reasonable attorney's fees, incurred as a result of the breach of any representation contained in this Contract. The warranties of this Contract shall survive the closing hereunder.

9. **RISK OF LOSS:** The risk of loss or damage to the property by any cause, or of a taking of all or any part of the

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property by eminent domain, prior to the closing, shall be on Seller. In the event that, prior to the closing, the property or any portion is taken by eminent domain, Buyer shall have the option of either (i) terminating this Agreement and receiving back the deposit, or (ii) accepting the insurance proceeds payable be reason of such damage or destruction, or the condemnation award payable by reason of such taking, and closing the transaction contemplated by this Agreement notwithstanding the same, and without reduction in the purchase price.

10. **REMEDIES FOR BREACH:**

a. If Buyer defaults in its performance under this contract, the Seller shall retain the deposit. If Buyer fails to return the property to substantially the same condition it was in prior to having work done, or a lien was placed on the property from work Buyer had done, Seller may employ all legal and equitable remedies. Attorney fees shall be awarded to the prevailing party.

b. If Seller defaults in his performance under this contract, the Buyer may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

11. **NOTICE:** All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been given on the date of service if delivered personally to the party to whom notice is to be given, or on the date of mailing. If mailed, all notices are to be sent by First Class Mail postage prepaid, certified with return receipt requested, addressed as provided above.

12. **BROKERAGE:** Seller and Buyer represent to one another that neither has dealt or had contact with any broker in connection with this transaction and each agrees to indemnify and hold harmless the other from any and all costs, expenses or damages resulting from any claims for brokerage fees or other similar forms of compensation made by any real estate broker or any other person or entity because of the sale of the Premises hereunder.

13. **WITHHOLDING:** The Seller is aware that Maine law requires Buyer to withhold two and one-half percent (2.5%) of the sale proceeds unless the Seller certifies he is a resident of Maine at the time of closing or is otherwise exempt from the provisions of 36 M.R.S.A. Section 5250-A.

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14. **SELLER NOT A FOREIGN PERSON:** The Seller warrants and represents to the Buyer that the Seller is not a "foreign person" as that term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended.

15. **GENERAL PROVISIONS:** This agreement constitutes the entire agreement between Seller and Buyer, and there are no other agreements, understandings, warranties or representations. This agreement will inure to the benefit of and bind the respective heirs, successors and assigns of Seller and Buyer. This agreement may be simultaneously executed in any number of counterparts, each of which, when so executed and delivered shall be deemed an original. This agreement shall be governed by and construed in accordance with the laws of the State of Maine. The signature of a party upon a facsimile copy shall be deemed to be an original. This Option may be recorded at the election of the Buyer.

Dated this 28 day of December, 2001

Presumpscot Grange #15

~~Presumpscot Grange #15~~ 1,900.00

Witness

Virginia Ewell MASTER
VIRGINIA EWELL

Adam Development Co.

Witness

Adam Mack, Vice President

P.02

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CORR IN 442

ATH 4

Portland Water District

225 Douglass St. • P.O. Box 3553 • Portland, ME 04104-3553
(207) 774-5961
FAX (207) 761-8307
www.pwd.org

To: JEFF LEWIS	Date 3/18	Portland Water District 225 Douglass St. • Portland, ME 04102 (207) 774-5961 • Fax (207) 761-8307
Co. GORRILL-PALMER	# of Pgs. 1	
Dept.	From D COFFIN	
Fax No. 657-6912	Phone #	Fax #

March 18, 2002

Mr. Jeffrey Lewis
Gorrill-Palmer Consulting Engineers, Inc.
P.O. Box 1237
22 Shaker Road
Gray, Maine 04039

Re: Wellesley Estates, Portland

Dear Jeff:

The Portland Water District has a 6" water main in Forest Avenue, Portland, near the proposed site. A test on a nearby hydrant produced the following results: static pressure 78 psi; pito pressure 30 psi; with a flow of 817 gpm. With these results in mind, the District feels we have sufficient capacity (with system upgrade) available to serve this proposed project and meet all normal fire protection and domestic water service demands. **Please notify your plumber of these results so that they can design your system to best fit the available pressure.**

With certification by the developer that all required permits have been received, we look forward to serving this project.

Sincerely,

PORTLAND WATER DISTRICT

David W. Coffin, PLS
Engineering Supervisor

Department of Public Works

William J. Bray
Director

CITY OF PORTLAND

26 April 2002

Mr. Peter Hedrich, P.E., P.T.O.E.
Gorrill-Palmer Consulting Engineers, Incorporated
P. O. Box 1237
Gray, Maine 04039.

RE: The Capacity to Handle Wastewater Flows, at Harry Hutchins Drive, Portland, Maine, from The Westbrook, Maine Site of the Proposed "Spring Harbor" Hospital.

Dear Mr. Hedrich:

The City of Portland and the City of Westbrook are still in the process of putting together a sewer service agreement that affects your project. Nevertheless, this morning I was copied on e-mail from Mr. William Bray (Director of Public Works) that allows this capacity letter.

The existing eight-inch polyvinyl chloride (PVC) sewer pipe located in Harry Harmon Drive has adequate capacity to **transport**, while The Portland Water District sewage treatment facilities, located off Marginal Way, have adequate capacity to **treat** the anticipated wastewater flows of **11,453 GPD**, from your proposed hospital project.

The anticipated wastewater flows, **the design flows** of 11,453 GPD, were derived from the recent yearly (11/29/01 – 10/29/01) water usage figures that you submitted, for Jackson Brook Hospital. In short, multiplying 7,635 GPD (the highest monthly flow) by 1.5 (the "multiplying factor," for water records recorded on a monthly basis) equals 11,453 GPD. For a more detailed explanation, please see Section 903.2.3, Chapter Nine, Design Flows, in Handbook of Subsurface Wastewater Disposal in Maine.

Anticipated Wastewater Flows from the Proposed Hospital	
7,635 GPD x 1.5	= 11,453 GPD
Total Proposed Increase in Wastewater Flows for this Project	**= 11,453 GPD**

The City combined sewer overflow (C.S.O.) abatement consent agreement, with the U.S.E.P.A. and The Maine D.E.P., requires C.S.O. abatement, as well as Stormwater mitigation, in order to offset any increase in sanitary flows, from all projects.

Post-it® Fax Note 7671	Date 5/24/02	# of pages ▶ Two
To Jonathan Spence	From Frank Brancely	
Co./Dept. Planning	Co. Eng'rg.	
Phone # 756-8083	Phone # 8832	
Fax # 756-8258	Fax # 8852	

O:\Engshare\FJB\Capacity Letters\Harry Harmon Drive, Pages 2 & 3.

If I can be of further assistance, please call me at 874-8832.

Sincerely,
CITY OF PORTLAND

Frank J. Brancely, BA, MA
Senior Engineering Technician

FJB

cc: Alexander Q. Jaegerman, Acting Co-Director, Department of Planning, and Urban Development, City of Portland
Jonathan Spence, Planner, Department of Planning and Urban Development, City of Portland
Eric Labelle, P.E., City Engineer, City of Portland
Bradley A. Roland, P.E., Environmental Projects Engineer, City of Portland
Anthony W. Lombardo, P.E., Project Engineer, City of Portland
Stephen K. Harris, Assistant Engineer, City of Portland
Todd Merkle, Field Inspections Coordinator, City of Portland
Desk file

8. Stormwater Analysis, Gorrill-Palmer Engineers
9. Erosion and Sedimentation Control Plan, Gorrill-Palmer Engineers
10. Summary of Financing
11. Pole Light Catalog Cut
12. Fire Approval with Conditions
13. Neighborhood Meeting Minutes and Attendance Sheets
14. Plans
15. Pre and post Development Watershed Plans

Comment F – The erosion control notes and seeding notes shall be placed on one of the sheets of the plan set so that the contractor will have them in the field.

Response – The erosion control notes and seeding notes have been placed on one of the sheets of the plan set so the contractor will have them in the field.

Comment G – The design criteria of the stormwater treatment tank shall be placed on the detail or drainage plan. This shall include storm sizing, flow rate, minimum particle size targeted for removal, design removal efficiency required, and bypass structure design, if necessary, for larger storms that the design 1-year storm size.

Response – The appropriate information has been shown on the plans.

Gorrill-Palmer appreciates the opportunity to respond to these review comments and look forward to your responses. Should you have any questions or need additional information, please contact our office.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

Alton M. Palmer, P.E.
Vice President

JML/rmg/JN442/SpenceC&R01-16-02

further information. Because of the project's size and complexity, I may not have addressed every issue, but feel that the main issues have been discussed.

In addition to the City's review, the site will require DEP review for wetland impacts and stormwater quantity (since the site exceeds 1 acre of new impervious surface). I believe that the site would have been required to meet the City's requirement for stormwater quality based on the number of parking spaces. However, the applicant has adequately demonstrated that they fully intend to meet the water quality standard.

Based on the information needed, it may be best if the applicant, designers and engineers plan a brief meeting with Public Works, you and myself to review all of these comments. As always, please feel free to call me with any questions.

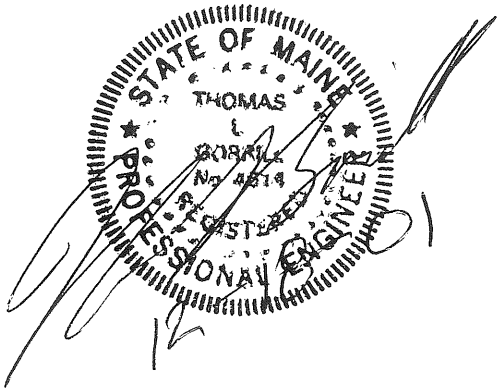
JRS:jrs/jc

Att 5

Traffic Impact Study
For Proposed
Wellesley Estate
Housing Development
Portland, Maine

Prepared for:

Archetype
48 Union Warf
Portland, Maine 04101



December 2001

Prepared by:

GP Gorrill-Palmer Consulting Engineers, Inc.

Traffic and Civil Engineering Services

PO Box 1237
26 Main Street
Gray, ME 04039

(207) 657-6910
Fax : (207) 657-6912
E-mail: gpcei@maine.rr.com

Traffic Impact Study
Proposed Wellesley Estates Housing Development
Portland Maine, Maine

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Appendix A

Location Map
Turning Movement Diagrams

Appendix B

Capacity Analyses

Appendix C

Collision Diagrams

Executive Summary

The following Executive Summary is prepared for the reader's convenience, but is not intended to be a substitute for reading the full report.

Gorrill-Palmer Consulting Engineers, Inc. was retained by Archetype of Portland, Maine to complete a traffic impact study for the proposed development of a 45-unit subdivision in Portland Maine, south of Forest Avenue, known as Wellesley Estates.

The following is a summary of the major findings of the traffic study:

1. The proposed site is forecast to generate 26 trip ends for the AM peak hour, and 31 trip ends during the PM peak hour.

2. The level of service analysis shows that all locations within the study area will operate at an acceptable level of service.

3. The accident history indicates that the following locations within the study area are high crash locations:

   - Forest Avenue at Riverside Industrial Parkway
   - Forest Avenue at Riverton Drive
   - Forest Avenue from Riverton Drive to Riverside Street

4. The sight lines exiting the proposed site drive at Forest Avenue are adequate. The area of the site drive is not a high crash location, so it is our opinion that the sight lines will provide adequate safety.

   Gorrill-Palmer Consulting Engineers, Inc. recommends that all plantings that will be located within the right of way, not exceed 3 feet in height and be maintained at or below that height. Signage should not interfere with sight lines. In addition, we recommend that during construction, when heavy equipment is entering and exiting into the site, that appropriate measures, such as signage and flag persons, be utilized in accordance with the Manual on Uniform Traffic Control Devices.

Based on these findings, it is the opinion of Gorrill-Palmer Consulting Engineers, Inc. that the local transportation network can accommodate traffic generated by the proposed development.

I. *Existing and Proposed Site*

The existing site is located south of Forest Avenue. It is currently undeveloped, consisting of a mixture of woodlands and brushed areas. Proposed for the site is a 45-lot residential housing, to be completed by 2002. One driveway connecting to Forest Avenue would service the site. The location of the site can be found on Figure 1 in Appendix A.

II. *Background Traffic Conditions*

Gorrill-Palmer Consulting Engineers, Inc. based the study on the following information:

- A concept plan prepared by Archetype dated December 7, 2001.
- Turning movement volumes collected by Gorrill-Palmer Consulting Engineers, Inc. from 7:00 to 9:00 AM and again from 4:00 PM to 6:00 PM on December 11, 2001 at the following locations:
  - Forest Avenue at Riverton Drive
  - Forest Avenue at Riverside Industrial Parkway

Following the count, it was determined that the peak hours were 7:15 to 8:15 AM and 4:30 to 5:30 PM. The 2001 raw turning volumes compiled by Gorrill-Palmer Consulting Engineers, Inc. are presented in Figures 2 and 3 of Appendix A for the AM and PM peak hours, respectively.

Predevelopment Traffic Volumes

Seasonal Adjustment

The MDOT utilizes highway classifications of I, II, or III for state and local roadways. Type I roadways are defined as urban roadways, or those roads that typically see commuter traffic and experience little fluctuation from week to week throughout the year. Type II roadways, or arterial roadways are those that see a combination of commuter and recreational traffic and therefore experience moderate fluctuations during the year. Type III roadways, or recreational roadways are typically used for recreational purposes and experience significant seasonal fluctuation.

Forest Avenue is designated as an urban, or Type I, roadway. Typically, volumes are adjusted to reflect the 30th highest hour of traffic volumes, in accordance with MDOT guidelines. Therefore, volumes have been increased 17 percent to estimate the 30th highest hour.

Annual Growth

The proposed development is anticipated to be fully operational by 2002. The roadway volumes were increased by three percent per year to reflect traffic increases in the area.

Background Growth

Gorrill-Palmer Consulting Engineers, Inc. contacted the City of Portland planning department to determine whether there are any projects approved or in the approval process whose traffic should be added into this projects predevelopment volumes, and found that there are no other projects in the vicinity of this project.

The raw volumes were seasonally adjusted and annually adjusted, to yield the 2002 predevelopment volumes as shown on Figures 4 and 5 in Appendix A for the AM and PM peak hours, respectively.

III. *High Crash Locations*

In order to evaluate whether a location has a crash problem, MDOT uses two criteria to define High Crash Locations (HCL). Both criteria must be met in order to be classified as a HCL.

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor {CRF} compares the actual crash rate to the rate for similar intersections in the State. A CRF of less than 1.00 indicates a rate less than average) and:
2. A minimum of 8 crashes over a three-year period.

Gorrill-Palmer Consulting Engineers, Inc. obtained the crash data for 1998-2000 for the study area locations. This information is shown in the following tables:

High Crash Locations for 1998-2000: Intersections

Node	Intersection	# of Collisions	CRF	HCL?
7309	Forest Avenue / Castine Avenue	0	0.00	No
3735	Riverside Industrial Parkway / Forest Avenue	11	1.18	Yes
8928	Riverton Drive / Forest Avenue	9	1.06	Yes
7310	Forest Avenue / Riverside Street	33	0.86	No
7311	Portland / Westbrook Town Line	0	0.00	No

High Crash Locations for 1998-2000: Road Segments

Nodes	Street	From	To	# of Collisions	CRF	HCL?
7309 – 3735	Forest Avenue	Castine Avenue	Riverside Industrial Parkway	3	2.22	No
3735 – 8928	Forest Avenue	Riverside Industrial Parkway	Riverton Drive	8	0.44	No
8928 – 7310	Forest Avenue	Riverton Drive	Riverside Street	12	1.60	Yes
7310 – 7311	Forest Avenue	Riverside Street	Portland / Westbrook Town Line	11	0.66	No

As can be seen by the above tables, there are three HCL's within the study area, as listed below:

- Forest Avenue at Riverside Industrial Parkway
- Forest Avenue at Riverton Drive
- Forest Avenue from Riverton Drive to Riverside Street

Forest Avenue at Riverside Industrial Parkway

The crash history at this location shows a pattern of passenger vehicles turning right from Riverside Industrial Parkway on to Forest Avenue colliding with heavy trucks trying to make the same turn. The majority of these accidents appear to be the result of the driver of the passenger vehicle being unaware that the larger vehicle was turning right, and as a result improperly passing them on the right. We recommend that Riverside Industrial Parkway should be restriped with better lane designation. IN addition we recommend that that the city investigate the possibility of relocating the parcel post drop off boxes at the intersection on Riverside Industrial Parkway.

Forest Avenue at Riverton Drive

This location experienced nine collisions for the most recent three-year period. Of these, seven collisions were due to conflicts between vehicles entering Riverton Avenue and those traveling along Forest Avenue. Forest Avenue in this area has a very wide travel lane, approximately 18 feet. It has been our observation that this width leads to excessive speeds in this area, and when combined with a horizontal curve south of this location and inadequate signage for Riverton, collisions may be the result. Gorrill-Palmer Consulting Engineers, Inc. recommends that the City investigate restriping the travelway along Forest Avenue to 12 feet, and that improved signage be posted to clearly designate the intersection.

Forest Avenue from Riverton Drive to Riverside Street

The collisions at this location consisted of 1 head on, 3 rear-end, 4 side-swipe and 4 angle collisions. The majority of the collisions in this location appear to be related vehicles turning into or out of the convenience store located on the corner of Riverside Street and Forest Avenue.

IV. *Trip Generation*

Gorrill-Palmer Consulting Engineers, Inc. has estimated the potential trip generation for the proposed development consisting of 45 Townhouse Apartments utilizing the Institute of Transportation Engineers (ITE) publication, *Trip Generation*, 6th Edition. Two Land Use Codes (LUC's) were referenced for the purposes of trip generation, LUC 220, Apartment and LUC 221, Low-Rise Apartment. The trip generation results are illustrated in the following table:

Trip Rates for Proposed Housing Development

Source	AM Peak Hour		PM Peak Hour	
	Rate	Trips	Rate	Trips
ITE LUC 220	0.56	26	0.67	31
ITE LUC 221	0.51	23	0.62	29

As can be seen by the above table, trip generation rates for apartments results in greater trip generation. Therefore, Gorrill-Palmer Consulting Engineers, Inc. has based trip generation of the LUC 220 estimates for the purposes of this study.

V. *Trip Distribution*

Gorrill-Palmer Consulting Engineers, Inc. has obtained the ratio of entering and exiting traffic from the Institute of Transportation Engineers publication *Trip Generation*, 6th Edition. The distribution for LUC 220, Apartment has been determined to be the following:

AM Peak Hour: 30% Entering, 70% Exiting
PM Peak Hour: 60% Entering, 40% Exiting

VI. *Trip Composition*

Gorrill-Palmer Consulting Engineers, Inc. has based the trip composition for the project to be entirely primary trips. This composition is typical of housing.

VII. *Trip Assignment*

Gorrill-Palmer Consulting Engineers, Inc. utilized the existing roadway and traffic patterns to determine the trip assignment for traffic generated by the proposed project. The trip distribution is shown on Figures 6 and 7 of Appendix A. The trip assignment is shown on Figures 8 and 9 for the AM and PM peak hours, respectively.

VIII. *2002 Post-development Traffic*

The anticipated year 2002 predevelopment traffic shown in Figures 4 and 5 has been combined with the trip assignment shown on Figures 8 and 9 to yield the 2002 post development traffic shown in Figures 10 and 11 in Appendix A for the AM and PM peak hours, respectively.

IX. *Study Area*

Gorrill-Palmer Consulting Engineers, Inc. has included the following intersections for examination and analysis for the purposes of this study:

- Forest Avenue / Riverton Drive
- Forest Avenue / Riverside Industrial Parkway
- Forest Avenue / Site Drive

X. *Capacity Analyses*

Gorrill-Palmer Consulting Engineers, Inc. completed analyses for the intersections listed above. The study area intersections were evaluated using the HCS 2000 software package. Level of service rankings are similar to the academic ranking system where an 'A' is very good with little delay and an 'F' represents very poor conditions. At an unsignalized intersection, if the level of service falls below a 'D', an evaluation should be made to determine if a traffic signal is warranted.

The following table summarizes the relationship between control delay and level of service for unsignalized intersections:

Level of Service Criteria for Unsignalized Intersections

Level of Service	Total Control Delay per Vehicle (sec/veh)
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Gorrill-Palmer Consulting Engineers, Inc. based our analyses on the existing roadway configuration for the predevelopment conditions, and with the proposed changes for the postdevelopment conditions. These improvements are listed, where applicable, at each location in the following section.

The analyses have been based on Figures 4, 5, 10 and 11 of Appendix A. The results of the capacity analyses for the AM and PM peak hours are summarized below. The detailed computer printouts are included in Appendix B.

Site Drive at Forest Ave

Analysis for this intersection was performed with and summarized below.

Level of Service for Site Drive at Forest Ave

Approach	Level of Service – Total Delay			
	2005 AM Peak Hour		2005 PM Peak Hour	
	Postdevelopment		Postdevelopment	
	Delay	LOS	Delay	LOS
Site Drive NB	23	A	32	D
Forest Ave WB	10	C	9	A

As can be seen from the previous table, the proposed intersection of the site drive and Forest Avenue operates at an acceptable level of service for all scenarios analyzed.

Riverton Drive at Forest Ave.

Analysis for this intersection was performed with existing geometrics for all scenarios.

Level of Service for Riverton Drive at Forest Ave.

Approach	Level of Service – Total Delay							
	2002 AM Peak Hour				2002 PM Peak Hour			
	Predevelopment		Postdevelopment		Predevelopment		Postdevelopment	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Riverton NB	37	E	37	E	64	F	67	F
Forest Ave WB	11	B	11	B	10	A	10	A

As can be seen from the previous table, the Riverton operates at a low level of service, however this is not uncommon for local streets that intersect with arterial streets. Increases in delay at this location are negligible.

Riverside Industrial Parkway at Forest Ave

Analysis for this intersection was performed with existing geometrics for all scenarios.

Level of Service for Riverside Industrial Parkway at Forest Ave.

Approach	Level of Service – Total Delay							
	2005 AM Peak Hour				2005 PM Peak Hour			
	Predevelopment		Postdevelopment		Predevelopment		Postdevelopment	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Forest Ave EB	10	A	10	A	11	B	11	B
Riverside PWY SB	>100	F	>100	F	61	F	63	F

As can be seen from the previous table, the Riverside Parkway operates at a low level of service. However, as stated above, this is not uncommon for local streets that intersect with arterial streets. Increases in delay at this location are negligible.

XI. *Sight Lines*

The Maine Department of Transportation publication "Access Management, Improving the Efficiency of Maine Arterials" provides recommended sight distance based on entrance classifications. The classifications are as follows:

Low Volume Entrance: Entrances with a traffic volume of less than 500 vehicle-trips per day or 50 or less vehicle-trips per peak hour.

Medium Volume Entrance: Entrances with a traffic volume of 500 to less than 1,500 vehicle-trips per day, or 50 to less than 150 trips per peak hour.

High Volume Entrance: Entrances with a traffic volume of 1,500 or more vehicle-trips per day or 150 or more vehicle-trips per peak hour.

Based on the post-development volumes, all study area entrances are low to medium-volume entrances. The sight distance standards for low and medium-volume driveways are shown in the following table:

MDOT Standards for Sight Distance – Low and Medium-Volume Entrance

Speed (mph)	Sight Distance
25	250
30	300
35	350
40	400
45	450
50	500
55	550

Gorrill-Palmer Consulting Engineers, Inc. has evaluated the available sight lines at the proposed driveways in accordance with MDOT standards.

The MDOT standards are as follows:

Driveway observation point:	10 feet off major street travelway
Height of eye at driveway:	3 ½ feet above ground
Height of approaching vehicle:	4 ¼ feet above road surface

The design speed used for the major road is generally the 85th percentile travel speed. This is the speed which 85% of the traffic is traveling at or below. The posted speed limit for Forest Avenue is 30 mph, the estimated 85th percentile speed, 35 mph. The results of the sight line analyses are summarized on the following tables:

Forest Avenue at Site Drive

Direction	85th Percentile Speed (mph)	Recommended Sight Line (ft)	Actual Sight Line (ft)
Exiting onto Forest Avenue Looking:			
Left	35	350	425
Right	35	350	640

The sight lines exiting the proposed site drive at Forest Avenue are adequate. The area of the site drive is not a high crash location, so it is our opinion that the sight lines will provide adequate safety.

Gorrill-Palmer Consulting Engineers, Inc. recommends that all plantings that will be located within the right of way, not exceed 3 feet in height and be maintained at or below that height. Signage should not interfere with sight lines. In addition, we recommend that during construction, when heavy equipment is entering and exiting into the site, that appropriate measures, such as signage and flag persons, be utilized in accordance with the Manual on Uniform Traffic Control Devices.

XII. *Conclusions*

The following is a summary of the major findings of the traffic study:

1. The proposed site is forecast to generate 26 trip ends for the AM peak hour, and 31 trip ends during the PM peak hour.
2. The level of service analysis shows that all locations within the study area will operate at an acceptable level of service.
3. The accident history indicates that the following locations within the study area are High Crash Locations:

- Forest Avenue at Riverside Industrial Parkway
- Forest Avenue at Riverton Drive
- Forest Avenue from Riverton Drive to Riverside Street

4. The sight lines exiting the proposed site drive at Forest Avenue are adequate. The area of the site drive is not a high crash location, so it is our opinion that the sight lines will provide adequate safety.

   Gorrill-Palmer Consulting Engineers, Inc. recommends that all plantings that will be located within the right of way, not exceed 3 feet in height and be maintained at or below that height. Signage should not interfere with sight lines. In addition, we recommend that during construction, when heavy equipment is entering and exiting into the site, that appropriate measures, such as signage and flag persons, be utilized in accordance with the Manual on Uniform Traffic Control Devices.

Based on these findings, it is the opinion of Gorrill-Palmer Consulting Engineers, Inc. that the local transportation network can accommodate traffic generated by the proposed development.

Att. 6

From: Larry Ash
To: Jonathan Spence
Date: Fri, Feb 8, 2002 7:30 AM
Subject: Wellesley Estate

Jonathan: the Level of Service at this site will be quite similar to all other driveways and nonsignalized locations all along Forest Avenue which is what is to be expected given that Forest Ave is a Principal Arterial. The delay at the site for vehicle operators will also be something the operator is expecting and not something out of the ordinary. This driver expectation will likely not result in drivers trying to do something out of the ordinary and thereby cause confusion or problems for all concerned. In other words a LOS D at the Wellesly Estate driveway will not be a problem.

In addition, traffic signals are planned for the intersection at Riverside Industrial Parkway this coming summer or as early after that as possible. This will definitely improve the overall operrating efficiency and safety of this intersection and at the same time should create some additional gaps in the traffic stream for the Wellesly Estate driveway.

Finally, sight distances are adequate at the driveway which is important or driver observation and reaction.

I expect that Wellesly Estate on Forest Avenue to not be a traffic problem.

AH. 7

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
ADDENDUM

2001-0307
Application I. D. Number

11/22/01
Application Date

David Lloyd
Applicant

48 Union Wharf, Portland, ME
Applicant's Mailing Address

Forest Avenue Housing Development
Project Name/Description

Lloyd, David
Consultant/Agent

1818 - 1818 Forest Ave, Portland, Maine
Address of Proposed Site

Applicant Ph: (207) 772-6022 **Agent Fax:**
Applicant or Agent Daytime Telephone, Fax

327 B007001
Assessor's Reference: Chart-Block-Lot

Approval Conditions of Fire

1 Hydts shall be within 800' path of travel

2 No second egress

Approval Conditions of Engineering

1 PUBLIC WORKS ENGINEERING...5/16/02

The applicant has decided to use the option #1, related to proposed pump station. Wellesley Estates will tie into the existing Forest Avenue force main and become third in the order of wastewater discharge at the "Farnham Street" Pump Station. I have reviewed the plans and submittal dated 5/14/02. The applicant must still provide their proposed pump station with an "interface" that can function with the City's SCADA pump station monitoring/control computer system. This will also require the installation of cable linking the proposed pump station with the City's monitoring/control system.

AH 8

STORMWATER MANAGEMENT

Introduction

Gorrill-Palmer Consulting Engineers, Inc. has been retained by Archetype to prepare plans and permit applications for the proposed residential housing development located off Forest Avenue in Portland, Maine. Figure 1 is an excerpt from the U.S.G.S. Portland West quadrangle map showing the project location. This narrative contains the stormwater management measures, which supercedes the storm water report submitted on March 12, 2002 for the planning board review. Per the comments made by the Development Review Committee, the following adjustments have been made:

- The detention pond outfall was moved behind unit #38.
- Adjustments to the storm water areas, corresponding to the new layout.
- The elevations and shape of the detention pond due to the new grading layout.

Development Description

The project site is located on Forest Avenue westerly of the Maine Turnpike and northerly of the existing Riverton Housing Complex. The parcel is approximately 4.5 acres in size will be accessed through a 54 foot right of way to Forest Avenue. The site is currently undeveloped land consisting of a mixture of wooded and meadow areas. Abutting land uses include:

- East - Maine Turnpike
- Southwest - Riverton Housing Complex
- North - Mixture of Residential and Commercial Uses

Surface Water and Downstream Waterbodies

There are no lakes located on, adjacent to or downstream of the project site. The site includes wetlands, which typically drain from the eastern property line towards the southern property line through the Riverton Housing Complex. The last 120 feet of the drainage course, which is located on the property has been classified as a stream. The stream through the Riverton Complex is tributary to an unnamed brook that discharges to the Presumpscot River.

General Topography

The site generally slopes from Forest Avenue back to a drainage course at the rear of the site. The slopes vary from 2% adjacent to Forest Avenue to 50% adjacent to the drainage course at the rear of the site. Elevations on the site range from 58' to 80'.

Flooding

The owners of the project site have indicated that to their knowledge no flooding has occurred on the site, nor has there been any indication of any previous flooding. The site is not mapped to contain floodplain areas as shown on the FEMA maps.

Natural Drainage Ways

The drainage course, which bisects the property, will be directed through a culvert for approximately 120 feet. No alteration to the existing stream is proposed.

Alterations to Land Cover

Changes in land cover and use will include removal of wooded and meadow areas through portions of the project site. Changes in land cover would include the addition of paved surfaces, buildings and lawn.

Modeling Assumptions

The stormwater management study evaluates three elements of the project as follows:

1. Analysis of predevelopment and post-development stormwater runoff rates.
2. Evaluation of water quality requirements.
3. Evaluation of storm drainage requirements.

The medium intensity soil survey prepared by the Cumberland County SCS was used as the basis for surficial conditions for offsite and onsite drainage areas. Hydrologic soils group A,C and D soils were mapped on the site. An excerpt from the Cumberland County SCS Medium Intensity Soils in the vicinity of the Project Location follows this page.

The SCS TR-20 methodology was employed by Gorrill-Palmer Consulting Engineers, Inc. to analyze predevelopment and post development conditions. A 24 hour, SCS Type III storm distribution for the two, ten, and twenty-five year storm frequencies were used for analysis. The corresponding rainfall amounts for these storms are 3.0", 4.7", and 5.5" respectively.

The stage storage and culvert information for Pond 1 was based upon field reconnaissance, and review of USGS topographic data. The information used in the calculations is based on an assumed datum. The pond outlet is a 24" pipe that crosses the Maine Turnpike and outlets onto the site.

Design of the internal storm drainage system was based on the flows calculated by the rational method for the twenty-five year storm and are enclosed in the appendix.

Land use cover delineations of watershed hydraulic flow paths, and hydraulic soils data were obtained using the following data:

1. Portland West 7.5 Minute Quadrangle Map prepared by the U.S.G.S.
2. On-site topographic survey with 2 contour intervals.
3. Field Reconnaissance.
4. Soil Conservation Service Medium Intensity Soil Survey for Cumberland County.

Water Quantity Control

Predevelopment Conditions

The drainage study analyzes the watersheds in the predevelopment condition as depicted on Figure A, Predevelopment Watershed Map, contained in Attachment A. Off-site areas are shown on Figure C, Off-site Watershed Map, also contained in Attachment A.

The predevelopment condition was analyzed as two watersheds. Watershed 1 is the onsite watershed, which included the land west of the Maine Turnpike and south of Forest Avenue. Watershed 2 is a portion of Forest Avenue east of the Turnpike. Both watersheds are tributary to Point of Interest # 1 at the southern property line adjacent to the Riverton housing complex.

The predevelopment peak runoff flows were computed by cover type, land use, and hydrologic soil group. Cover type and land use was determined based upon review of aerial photographs and reconnaissance. Predevelopment time of concentrations were determined for the watershed using the procedure in the U.S.D.A. Soil Conservation Service TR-55 Urban Hydrology for Small Watershed, Second Edition, 1986. The flows for this watershed were calculated to Point of Interest # 1, where the stream crosses the southern property line. Predevelopment peak flows at Point of Interest # 1 for the 2, 10, and 25-year storm are presented below:

Table 1 – Predevelopment Peak Flows

Drainage Area	Peak Flow (cfs)		
	2 Year	10 Year	25 Year
Point of Interest #1	9	21	26

Copies of the calculations are included as Attachment B

Post Development Flows

The existing runoff conditions for the entire project site will be altered during the development of the site by the following changes:

Changes in Land Use:

Changes in land use will include the removal of wooded and meadow covered areas throughout the area to be replaced by access drives. Parking areas and buildings.

Changes in Watershed Size or Configuration

The development of the parcel results in a significant change to the configuration of the watershed, in the area that is to be developed. In post-development conditions, watershed 1 is separated into two drainage areas, watershed 1 and 11

Watershed 1 is the area located to the west of the drainage course, which bisects the site. Watershed 11 is the area located to the east of the drainage course and is tributary to the proposed detention basin. Watershed 2 remains unchanged in the post development condition, whereas it is an offsite area.

The post-development condition has been routed together to Point of Interest #1, where the drainage course crosses the property line. The flows to this point were calculated without detention to verify the need for detention. A post development watershed Map is enclosed in Attachment A as Figure B.

Post-development peak flows at Point of Interest # 1 for the 2, 10, and 25-year storm events without detention are presented below:

Table 2 – Post-development Peak Flows No Detention			
	Peak Flow (cfs)		
Drainage Area	2 Year	10 Year	25 Year
Point of Interest #1	10	22	26

Based upon comparison to predevelopment flows, it is evident that detention of a portion of the flows through stormwater management is required.

A stormwater detention pond will be constructed to attenuate flows in the post-development condition.

Attachment B includes the formal routing computations for the detention pond. The hydraulic performance for the pond is as follows:

Table 3 – Pond Performance			
	Storm Event		
	2 Year	10 Year	25 Year
Peak In Flow (cfs)	1.65	3.4	4.25
Peak Outflow (cfs)	0.39	1.97	3.14
Stage (Max. Elevation)	66.05	66.68	66.97
Storage (Max. cf)	4,729	7,075	8,126
Depth above Outlet (ft)	1.75	2.38	2.67

Post-development peak flows at Point of Interest #1 for the 2, 10, and 25-year storm events with detention are presented below:

Table 4 – Post Development Peak Flow Rates			
	Peak Flow (cfs)		
Drainage Area	2 Year	10 Year	25 Year
Point of Interest # 1	9	21	25

A comparison of the flows at Point of Interest # 1 for the pre and post-development conditions is presented below:

Table 5 – Comparison of Peak lows (cfs)			
	Storm Event		
Condition	2 Year	10 Year	25 Year
Predevelopment	9	21	26
Post Development	9	21	25

As can be seen, the post-development flows exiting the site have been reduced to at or below the predevelopment levels at each storm event. The proposed stormwater management facilities are therefore effective in controlling the peak discharge to the predevelopment levels.

Water Quality Control

General

The development is located within the watershed of the Presumpscot River. Under Chapter 500 & 502 of the MDEP Stormwater Law, the Presumpscot River is not listed as a watershed most at risk or a sensitive or threatened area. The construction of the project will result in approximately 1.78 acres of new non-vegetated surface. Therefore based upon Chapter 500 Stormwater Management from the MDEP, water quality treatment is not required apart from Best Management Practices for erosion control based upon the size of the project and the watershed it is located within.

The Applicant, due to their commitment to minimize the environmental impact of their project, has elected to implement water quality standards for this project.

Review of Current TSS Control Technology

MDEP has established methodologies for evaluating and controlling TSS export from development, as presented in the 1995 manual, Stormwater Management for Maine: Best Management Practices.

Gorrill-Palmer Consulting Engineers, Inc. has prepared a TSS control program for this project using the MDEP methodology established in the manual and regulations. TSS control often requires the integration of various reduction strategies. Common methods include the use of vegetated buffer strips, retention facilities, proprietary treatment devices and infiltration systems.

The following is a summary of the four primary TSS treatment methods, which are outlined in the MDEP methodology:

- **Vegetated Buffer Strips** - Buffer strips are naturally vegetated strips of land preserved downslope of developed areas. These strips intercept and store surface runoff, allowing it to infiltrate rather than flow off-site. Water needs to enter the buffer strips in a sheet flow regime since concentrated flows are not significantly treated by buffers.

- **Infiltration Systems** - Infiltration systems are more sophisticated. Runoff is collected from rooftop, driveway, and other impervious areas of a lot and then directed to an underground collection point, similar to a subsurface wastewater disposal area, from which it infiltrates into the soil.

- **Wet Ponds** – Wet ponds are generally used to treat runoff from a large area. They receive and retain stormwater from large drainage areas, allowing suspended solids to settle out. Generally, flows enter wet ponds in a concentrated flow regime.

- **Filters and Separators** – Filters and separators include treatment devices ranging from simple catch basin outlet hoods to proprietary filtering or settling units. Concentrated

flows enter the devices and are treated to remove TSS prior to discharge. Filters remove suspended solids by passing the stormwater through a filtering medium such as sand, fabric, peat, or composted leaves; separating units generally remove suspended solids through the use of gravity settling enhanced by system hydraulics or coalescing media.

Approach and Analysis for Control

The overall project strategy has been to determine the level of TSS treatment that would be required under the Stormwater Management Rules Sliding Scale TSS standard, and to devise a treatment regimen that would achieve the proper level of treatment.

Treatment Required - As noted above, removal is not required based upon MDEP requirements. The applicant has elected to implement water quality treatment to potentially meet the sliding scale TSS requirements.

Treatment Methods –

In evaluating the project site for compliance with 51% TSS removal standard, it is apparent that treatment of the non-vegetated surfaces can be attained based on the topography and grading of the property and surrounding area. The use of a separator was selected as the practicable manner in which to provide treatment for a large portion of the site. The detention pond will treat the remaining portion of the site. Also, it is proposed that "Casco" traps be installed on all storm drain structures with outlet pipes 15" or smaller.

Treatment Summary –

Based upon the treatment levels accepted by the MDEP for the Vortechnic Units of s 50% removal rate and a 10% removal rate for both the detention pond and Casco traps, a removal rate of 55.1% will be attained on the site. If the project were required to meet the sliding scale TSS removal rate, the 55.1% is greater than the 51% required. Therefore, the project would meet the MDEP requirement.

Construction BMPs

Additional water quality treatment will be provided during construction by best management practices (BMP). Standard BMPs to be employed include siltation fencing around the downslope construction perimeter, riprap pipe inlet and outlet protection, and erosion control fabrics applied to grassed slopes prior to revegetation. Plantings suited to the site soils and hydrology have been selected to stabilize areas to be revegetated.

Maintenance of Facilities

The stormwater facility will be maintained by the applicant, or their assigned, heirs after construction is completed. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion Control Report. Long-term operation/maintenance planned for the stormwater management facilities is presented below.

The Homeowner's Association will be responsible for maintenance and operation of the detention basin.

The "Parties" may contract with such professionals as may be necessary in order to comply with this provision and may rely on the advice of such professionals in carrying out its duty hereunder, provided, that the following operation and maintenance procedures are hereby established as a minimum for compliance with this section.

1. Inspect inlet and outlet piping on a weekly basis from March to November, all other times on a biweekly basis, to ensure that flow structures are not blocked.

2. Inspect riprap spillway annually for evidence of loose rocks or foreign matter and repair as necessary.

3. Inspect berm annually for evidence of sloughing and repair as necessary.

4. Remove sediment from catch basins when sediment has accumulated to within 6 inches of the outlet invert, but not less than annually.

5. Maintain Vortech units in accordance with manufacturer's recommendations.

Conclusion

Due to changes in land use and watershed size, the planned development increases runoff from the site. A detention pond has been designed to attenuate the increase in peak runoff rates in the post-development condition to below the predevelopment flows.

Attachments

Attached to this section are the following items:

Attachment A – Watershed Maps

Attachment B – TR-20 Calculations

Attachment C – Water Quality Calculations

Attachment D – Pipe Sizing Calculations

ATTACHMENT A

WATERSHED MAPS

Erosion and Sedimentation Control Plan

Introduction

Gorrill-Palmer Consulting Engineers, Inc. has been retained by Archetype to prepare plans and permit applications for the proposed residential housing development located off Forest Avenue in Portland, Maine. Figure 1 is an excerpt from the U.S.G.S. Portland West quadrangle map showing the project location. This narrative contains the general erosion and sedimentation control measures, which are appropriate for the site.

Narrative

Existing Conditions and Soil Types

The project site is located on Forest Avenue westerly of the Maine Turnpike and northerly of the existing Riverton Housing Complex. The parcel is approximately 4.5 acres in size will be accessed through a 54 foot right of way to Forest Avenue. The site is currently undeveloped land consisting of a mixture of wooded and meadow areas. Abutting land uses include:

- East - Maine Turnpike
- Southwest - Riverton Housing Complex
- North - Mixture of Residential and Commercial Uses

The site generally slopes from Forest Avenue back to a drainage course at the rear of the site. The slopes vary from 2% adjacent to Forest Avenue to 50% adjacent to the drainage course at the rear of the site. Elevations on the site range from 58' to 80'.

The Cumberland County Soil and Water Conservation District Medium Intensity Soil Survey was reviewed with respect to anticipated on-site soil types. An excerpt of the survey is attached to Stormwater Management Analysis. The susceptibility of soils to erosion is indicated on a relative "K" scale of values over a range of 0.02 to 0.69. The higher values are indicative of the more erodible soils. The following table lists the soils and their K values:

Type	K Value B Horizon	C Horizon
Belgrade	0.64	0.49
Buxton	0.49	0.49
Scantic	0.49	0.49
Windsor	0.17	0.17

Based on a review of the K Values, the on-site soils are moderately susceptible to erosion.

Existing Erosion Problems

Gorrill-Palmer Consulting Engineers, Inc. is not aware of any existing erosion problems on the site.

Critical Areas

Critical areas on the site, which will need special attention regarding erosion control, are the side slopes, which will be adjacent to the development and the discharge points from the storm drain system.

Erosion Control Measures and Site Stabilization

The primary emphasis of the erosion/sedimentation control plan to be implemented for this project are as follows:

- Development of a careful construction sequence.
- Rapid revegetation of denuded areas to minimize the period of soil exposure.
- Rapid stabilization of drainage paths to avoid rill and gully erosion.
- The use of on-site measures to capture sediment (hay bales/silt fence, etc.)

The following temporary and permanent erosion and sediment control devices will be implemented as part of the development. These devices shall be installed as indicated on the plans or as described within this report. For further reference, see the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices.

Temporary Erosion Control Measures

The following measures are planned as temporary erosion/sedimentation control measures during construction:

1. A crushed stone stabilized construction entrance shall be placed at the intersection of the site roadway and Forest Avenue.

2. Siltation fence shall be installed downstream of any disturbed areas to trap runoff borne sediments until the tributary disturbed area is revegetated. The silt fence shall be installed per the detail provided in the plan set and inspected immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind fence, the barrier shall be replaced with a stone check dam.

3. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and October 1st on slopes of equal to or steeper than 15 percent shall be covered by a fabric netting and anchored with staples in accordance with manufacturer's recommendation. Mulch placed between

October 1st and April 15th on slopes of less than 8 percent shall be anchored by applying water; mulch placed on slopes equal to or steeper than 8 percent shall be covered with a fabric netting and anchored with staples in accordance with the manufacturers recommendations. Slopes steeper than 3:1 which are to be revegetated shall receive curlex blankets by American Excelsior or equal.

4. Temporary stockpiles of stumps, grubbings, or common excavation will be protected as follows:

   a)Temporary stockpiles shall not be located within 50 feet of the wetlands, which will remain and shall be located away from drainage swales.

   b) Stockpiles shall be stabilized within 7 days by either temporarily seeding the stockpile with a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch.

   c)Stockpiles shall be surrounded by silt fence at the time of formation.

5. All denuded areas that are within 50 feet of a wetland that will remain, which have been rough graded and are not located within the roadway subbase area, shall receive mulch or erosion control mesh fabric within 7 days of initial disturbance of soil. All areas within 50 feet of a wetland, which will remain shall be mulched prior to any predicted rain event regardless of the 7-day window. In other areas, the time period may be extended to 14 days.

6. For work, which is conducted between October 15 and April 15 of any calendar year, all denuded areas will be covered with hay mulch, applied at twice the normal application rate and anchored with a fabric netting. The time period for applying mulch as noted in Paragraph 5 above, shall be limited to 7 days for all areas.

7. Forest Avenue shall be swept to control mud and dust as necessary.

8. During grubbing operations stone check dams will be installed at any evident concentrated flow discharge points.

9. Silt fencing with a minimum stake spacing of 6 feet should be used, unless the fence is supported by wire fence reinforcement of minimum 14-gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence should be anchored.

10. Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers. Installation details are provided in the plan set. The barriers shall be inspected after each rainfall and repairs made as necessary. Sediment shall be removed and the barrier restored to its original dimensions when the sediment has accumulated to ½ the design depth of the barrier. The barrier shall be removed when the tributary drainage area has been stabilized.

11. Water and/or calcium chloride shall be furnished and applied in accordance with MDOT specifications – Section 637 – Dust Control.

12. Loam and seed is intended to serve as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap. Application rates are provided in the Seeding Plan. Seeding shall not occur over snow.

Permanent Erosion Control Measures

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. All storm drain pipe outlets shall have riprap aprons at their outlet to protect the outlet and receiving channel of the culverts from scour and deterioration. Installation details are provided in the plan set. The aprons shall be installed and stabilized to the extent practicable prior to directing runoff to the tributary pipe or culvert.

2. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas as noted in paragraph 5 of **Temporary Erosion Control Measures.** All areas within 50' of a wetland which will remain shall be mulched prior to any predicted rain event regardless of the 7-day window. Native topsoil shall be stockpiled and reused for final restoration when it is of sufficient quality.

3. Catch basins will be provided with sediment sumps and inlet hoods for all outlet pipes that are 12" in diameter.

Implementation Schedule

The following construction sequence shall be required to insure the effectiveness of the erosion and sedimentation control measures are optimized:

Note: For all grading activities, the contractor shall exercise extreme caution not to overexpose the site by limiting the disturbed area.

1. Install crushed stone stabilized construction entrance at the intersection of the site driveway and Forest Avenue. \

2. Clear work areas

3. Install perimeter siltation fence for roadway construction as well as emergency drive and detention basin.

4. Clear and grub work areas for the buildings, roadways and parking areas, using care not to overexpose the site.

5. During grubbing operations, install stone check dams at any evident concentrated flow discharge points.

6. Commence earthwork operations.

7. Commence installation of drainage appurtenances and piping.

8. Commence building foundation construction.

9. Commence installation of waterline and sewer main.

10. Continue earthwork and grading to subgrade as necessary for construction.

11. Install light pole foundations and utility poles as well as underground elec/tel services.

12. Complete all remaining earthwork operations.

13. Complete installation of all utilities.

14. Install subbase and base gravels within access drives and parking areas.

15. Install gravel for sidewalks adjacent to buildings.

16. Install base course paving for access drives and parking areas.

17. Install surface course paving for access drives and parking areas and stripe as necessary.

18. Loam, lime, fertilize, seed, and mulch disturbed areas.

19. Remove accumulated sediment from ahead of any sediment barriers as necessary.

20. Once the site is stabilized and a 75% catch of vegetation has been obtained, remove all temporary erosion control measures.

21. Touch up loam and seed.

Note: All denuded areas not subject to final paving, riprap or gravel, shall be revegetated.

Prior to construction of the access drives, parking areas and utilities, the contractor shall submit a schedule to the Owner for the completion of the work, which will satisfy the following criteria:

1. The above construction sequence should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to prevent the extent of the exposed areas as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as silt fence and construction entrance in place before large areas of land are denuded.

2. The work shall be conducted in sections which will:

   a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 30 days.

b) Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event; or temporarily stabilized within 7 days of initial disturbance of soil for areas within 50 feet of a wetland, which will remain and 14 days for all other areas. Areas within 50 feet of a wetland, which will remain shall be mulched prior to any predicted rain event regardless of the 7-day window.

c) Incorporate planned inlets and drainage system as early as possible into the construction phase. The ditches shall be immediately lined or revegetated as soon as their installation is complete.

Erosion, Sedimentation and Stabilization Control Plan

The Erosion, Sedimentation and Stabilization Control Plan is enclosed as part of the Plan Set.

Details and Specifications

The erosion and sedimentation details and specifications are enclosed as part of the Plan Set.

Winter Stabilization Plan

It is anticipated that construction of the access road, utilities and other site improvements can be completed in one construction season. However, if any work is necessary between October 15 and April 15, the contractor shall submit a schedule which will satisfy the following criteria:

1. Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 15 days and that which can be mulched in the event of a predicted snow event.

2. During the construction process, all disturbed areas shall be covered with mulch within 7 days of final grading. Mulch shall not be placed over snow.

3. Once final grade has been established, the contractor may choose to dormant seed the disturbed areas prior to placement of mulch and placement of fabric netting anchored with staples.

   a. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5#/1000 s.f. Seeding shall not occur over snow.

      All areas seeded during the winter months will be inspected in the spring for adequate catch. All areas sufficiently vegetated (less than 75 percent catch) shall be revegetated by replacing loam, seed and mulch.

   b. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

4. The area of denuded non-stabilized construction shall be limited to the minimum area practicable. An area shall be considered to be denuded until the subbase gravel is installed in

the road or paved areas or the areas of future loam and seed have been loamed, seeded, and mulched. The mulch rate shall be twice the rate specified in the seeding plan (for example, 115#/1,000 s.f. x 2 = 230#/s.f.).

5. The schedule shall be subject to the approval of the Owner.

The Contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

The Contractor shall note that no areas within 50 feet of a wetland shall remain denuded for a period of over 7 days before it is temporarily stabilized. Temporary stabilization shall be the installation of gravel or mulching. All other areas shall be stabilized within 14 days. For construction between October 15 and April 15 of any calendar year, all areas shall be temporarily stabilized with 7 days.

Provisions for Maintenance of the Erosion/Sedimentation Control Features

The Contractor shall prepare a list and designate by name, address and telephone number all individuals who will be responsible for implementation, inspection and maintenance of all erosion control measures identified within this section and as contained in the Erosion and Sedimentation Control Plan of the contract drawings. Specific responsibilities of the inspector(s) will include:

1. Assuring and certifying the owner's construction sequence is in conformance with the specified schedule of this section. A weekly certification stating compliance, any deviations, and corrective measures necessary to comply with the erosion control requirement of this section shall be prepared and signed by the inspector(s).

2. In addition to the weekly certifications, the inspector(s) shall maintain written reports recording construction activities on site which include:

   - Dates when major grading activities occur in a particular area.

   - Dates when major construction activities cease in a particular area, either temporarily or permanently.

   - Dates when an area is stabilized.

3. Inspection of this project work site on a weekly basis and after each significant rainfall event (0.5 inches or more within any consecutive 24 hour period) during construction until permanent erosion control measures have been properly installed and the site has been stabilized. Inspection of the project work site shall include:

   - Identification of proper erosion control measure installation in accordance with the erosion control detail sheet or as specified in this section.

   - Determine whether each erosion control measure is properly operating. If not, identify damage to the control device and determine remedial measures.

- Identify areas which appear vulnerable to erosion and determine additional erosion control measures which should be used to improve conditions.

- Inspect areas of recent seeding to determine percent catch of grass. A minimum catch of 75 percent is required prior to removal of erosion control measures.

Accumulated silt/sediment should be removed when the depth of sediment reaches 50 percent of the barrier height. Accumulated silt/sediment should be removed from behind silt fencing when the depth of the sediment reaches 6 inches.

4. If inspection of the site indicates a change should be made to the erosion control plan, either to improve effectiveness or correct a site specific deficiency, the inspector shall immediately implement the corrective measure and notify the Owner of the change.

5. Once construction has been completed, long term maintenance of the catch basins will be the responsibility of the City.

All inspection forms and written reports prepared by the inspector(s) shall be filed with the Owner. All written inspection forms, and written reports must be filed within one (1) week of the inspection date.

Preconstruction Conference

Prior to any construction at the site, representatives of the Contractor shall arrange for and meet with the Owner and a representative of the City to discuss the scheduling of the site construction. On or before that meeting, the Contractor will prepare a detailed schedule and a marked-up site plan indicating areas and components of the work and key dates showing date of disturbance and completion of the work. If disturbed areas are not to be finished (loamed, seeded, and mulched) within seven (7) days, the scheduling shall indicate those areas to be protected with temporary seeding/mulch. Three copies of the schedule and marked-up site plan shall be provided to the Owner. Temporary seed mixture shall be annual rye grass applied at the rate of 0.9 lbs/1000 sq. ft.

Conclusion

The Applicant has provided temporary and permanent erosion control measures as well as specifying a sequence of construction as measures to minimize erosion and sedimentation.

Attachments

Attachment A - Seeding Plan

AH. 10

Wellesley Estates
Summary of Financing

Adam Development Company, the development entity, has made application to and received preliminary approval from MSHA in response to its request for proposals on its Work Force Housing Loan Program. The advantage of the Work Force Housing Loan Program is that the loan program provides tax-exempt bond financing at the rate of 5.5% and access to Housing Subsidy funds from a separate pool of set aside funds. In addition, available to the project is entity funds pursuant to its qualification for 4 percent Low Income Housing Tax Credits.

The following table summarizes the project financing sources:

PROJECT FINANCING
[Sources of Funds]:

MSHA Rental Loan Program Mortgage Loan	$ 3,838,871	[1]
MSHA Subsidy Loan	1,116,040	[2]
City of Portland HOME/CDBG Funds	256,000	[3]
Development Fee Loan	393,477	
LIHTC Net Syndication Proceeds	$ 893,886	
Total Sources of Funds [Covering Development Costs]	$ 6,498,274	

[1] Maine State Housing Authority mortgage loan is, interest only for first 10 years at 5.5% interest, at end of first 10 years, the loan amortizes over a 30-year term at 5.5% Interest rate. There is a balloon payment at the end of the first 30 years of the loan.

[2] Maine State Housing Authority subsidy loan is at no interest, balloon payment at end of 30-year term.

[3] City of Portland subsidy loan as recommended by the Housing Committee on May 9, 2002. The loan is for 30 years, no interest or principal repayments during the initial 20 years of its term with interest and principal payments at 1% interest over the remaining 10 years computed over a 20-year amortization period. Balloon payment is scheduled at the end of the 30-year term.

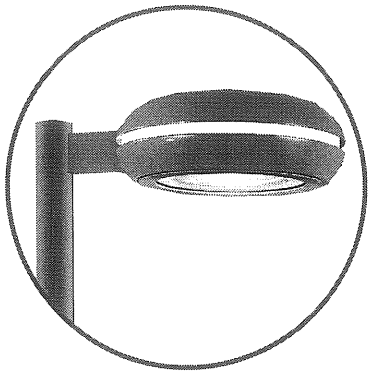
AH. 11

Item: _____

CATALINA

Features

- Styled, two piece spun aluminum housing. Standard reveal accentuated with color vinyl trim stripe. Glow ring housing has translucent band of white acrylic, internally illuminated.
- Spun aluminum door with clear, flat tempered glass lens, fully gasketed to housing, secured with captive fasteners.
- Specular, anodized aluminum reflectors for horizontal lamp, provide type III, IV or V square light pattern. Optional POD lamp offers beam adjustability 0° - 20° from nadir.
- Metal Halide and High Pressure Sodium lamp sizes up to 175w in small housing, 400w in medium, and 1000w in large.
- Extruded aluminum arm provided for pole side mount. Spider mount luminaire has four aluminum tube arms and cast slipfitter for 2" ($2^3/_8$" OD) tenon. Wall, horizontal slipfitter, and pendant fitters are cast aluminum. Pendant mount designed for indoor application with remote ballast.
- Socket is enclosed mogul porcelain, pulse rated, with spring loaded, nickel plated center contact and reinforced lamp grip screw shell. (Medium base for M100)
- Ballast components mounted on removable tray, CWA type, HPF, starting rated at -20°F.
- Polyester paint finish with choice of 10 standard colors.
- UL listed for wet locations, and CSA certified.



Round, aerodynamic styled, cutoff luminaire for extra appeal in parking areas, auto sales lots, apartments, parks, entrances, and other glare-free applications.

Ordering Information

Catalog No.: _____

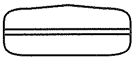
Order No.	❶	❷	❸	❹	❺	❻	❼	❽	❾
Example	CI II	– STD	– PM	– M400	– IV	– 120	– PC	– TBP	– WTR

❶ Model
CI I - up to 175w
CI II - 250w-400w
CI III - 400w-1000w

❷ ousing
STD - standard reveal



GRW - glow ring, white (VS reflector only)



❸ Mounting Mode
PM - arm mount
std - 6" arm for CI-I & CI-II
std - 10" arm for CI-III
WB - wall bracket
SF - horizontal slipfitter for $2^3/_8$" OD arm
SM SF - spider mount with slipfitter for 2" ($2^3/_8$" OD) tenon
PD - pendant mount for 1" conduit, remote ballast only

❹ Lamp Type/Watts

CI-I			
S70	(E-$23^1/_2$)	M100	(E-17)
S100	(E-$23^1/_2$)	M17	(E-28)
S1 0	(E-$23^1/_2$)		
CI-II			
S2 0	(E-18)	M2 0	(E-28)
S400	(E-18)	M400	(E-37)
		M400	(PAR64)
CI-III			
S400	(E-18)	M400	(E-37)
S1000	(E-25)	M1000	(BT-56)

❺ Reflector
III - asymmetric
IV - forward throw
VS - symmetric square
POD - adjustable M400/PAR64 lamp (CI-II only)

❻ Voltage
120 208 240
277 347 480
MT - multi-tap (120/208/240/277v)

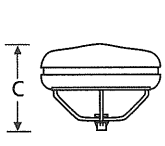
❼ Options
PC - photoelectric button cell installed in arm 120-277v, up to 400w
SF - single fuse (120v,277v,347v)
DF - double fuse (208v,240v,480v)
QZ - quartz standby (D.C. bayonet base lamp included)
SM - super metal halide socket (175-400w)
VG - polycarbonate vandal guard

❽ Color

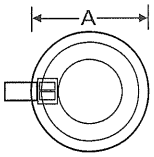
DBZ	- dark bronze	FGP	- forest green
SGB	- black	TBP	- teal blue
SWT	- white	RBP	- royal blue
BGE	- beige	CMB	- burgundy
RRN	- rocket red	PRG	- gray

❾ Re eal Color
WTR - white
B R - black
OTR - other
NCR - none (GRW housing only)

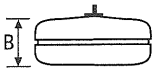
Dimensions



Spider Mount (SM-SF)



Arm Mount (PM)



Pendant Mount (PD)

	A-Dia	B	C	EPA(PM)	Wt./Lbs.(PM)
CI I	21"	8.37"	19.37"	1.0	33
CI II	26"	10"	23.5"	1.5	46
CI III	34"	12.5"	25.87"	2.1	75

SPAULDING LIGHTING, INC. 1736 Dreman Ave. Cincinnati, Oh. 45223 (513)541-3486

AA. 12

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
ADDENDUM

2001-0307
Application I. D. Number

11/22/01
Application Date

David Lloyd
Applicant

48 Union Wharf, Portland, ME
Applicant's Mailing Address

Forest Avenue Housing Development
Project Name/Description

Lloyd, David
Consultant/Agent

1818 - 1818 Forest Ave, Portland, Maine
Address of Proposed Site

Applicant Ph: (207) 772-6022 **Agent Fax:**
Applicant or Agent Daytime Telephone, Fax

327 B007001
Assessor's Reference: Chart-Block-Lot

Approval Conditions of Fire

1 Hydts shall be within 800' path of travel

2 No second egress

AH. 13

March 18, 2002
Riverton School

Adam Development Corp. Public Community Meeting to review their proposed 46-unit housing development off Forest Avenue in Riverton.

Prior to the start of the meeting attendees were given an opportunity to review building plans, elevation drawings, site plan and studies related to the project.

Adam Mack of Adam Development led the meeting, begun at 5:40PM.

Q = question; A= answer

Q: What kind of fencing will separate the development from Riverton?
A: Either stockade or chain link. We're reviewing that with the Planning Board now. We'd like something like tall junipers there too.

Adam Mack: A traffic light is planned to be installed at the Industrial Park Road and Forest Ave.

The traffic study we commissioned for the project demonstrates that the new development will not have a significant impact

Q: Where is the entrance to the development?
A: Adam Mack points to entrance on the plans

Adam Mack: The Grange Hall will be either resided or painted from money we will give them.

Q: What was the length of the traffic study area?
A: From the Industrial Park Road to Riverside St.

Members of the audience: General complaints concerning traffic at Morrill's Corner.

Q: Do you know of any plans to repave Forest Avenue?
A: I don't know of plans to repave Forest Ave. We will be installing a sidewalk by our entrance.

Q: What's the detention pond?
A: This is a retainage area for storm water run-off.

Adam Mack: The development will contain 46 units, not 47.

Q: When will construction start?
A: June or July. Sometime this summer.

Q: Audience member (Dan?) asks the assembled group – what's your general feeling about the project?

Various responses:

Concerns about traffic.
Concern about condition of Forest Ave.
Concern about speed of traffic on Forest Ave.
Crosswalks needed on Forest Ave.
Traffic light at Industrial Park Rd. will help slow traffic down.
The speed limit should be lowered.
Need speed limit enforcement.
Skepticism raised concerning accuracy of traffic study.

Q: Do you think you can rent these units?
A: We believe there is a good market for both the market rate and affordable units. 19 affordable units; 27 market rate units.

Fred Gildart: I think it's too many units; there will be too many kids.

Commenter: It could be worse. Could be a warehouse with trucks at night or a busy store like Rite-Aide.

Adam Mack gives a copy of the traffic study to Fred Gildart to take home and read.

Commenter: Wants to ensure that the development is clean and well maintained. Believes the 60% market rate ratio will require the developer to meet the demands of the market for a well-maintained facility to achieve the high rents.

Q: What will be the effect of this project on City services and schools?
A: City hasn't identified school crowding as a problem. For a City the size of Portland, 46 units shouldn't overcrowd the schools.

Adam Mack: Further explanation of the 40% affordable income limit breakdown. These 19 units are divided into those rented to households at 50% and 60% of County median income.

Q: Will there be an office on site?
A: No office on site. There will be a maintenance room.

Fred Gildart: Not many people to object because the project is not really near anyone's home except mine.

Commenter: Concern that project doesn't become another Riverton Park.
Q: Describe your company's other projects.
A: Our projects all work well. We have intensive tenant screening and management. We've completed rehabilitation on some of our Maine projects. We own over 350 units in Maine and the Virgin Islands.

Commenter: Lots of junk on the property – bicycles, couches, roof shingles. The Grange Hall has flea markets and stuff that doesn't get sold gets hauled behind.

Commenter: This will stop when the project is built. I see a big difference between this development and Riverton.

Commenter: There's been a lot of improvement since the Somalis, Sudanese, Afghanis and Cambodians have come in to Riverton.

Commenter: This project won't be any worse than what is at Riverton now.

Q: What will be the buffer between this project and Riverton?
A: Both a physical and a visual barrier. We're thinking of juniper trees and fencing.

Q: Will you allow pets?
A: Usually we don't allow pets at our projects but we haven't made a final decision on that yet.

Q: Will you permit outside storage?
A: No junk will be permitted outside. Each tenant will have a personal outside are for barbeques etc.

End of meeting, approximately 6:30PM.

Recorded by Aaron Shapiro, City of Portland, Division of Housing & Neighborhood Services.

Sign up Sheet

Adam Mack 34 Preble st Portland
774-8013 04101

Mitchell Cope 34 Preble st Portland
774-8013 04101

James Rodway 1832 Forest Ave Portland
878-8226

Frederick W. Goldsmith 1824 Forest Ave Portland, Me
797-6327

Rita L. O'Brien 27 Castine Ave Cumberland, Me
797-3111

Jeanne Allen 27 Castine Ave Portland
7973111

Dan Link 1818 Forest Ave Portland
797-6060

Aaron Shapiro – City of Portland

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Planning Copy

2003-0060
Application I. D. Number

03/26/2003
Application Date

Amendment to Plan - Wellesley Estates
Project Name/Description

Adam Development Company
Applicant

34 Preble Street, Portland, ME 04101
Applicant's Mailing Address

Consultant/Agent

1816 - 1816 Forest Ave, Portland, Maine
Address of Proposed Site

Applicant Ph: (207) 774-8013 Agent Fax:
Applicant or Agent Daytime Telephone, Fax

327 B007001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☐ New Building ☐ Building Addition ☐ Change Of Use ☐ Residential ☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☐ Other (specify)

45,000 s.f.		R-5/B-2
Proposed Building square Feet or # of Units	Acreage of Site	Zoning

Check Review Required:

☑ Site Plan (major/minor)
☐ Subdivision # of lots
☐ PAD Review
☐ 14-403 Streets Review
☐ Flood Hazard
☐ Shoreland
☐ HistoricPreservation
☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB)
☐ Zoning Variance
☒ Other Amendment

Fees Paid: Site Plan Amendment Subdivision _____ Engineer Review _____ Date _____

Planning Approval Status:

Reviewer J.R

☑ **Approved**
☐ **Approved w/Conditions** See Attached
☐ **Denied**

Approval Date 3-26-03 Approval Expiration _____ Extension to _____ ☐ Additional Sheets Attached

☑ OK to Issue Building Permit J.R signature 3-26-03 date

Performance Guarantee ☐ **Required*** ☒ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted	date	amount	expiration date
☐ Inspection Fee Paid	date	amount	
☐ Building Permit Issue	date		
☐ Performance Guarantee Reduced	date	remaining balance	signature
☐ Temporary Certificate of Occupancy	date	☐ Conditions (See Attached)	expiration date
☐ Final Inspection	date	signature	
☐ Certificate Of Occupancy	date		
☐ Performance Guarantee Released	date	signature	
☐ Defect Guarantee Submitted	submitted date	amount	expiration date
☐ Defect Guarantee Released	date	signature	

City of Portland Site Plan Application

If you or the property owner owe real estate taxes, personal property taxes or user charges on any property within the City of Portland, payment arrangements must be made before permit applications can be received by the Inspections Dept.

Address of Construction: 1816 FOREST AVENUE		Zone: R-5/B2
Total Square Footage of Proposed Structure: 45,000± sq.ft.	Square Footage of Lot: 196,891 sq.ft.	
Tax Assessor's Chart, Block & Lot Chart# 327 Block# B Lot# 7-8	Property owner, mailing address: WELLESLEY ESTATES, L.P. C/O ADAM DEV. 34 PRESBLE ST.	Telephone: 774 8013
Consultant/Agent, mailing address, phone & contact person: ARCHETYPE, PA. KEVIN GOUGH 48 UNION WHARF 04101 772-6022	Applicant name, mailing address, telephone #/Fax#/Pager#: fax 7724056 ← SAME	**Project name:** WELLESLEY ESTATES

Proposed Development (check all that apply) ___New Building ___Building Addition ___Change of Use
___Residential ___Office ___Retail ___Manufacturing ___Warehouse/Distribution ___Parking lot
___Subdivision, amount of lots____ $25.00 per lot $_____
___Site Location of Development $3,000, except for residential lots which are then $200 per lot_____
___Traffic Movement $1,000 ___Stormwater Quality $250.00 ___Other_____
___After the fact review - Major project $1,500.00 ____After the fact review - Minor project $1,200.00

Major Development _____ $500.00 **Minor Development**_____ $400.00
Plan Amendments: ____Board review $200.00 _X_ Staff review $100.00

Who billing will be sent to: ARCHETYPE, P.A.
Mailing address: 48 UNION WHARF
State and Zip: PORTLAND, ME 04101 Contact person: KEVIN GOUGH Phone: 772 6022

Submittals shall include (9) separate folded packets of the following:

a. **copy of application**
b. **cover letter stating the nature of the project**
c. **site plan containing the information found in the attached sample plans check list**

Amendment to Plans: Amendment applications should include 6 separate packets of the above (a, b, and c)

ALL PLANS MUST BE FOLDED NEATLY AND IN PACKET FORM

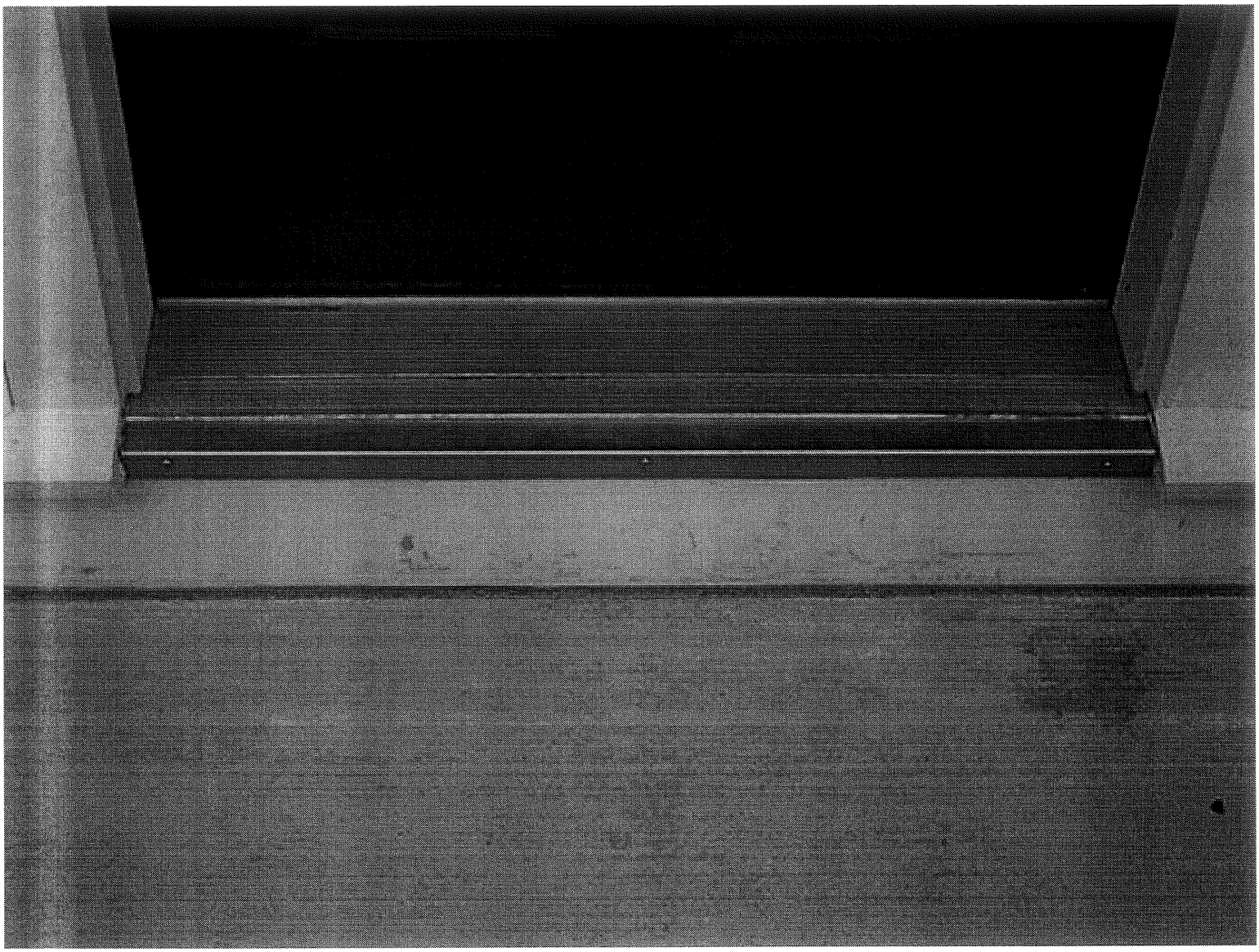
Section 14-522 of the Zoning Ordinance outlines the process, copies are available at the counter at .50 per page (8.5 x11) you may also visit the web site: ci.portland.me.us chapter 14

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant:	**Date:** 26 MARCH 2003

This application is for site review ONLY, a building Permit application and associated fees will be required prior to construction.






43

breakfasts, and emergency shelters shall meet the following standards:

a. Proposed structures and related site improvements shall meet the following standards:

1. (a) The exterior design of the proposed two-family structures, lodging houses and emergency shelters, including architectural style, facade materials, roof pitch, building form and height, shall be designed to complement and enhance the nearest residential neighborhood;

(b) The exterior design of the proposed special needs independent living unit, bed and breakfast or multiple-family structures, including architectural style, facade materials, roof pitch, building form and height, window pattern and spacing, porches and entryways, cornerboard and trim details, and facade variation in projecting or recessed building elements, shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements;

2. The proposed development shall respect the existing relationship of buildings to public streets. New development shall be integrated with the existing city fabric and streetscape including building placement, landscaping, lawn areas, porch and entrance areas, fencing, and other streetscape elements;

3. Open space on the site for all two-family, special needs independent living unit, bed and breakfast and multiple-family development shall be integrated into the development site. Such open space in a special needs independent living unit or a multiple-family development shall be designed to complement and enhance

the building form and development proposed on the site. Open space functions may include but are not limited to buffers and screening from streets and neighboring properties, yard space for residents, play areas, and planting strips along the perimeter of proposed buildings;

4. The design of proposed dwellings shall provide ample windows to enhance opportunities for sunlight and air in each dwelling in principal living areas and shall also provide sufficient storage areas;

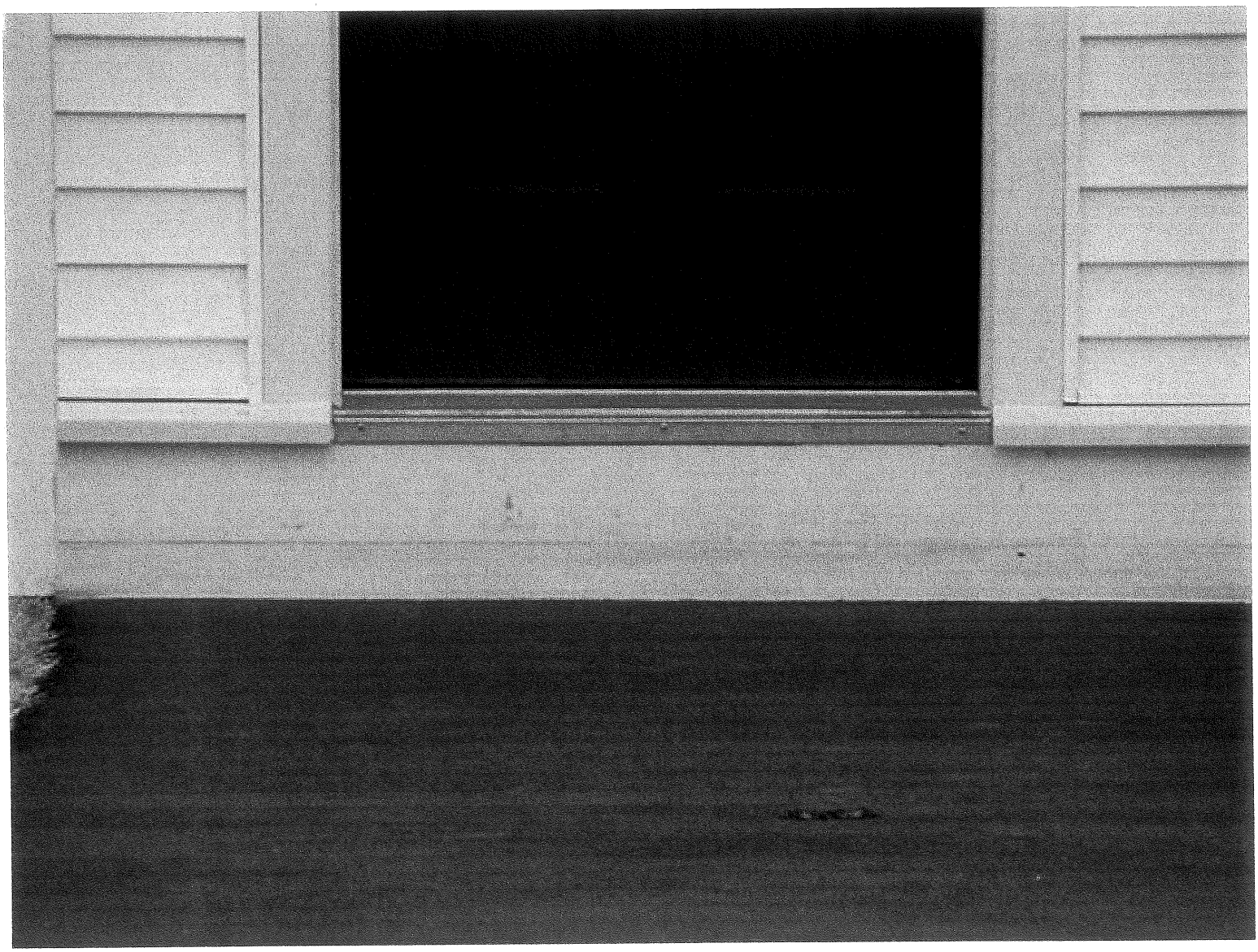
5. The scale and surface area of parking, driveways and paved areas are arranged and landscaped to properly screen vehicles from adjacent properties and streets;

b. Two-family or multiple-family dwellings shall not be converted to lodging houses unless all units in the building have been vacant for at least one (1) year prior to the date conversion is sought or unless the individual multiple-family units are less than one thousand (1,000) square feet in size. In no event shall any single-family dwelling in the R-5 or R-6 zone be converted in whole or in part to a lodging house.

(16) Development located within the B-3 zone shall also meet the following standards. Adequacy in meeting these standards will be evaluated on the basis of descriptions and illustrations in the Downtown Urban Design Guidelines. Nothing in this section is intended to discourage creative and responsive design or to mandate similarity or mimicry of design in order to achieve the standards herein:

a. *Relationship to the pedestrian environment:*

1. *General:* The exterior design of portions of buildings within the first thirty-five (35) feet of height shall enhance the character, attractiveness, comfort, security, and usability of the street level pedestrian



Approved by AT
Fridays

DRAFT

April 2, 2003

Mr. Kevin Gough
Archetype, P.A.
48 Union Wharf
Portland, ME 04101

RE: Requested changes to the building for Wellesley Estates, 1818 Forest Avenue
(ID #2001-0307, CBL #327-B-007)

Dear: Mr. Gough:

Upon review of the foundation detail submitted March 26, 2003 I have the following comments:

> The proposed change does not meet the City's standards with regards to exterior design. The design standards state that the exterior design of proposed multi-family structures shall be designed to complement and enhance the nearest residential neighborhood. The design of exterior facades shall provide positive visual interest by incorporating appropriate architectural elements.

The Planning Authority does not feel that this revision meets these standards, and therefore, the request is denied.

Sincerely,

Alexander Jaegerman
Planning Division Director

O:\PLAN\DEVREVW\FOREST1818\REVISIONLETTER4-02-03.DOC

A R C H E T Y P E

FAX COVER SHEET

TO: Jay Reynolds

COMPANY: City Planning

FROM: Kevin Gough

DATE: 26 March 03 FAX NUMBER: 756-8258

PROJECT: Wellesley Estates

NUMBER OF PAGES (Including Cover Page): 3

MESSAGE:

Jay

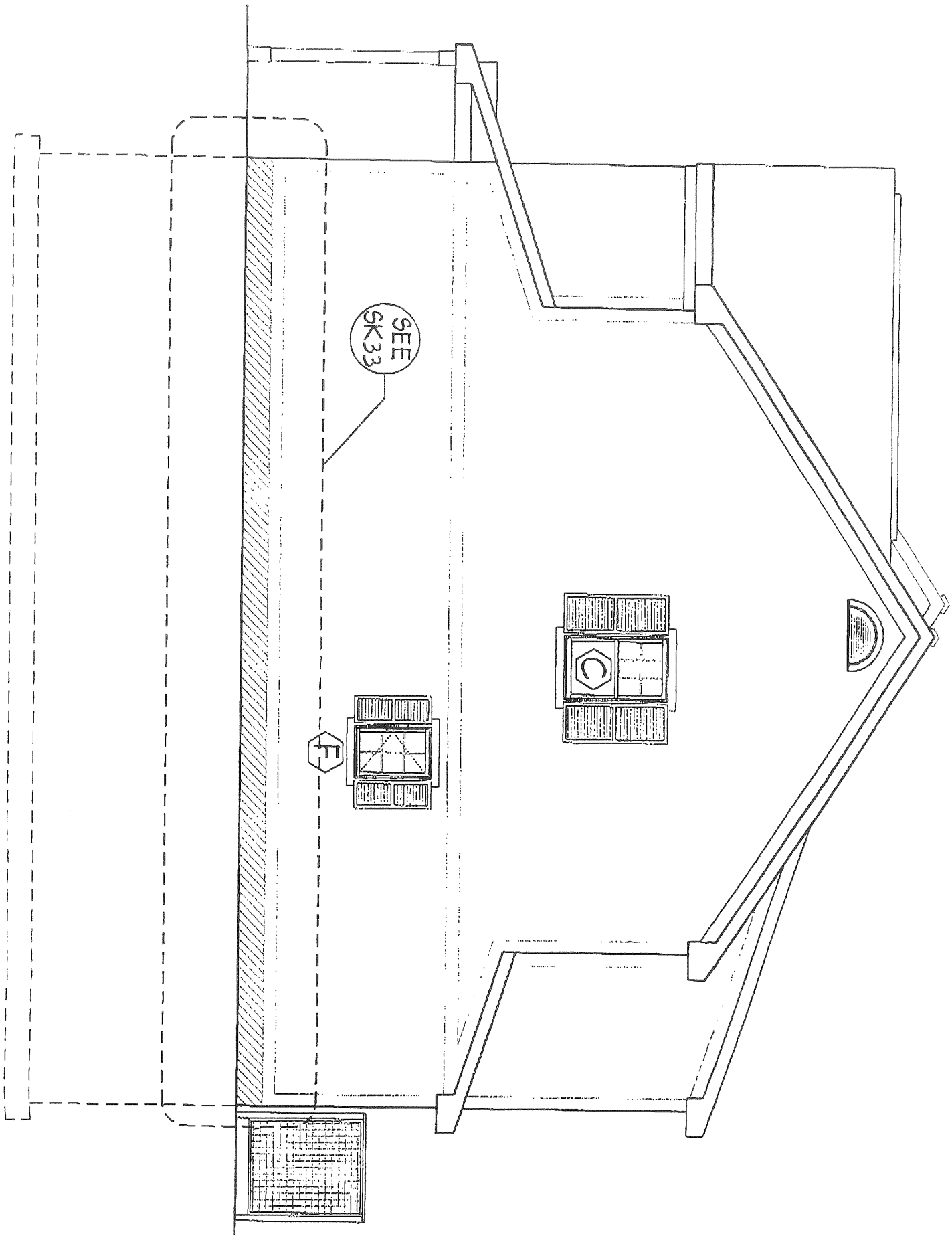
Here are a couple of details to give you the general scope of what M.S.H.A. intends for us to do.

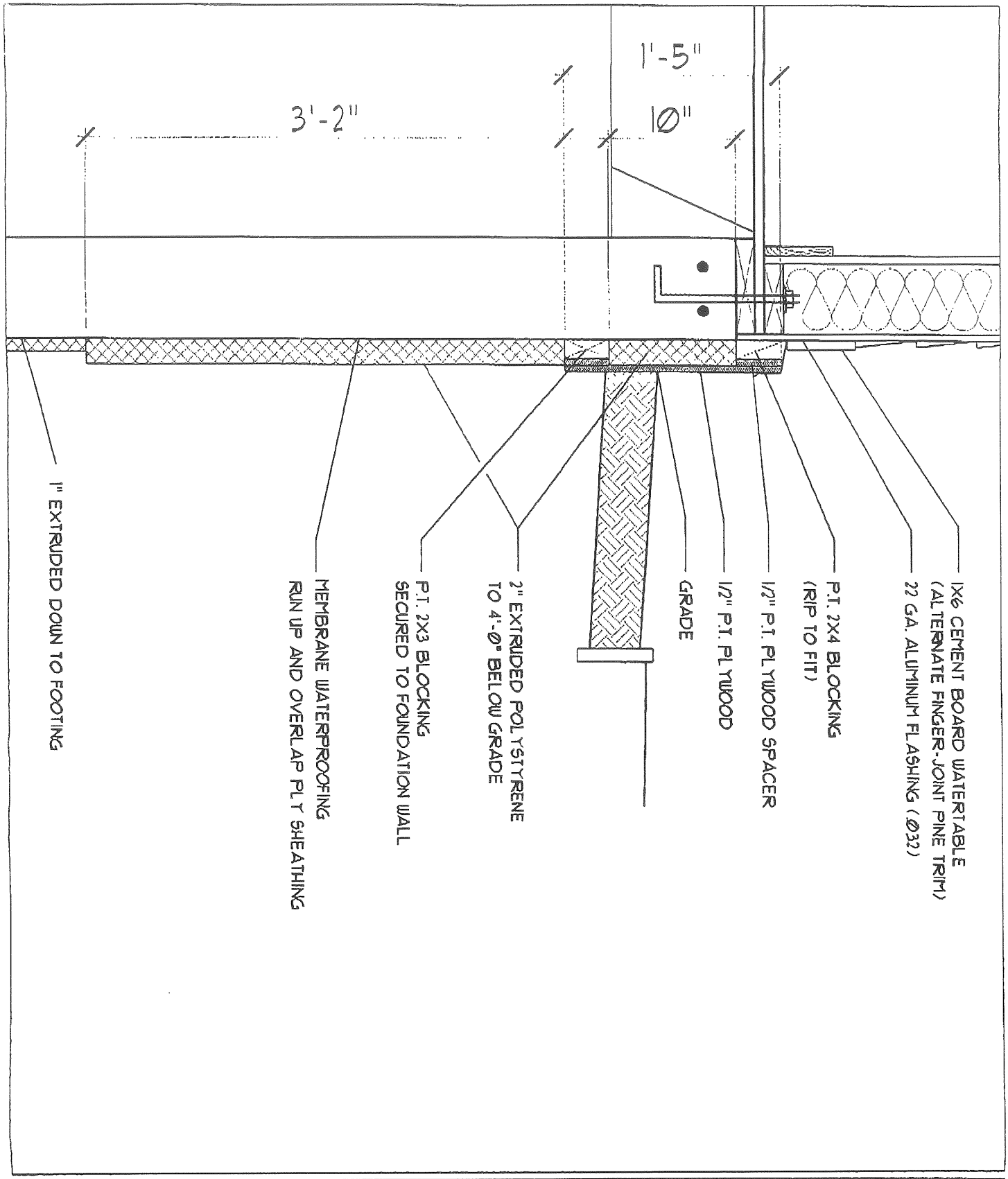
Give me a call if you need more info.

Kevin

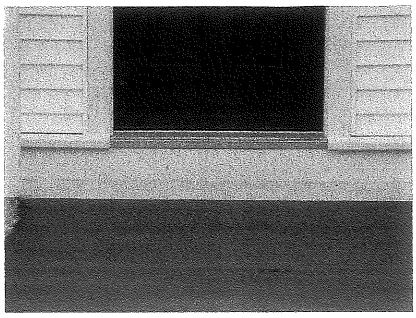
IF YOU HAVE ANY PROBLEMS RECEIVING THIS FAX,
PLEASE CALL THE PERSON SENDING IT AS SOON AS POSSIBLE.
THANK YOU.

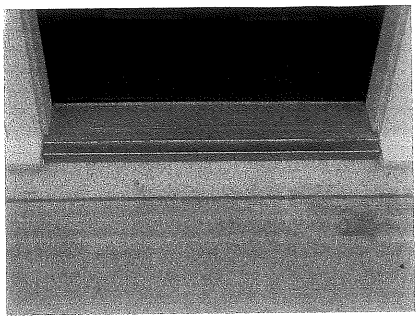
48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056


SEE
SK33
F



SK33	SK TO SHEET SD14	Date: 25 March, 2003	Scale: NOT TO SCALE	ARCHETYPE, P.A. ARCHITECTS 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056
	Project: WELLESLEY ESTATES FOREST AVENUE PORTLAND, MAINE	TYPICAL FOUNDATION INSULATION DETAIL AT NEW BUILDINGS		







Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

April 4, 2003

Mr. Kevin Gough
Archetype, P.A.
48 Union Wharf
Portland, ME 04101

RE: Amended Site Plan and Subdivision Plat for Wellesley Estates, 1818 Forest Avenue

(ID #2001-0307, CBL #327-B-007)

Dear: Mr. Gough:

This letter is to confirm the revision to site plan for the Wellesley Estates Project. The revision includes changes to the exterior foundation walls, and is approved with the following conditions:

1. *The plywood face shall be painted to meet the equivalent appearance of the original foundation detail.*
2. *This submittal requires that an application for an amended site plan be filed with the City of Portland.*

The revised plan has been reviewed and approved by the project review staff including representatives of the Planning, Public Works, Building Inspections, Zoning, Fire, and Parks Departments.

Please provide seven sets of the revised foundation detail.

If you have any questions regarding the revision please contact Jay Reynolds at 874-8632.

Sincerely,

Alexander Jaegerman
Planning Division Director

O:\PLAN\DEVREVW\FOREST1818\REVISIONLETTER4-04-03.DOC

City of Portland
Department of Planning and Development
Planning Division
389 Congress Street, 4th Floor
Portland ME 04101
(207)874-8721 or (207)874-8719
Fax: (207)756-8258

FAX

Randy Poulton
MSHA
fax # 626-4678

To: Kevin Gough / Randy Poulton

Compa MSHA

Fax #: 626-4678

Date:

From:

You should receive 2 page(s) including this cover sheet.

Comments: Copy of Approval letter faxed, Per Request of Don Peterson.

Jay

City of Portland Site Plan Application

If you or the property owner owe real estate taxes, personal property taxes or user charges on any property within the City of Portland, payment arrangements must be made before permit applications can be received by the Inspections Dept.

Address of Construction: 1816-1822 Forest Avenue		Zone:
Total Square Footage of Proposed Structure: 45,000 ±	Square Footage of Lot: 196,891	
Tax Assessor's Chart, Block & Lot Chart# 327 Block# B Lot# 7+8	Property owner, mailing address: Wellesley Estates LLC c/o Adam Dev. Co. 34 Preble Portland ME 04101	Telephone: 207.774.8013
Consultant/Agent, mailing address, phone & contact person: Archetype Architects 48 Union Wharf Portland 772-6022	Applicant name, mailing address, telephone #/Fax#/Pager#: Contact: Kevin Gough Archetype	**Project name:** Wellesley Estates

Proposed Development (check all that apply) ___New Building ___Building Addition ___Change of Use
___Residential ___Office ___Retail ___Manufacturing ___Warehouse/Distribution ___Parking lot
___Subdivision, amount of lots____ $25.00 per lot $_____
___Site Location of Development $3,000, except for residential lots which are then $200 per lot_____
___Traffic Movement $1,000 ___Stormwater Quality $250.00 ___Other_____
___After the fact review - Major project $1,500.00 ____After the fact review - Minor project $1,200.00

Major Development _____ $500.00 **Minor Development**_____ $400.00
Plan Amendments: ____Board review $200.00 _X_Staff review $100.00

Who billing will be sent to:
Mailing address:
State and Zip: Contact person: Phone:

Submittals shall include (9) separate folded packets of the following:

a. **copy of application**
b. **cover letter stating the nature of the project**
c. **site plan containing the information found in the attached sample plans check list**

Amendment to Plans: Amendment applications should include 6 separate packets of the above (a, b, and c)

ALL PLANS MUST BE FOLDED NEATLY AND IN PACKET FORM

Section 14-522 of the Zoning Ordinance outlines the process, copies are available at the counter at .50 per page (8.5 x11) you may also visit the web site: ci.portland.me.us chapter 14

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

Signature of applicant:	**Date:** 14 April 2003

This application is for site review ONLY, a building Permit application and associated fees will be required prior to construction.

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Planning Copy

2003-0070
Application I. D. Number

04/14/2003
Application Date

Link Daniel N
Applicant

155 Old Alfred Rd , East Waterboro , ME 04030
Applicant's Mailing Address

Amendment to Plan - Wellesley Estate
Project Name/Description

Consultant/Agent

1816 - 1822 Forest Ave, Portland, Maine
Address of Proposed Site

Agent Ph: Agent Fax:
Applicant or Agent Daytime Telephone, Fax

327 B007001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☐ New Building ☐ Building Addition ☐ Change Of Use ☐ Residential ☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☐ Other (specify)

Proposed Building square Feet or # of Units | Acreage of Site | Zoning

Check Review Required:

☑ Site Plan (major/minor) ☐ Subdivision # of lots ☐ PAD Review ☐ 14-403 Streets Review

☐ Flood Hazard ☐ Shoreland ☐ HistoricPreservation ☐ DEP Local Certification

☐ Zoning Conditional Use (ZBA/PB) ☐ Zoning Variance ☐ Other

Fees Paid: Site Plan Subdivision Engineer Review Date

Planning Approval Status:

Reviewer **Jay Reynolds**

☐ **Approved** ☑ **Approved w/Conditions** See Attached ☐ **Denied**

Approval Date **04/04/2003** Approval Expiration **04/04/2004** Extension to ☑ Additional Sheets Attached

☑ OK to Issue Building Permit **Jay Reynolds** (signature) **04/04/2003** (date)

Performance Guarantee ☐ **Required*** ☑ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted	date	amount	expiration date
☐ Inspection Fee Paid	date	amount	
☐ Building Permit Issue	date		
☐ Performance Guarantee Reduced	date	remaining balance	signature
☐ Temporary Certificate of Occupancy	date	☐ Conditions (See Attached)	expiration date
☐ Final Inspection	date	signature	
☐ Certificate Of Occupancy	date		
☐ Performance Guarantee Released	date	signature	
☐ Defect Guarantee Submitted	submitted date	amount	expiration date
☐ Defect Guarantee Released	date	signature	

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
ADDENDUM

2003-0070
Application I. D. Number

04/14/2003
Application Date

Link Daniel N
Applicant

155 Old Alfred Rd , East Waterboro , ME 04030
Applicant's Mailing Address

Amendment to Plan - Wellesley Estate
Project Name/Description

Consultant/Agent

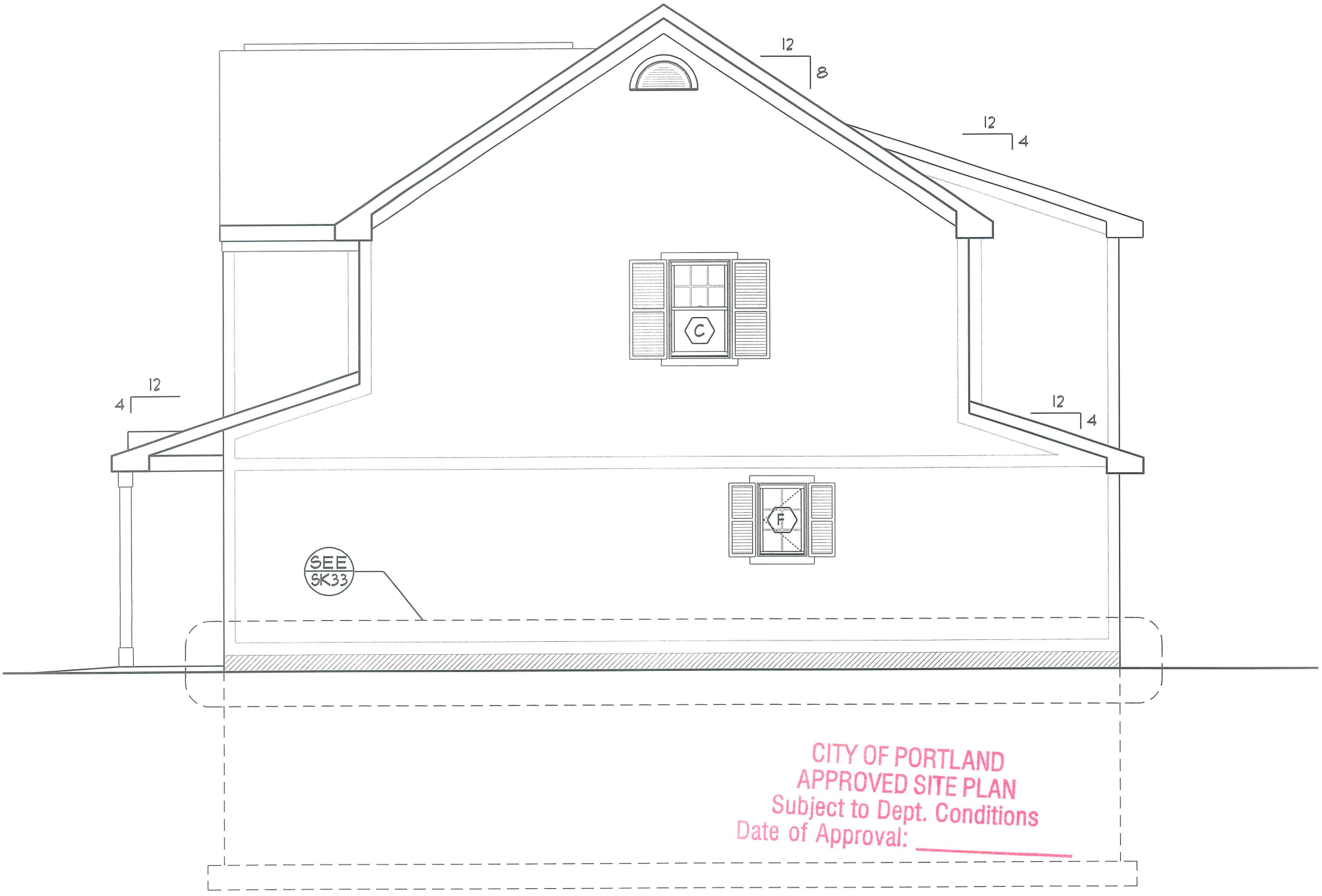
1816 - 1822 Forest Ave, Portland, Maine
Address of Proposed Site

Agent Ph: Agent Fax:
Applicant or Agent Daytime Telephone, Fax

327 B007001
Assessor's Reference: Chart-Block-Lot

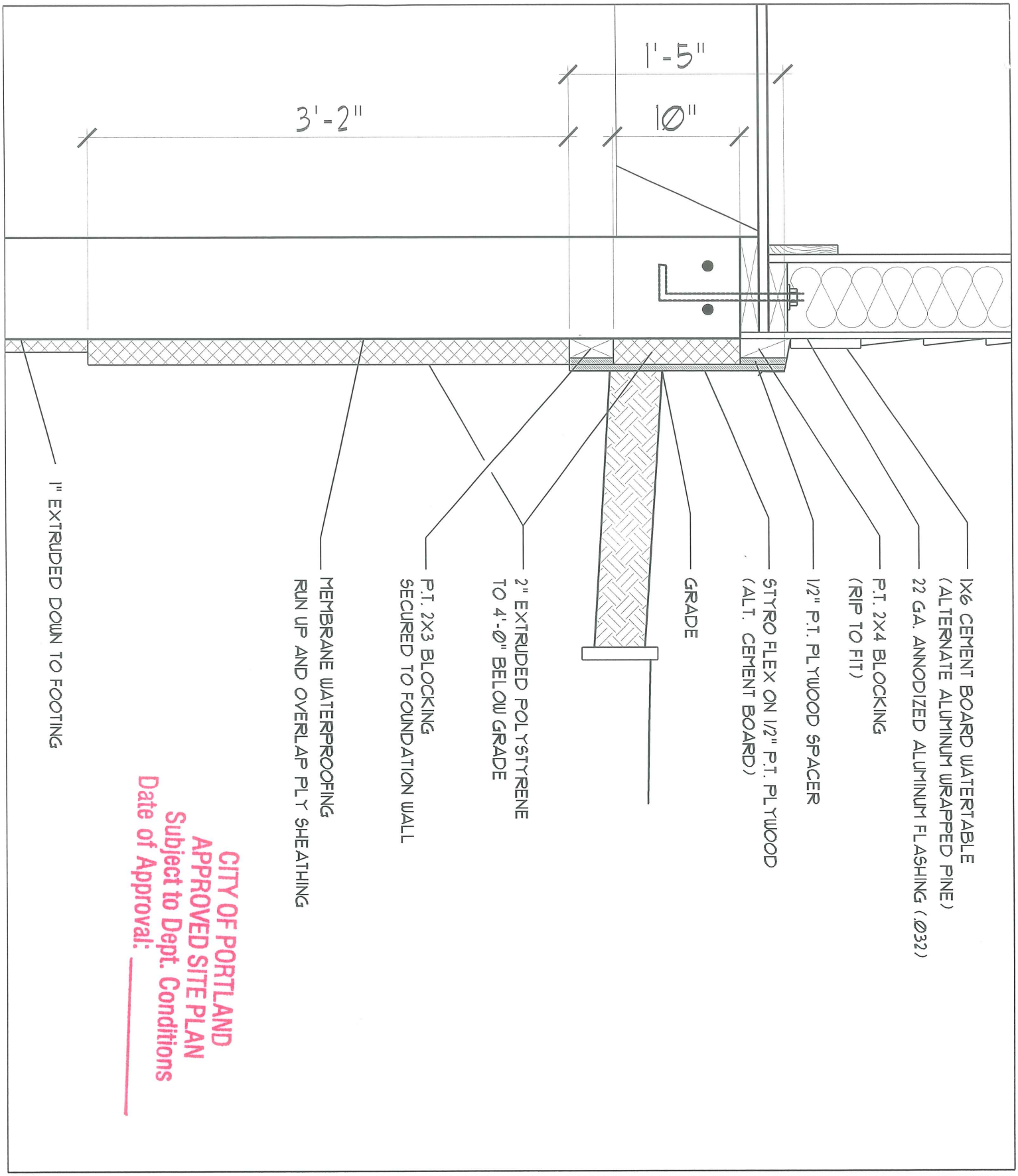
Approval Conditions of Planning

1 1. The plywood face shall be painted to meet the equivalent appearance of the original foundation detail.
2. This submittal requires that an application for an amended site plan be filed with the City of Portland.



CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: _____

SIDE ELEVATION



CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: _____

SK33	SK TO SHEET SD14	Date: 25 March, 2003	Scale: NOT TO SCALE	ARCHETYPE, P.A. ARCHITECTS 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056
	Project: WELLESLEY ESTATES FOREST AVENUE PORTLAND, MAINE	TYPICAL FOUNDATION INSULATION DETAIL AT NEW BUILDINGS		

Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

April 4, 2003

Mr. Kevin Gough
Archetype, P.A.
48 Union Wharf
Portland, ME 04101

RE: Amended Site Plan and Subdivision Plat for Wellesley Estates, 1818 Forest Avenue

(ID #2001-0307, CBL #327-B-007)

Dear: Mr. Gough:

This letter is to confirm the revision to site plan for the Wellesley Estates Project. The revision includes changes to the exterior foundation walls, and is approved with the following conditions:

1. *The plywood face shall be painted to meet the equivalent appearance of the original foundation detail.*
2. *This submittal requires that an application for an amended site plan be filed with the City of Portland.*

The revised plan has been reviewed and approved by the project review staff including representatives of the Planning, Public Works, Building Inspections, Zoning, Fire, and Parks Departments.

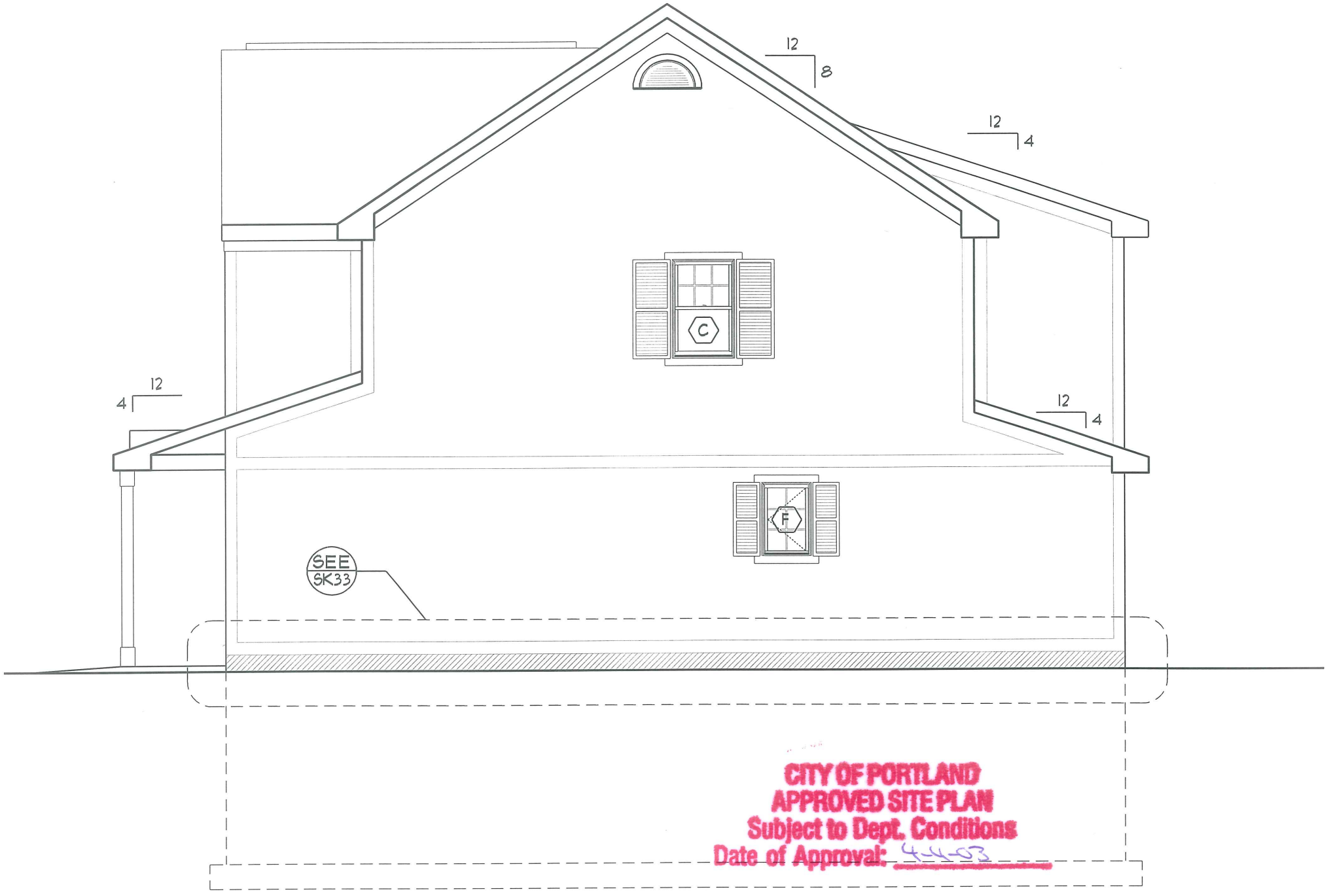
Please provide seven sets of the revised foundation detail.

If you have any questions regarding the revision please contact Jay Reynolds at 874-8632.

Sincerely,

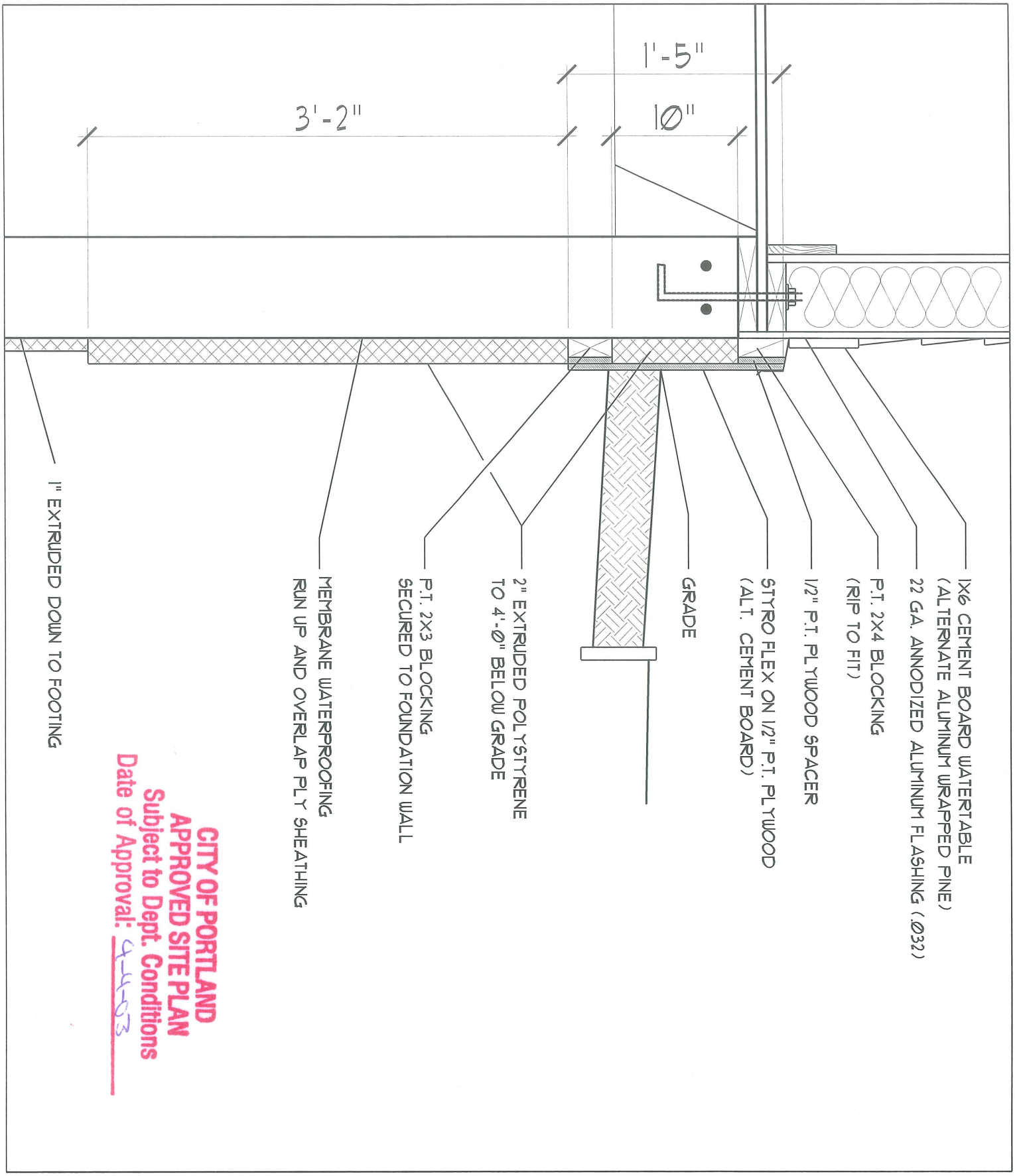
Alexander Jaegerman
Planning Division Director

O:\PLAN\DEVREVW\FOREST1818\REVISIONLETTER4-04-03.DOC



CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: 4-4-03

SIDE ELEVATION



CITY OF PORTLAND
APPROVED SITE PLAN
Subject to Dept. Conditions
Date of Approval: 4-4-03

SK33	SK TO SHEET SD14	Date: 25 March, 2003	Scale: NOT TO SCALE	ARCHETYPE, P.A. ARCHITECTS 48 Union Wharf Portland, Maine 04101 (207) 772-6022 Fax (207) 772-4056
	Project: WELLESLEY ESTATES FOREST AVENUE PORTLAND, MAINE	TYPICAL FOUNDATION INSULATION DETAIL AT NEW BUILDINGS		

City of Portland
Department of Planning and Development
Planning Division
389 Congress Street, 4th Floor
Portland ME 04101
(207)874-8721 or (207)874-8719
Fax: (207)756-8258

FAX

To: Kevin Gough

Company: Archetype

Fax #: 772-4056

Date: 6-13-03

From: Jay Reynolds

You should receive 4 page(s) including this cover sheet.

Comments:

Attached is the Street Design Standards.

15" Type D Sub-base
3" Type A Base
2" B-Mix
1½" C-Mix

Also, Sherrie's Request to Change the Spec from 18" of Type A To 15" (D) And 3" (A).

The City is in Agreement with these Changes.

Jay

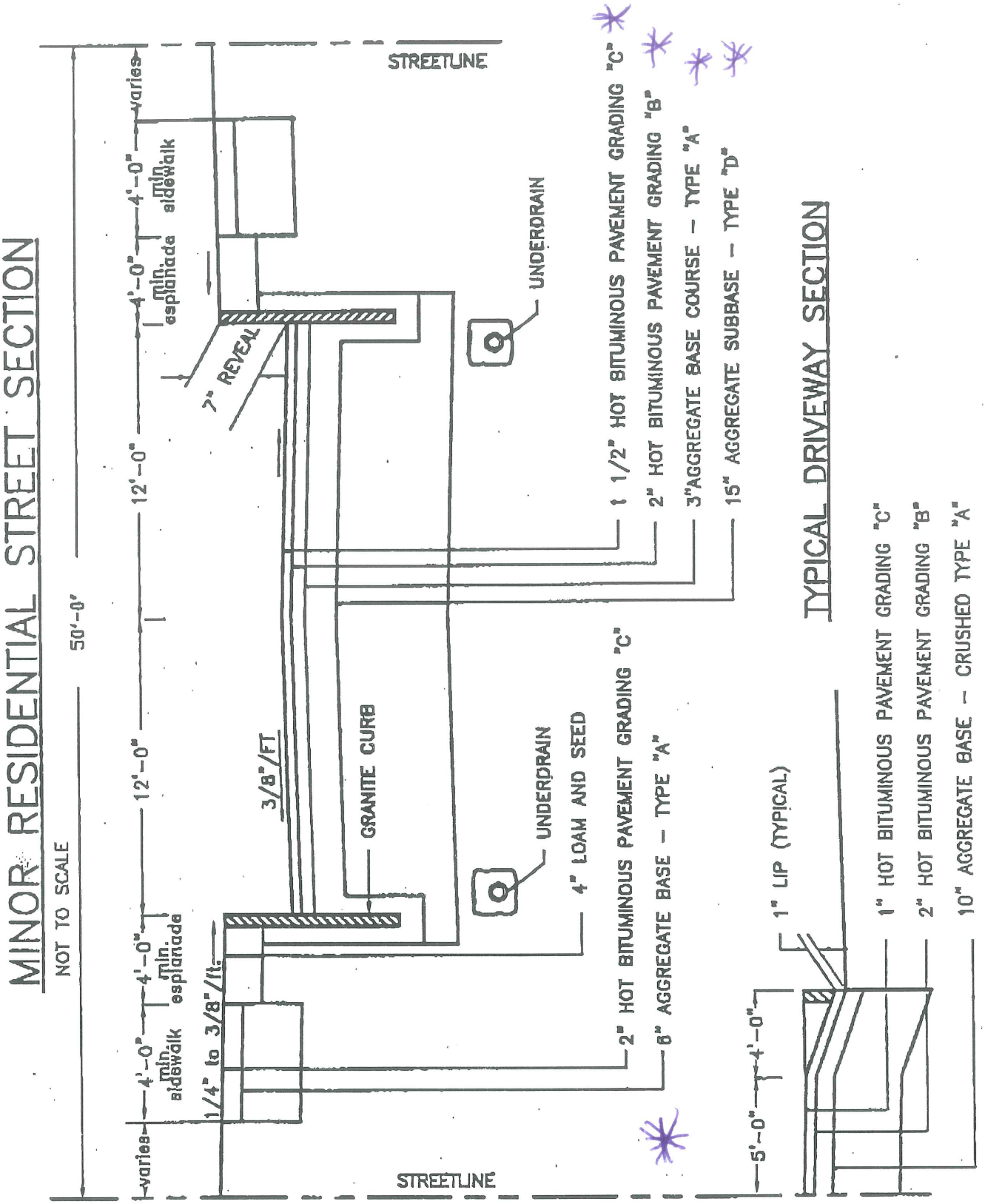


FIGURE I - 1A
MINOR RESIDENTIAL STREET SECTION

Maietta
CONSTRUCTION, INC.

City of Portland
Department of Public Works
55 Portland Street
Portland ME 04101
Attn: Jay Reynolds

June 13, 2003

Re: Wellesley Estates

Dear Jay,

Pursuant to our conversation today we intend to use 15" of MDOT Type D gravel and 3" of MDOT Type A gravel for the roadways and 6" of Type A gravel for the sidewalks per attached detail figure I-IA "Minor Residential Street Section" from the City of Portland Technical and Design Standards dated March 2000.

If this is acceptable with the City of Portland please acknowledge this memo by signing and dating in the location provided

Mr. Jay Reynolds, City of Portland

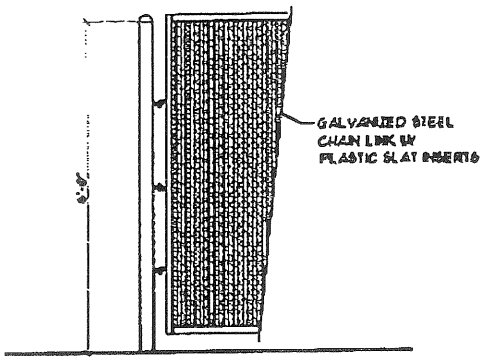
Thank You,

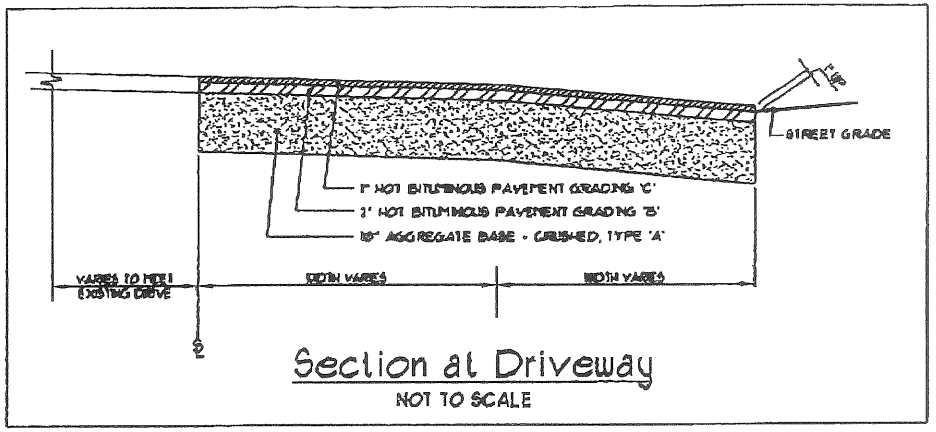
Craig E Babbidge

Craig Babbidge
Project Manager
Maietta Construction Co., Inc.

154 Pleasant Hill Road • Scarborough, Maine 04074 • (207) 883-9546 • Fax (207) 883-7019

lit-Rail Fence Detail
at Detention Pond

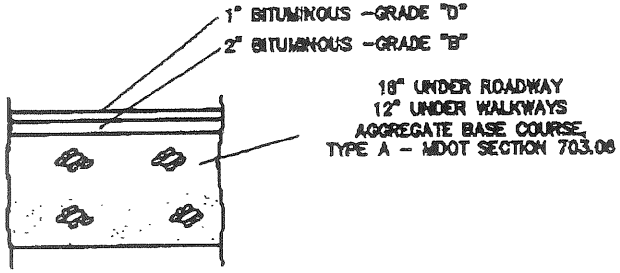




Section at Driveway
NOT TO SCALE

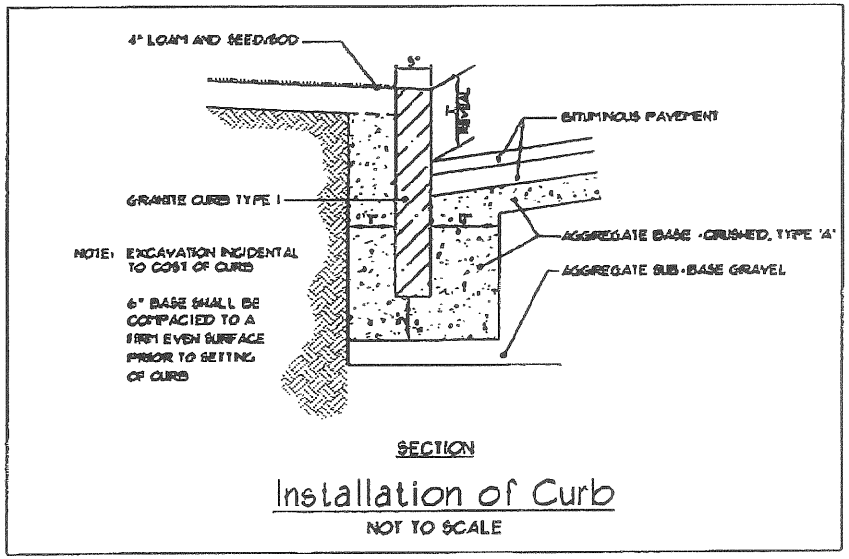
(9) Dumpster & Perimeter Fence Detail

TO: JAY REYNOLDS
FROM: KEVIN GOUGH



NOTE: COMPACT SUBGRADE TO 95% MAXIMUM DENSITY PER ASTM D1557

(11) PAVEMENT SECTION
NOT TO SCALE



SECTION

Installation of Curb
NOT TO SCALE

Con
GL
NOR
603 3

ARCHETYPE, P.A.
ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Date 18 December, 2001
Scale 1/2" = 1'-0"
Drawn By:
Checked By:

Revisions:
Issued for Planning Board 14 May, 2002
Issued to MSHA & MSFM 08/01/02
Issued for Bid - 9-06-02

Project:
WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

SITE DETAILS

SD3

FROM : ARCHETYPE PHONE NO. : 207 772 6022 JUN. 13 2003 10:14AM P1

06/13/03 10:25:30 AM

Maietta
CONSTRUCTION, INC.

FACSIMILE TRANSMITTAL SHEET

TO: Jay Reynolds	FROM: Craig Babbidge
COMPANY: City of Portland	DATE: 6-13-03
FAX NUMBER: 756-8258	TOTAL NO. OF PAGES INCLUDING COVER: 3
PHONE NUMBER:	SENDER'S REFERENCE NUMBER:
RE:	YOUR REFERENCE NUMBER:

☐ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

#772-4056

154 Pleasant Hill Road • Scarborough, Maine 04074 • (207) 883-9546 • Fax (207) 883-7019

Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

June 19, 2003

Mr. David Lloyd
48 Union Wharf
Portland, ME 04101

RE: Wellesley Estates
(ID# 20010307, CBL#327-B-007)

Dear Mr. Lloyd:

This letter is to address a number of issues that pertain to Wellesley Estates at 1818 Forest Avenue. The City offers the following comments:

1. Revised Sewer Design:

   As a result of finding two residences on Forest Avenue that discharge sanitary waste onto the project property, a revised sewer design has been submitted by Gorrill-Palmer. The design has been reviewed and the layout is being modified in order to minimize the amount of tree cutting. This is pursuant to a site visit this morning with Will Haskell of Gorrill-Palmer and myself.

   As required by ordinance, any creation of new easements must be reviewed and approved by the Planning Board. This will require the subdivision plat to be amended, which shall show the new easement(s) for the Gildart and Link properties. A written description of the easement with metes and bounds will also be needed, along with the revised utility plan showing the new sewer system.

   The City has tentatively scheduled you for a public hearing with the planning board for July 8, 2003. In order to prepare for the public hearing, the information as stated above must be submitted to the City within the coming weeks. Please contact me at 874-8632 if you wish to be scheduled for a later date.

2. Fencing/Screening:

   As originally approved, a 6' high chain link fence with vinyl slats inserted, is to be installed. There have been many conversations pertaining to this item. The possibility of upgrading the existing fence on the Riverton property has been discussed. Other screening possibilities have also been discussed amongst many of the parties involved.

   The City's position on this item is as follows:

   A. Any changes to the approved plan require the applicant to apply for an amendment to the plan. A revised site plan reflecting the proposed changes shall be note on the plan(s), and shall be reviewed and approved by the City.

   B. The fence installation is part of the approval, and must be installed prior to the completion of the project. Furthermore, the final Certificates of Occupancy will not be issued

City of Portland
Department of Planning and Development
Planning Division
389 Congress Street, 4th Floor
Portland ME 04101
(207)874-8721 or (207)874-8719
Fax: (207)756-8258

FAX

To: Kevin Gough

Company: Archetype

Fax #: 772-4056

Date: 6-27-03

From: Jay Reynolds

You should receive 2 page(s) including this cover sheet.

Comments: Exerpt from Wellesley Estates Planning Board Report.

As Requested.

Jay

Attachment 4.

4. Soil Erosion

The applicant has included a sedimentation and erosion control plan with the proposed development. This plan has been reviewed and approved by the Engineering Consultant.

5. Traffic

The primary access for the development is proposed directly from Forest Avenue via a non-signalized intersection. This new access road will be located to the east of the existing Grange and will result in the removal of an existing garage/storage structure used by an adjacent residence. Emergency access will be from an access drive constructed to the west of the Grange. A traffic study was submitted by the applicant which is included as attachment 5. The number of trips forecasted to be generated by the proposed development is 26 trip ends in the AM peak hour and 31 trip ends in the PM peak hour. The City's Traffic Engineer has reviewed the study and concurs that the site lines and the level of service are adequate. A memo from Larry Ash is included as attachment 6.

6. Sanitary/Stormwater

Sanitary-The applicant has been working in concert with the Public Works Department to design a sewer system that will integrate with the existing sewer systems including the Riverton and Farnham pump stations. Adequate capacity does exist within the system with the appropriate technical configurations. Comments from Tony Lombardo of Portland Public Works outlines the additional technical materials needed in a memo, included as attachment 7. The applicant may choose to access sewer capacity in Westbrook if the inter-municipal sewer agreement is reached between the two cities. As a result, staff offers the following condition of approval:

> *-If the project's sewer is to be serviced by the City of Portland the final engineering specifications for the sewer pump station and tie in be submitted for public works review and approval, at which time a capacity letter would be secured from Public Works, and no building permit will be issued and no site work commenced until such time.*

Stormwater- The site generally slopes from Forest Avenue back to a drainage course at the rear of the site. The slopes vary from as low as 2% adjacent to Forest Avenue to 50% at the rear of the site with elevations ranging from 58 to 80'. Due to the project proposing greater than one acre of impervious area, a DEP Stormwater Permit granted under delegated authority by the City of Portland is required. The drainage/grading/stormwater management plan consists of a series of catch basins that will be directed to a Vortechnics unit and then discharged into the wetland/stream that flows southerly off the site. A separate catch basin captures flows from the easterly portion of the site which is then discharged into a detention pond. All of the outlet pipes 15" or smaller will include Casco traps for additional stormwater treatment. The plan demonstrates a TSS removal rate of 55.1%. The City's Engineering Consultant has reviewed the drainage/grading/stormwater plan and the applicant has worked to make necessary changes to the plan. The stormwater analysis and erosion control report are

KeyBank

KEYBANK NATIONAL ASSOCIATION
STANDBY LETTER OF CREDIT
PROCESSING AND SERVICE CENTER
MAIL CODE: OH-01-51-0435
4910 TIEDEMAN ROAD
CLEVELAND, OHIO 44144-2338
TEL NO: 216-813-3698, -3701, -3713
FAX NO: 216-813-3719

AUGUST 22, 2003

CITY OF PORTLAND
PLANNING AND DEVELOPMENT
389 CONGRESS STREET
PORTLAND, MAINE 04101

**** NOTICE OF NON-RENEWAL ****

OUR PRE CONVERSION STANDBY LETTER OF CREDIT NO:

RE: OUR STANDBY LETTER OF CREDIT NUMBER S305618 DATED DECEMBER 03, 2002
ACCOUNT PARTY: WELLESLEY ESTATES LIMITED

THE ABOVE REFERENCED LETTER OF CREDIT WAS ISSUED WITH THE CONDITION THAT IT BE AUTOMATICALLY EXTENDED WITHOUT AMENDMENT FROM THE PRESENT OR ANY FUTURE EXPIRATION DATE UNLESS WE NOTIFY YOU IN ACCORDANCE WITH THE LETTER OF CREDIT TERMS.

WE HEREBY NOTIFY YOU THAT WE ELECT NOT TO EXTEND THIS CREDIT FOR ANY ADDITIONAL PERIOD AND THEREFORE, THIS CREDIT WILL EXPIRE IN FULL WITH OUR CLOSE OF BUSINESS ON NOVEMBER 04, 2003.

AUTHORIZED SIGNATURE

CC: WELLESLEY ESTATES LIMITED
PARTNERSHIP
34 PREBLE ST.
PORTLAND, ME 04101
U.S.A.

CITY OF PORTLAND, MAINE
PLANNING BOARD

Jaimey Caron, Chair
Mark Malone, Vice Chair
Orlando E. Delogu
Kevin Beal
Lee Lowry III
Michael Patterson
Janice E. Tevanian

August 4, 2003

Mr. David Lloyd
48 Union Wharf
Portland, ME 04101

RE: Wellesley Estates
(ID# 20010307, CBL#327-B-007)

Dear Mr. Lloyd:

This letter is confirm that on July 22, 2003 the Portland Planning Board voted 5-0, (Lowry and Patterson absent), to approve the revised subdivision plat for the Wellesley Estates Housing Development in the vicinity of 1818 Forest Avenue. The approved revision includes the installation of a new sewer pipe with connections to two abutting properties, and an easement on Wellesley Estates for the benefit of the abutters.

The approval is based on the submitted application, site plan, and stated conditions. If there are any questions, please contact the planning staff.

If you have any questions regarding the revision please contact Jay Reynolds at 874-8632.

Sincerely,

Jaimey Caron, Chair
Portland Planning Board

cc: Lee D. Urban, Planning and Development Department Director
Alexander Jaegerman, Planning Division Director
Sarah Hopkins, Development Review Services Manager
Jay Reynolds, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Karen Dunfey, Inspections
Larry Ash, Traffic Engineer

O:\PLAN\DEVREVW\FOREST1818\PBAPPROVAL7-22-03.DOC

Planning and Development Department
SUBDIVISION/SITE DEVELOPMENT

COST ESTIMATE OF IMPROVEMENTS TO BE COVERED BY PERFORMANCE GUARANTEE

Date: 10/29/02

Name of Project: Wellesley Estates

Address/Location: Forest Ave Portland Me,

Developer: Adam Development Co

Form of Performance Guarantee: CREDIT LINE

Type of Development: Subdivision _____ Site Plan (Major/Minor) _____

TO BE FILLED OUT BY THE APPLICANT:

Item	PUBLIC Quantity	PUBLIC Unit Cost	PUBLIC Subtotal	PRIVATE Quantity	PRIVATE Unit Cost	PRIVATE Subtotal
1. STREET/SIDEWALK						
Road				5192 SF	8.00	41,536
Granite Curbing				55'	35.00	1,925
Sidewalks				790 SF		
Esplanades						
Monuments						
Street Lighting						
Street Opening Repairs	560 SF	18.50	10,360	19	650	12,350
Other						
2. EARTH WORK						
Cut				6326 cy	10 -	63,260
Fill				10,029 cy	3 -	30,029
3. SANITARY SEWER						
Manholes	5	1200	6000	6	2500	15000
Piping	430'	28 -	12040			
Connections				9	150	1350
Main Line Piping				1029'	28	28812
House Sewer Service Piping				280'	22.50	6300
Pump Stations				1	50000	50000
Other						
4. WATER MAINS	530	55	29150	719'	30 -	21570
5. STORM DRAINAGE						
Manholes				2	1850	3700
Catchbasins				9	1500	13500
Piping				826'	36 -	29736
Detention Basin				1	3000	3000
Stormwater Quality Units				1	12500	12500
Other						

5. SITE LIGHTING				19	450	8550
7. EROSION CONTROL						
Silt Fence				1700'	2.50	4250
Check Dams				5	150	750
Pipe Inlet/Outlet Protection				6	400	2400
Level Lip Spreader						
Slope Stabilization						
Geotextile				1000 SY	5	5000
Hay Bale Barriers						
Catch Basin Inlet Protection				9	150	1350
8. RECREATION AND OPEN SPACE AMENITIES						
9. LANDSCAPING (Attach breakdown of plant materials, quantities, and unit costs)				attached		22479
10. MISCELLANEOUS						
TOTAL:						
GRAND TOTAL:			$57,650	+	367,197	= $424,747.00

OK 10-28-02 JR

INSPECTION FEE (to be filled out by the City)

	PUBLIC	PRIVATE	TOTAL
2.0% of totals:	1151.00	7,345.94	8494.94
or			
Alternative Assessment:			
Assessed by:	JR (name)	JR (name)	JR

Salmon Falls Nursery, Inc.

Landscape Design ❖ Installation ❖ Irrigation

WELLESLEY ESTATES
PORTLAND, MAINE

LANDSCAPE ESTIMATE
Date: October 28, 2002

ITEMS INCLUDED IN BID:

TREES, SHRUBS AND GROUNDCOVER PLANTING:

Scope of work to include furnishing and installing the following plant materials. Includes bark mulch, peat moss, organic fertilizer, tree wrap and tree support stakes.

		Unit Price	
8	*AMUR MAPLE 5'-6'	$130.00	1040
1	MARSHALLS SEEDLESS ASH 2.5"-3"cal	$310.00	310
16	*RED MAPLE 2.5"-3" cal	$340.00	5440
5	*HERITAGE BIRCH 2.5"-3" CAL	$260.00	1300
2	*KATSURA TREE 2.5"-3" cal.	$380.00	760
9	SUMMERSWEET CLETHRA 2'-3'	$30.00	270
13	VAR. DOGWOOD 2'-3'	$30.00	390
3	COMP. BURNING BUSH 2'-3'	$40.00	120
2	WEEPING FORSYTHIA 2'-3'	$30.00	60
13	SEA GREEN JUNIPER 24"-30" SPD	$40.00	520
9	ANDORRA JUNIPER 18"-24"	$30.00	270
9	REGAL PRIVET 24"-30"	$35.00	315
8	JAP. FLW. CRABAPPLE 2"-2.5"cal	$250.00	2000
4	VANESELTINE CRABAPPLE 2"-2.5"cal	$260.00	1040
2	ZUMI CRABAPPLE 2"-2.5"cal	$240.00	480
12	NORWAY SPRUCE 5'-6'	$200.00	2400
5	COMPACT MUGO PINE 2'-2.5'	$43.00	215
4	WHITE PINE 5'-8'	$170.00	680
9	KLONDIKE POTENTILLA 2'-2.5'	$42.00	378
1	*RED OAK 2.5"-3" cal.	$350.00	350
9	PJM RHODY 24"-30"	$46.00	414
7	ANTHONY WATERER SPIREA 24"-30'	$37.00	259
5	COMMON SNOWBERRY 2-2.5'	$36.00	180
6	DARK YEW 24"-30"	$41.00	246
2	GREENSPIRE LINDEN 2"-2.5" cal	$310.00	620
6	CRANBERRY BUSH VIBURNUM 2'-3'	$37.00	222
37	BARK MULCH		

* **Fall Hazards** - These trees can only be dug from the nursery in the spring because they will not survive any other digging time. Therefore, due to availability and time of season, these trees may have to be planted in the Spring or alternate plants at our unit costs, which are available upon your request.

TOTAL PLANTING PRICE: $20,279.00

511 Portland St. ❖ Berwick, Maine 03901 ❖ (207) 384-5540 ❖ FAX (207) 384-5680
email: sfn@salmonfallsnursery.com ❖ www.salmonfallsnursery.com

Salmon Falls Nursery, Inc.

Landscape Design ❖ Installation ❖ Irrigation

SOD LAWN:

Scope of work includes furnishing and installing rolled turf grass at buildings as specified. Includes fine raking, fertilizer, lime and rolled sod.

TOTAL SOD PRICE: $1,200.00

Conditional Notes:

- **Seeding is not included in this bid.**
- **Water available on site for construction use.**
- **Loam to be supplied and rough graded by others.**
- **Loam for planting, if necessary, shall be in place by others.**
- **1.5% finance charge on balance over 30 days, unless prior arrangements have been made.**
- **If you have any questions please call: *John Sheldon***

20279
1200
22479

511 Portland St. ❖ Berwick, Maine 03901 ❖ (207) 384-5540 ❖ FAX (207) 384-5680
email: sfn@salmonfallsnursery.com ❖ www.salmonfallsnursery.com

A R C H E T Y P E

FAX COVER SHEET

TO: Jay Reynolds

COMPANY: Portland City Hall

FROM: Bill Hopkins

DATE: 10-29-02 FAX NUMBER: 756-8258

PROJECT: Wellesley Estates

NUMBER OF PAGES (Including Cover Page): 5

MESSAGE: Please Review attached & call to inform us of what else is needed.

**IF YOU HAVE ANY PROBLEMS RECEIVING THIS FAX,
PLEASE CALL THE PERSON SENDING IT AS SOON AS POSSIBLE.
THANK YOU.**

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

FROM : ARCHETYPE PHONE NO. : 207 772 6022 OCT. 29 2002 12:27PM P1

Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

TO: Duane Kline, Finance Department

FROM: Alexander Jaegerman, Planning Division Director

DATE: August 7, 2003

SUBJECT: Request for Reduction in Performance Guarantee
Wellesley Estates, 1818 Forest Avenue
(ID#2001-0307) (Lead CBL#327B007)

A request by Wellesley Estates Limited Partnership has been made for a reduction of Letter of Credit account #S305618 for the Wellesley Estates Subdivision at 1818 Forest Avenue.

Original Sum	$ 420,000.00
Reduction Amount	**$ 291,410.00**
Remaining Sum	$ 128,590.00

This is the first reduction for the project.

Approved:

Alexander Jaegerman
Planning Division Director

cc: Sarah Hopkins, Development Review Services Manager
Jay Reynolds, Development Review Coordinator
Todd Merkle, Public Works
Code Enforcement
File

O:\PLAN\CORRESP\DRC\PERFORM\WELLESLEYESTATES1.DOC

Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

March 26, 2003

Mr. Kevin Gough
Archetype, P.A.
48 Union Wharf
Portland, ME 04101

RE: Amended Site Plan and Subdivision Plat for Wellesley Estates, 1818 Forest Avenue

(ID #2001-0307, CBL #327-B-007)

Dear: Mr. Gough:

This letter is to confirm the revision to site plan and subdivision plat for the Wellesley Estates Project. The approved revision includes the following:

1. The wetlands adjustment north of building #7,
2. Relocation of building #7,
3. Additional parking spaces in front of buildings 1, 4, and 7, and
4. Removal of 3 parking spaces south of building #7.

The revised plan has been reviewed and approved by the project review staff including representatives of the Planning, Public Works, Building Inspections, Zoning, Fire, and Parks Departments.

Please provide seven sets of revised sheet SD 1. Also required is a mylar copy of the recorded subdivision plat along with seven paper copies.

If you have any questions regarding the revision please contact Jay Reynolds at 874-8632.

Sincerely,

Alexander Jaegerman
Planning Division Director

O:\PLAN\DEVREVW\FOREST1818\REVISIONLETTER3-26-03.DOC

FAX COVER

To: Jay Reynolds	From : Susan McEwen
Company : City of Portland - Planning Department	Company : Archetype, P.A.
Fax Number : 7568258	Fax Number : 2077724056

Subject : Wellesley Estates

Pages including cover page: 3 Time : 12:20:18 PM Date : 3/25/2003

MESSAGE

Attached Grange easement.

WARRANTY DEED

Maine Statutory Short Form

KNOW ALL BY THESE PRESENTS, that **PRESUMPSCOT GRANGE NO. 15 P. OF H.**, a corporation organized and existing under the laws of the State of Maine, with a place of business at 1844 Forest Avenue, Portland, Maine, for consideration paid, **GRANTS** to **WELLESLEY ESTATES LIMITED PARTNERSHIP**, a Maine limited partnership with an office in Portland, County of Cumberland, State of Maine, whose mailing address is 34 Preble Street, Portland. Maine 04101, the land in Portland, County of Cumberland, State of Maine, described as follows:

A certain parcel of land situated on the southwesterly side of Forest Avenue in the City of Portland, County of Cumberland and State of Maine, bounded and described as follows:

Beginning at a concrete monument found at the westernmost corner of the land of Presumpscot Grange #15, P. of H. as described in Cumberland County Registry of Deeds in Book 1871, Page 406 at the southernmost corner of the land now or formerly of Portland Venture Partners as described in said Registry in Book 734, Page 167 and as shown on "Amended Subdivision Plan on Forest Avenue, Portland, Maine made for Wellesley Estates, LLC Oct. 8, 2002" as revised December 18, 2002 by Owen Haskell, Inc., recorded in Plan Book 202, Page 744;

Thence, N 29° 13' 55" E by the land of Portland Venture Partners 167.20 feet to Forest Avenue (this course being incorrectly labeled on the above-mentioned recorded plan);

Thence, S 63° 13' 40" E by Forest Avenue 16.01 feet;

Thence, S 29° 13' 55" W by the remaining land of Presumpscot Grange #15, P. of H. a distance of 166.18 feet to the land of the Grantee;

Thence, N 66° 52' 00" W by the land of the Grantee 16.09 feet to the point of beginning.

Said parcel contains 2,667 square feet.

IN WITNESS WHEREOF, said has **PRESUMPSCOT GRANGE NO. 15 P. OF H.** has caused this instrument to be signed and sealed in its name and behalf by Virginia Elwell, its duly elected and qualified Master, duly authorized, on the 21st day of March, 2003.

SIGNED, SEALED AND DELIVERED IN PRESENCE OF

PRESUMPSCOT GRANGE NO. 15 P. OF H.

By: Virginia Elwell
Virginia Elwell, Master

TOTAL P.03

STATE OF MAINE
COUNTY OF Cumberland

March 21, 2003

Then personally appeared the above named Virginia Elwell, Master of the Presumpscot Grange No. 15, P. of H., and acknowledged the foregoing instrument to be her free act and deed in her said capacity, and the free act and deed of said corporation.

Before me,

Barbara A Vestal

Attorney at Law/~~Notary Public~~

Printed name: BARBARA A. VESTAL

P.03 OCT-11-1900 06:07

FAX COVER

To: Jay Reynolds	From : Susan McEwen
Company : City of Portland - Planning Department	Company : Archetype, P.A.
Fax Number : 8748716	Fax Number : 2077724056

Subject : FW: Wellesley Estates

Pages including cover page: 3 Time : 3:07:16 PM Date : 3/24/2003

MESSAGE

Attached warranty deed for the Grange.

WARRANTY DEED

Maine Statutory Short Form

KNOW ALL BY THESE PRESENTS, that **PRESUMPSCOT GRANGE NO. 15 P. OF H.**, a corporation organized and existing under the laws of the State of Maine, with a place of business at 1844 Forest Avenue, Portland, Maine, for consideration paid, **GRANTS** to **WELLESLEY ESTATES LIMITED PARTNERSHIP**, a Maine limited partnership with an office in Portland, County of Cumberland, State of Maine, whose mailing address is 34 Preble Street, Portland. Maine 04101, the land in Portland, County of Cumberland, State of Maine, described as follows:

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Thence, N 66° 52' 00" W by the land of the Grantee 16.09 feet to the point of beginning.

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SIGNED, SEALED AND DELIVERED IN PRESENCE OF

PRESUMPSCOT GRANGE NO. 15 P. OF H.

By: Virginia Elwell
Virginia Elwell, Master

TOTAL P.03

STATE OF MAINE
COUNTY OF Cumberland

March 21, 2003

Then personally appeared the above named Virginia Elwell, Master of the Presumpscot Grange No. 15, P. of H., and acknowledged the foregoing instrument to be her free act and deed in her said capacity, and the free act and deed of said corporation.

Before me,

Barbara A. Vestal

Attorney at Law/~~Notary Public~~

Printed name: BARBARA A. VESTAL

P.03
OCT-11-1900 06:07
From: Susan McEwen 2077724056 To: Jay Reynolds
Date: 3/24/2003 Time: 3:09:12 PM
Page 3 of 3

Archetype, P.A.
48 Union Wharf
Portland, ME 04101
(207) 772-6022
(207) 772-4056 (Fax)

TRANSMITTAL

DATE: March 21, 2003

FROM: Kevin Gough

TO: Jay Reynolds
Planning Department
Portland City Hall
Congress Street
Portland, ME

RE: Wellesley Estates

ATTACHED:

SD1, Site Plan
Map showing wetland reduction.

For Your Review

Sweet Associates HYDROGEOLOGY • SITE EVALUATIONS
155 GRAY ROAD • FALMOUTH, MAINE 04105 • (207) 797-2110 • FAX (207) 878-2364

March 24, 2003

Kevin Gough
Archetype
48 Union Wharf
Portland, ME 04101

RE: Wetlands, Wellesley Estates, Portland

Dear Kevin:

I visited the site of construction on March 20, 2003 with Bill Hopkins and observed the site plan and the building layout. I found the depiction I provided you, based on compass and hip chain measurement described in my August 29, 2001 report to be not as accurate as a comparable measurement by survey.

I was able to adjust the wetland boundary depiction by working with Mr. Hopkins and the current survey map. The current, more accurate depiction reveals there is a net reduction of 233 square feet in wetlands on the site.

The building will need to be relocated, as discussed with Mr. Hopkins.

Please do not hesitate to call if you require further information or have any questions.

Sincerely,

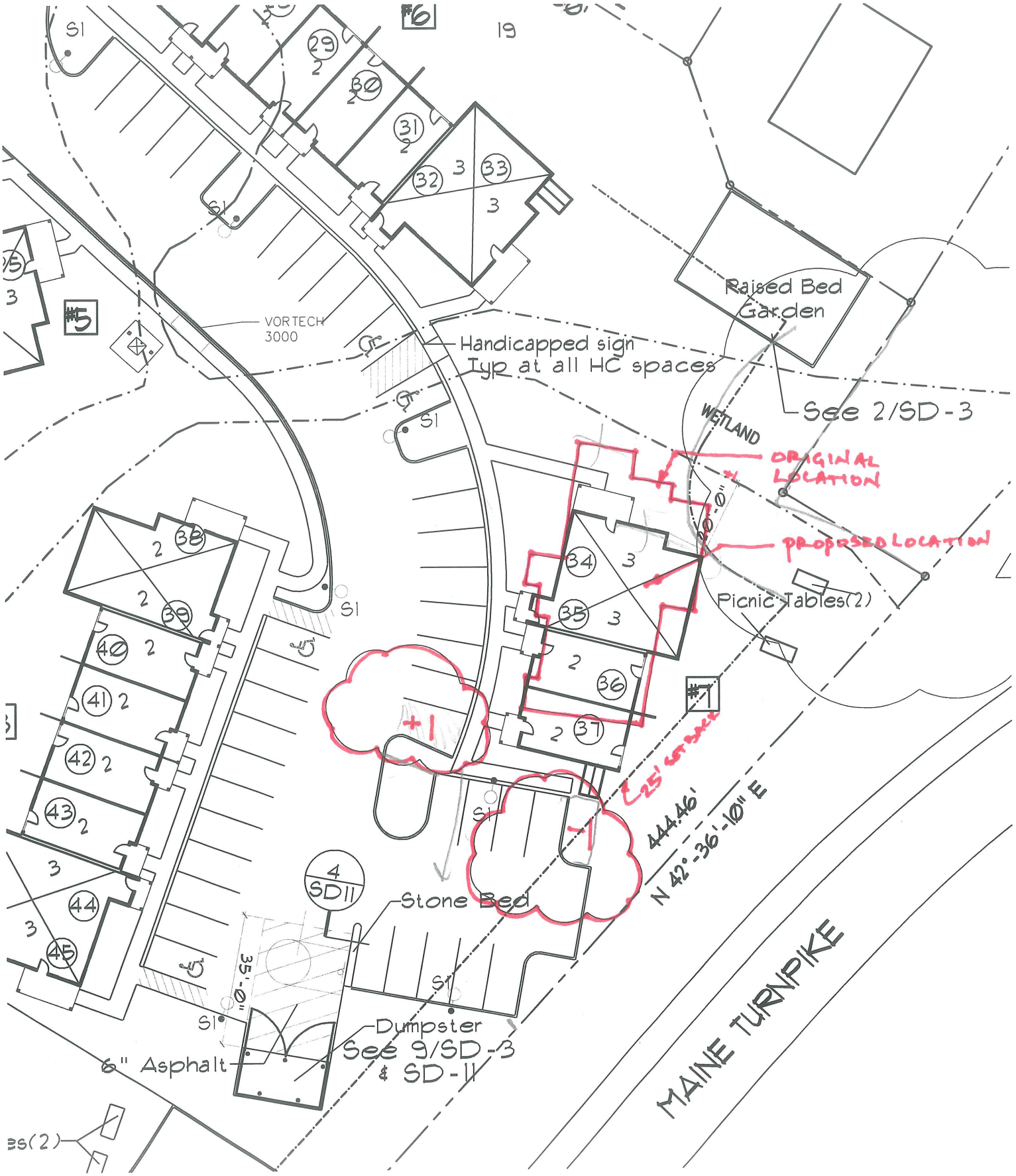
Mark Cenci
Geologist

MC/smh

Richard A. Sweet
Certified Geologist #100

STATE OF MAINE
RICHARD A. SWEET
100
CERTIFIED
GEOLOGIST

NOTE:
- SETBACK HELD
- PARKING COUNT HELD



A R C H E T Y P E

March 21, 2003

Jay Reynolds
City of Portland
Congress Street
Portland, ME 04101

Mr. Reynolds,

In response to your request for more specific information regarding the location of the wetlands at Wellesley Estates, I met with Geologist Mark Censi, of Sweet Associates at the site on Thursday, March 20. He located the wetland in relation to our site drawing, as shown on the attached sketch. There has been a Net Area Loss of 233 square feet of the wetland by this redefinition.

Sincerely,

Kevin Gough

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

From: Michael Bobinsky
To: Jay Reynolds
Date: 4/3/03 6:47PM
Subject: Re: Wellesly Estates Sewer Problem This is lengthy, sorry.

FYI.. My Friday is sort of jammed, but I will be at City Hall in a general meeting with Anita, at 10:30am -11:30am..so I could be reached if you all together.

Mike

>>> Jay Reynolds 4/3/2003 4:21:18 PM >>>
I think some of us in planning may be available around 10:00-10:30.....Jay

>>> Mike Nugent 04/03/03 02:01PM >>>
Early Friday anyone?

>>> Mark Adelson 04/03/03 12:12PM >>>
Please pull together as many of us as possible for an emergency meeting late this afternoon or early Friday morning. Thanks

>>> Mike Nugent 04/03/03 12:01PM >>>
While excavating for building 6, a 4 inch cast line was found, it appeared to be an overflow pipe with effluent coming from it. Dave Peterson performed dye tests and water analysis. The conclusion is that the Building at 1816 Forest Ave, owner by Daniel Link which is a Two unit residential building w/ a commercial unit and the single family home at 1824 Forest Ave, owned by Fred Gildhart, both are discharging into this illegal direct discharge. A serious problem for three reasons:

1) Public health risk to the employees of the construction firm as well as the neighborhood and environment.

2) It renders the buildings uninhabitable.

3) As long as the effluent is present, a stop work order is being issued for building 6.

The big problem is that there is no available sewer in this area and the sewer for this project will not be on line for about a year.

Mr. Link has resources and indicates he'll do what he needs to do. Mr. Gildart, is approximately 80 and a recent widow on a fixed income.

A couple of options are:

1) If the Wellesly pump station is accessible and has capacity (I'm understanding that it may not have capacity), and the owner agrees, a temporary holding tank or series of tanks could be designed by a site evaluator and installed if the State Approves.
This would hold their wastes and be pumped out until the Wellesley sewer is on line.

2) If the site is suitable, a Site Evaluator could could design septic systems for review, approval & installation.

We have a concern that Wellesly is not being as cooperative as they could be and may cap this line forcing us to vacate the buildings. They have continued building 6 after we asked them to hold up. Now we are generating a formal stop work order for building 6.

ATTACHMENT TO SUBSURFACE WASTEWATER DISPOSAL APPLICATION

PORTLAND	188 FOREST AVENUE	DANIEL LINK
TOWN	LOCATION	APPLICANT'S NAME

6) The septic tank should be pumped within two years of installation and subsequently as recommended by the pump service, but in no event should the septic tank be pumped less often than every three years.

7) The actual water flow or number of bedrooms shall not exceed the design criteria indicated on this application without a re-evaluation of the system as proposed. If the system is supplied by public water or a private service with a water meter, the water consumption per period should be divided by the number of days to calculate the average daily water consumption (water usage (cu. ft.) x 7.48 cu. ft. (gallons per cu. ft.) divided by the # of days in period).

8) The general minimum setbacks between a well and septic system serving a single family residence is 100-300 feet, unless the local municipality has a more stringent requirement. A well installed by an abutter within the minimum setback distances prior to the issuance of a permit for the proposed disposal system may void this design.

9) When a gravity system is proposed: BEFORE CONSTRUCTION/INSTALLATION BEGINS, the system installer or building contractor shall review the elevations of all points given in this application and the elevation of the existing and/or proposed building drain and septic tank inverts for compatibility to minimum slope requirement. In gravity systems, the invert of the septic tank(s) outlet(s) shall be at least 4 inches above the invert of the distribution box outlet at the disposal area. When an effluent pump is required, provisions shall be made to make certain that surface ground water does not enter the septic tank or pump station. An alarm device warning of a pump failure shall be installed. Also, when pumping is required of a chamber system, install a "T" connection in the distribution box and place 3 inches of stone or a splash plate in the first chamber. Insulate gravity pipes, pump lines and the distribution box as necessary to prevent freezing.

10) On all systems, remove the vegetation, organic duff and old fill material from under the disposal area and any fill extension. On sites where the proposed system is to be installed in natural soil, scarify the bottom and sides of the excavated disposal area with a rake. Do not use wheeled equipment on the scarified soil surface. For systems installed in fill, scarify the native soil by roto-tilling to a depth of at least 8 inches over the entire disposal and fill extension area to prevent glazing and to promote fill bonding. Place fill in loose layers no deeper that 8 inches and compact thoroughly before placing more fill (this ensures that voids and loose pockets are eliminated to minimize the chance of leakage). Do not use wheeled equipment on the scarified soil area until after 12 inches of fill is in place. Keep equipment off the chambers. Divert the surface water away from the disposal area by ditching or shallow swales.

11) Unless noted otherwise, fill shall be gravelly coarse sand which contains no more that 5% fines (silt and clay).

12) Do not install systems on loamy , silty, or clayey soils during wet periods since soil smearing/glazing may seal off the soil interface.

13) Seed all filled and disturbed surfaces with perennial grass seed, then mulch with hay or equivalent

Albert Frink Associates, Inc.
95A County Road Gorham, Maine 04038
(207) 839-5563

Albert Frick Associates, Inc.
Soil Scientists & Site Evaluators
95A County Road Gorham, Maine 04038
(207) 839-5563

PORTLAND	188 FOREST AVENUE	DANIEL LINK
TOWN	LOCATION	APPLICANT'S NAME

1) The Plumbing and Subsurface Wastewater Disposal Rules adopted by the State of Maine, Department of Human Services pursuant to 22 M.R.S.A. § 42 (the "Rules") are incorporated herein by reference and made a part of this application and shall be consulted by the owner/applicant, the system installer and/or building contractor for further construction details and material specifications. The system Installer should contact Albert Frick Associates, Inc. 839-5563, if there are any questions concerning materials, procedures or designs. The system installer and/or building contractor installing the system shall be solely responsible for compliance with the Rules and with all state and municipal laws and ordinances pertaining to the permitting, inspection and construction of subsurface wastewater disposal systems.

2) This application is intended to represent facts pertinent to the Rules only. It shall be the responsibility of the owner/applicant, system Installer and/or building contractor to determine compliance with and to obtain permits under all applicable local, state and/or federal laws and regulations (including, without limitation, Natural Resources Protection Act, wetland regulations, zoning ordinances, subdivision regulations, Site Location of Development Act and minimum lot size laws) before installing this system or considering the property on which the system is to be installed a "buildable" lot. It is recommended that a wetland scientist be consulted regarding wetland regulations.

Prior to the commencement of construction/installation, the local plumbing inspector shall inform the owner/applicant and Albert Frick Associates, Inc of any local ordinances which are more restrictive than the Rules in order that the design may be amended. All designs are subject to review by local, state and/or federal authorities. Albert Frick Associates, Inc.'s liability shall be limited to revisions required by regulatory agencies pursuant to laws or regulations in effect at the time of preparation of this application.

3) All information shown on this application relating to property lines, well locations, subsurface structures and underground facilities (such as utility lines, drains, septic systems, water lines, etc.) are based solely upon information provided by the owner/applicant and has been relied upon by Albert Frick Associates, Inc. in preparing this application. The owner/applicant shall review this application prior to the start of construction and confirm this information.

4) Installation of a garbage (grinder) disposal is not recommended. If one is installed, an additional 1000 gallon septic tank or a septic tank filter should be connected in series to the proposed septuic tank.

5) The system user shall avoid introducing kitchen grease or fats into this system. Chemicals such as septic tank cleaners and/ or chlorine (such as from water treatment) and controlled or hazardous substances shall not be disposed of in this system.

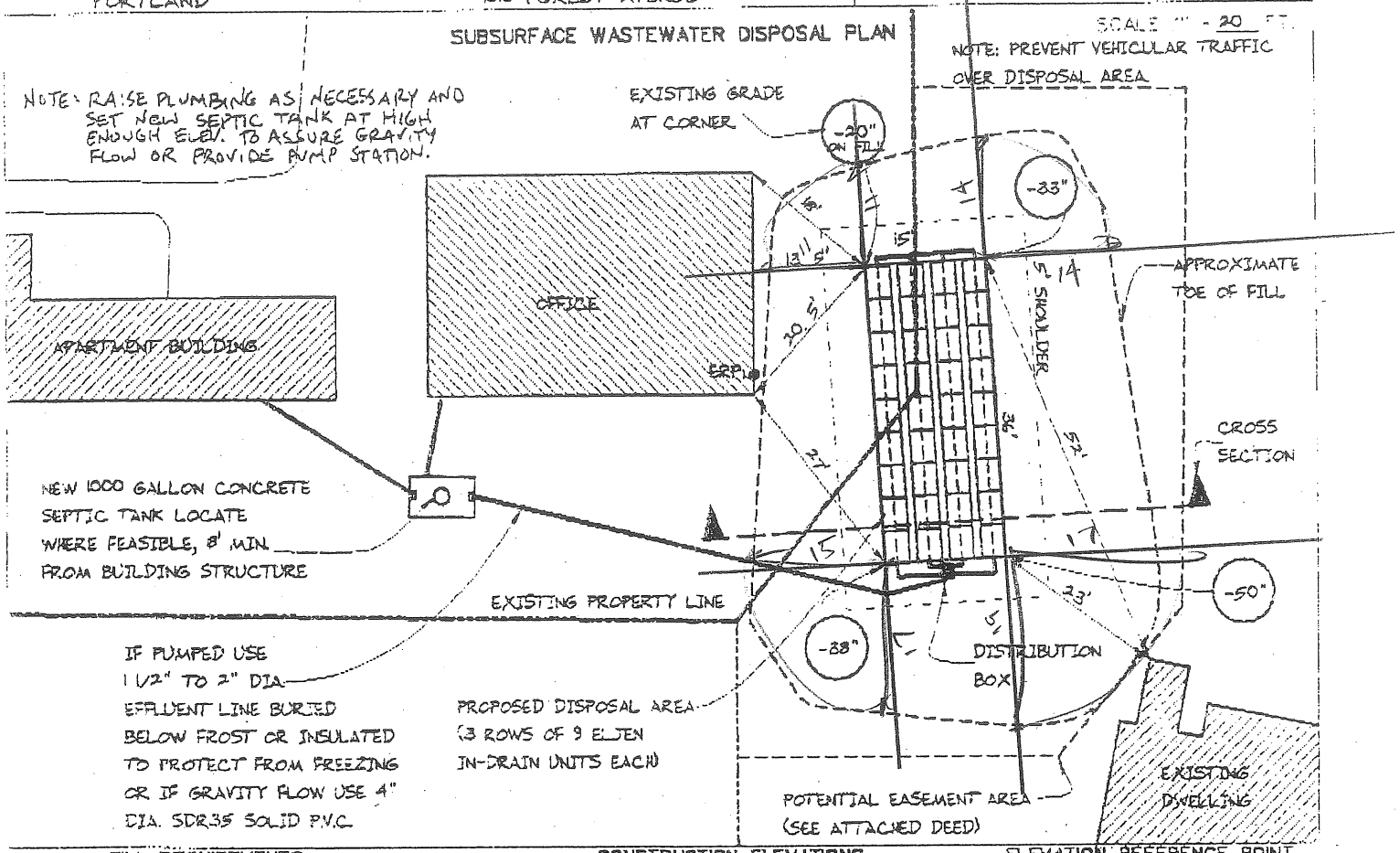
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10 SHS
(207) 287-5677 FAX (207) 287-4172

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
PORTLAND	108 FOREST AVENUE	DANIEL LINK

SUBSURFACE WASTEWATER DISPOSAL PLAN

SCALE 1" = 20 FT.

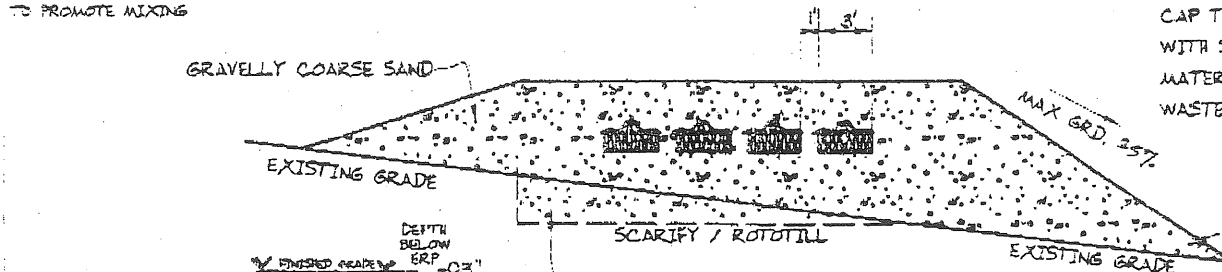


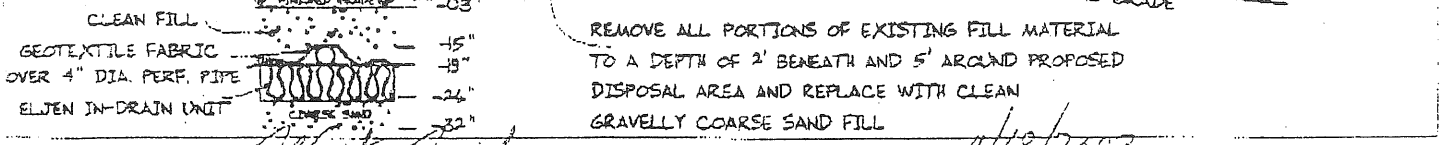
FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT
Depth of Fill (Upslope)	± 17" – 35"	Finished Grade Elevation	SEE DETAIL BELOW	Location & Description BOTTOM OF SIDING ON GARAGE 14" ABOVE GRADE
Depth of Fill (Downslope)	± 30" – 47"	Top of Distribution Pipe or Proprietary Device		
DEPTHS AT CROSS-SECTION (shown below)		Bottom of Disposal Area		Reference Elevation is: 0.0" or _____

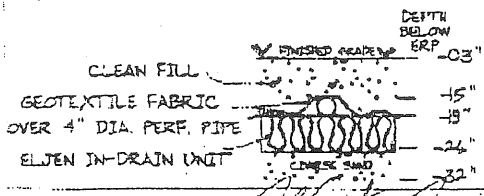
SCALE: VERTICAL 1" = 5 FT
HORIZONTAL 1" = 10 FT

DISPOSAL AREA CROSS SECTION

NOTE: THOROUGHLY ROTOTILL ENTIRE SODDED AREA UNDER DISPOSAL FIELD & FILL EXTENSIONS PRIOR TO FILL PLACEMENT, THEN TILL FIRST 6" OF FILL INTO EXISTING SOIL SURFACE TO PROMOTE MIXING







REMOVE ALL PORTIONS OF EXISTING FILL MATERIAL TO A DEPTH OF 2' BENEATH AND 5' AROUND PROPOSED DISPOSAL AREA AND REPLACE WITH CLEAN GRAVELLY COARSE SAND FILL

Albert Frick — Site Evaluator Signature

163 — SE #

4/18/2003 — Date

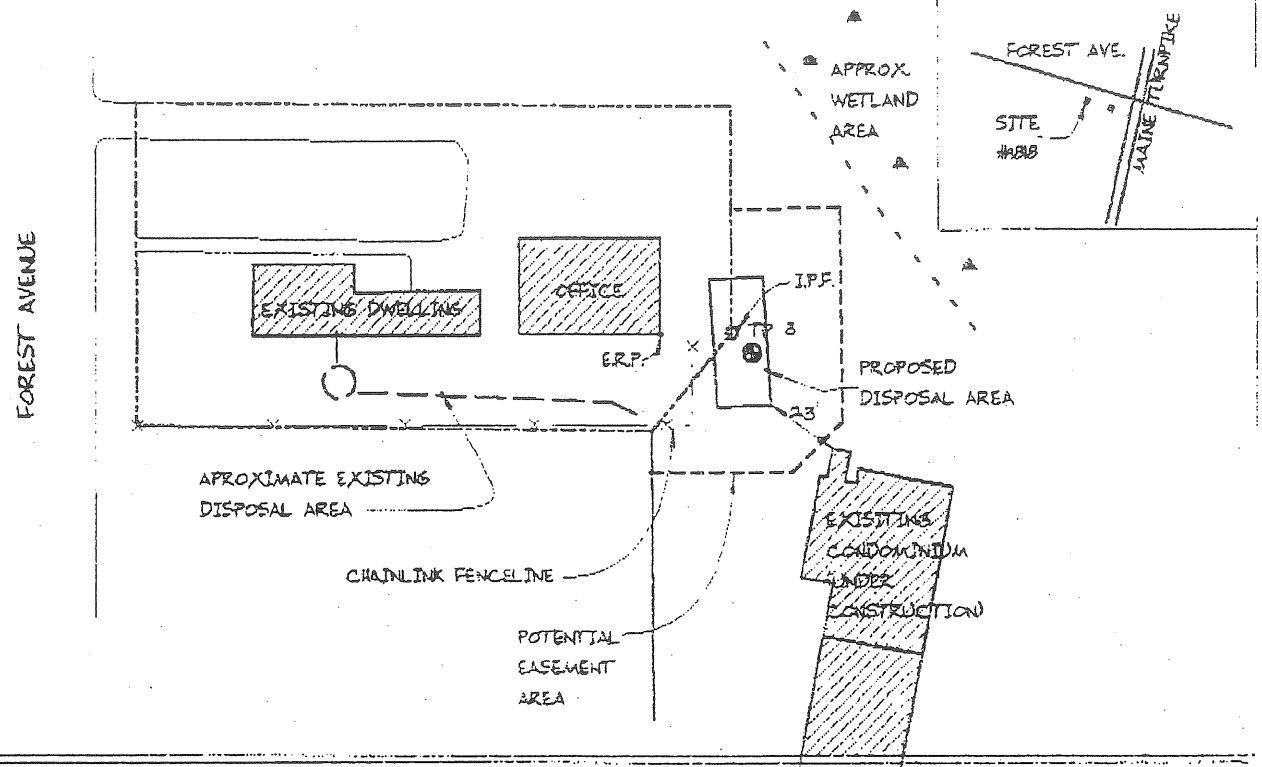
ALBERT FRICK ASSOCIATES - 95A COUNTY ROAD ROAD GORHAM, MAINE 04038 - (207) 839-5563

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10, SHS
(207) 287-5672 FAX (207) 287-4172

Town, City, Plantation	Street, Road Subdivision	Owner's Name
PORTLAND	1818 FOREST AVENUE	DANIEL LINK

SITE PLAN Scale 1" = 50 Ft. or as shown



SITE LOCATION PLAN (Attach Map from Maine Atlas for New System Variance)

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole TP 8 ■ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0	SANDY LOAM & LOAMY SAND (FILL)	FRIABLE	VARIABLE BROWN	
10				FEW, FAINT MANY, PROMINENT
20	LOAMY VERY FINE SAND	FIRM	OLIVE GRAY	
30				
40				
50				

Soil Classification		Slope	Limiting Factor	
B	D	___ %	10"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
Profile	Condition			

Observation Hole _____ ☐ Test Pit ☐ Boring

" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0				
10				
20				
30				
40				
50				

Soil Classification		Slope	Limiting Factor	
		___ %		☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth
Profile	Condition			

Albert Frick
Site Evaluator Signature

163
SE #

4/18/2003
Date

ALBERT FRICK ASSOCIATES – 95A COUNTY ROAD ROAD GORHAM, MAINE 04038 – (207) 839-5563

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Department of Human Services
Division of Health Engineering, Station 10, SHS
(207) 287-3670 FAX (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation: PORTLAND
Street or Road: 1818 FOREST AVENUE
Subdivision, Lot #:

>> Caution: Permit Required - Attach in Space Below <<

The Subsurface Wastewater Disposal System **shall not** be installed until a Permit is attached HERE by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

OWNER/APPLICANT INFORMATION

Name (last, first, MI)	Owner	Applicant
LINK, DANIEL		

Mailing Address of: ☐ Owner ☐ Applicant
Daytime Tel. #:
Municipal Tax Map #: Lot #:

Owner or Applicant Statement

I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a permit.

Signature of Owner/Applicant — Date

Caution: Inspections Required

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

Local Plumbing Inspector Signature — (1st) Date Approved — (2nd) Date Approved

PERMIT INFORMATION

TYPE OF APPLICATION

1. ☐ First Time System
2. ■ Replacement System
   Type Replaced: STEEL TANK / TRENCH
   Year Installed: PRE-1974
3. ☐ Expanded System
   a. ☐ Minor Expansion
   b. ☐ Major Expansion
4. ☐ Experimental System
5. ☐ Seasonal Conversion

SEE ATTACHED DEED REFERENCING EASEMENT AREA FOR THIS APPLICATION REQUIRES INSTALLATION, MAINTANANCE AND REPAIR OF LEACHFIELD

1. ☐ No Rule Variance
2. ☐ First Time System Variance
   a. ☐ Local Plumbing Inspector Approval
   b. ☐ State & Local Plumbing Inspector Approval
3. Replacement System Variance
   a. ■ Local Plumbing Inspector Approval
   b. ☐ State & Local Plumbing Inspector Approval
4. ☐ Minimum Lot Size Variance
5. ☐ Seasonal Conversion Approval

DISPOSAL SYSTEM COMPONENTS

1. ■ Complete Non-Engineered System
2. ☐ Primitive System (greywater & pit toilet)
3. ☐ Alternative Toilet, specify:
4. ☐ Non-Engineered Treatment Tank Only
5. ☐ Holding Tank: ____ Gallons
6. ☐ Non-Engineered Disposal Field Only
7. ☐ Separated Laundry System
8. ☐ Complete Engineered System (2000 gpd+)
9. ☐ Engineered Treatment Tank Only
10. ☐ Engineered Disposal Field Only
11. ☐ Pre-treatment, specify:
12. ☐ Miscellaneous components

SIZE OF PROPERTY

15,000 SQ. FT.+- ☐ sq. ft. ☐ acres

SHORELAND ZONING

☐ Yes ■ No

DISPOSAL SYSTEM TO SERVE

1. ☐ Single Family Dwelling Unit, No. of Bedrooms:
2. ■ Multiple Family Dwelling, No. of Units: 2
3. ■ Other: OFFICE
   SPECIFY
   Current Use: ☐ Seasonal ■ Year Round ☐ Undeveloped

TYPE OF WATER SUPPLY

1. ☐ Drilled Well 2. ☐ Dug Well 3. ☐ Private
4. ■ Public 5. ☐ Other:

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

ASSURE WATERTIGHTNESS
1. ■ Concrete
   a. ■ Regular
   b. ☐ Low Profile
2. ☐ Plastic
3. ☐ Other:
   CAPACITY 1000 gallons

DISPOSAL FIELD TYPE & SIZE

1. ☐ Stone Bed 2. Stone Trench
3. ■ Proprietary Device
   a. ☐ Cluster array c. ■ Linear
   b. ■ Regular d. ☐ H-20 loaded
4. ☐ Other:
   SIZE 1728 ■ sq. ft. ☐ lin. ft.
   36 ELJEN IN DRAIN UNITS

GARBAGE DISPOSAL UNIT

1. ■ No 3. ☐ Waste
2. ☐ Yes >> Specify one below:
   a. ☐ Multi-compartment tank
   b. ☐ ____ tanks in series
   c. ☐ Increase in tank capacity
   d. ■ Filter on tank outlet
   ZABEL FILTER RECOMMENDED

DESIGN FLOW

400 gallons per day
BASED ON:
1. ☐ Table 501.1 (dwelling units)
2. ■ Table 501.2 (other facilities)
   SHOW CALCULATIONS - for other facilities -
   1 BEDROOM APARTMENT @ 120 G.P.D. + 2 BEDROOM APARTMENT @ 180 G.P.D. + OFFICE W/ 4 EMPLOYEES WITH SHOWERS @ 20 G.P.D. = 400 G.P.D.
3. ☐ Section 503.0 (meter readings)
   ATTACH WATER-METER DATA

SOIL DATA & DESIGN CLASS

PROFILE	CONDITION	DESIGN
8	D	3

At Observation Hole #: TP 3
Depth: 10"
OF MOST LIMITING SOIL FACTOR

DISPOSAL FIELD SIZING

1. ☐ Small - 2.0 sq.ft./gpd
2. ☐ Medium - 2.6 sq.ft./gpd
3. ☐ Medium-Large - 3.3 sq.ft./gpd
4. ■ Large 4.1 sq.ft./gpd
5. ☐ Extra-Large - 5.0 sq.ft./gpd

PUMPING

1. ☐ Not required SEE NOTE ON PAGE 3
2. ■ May be required
3. ☐ Required >>Specify only for engineered or experimental systems:
   DOSE: Gallons

SITE EVALUATOR STATEMENT

I Certify that on 4/16/03 (date) I completed a site evaluation on this property and state that the data reported is accurate and that the proposed system is in compliance with the Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature — SE # — Date: 4/18/2003

ALBERT FRICK — (207) 839-5563 — ALBERTFRICK@WORLDNET.ATT.NET
Site Evaluator Name Printed — Telephone Number — E-mail Address

ALBERT FRICK ASSOCIATES - 96A COUNTY ROAD ROAD GORHAM, MAINE 04038 - (207) 839-5563

Note: Changes to or deviations from the design should be confirmed with the Site Evaluator

Replacement System Variance Request

VARIANCE CATEGORY	LIMIT OF LPI'S APPROVAL AUTHORITY						VARIANCE REQUESTED TO:	
SOILS							B - D	
Soil Profile	Ground Water Table			to 7"			10 inches	
Soil Condition	Restrictive Layer			to 7"			inches	
from HHE-200	Bedrock			to 12"			inches	
SETBACK DISTANCES (in feet)	Disposal Fields			Septic Tanks			Disposal Fields	Septic Tanks
From	Less than 1000 gpd	1000 to 2000 gpd	Over 2000 gpd	Less than 1000 gpd	1000 to 2000 gpd	Over 2000 gpd	To	To
Wells with water usage of 2000 or more gpd or public water supply wells	300 ft [a]	300 ft [a]	300 ft [a]	100 ft [a]	100 ft [a]	100 ft [a]		
Owner's wells	100 down to 60 ft	200 down to 100 ft	300 down to 150 ft	100 down to 50 ft [b]	100 down to 50 ft	100 down to 50 ft		
Neighbor's wells	100 down to 60 ft [b]	200 down to 120 ft [b]	300 down to 180 ft [b]	100 down to 50 ft [b]	100 down to 75 ft [b]	100 down to 75 ft [b]		
Water supply line	10 ft [a]	20 ft [a]	25 ft [a]	10 ft [a]	10 ft [a]	10 ft [a]		
Water course, major - for replacements only, see Table 400.4 for major expansions	100 down to 60 ft	200 down to 120 ft	300 down to 180 ft	100 down to 50 ft	100 down to 50 ft	100 down to 50 ft		
Water course, minor	50 down to 25 ft	100 down to 50 ft	150 down to 75 ft	50 down to 25 ft	50 down to 25 ft	50 down to 25 ft		
Drainage ditches	25 down to 12 ft	50 down to 25 ft	75 down to 35 ft	25 down to 12 ft	25 down to 12 ft	25 down to 12 ft		
Edge of fill extension -- Coastal wetlands, special freshwater wetlands, great ponds, rivers, streams	25 ft [d]	25 ft [d]	25 ft [d]	25 ft [d]	25 ft [d]	25 ft [d]		
Slopes greater than 3:1	10 ft	18 ft	25 ft	N/A	N/A	N/A		
No full basement (e.g. slab, frost wall, columns)	15 down to 7 ft	30 down to 15 ft	40 down to 20 ft	8 down to 5 ft	14 down to 7 ft	20 down to 10 ft		
Full basement (below grade foundation)	20 down to 10 ft	30 down to 15 ft	40 down to 20 ft	8 down to 5 ft	14 down to 7 ft	20 down to 10 ft		
Property lines	10 down to 5 ft [c]	18 down to 9 ft [c]	20 down to 10 ft [c]	10 down to 4 ft [c]	15 down to 7 ft [c]	20 down to 10 ft [c]		
Burial sites or graveyards, measured from the down toe of the fill extension	25 ft	25 ft	25 ft	25 ft	25 ft	25 ft		

OTHER

1. Fill extension Grade - to 3:1

2.

3.

Footnotes: a. This setback distance cannot be reduced by the LPI, but may be considered for reduction by State variance.

b. May not be any closer to neighbor's well than the existing disposal field or septic tank unless written permission is granted by the neighbor.

c. Sufficient distance shall be maintained to assure that the toe of the fill does not extend to the 3:1 slope or property line.

d. Natural Resources Protection Act requires a 25 foot setback on slopes with less than 20% from the edge of disturbance and 100 feet on slopes greater than 20% except for the repair or installation of a replacement system when no practical alternative exists.

Albert Frick — 4/16/2003

SITE EVALUATOR'S SIGNATURE — DATE

FOR USE BY THE DEPARTMENT ONLY

The Department has reviewed the variance(s) and (does / does not) give its approval. Any additional requirements, recommendations, or reasons for the Variance denial, are given in the attached letter.

SIGNATURE OF THE DEPARTMENT — DATE

Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

June 30, 2003

Mr. Kevin Gough
Archetype, P.A.
48 Union Wharf
Portland, ME 04101

RE: Amended Site Plan and Subdivision Plat for Wellesley Estates, 1818 Forest Avenue

(ID #2001-0307, CBL #327-B-007)

Dear: Mr. Gough:

This letter is to confirm the revision to site plan for the Wellesley Estates Project. The revision includes changes to the interior landscaping and modifications to the proposed fencing. The revision is approved with the following conditions:

1. *Four copies of the approved plan shall be submitted to the Planning Staff.*

The revised plan has been reviewed and approved by the project review staff including representatives of the Planning, Public Works, Building Inspections, Zoning, Fire, and Parks Departments.

If you have any questions regarding the revision please contact Jay Reynolds at 874-8632.

Sincerely,

Alexander Jaegerman
Planning Division Director

6-30

O:\PLAN\DEVREVW\FOREST1818\REVISIONLETTER~~4-04~~-03.DOC

cc: Lee D. Urban, Planning and Development Department Director
Sarah Hopkins, Development Review Program Manager
Jay Reynolds, Development Review Coordinator
Marge Schmuckal, Zoning Administrator
Karen Dunfey, Inspections
Larry Ash, Traffic Engineer
Tony Lombardo, Project Engineer
Eric Labelle, City Engineer
Jeff Tarling, City Arborist
Penny Littell, Associate Corporation Counsel
Lt. Gaylen McDougall, Fire Prevention
Don Hall, Appraiser, Assessor's Office
Approval Letter File
Correspondence File

REPLACEMENT SYSTEM VARIANCE REQUEST

THE LIMITATIONS OF THE REPLACEMENT SYSTEM VARIANCE REQUEST

This form shall be attached to an application (HHE-200) for the proposed replacement system which requires a variance to the Rules. The LPI shall review the Replacement System Variance Request an HHE-200 and may approve the Request if all of the following requirements can be met, and the variance(s) requested fall within the limits of LPI's authority.

1. The proposed design meets the definition of a Replacement System as defined in the Rules (Sec 2006)
2. There will be no change in use of the structure except as authorized for one-time exempted expansions outside the shoreland zone of major waterbodies/courses.
3. The replacement system is determined by the Site Evaluator and LPI to be the most practical method to treat and dispose of the wastewater.
4. The BOD5 plus S.S. content of the wastewater is no greater than that of normal domestic effluent.

GENERAL INFORMATION

Town of PORTLAND

Permit No. _____ Date Permit Issued _____

Property Owner's Name: DANIEL LINK Tel. No.: 797-6060

System's Location: 1818 FOREST AVENUE

Property Owner's Address: _____

(if different from above) _____

SPECIFIC INSTRUCTIONS TO THE:

LOCAL PLUMBING INSPECTOR (LPI):

If any of the variances exceed your approval authority and/or do not meet all of the requirements listed under the Limitations Section above, then you are to send this Replacement System Variance Request, along with the Application, to the Department for review and approval consideration before issuing a Permit. (See reverse side for Comments Section and your signature.)

SITE EVALUATOR:

If after completing the Application, you find that a variance for the proposed replacement system is needed, complete the Replacement Variance Request with your signature on reverse side of form.

PROPERTY OWNER:

If has been determined by the Site Evaluator that a variance to the Rules is required for the proposed replacement system. This variance request is due to physical limitations of the site and/or soil conditions. Both the Site Evaluator and the LPI have considered the site/soil restrictions and have concluded that a replacement system in total compliance with the Rules is not possible.

PROPERTY OWNER

I understand that the proposed system requires a variance to the Rules. Should the proposed system malfunction, I release all concerned provided they have performed their duties in a reasonable and proper manner, and I will promptly notify the Local Plumbing Inspector and make any corrections required by the Rules. By signing the variance request form, I acknowledge permission for representatives of the Department to enter onto the property to perform such duties as may be necessary to evaluate the variance request.

_____ SIGNATURE OF OWNER _____ DATE

LOCAL PLUMBING INSPECTOR

I, _____, the undersigned, have visited the above property and have determined to the best of my knowledge that it cannot be installed in compliance with the Rules. As a result of my review of the Replacement Variance Request, the Application, and my on-site investigation, I (check and complete either a or b):

☐ a. (☐approve, ☐disapprove) the variance request based on my authority to grant this variance. Note: If the LPI does not give his approval, he shall list his reasons for denial in Comments Section below and return to the applicant. --OR--

☐ b. find that one or more of the requested Variances exceeds my approval authority as LPI. I (☐recommend, ☐do not recommend) the Department's approval of the variances. Note: If the LPI does not recommend the Department's approval, the reasons shall be stated in Comments Section below as to why the proposed replacement system is not being recommended.

Comments: _____

_____

_____ LPI SIGNATURE _____ DATE

FAX COVER

To: Jay Reynolds	From : Susan McEwen
Company : City of Portland - Planning Department	Company : Archetype, P.A.
Fax Number : 7568258	Fax Number : 2077724056

Subject : FW: Wellesely Estates

Pages including cover page: 2 Time : 8:51:04 AM Date : 7/7/2003

MESSAGE

FROM : FAX NO. : Jul. 03 2003 07:14AM P1

P.02/03

MAIETTA CONS[illegible]N INC.
154 Pleasant h[illegible]oad
SCARBOR[illegible]H, MAI[illegible]4074

(207) [illegible]546
FAX (207) [illegible]701[illegible]

TO GLEN RIVERS
P.O. Box 1880
North Conway, NH 03860

Number 12 REVISED

PHONE | DATE July 2nd
JOB NAME/LOCATION Wellesley Estates
JOB NUMBER | JOB PHONE
EXISTING CONTRACT NO. | DATE OF EXISTING CONTRACT

We hereby agree to make the change(s) specified below:

FURNISH AND INSTALL SEWER SYSTEM FOR THE GILBART AND LANE PROPERTIES PER THE REVISED SK47 ~~[illegible]~~ WITH THE PIPE RELOCATED TO APPROXIMATELY 10' OFF OF THE FOUNDATION OF BUILDING No. 6.

*NOTES 1) ANY UNKNOWN UNDERGROUND OBSTRUCTIONS WILL BE DEALT WITH AS AN EXTRA.
2) PUMPING OF RAW SEWAGE WILL BE DONE BY OTHERS.

To Kevin from Bill

NOTE: This Change Order becomes part of and in conformance with the existing contract.

WE AGREE hereby to make the change(s) specified above at this price ⇨	$ 23990 00	
DATE July 2, 2003	PREVIOUS CONTRACT AMOUNT	$
AUTHORIZED SIGNATURE (CONTRACTOR) [signature]	REVISED CONTRACT TOTAL	$

ACCEPTED — The above prices and specifications of this Change Order are satisfactory and are hereby accepted. All work to be performed under same terms and conditions as specified in original contract unless otherwise stipulated.

Date of acceptance _____

Signature _____ (Buyer)

Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

September 19, 2003

Adam Mack
Minat Corporation
34 Preble Street
Portland, Maine 04101

RE: Gildart Sewer Connection – Wellesley Estates

Dear Adam,

Consistent with our telephone conversation earlier this week the City of Portland's Housing Rehabilitation Program will provide assistance to Fred Gildart for the installation of a sewer line connecting to Wellesley Estates. Our commitment is as follows:

Based upon a total Gildart/Link fee of $25,189.50, not the $26,399.00 identified in Change Order #19, and given the fact that Mr. Link will pay no more than $13,000, we will provide $12,189.50 to Mr. Gildart to cover his share of the installation cost.

In addition, based upon previous commitments we will pay engineering fees directly associated with the Gildart/Link sewer hook-up project. We understand these fees to be $2,026.12 with the possibility that the final cost may be "somewhat" higher. We take this "somewhat" to be on the order of $200-$300.

We will make payment of $12,189.50 directly to Glen Builders upon completion of the work.

Call with any questions, tel. 874-8711. Best wishes to you and your family for the New Year.

Sincerely,

Aaron Shapiro
Housing Program Manager

PLANNING BOARD REPORT #30-03

WELLESLEY ESTATES

AMENDMENT TO SUBDIVISION PLAT

VICINITY OF 1818 FOREST AVENUE

WELLESLEY ESTATES LLC, APPLICANT

Submitted to:

Portland Planning Board
Portland, Maine

July 22, 2003

Submitted by:

Jay Reynolds
Development Review Coordinator

I. INTRODUCTION

Wellesley Estates, LLC requests revisions to the Wellesley Estates PRUD. These revisions involve adding a private sanitary sewer easement, installing a new underground sanitary sewer pipe, and connecting two existing residences into the Wellesley Estates' sewer system. Under section 14-496(C) (2) of the subdivision ordinance, the Planning Board must review such revisions.

During the course of construction, two residences were identified as having illegal sanitary discharges located on the Wellesley Estates property. The revisions are proposed to connect #1816 (Link Property) and #1824 (Gildart Property) Forest Avenue to an available sanitary sewer system.

121 notices were sent to area residents.

II. BACKGROUND INFORMATION

Zone:	B-2 and R-5
Parcel Size:	4.5 acres
Number of Units:	45 units
Number of Parking Spaces	98
New Impervious Surface	76,152 square feet
Adjacent Land Use:	Residential

III. PROPOSED REVISIONS

The applicant is proposing the following revisions to the Wellesley Estates Subdivision:

1. Adding a private sanitary sewer easement behind building #6 of the Wellesley Estates Subdivision.
2. Adding a new 6" sewer line and two sanitary manholes within the proposed easement.
3. Connecting #1816 and #1824 Forest Avenue to the Wellesley Estates sewer infrastructure.

III. STAFF REVIEW

The applicant has worked with the City's Housing and Inspections departments along with the individual property owners on the proposed sewer system.

The sewer design has been reviewed and approved by the Public Works Department. Tony Lombardo has reviewed the proposed changes and recommends approval.

There are no parking, traffic, zoning, or fire safety issues associated with this amendment.

The proposed sanitary line is partially located within the proposed area noted as 'limit of work/leave existing vegetation'. Through the staff review process, the proposed sewer was

redesigned to allow for minimal disturbance in this area. Because of potential loss of buffering, staff offers the following potential conditions of approval:

1. *Prior to installation, the applicant shall flag the existing trees that are to remain through construction.*

2. *After installation of the proposed sewer line, the City Arborist shall determine whether additional plantings are required in order to meet the City standards with regards to screening and buffering.*

III. STAFF RECOMMENDATION

Staff recommends approval with the included conditions.

IV. MOTIONS FOR THE BOARD TO CONSIDER

On the basis of plans and materials submitted by the applicant and on the basis of information contained in Planning Report # 30-03, the Planning Board finds that:

- The revised plan is in conformance with the Subdivision Ordinance of the Land Use Code.

  Potential Conditions of Approval:

  1. *Prior to installation of the sewer line, the applicant shall flag the existing trees that are to remain through construction.*
  2. *After installation of the proposed sewer line, the City Arborist shall determine whether additional plantings are required in order to meet the City standards with regards to screening and buffering.*

Attachments

1. Correspondence letter dated July 8, 2003
2. Wellesley Estates Subdivision Plat, 3rd revision, dated March 24, 2003
3. Site Plan reflecting proposed sanitary sewer
4. Sewer Flow Estimates and additional correspondence dated May 20, 2003
5. Amended Subdivision Plat.

Attachment # 1

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
15 Shaker Rd.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:mailbox@gorrillpalmer.com

July 8, 2003

Mr. Alex Jaegerman
City of Portland Planning Division
389 Congress Street
Portland, ME 04101

Re: Wellesley Estates
Abutting Sewer Connections

Dear Alex:

Gorrill-Palmer Consulting Engineers, Inc. has prepared the attached plan showing a proposed sewer connection for two lots that abut the Wellesley Estates project on Forest Avenue. This plan has been previously submitted to Jay Reynolds and the Public Works Department for review and authorization to proceed. It is our understanding that the next step is to submit a plat amendment with the proposed sewer easement description to the Planning Board for approval. We are still waiting on final authorization from Jay before we authorize the surveyor to prepare the amended plat and easement description.

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Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

William C. Haskell

William C. Haskell, P.E.
Vice President Site Development

Enc.

C: Adam Mack
Don Peterson
Kevin Gough

Attachment #4
2/2

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
15 Shaker Rd.
Gray, ME 04039

207-657-6910
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E-Mail:mailbox@gorrillpalmer.com

May 20, 2003

Mr. Bill Hopkins
Archetype
48 Union Wharf
Portland, ME 04101

Re: Wellesley Estates
Abutter Sewer Service Connections

Dear Bill:

The attached SK 47 shows the design for connecting the Gildart and Link properties into the Wellesley Estates sewer system. After discussion with the City we are able to connect the two properties by gravity service rather than individual pump stations as originally anticipated. The proposed design will require Dan Link to obtain an easement across the Gildart property. In addition a sewer easement would be required across the Wellesley Estates property for both of the abutting property owners. These easements would allow maintenance to occur if required in the future. We request that the City provide input on the desired easement width that is required.

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William C. Haskell

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Senior Project Engineer

Enc.

C: Tony Lombardo, City of Portland
Don Peterson
Adam Mack, Minat Corporation

U:\442\442 Hopkins sewer connections 5-20-03.doc

GORRILL-PALMER
CONSULTING ENGINEERS, INC.
P.O. Box 1237
GRAY, MAINE 04039
(207) 657-6910
FAX (207) 657-6912

Attachment #4
1/2

JOB 442 WELLESLEY

SHEET NO. 1 OF

CALCULATED BY WCH DATE 5/14/03

CHECKED BY DATE

SCALE

LINK PROPERTY

2 BDRM APT 180 GPD

1 BDRM APT 180 GPD

1 EMPLOYEE BATH (3 EMP) 3 x 15 GPD = 45 GPD

405 GPD

GILDART PROPERTY

3 BDRM HOUSE 270 GPD

TOTAL Q = 675 GPD

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Vice President Site Development

Enc.

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Don Peterson
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Vice President Site Development

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Don Peterson
Kevin Gough

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Kevin Gough

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CONSULTING ENGINEERS, INC.
P.O. Box 1237
GRAY, MAINE 04039
(207) 657-6910
FAX (207) 657-6912

JOB 442 WELLESLEY

SHEET NO. 1 OF

CALCULATED BY WCH DATE 5/14/03

CHECKED BY DATE

SCALE

LINK PROPERTY

2 BDRM APT 180 GPD

1 BDRM APT 180 GPD

1 EMPLOYEE BATH (3 EMP) 3 x 15 GPD = 45 GPD

405 GPD

GILDART PROPERTY

3 BDRM HOUSE 270 GPD

TOTAL Q = 675 GPD

PRODUCT 204.1 (Single Sheets) 205.1 (Padded)

GORRILL-PALMER
CONSULTING ENGINEERS, INC.
P.O. Box 1237
GRAY, MAINE 04039

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FAX (207) 657-6912

LETTER OF TRANSMITTAL

194

TO City Of Portland
Planning Department
389 Congress Street
Portland ME 04101

JOB NUMBER/PHONE 442 | DATE 6/2/03

ATTENTION Mr. Jay Reynolds

RE: Wellesley Estates

WE ARE SENDING YOU X Attached ___ Under separate cover via Reg Mail the following items.

___ Shop drawings ___ Prints ___ Plans ___ Specifications ___ Samples

___ Copy of letter ___ Change order ___ Other:

COPIES	DATE	NUMBER	DESCRIPTION
1	6/2/03		Letter Re: Abutter Sewer Service Connections
1	6/2/03		Abutter Sanitary Sewer Services Plan

THESE ARE TRANSMITTED as checked below:

___ For your approval ___ Approved as submitted ___ Resubmit ___ copies for approval

X For your use ___ Approved as noted ___ Submit ___ copies for distribution

___ As requested ___ Returned for corrections ___ Return ___ corrected prints

___ For review and comment ___ Other

___ FOR BIDS DUE/DATE: 6/2/03 ___ PRINTS RETURNED AFTER LOAN TO US

REMARKS

COPY TO Mike Nugent

SIGNED William C. Hakell

If enclosures are not as noted, please notify us at once.

PRODUCT 13127T

FOLD AT (>) TO FIT COMPANION 771 DU-O-VUE ENVELOPE. PRINTED IN U.S.A. B

442/C

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
15 Shaker Rd.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:mailbox@gorrillpalmer.com

May 20, 2003

Mr. Bill Hopkins
Archetype
48 Union Wharf
Portland, ME 04101

Re: Wellesley Estates
Abutter Sewer Service Connections

Dear Bill:

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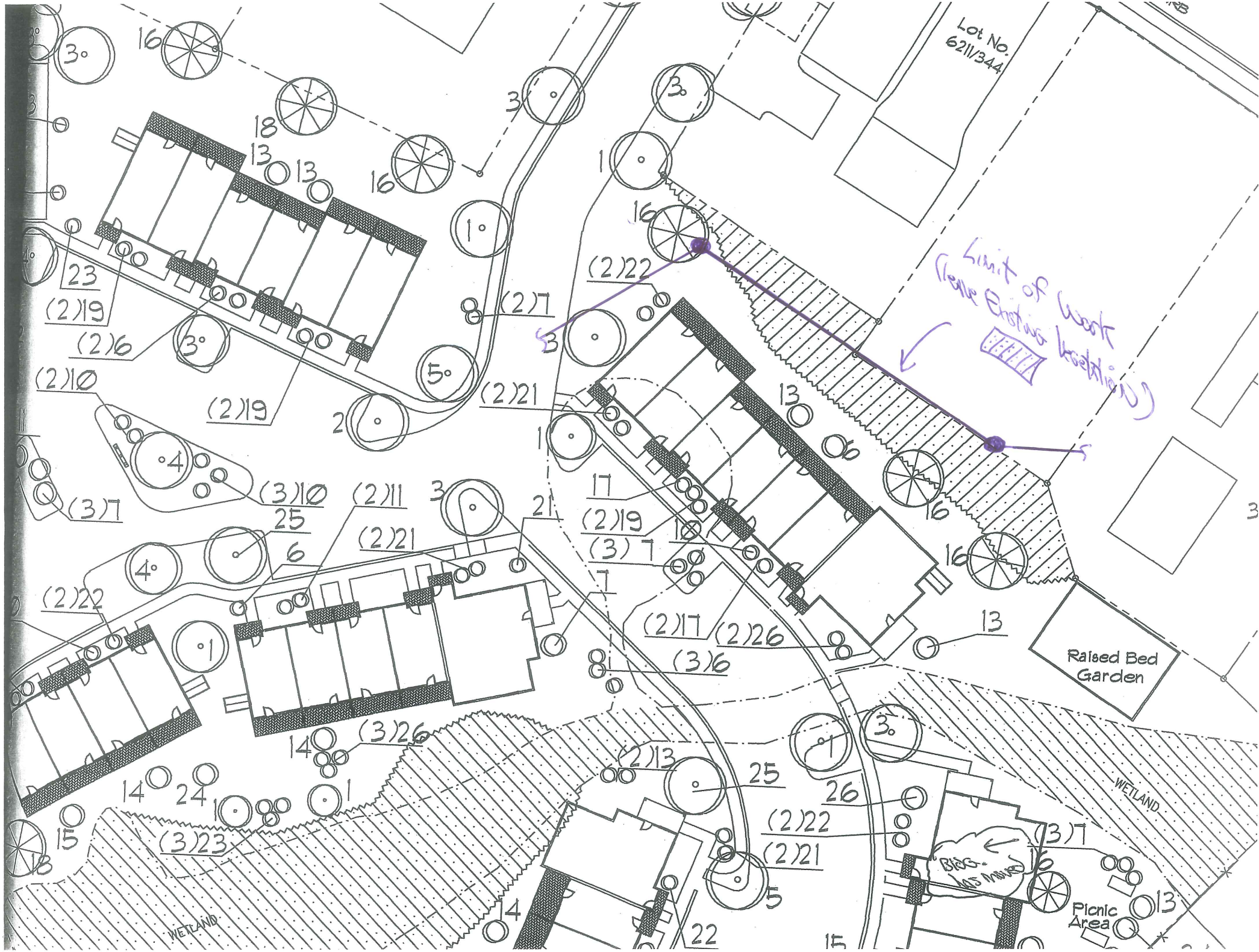
William C. Haskell

William C. Haskell, P.E.
Senior Project Engineer

Enc.

C: Tony Lombardo, City of Portland
Don Peterson
Adam Mack, Minat Corporation

U:\442\442 Hopkins sewer connections 5-20-03.doc


Lot No. 6211/344
Limit of work (Tree Protection Measures)
Raised Bed Garden
WETLAND
WETLAND
Bldg. Was Removed
Picnic Area

Adam Mast
Fax #: 773-3448

Finance Department

Duane G. Kline
Director

CITY OF PORTLAND

August 15, 2003

Keybank National Association
Standby Letter of Credit
Processing & Service Center
4910 Tiedeman Road – OH0151435
Cleveland, OH 44144-2338

Re: Standby Letter of Credit No. S305618 dated December 3, 2002
Wellesley Estates Limited Partnership

This is to inform you that I am authorizing a reduction in the above-named letter of credit in the amount of $291,410, which should leave a balance of $128,590 remaining.

If you require any further information, please let me know.

Sincerely,

Duane G. Kline
Finance Director

DGK.jlb

pc: Jay Reynolds, Development Review Coordinator

City of Portland
Department of Planning and Development
Planning Division
389 Congress Street, 4th Floor
Portland ME 04101
(207)874-8721 or (207)874-8719
Fax: (207)756-8258

FAX

To: Adam Mack

Company:

Fax #: 773-2448

Date: 9-5-03

From: Jay Reynolds

You should receive 2 page(s) including this cover sheet.

Comments: Reduction letter as requested.

Jay

City of Portland
Department of Planning and Development
Planning Division
389 Congress Street, 4th Floor
Portland ME 04101
(207)874-8721 or (207)874-8719
Fax: (207)756-8258

FAX

To: Bill Hopkins

Company: Archetype

Fax #: 772-4056

Date: 9-3-03

From: Jay Reynolds

You should receive 2 page(s) including this cover sheet.

Comments: Attached is the gradation report for the Sub-Base gravel used at Wellesley Estates. It appears that it doesn't meet DOT's specs. Are all parties OK with this?

Jay

To will From Bill

GEOTECHNICAL CONSULTING
SITE INSPECTIONS
MATERIAL TESTING

Offices:
Dover, NH
Manchester, NH
Scarborough, ME

JOHN TURNER CONSULTING, INC.

REPORT OF SIEVE & PROCTOR TEST RESULTS

CLIENT: Glen Builders
P.O. Box 1880
North Conway, NH 03860

PROJECT: Wellesley Estates
Portland, ME

DATE: January 16, 2003 **REPORT #:** 02-264-017

Sampled Source: Maietta-Baldwin
Soil ID #: 014
Date Received: 1-14-03
Method of Test: ASTM C136/117

Soil Type: 3" Gravel
Intended Use: Subbase, Structural Fill
Sampled By: Mike Newman
Tested By: Matt Barnes

SIEVE SIZE	PERCENT PASSING	ME DOT Type D (703.06)	SPECS	SPECS
6"	100			
3"	100	100		
2"	100			
1.5"	96.5			
1"	87.1			
¾"	79.3			
½"	68.9			
3/8"	62.7			
¼"	61.5	25-70		
#4	49.6			
#10	41.2			
#20	32.3			
#40	17.7	0-30		
#80	13.8			
#100	12.4			
#200	8.1 Fail	0-7		

PROCTOR TEST RESULTS

Method of Proctor Testing: ASTM D1557 (modified)
Maximum Dry Density: 139.5 lbs/ft3
Optimum Dry Density: 5.5 %

REMARKS: Meets specifications for common borrow, granular borrow, gravel borrow and structural fill.

TEAMWORK
818 Central Avenue, Dover, NH
603-749-1841 Fax: 603-743-3370

Offices:
Dover, NH
Manchester, NH
Scarborough, ME

GEOTECHNICAL CONSULTING
SITE INSPECTIONS
MATERIAL TESTING

JOHN TURNER CONSULTING, INC.

REPORT OF SOILS FIELD COMPACTION TESTING

CLIENT: Glen Builders
Attn: Mr. Charles Allen
P.O. Box 1880
North Conway, NH 03860

PROJECT: Wellesley Estates
Portland, ME

DATE: April 29, 2003 **REPORT #:** 02-264-049

General Location:	Rd subgrade over trench lines
Field Rep:	Alan Baker
Contractor:	Glen Builders
Earthwork:	Maietta
Air Temp:	75°F
Weather:	Sunny
Soil Type:	3"- Gravel

Proctor Value: 138.5 lbs/ft3 Optimum Moisture: 5.5 %

Gauge Type: Troxler 3430 Required Compaction: 95 %

TEST NUMBER	DEPTH/ELEV.	MOISTURE	DRY DENSITY	PERCENT COMPACTION
1	Subgrade	6.2	135.5	97.8
LOCATION: 25' south of catch basin #3				
2	Subgrade	6.9	134.6	96.5
LOCATION: 10' west of manhole #2				
3	Subgrade	6.0	133.6	96.5
LOCATION: 15' west of manhole #1				
4	Subgrade	5.5	137.2	99.1
LOCATION: 30' south east of building #3				
5	Subgrade	8.5	132.7	95.8
LOCATION: 15' north of building 2, center of building				
6	Subgrade	6.2	135.1	97.6
LOCATION: Station 78+00				
7				
LOCATION:				
8				
LOCATION:				
REMARKS:				

818 Central Avenue, Dover, NH 03820
603-749-1841 Fax: 603- 743-3370

ARCHETYPE, P.A.
48 Union Wharf
PORTLAND, MAINE 04101

(207) 772-6022
FAX (207) 772-4056

LETTER OF TRANSMITTAL

DATE	JOB NO.
09-10-03	
ATTENTION	
RE: Wellsley Estates	

TO Jay Reynolds

WE ARE SENDING YOU ☑ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications
☑ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1	Dec 26 '02	02264006	Sieve test results
1	Jan 10 '03	02264020	Sieve test results

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval
☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution
☑ As requested ☐ Returned for corrections ☐ Return _____ corrected prints
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REMARKS _____

COPY TO _____

SIGNED: _____

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Scarborough, ME

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SITE INSPECTIONS
MATERIAL TESTING

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CLIENT: Glen Builders
P.O. Box 1880
North Conway, NH 03860

PROJECT: Wellesley Estates
Portland, ME

DATE: December 26, 2002 **REPORT #:** 02-264-006

Sampled Source: Maietta
Soil ID # 1134
Date Received: 12-24-02
Method of Test: ASTM C136/117

Soil Type: Gravel
Intended Use: Common Fill/ Sub Base
Sampled By: Client
Tested By: Matt Barnes

SIEVE SIZE	PERCENT PASSING	ME DOT Type D	SPECS	SPECS
4"	100	100		
3"	68.5			
2"	89.2			
1.5"	85.0			
1"	76.9			
.75"	73.1			
.5"	67.1			
3/8"	61.4			
#4	40.0	25-70		
#4	38.2			
#10	32.4			
#20	22.8			
#40	14.4	0-30		
#80	8.3			
#100	7.5			
#200	5.5	0-7.0		

PROCTOR TEST RESULTS

Method of Proctor Testing: ASTM D1557 (modified)
Maximum Dry Density: 139.0 lbs/ft3
Optimum Dry Density: 5.0 %

REMARKS: * 2"- Based on the portion passing the 3" sieve

TEAMWORK

818 Central Avenue, Dover, NH
603-749-1841 Fax: 603- 743-3370

SEP.10'2003 12:36 603 356 5492 GLEN BUILDERS, INC. #3007 P.001/003

Offices:
Dover, NH
Manchester, NH
Scarborough, ME

GEOTECHNICAL CONSULTING
SITE INSPECTIONS
MATERIAL TESTING

JOHN TURNER CONSULTING, INC.

REPORT OF SIEVE TEST RESULTS

CLIENT: Glen Builders
P.O. Box 1880
North Conway, NH 03860

PROJECT: Wellesley Estates
Portland, ME

DATE: January 10, 2003 **REPORT #:** 02-264-020

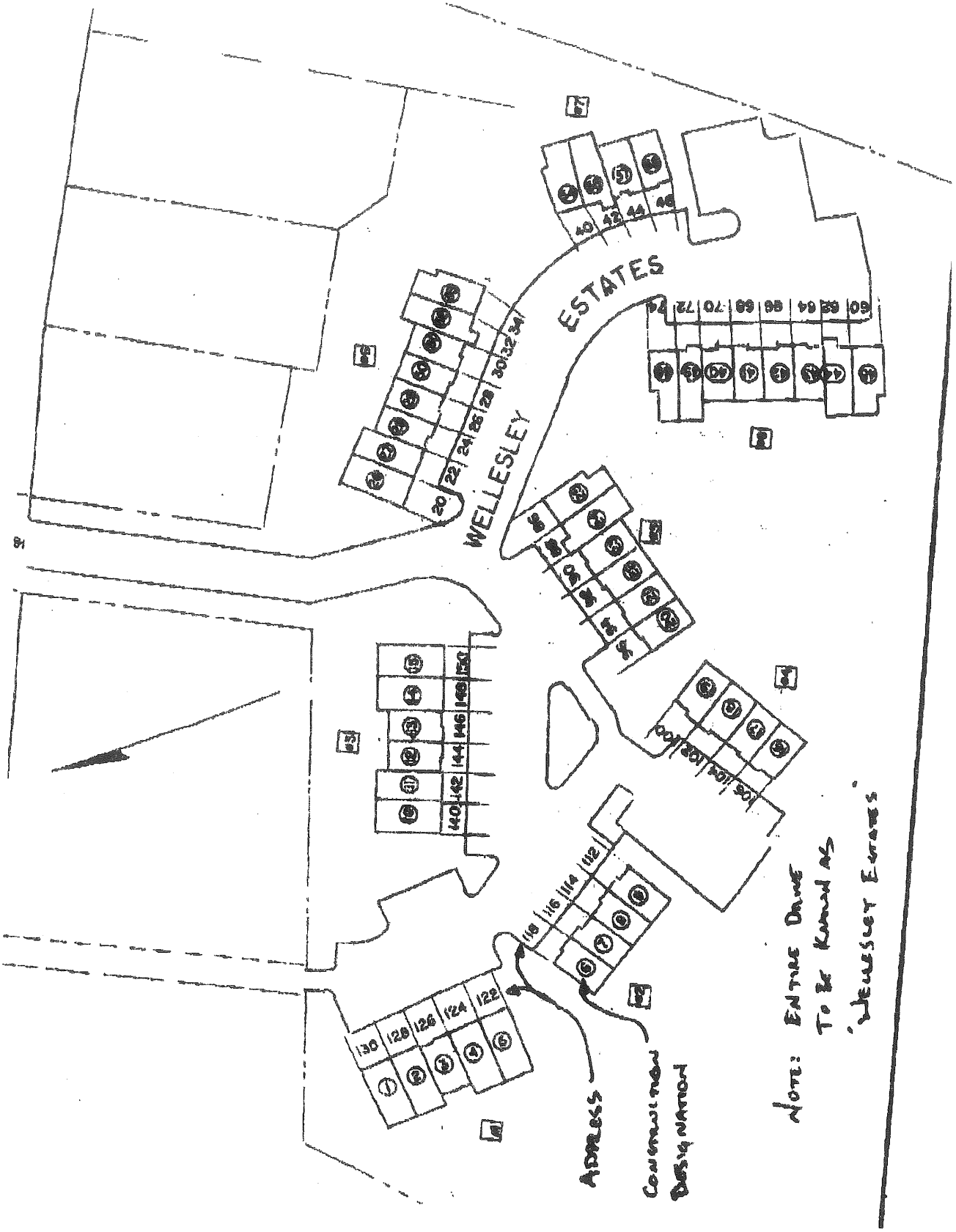
Sampled Source: Maietta Pit-Standish
Soil ID #: 006
Date Received: 01-02-03
Method of Test: ASTM D1557
Soil Type: 3" Gravel
Intended Use: Structural Fill
Sampled By: Maietta
Tested By: Matt Barnes

SIEVE SIZE	PERCENT PASSING	MEDOT Type D 703.06	SPECS	SPECS
3"	100	100		
2"	89.8			
1.5"	84.3			
1"	72.9			
¾"	65.4			
½"	55.6			
3/8"	49.9			
1/4"	44.2	25-70		
#4	42.0			
#8	33.5			
#10	23.8			
#40	15.0	0-30		
#30	8.1			
#100	7.4			
#200	5.4	0-7		

REMARKS:

TEAMWORK
818 Central Avenue, Dover, NH
603-749-1841 Fax: 603-743-3370

SEP.10'2003 12:37 603 356 5492 GLEN BUILDERS, INC. #3007 P.002/003


ESTATES
WELLESLEY
Note: Entire Drive To Be Known As Wellesley Estates
Address Confirmation During Natural

TO: Inspections

FROM: Jay Reynolds, Development Review Coordinator

DATE: October 9, 2003

RE: C. of O.'s for Wellesley Estates (in the vicinity of #1818 Forest Ave.) (CBL 327B007?) (ID 2001-0307)

After visiting the site, I have the following comments:

Pertaining to Building #1, #2, #3, #4, and #5,

Site work complete.

For Buildings 1-5, **I recommend issuing a permanent Certificate of Occupancy.**

Please contact me if you have any questions or comments.
Thank You.

Cc: Sarah Hopkins, Development Review Services Manager
Mike Nugent, Inspection Services Manager

File: O:\plan\drc\wellesley2.doc

TO: Inspections

FROM: Jay Reynolds, Development Review Coordinator

DATE: November 20, 2003

RE: C. of O.'s for Wellesley Estates (in the vicinity of #1818 Forest Ave.) (CBL 327B007?) (ID 2001-0307)

After visiting the site, I have the following comments:

Pertaining to Building 6 (#20-32) and Building 7 (#40-46),

Site work complete.

For Buildings 6 and 7, **I recommend issuing a permanent Certificate of Occupancy.**

Please contact me if you have any questions or comments.
Thank You.

Cc: Sarah Hopkins, Development Review Services Manager
Mike Nugent, Inspection Services Manager

File: O:\plan\drc\wellesley3.doc

MODE = MEMORY TRANSMISSION START=MAR-02 08:25 END=MAR-02 08:26

FILE NO.=496

STN NO.	COMM.	ABBR NO.	STATION NAME/TEL NO.	PAGES	DURATION
001	OK	☎	97732448	003/003	00:01:16

-CITY OF PORTLAND -

********** -PLANNING DEPT. - ***** - 2077568258- **********

City of Portland
Department of Planning and Development
Planning Division
389 Congress Street, 4th Floor
Portland ME 04101
(207)874-8721 or (207)874-8719
Fax: (207)756-8258

FAX

To: Adam Hacke

Company: Wellesley Estates LLC

Fax #: 773-2448

Date: 3-2-04

From: Jay Reynolds

You should receive 3 page(s) including this cover sheet.

Comments: Dept Guarantee sample form, as Requested.

Amount should be $40,000.00, and the expiration should be 11-1-04.

Any questions, call.

Jay

Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

March 24, 2004

Mr. Adam Mack
Wellesley Estates, LLC
34 Preble Street
Portland, ME 04101

RE: Wellesley Estates Fire Access Easement
(ID #2001-0307, CBL #327-B-007)

Dear: Mr. Mack:

This letter is to confirm the revision to the approved plan of the project located at Wellesley Estates Drive. The approved revision includes a change to the access easement across the grange property. As provided in the attached copy of the deed, the 16' access way has actually been purchased and the land is owned in fee. The revised submission has been reviewed and approved by the project review staff including representatives of the Planning, Public Works, Building Inspections, Fire and Parks Departments.

We do recommend a recording of this approval letter and will gladly register it in the Cumberland County Registry of Deeds for a filing/administrative cost of $50.00.

If you have any questions regarding the revision please contact me at 874-8724.

Sincerely,

Alexander Jaegerman
Planning Division Director

O:\PLAN\DEVREVW\FOREST1818\REVISIONLETTER3-20-04DRAFT.DOC

STATE OF MAINE
CUMBERLAND, ss.

AFFIDAVIT OF ALEXANDER JAEGERMAN Re: Wellesly Estates
Portland, Maine
CBL# 327-B-007

I, Alexander Jaegerman, under oath do depose and say:

1. I, Alexander Jaegerman, am the Planning Division Director for the City of Portland. Prior to that I was a Chief Planner.

2. In my capacity as Planning Division Director, I am authorized to communicate the City's approval of minor revisions to site plans and subdivisions previously approved by the City of Portland.

   On March 24, 2004, I memorialized the City's approval of a minor revision to the Wellesly Estates Fire Access Easement, CBL#327-B-007.

3. Attached is the approval letter documenting the approved revision.

Dated this 26th day of March Alexander Jaeg

Alexander Jaegerman
Planning Division Director
City of Portland

STATE OF MAINE)
) ss
County of Cumberland)

Dated: March 26, 2004

Personally appeared the above-named Alexander Jaegerman and gave oath that the foregoing statements made by him are true to the best of his knowledge, information and belief, and where based upon information and belief, he believes the same to be true.

Before me,

Donna M. Katsiaficas

Attorney-at-Law
Donna M. Katsiaficas

3-17-04 Wellesley –

Upon Defect Inspection –

Also check for:

① executed copy of easement/panel
② Fire Lane Chain
③ Steam Cleanup.

March ____, 2004

Lee Urban, Director of
Planning and Development
City of Portland
389 Congress Street
Portland, Maine 04101

Re: Application of **WELLESLEY ESTATES Limited Partnership** for Wellesley Estates at 1818 Forest Avenue, Portland, Maine

Dear Sirs:

KeyBank National Association (referred to as "Bank") hereby issues its Irrevocable Letter of Credit for the account of **WELLESLEY ESTATES Limited Partnership**, a Maine limited partnership as developer, (hereinafter referred to as "Developer"), in the name of the City of Portland, in the aggregate amount of FORTY TWO THOUSAND DOLLARS ($42,000.00). These funds represent the estimated cost of installing site improvements as depicted on the site plan, approved on May 22, 2002 as amended administratively on December 3, 2002 and recorded in the Cumberland County Registry of Deeds in Plan Book 202, Page 716 and as required under Portland Code of Ordinances Chapter 14 §§499, 499.5, 525 and Chapter 25 §§46 through 65 (the "Site Approvals").

This Irrevocable Letter of Credit is intended to satisfy the Developer's obligation under Portland Code of Ordinances Chapter 14 §§501, 502 and 525, to post a defect guarantee for the above referenced development.

The City, through its Director of Planning and Development and in his sole discretion, may draw on this Letter of Credit by presentation of a sight draft, the original Letter of Credit and all amendments thereto and a written statement purportedly signed by and agent of the City stating that:

> Developer has failed to correct any defects in workmanship and the durability of all materials used in the construction and installation of improvements contained within the Site Approvals on or before April 15, 2005; or
>
> Developer has failed to complete any unfinished improvements contained within the Site Approvals on or before April 15, 2005.

It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for period(s) of one year each from the current expiration date hereof, or any future expiration date, unless within sixty (60) days prior to any expiration, the

Bank notifies the City (restricted delivery to Duane Kline, Director of Finance, City of Portland, 389 Congress Street, Portland, Maine 04101) that the Bank elects not to consider this Letter of Credit renewed for any such additional period.

We hereby engage with you that all drafts drawn under and in compliance with the terms of this Credit will be duly honored upon due presentation and delivery of documents as specified to KeyBank National Association, Standby Letter of Credit Processing and Service Center, Mail Code OH-01-51-0535, 4910 Tiedemen Road, Cleveland, Ohio, 441444-2338 on or before April 15, 2005 or any automatically extended expiration date.

Upon receipt of such notice, you may draw hereunder up to the full amount then available by presentation of your sight draft drawn on us accompanied by the original letter of credit and all amendments thereto.

Partial drawings are permitted.

We hereby engage with you that all drafts drawn under and in compliance with the terms of this Credit will be duly honored upon due presentation and delivery of documents as specified to KeyBank National Association, Standby Letter of Credit Processing and Service Center, Mail Code OH-01-51-0535, 4910 Tiedemen Road, Cleveland, Ohio, 441444-2338 on or before April 15, 2005 or any automatically extended expiration date.

Except as otherwise stated herein, this Letter of Credit is subject to the International Standby Practices Publication Number 590 of the International Chamber of Commerce (ISP98"). As to matters not covered by ISP98 and to the extent not inconsistent with ISP98 or made inapplicable by this Letter of Credit, this Letter of Credit shall be governed by the laws of the State of Maine, including the Uniform Commercial Code of the State of Maine.

The Director of Planning and Development may call on the guarantee up to thirty days prior to the expiration date contained herein, or any automatically extended date.

Very truly yours,
KEYBANK NATIONAL ASSOCIATION

Date: _____ By: _____
Its Duly Authorized Agent

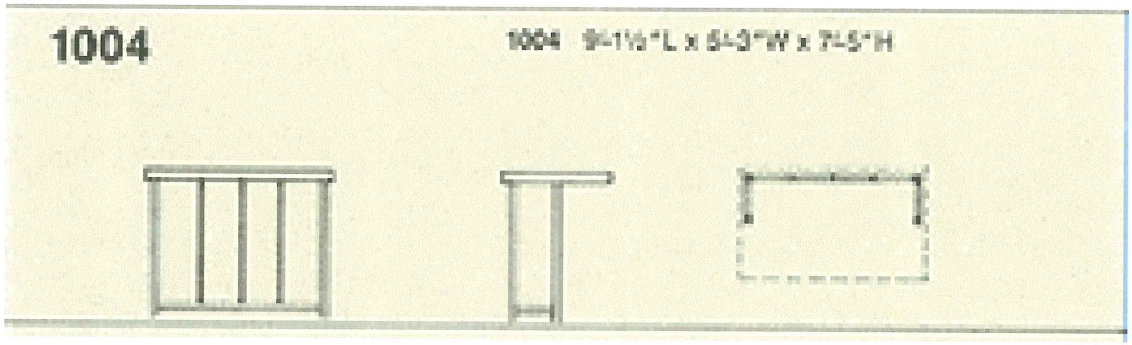
Seen and Agreed to:
WELLESLEY ESTATES LIMITED PARTNERSHIP
By: Wellesley Estates, LLC, Its General Partner

By:_____
Adam Mack, Its Manager

L-C Defect Bond Wellesley Est.doc
3/11/2004 1:16:00 PM

AH. 19





Wellesley Estates – Portland, Maine

Picnic Table



REACH 1

Qin = 13.68 CFS @ 12.72 HRS, VOLUME= 2.50 AF
Qout= 13.63 CFS @ 12.84 HRS, VOLUME= 2.49 AF, ATTEN= 0%, LAG= 7.1 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	1.82
.4	4.3	6.22
.6	7.2	13.17
.9	11.8	26.35
1.2	19.2	51.49
1.6	29.9	94.02
2.0	42.7	152.36

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 460 FT
SLOPE= .0217 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .61 FT
PEAK VELOCITY= 1.9 FPS
TRAVEL TIME = 4.1 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 33

Not described

Qin = 24.15 CFS @ 12.53 HRS, VOLUME= 3.98 AF
Qout= 24.15 CFS @ 12.53 HRS, VOLUME= 3.98 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

POND 1 Pond

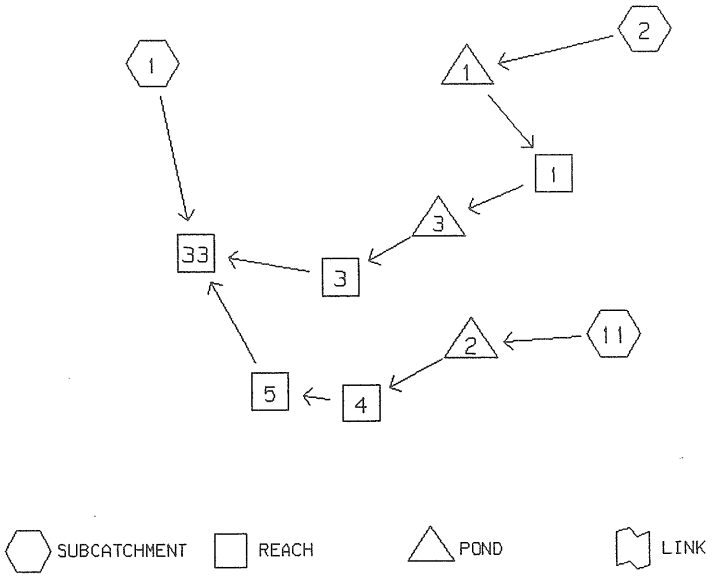
Qin = 21.44 CFS @ 12.40 HRS, VOLUME= 2.54 AF
Qout= 13.68 CFS @ 12.72 HRS, VOLUME= 2.50 AF, ATTEN= 36%, LAG= 19.4 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
100.0	100	0	0
102.0	9000	9100	9100
104.0	50000	59000	68100

STOR-IND METHOD
PEAK STORAGE = 18945 CF
PEAK ELEVATION= 102.3 FT
FLOOD ELEVATION= 104.0 FT
START ELEVATION= 100.0 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 21.6 MIN (2.5 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	100.0'	24" CULVERT
			n=.024 L=120' S=.02'/' Ke=.9 Cc=.9 Cd=.47

WATERSHED ROUTING ==========



SUBCATCHMENT 1 East Route 495

PEAK= 10.25 CFS @ 12.50 HRS, VOLUME= 1.34 AF

ACRES	CN	
1.61	98	Impervious
1.45	77	Woods-D
.92	30	Woods-A
.49	39	Lawn-A
.63	61	Lawn-B
1.12	80	Lawn- D
.15	55	Woods-B
.43	89	Gravel-A
6.80	72	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	19.8
Woods: Light underbrush n=.4 L=100' P2=3 in s=.0266 '/'		
TR-55 SHEET FLOW	Segment ID: BC	7.6
Grass: Dense n=.24 L=50' P2=3 in s=.0266 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	1.4
Paved Kv=20.3282 L=300' s=.03 '/' V=3.52 fps		
CIRCULAR CHANNEL	Segment ID: DE	5.0
18" Diameter a=1.77 sq-ft Pw=4.7' r=.375'		
s=.005 '/' n=.11 V=.5 fps L=150' Capacity=.9 cfs		
CIRCULAR CHANNEL	Segment ID: EF	.3
24" Diameter a=3.14 sq-ft Pw=6.3' r=.5'		
s=.005 '/' n=.011 V=6.02 fps L=110' Capacity=18.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: FG	4.4
Woodland Kv=5 L=240' s=.033 '/' V=.91 fps		
	Total Length= 950 ft Total Tc=	38.5

SUBCATCHMENT 2 Forest Avenue

PEAK= 21.44 CFS @ 12.40 HRS, VOLUME= 2.54 AF

ACRES	CN	
2.92	98	Impervious
4.49	61	1/4 Acre Lots- A
1.74	83	1/4 Acre Lots- C
.62	87	1/4 Acre Lots- D
.06	55	Woods- B
1.12	77	Woods- D
10.95	77	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	14.7
Grass: Dense n=.24 L=100' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	8.8
Paved Kv=20.3282 L=1670' s=.024 '/' V=3.15 fps		
CIRCULAR CHANNEL	Segment ID: CD	1.5
15" Diameter a=1.23 sq-ft Pw=3.9' r=.313'		
s=.02 '/' n=.024 V=4.03 fps L=370' Capacity=4.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
	Total Length= 2340 ft Total Tc=	31.7

SUBCATCHMENT 11 495

PEAK= 3.36 CFS @ 12.49 HRS, VOLUME= .44 AF

ACRES	CN	
.48	98	Impervious
.48	80	Grass-D
.61	77	Woods-D
1.57	84	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	20.7
Woods: Light underbrush n=.4 L=65' P2=3 in s=.01 '/'		
TR-55 SHEET FLOW	Segment ID: BC	18.7
Grass: Dense n=.24 L=117' P2=3 in s=.015 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	0.0
Grassed Waterway Kv=15 L=20' s=.2 '/' V=6.71 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	.2
Grassed Waterway Kv=15 L=15' s=.01 '/' V=1.5 fps		
	Total Length= 217 ft Total Tc=	39.6

REACH 1 495 Channel

Qin = 13.68 CFS @ 12.72 HRS, VOLUME= 2.50 AF
Qout= 13.64 CFS @ 12.77 HRS, VOLUME= 2.50 AF, ATTEN= 0%, LAG= 3.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	1.24
.4	4.3	4.22
.6	7.2	8.94
.9	11.8	17.89
1.2	19.2	34.95
1.6	29.9	63.82
2.0	42.7	103.43

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 140 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .74 FT
PEAK VELOCITY= 1.4 FPS
TRAVEL TIME = 1.6 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 3 Channel Riverton

Qin = 13.49 CFS @ 12.91 HRS, VOLUME= 2.49 AF
Qout= 13.46 CFS @ 12.97 HRS, VOLUME= 2.48 AF, ATTEN= 0%, LAG= 3.5 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 240 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .54 FT
PEAK VELOCITY= 2.1 FPS
TRAVEL TIME = 1.9 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 4 Pipe from Pond

Qin = 2.91 CFS @ 12.71 HRS, VOLUME= .51 AF
Qout= 2.90 CFS @ 12.71 HRS, VOLUME= .50 AF, ATTEN= 1%, LAG= .1 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	.1	.26
.3	.3	1.09
.5	.4	2.43
1.1	1.3	10.39
1.2	1.5	12.13
1.4	1.7	13.23
1.4	1.7	13.35
1.5	1.8	13.23
1.5	1.8	12.41

18" PIPE
n= .011
LENGTH= 58 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .49 FT
PEAK VELOCITY= 5.8 FPS
TRAVEL TIME = .2 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 5 CHANNEL RIVERTON

Qin = 2.90 CFS @ 12.71 HRS, VOLUME= .50 AF
Qout= 2.79 CFS @ 12.74 HRS, VOLUME= .50 AF, ATTEN= 4%, LAG= 1.8 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 105 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .22 FT
PEAK VELOCITY= 1.3 FPS
TRAVEL TIME = 1.3 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 33

Not described

Qin = 24.35 CFS @ 12.64 HRS, VOLUME= 4.33 AF
Qout= 24.35 CFS @ 12.64 HRS, VOLUME= 4.33 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

POND 1 Pond

Qin = 21.44 CFS @ 12.40 HRS, VOLUME= 2.54 AF
Qout= 13.68 CFS @ 12.72 HRS, VOLUME= 2.50 AF, ATTEN= 36%, LAG= 19.4 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
100.0	100	0	0
102.0	9000	9100	9100
104.0	50000	59000	68100

STOR-IND METHOD
PEAK STORAGE = 18945 CF
PEAK ELEVATION= 102.3 FT
FLOOD ELEVATION= 104.0 FT
START ELEVATION= 100.0 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 21.6 MIN (2.5 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	100.0'	**24" CULVERT**
			n=.024 L=120' S=.02'/' Ke=.9 Cc=.9 Cd=.47

POND 2 Detention

Qin = 3.36 CFS @ 12.49 HRS, VOLUME= .44 AF
Qout= 2.91 CFS @ 12.71 HRS, VOLUME= .51 AF, ATTEN= 13%, LAG= 13.1 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
63.8	1610	0	0
64.0	1734	334	334
65.0	2386	2060	2394
66.0	3096	2741	5135
67.0	3862	3479	8614
67.8	4684	3418	12033
68.0	5730	1041	13074

STOR-IND METHOD
PEAK STORAGE = 8106 CF
PEAK ELEVATION= 66.9 FT
FLOOD ELEVATION= 68.0 FT
START ELEVATION= 66.8 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 118.4 MIN (.32 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.8'	**12' BROAD-CRESTED RECTANGULAR WEIR X 1.81**
			Q=C L H^1.5 C=1.72, 1.88, 1.98, 0, 0, 0, 0, 0
2	P	63.8'	**2" ORIFICE/GRATE**
			Q=.6 PI r^2 SQR(2g) SQR(H-r)
3	P	65.8'	**10" ORIFICE/GRATE**
			Q=.6 PI r^2 SQR(2g) SQR(H-r)

POND 3 CULVERT POND

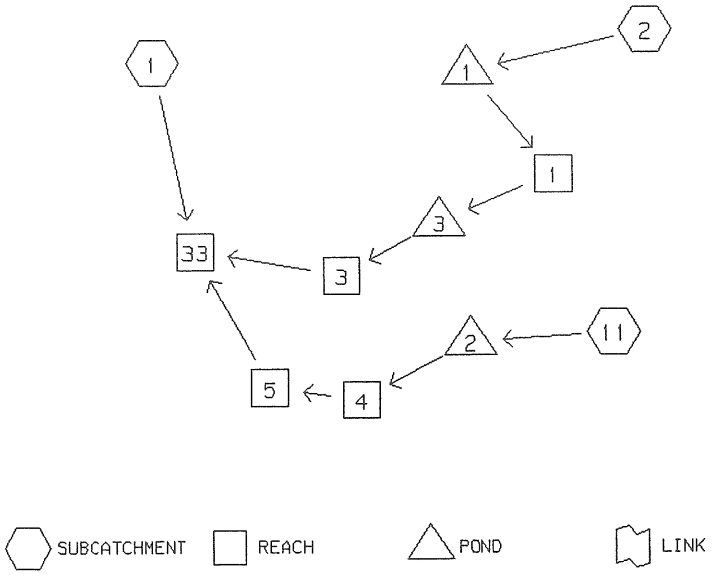
Qin = 13.64 CFS @ 12.77 HRS, VOLUME= 2.50 AF
Qout= 13.49 CFS @ 12.91 HRS, VOLUME= 2.49 AF, ATTEN= 1%, LAG= 8.4 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
66.9	5	0	0
67.0	144	7	7
68.0	5312	2728	2735
69.0	10096	7704	10439
69.5	12400	5624	16063

STOR-IND METHOD
PEAK STORAGE = 4437 CF
PEAK ELEVATION= 68.2 FT
FLOOD ELEVATION= 69.5 FT
START ELEVATION= 66.9 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 6.5 MIN (2.49 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.9'	24" CULVERT X 2
			n=.011 L=72' S=.0121'/' Ke=.9 Cc=.9 Cd=.47

WATERSHED ROUTING ==========



SUBCATCHMENT 1 East Route 495

PEAK= 2.92 CFS @ 12.55 HRS, VOLUME= .41 AF

ACRES	CN	
1.61	98	Impervious
1.45	77	Woods-D
.92	30	Woods-A
.49	39	Lawn-A
.63	61	Lawn-B
1.12	80	Lawn- D
.15	55	Woods-B
.43	89	Gravel-A
6.80	72	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 3.00 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	19.8
Woods: Light underbrush n=.4 L=100' P2=3 in s=.0266 '/'		
TR-55 SHEET FLOW	Segment ID: BC	7.6
Grass: Dense n=.24 L=50' P2=3 in s=.0266 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	1.4
Paved Kv=20.3282 L=300' s=.03 '/' V=3.52 fps		
CIRCULAR CHANNEL	Segment ID: DE	5.0
18" Diameter a=1.77 sq-ft Pw=4.7' r=.375'		
s=.005 '/' n=.11 V=.5 fps L=150' Capacity=.9 cfs		
CIRCULAR CHANNEL	Segment ID: EF	.3
24" Diameter a=3.14 sq-ft Pw=6.3' r=.5'		
s=.005 '/' n=.011 V=6.02 fps L=110' Capacity=18.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: FG	4.4
Woodland Kv=5 L=240' s=.033 '/' V=.91 fps		
	Total Length= 950 ft Total Tc=	38.5

SUBCATCHMENT 2 Forest Avenue

PEAK= 7.26 CFS @ 12.43 HRS, VOLUME= .89 AF

ACRES	CN	
2.92	98	Impervious
4.49	61	1/4 Acre Lots- A
1.74	83	1/4 Acre Lots- C
.62	87	1/4 Acre Lots- D
.06	55	Woods- B
1.12	77	Woods- D
10.95	77	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 3.00 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	14.7
Grass: Dense n=.24 L=100' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	8.8
Paved Kv=20.3282 L=1670' s=.024 '/' V=3.15 fps		
CIRCULAR CHANNEL	Segment ID: CD	1.5
15" Diameter a=1.23 sq-ft Pw=3.9' r=.313'		
s=.02 '/' n=.024 V=4.03 fps L=370' Capacity=4.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
	Total Length= 2340 ft Total Tc=	31.7

SUBCATCHMENT 11 495

PEAK= 1.37 CFS @ 12.51 HRS, VOLUME= .18 AF

ACRES	CN	
.48	98	Impervious
.48	80	Grass-D
.61	77	Woods-D
1.57	84	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 3.00 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	20.7
Woods: Light underbrush n=.4 L=65' P2=3 in s=.01 '/'		
TR-55 SHEET FLOW	Segment ID: BC	18.7
Grass: Dense n=.24 L=117' P2=3 in s=.015 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	0.0
Grassed Waterway Kv=15 L=20' s=.2 '/' V=6.71 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	.2
Grassed Waterway Kv=15 L=15' s=.01 '/' V=1.5 fps		
	Total Length= 217 ft Total Tc=	39.6

REACH 1 495 Channel

Qin = 6.31 CFS @ 12.60 HRS, VOLUME= .86 AF
Qout= 6.17 CFS @ 12.66 HRS, VOLUME= .86 AF, ATTEN= 2%, LAG= 3.8 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	1.24
.4	4.3	4.22
.6	7.2	8.94
.9	11.8	17.89
1.2	19.2	34.95
1.6	29.9	63.82
2.0	42.7	103.43

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 140 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .49 FT
PEAK VELOCITY= 1.1 FPS
TRAVEL TIME = 2.1 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 3 Channel Riverton

Qin = 6.10 CFS @ 12.73 HRS, VOLUME= .85 AF
Qout= 5.95 CFS @ 12.81 HRS, VOLUME= .85 AF, ATTEN= 2%, LAG= 4.9 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 240 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .34 FT
PEAK VELOCITY= 1.7 FPS
TRAVEL TIME = 2.4 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 4 Pipe from Pond

Qin = .17 CFS @ 14.88 HRS, VOLUME= .10 AF
Qout= .17 CFS @ 14.89 HRS, VOLUME= .10 AF, ATTEN= 0%, LAG= .8 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	.1	.26
.3	.3	1.09
.5	.4	2.43
1.1	1.3	10.39
1.2	1.5	12.13
1.4	1.7	13.23
1.4	1.7	13.35
1.5	1.8	13.23
1.5	1.8	12.41

18" PIPE
n= .011
LENGTH= 58 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .10 FT
PEAK VELOCITY= 2.8 FPS
TRAVEL TIME = .3 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 5 CHANNEL RIVERTON

Qin = .17 CFS @ 14.89 HRS, VOLUME= .10 AF
Qout= .17 CFS @ 14.94 HRS, VOLUME= .10 AF, ATTEN= 0%, LAG= 3.1 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 105 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .02 FT
PEAK VELOCITY= 1.2 FPS
TRAVEL TIME = 1.5 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 33

Not described

Qin = 8.44 CFS @ 12.75 HRS, VOLUME= 1.35 AF
Qout= 8.44 CFS @ 12.75 HRS, VOLUME= 1.35 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

POND 1 Pond

Qin = 7.26 CFS @ 12.43 HRS, VOLUME= .89 AF
Qout= 6.31 CFS @ 12.60 HRS, VOLUME= .86 AF, ATTEN= 13%, LAG= 10.3 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
100.0	100	0	0
102.0	9000	9100	9100
104.0	50000	59000	68100

STOR-IND METHOD
PEAK STORAGE = 5769 CF
PEAK ELEVATION= 101.3 FT
FLOOD ELEVATION= 104.0 FT
START ELEVATION= 100.0 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 27.3 MIN (.85 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	100.0'	**24" CULVERT** n=.024 L=120' S=.02'/' Ke=.9 Cc=.9 Cd=.47

POND 2 Detention

Qin = 1.37 CFS @ 12.51 HRS, VOLUME= .18 AF
Qout= .17 CFS @ 14.88 HRS, VOLUME= .10 AF, ATTEN= 88%, LAG= 142.2 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
63.8	1610	0	0
64.0	1734	334	334
65.0	2386	2060	2394
66.0	3096	2741	5135
67.0	3862	3479	8614
67.8	4684	3418	12033
68.0	5730	1041	13074

STOR-IND METHOD
PEAK STORAGE = 4730 CF
PEAK ELEVATION= 65.9 FT
FLOOD ELEVATION= 68.0 FT
START ELEVATION= 63.8 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 215.4 MIN (.1 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.8'	**12' BROAD-CRESTED RECTANGULAR WEIR X 1.81** Q=C L H^1.5 C=1.72, 1.88, 1.98, 0, 0, 0, 0, 0
2	P	63.8'	**2" ORIFICE/GRATE** Q=.6 PI r^2 SQR(2g) SQR(H-r)
3	P	65.8'	**10" ORIFICE/GRATE** Q=.6 PI r^2 SQR(2g) SQR(H-r)

POND 3 CULVERT POND

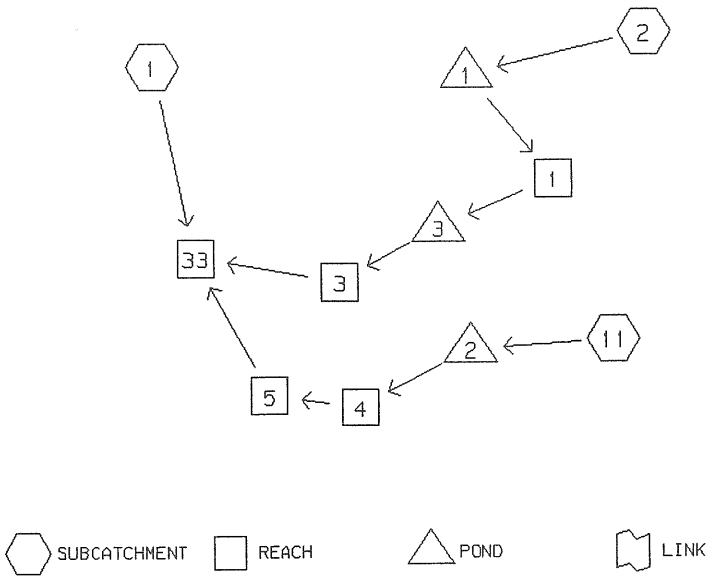
Qin = 6.17 CFS @ 12.66 HRS, VOLUME= .86 AF
Qout= 6.10 CFS @ 12.73 HRS, VOLUME= .85 AF, ATTEN= 1%, LAG= 4.0 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
66.9	5	0	0
67.0	144	7	7
68.0	5312	2728	2735
69.0	10096	7704	10439
69.5	12400	5624	16063

STOR-IND METHOD
PEAK STORAGE = 2013 CF
PEAK ELEVATION= 67.7 FT
FLOOD ELEVATION= 69.5 FT
START ELEVATION= 66.9 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 8.2 MIN (.84 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.9'	**24" CULVERT X 2**
			n=.011 L=72' S=.0121'/' Ke=.9 Cc=.9 Cd=.47

WATERSHED ROUTING ==========



SUBCATCHMENT 1 East Route 495

PEAK= 7.71 CFS @ 12.51 HRS, VOLUME= 1.02 AF

ACRES	CN	
1.61	98	Impervious
1.45	77	Woods-D
.92	30	Woods-A
.49	39	Lawn-A
.63	61	Lawn-B
1.12	80	Lawn- D
.15	55	Woods-B
.43	89	Gravel-A
6.80	72	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 4.70 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	**Segment ID: AB**	19.8
Woods: Light underbrush n=.4 L=100' P2=3 in s=.0266 '/'		
TR-55 SHEET FLOW	**Segment ID: BC**	7.6
Grass: Dense n=.24 L=50' P2=3 in s=.0266 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: CD**	1.4
Paved Kv=20.3282 L=300' s=.03 '/' V=3.52 fps		
CIRCULAR CHANNEL	**Segment ID: DE**	5.0
18" Diameter a=1.77 sq-ft Pw=4.7' r=.375'		
s=.005 '/' n=.11 V=.5 fps L=150' Capacity=.9 cfs		
CIRCULAR CHANNEL	**Segment ID: EF**	.3
24" Diameter a=3.14 sq-ft Pw=6.3' r=.5'		
s=.005 '/' n=.011 V=6.02 fps L=110' Capacity=18.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: FG**	4.4
Woodland Kv=5 L=240' s=.033 '/' V=.91 fps		
	Total Length= 950 ft Total Tc=	38.5

SUBCATCHMENT 2 Forest Avenue

PEAK= 16.67 CFS @ 12.40 HRS, VOLUME= 1.99 AF

ACRES	CN	
2.92	98	Impervious
4.49	61	1/4 Acre Lots- A
1.74	83	1/4 Acre Lots- C
.62	87	1/4 Acre Lots- D
.06	55	Woods- B
1.12	77	Woods- D
10.95	77	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 4.70 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	14.7
Grass: Dense n=.24 L=100' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	8.8
Paved Kv=20.3282 L=1670' s=.024 '/' V=3.15 fps		
CIRCULAR CHANNEL	Segment ID: CD	1.5
15" Diameter a=1.23 sq-ft Pw=3.9' r=.313'		
s=.02 '/' n=.024 V=4.03 fps L=370' Capacity=4.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
	Total Length= 2340 ft Total Tc=	31.7

SUBCATCHMENT 11 495

PEAK= 2.71 CFS @ 12.49 HRS, VOLUME= .36 AF

ACRES	CN	
.48	98	Impervious
.48	80	Grass-D
.61	77	Woods-D
1.57	84	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 4.70 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	20.7
Woods: Light underbrush n=.4 L=65' P2=3 in s=.01 '/'		
TR-55 SHEET FLOW	Segment ID: BC	18.7
Grass: Dense n=.24 L=117' P2=3 in s=.015 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	0.0
Grassed Waterway Kv=15 L=20' s=.2 '/' V=6.71 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	.2
Grassed Waterway Kv=15 L=15' s=.01 '/' V=1.5 fps		
	Total Length= 217 ft Total Tc=	39.6

REACH 1 495 Channel

Qin = 12.47 CFS @ 12.65 HRS, VOLUME= 1.95 AF
Qout= 12.44 CFS @ 12.70 HRS, VOLUME= 1.95 AF, ATTEN= 0%, LAG= 3.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	1.24
.4	4.3	4.22
.6	7.2	8.94
.9	11.8	17.89
1.2	19.2	34.95
1.6	29.9	63.82
2.0	42.7	103.43

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 140 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .70 FT
PEAK VELOCITY= 1.4 FPS
TRAVEL TIME = 1.7 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 3 Channel Riverton

Qin = 12.28 CFS @ 12.85 HRS, VOLUME= 1.94 AF
Qout= 12.23 CFS @ 12.90 HRS, VOLUME= 1.93 AF, ATTEN= 0%, LAG= 2.7 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 240 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .51 FT
PEAK VELOCITY= 2.1 FPS
TRAVEL TIME = 1.9 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 4 Pipe from Pond

Qin = 1.40 CFS @ 12.98 HRS, VOLUME= .26 AF
Qout= 1.39 CFS @ 12.99 HRS, VOLUME= .26 AF, ATTEN= 0%, LAG= .3 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	.1	.26
.3	.3	1.09
.5	.4	2.43
1.1	1.3	10.39
1.2	1.5	12.13
1.4	1.7	13.23
1.4	1.7	13.35
1.5	1.8	13.23
1.5	1.8	12.41

18" PIPE
n= .011
LENGTH= 58 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .33 FT
PEAK VELOCITY= 4.7 FPS
TRAVEL TIME = .2 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 5 CHANNEL RIVERTON

Qin = 1.39 CFS @ 12.99 HRS, VOLUME= .26 AF
Qout= 1.38 CFS @ 13.04 HRS, VOLUME= .25 AF, ATTEN= 1%, LAG= 3.3 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 105 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .13 FT
PEAK VELOCITY= 1.2 FPS
TRAVEL TIME = 1.5 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 33

Not described

Qin = 19.11 CFS @ 12.68 HRS, VOLUME= 3.20 AF
Qout= 19.11 CFS @ 12.68 HRS, VOLUME= 3.20 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

POND 1 Pond

Qin = 16.67 CFS @ 12.40 HRS, VOLUME= 1.99 AF
Qout= 12.47 CFS @ 12.65 HRS, VOLUME= 1.95 AF, ATTEN= 25%, LAG= 14.7 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
100.0	100	0	0
102.0	9000	9100	9100
104.0	50000	59000	68100

STOR-IND METHOD
PEAK STORAGE = 12183 CF
PEAK ELEVATION= 102.1 FT
FLOOD ELEVATION= 104.0 FT
START ELEVATION= 100.0 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 20.8 MIN (1.93 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	100.0'	**24" CULVERT** n=.024 L=120' S=.02'/' Ke=.9 Cc=.9 Cd=.47

POND 2 Detention

Qin = 2.71 CFS @ 12.49 HRS, VOLUME= .36 AF
Qout= 1.40 CFS @ 12.98 HRS, VOLUME= .26 AF, ATTEN= 49%, LAG= 29.2 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
63.8	1610	0	0
64.0	1734	334	334
65.0	2386	2060	2394
66.0	3096	2741	5135
67.0	3862	3479	8614
67.8	4684	3418	12033
68.0	5730	1041	13074

STOR-IND METHOD
PEAK STORAGE = 6673 CF
PEAK ELEVATION= 66.4 FT
FLOOD ELEVATION= 68.0 FT
START ELEVATION= 63.8 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 126 MIN (.25 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.8'	**12' BROAD-CRESTED RECTANGULAR WEIR X 1.81** Q=C L H^1.5 C=1.72, 1.88, 1.98, 0, 0, 0, 0, 0
2	P	63.8'	**2" ORIFICE/GRATE** Q=.6 PI r^2 SQR(2g) SQR(H-r)
3	P	65.8'	**10" ORIFICE/GRATE** Q=.6 PI r^2 SQR(2g) SQR(H-r)

POND 3 CULVERT POND

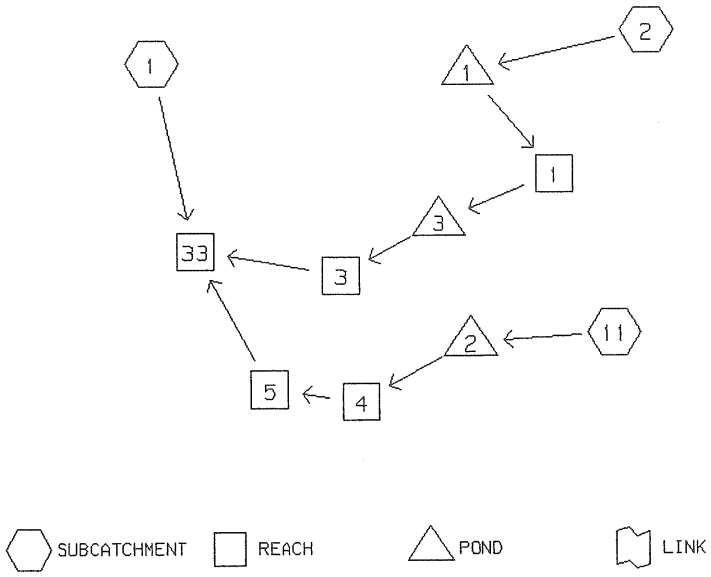
Qin = 12.44 CFS @ 12.70 HRS, VOLUME= 1.95 AF
Qout= 12.28 CFS @ 12.85 HRS, VOLUME= 1.94 AF, ATTEN= 1%, LAG= 9.1 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
66.9	5	0	0
67.0	144	7	7
68.0	5312	2728	2735
69.0	10096	7704	10439
69.5	12400	5624	16063

STOR-IND METHOD
PEAK STORAGE = 3857 CF
PEAK ELEVATION= 68.1 FT
FLOOD ELEVATION= 69.5 FT
START ELEVATION= 66.9 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 6.8 MIN (1.94 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.9'	**24" CULVERT X 2**
			n=.011 L=72' S=.0121'/' Ke=.9 Cc=.9 Cd=.47

WATERSHED ROUTING ==========



SUBCATCHMENT 1 East Route 495

PEAK= 10.25 CFS @ 12.50 HRS, VOLUME= 1.34 AF

ACRES	CN	
1.61	98	Impervious
1.45	77	Woods-D
.92	30	Woods-A
.49	39	Lawn-A
.63	61	Lawn-B
1.12	80	Lawn- D
.15	55	Woods-B
.43	89	Gravel-A
6.80	72	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	**Segment ID: AB**	19.8
Woods: Light underbrush n=.4 L=100' P2=3 in s=.0266 '/'		
TR-55 SHEET FLOW	**Segment ID: BC**	7.6
Grass: Dense n=.24 L=50' P2=3 in s=.0266 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: CD**	1.4
Paved Kv=20.3282 L=300' s=.03 '/' V=3.52 fps		
CIRCULAR CHANNEL	**Segment ID: DE**	5.0
18" Diameter a=1.77 sq-ft Pw=4.7' r=.375'		
s=.005 '/' n=.11 V=.5 fps L=150' Capacity=.9 cfs		
CIRCULAR CHANNEL	**Segment ID: EF**	.3
24" Diameter a=3.14 sq-ft Pw=6.3' r=.5'		
s=.005 '/' n=.011 V=6.02 fps L=110' Capacity=18.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: FG**	4.4
Woodland Kv=5 L=240' s=.033 '/' V=.91 fps		
	Total Length= 950 ft Total Tc=	38.5

SUBCATCHMENT 2 Forest Avenue

PEAK= 21.44 CFS @ 12.40 HRS, VOLUME= 2.54 AF

ACRES	CN	
2.92	98	Impervious
4.49	61	1/4 Acre Lots- A
1.74	83	1/4 Acre Lots- C
.62	87	1/4 Acre Lots- D
.06	55	Woods- B
1.12	77	Woods- D
10.95	77	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	14.7
Grass: Dense n=.24 L=100' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	8.8
Paved Kv=20.3282 L=1670' s=.024 '/' V=3.15 fps		
CIRCULAR CHANNEL	Segment ID: CD	1.5
15" Diameter a=1.23 sq-ft Pw=3.9' r=.313'		
s=.02 '/' n=.024 V=4.03 fps L=370' Capacity=4.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
	Total Length= 2340 ft Total Tc=	31.7

SUBCATCHMENT 11 495

PEAK= 3.36 CFS @ 12.49 HRS, VOLUME= .44 AF

ACRES	CN	
.48	98	Impervious
.48	80	Grass-D
.61	77	Woods-D
1.57	84	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	20.7
Woods: Light underbrush n=.4 L=65' P2=3 in s=.01 '/'		
TR-55 SHEET FLOW	Segment ID: BC	18.7
Grass: Dense n=.24 L=117' P2=3 in s=.015 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	0.0
Grassed Waterway Kv=15 L=20' s=.2 '/' V=6.71 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	.2
Grassed Waterway Kv=15 L=15' s=.01 '/' V=1.5 fps		
	Total Length= 217 ft Total Tc=	39.6

REACH 1 495 Channel

Qin = 13.68 CFS @ 12.72 HRS, VOLUME= 2.50 AF
Qout= 13.64 CFS @ 12.77 HRS, VOLUME= 2.50 AF, ATTEN= 0%, LAG= 3.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	1.24
.4	4.3	4.22
.6	7.2	8.94
.9	11.8	17.89
1.2	19.2	34.95
1.6	29.9	63.82
2.0	42.7	103.43

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 140 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .74 FT
PEAK VELOCITY= 1.4 FPS
TRAVEL TIME = 1.6 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 3 Channel Riverton

Qin = 13.49 CFS @ 12.91 HRS, VOLUME= 2.49 AF
Qout= 13.46 CFS @ 12.97 HRS, VOLUME= 2.48 AF, ATTEN= 0%, LAG= 3.5 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 240 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .54 FT
PEAK VELOCITY= 2.1 FPS
TRAVEL TIME = 1.9 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 4 Pipe from Pond

Qin = 1.97 CFS @ 12.90 HRS, VOLUME= .34 AF
Qout= 1.97 CFS @ 12.91 HRS, VOLUME= .34 AF, ATTEN= 0%, LAG= .3 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	.1	.26
.3	.3	1.09
.5	.4	2.43
1.1	1.3	10.39
1.2	1.5	12.13
1.4	1.7	13.23
1.4	1.7	13.35
1.5	1.8	13.23
1.5	1.8	12.41

18" PIPE
n= .011
LENGTH= 58 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .40 FT
PEAK VELOCITY= 5.2 FPS
TRAVEL TIME = .2 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 5 CHANNEL RIVERTON

Qin = 1.97 CFS @ 12.91 HRS, VOLUME= .34 AF
Qout= 1.95 CFS @ 12.96 HRS, VOLUME= .34 AF, ATTEN= 1%, LAG= 3.3 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 105 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .18 FT
PEAK VELOCITY= 1.2 FPS
TRAVEL TIME = 1.5 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 33

Not described

Qin = 23.09 CFS @ 12.65 HRS, VOLUME= 4.16 AF
Qout= 23.09 CFS @ 12.65 HRS, VOLUME= 4.16 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

POND 1 Pond

Qin = 21.44 CFS @ 12.40 HRS, VOLUME= 2.54 AF
Qout= 13.68 CFS @ 12.72 HRS, VOLUME= 2.50 AF, ATTEN= 36%, LAG= 19.4 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
100.0	100	0	0
102.0	9000	9100	9100
104.0	50000	59000	68100

STOR-IND METHOD
PEAK STORAGE = 18945 CF
PEAK ELEVATION= 102.3 FT
FLOOD ELEVATION= 104.0 FT
START ELEVATION= 100.0 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 21.6 MIN (2.5 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	100.0'	**24" CULVERT**
			n=.024 L=120' S=.02'/' Ke=.9 Cc=.9 Cd=.47

POND 2 Detention

Qin = 3.36 CFS @ 12.49 HRS, VOLUME= .44 AF
Qout= 1.97 CFS @ 12.90 HRS, VOLUME= .34 AF, ATTEN= 41%, LAG= 24.9 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
63.8	1610	0	0
64.0	1734	334	334
65.0	2386	2060	2394
66.0	3096	2741	5135
67.0	3862	3479	8614
67.8	4684	3418	12033
68.0	5730	1041	13074

STOR-IND METHOD
PEAK STORAGE = 7522 CF
PEAK ELEVATION= 66.7 FT
FLOOD ELEVATION= 68.0 FT
START ELEVATION= 63.8 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 108.7 MIN (.33 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.8'	**12' BROAD-CRESTED RECTANGULAR WEIR X 1.81**
			Q=C L H^1.5 C=1.72, 1.88, 1.98, 0, 0, 0, 0, 0
2	P	63.8'	**2" ORIFICE/GRATE**
			Q=.6 PI r^2 SQR(2g) SQR(H-r)
3	P	65.8'	**10" ORIFICE/GRATE**
			Q=.6 PI r^2 SQR(2g) SQR(H-r)

POND 3 CULVERT POND

Qin = 13.64 CFS @ 12.77 HRS, VOLUME= 2.50 AF
Qout= 13.49 CFS @ 12.91 HRS, VOLUME= 2.49 AF, ATTEN= 1%, LAG= 8.4 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
66.9	5	0	0
67.0	144	7	7
68.0	5312	2728	2735
69.0	10096	7704	10439
69.5	12400	5624	16063

STOR-IND METHOD
PEAK STORAGE = 4437 CF
PEAK ELEVATION= 68.2 FT
FLOOD ELEVATION= 69.5 FT
START ELEVATION= 66.9 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 6.5 MIN (2.49 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.9'	24" CULVERT X 2
			n=.011 L=72' S=.0121'/' Ke=.9 Cc=.9 Cd=.47

ATTACHMENT C

WATER QUALITY CALCULATIONS

JN 442
Computed By: DER

Task: Determine water quality treatment provided for proposed residential housing complex, Portland, Maine

References:

1 Grading & Drainage Plan for Wellesley Estates by Gorrill-Palmer Consulting Engineers, Inc., dated December 2001

2 Chapter 500, Stormwater Management & Chapter 502, Direct Watersheds of Waterbodies Most at Risk from New Development Rules dated 12/31/97.

3 Stormwater Management for Maine Best Management Practices published by the MDEP, original date Nov. 95, addendum date 12/12/96

4 Letter dated June 21, 2001 from Marianne Hubert indicating approved stormwater quality treatment standards for the Vortechnics Unit at 50% treatment.

Computations:

1. Determine % TSS Removal Required

The project is ultimately tributary to the Presumpscot River, which is not listed as a waterbody most at risk from development in Chapter 502.
Based upon MDEP requirements the project is not required to meet water quality requirements.

The Applicant, due to their commitment to minimize the environmental impact of their project, has elected to implement water quality standards for their project to meet the Sliding Scale TSS Removal Standard.

Assumptions:

1 A large portion of the proposed impervious areas will be treated using Vortechnics Units, and the accepted values for TSS removal included within Reference #4, the attached calculations from Vortechnics.

2 From reference 3, a 10% TSS removal factor can be added to the areas which are tributary to the detention pond, as well as an additional 10% for areas with Casco Traps within the catch basins.

Calculations:

1 Determine Treatment Areas (See attached HydroCad calculations)

	Total non-vegetated
Areas tributary to Casco Traps & WQU 1	1.59 Acres*
Areas tributary to Casco Traps & Detention	0.47 Acres**
Total	2.06 Acres

* Includes 0.16 acres of existing impervious surface
** Includes 0.15 acres of existing impervious surface

2 Determine Treatment Efficiency for Each Area based upon Vortechnic removal rate of 50%

Area tributary to WQU 1

Vortech Unit treats at 50% efficiency per Reference 5

Casco Traps at	10%
WQU 1 at	50%
Efficiency=(1-X) =(1-50%)(1-10%)=	55.0%

Area tributary to Detention pond

Detention Pond at	10%
Casco Traps at	10%
Efficiency=(1-X) =(1-10%)(1-10%)=	19.0%

Check of Treatment Level (with Credits for offsite areas)

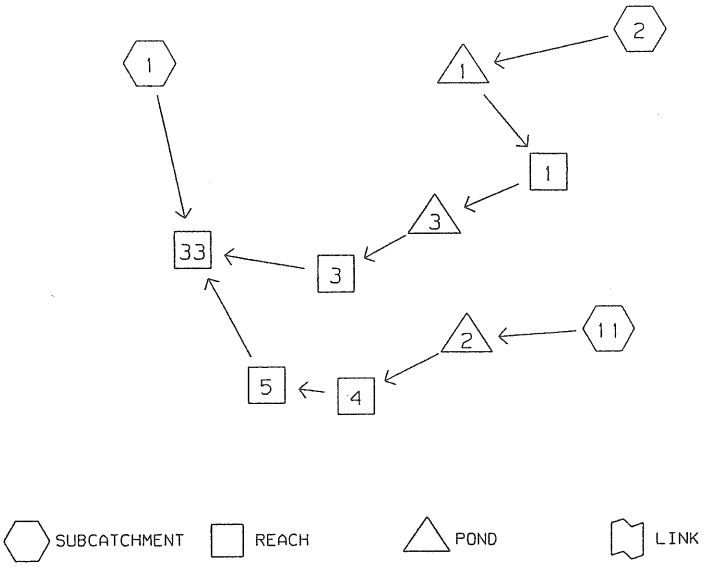
Component	Non-vegetated Area	TSS Removal Efficiency	Area x Efficiency
WQU 1	1.59	55.0%	0.87
Detention	0.47	19.0%	0.09
Total	2.06 (treated non-vegetated)		0.96

Total New non-vegetated 1.75 (area with existing non-vegetated credits)

Area Treatment Efficiency = $\frac{\text{Sum of Area x Efficiency}}{\text{Total New Non-vegetated area}}$ = 55.1%

Based upon the calculations above, the overall treatment efficiency for the new, non-vegetated surfaces is 55.1%, which is greater than the 51%, which would be required for surfaces created after 1997. Therefore, based upon TSS removal rates attained by the Vortechnic units, the proposed facility would attain the sliding scale TSS removal standards for the new non-vegetated surfaces on the site, if the project were required meet that standard.

WATERSHED ROUTING ==========



SUBCATCHMENT 1 **East Route 495**

PEAK= 1.76 CFS @ 12.58 HRS, VOLUME= .26 AF

ACRES	CN	
1.61	98	Impervious
1.45	77	Woods-D
.92	30	Woods-A
.49	39	Lawn-A
.63	61	Lawn-B
1.12	80	Lawn- D
.15	55	Woods-B
.43	89	Gravel-A
6.80	72	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 2.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	**Segment ID: AB**	19.8
Woods: Light underbrush n=.4 L=100' P2=3 in s=.0266 '/'		
TR-55 SHEET FLOW	**Segment ID: BC**	7.6
Grass: Dense n=.24 L=50' P2=3 in s=.0266 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: CD**	1.4
Paved Kv=20.3282 L=300' s=.03 '/' V=3.52 fps		
CIRCULAR CHANNEL	**Segment ID: DE**	5.0
18" Diameter a=1.77 sq-ft Pw=4.7' r=.375'		
s=.005 '/' n=.11 V=.5 fps L=150' Capacity=.9 cfs		
CIRCULAR CHANNEL	**Segment ID: EF**	.3
24" Diameter a=3.14 sq-ft Pw=6.3' r=.5'		
s=.005 '/' n=.011 V=6.02 fps L=110' Capacity=18.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: FG**	4.4
Woodland Kv=5 L=240' s=.033 '/' V=.91 fps		
	Total Length= 950 ft Total Tc=	38.5

SUBCATCHMENT 2 **Forest Avenue**

PEAK= 4.84 CFS @ 12.44 HRS, VOLUME= .61 AF

ACRES	CN	
2.92	98	Impervious
4.49	61	1/4 Acre Lots- A
1.74	83	1/4 Acre Lots- C
.62	87	1/4 Acre Lots- D
.06	55	Woods- B
1.12	77	Woods- D
10.95	77	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 2.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	**Segment ID: AB**	14.7
Grass: Dense n=.24 L=100' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: BC**	8.8
Paved Kv=20.3282 L=1670' s=.024 '/' V=3.15 fps		
CIRCULAR CHANNEL	**Segment ID: CD**	1.5
15" Diameter a=1.23 sq-ft Pw=3.9' r=.313'		
s=.02 '/' n=.024 V=4.03 fps L=370' Capacity=4.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: DE**	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
	Total Length= 2340 ft Total Tc=	31.7

SUBCATCHMENT 11 **495**

PEAK= 1.25 CFS @ 12.31 HRS, VOLUME= .13 AF

ACRES	CN	
.48	98	Impervious
.48	80	Grass-D
.61	77	Woods-D
1.57	84	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 2.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	**Segment ID: AB**	12.6
Woods: Light underbrush n=.4 L=35' P2=3 in s=.01 '/'		
TR-55 SHEET FLOW	**Segment ID: BC**	11.7
Grass: Dense n=.24 L=65' P2=3 in s=.015 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: CD**	.1
Grassed Waterway Kv=15 L=10' s=.015 '/' V=1.84 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	**Segment ID: DE**	0.0
Grassed Waterway Kv=15 L=12' s=.33 '/' V=8.62 fps		
	Total Length= 122 ft Total Tc=	24.4

REACH 1 495 Channel

Qin = 4.00 CFS @ 12.65 HRS, VOLUME= .58 AF
Qout= 3.91 CFS @ 12.73 HRS, VOLUME= .58 AF, ATTEN= 2%, LAG= 5.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	1.24
.4	4.3	4.22
.6	7.2	8.94
.9	11.8	17.89
1.2	19.2	34.95
1.6	29.9	63.82
2.0	42.7	103.43

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 140 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .38 FT
PEAK VELOCITY= 1.0 FPS
TRAVEL TIME = 2.4 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 3 Channel Riverton

Qin = 3.81 CFS @ 12.82 HRS, VOLUME= .58 AF
Qout= 3.72 CFS @ 12.91 HRS, VOLUME= .58 AF, ATTEN= 2%, LAG= 5.3 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 240 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .26 FT
PEAK VELOCITY= 1.5 FPS
TRAVEL TIME = 2.8 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 4 Pipe from Pond

Qin = .13 CFS @ 14.72 HRS, VOLUME= .08 AF
Qout= .13 CFS @ 14.74 HRS, VOLUME= .08 AF, ATTEN= 0%, LAG= .7 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	.1	.26
.3	.3	1.09
.5	.4	2.43
1.1	1.3	10.39
1.2	1.5	12.13
1.4	1.7	13.23
1.4	1.7	13.35
1.5	1.8	13.23
1.5	1.8	12.41

18" PIPE

n= .011
LENGTH= 58 FT
SLOPE= .01 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .07 FT
PEAK VELOCITY= 2.8 FPS
TRAVEL TIME = .3 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 5 CHANNEL RIVERTON

Qin = .13 CFS @ 14.74 HRS, VOLUME= .08 AF
Qout= .13 CFS @ 14.79 HRS, VOLUME= .08 AF, ATTEN= 0%, LAG= 3.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	2.19
.4	4.3	7.47
.6	7.2	15.82
.9	11.8	31.65
1.2	19.2	61.84
1.6	29.9	112.91
2.0	42.7	182.99

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 105 FT
SLOPE= .0313 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .01 FT
PEAK VELOCITY= 1.2 FPS
TRAVEL TIME = 1.5 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 33

Not described

Qin = 5.18 CFS @ 12.85 HRS, VOLUME= .92 AF
Qout= 5.18 CFS @ 12.85 HRS, VOLUME= .92 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

POND 1 **Pond**

Qin = 4.84 CFS @ 12.44 HRS, VOLUME= .61 AF
Qout= 4.00 CFS @ 12.65 HRS, VOLUME= .58 AF, ATTEN= 17%, LAG= 12.3 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
100.0	100	0	0
102.0	9000	9100	9100
104.0	50000	59000	68100

STOR-IND METHOD
PEAK STORAGE = 4400 CF
PEAK ELEVATION= 101.0 FT
FLOOD ELEVATION= 104.0 FT
START ELEVATION= 100.0 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 32.7 MIN (.58 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	100.0'	**24" CULVERT**
			n=.024 L=120' S=.02'/' Ke=.9 Cc=.9 Cd=.47

POND 2 **Detention**

Qin = 1.25 CFS @ 12.31 HRS, VOLUME= .13 AF
Qout= .13 CFS @ 14.72 HRS, VOLUME= .08 AF, ATTEN= 90%, LAG= 144.9 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
63.8	1610	0	0
64.0	1734	334	334
65.0	2386	2060	2394
66.0	3096	2741	5135
67.0	3862	3479	8614
67.8	4684	3418	12033
68.0	5730	1041	13074

STOR-IND METHOD
PEAK STORAGE = 3327 CF
PEAK ELEVATION= 65.3 FT
FLOOD ELEVATION= 68.0 FT
START ELEVATION= 63.8 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 219.1 MIN (.08 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.8'	**12' BROAD-CRESTED RECTANGULAR WEIR X 1.81**
			Q=C L H^1.5 C=1.72, 1.88, 1.98, 0, 0, 0, 0, 0
2	P	63.8'	**2" ORIFICE/GRATE**
			Q=.6 PI r^2 SQR(2g) SQR(H-r)
3	P	65.8'	**10" ORIFICE/GRATE**
			Q=.6 PI r^2 SQR(2g) SQR(H-r)

POND 3 CULVERT POND

Qin = 3.91 CFS @ 12.73 HRS, VOLUME= .58 AF
Qout= 3.81 CFS @ 12.82 HRS, VOLUME= .58 AF, ATTEN= 2%, LAG= 5.3 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
66.9	5	0	0
67.0	144	7	7
68.0	5312	2728	2735
69.0	10096	7704	10439
69.5	12400	5624	16063

STOR-IND METHOD
PEAK STORAGE = 1503 CF
PEAK ELEVATION= 67.5 FT
FLOOD ELEVATION= 69.5 FT
START ELEVATION= 66.9 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 9.1 MIN (.57 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	66.9'	24" CULVERT X 2

n=.011 L=72' S=.0121'/' Ke=.9 Cc=.9 Cd=.47

Vortechnics

ENGINEERED PRODUCTS
FOR STORMWATER TREATMENT

Wellesley Estates – Portland, Maine

Vortechs Stormwater Treatment System
Design Confirmation and Sizing Calculations

Vortech #1

Site and System Specifics

$Q_{1\text{-year}} = 1.8$ cfs
Specified System – Vortechs Model 3000
Treatment Capacity = 4.5 cfs
Grit Chamber Diameter = 5 ft

Vortechs System Swirl Chamber Surface Area Calculation

Surface Area = $(pi)r^2$ $= (3.14)(2.5 \text{ ft})^2$
$= 19$ sqft

$Q_{1\text{-year}}$ Water Loading Rate Calculation

$Q_{1\text{-year}}$ Operating Rate $= Q_{1\text{-year}}$ /Grit Chamber Surface Area
$= (1.8 \text{ cfs} * 448.8 \text{ gpm/cfs})/19 \text{ sqft}$
$= 41$ gpm/sqft

50% ME DEP Total Suspended Solids Removal Rating Verification

As stated in the attached letter from the ME DEP dated May 24, 2001, a removal rating of 50% will apply to Vortechs Systems, provided that the projected one year peak flow does not exceed a water loading rate of 42 gpm/sqft within the Vortechs System.

Since the calculated water loading rate 41 gpm/sqft for a one year flow does not exceed the upper limit of 42 gpm/sqft as set by the ME DEP, the Vortechs Model 3000 is sized appropriately for a 50% TSS removal rating.

ATTACHMENT D

PIPE SIZING CALCULATIONS

Rational Method Runoff Computations: Secondary Watersheds, With Connectivity Input

Project: ellesley Estates
Job Number: 442
Original Date: 2/12/02
Revised Date: 2/12/02

Runoff Computed for 25 *Year Storm Frequency* *I is for IDF25 year*

Primary Structure	Secondary Structure	Inlet Flow to Primary Structure						Pipe Flow to Secondary Structure								Pipe Size
		Area (ac)	C	CA	Tc(min)	I(in/hr)	Q(cfs)	Sum(CA)	Tc(min)	I(in/hr)	Q(cfs)	L(ft)	V(fps)	Tt(min)	Tc+Tt(min)	inches
SITE																
CB4	OUTLET	0.37	0.89	0.33	5.00	6.20	2.04	0.33	5.00	6.20	2.04	84	3.45	0.41	5.41	12
FI 1	CB6	0.91	0.37	0.33	5.00	6.20	2.06	0.33	5.00	6.20	2.06	42	10.91	0.06	5.06	12
CB6	CB3	0.09	0.95	0.09	5.00	6.20	0.53	0.42	5.06	6.18	2.58	17	4.74	0.06	5.12	12
CB3	CB5	0.11	0.95	0.10	5.00	6.20	0.65	0.52	5.12	6.16	3.22	46	5.63	0.14	5.26	12
CB7	CB1	1.11	0.24	0.27	5.00	6.20	1.66	0.27	5.00	6.20	1.66	99	5.43	0.30	5.30	12
CB1	DMH1	1.18	0.54	0.63	5.00	6.20	3.92	0.90	5.30	6.11	5.50	39	3.41	0.19	5.49	18
CB2	DMH1	0.23	0.87	0.20	5.00	6.20	1.24	0.20	5.00	6.20	1.24	39	3.05	0.21	5.21	12
DMH1	CB5							1.10	5.49	6.05	6.66	91	3.57	0.42	5.92	18
CB5	OUTLET	0.41	0.91	0.37	5.00	6.20	2.30	1.99	5.92	5.92	11.82	66	5.35	0.21	6.12	24

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB4 TO OUTLET

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0050 ft/ft
Manning's n.....	0.011
Discharge.....	2.04 cfs

Computed Results:

Full Flow Diameter.....	0.87 ft
Full Flow Depth.....	0.87 ft
Velocity.....	3.45 fps
Flow Area.....	0.59 sf
Critical Depth....	0.63 ft
Percent Full.....	100.00 %
Full Capacity.....	2.04 cfs
QMAX @.94D.....	2.19 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: FIELD INTLET TO CB6

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.1070 ft/ft
Manning's n.....	0.011
Discharge.....	2.06 cfs

Computed Results:

Full Flow Diameter.....	0.49 ft
Full Flow Depth.....	0.49 ft
Velocity.....	10.91 fps
Flow Area.....	0.19 sf
Critical Depth....	0.49 ft
Percent Full.....	100.00 %
Full Capacity.....	2.06 cfs
QMAX @.94D.....	2.22 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB6 TO CB3

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0100 ft/ft
Manning's n.....	0.011
Discharge.....	2.58 cfs

Computed Results:

Full Flow Diameter.....	0.83 ft
Full Flow Depth.....	0.83 ft
Velocity.....	4.74 fps
Flow Area.....	0.54 sf
Critical Depth....	0.71 ft
Percent Full.....	100.00 %
Full Capacity.....	2.58 cfs
QMAX @.94D.....	2.78 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB3 TO CB5

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0136 ft/ft
Manning's n.....	0.011
Discharge.....	3.22 cfs

Computed Results:

Full Flow Diameter.....	0.85 ft
Full Flow Depth.....	0.85 ft
Velocity.....	5.63 fps
Flow Area.....	0.57 sf
Critical Depth....	0.77 ft
Percent Full.....	100.00 %
Full Capacity.....	3.22 cfs
QMAX @.94D.....	3.46 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB7 TO CB1

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0192 ft/ft
Manning's n.....	0.011
Discharge.....	1.66 cfs

Computed Results:

Full Flow Diameter.....	0.62 ft
Full Flow Depth.....	0.62 ft
Velocity.....	5.43 fps
Flow Area.....	0.31 sf
Critical Depth....	0.58 ft
Percent Full.....	100.00 %
Full Capacity.....	1.66 cfs
QMAX @.94D.....	1.79 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB1 TO DMH1

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0025 ft/ft
Manning's n.....	0.011
Discharge.....	5.50 cfs

Computed Results:

Full Flow Diameter.....	1.43 ft
Full Flow Depth.....	1.43 ft
Velocity.....	3.41 fps
Flow Area.....	1.61 sf
Critical Depth....	0.92 ft
Percent Full.....	100.00 %
Full Capacity.....	5.50 cfs
QMAX @.94D.....	5.92 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB2 TO DMH1

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0050 ft/ft
Manning's n.....	0.011
Discharge.....	1.24 cfs

Computed Results:

Full Flow Diameter.....	0.72 ft
Full Flow Depth.....	0.72 ft
Velocity.....	3.05 fps
Flow Area.....	0.41 sf
Critical Depth....	0.52 ft
Percent Full.....	100.00 %
Full Capacity.....	1.24 cfs
QMAX @.94D.....	1.33 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: DMH1 TO CB5

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0025 ft/ft
Manning's n.....	0.011
Discharge.....	6.66 cfs

Computed Results:

Full Flow Diameter.....	1.54 ft
Full Flow Depth.....	1.54 ft
Velocity.....	3.57 fps
Flow Area.....	1.86 sf
Critical Depth....	0.99 ft
Percent Full.....	100.00 %
Full Capacity.....	6.66 cfs
QMAX @.94D.....	7.16 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB5 TO WQU

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0050 ft/ft
Manning's n.....	0.011
Discharge.....	11.82 cfs

Computed Results:

Full Flow Diameter.....	1.68 ft
Full Flow Depth.....	1.68 ft
Velocity.....	5.35 fps
Flow Area.....	2.21 sf
Critical Depth....	1.29 ft
Percent Full.....	100.00 %
Full Capacity.....	11.82 cfs
QMAX @.94D.....	12.71 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

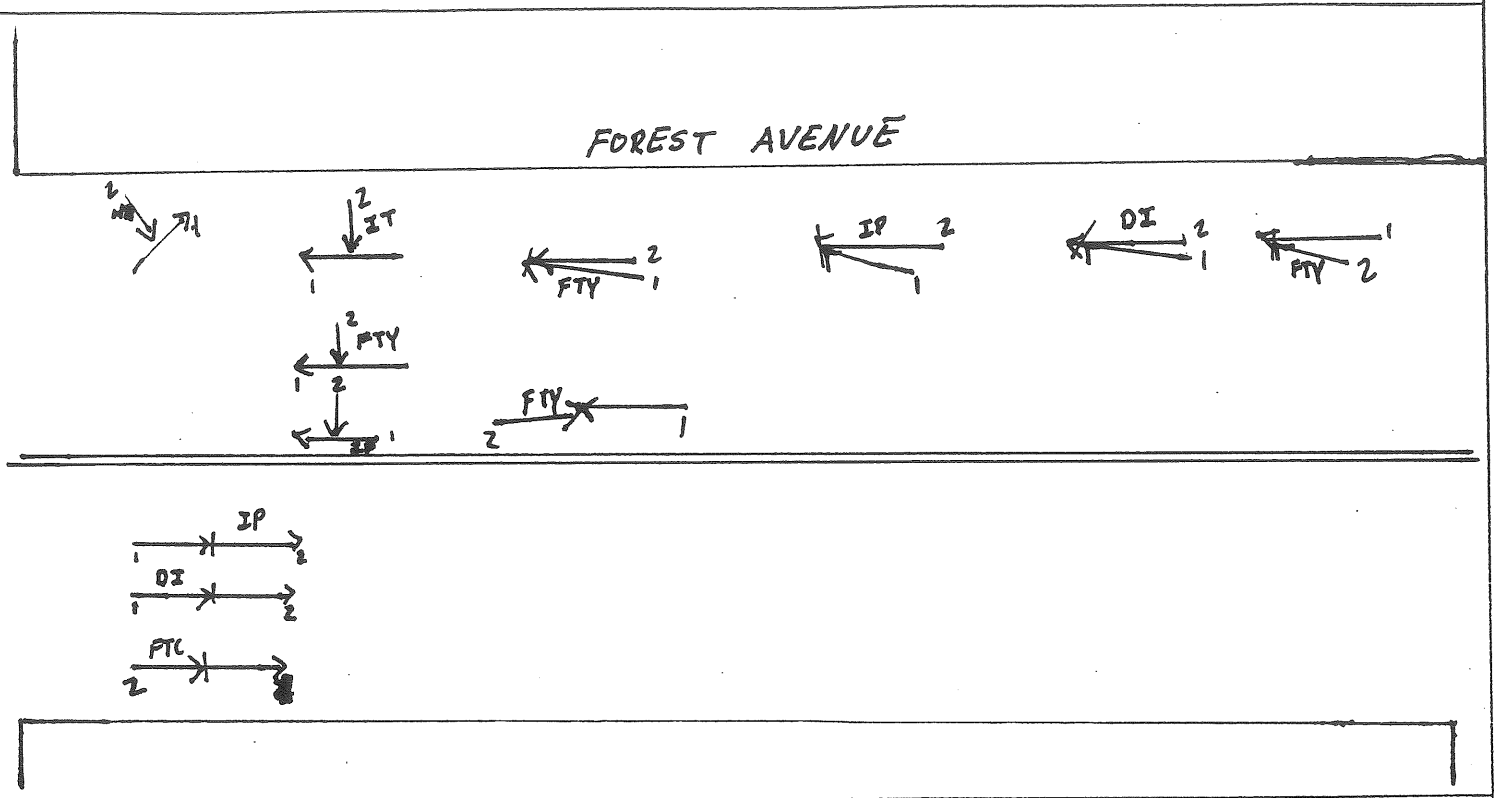
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION FOREST AVENUE

TOWN Portland NODE NO(S) 7310-8928

YEAR(S) REVIEWED 1998-2000 DATE PREPARED 12-14-01



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE/PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER - NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION - DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED - WINDSHIELD GLASS
19. VISION OBSCURED - SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE	PEDESTRIAN (P)	FATAL ACCIDENT	●
BACKING	REAR END		
FIXED OBJECT	SIDE SWIPE	VEHICLE (MOVING)	→
HEAD ON	TURNING MOVE	BICYCLE	(B)
OVERTURN	CHANGE LANE	ANIMAL	(A)
PARKED VEHICLE	OUT OF CONTROL	SLED	(S)

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW Cl = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
98102 64	3-11-98	1823					DARK-4 S.L.	DRY-1	1,10	SIDESWIPE (1917)
98 29541	8-19-98	1845					DAYLIGHT-2	DRY-1	4,1	FTC
98 35402	10-8-98	1505					DAYLIGHT-2	WET-2	1,14	Inattention
98 39510	11-6-98	2015					DARK-4 S.L.	DRY-1	1,7	IMPROPER PASS
98 45228	12-14-98	1450					DUSK-1	DRY-1	1,2	FTY (1917)
99 11361	3-13-99	1550					DAYLIGHT-2	DRY-1	2,1	FTY (1917)
99 21114	4-25-99	0858					DAYLIGHT-2	DRY-1	1,7	Improper Pass

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION FOREST AVENUE

TOWN Portland NODE NO(S) 7316 - 8928

YEAR(S) REVIEWED 1998 - 2000 DATE PREPARED 12-14-01

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
993539	9-21-99	1620					DAYLIGHT-2	WET - 2	1, 2	(1917)
9943549	12-7-99	0905					DUSK - 1	WET - 2	1, 14	Inattention
0003182	1-19-00	1500					DAYLIGHT-2	WET - 2	1, 2	FTY
0010544	2-20-00	2053					DARK-4 S.L.	WET - 2	1, 31	(1917) POSSIBLE OUI
00 25973	8-27-00	1421				1	DAYLIGHT-2	DRY-1	7, 1	(1917)

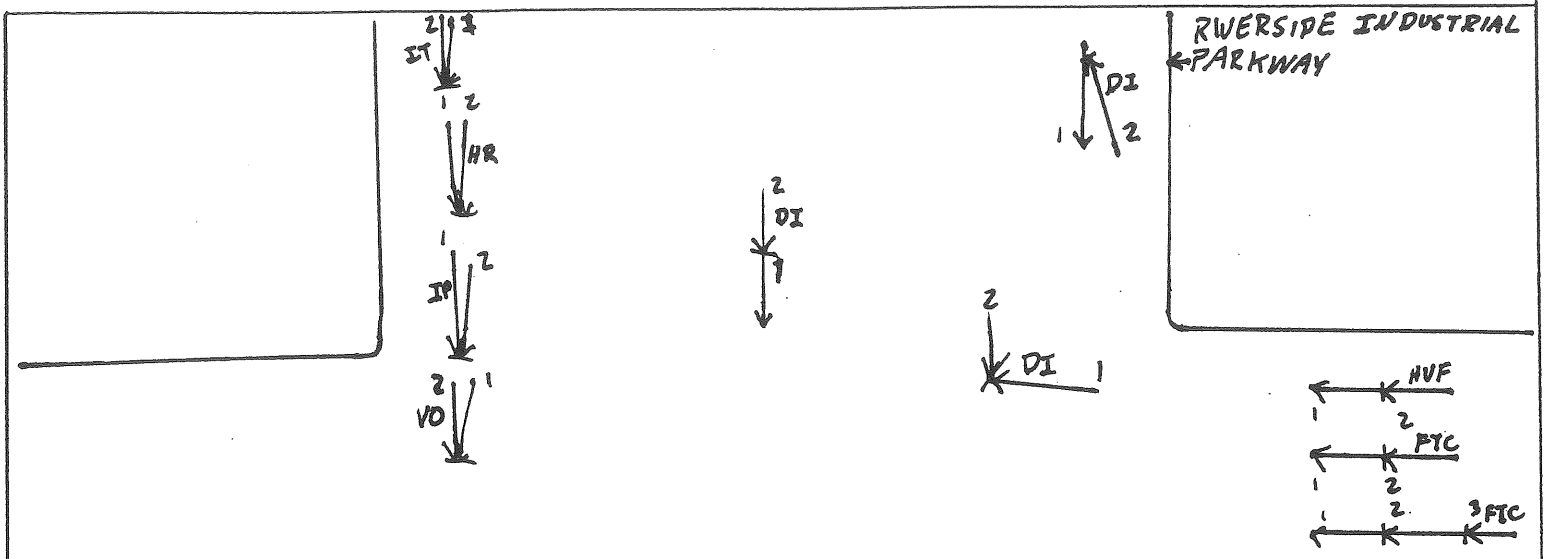
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION FOREST AVENUE at RIVERSIDE INDUSTRIAL PARKWAY

TOWN Portland NODE NO(S) 3735

YEAR(S) REVIEWED 1998-2000 DATE PREPARED 12-14-01



FOREST AVENUE

CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE/PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER - NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION - DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED - WINDSHIELD GLASS
19. VISION OBSCURED - SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE	PEDESTRIAN (P)	FATAL ACCIDENT	
BACKING	REAR END		
FIXED OBJECT	SIDE SWIPE	VEHICLE (MOVING)	
HEAD ON	TURNING MOVE	BICYCLE (B)	
OVERTURN	CHANGE LANE	ANIMAL (A)	
PARKED VEHICLE	OUT OF CONTROL	SLED (S)	

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
9823609	6-16-98	0722					DAYLIGHT-2	WET-2	7, 1	IMPROPER PASS
9822292	6-23-98	1255					DAYLIGHT-2	DRY-1	1, 31	HIT + RUN
9826915	7-30-98	2337					DARK-5	DRY-1	1, 30	HIT + RUN
9828944	8-14-98	1600					DAYLIGHT-2	DRY-1	1, 14	BEES
9844205	12-8-98	1642				2	DUSK-3	SNOW-8	1, 4	Tailgate
9912416	3-7-99	0829					DAYLIGHT-2	DRY-1	1, 14	Inattention
9916624	5-1-99	1755					DAYLIGHT-2	DRY-1	1, 10	IMPROPER TURN

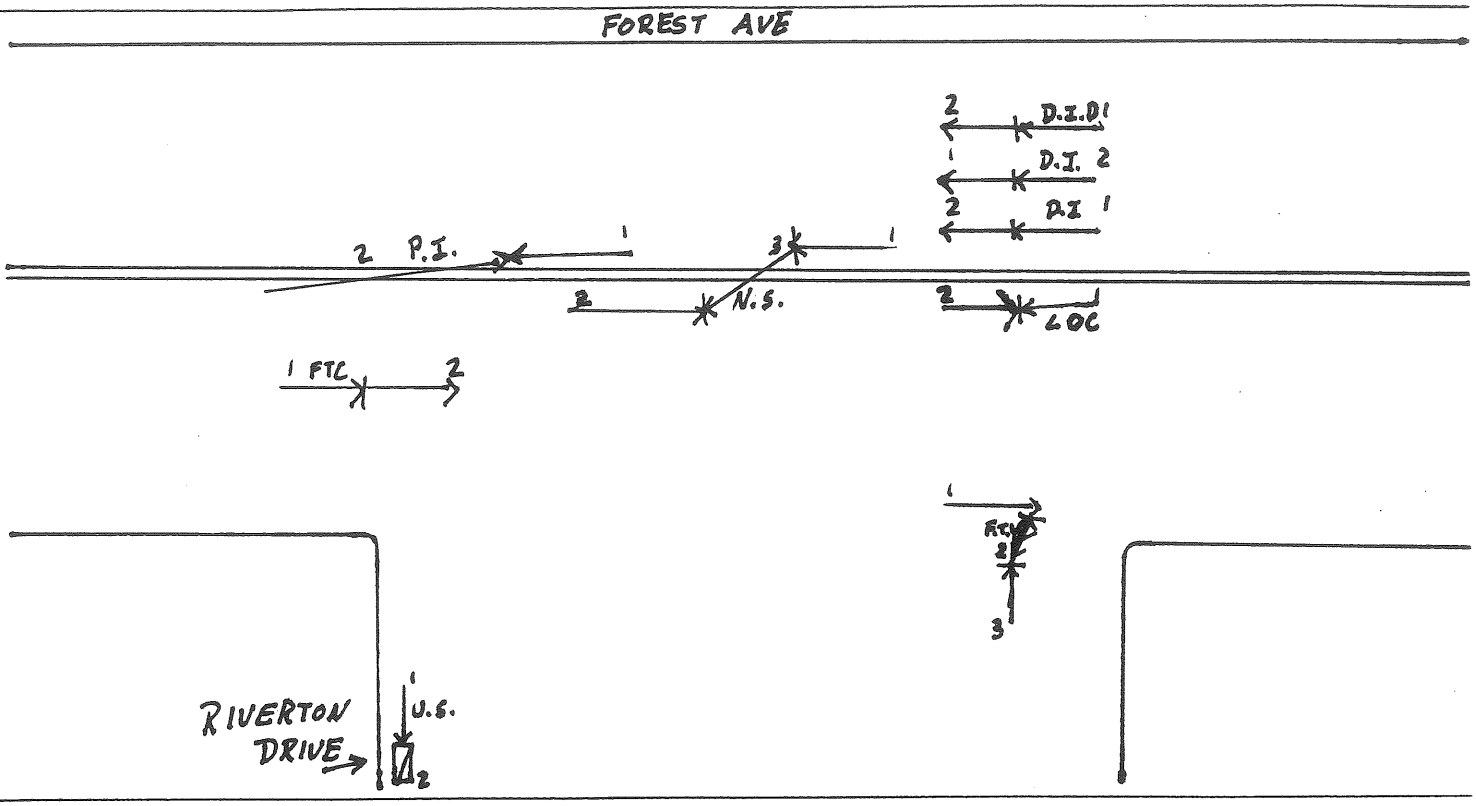
COLLISION DIAGRAM

SHEET 1 OF

LOCATION FOREST AVE. at RIVERTON DRIVE

TOWN PORTLAND NODE NO(S) 8928

YEAR(S) REVIEWED 1998 - 2000 DATE PREPARED 12-13-01



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE/PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER - NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION - DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED - WINDSHIELD GLASS
19. VISION OBSCURED - SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE		PEDESTRIAN	P	FATAL ACCIDENT	
BACKING		REAR END			
FIXED OBJECT		SIDE SWIPE		VEHICLE (MOVING)	
HEAD ON		TURNING MOVE		BICYCLE	
OVERTURN		CHANGE LANE		ANIMAL	
PARKED VEHICLE		OUT OF CONTROL		SLED	

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
9836022	10-12-98	2358	—	1	2	—	DARK-4 S.L.	DRY-1	6.1	6 SPEED CROSSING
9841090	11-17-98	1740	—	—	—	—	DARK-4 S.L.	RAIN-2	15, 1	inexperie
984309	11-29-98	1443	—	—	—	1	DAYLIGHT-2	DRY-1	1, 1, 12	No Sign
9846541	12-19-98	2257	—	—	—	—	DARK-4 S.L.	SNOW-3	3	SPEED SNOW
9848421	12-30-98	0851	—	—	—	—	DAYLIGHT-2	SNOW-3	1, 15	Inexper
9934178	9-13-99	1615	—	—	—	—	DAYLIGHT-2	DRY-1	1, 2, 1	Improper Turn
9938573	10-25-99	0940	—	—	—	—	DAYLIGHT-2	DRY-1	14, 1	Inatten

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION FOREST AVE at RIVERTON DRIVE

TOWN PORTLAND NODE NO(S) 8928

YEAR(S) REVIEWED 1998 - 2000 DATE PREPARED 12-13-01

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
0021539	7-14-00	0939				1	DAYLIGHT-2	DRY-1	4, 1	
0027436	9-3-00	0145					DARK-4 S.L.	DRY-1	1, 17	impairment

Refuse Analysis: Wellesley Estates

Each unit will generate approximately 1/2 yard of household waste per week. This includes both 2 and 3 bedroom units. For 23 yards of refuse, 4 dumpsters, of 8 or 10 yard capacity will be supplied and picked up once per week by private carrier.

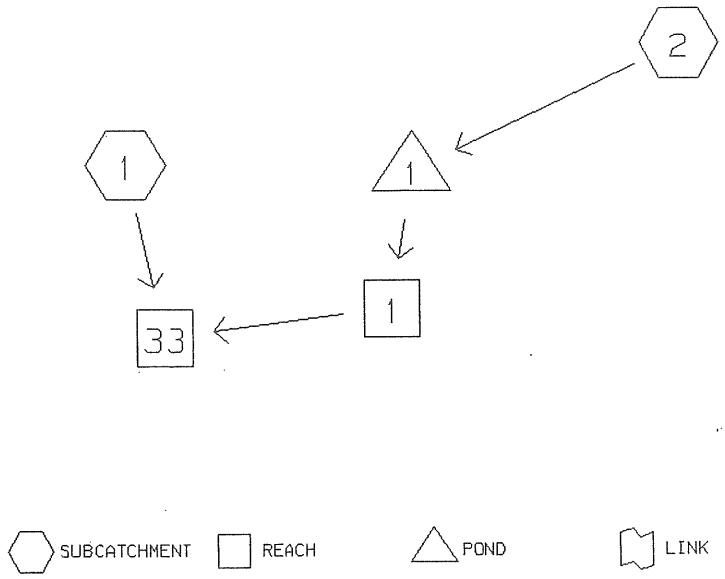
ATTACHMENT A

WATERSHED MAPS

ATTACHMENT B

TR-20 CALCULATIONS

WATERSHED ROUTING ==========



SUBCATCHMENT 1 East Route 495

PEAK= 2.93 CFS @ 12.52 HRS, VOLUME= .41 AF

ACRES	CN	
1.06	94	Impervious/Gravel
4.85	77	Woods-D
1.20	30	Woods-A
.48	39	Lawn-A
.63	61	Lawn-B
.15	55	Woods-B
8.37	69	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 3.00 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	19.8
Woods: Light underbrush n=.4 L=100' P2=3 in s=.0266 '/'		
TR-55 SHEET FLOW	Segment ID: BC	7.6
Grass: Dense n=.24 L=50' P2=3 in s=.0266 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	5.5
Woodland Kv=5 L=365' s=.0493 '/' V=1.11 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	.1
Woodland Kv=5 L=15' s=.4166 '/' V=3.23 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: EF	2.3
Woodland Kv=5 L=103' s=.0218 '/' V=.74 fps		
	Total Length= 633 ft	Total Tc= 35.3

SUBCATCHMENT 2 Forest Avenue

PEAK= 7.26 CFS @ 12.43 HRS, VOLUME= .89 AF

ACRES	CN	
2.92	98	Impervious
4.49	61	1/4 Acre Lots- A
1.74	83	1/4 Acre Lots- C
.62	87	1/4 Acre Lots- D
.06	55	Woods- B
1.12	77	Woods- D
10.95	77	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 3.00 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	14.7
Grass: Dense n=.24 L=100' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	8.8
Paved Kv=20.3282 L=1670' s=.024 '/' V=3.15 fps		
CIRCULAR CHANNEL	Segment ID: CD	1.5
15" Diameter a=1.23 sq-ft Pw=3.9' r=.313'		
s=.02 '/' n=.024 V=4.03 fps L=370' Capacity=4.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
	Total Length= 2340 ft	Total Tc= 31.7

REACH 1

Qin = 6.31 CFS @ 12.60 HRS, VOLUME= .86 AF
Qout= 6.08 CFS @ 12.76 HRS, VOLUME= .85 AF, ATTEN= 4%, LAG= 10.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	1.82
.4	4.3	6.22
.6	7.2	13.17
.9	11.8	26.35
1.2	19.2	51.49
1.6	29.9	94.02
2.0	42.7	152.36

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 460 FT
SLOPE= .0217 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .39 FT
PEAK VELOCITY= 1.5 FPS
TRAVEL TIME = 5.3 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 33

Not described

Qin = 8.53 CFS @ 12.71 HRS, VOLUME= 1.27 AF
Qout= 8.53 CFS @ 12.71 HRS, VOLUME= 1.27 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

POND 1 Pond

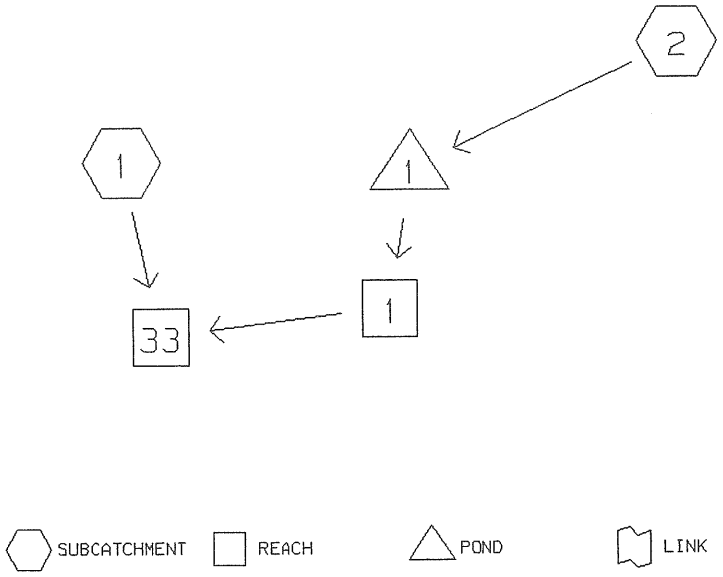
Qin = 7.26 CFS @ 12.43 HRS, VOLUME= .89 AF
Qout= 6.31 CFS @ 12.60 HRS, VOLUME= .86 AF, ATTEN= 13%, LAG= 10.3 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
100.0	100	0	0
102.0	9000	9100	9100
104.0	50000	59000	68100

STOR-IND METHOD
PEAK STORAGE = 5769 CF
PEAK ELEVATION= 101.3 FT
FLOOD ELEVATION= 104.0 FT
START ELEVATION= 100.0 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 27.3 MIN (.85 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	100.0'	24" CULVERT
			n=.024 L=120' S=.02'/' Ke=.9 Cc=.9 Cd=.47

WATERSHED ROUTING ==========



SUBCATCHMENT 1 East Route 495

PEAK= 8.62 CFS @ 12.48 HRS, VOLUME= 1.10 AF

ACRES	CN	
1.06	94	Impervious/Gravel
4.85	77	Woods-D
1.20	30	Woods-A
.48	39	Lawn-A
.63	61	Lawn-B
.15	55	Woods-B
8.37	69	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 4.70 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	19.8
Woods: Light underbrush n=.4 L=100' P2=3 in s=.0266 '/'		
TR-55 SHEET FLOW	Segment ID: BC	7.6
Grass: Dense n=.24 L=50' P2=3 in s=.0266 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	5.5
Woodland Kv=5 L=365' s=.0493 '/' V=1.11 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	.1
Woodland Kv=5 L=15' s=.4166 '/' V=3.23 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: EF	2.3
Woodland Kv=5 L=103' s=.0218 '/' V=.74 fps		
	Total Length= 633 ft	Total Tc= 35.3

SUBCATCHMENT 2 Forest Avenue

PEAK= 16.67 CFS @ 12.40 HRS, VOLUME= 1.99 AF

ACRES	CN	
2.92	98	Impervious
4.49	61	1/4 Acre Lots- A
1.74	83	1/4 Acre Lots- C
.62	87	1/4 Acre Lots- D
.06	55	Woods- B
1.12	77	Woods- D
10.95	77	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 4.70 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	14.7
Grass: Dense n=.24 L=100' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	8.8
Paved Kv=20.3282 L=1670' s=.024 '/' V=3.15 fps		
CIRCULAR CHANNEL	Segment ID: CD	1.5
15" Diameter a=1.23 sq-ft Pw=3.9' r=.313'		
s=.02 '/' n=.024 V=4.03 fps L=370' Capacity=4.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
	Total Length= 2340 ft	Total Tc= 31.7

REACH 1

Qin = 12.47 CFS @ 12.65 HRS, VOLUME= 1.95 AF
Qout= 12.41 CFS @ 12.78 HRS, VOLUME= 1.94 AF, ATTEN= 0%, LAG= 7.8 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)
0.0	0.0	0.00
.2	1.9	1.82
.4	4.3	6.22
.6	7.2	13.17
.9	11.8	26.35
1.2	19.2	51.49
1.6	29.9	94.02
2.0	42.7	152.36

8' x 2' CHANNEL
SIDE SLOPE= .15 '/'
n= .07
LENGTH= 460 FT
SLOPE= .0217 FT/FT

STOR-IND+TRANS METHOD
PEAK DEPTH= .58 FT
PEAK VELOCITY= 1.8 FPS
TRAVEL TIME = 4.2 MIN
SPAN= 10-20 HRS, dt=.1 HRS
2 x FINER ROUTING

REACH 33

Not described

Qin = 20.15 CFS @ 12.56 HRS, VOLUME= 3.04 AF
Qout= 20.15 CFS @ 12.56 HRS, VOLUME= 3.04 AF, ATTEN= 0%, LAG= 0.0 MIN

DEPTH (FT)	END AREA (SQ-FT)	DISCH (CFS)

- METHOD
PEAK DEPTH= 0.00 FT
PEAK VELOCITY= 0.0 FPS
TRAVEL TIME = 0.0 MIN
SPAN= 10-20 HRS, dt=.1 HRS

POND 1 Pond

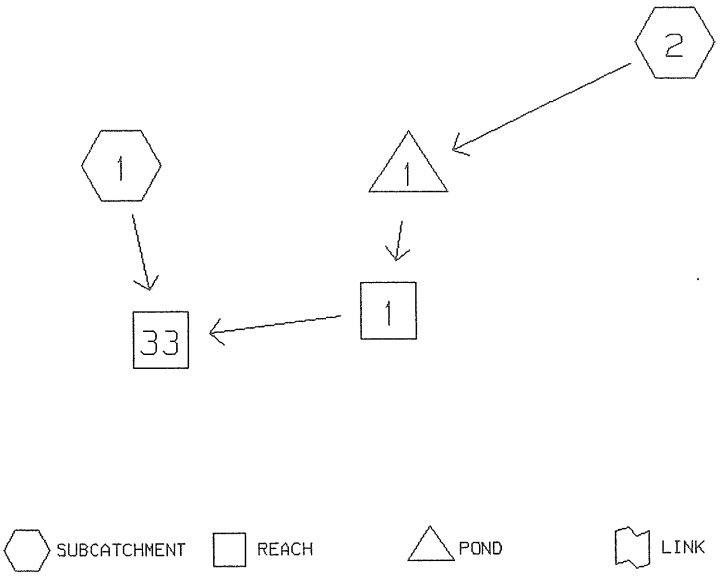
Qin = 16.67 CFS @ 12.40 HRS, VOLUME= 1.99 AF
Qout= 12.47 CFS @ 12.65 HRS, VOLUME= 1.95 AF, ATTEN= 25%, LAG= 14.7 MIN

ELEVATION (FT)	AREA (SF)	INC.STOR (CF)	CUM.STOR (CF)
100.0	100	0	0
102.0	9000	9100	9100
104.0	50000	59000	68100

STOR-IND METHOD
PEAK STORAGE = 12183 CF
PEAK ELEVATION= 102.1 FT
FLOOD ELEVATION= 104.0 FT
START ELEVATION= 100.0 FT
SPAN= 10-20 HRS, dt=.1 HRS
Tdet= 20.8 MIN (1.93 AF)

#	ROUTE	INVERT	OUTLET DEVICES
1	P	100.0'	24" CULVERT
			n=.024 L=120' S=.02'/' Ke=.9 Cc=.9 Cd=.47

WATERSHED ROUTING ==========



SUBCATCHMENT 1 East Route 495

PEAK= 11.70 CFS @ 12.46 HRS, VOLUME= 1.48 AF

ACRES	CN	
1.06	94	Impervious/Gravel
4.85	77	Woods-D
1.20	30	Woods-A
.48	39	Lawn-A
.63	61	Lawn-B
.15	55	Woods-B
8.37	69	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	19.8
Woods: Light underbrush n=.4 L=100' P2=3 in s=.0266 '/'		
TR-55 SHEET FLOW	Segment ID: BC	7.6
Grass: Dense n=.24 L=50' P2=3 in s=.0266 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: CD	5.5
Woodland Kv=5 L=365' s=.0493 '/' V=1.11 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	.1
Woodland Kv=5 L=15' s=.4166 '/' V=3.23 fps		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: EF	2.3
Woodland Kv=5 L=103' s=.0218 '/' V=.74 fps		
	Total Length= 633 ft Total Tc=	35.3

SUBCATCHMENT 2 Forest Avenue

PEAK= 21.44 CFS @ 12.40 HRS, VOLUME= 2.54 AF

ACRES	CN	
2.92	98	Impervious
4.49	61	1/4 Acre Lots- A
1.74	83	1/4 Acre Lots- C
.62	87	1/4 Acre Lots- D
.06	55	Woods- B
1.12	77	Woods- D
10.95	77	

SCS TR-20 METHOD
TYPE III 24-HOUR
RAINFALL= 5.50 IN
SPAN= 10-20 HRS, dt=.1 HRS

Method	Comment	Tc (min)
TR-55 SHEET FLOW	Segment ID: AB	14.7
Grass: Dense n=.24 L=100' P2=3 in s=.02 '/'		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: BC	8.8
Paved Kv=20.3282 L=1670' s=.024 '/' V=3.15 fps		
CIRCULAR CHANNEL	Segment ID: CD	1.5
15" Diameter a=1.23 sq-ft Pw=3.9' r=.313'		
s=.02 '/' n=.024 V=4.03 fps L=370' Capacity=4.9 cfs		
SHALLOW CONCENTRATED/UPLAND FLOW	Segment ID: DE	6.7
Woodland Kv=5 L=200' s=.01 '/' V=.5 fps		
	Total Length= 2340 ft Total Tc=	31.7

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*7-9 am*

Site Information

Intersection	*Riverside PWY*
Jurisdiction	
Analysis Year	*2002 POST*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverside PWY*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*122*	*769*	*0*	*0*	*400*	*135*
Peak-Hour Factor, PHF	*0.92*	*0.93*	*1.00*	*1.00*	*0.81*	*0.68*
Hourly Flow Rate, HFR	*132*	*826*	*0*	*0*	*493*	*198*
Percent Heavy Vehicles	*6*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*50*	*0*	*45*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.82*	*1.00*	*0.79*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*60*	*0*	*56*
Percent Heavy Vehicles	*0*	*0*	*0*	*18*	*0*	*30*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (vph)	*132*						*116*	
C (m) (vph)	*885*						*134*	
v/c	*0.15*						*0.87*	
95% queue length	*0.53*						*9.44*	
Control Delay	*9.8*						*148.6*	
LOS	*A*						*F*	
Approach Delay	--	--				*148.6*		
Approach LOS	--	--				*F*		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*4-6 pm*

Site Information

Intersection	*Riverside PWY*
Jurisdiction	
Analysis Year	*2002 PRE*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverside PWY*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*50*	*521*	*0*	*0*	*706*	*74*
Peak-Hour Factor, PHF	*0.61*	*0.78*	*1.00*	*1.00*	*0.82*	*0.87*
Hourly Flow Rate, HFR	*81*	*667*	*0*	*0*	*860*	*85*
Percent Heavy Vehicles	*12*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*88*	*0*	*80*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.76*	*1.00*	*0.57*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*115*	*0*	*140*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (vph)	*81*						*255*	
C (m) (vph)	*687*						*145*	
v/c	*0.12*						*1.76*	
95% queue length	*0.40*						*61.25*	
Control Delay	*10.9*							
LOS	*B*						*F*	
Approach Delay	--	--						
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*4-6 pm*

Site Information

Intersection	*Riverside PWY*
Jurisdiction	
Analysis Year	*2002 POST*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverside PWY*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*50*	*528*	*0*	*0*	*717*	*74*
Peak-Hour Factor, PHF	*0.61*	*0.78*	*1.00*	*1.00*	*0.82*	*0.87*
Hourly Flow Rate, HFR	*81*	*676*	*0*	*0*	*874*	*85*
Percent Heavy Vehicles	*12*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*88*	*0*	*80*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.76*	*1.00*	*0.57*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*115*	*0*	*140*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (vph)	*81*						*255*	
C (m) (vph)	*678*						*141*	
v/c	*0.12*						*1.81*	
95% queue length	*0.41*						*63.07*	
Control Delay	*11.0*							
LOS	*B*						*F*	
Approach Delay	--	--						
Approach LOS	--	--					*F*	

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Appendix C

The Homeowner's Association will be responsible for maintenance and operation of the detention basin.

The "Parties" may contract with such professionals as may be necessary in order to comply with this provision and may rely on the advice of such professionals in carrying out its duty hereunder, provided, that the following operation and maintenance procedures are hereby established as a minimum for compliance with this section.

1. Inspect inlet and outlet piping on a weekly basis from March to November, all other times on a biweekly basis, to ensure that flow structures are not blocked.

2. Inspect riprap spillway annually for evidence of loose rocks or foreign matter and repair as necessary.

3. Inspect berm annually for evidence of sloughing and repair as necessary.

4. Remove sediment from catch basins when sediment has accumulated to within 6 inches of the outlet invert, but not less than annually.

5. Maintain Vortech units in accordance with manufacturer's recommendations.

Conclusion

Due to changes in land use and watershed size, the planned development increases runoff from the site. A detention pond has been designed to attenuate the increase in peak runoff rates in the post-development condition to below the predevelopment flows.

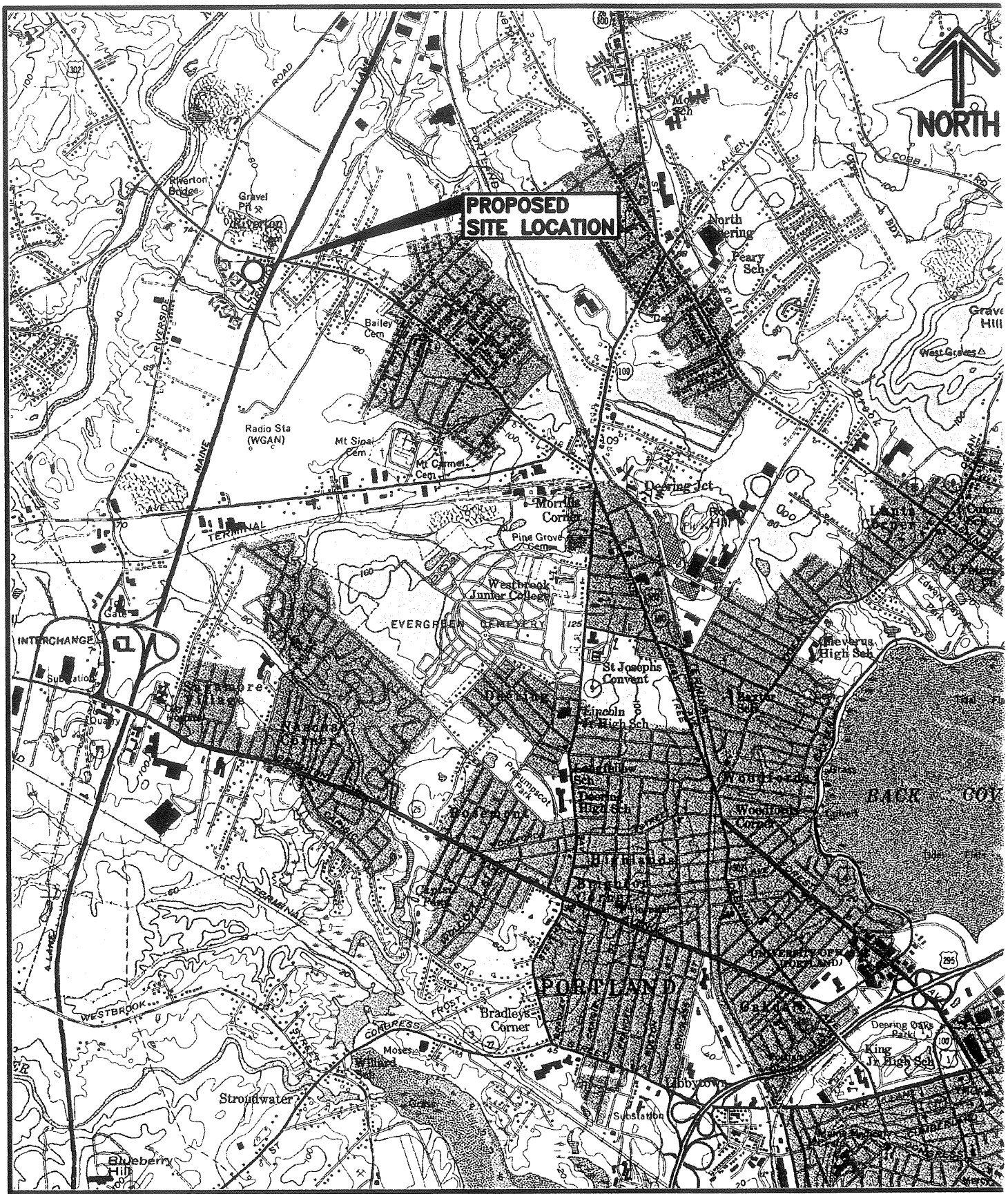
Attachments

Attached to this section are the following items:

Attachment A – Watershed Maps

Attachment B – TR-20 Calculations

Attachment C –Pipe and Riprap Sizing Calculations



U.S.G.S. Location Map

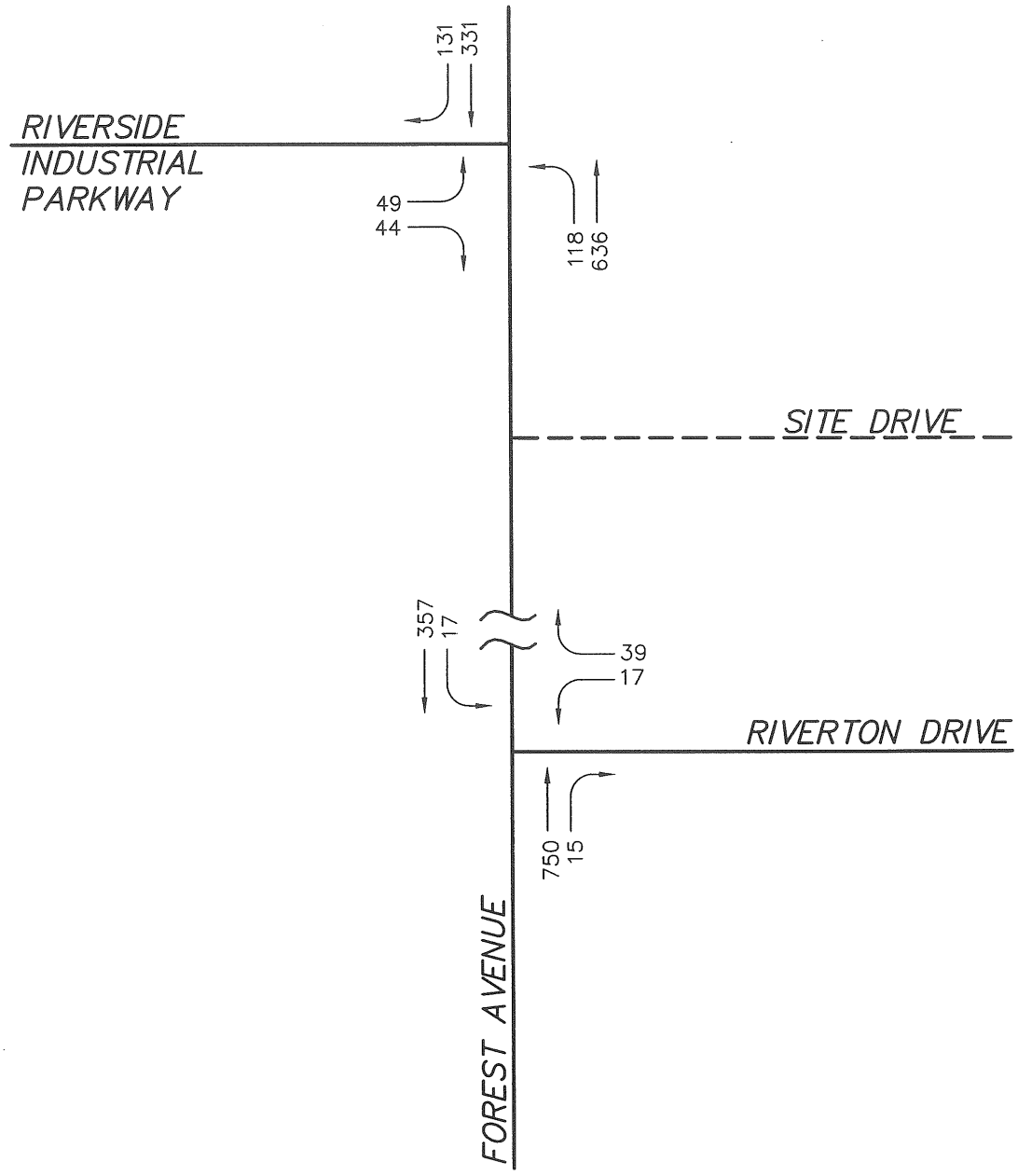
Wellesley Estates - Portland, Maine

U.S.G.S. Portland-West, Maine-7.5 Minute Series (Topographic)

Design: RJB	Date: DEC 2001		
Draft: DB	Job No.: 442		
Checked: TLG	Scale: None		
File Name: 442-LOCMAP.DWG			

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237
26 Main Street
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: gpcel@maine.rr.com

Figure 1



AM PEAK HOUR: 7:15–8:15

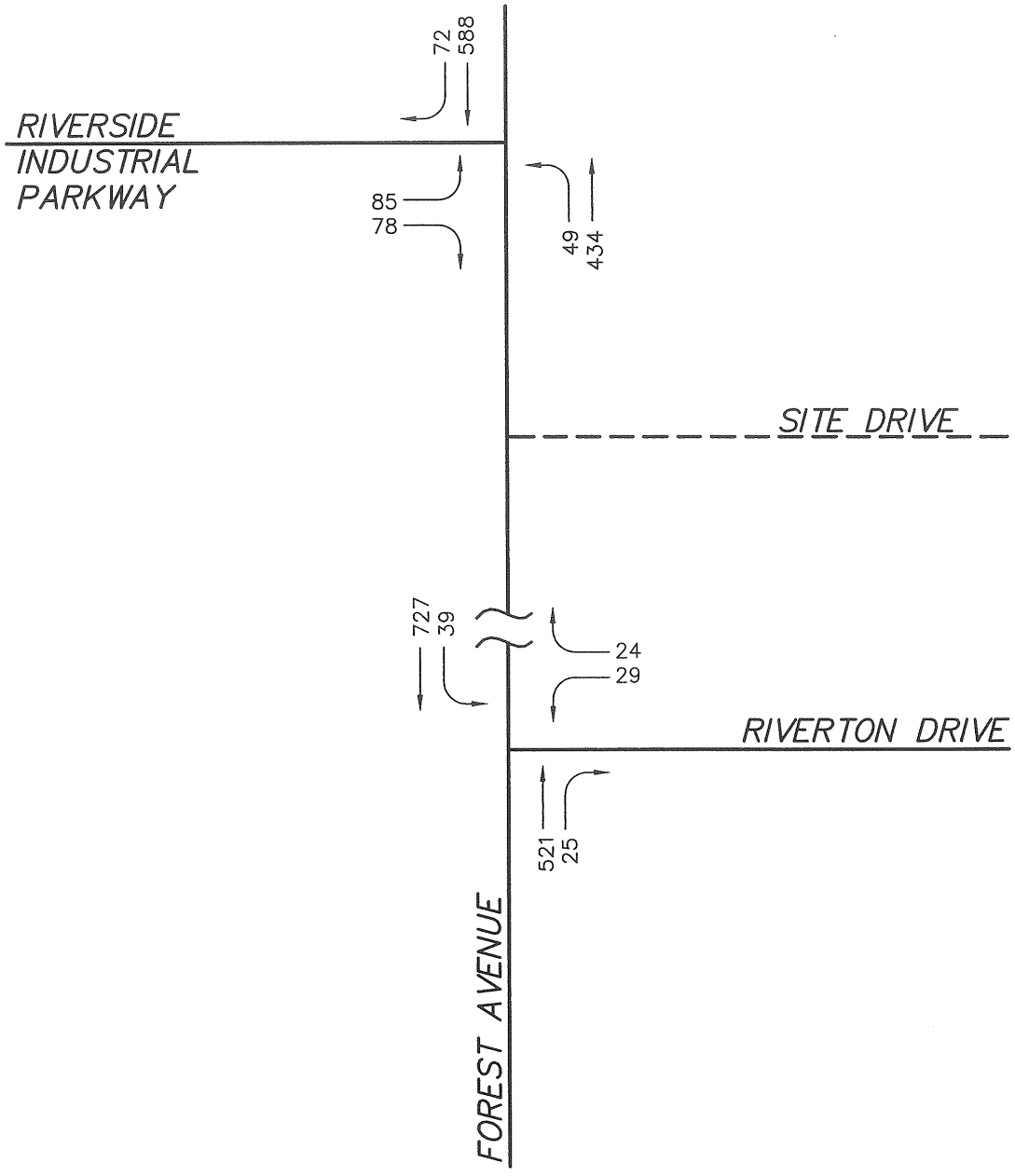
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Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
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Gray, ME 04039
207–657–6910

Drawing Name: Raw Data

Project: WELLESLEY ESTATES

Figure No. 2



PM PEAK HOUR: 4:30–5:30

Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

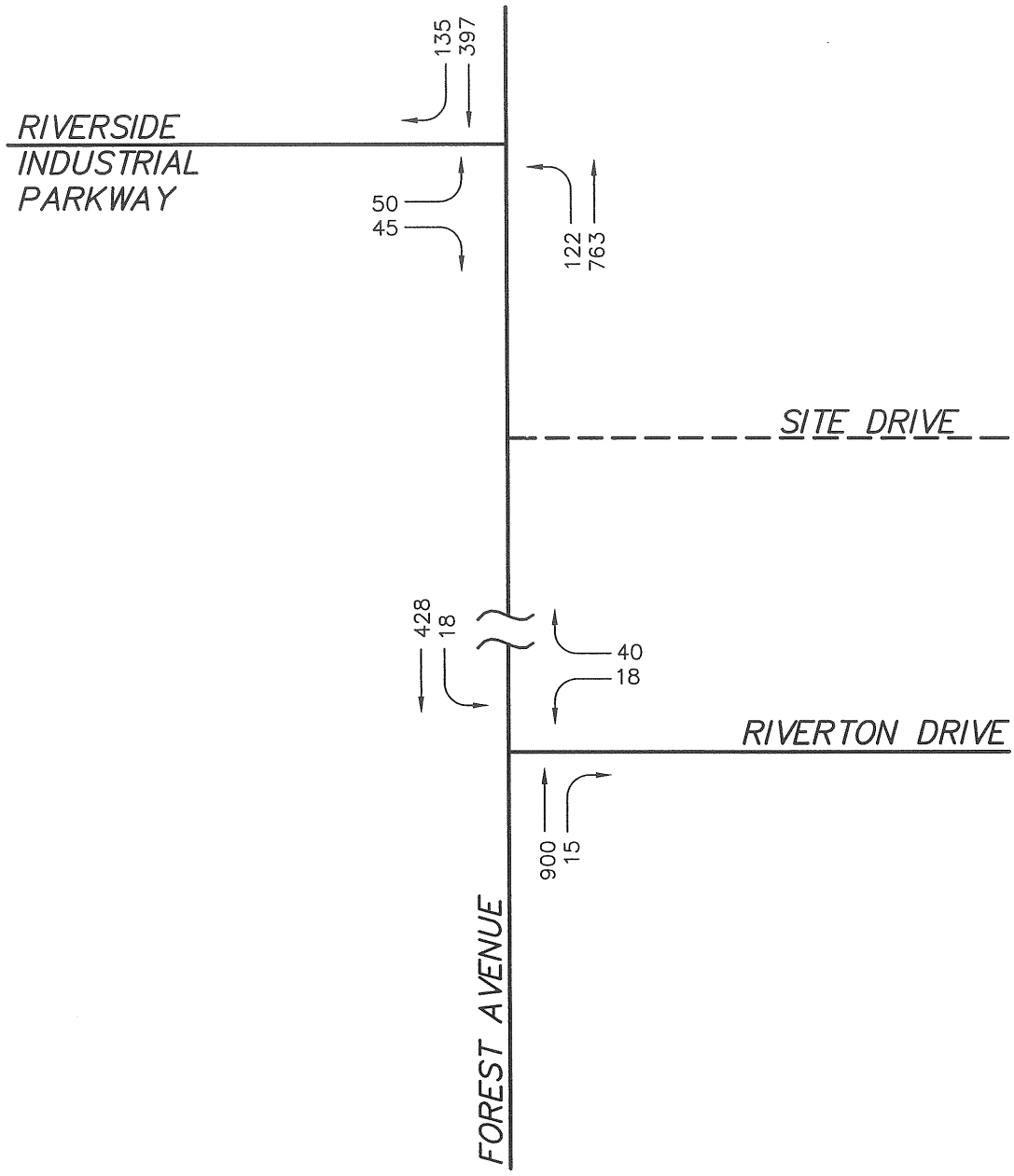
Drawing Name: Raw Data

Project: WELLESLEY ESTATES

Figure No. 3

ADJUSTMENTS
SEASONAL: $\frac{1.03}{0.88} = 1.17$
ANNUAL: $(1.03)^1 = 1.03$
TOTAL: 1.20

ONLY FOREST AVE. TRAFFIC SEASONALLY ADJUSTED

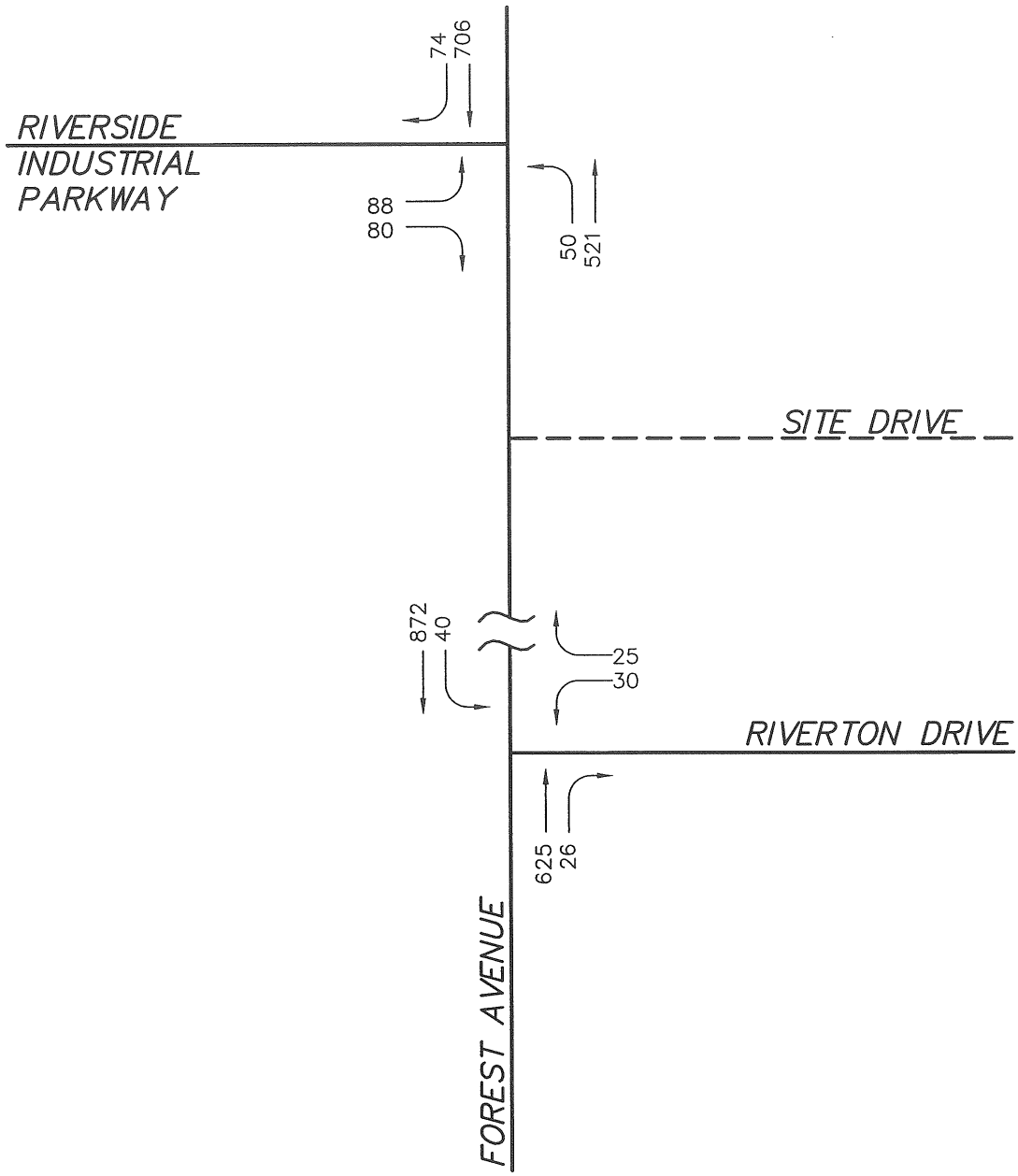


AM PEAK HOUR: 7:15–8:15

Design: RJB	Date: DEC 2001	Gorrill-Palmer Consulting Engineers, Inc. *Traffic and Civil Engineering Services*	Drawing Name: 2002 Predevelopment Volumes
Draft: DB	Job No.: 442	PO Box 1237, 26 Main Street Gray, ME 04039 207-657-6910	Project: WELLESLEY ESTATES
Checked: RCN	Scale: NTS		Figure No. 4
File Name: 442-TRAF-REV.DWG			

ADJUSTMENTS
SEASONAL: $\frac{1.03}{0.88} = 1.17$
ANNUAL: $(1.03)^1 = 1.03$
TOTAL: 1.20

ONLY FOREST AVE. TRAFFIC SEASONALLY ADJUSTED



PM PEAK HOUR: 4:30–5:30

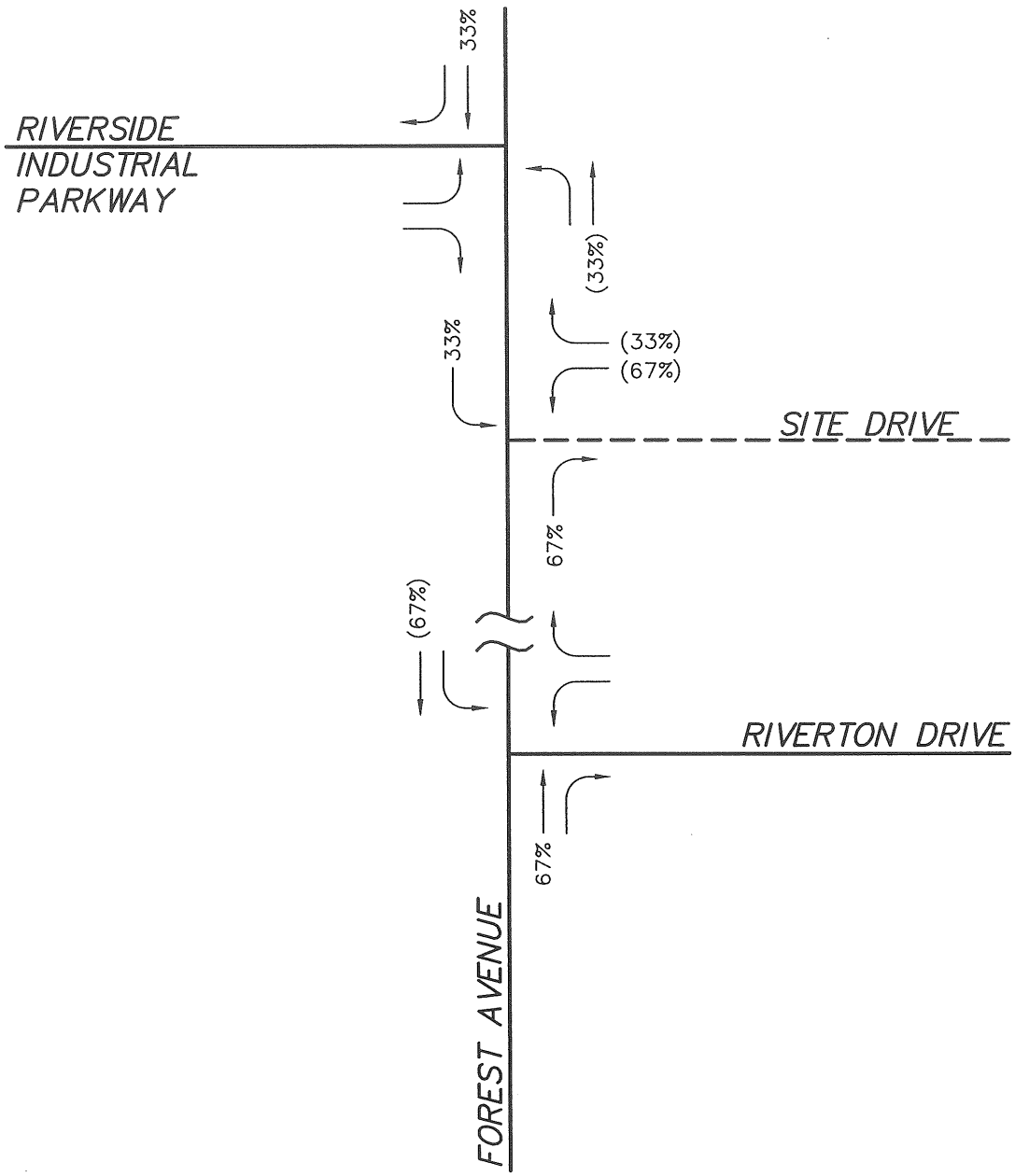
Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: 2002 Predevelopment Volumes

Project: WELLESLEY ESTATES

Figure No. 5



XX% = ENTER
(XX%) = EXIT

AM PEAK HOUR: 7:15–8:15

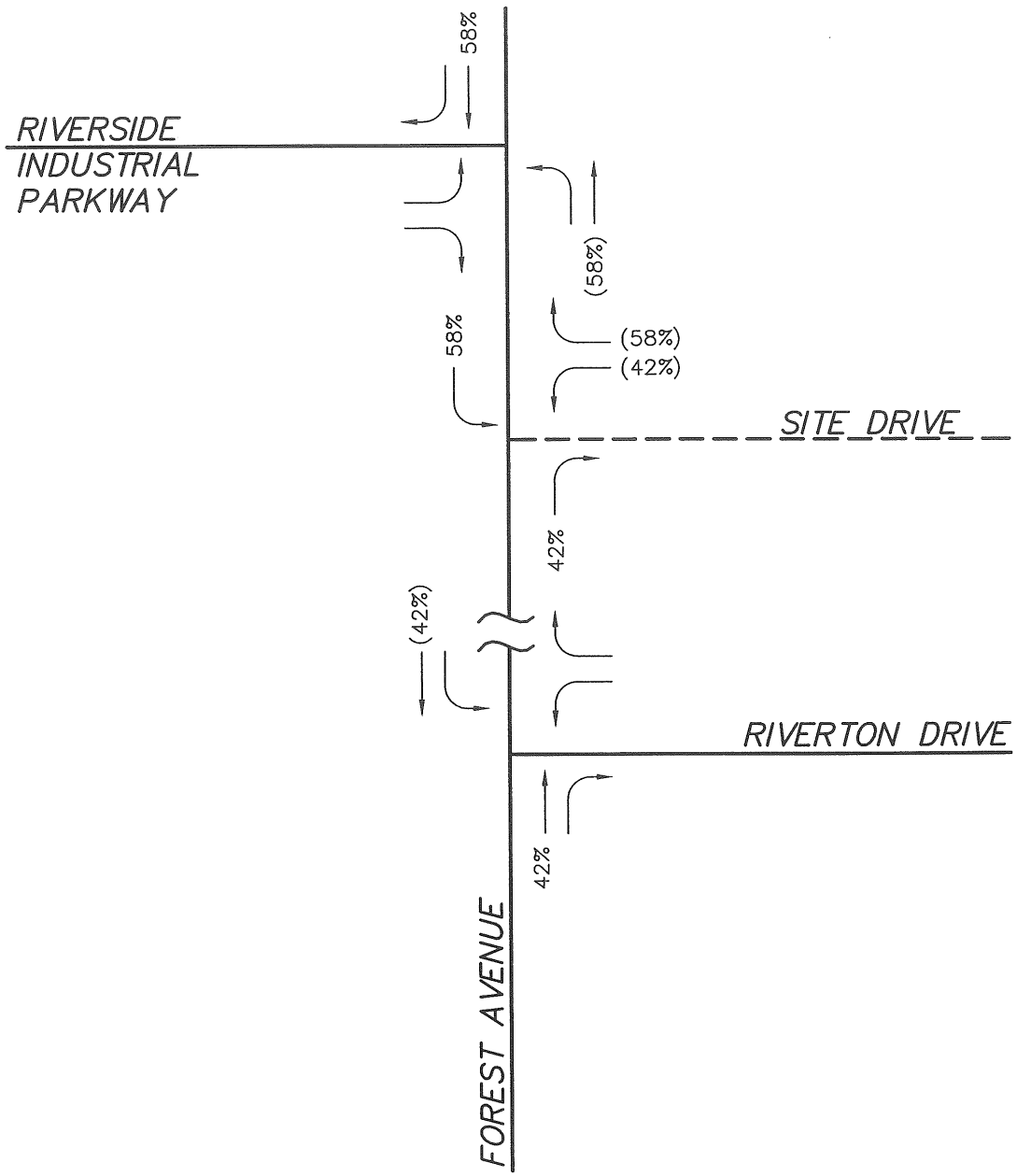
Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: TRIP DISTRIBUTION

Project: WELLESLEY ESTATES

Figure No. 6



XX% = ENTER
(XX%) = EXIT

PM PEAK HOUR: 4:30–5:30

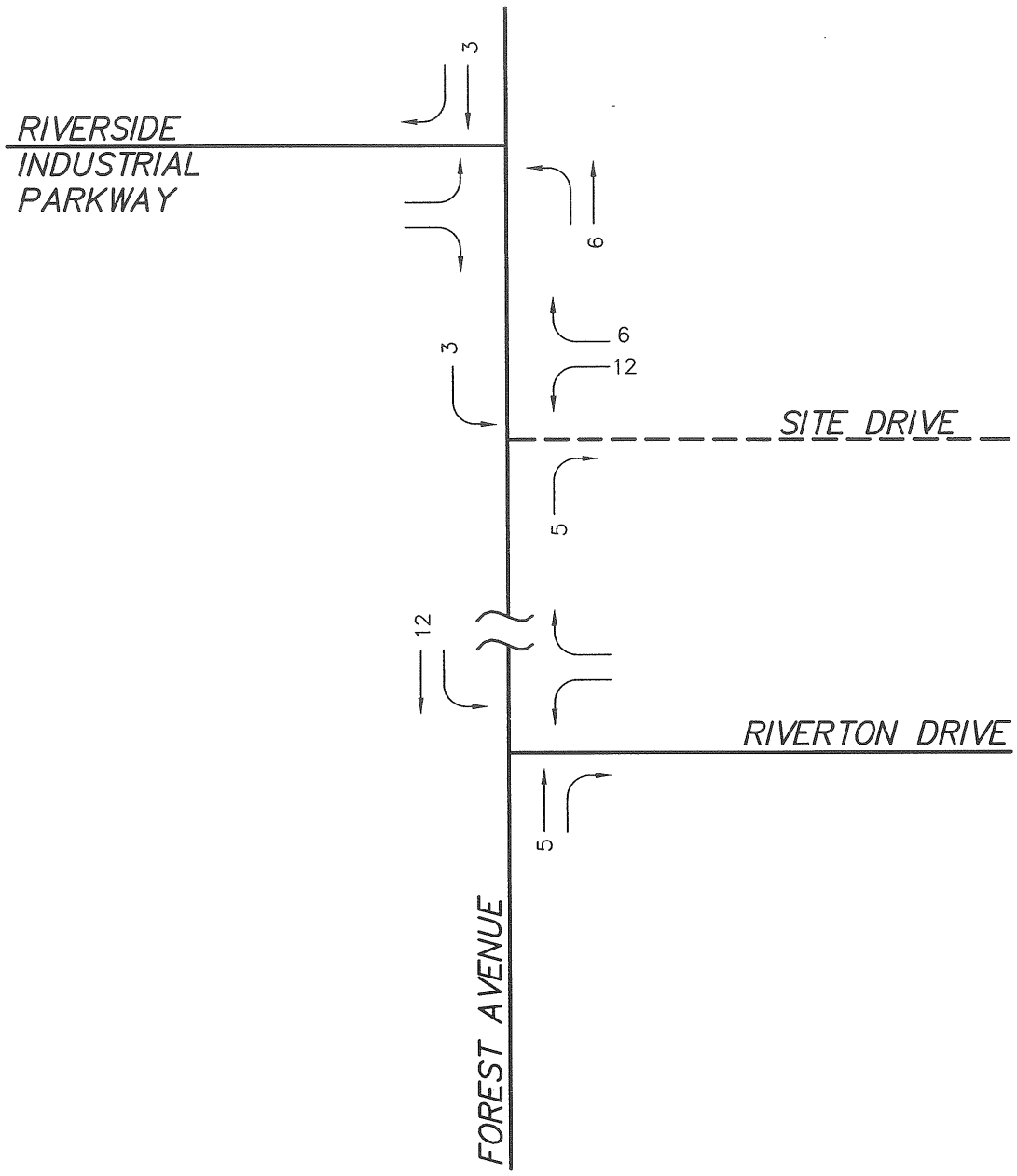
Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: TRIP DISTRIBUTION

Project: WELLESLEY ESTATES

Figure No. 7



AM PEAK HOUR: 7:15–8:15

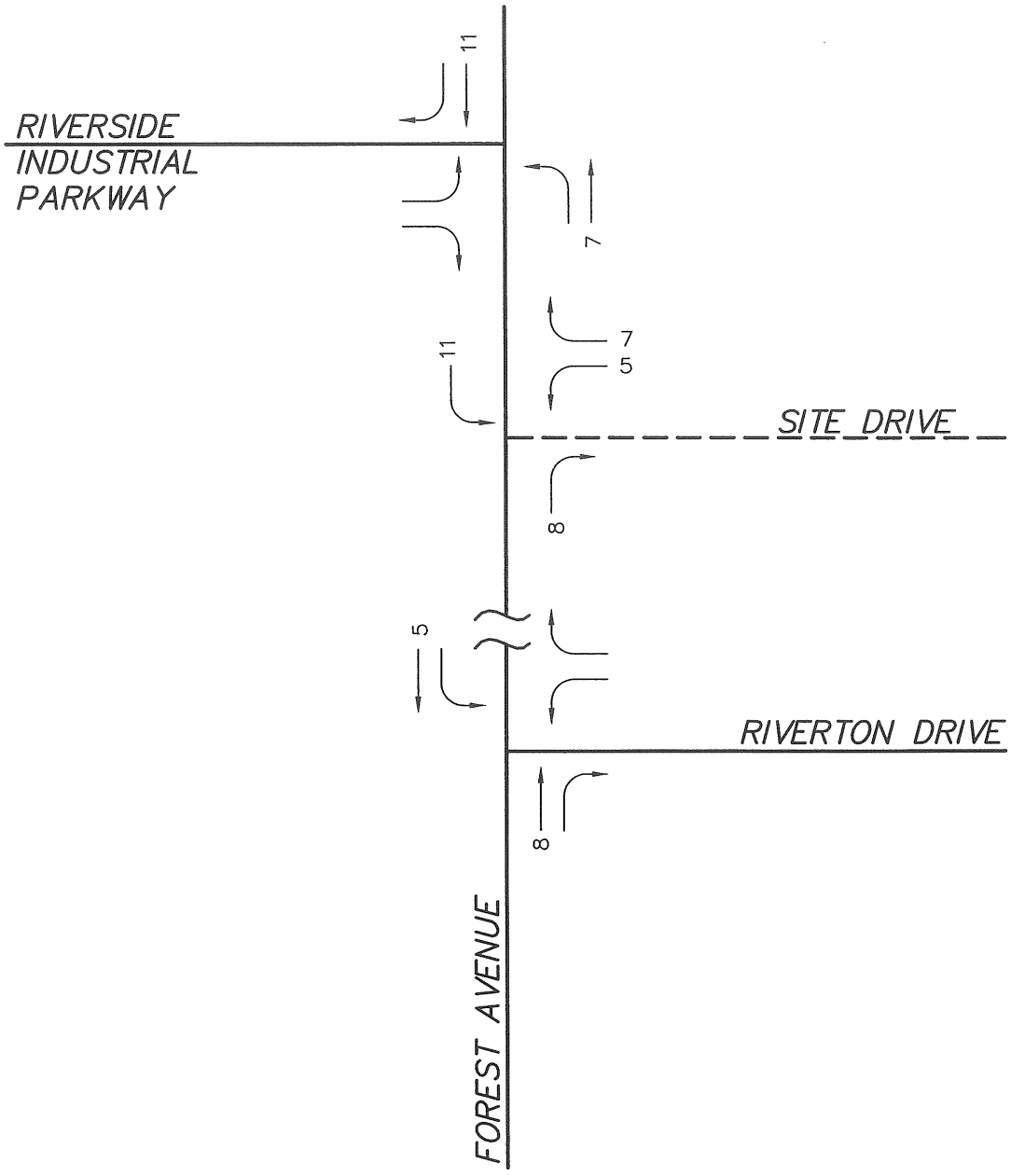
Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: TRIP ASSIGNMENT

Project: WELLESLEY ESTATES

Figure No. 8



PM PEAK HOUR: 4:30–5:30

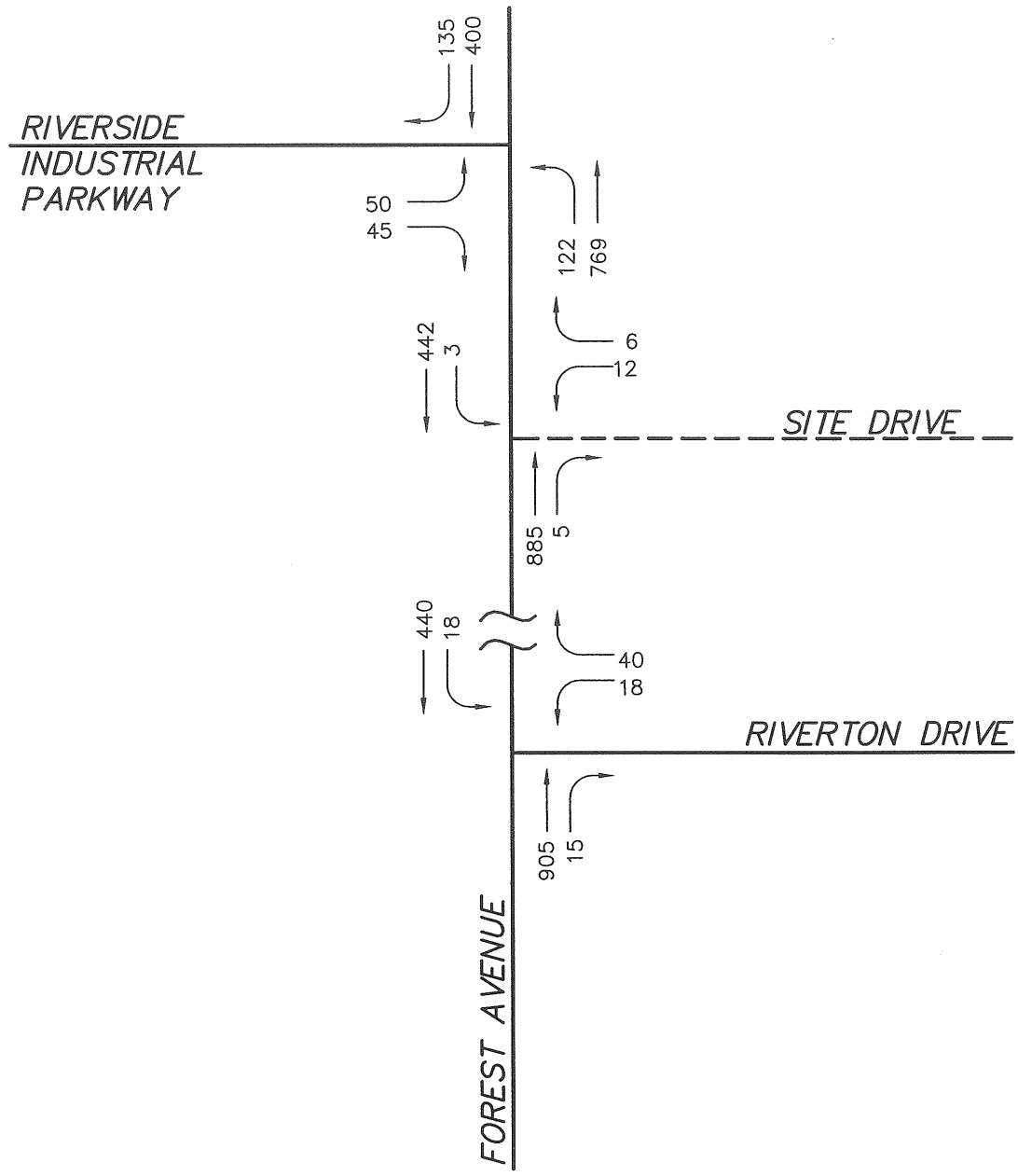
Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: TRIP ASSIGNMENT

Project: WELLESLEY ESTATES

Figure No. 9



AM PEAK HOUR: 7:15–8:15

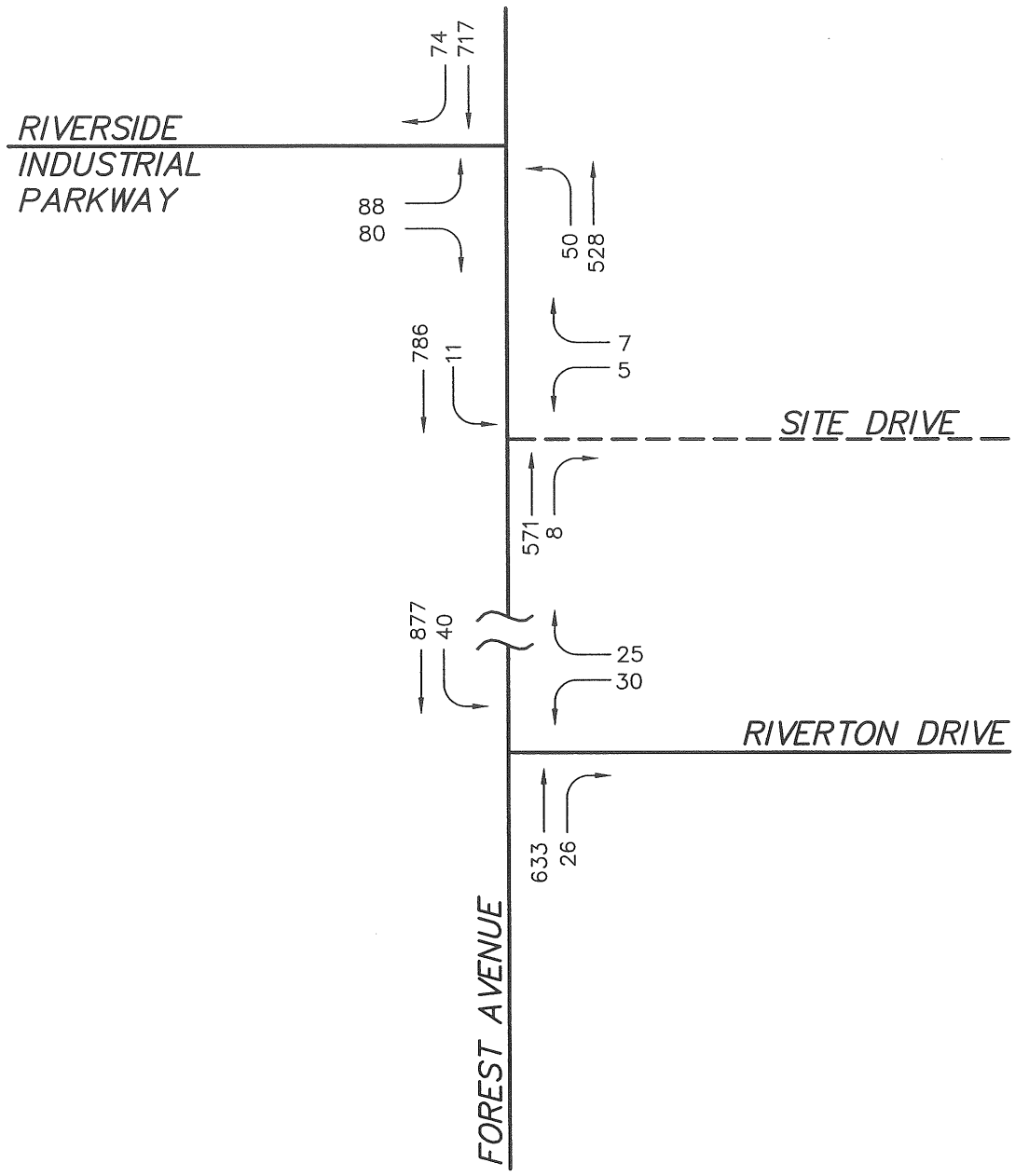
Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: POST DEVELOPMENT

Project: WELLESLEY ESTATES

Figure No. 10



PM PEAK HOUR: 4:30–5:30

Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: Post Development

Project: WELLESLEY ESTATES

Figure No. 11

Appendix B

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RJB*	Intersection	*Site Drive*
Agency/Co.	*Gorrill-Palmer*	Jurisdiction	
Date Performed	*12/17/01*	Analysis Year	*2002 Post*
Analysis Time Period	*7-9 am*	Project ID	*442*

East/West Street: *Forest Avenue*	North/South Street: *Site Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*885*	*5*	*3*	*442*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.92*	*0.68*	*0.81*	*1.00*
Hourly Flow Rate, HFR	*0*	*951*	*5*	*4*	*545*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*12*	*0*	*6*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*12*	*0*	*6*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*4*		*18*				
C (m) (vph)		*727*		*165*				
v/c		*0.01*		*0.11*				
95% queue length		*0.02*		*0.37*				
Control Delay		*10.0-*		*29.5*				
LOS		*A*		*D*				
Approach Delay	--	--	*29.5*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RJB*	Intersection	*Site Drive*
Agency/Co.	*Gorrill-Palmer*	Jurisdiction	
Date Performed	*12/17/01*	Analysis Year	*2002 Post*
Analysis Time Period	*4:00 - 6:00 PM*	Project ID	*442*

East/West Street: *Forest Avenue*	North/South Street: *Site Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*571*	*8*	*11*	*786*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.78*	*0.61*	*0.87*	*0.82*	*1.00*
Hourly Flow Rate, HFR	*0*	*732*	*13*	*12*	*958*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*7*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*0*	*7*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*12*		*12*				
C (m) (vph)		*872*		*179*				
v/c		*0.01*		*0.07*				
95% queue length		*0.04*		*0.22*				
Control Delay		*9.2*		*26.6*				
LOS		*A*		*D*				
Approach Delay	--	--	*26.6*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*7-9 am*

Site Information

Intersection	*Riverton Drive*
Jurisdiction	
Analysis Year	*2002 PRE*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverton Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*900*	*15*	*18*	*428*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.75*	*0.71*	*0.84*	*1.00*
Hourly Flow Rate, HFR	*0*	*967*	*20*	*25*	*509*	*0*
Percent Heavy Vehicles	*0*	--	--	*30*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*18*	*0*	*40*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.61*	*1.00*	*0.87*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*29*	*0*	*45*	*0*	*0*	*0*
Percent Heavy Vehicles	*6*	*0*	*10*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*25*		*74*				
C (m) (vph)		*600*		*187*				
v/c		*0.04*		*0.40*				
95% queue length		*0.13*		*1.90*				
Control Delay		*11.3*		*36.7*				
LOS		*B*		*E*				
Approach Delay	--	--	*36.7*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*7-9 am*

Site Information

Intersection	*Riverton Drive*
Jurisdiction	
Analysis Year	*2002 POST*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverton Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*905*	*15*	*18*	*440*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.75*	*0.71*	*0.84*	*1.00*
Hourly Flow Rate, HFR	*0*	*973*	*20*	*25*	*523*	*0*
Percent Heavy Vehicles	*0*	--	--	*30*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*18*	*0*	*40*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.61*	*1.00*	*0.87*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*29*	*0*	*45*	*0*	*0*	*0*
Percent Heavy Vehicles	*6*	*0*	*10*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*25*		*74*				
C (m) (vph)		*597*		*184*				
v/c		*0.04*		*0.40*				
95% queue length		*0.13*		*1.95*				
Control Delay		*11.3*		*37.6*				
LOS		*B*		*E*				
Approach Delay	--	--	*37.6*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RJB*	Intersection	*Riverton Drive*
Agency/Co.	*Gorrill-Palmer*	Jurisdiction	
Date Performed	*12/17/01*	Analysis Year	*2002 PRE*
Analysis Time Period	*4-6 pm*	Project ID	*442*

East/West Street: *Forest Avenue*	North/South Street: *Riverton Drive*
Intersection Orientation: *East-West*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*625*	*26*	*40*	*872*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.78*	*0.70*	*0.94*	*1.00*
Hourly Flow Rate, HFR	*0*	*718*	*33*	*57*	*927*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*0*	*25*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.75*	*1.00*	*0.81*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*40*	*0*	*30*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*7*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*57*		*70*				
C (m) (vph)		*854*		*130*				
v/c		*0.07*		*0.54*				
95% queue length		*0.21*		*3.17*				
Control Delay		*9.5*		*63.8*				
LOS		*A*		*F*				
Approach Delay	--	--	*63.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RJB*	Intersection	*Riverton Drive*
Agency/Co.	*Gorrill-Palmer*	Jurisdiction	
Date Performed	*12/17/01*	Analysis Year	*2002 POST*
Analysis Time Period	*4-6 pm*	Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverton Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*633*	*26*	*40*	*877*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.78*	*0.70*	*0.94*	*1.00*
Hourly Flow Rate, HFR	*0*	*727*	*33*	*57*	*932*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*0*	*25*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.75*	*1.00*	*0.81*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*40*	*0*	*30*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*7*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*57*		*70*				
C (m) (vph)		*847*		*127*				
v/c		*0.07*		*0.55*				
95% queue length		*0.22*		*3.30*				
Control Delay		*9.6*		*66.8*				
LOS		*A*		*F*				
Approach Delay	--	--		*66.8*				
Approach LOS	--	--		*F*				

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*7-9 am*

Site Information

Intersection	*Riverside PWY*
Jurisdiction	
Analysis Year	*2002 PRE*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverside PWY*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*122*	*763*	*0*	*0*	*397*	*135*
Peak-Hour Factor, PHF	*0.92*	*0.93*	*1.00*	*1.00*	*0.81*	*0.68*
Hourly Flow Rate, HFR	*132*	*820*	*0*	*0*	*490*	*198*
Percent Heavy Vehicles	*6*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*50*	*0*	*45*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.82*	*1.00*	*0.79*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*60*	*0*	*56*
Percent Heavy Vehicles	*0*	*0*	*0*	*18*	*0*	*30*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (vph)	*132*						*116*	
C (m) (vph)	*888*						*136*	
v/c	*0.15*						*0.85*	
95% queue length	*0.52*						*9.11*	
Control Delay	*9.8*						*140.3*	
LOS	*A*						*F*	
Approach Delay	--	--				*140.3*		
Approach LOS	--	--				*F*		

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d. The community laundry and adjoining lot is centered in the project to give a sense of focus.

(14) b Internal design and relationship to surrounding neighborhood.

a. Due to the lack of strong architectural context in the immediate neighborhood, we have chosen to create our own design vernacular with pitched roofs, shuttered windows and front porches. The facades move in and out with a different elevation for each unit type and step up with the rising topography. Wellesley Estates will appear as a neighborhood on its own reflecting some of the stronger building elements found throughout Portland.

(14) c We propose a tot lot along side the Community laundry and a multipurpose play field.

Riverton Park – Farnham Street interceptor station
Interlock System

The interlock between the stations is done through an aerial three pair 14 awg. The interlock works in two ways. First it detects calls for the lead pump at each station. Second it detects calls for the lag pump. The computer at the Farnham St. station monitors everything and ether allows or disallows pumps to run. Generally the sequence is as follows.

Normal flow operation
No pump running at Riverton Park, Farnham station operates normally.
One pump running at Riverton Park, Farnham station no pump operates.

High flow operation
No pump running at Riverton Park, Farnham station operates normally.
One pump running at Riverton Park, Farnham station spins up one pump to 50%
Two pumps running at Riverton Park No pump is allow to operate at Farnham station.

This two pump operation at Riverton Park occurs several times per day. This is where the third station will run into problems. With out adequate storage capacity the third station will bypass and this will be detected by that computer at the Farnham station and trip an alarm.

The Farnham St. stations interlock utilizes a Toshiba T2E programmable logic controller (PLC). This PLC monitors four pumps (two at Farnham and two at Riverton Park). This monitoring requires six wires. Three wires for Farnham St. and three for Riverton Park. The configuration is;

Riverton Park		Farnham St.	
One common	(white) Status detect	One common	(yellow) okay to run
One hot	(red) lead	One hot	(orange) lead
One hot	(black) lag	One hot	(blue) lag

Priority one is set for Riverton Park.
Priority two is set for Farnham St.

There are no spare wires available in our current aerial cable. There are no spare PLC inputs. An additional station added to this system would require a new three pair aerial cable to be run form the new station to Farnham St. approximately 2,500 feet and the installation of an expansion I/O card in the PLC at Farnham St. The station computer system at Casteen Av. Station would then control all three stations.

5/23/01

Jeff.
Here is C. Farris' written thoughts on the two pump stations currently on line. This represents a work-in-progress. More to follow.

F. Brancely

cc Jonathan Spence

RECEIVED
MAY 23 2002
DEPARTMENT OF PUBLIC WORKS

Post-it® Fax Note 7671	Date 5/23/01	# of pages ▶ One
To Jonathan Spence	From Frank Brancely	
Co./Dept. City (Planning	Co. Engrg.	
Phone # 8083	Phone # 874-8832	
Fax # 756-8258	Fax # 874-8856	

AA 14b.

A R C H E T Y P E

February 22, 2002

Jonathan Spence
City of Portland
389 Congress Street
Portland, ME 04101

Re: Wellesley Estates, Portland Maine

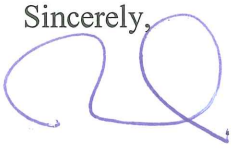
Dear Mr. Spence,

Following is our response to your memorandum of February 15, 2002.

1. Lightfixture. Will be forwarded by Bartlett Design.
2. Photometrics. Will be forwarded by Bartlett Design.
3. Landscape plans requiring min. two plants per unit. Current plan has 143 plants for 46 units. We will be meeting with John Tarling on Tuesday, February 26, 2002.
4. Screen of recreational area to discern from rest of property. The play field is already surrounded by fencing on three sides.
5. The Civil Engineers are currently responding to the sewer concerns of Tony Lombardo.
6. Sidewalk between Buildings #5 and #8, we will discuss adding this to the site plan.
7. A narrative concerning our compliance to PRUD Standards is attached.
8. We are continuing our negotiations with the Portland Housing Authority for a sewer easement.
9. Additional funding information is attached.

Please call with any questions.

Sincerely,



David Lloyd
Architect

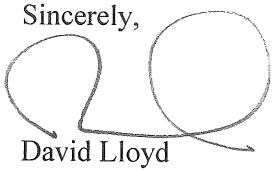
48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

Additional changes prompted by our meeting with the planning board miscellaneous correspondence include;

1. We have added a 6' high fence between our project and Riverton on the landscape plan.
2. The shape of the detention pond has been changed and a fence added around it on all plans.
3. The project entrance has been detailed on the site plan.
4. Abutting buildings at Riverton are shown on the site plan
5. Revisions by Bartlett Engineering of the electrical plans are also included.
6. We have not provided an easement on the recreational area as this not a condominium.
7. We hope to submit the sewer easement within the next few days.

Please let me know of any additional information required.

Sincerely,



David Lloyd

Att 19c

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
26 Main St.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:gpcei@maine.rr.com

February 12, 2002

Mr. Jonathan Spence, Planner
City of Portland
389 Congress Street
Portland, ME 04101

COPY

RE: Wellsley Estates – Rental Housing Project
1818 Forest Avenue, Portland, Maine

Dear Jon:

Gorrill-Palmer Consulting Engineers, Inc. is pleased to respond to the review comments from Jim Seymour, Sebago Technics, Inc. dated January 3rd in regards to the above referenced project.

Stormwater Management:

Comment A – Use current SCS values for rainfall 2-yr=3.0 in., 10-yr=4.7in.,25-yr=5.5 in.

Response – The stormwater calculations have been changed according to the SCS values for Cumberland County, although these figures do not match the values contained within the City of Portland Technical Standards, it is our understanding that the use of the SCS values are acceptable.

Comment B – Which culvert design is used? Plan shows two layouts. Assume shorter length is correct. Please clarify.

Response – The plan has been updated to show the correct culvert design.

Comment C – Stormwater model should use pond model at the proposed culvert rather than reach.

Response – We have updated the model using a pond at the proposed culvert rather than a reach.

Comment D – Open culvert behind Unit #28 should have a trash rack over inlet.

Response – A trash rack has been shown for the culvert inlet.

Comment E – Pipe slopes should not be less than 0.5%, or runoff velocity not less than 3 fps.

Response – Based on conversations with the Planner, pipe slopes can remain less than .5%, as long as the runoff velocity is not less than 3 fps. All of the runoff velocities are greater than 3 fps. Pipe size calculations have been attached to the Stormwater Report to demonstrate compliance with their standard.

Comment F – More detail needed regarding drainage at the proposed entrance with Forest Avenue.

Response – From the existing grade on Forest Avenue, the access drives grade increase 1% for 10' than decreases as shown. This is intended to maintain the existing curbline along Forest Avenue and prevent drainage from the roadway from entering the site.

Comment G – Concentrated flows along the rear of Units #1 through #10 cross over parking lot; should be collected prior to reaching paved area with culvert or catch basin.

Response – A catch basin was added to the collect runoff prior to reaching the parking lot.

Comment H – Will foundation drains be installed? Please show locations of outlets.

Response – Foundation drains will not be installed as the units will be slab-on grade.

Comment I – Please label intended finish floor or top of foundation elevations of all the units.

Response – The finish floor elevations are located in a table on the Grading and Drainage Plan.

Comment J – Drain manhole DMH #3 is too close to the foundation of Units #42-#41.

Response – Drain manhole #3 has been removed and the outlet to the pond has been relocated near the footbridge.

Comment K – Berm of proposed pond too narrow; should be a minimum of 5 feet wide.

Response – The grading of the pond has been modified to increase the berm width to at least five (5) feet wide.

Comment L – Berm of pond is higher than recreation area; therefore, sheet flow will not enter pond. Stormwater calculations do not accurately reflect this situation.

Response – The grading has been modified to allow sheet flow to enter the pond, therefore, the stormwater calculations accurately reflect this situation.

Comment M – Watershed 11 is not accurate. Area is smaller than modeled. Rears of Units #41 through #45 do not reach the pond, and the recreation space area does not sheet flow into pond. (see above).

Response – Watershed 11 was updated to reflect it's actual area, and the recreation area will now sheet flow into the pond.

Comment N – Outlet control structure has 2-in. opening at the bottom. What will prevent it from plugging? Please design to minimize plugging.

Response – A trash rack will be installed on the 18" inlet to the outlet control structure to minimize plugging. The orifice size is based on maintaining the flows for the 2-year storm at approximately the existing values. The anticipated head during larger storm events tend to maintain the orifice as self cleaning. The orifice size was increased to 2".

Comment O – Outlet pipe is pointing into channel flow. Can outlet pipe from outlet control to wetlands be shortened and pointed in the direction of the channel/stream flow?

Response – As mentioned earlier, the outlet pipe has been relocated to direct the outlet flow closer to the direction of the stream flow.

Comment P – Pond spillway shall be sized to handle 25-year flow with the case scenario that the outlet control outlets are plugged. Flow depth over the spillway should not exceed 0.2 foot, or .0.25 cfs/lf. of spillway length.

Response – The pond spillway has been sized to handle the 25-year flow with the outlets plugged, maintain a minimum of 1' of freeboard, also these calculations can be found in the stormwater report.

Road Access/Circulation:

Comment A – Proposed roads/drives shall be named and shall be approved by Fire/Police/Emergency Departments for 911 clarity.

Response – This will be addressed under separate cover by Archetype.

Comment B – Will the existing garage entrance at the Schwartz residence be remove, and will new garage access be located off the entrance drive?

Response – This will be addressed under separate cover by Archetype.

Comment C – Typical parking space size per technical standards is 19 feet x 9 feet, not 18 feet x 9 feet. Please revise parking layout, or request a design modification/waiver.

Response – The cross slope has been lessened to be less than 3%.

Comment D – Cross slope at the culvert crossing is slightly steep at 5-6%. Please revise to lessen cross slope to 3-4%.

Response – The cross slope has been decreased to be less then 3%.

Comment E – How is snow removal going to be conducted? It appears that there is no space available on site to place snow, especially with dumpsters at the end of several parking areas. Please indicate snow removal stockpile areas or methods for removal.

Response – This will be addressed under separate cover by Archetype.

Comment F – What are the dimensions and design of the emergency access road over the Presumpscot Grange property? Will it be gated or secured?

Response – This will be addressed under separate cover by Archetype.

Grading/Erosion Control:

Comment A – The parking areas at the property line with the Maine Turnpike and the Presumpscot Grange appear very close and will have grading impacts on the neighboring properties. Please show how the grading will not impact neighbors, or obtain grading agreements from those impacted abutters.

Response – The grading has been modified to show that there will not be any impact to the neighbors.

Comment B – Please show a detailed drawing of the intersection(s) with Forest Avenue. Include grading, pavement cut areas, pavement construction notes, drainage, sidewalk ramps, curbing, pavement marking, if any etc.

Response – This will be addressed under separate cover by Archetype.

Comment C – General grading appears to impact with a cut of earth behind Units #1 through #10 and Units #37 through #40. Please show contours onto abutters' properties to clearly see impacts at the property line.

Response – Contours on the abutters' properties have been shown to clearly show impacts at the property lines.

Comment D – There appears to be a grading conflict near the location of the parking lot edge closest to the emergency access.

Response – Grading in the parking lot closest to the emergency access has been changed to eliminate the conflict.

Comment E – The slope at the rear of Units #11 through #20 is steeper than 3:1. Please show either riprap or erosion stabilization blanket to be installed to protect the slope.

Response – As noted on the Erosion and Sediment Control Plan, an erosion stabilization blanket will be placed where the slope is steeper than 3:1.

Comment F – Stone check dams needed to be shown in the swale behind Units #29 through #36.

Response – As requested, stone check dams are shown on the Erosion and Sediment Control Plan in the swale behind Units #29 through #36.

Utility Installation/Location:

Comment A – All utilities shall be underground from Forest Avenue into the site. No overhead mains shall be allowed using poles except to cross Forest Avenue.

Response – All utilities will be underground from Forest Avenue into the site.

Comment B – The final sewer routing option shall be determined with applicable agreements and easements, if necessary, before public hearing. A letter approving flows into the City's sewer system is needed in response to the request letter sent by the applicant.

Response – A letter requesting the City's ability to serve the projects sewer needs has been sent, a copy of the City's ability will be forwarded upon our receival.

Comment C – More information is needed regarding the possibility to tie into a Riverton Park manhole (SMH9A).

Response – Sewer will no longer be directed into Riverton Park, instead it will be pumped to the existing sewer main in Forest Avenue based upon information provided by the Public Works Department.

Comment D – A Plan and Profile drawing should be conducted through the access roads/driveways. There appear to be several locations where storm drain, electrical main, and water mains are near the same elevation and location.

Response – Profiles of the sewer and storm drain lines have been provided.

Recreational Area:

Comment A – The recreation area needs to include details as to the sod thickness and base material. Also, it would be beneficial if the recreation area were ditched to divert off-site runoff away from the playing surface.

Response – This will be addressed under separate cover by Archetype.

Comment B – The location of the detention pond adjacent to the active recreation area will require that a fence or landscaped barrier be installed around the pond limits for pedestrian/child safety.

Response – This will be addressed under separate cover by Archetype.

Comment C – Access from the proposed footbridge shall be shown to access the recreation area. Grading and construction details of the walkway are required.

Response – This will be addressed under separate cover by Archetype.

Details:

Comment A – Road, driveway and parking area construction-cross section details are needed.

Response – This will be addressed under separate cover by Archetype.

Comment B – Sidewalk, curbing and handicap ramp details are needed.

Response – This will be addressed under separate cover by Archetype.

Comment C - Dumpster enclosure details are needed.

Response – This will be addressed under separate cover by Archetype.

Comment D – Footbridge design details are needed.

Response – This will be addressed under separate cover by Archetype.

Comment E – A bus shelter detail is needed.

Response – This will be addressed under separate cover by Archetype.

AA. 15

Sebago Technics
Engineering Expertise You Can Build On

01P307

TO: **Jonathan Spence - Planner**

FROM: **Jim Seymour – Development Review Coordinator, Sebago Technics, Inc.**

RE: **Wellsley Estates –Rental Housing Project –1818 Forest Avenue**

DATE: **February 20, 2002**

I have reviewed the revised Site Plan Package and supporting documentation for the Wellsley Estates Housing Project located off 1818 Forest Avenue, dated February 11 & 12, 2002, and have provided the following comments in response to the revisions:

1. <u>Stormwater Management</u>

   A. After reviewing the pre- and post-development runoff calculations, it was difficult to determine the elevation difference of Pond 1. The elevations are nearly 30 feet above the site. I assume that this was estimated; however, no where in the attached report is there a discussion concerning this 24-inch culvert and assumed elevation. The engineer needs to comment on this pipe's elevation and origin.

   B. The detention pond outfall should be move to the west side of the proposed pedestrian bridge. The current location of the pipe outfall under the bridge will conflict with the bridge's footing and be difficult to maintain.

   C. The grading at the bottom of the emergency access drive and parking area does not propose drainage collection. The design requires the flows originating from Forest Avenue, the access drive, and gravel area to travel 200 feet +, then sheet flow over the pavement, and then travel another 220 feet before being collected by a catch basin. A culvert could be installed at the northerly corner of the parking lot and convey drainage along the easterly side of units 22-29, and enter the swale that enters the riprapped inlet near unit 29.

   D. It would be beneficial if the engineer could calculate the individual areas of roof, parking lot, access roads, and sidewalks. I came up with a slightly higher volume than indicated within the stormwater report. This calculation would eliminate any confusion that I may have regarding the total impervious area.

2. **Road Access/Circulation**

A. Further information may be needed regarding the blending of elevations at Forest Avenue with both the primary and emergency access roads. Limits of paving should be indicated; spot elevations to assure street gutter lines are maintained and limits of granite curbing should be clearly shown. Public Works will likely have their own list of separate items.

B. The proposed driveway for the relocated garage is not well placed. The length of the driveway is short and could be problematic backing out onto the moderate sloped access drive. Since no curbing is proposed on that side, drainage could cause icing during winter periods further aggravating the situation. A deeper driveway could solve this problem.

C. A detail is needed regarding the typical cross-section of the emergency access drive. This should include base and subbase depths and specifications.

D. The parking areas should have the same cross-section detail as the driveway. The detail should be relabeled to accurately indicate this correction for construction purposes. If the parking areas are different in construction with regards to materials depth, then a separate detail is needed.

E. The areas labeled as snow storage areas along the eastern side of the primary access drive are not appropriate. I feel they will create visual obstructions to Forest Avenue, the garage access, and main entrance into the site. Melt runoff will complicate the garage access. The area adjacent to the Tot Lot is also not appropriate from the same reason.

F. A pedestrian guardrail should be considered along the edge of the sidewalk where the culverts cross the driveway. The slope from the sidewalk is steep and would be a safety concern regarding pedestrians and bicyclists.

G. A detail is needed for the heavy duty timber rail (2 feet high) planned along the emergency access.

3. **Grading/Erosion Control**

A. Some of the finish floor elevations appear low. This may be an area that needs clarification with the applicant. My concern is that the elevation of the slab is proposed to be level with the ground elevation. Some of the finish floor elevations are just six inches higher than the outside ground elevation, meaning the concrete slab is just at ground elevation. A note may be necessary to state that the finish concrete slab should be a minimum 4" higher than the highest outside ground elevation. I believe there may be some building codes which address the step heights into the structure, which may play a part in the finish floor elevation selection. I would request that the sills be high enough to be protected from saturation due to surface water/drip edge gutter flows.

B. A silt fence should be run along the toe of the slope between the Grange Hall property and the swale to protect the new slope from eroding into the swale and storm drain system.

4. **Utility Installation/Location**

A. The profiles attached showing underground utilities need to show on a plan the stationing associated with the selected baseline.

B. The pump station design shall be submitted for review. It shall indicate pump sizing calculations, force main sizing, pump wet well sizing, indicated alarm systems, and should include force main clean outs at abrupt bends in the main.

C. The design should also be submitted to Public Works for their review. Also, there may have to be an agreement or easement in place with the City to locate private utility mains in the right-of-way of Forest Avenue. Maintenance and responsibilities for the pumping system should be addressed as well.

D. There is a conflict with the location of underground mains from a transformer located adjacent to the Vortechs treatment tank near the culvert crossing. The services would run into the tank as shown on the electrical layout plan. The services may have to be run into and along the driveway to serve units 42-46.

5. **Additional Concerns**

A. A geotechnical search into the design of the bridge footings way be appropriate given the soils types, slopes near the stream, and water levels. My concerns are that the bridge is designed appropriately to account for soil stability and safety.

B. The dumpster location for the twin dumpsters at the end of the primary access lane designed at an angle does not seem like a good location. Besides aesthetics, the maneuvering of garbage trucks at this location does not seem reasonable. Other areas may be less convenient, but may function more favorably.

C. The plans should indicate areas during construction for stockpiling materials and excavated soils. Loam will likely be stripped and re-used on the site. Those areas chosen for stockpiling beyond 14 days shall be identified and addressed with erosion control measures.

Based on the information submitted it is apparent that more information is needed with regards to the sewage pump station design. Also, some details and additional information need to be submitted to address the above. Although the requested items were mostly addressed, these additional concerns have arisen from the new information and designs submitted. Please feel free to call me if you have further questions, or have the applicant's design team contact me if they, too, wish to discuss the review items.

JRS:jrs/jc

AH.17

From: Anthony Lombardo
To: Jonathan Spence
Date: Thu, Feb 14, 2002 11:03 AM
Subject: 1818 Forest Ave. Wellesley Estates..2/14/02

I have reviewed the latest submittal dated 2/12/02 and offer the following comments:

Sheet SD-2 Utility Plan

- As suggested by the City, the applicant's engineer proposes to direct a sanitary force main into the Forest Ave. sewer system. However, Public Works is requesting the applicant install a new manhole at the intersection of the City sewer and the proposed emergency gravel access road, rather than excavating in Forest Ave. as specified on the plan.
- Public Works is still awaiting submittal of pump station design and supporting calculations for review.
-

A R C H E T Y P E

February 26, 2002

Jonathan Spence
City of Portland
389 Congress Street
Portland, ME 04101

Re: Wellesley Estates – Portland, ME

Dear Mr. Spence,

Following are my responses to Jim Seymour of Sebago Technics Memo dated 2-21-02.

1. **Stormwater Management**
   Items a, b, c and d are addressed by Gorrill-Palmer Consulting Engineers.

2. **Road Access/Circulation**
   a. Further detailing of the driveway entrance will be submitted.
   b. The garage will be moved farther back from the entrance road and a "T" added.
   c. A specification for the emergency access road will be submitted.
   d. We are unaware of any requirement for private drives and parking areas.
   e. The side of the road is a snow dump.
   f. We believe a guardrail at the culvert is unnecessary.
   g. We will provide a detail for the timber rail at the emergency access.

3. **Grading /Erosion Control**
   a. The grading around the buildings will be slightly modified. Entrances to accessible units are flush. Entrances to other units are 6" below slab. Surrounding grade is min. 8" below slab.
   b. Silt fencing will be addressed by Gorrill-Palmer Consulting Engineers.

4. **Utility Installation/Location**
   Items a, b, c, and d, are addressed by Gorrill-Palmer Consulting Engineers.

5. **Additional Concerns**
   a. We suggest letting the Structural Engineer, who eventually designs the bridge and will be responsible for its strengths and durability, decide the procedure.
   b. The dumpster pen has been removed.
   c. Soil and material will be designated with a stockpile location.

Sincerely,

David Lloyd

David Lloyd
Architect

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

FROM : ARCHETYPE PHONE NO. : 207 772 6022 FEB. 26 2002 10:12AM P2

Att. 13

Sebago Technics
Engineering & Planning for the Future

01P307

TO: **Jonathan Spence - Planner**

FROM: **Jim Seymour – Development Review Coordinator, Sebago Technics, Inc.**

RE: **Wellsley Estates –Rental Housing Project –1818 Forest Avenue**

DATE: **January 3, 2002**

I have reviewed the Site Plan Package and supporting documentation for the Wellsley Estates Housing Project located off 1818 Forest Avenue and have provided the following comments in an outline topic scenario:

1. **Stormwater Management**

   A. Use current SCS values for rainfall 2-yr=3.0 in, 10-yr=4.7 in, 25-yr=5.5 in.

   B. Which culvert design is used? Plan shows two layouts. Assume shorter length is correct. Please clarify.

   C. Stormwater model should use pond model at the proposed culvert rather than reach.

   D. Open culvert behind Unit #28 should have a trash rack over inlet.

   E. Pipe slopes should not be less than 0.5%, or runoff velocity not less the 3 fps.

   F. More detail needed regarding drainage at the proposed entrance with Forest Avenue.

   G. Concentrated flows along the rear of Units #1 through #10 cross over parking lot; should be collected prior to reaching paved area with culvert or catch basin.

   H. Will foundation drains be installed? Please show locations of outlets.

   I. Please label intended finish floor or top of foundation elevations of all the units.

   J. Drain Manhole DMH-#3 is too close to the foundation of Units #42-#41.

   K. Berm of proposed pond too narrow; should be a minimum of 5 feet wide.

   L. Berm of pond is higher than recreation area; therefore, sheet flow will not enter pond. Stormwater calculations do not accurately reflect this situation.

M. Watershed 11 is not accurate. Area is smaller than modeled. Rears of Units #41 through #45 do not reach the pond, and the recreation space area does not sheet flow into pond (see above).

N. Outlet control structure has 2-in. opening at the bottom. What will prevent it from plugging? Please design to minimize plugging.

O. Outlet pipe is pointing into channel flow. Can outlet pipe from outlet control to wetlands be shortened and pointed in the direction of the channel/stream flow?

P. Pond spillway shall be sized to handle 25-year flow with the case scenario that the outlet control outlets are plugged. Flow depth over the spillway should not exceed 0.2 foot, or .0.25 cfs/lf. of spillway length.

2. Road Access/Circulation

A. Proposed roads/drives shall be named and shall be approved by Fire/Police/Emergency Departments for 911 clarity.

B. Will the existing garage entrance at the Schwartz residence be removed, and will new garage access be located off the entrance drive?

C. Typical parking space size per technical standards is 19 feet x 9 feet, not 18 feet x 9 feet. Please revise parking layout, or request a design modification/waiver.

D. Cross slope at the culvert crossing is slightly steep at 5-6%. Please revise to lessen cross slope to 3-4 %.

E. How is snow removal going to be conducted? It appears that there is no space available on site to place snow, especially with dumpsters at the end of several parking areas. Please indicate snow removal stockpile areas or methods for removal.

F. What are the dimensions and design of the emergency access road over the Presumpscot Grange property? Will it be gated or secured?

3. Grading/Erosion Control

A. The parking areas at the property line with the Maine Turnpike and the Presumpscot Grange appear very close and will have grading impacts on the neighboring properties. Please show how the grading will not impact neighbors, or obtain grading agreements from these impacted abutters.

B. Please show a detailed drawing of the intersection(s) with Forest Avenue. Include grading, pavement cut areas, pavement construction notes, drainage, sidewalk ramps, curbing, pavement markings, if any, etc.

C. General grading appears to impact with a cut of earth behind Units # 1 through #10 and Units #37 through #40. Please show contours onto abutters' properties to clearly see impacts at the property line.

D. There appears to be a grading conflict near the location of the parking lot edge closest to the emergency access.

E. The slope at the rear of Units #11 through #20 is steeper than 3:1. Please show either riprap or erosion stabilization blanket to be installed to protect the slope.

F. Stone check dams need to be shown in the swale behind Units #29 through #36.

4. **Utility Installation/Location**

A. All utilities shall be underground from Forest Avenue into the site. No overhead mains shall be allowed using poles except to cross Forest Avenue.

B. The final sewer routing option shall be determined with applicable agreements and easements, if necessary, before public hearing. A letter approving flows into the City's sewer system is needed in response to the request letter sent by the applicant.

C. More information is needed regarding the possibility to tie into a Riverton Park manhole (SMH9A).

D. A Plan and Profile drawing should be conducted through the access roads/driveways. There appear to be several locations where storm drain, electrical main, and water mains are near the same elevation and location.

5. **Recreational Area**

A. The recreation area needs to include details as to the sod thickness and base material. Also, it would be beneficial if the recreation area were ditched to divert off-site runoff away from the playing surface.

B. The location of the detention pond adjacent to the active recreation area will require that a fence or landscaped barrier be installed around the pond limits for pedestrian/child safety.

C. Access from the proposed footbridge shall be shown to access the recreation area. Grading and construction details of the walkway are required.

6. **Details**

A. Road, driveway, and parking area construction-cross section details are needed.

B. Sidewalk, curbing, and handicap ramp details are needed.

C. Dumpster enclosure details are needed.

D. Footbridge design details are needed.

E. A bus shelter detail is needed.

F. The erosion control notes and seeding notes shall be placed on one of the sheets of the plan set so that the contractor will have them in the field.

G. The design criteria of the stormwater treatment tank shall be placed on the detail or drainage plan. This shall include storm sizing, flow rate, minimum particle size targeted for removal, design removal efficiency required, and bypass structure design, if necessary, for larger storms than the design 1 year storm size.

Although I have spent more time than anticipated on this review, I feel it is necessary for the design professional to know as much as possible regarding the issues that we feel will need

Att. 14a.

A R C H E T Y P E

To: **Jonathan Spence, Portland City Planner**

From: **David Lloyd, Archetype Architects**

Date: **February 11, 2002**

Re: **Response to January 3, 2001 Comments from Sebago Technics for Wellesley Estates**

1. Stormwater Management. See response by Gorrill-Palmer , Engineers

2. Road Access/Circulation
   a. Police, Fire and Emergency Departments stated we should get the policy for 991 address assignment from the planning department. We have been attempting to contact Jay Reynolds for direction.
   b. The existing garage access for the Schwartz Residence will be discontinued. The garage will be removed and relocated to the rear of the Schwartz Residence and have a new access off the project driveway. This is shown on the site drawing SD-1.
   c. The size of a typical parking has been revised to 19' x 9' instead of 18' x 9'.
   d. Cross slopes of culverts will be addressed by Gorrill-Palmer.
   e. Snow dump areas are shown on the site plan SD-1.
   f. The gated and graveled emergency road is 16' as shown on the drawing SD-1.

3. Grading and Erosion Control. See response by Gorrill-Palmer

4. Utility Installation /Location
   a. All utilities are underground as shown on the drawings.
   b. See response by Gorrill-Palmer
   c. See response by Gorrill-Palmer
   d. See response by Gorrill-Palmer

5. Recreation Area
   a. The recreation area will be seeded grass on 4" of loam.
   b. A fence will be installed around the detention pond and is detailed on the drawings.
   c. The footbridge is shown connected to the recreation area.

6. Details
   a. We are unaware of any standards for driveway and parking area outside of the public way. Would you please give us the appropriate reference.
   b. Sidewalks, curbing and ramps are shown on drawing SD-1.
   c. The dumpster enclosure is detailed on the drawing.
   d. The footbridge is detailed on the drawing.
   e. The specification and elevation of the bus shelter is attached.
   f. Erosion control notes will be provided by Gorrill-Palmer
   g. Design criteria for the treatment tank will be provided by Gorrill-Palmer

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Chair Caron and Members of the Portland Planning Board

FROM: Jonathan Spence, Planner

DATE: January 8, 2001

SUBJECT: Wellesley Estates, 45 Unit PRUD, Vicinity of 1818 Forest Avenue

Please find the following additional materials attached:

1. Reply of Applicant to questions raised during phone conversation, 1-03-2002
2. Comments from Jim Seymour, 1-03-2002

Memo

To: **Jonathan Spence**

From: **David Lloyd**

Re: **Response to questions on Wellesley Estates**

Date: **January 3, 2002**

1. Option agreement for the purchase of the 16' emergency access lane from the Presumpscot Grange has been forwarded to you for review.

2. The proposed bus shelter on Forest Avenue is for school busses only and not for the metro.

3. Responsibility for the structural integrity of the garage to be relocated on the Schwartz property is by the building moving company. Any damage to the building beyond its current state would be covered by their insurance company.

4. It is the intention of the Owner to maintain the garage as a garage and locate it such that it meets setback requirements. We intend to submit this plan as soon as possible.

Cc: Adam Mack
Terry Nadeau

Sebago Technics
Engineering & Planning for the Future

01P307

TO: **Jonathan Spence - Planner**

FROM: **Jim Seymour – Development Review Coordinator, Sebago Technics, Inc.**

RE: **Wellsley Estates –Rental Housing Project –1818 Forest Avenue**

DATE: **January 3, 2002**

I have reviewed the Site Plan Package and supporting documentation for the Wellsley Estates Housing Project located off 1818 Forest Avenue and have provided the following comments in an outline topic scenario:

1. **Stormwater Management**

   A. Use current SCS values for rainfall 2-yr=3.0 in, 10-yr=4.7 in, 25-yr=5.5 in.

   B. Which culvert design is used? Plan shows two layouts. Assume shorter length is correct. Please clarify.

   C. Stormwater model should use pond model at the proposed culvert rather than reach.

   D. Open culvert behind Unit #28 should have a trash rack over inlet.

   E. Pipe slopes should not be less than 0.5%, or runoff velocity not less the 3 fps.

   F. More detail needed regarding drainage at the proposed entrance with Forest Avenue.

   G. Concentrated flows along the rear of Units #1 through #10 cross over parking lot; should be collected prior to reaching paved area with culvert or catch basin.

   H. Will foundation drains be installed? Please show locations of outlets.

   I. Please label intended finish floor or top of foundation elevations of all the units.

   J. Drain Manhole DMH-#3 is too close to the foundation of Units #42-#41.

   K. Berm of proposed pond too narrow; should be a minimum of 5 feet wide.

   L. Berm of pond is higher than recreation area; therefore, sheet flow will not enter pond. Stormwater calculations do not accurately reflect this situation.

M. Watershed 11 is not accurate. Area is smaller than modeled. Rears of Units #41 through #45 do not reach the pond, and the recreation space area does not sheet flow into pond (see above).

N. Outlet control structure has 2-in. opening at the bottom. What will prevent it from plugging? Please design to minimize plugging.

O. Outlet pipe is pointing into channel flow. Can outlet pipe from outlet control to wetlands be shortened and pointed in the direction of the channel/stream flow?

P. Pond spillway shall be sized to handle 25-year flow with the case scenario that the outlet control outlets are plugged. Flow depth over the spillway should not exceed 0.2 foot, or .0.25 cfs/lf. of spillway length.

2. Road Access/Circulation

A. Proposed roads/drives shall be named and shall be approved by Fire/Police/Emergency Departments for 911 clarity.

B. Will the existing garage entrance at the Schwartz residence be removed, and will new garage access be located off the entrance drive?

C. Typical parking space size per technical standards is 19 feet x 9 feet, not 18 feet x 9 feet. Please revise parking layout, or request a design modification/waiver.

D. Cross slope at the culvert crossing is slightly steep at 5-6%. Please revise to lessen cross slope to 3-4 %.

E. How is snow removal going to be conducted? It appears that there is no space available on site to place snow, especially with dumpsters at the end of several parking areas. Please indicate snow removal stockpile areas or methods for removal.

F. What are the dimensions and design of the emergency access road over the Presumpscot Grange property? Will it be gated or secured?

3. Grading/Erosion Control

A. The parking areas at the property line with the Maine Turnpike and the Presumpscot Grange appear very close and will have grading impacts on the neighboring properties. Please show how the grading will not impact neighbors, or obtain grading agreements from these impacted abutters.

B. Please show a detailed drawing of the intersection(s) with Forest Avenue. Include grading, pavement cut areas, pavement construction notes, drainage, sidewalk ramps, curbing, pavement markings, if any, etc.

C. General grading appears to impact with a cut of earth behind Units # 1 through #10 and Units #37 through #40. Please show contours onto abutters' properties to clearly see impacts at the property line.

D. There appears to be a grading conflict near the location of the parking lot edge closest to the emergency access.

E. The slope at the rear of Units #11 through #20 is steeper than 3:1. Please show either riprap or erosion stabilization blanket to be installed to protect the slope.

F. Stone check dams need to be shown in the swale behind Units #29 through #36.

4. **Utility Installation/Location**

A. All utilities shall be underground from Forest Avenue into the site. No overhead mains shall be allowed using poles except to cross Forest Avenue.

B. The final sewer routing option shall be determined with applicable agreements and easements, if necessary, before public hearing. A letter approving flows into the City's sewer system is needed in response to the request letter sent by the applicant.

C. More information is needed regarding the possibility to tie into a Riverton Park manhole (SMH9A).

D. A Plan and Profile drawing should be conducted through the access roads/driveways. There appear to be several locations where storm drain, electrical main, and water mains are near the same elevation and location.

5. **Recreational Area**

A. The recreation area needs to include details as to the sod thickness and base material. Also, it would be beneficial if the recreation area were ditched to divert off-site runoff away from the playing surface.

B. The location of the detention pond adjacent to the active recreation area will require that a fence or landscaped barrier be installed around the pond limits for pedestrian/child safety.

C. Access from the proposed footbridge shall be shown to access the recreation area. Grading and construction details of the walkway are required.

6. **Details**

A. Road, driveway, and parking area construction-cross section details are needed.

B. Sidewalk, curbing, and handicap ramp details are needed.

C. Dumpster enclosure details are needed.

D. Footbridge design details are needed.

E. A bus shelter detail is needed.

F. The erosion control notes and seeding notes shall be placed on one of the sheets of the plan set so that the contractor will have them in the field.

G. The design criteria of the stormwater treatment tank shall be placed on the detail or drainage plan. This shall include storm sizing, flow rate, minimum particle size targeted for removal, design removal efficiency required, and bypass structure design, if necessary, for larger storms than the design 1 year storm size.

Although I have spent more time than anticipated on this review, I feel it is necessary for the design professional to know as much as possible regarding the issues that we feel will need

further information. Because of the project's size and complexity, I may not have addressed every issue, but feel that the main issues have been discussed.

In addition to the City's review, the site will require DEP review for wetland impacts and stormwater quantity (since the site exceeds 1 acre of new impervious surface). I believe that the site would have been required to meet the City's requirement for stormwater quality based on the number of parking spaces. However, the applicant has adequately demonstrated that they fully intend to meet the water quality standard.

Based on the information needed, it may be best if the applicant, designers and engineers plan a brief meeting with Public Works, you and myself to review all of these comments. As always, please feel free to call me with any questions.

JRS:jrs/jc

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237
26 Main St.
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail:gpcei@maine.rr.com

February 12, 2002

Mr. Jonathan Spence, Planner
City of Portland
389 Congress Street
Portland, ME 04101

COPY

RE: Wellsley Estates – Rental Housing Project
1818 Forest Avenue, Portland, Maine

Dear Jon:

Gorrill-Palmer Consulting Engineers, Inc. is pleased to respond to the review comments from Jim Seymour, Sebago Technics, Inc. dated January 3rd in regards to the above referenced project.

Stormwater Management:

Comment A – Use current SCS values for rainfall 2-yr=3.0 in., 10-yr=4.7in.,25-yr=5.5 in.

Response – The stormwater calculations have been changed according to the SCS values for Cumberland County, although these figures do not match the values contained within the City of Portland Technical Standards, it is our understanding that the use of the SCS values are acceptable.

Comment B – Which culvert design is used? Plan shows two layouts. Assume shorter length is correct. Please clarify.

Response – The plan has been updated to show the correct culvert design.

Comment C – Stormwater model should use pond model at the proposed culvert rather than reach.

Response – We have updated the model using a pond at the proposed culvert rather than a reach.

Comment D – Open culvert behind Unit #28 should have a trash rack over inlet.

Response – A trash rack has been shown for the culvert inlet.

Comment E – Pipe slopes should not be less than 0.5%, or runoff velocity not less than 3 fps.

Response – Based on conversations with the Planner, pipe slopes can remain less than .5%, as long as the runoff velocity is not less than 3 fps. All of the runoff velocities are greater than 3 fps. Pipe size calculations have been attached to the Stormwater Report to demonstrate compliance with their standard.

Comment F – More detail needed regarding drainage at the proposed entrance with Forest Avenue.

Response – From the existing grade on Forest Avenue, the access drives grade increase 1% for 10' than decreases as shown. This is intended to maintain the existing curbline along Forest Avenue and prevent drainage from the roadway from entering the site.

Comment G – Concentrated flows along the rear of Units #1 through #10 cross over parking lot; should be collected prior to reaching paved area with culvert or catch basin.

Response – A catch basin was added to the collect runoff prior to reaching the parking lot.

Comment H – Will foundation drains be installed? Please show locations of outlets.

Response – Foundation drains will not be installed as the units will be slab-on grade.

Comment I – Please label intended finish floor or top of foundation elevations of all the units.

Response – The finish floor elevations are located in a table on the Grading and Drainage Plan.

Comment J – Drain manhole DMH #3 is too close to the foundation of Units #42-#41.

Response – Drain manhole #3 has been removed and the outlet to the pond has been relocated near the footbridge.

Comment K – Berm of proposed pond too narrow; should be a minimum of 5 feet wide.

Response – The grading of the pond has been modified to increase the berm width to at least five (5) feet wide.

Comment L – Berm of pond is higher than recreation area; therefore, sheet flow will not enter pond. Stormwater calculations do not accurately reflect this situation.

Response – The grading has been modified to allow sheet flow to enter the pond, therefore, the stormwater calculations accurately reflect this situation.

Comment M – Watershed 11 is not accurate. Area is smaller than modeled. Rears of Units #41 through #45 do not reach the pond, and the recreation space area does not sheet flow into pond. (see above).

Response – Watershed 11 was updated to reflect it's actual area, and the recreation area will now sheet flow into the pond.

Comment N – Outlet control structure has 2-in. opening at the bottom. What will prevent it from plugging? Please design to minimize plugging.

Response – A trash rack will be installed on the 18" inlet to the outlet control structure to minimize plugging. The orifice size is based on maintaining the flows for the 2-year storm at approximately the existing values. The anticipated head during larger storm events tend to maintain the orifice as self cleaning. The orifice size was increased to 2".

Comment O – Outlet pipe is pointing into channel flow. Can outlet pipe from outlet control to wetlands be shortened and pointed in the direction of the channel/stream flow?

Response – As mentioned earlier, the outlet pipe has been relocated to direct the outlet flow closer to the direction of the stream flow.

Comment P – Pond spillway shall be sized to handle 25-year flow with the case scenario that the outlet control outlets are plugged. Flow depth over the spillway should not exceed 0.2 foot, or .0.25 cfs/lf. of spillway length.

Response – The pond spillway has been sized to handle the 25-year flow with the outlets plugged, maintain a minimum of 1' of freeboard, also these calculations can be found in the stormwater report.

Road Access/Circulation:

Comment A – Proposed roads/drives shall be named and shall be approved by Fire/Police/Emergency Departments for 911 clarity.

Response – This will be addressed under separate cover by Archetype.

Comment B – Will the existing garage entrance at the Schwartz residence be remove, and will new garage access be located off the entrance drive?

Response – This will be addressed under separate cover by Archetype.

Comment C – Typical parking space size per technical standards is 19 feet x 9 feet, not 18 feet x 9 feet. Please revise parking layout, or request a design modification/waiver.

Response – The cross slope has been lessened to be less than 3%.

Comment D – Cross slope at the culvert crossing is slightly steep at 5-6%. Please revise to lessen cross slope to 3-4%.

Response – The cross slope has been decreased to be less then 3%.

Comment E – How is snow removal going to be conducted? It appears that there is no space available on site to place snow, especially with dumpsters at the end of several parking areas. Please indicate snow removal stockpile areas or methods for removal.

Response – This will be addressed under separate cover by Archetype.

Comment F – What are the dimensions and design of the emergency access road over the Presumpscot Grange property? Will it be gated or secured?

Response – This will be addressed under separate cover by Archetype.

Grading/Erosion Control:

Comment A – The parking areas at the property line with the Maine Turnpike and the Presumpscot Grange appear very close and will have grading impacts on the neighboring properties. Please show how the grading will not impact neighbors, or obtain grading agreements from those impacted abutters.

Response – The grading has been modified to show that there will not be any impact to the neighbors.

Comment B – Please show a detailed drawing of the intersection(s) with Forest Avenue. Include grading, pavement cut areas, pavement construction notes, drainage, sidewalk ramps, curbing, pavement marking, if any etc.

Response – This will be addressed under separate cover by Archetype.

Comment C – General grading appears to impact with a cut of earth behind Units #1 through #10 and Units #37 through #40. Please show contours onto abutters' properties to clearly see impacts at the property line.

Response – Contours on the abutters' properties have been shown to clearly show impacts at the property lines.

Comment D – There appears to be a grading conflict near the location of the parking lot edge closest to the emergency access.

Response – Grading in the parking lot closest to the emergency access has been changed to eliminate the conflict.

Comment E – The slope at the rear of Units #11 through #20 is steeper than 3:1. Please show either riprap or erosion stabilization blanket to be installed to protect the slope.

Response – As noted on the Erosion and Sediment Control Plan, an erosion stabilization blanket will be placed where the slope is steeper than 3:1.

Comment F – Stone check dams needed to be shown in the swale behind Units #29 through #36.

Response – As requested, stone check dams are shown on the Erosion and Sediment Control Plan in the swale behind Units #29 through #36.

Utility Installation/Location:

Comment A – All utilities shall be underground from Forest Avenue into the site. No overhead mains shall be allowed using poles except to cross Forest Avenue.

Response – All utilities will be underground from Forest Avenue into the site.

Comment B – The final sewer routing option shall be determined with applicable agreements and easements, if necessary, before public hearing. A letter approving flows into the City's sewer system is needed in response to the request letter sent by the applicant.

Response – A letter requesting the City's ability to serve the projects sewer needs has been sent, a copy of the City's ability will be forwarded upon our receival.

Comment C – More information is needed regarding the possibility to tie into a Riverton Park manhole (SMH9A).

Response – Sewer will no longer be directed into Riverton Park, instead it will be pumped to the existing sewer main in Forest Avenue based upon information provided by the Public Works Department.

Comment D – A Plan and Profile drawing should be conducted through the access roads/driveways. There appear to be several locations where storm drain, electrical main, and water mains are near the same elevation and location.

Response – Profiles of the sewer and storm drain lines have been provided.

Recreational Area:

Comment A – The recreation area needs to include details as to the sod thickness and base material. Also, it would be beneficial if the recreation area were ditched to divert off-site runoff away from the playing surface.

Response – This will be addressed under separate cover by Archetype.

Comment B – The location of the detention pond adjacent to the active recreation area will require that a fence or landscaped barrier be installed around the pond limits for pedestrian/child safety.

Response – This will be addressed under separate cover by Archetype.

Comment C – Access from the proposed footbridge shall be shown to access the recreation area. Grading and construction details of the walkway are required.

Response – This will be addressed under separate cover by Archetype.

Details:

Comment A – Road, driveway and parking area construction-cross section details are needed.

Response – This will be addressed under separate cover by Archetype.

Comment B – Sidewalk, curbing and handicap ramp details are needed.

Response – This will be addressed under separate cover by Archetype.

Comment C - Dumpster enclosure details are needed.

Response – This will be addressed under separate cover by Archetype.

Comment D – Footbridge design details are needed.

Response – This will be addressed under separate cover by Archetype.

Comment E – A bus shelter detail is needed.

Response – This will be addressed under separate cover by Archetype.

Comment F – The erosion control notes and seeding notes shall be placed on one of the sheets of the plan set so that the contractor will have them in the field.

Response – The erosion control notes and seeding notes have been placed on one of the sheets of the plan set so the contractor will have them in the field.

Comment G – The design criteria of the stormwater treatment tank shall be placed on the detail or drainage plan. This shall include storm sizing, flow rate, minimum particle size targeted for removal, design removal efficiency required, and bypass structure design, if necessary, for larger storms that the design 1-year storm size.

Response – The appropriate information has been shown on the plans.

Gorrill-Palmer appreciates the opportunity to respond to these review comments and look forward to your responses. Should you have any questions or need additional information, please contact our office.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

Alton M. Palmer, P.E.
Vice President

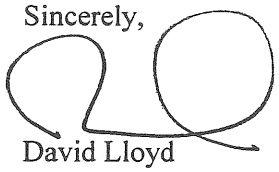
JML/rmg/JN442/SpenceC&R01-16-02

Additional changes prompted by our meeting with the planning board miscellaneous correspondence include;

1. We have added a 6' high fence between our project and Riverton on the landscape plan.
2. The shape of the detention pond has been changed and a fence added around it on all plans.
3. The project entrance has been detailed on the site plan.
4. Abutting buildings at Riverton are shown on the site plan
5. Revisions by Bartlett Engineering of the electrical plans are also included.
6. We have not provided an easement on the recreational area as this not a condominium.
7. We hope to submit the sewer easement within the next few days.

Please let me know of any additional information required.

Sincerely,



David Lloyd

DeLUCA-HOFFMAN ASSOCIATES, INC.
Consulting Engineers
778 Main Street Suite 8
SOUTH PORTLAND, MAINE 04106
(207) 775-1121
FAX (207) 879-0896

JOB _____

SHEET NO. 2 OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

TSS DISCHARGE

PREDEVELOPMENT CONDITION

$$\frac{6304+12888}{43560} \times 1 \text{ (ie NO TREATMENT)} = 0.44$$

ALLOWABLE POSTDEVELOPMENT DISCHARGE

$$\left(\frac{6304+12888}{43560}\right)(1) + \left(\frac{2596+6520}{43560}\right)(1-0.4) = 0.57$$

WQ TREATMENT MEASURES

NONE PROPOSED FOR PAYSON SMITH LOT

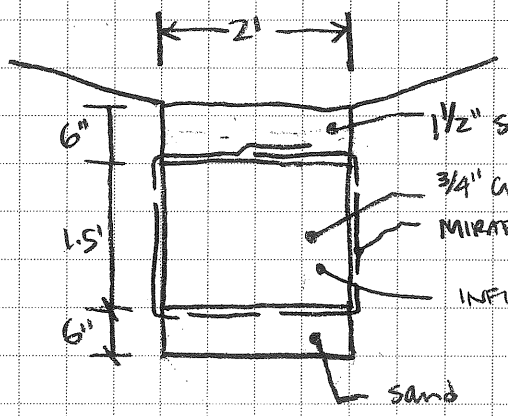
INFILTRATION SWALE WITH HOODED CATCH BASIN AT ALUMNI HOUSE

↳ 75% TSS REMOVAL ↳ 10% TSS REMOVAL

PORTION OF ALUMNI HOUSE LOT TRIBUTARY TO INFILTRATION SWALE = 3710 SF

INFILTRATION STORAGE VOLUME = 1/2" RUNOFF / ACRE OF IMP.

$$= \left(\frac{0.5}{12}\right)(3710) = 155 \text{ CF}$$



$$\frac{155 \text{ CF}}{3} = 51.7 \text{ LF OF TRENCH REQ.}$$

DeLUCA-HOFFMAN ASSOCIATES, INC.
Consulting Engineers
778 Main Street Suite 8
SOUTH PORTLAND, MAINE 04106
(207) 775-1121
FAX (207) 879-0896

JOB _____

SHEET NO. 3 OF _____

CALCULATED BY _____ DATE _____

CHECKED BY _____ DATE _____

SCALE _____

POST DEVELOPMENT DISCHARGE

PAYSON SMITH LOT

$$\left(\frac{8900}{43560}\right)(1) = 0.20$$

ALUMNI HOUSE LOT

$$\left(\frac{15678}{43560}\right)(1-0.1) = 0.32$$

(1-0.1) ← HOODED CB

$$\left(\frac{3710}{43560}\right)(1-0.75)(1-0.1) = 0.02$$

(1-0.75) ← INFILT. TRENCH

(1-0.1) ← HOODED CB

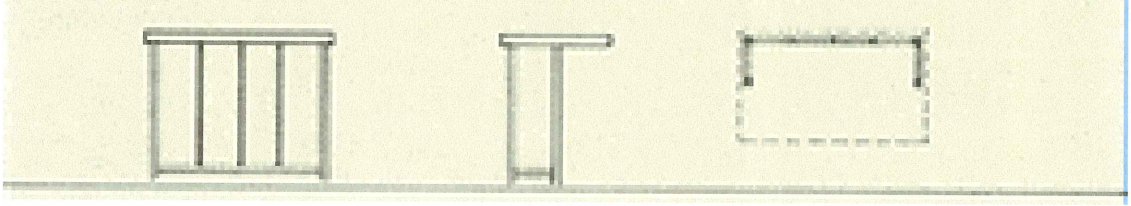
TOTAL DISCHARGE = 0.54

$0.54 < 0.57$



1004

1004 9'-1½"L x 5'-3"W x 7'-5"H



Department of Public Works

William J. Bray
Director

CITY OF PORTLAND

30 April 2002

Mr. Jeff Lewis, E.I., Design Engineer,
Gorrill-Palmer Consulting Engineers, Incorporated,
P. O. Box 1237,
Gray, Maine 04039.

RE: The *Status Quo* of the "Wellesley Estates" Housing Project Capacity Letter.

Dear Mr. Lewis:

I am in a holding pattern re the capacity letter for the housing project.

Mrs. Katherine Earley, City Engineering Manager, and I spoke on this matter Wednesday 10 April 2002. At that time, she said that the City of Westbrook is in receipt of a draft from the City of Portland regarding a pending sewer service agreement between the City of Portland and the City of Westbrook.

I am still waiting direction from my administration as to whether or not an inter-municipal sewer service agreement has been executed.

Sincerely,
CITY OF PORTLAND

Frank Brancely

Frank J. Brancely, BA, MA
Senior Engineering Technician

FJB

cc: Alexander Q. Jaegerman, Acting Co-Director, Department of Planning, and Urban Development, City of Portland
✓ Jonathon Spence, Planner, Department of Planning and Urban Development, City of Portland
Eric Labelle, P.E., City Engineer, City of Portland
Bradley A. Roland, P.E., Environmental Projects Engineer, City of Portland
Anthony W. Lombardo, P.E., Project Engineer, City of Portland
Stephen K. Harris, Assistant Engineer, City of Portland
Todd Merkle, Field Inspections Coordinator, City of Portland
Desk file

O:\Engshare\FJB\Capacity Letters

Recommended Pavement Sections
Haley & Aldrich – Consulting Engineers

Pavement Section

The recommended pavement sections for roads and parking areas are as follows:

Roads
3 in. bituminous concrete, placed in two layers
5 in. base course
12 in. sand or gravel subbase course

Automobile Parking Areas
3 in. bituminous concrete, placed in two layers
3 in. base course
12 in. sand or gravel subbase course

Base and subbase course materials should conform to the following gradations:

Base Course

Screened or Crushed Gravel (Maine DOT Standard Specification, Highways and Bridges; Section 703.06a, Type B)

Sieve Size	Percent Finer by Weight
4 in.	100
½ in.	35-75
¼ in.	25-60
No. 40	0-25
No. 200	0-5

Subbase Course

Sand or Gravel (Maine DOT Standard Specification, Highways and Bridges; Section 703.06b, Type E)

Sieve Size	Percent Finer by Weight
6 in.	100
¼ in.	25-100
No. 40	0-50
No. 200	0-7

(Note: Compacted structural fill may be substituted for gravel subbase course)

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
15 Shaker Rd.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:gpcei@maine.rr.com

May 14, 2002

Mr. Jonathan Spence, Planner
City of Portland
389 Congress Street
Portland, ME 04101-3503

COPY

RE: Wellesley Estates, 1818 Forest Avenue Portland, Maine
Forest Avenue Housing Development
(ID #: 20010307, CBL#: 327-B-007)

Dear Jonathan:

Gorrill-Palmer Consulting Engineers, Inc. is pleased to respond to the review comments in your letter to David Lloyd, Archetype, dated March 13th regarding the above referenced project.

Comment 1 – A water capacity letter from the Portland Water District is required.

Response – A water capacity letter from the Portland Water District is enclosed.

Comment 2 – A wastewater capacity letter from Portland Public Works is required.

Response – The Applicant received an email from Public Works on May 3, 2002 which indicated the following options for modifications to the sanitary sewer system design due to City concerns with the downstream system:

"1. Wellesley Estates can tie into the existing force main, as they have planned, if they build a deeper and bigger wet well, adjust their floats, and controls, et cetera, and take third place on the pump station pumping schedule (behind #1Riverton, and #2 Farnham). The Wellesley Pump Station, in most instances, would become the "item" in violation of state law resulting in their filing of the Incident Reports.

2. Wellesley Estates can extend the existing Forest Avenue gravity sewer approximately 500 feet, construct a terminal manhole, and discharge their wastewater into it. Their design flow is less than 10,000 gallons per day, the remaining flow capacity in the last Inter-municipal Sewer Agreement between the cities of Portland and Westbrook. This will allow Wellesley Estates to escape the pumping station interlock pecking order, as well as those Incident Reports, when surcharging of the Riverside Industrial Park Sewer, or other violations, occur.

3. Wellesley Estates can tie into the existing force main, as they have planned, if they intercept the Riverton Park force main downstream, at the entrance to Riverton Park, redirecting Riverton's flows to a new terminal manhole on the Forest Avenue gravity sewer. They will move up to second place on the

pumping station pecking order, behind the Farnham station, as Riverton drops out of the picture. Note, this option is only valid if the flows from Riverton Park are 10,000 gallons per day, or less, due to the 14,000 gallon per day limit in the old Inter-municipal Sewer Agreement."

The Applicant has elected to proceed with the first option, and the pump station has been revised as follows:

- Adequate storage is provided within the wet well to receive the average daily flow from the development below the lowest invert into the pump station.
- The pump station controller shall include a timer to activate the lead pump starting at 2:00 am (or other time selected by the City) and pump for 10 minutes on/10 minutes off until "pump off" is attained. Based upon the projected flow rate of 90 gpm, the pump station should pump for 6 cycles, thereby resulting in the pump station being in the "pump off" configuration by 3:50 am.
- The pump station controller will alternate the pumps during the cycle.
- The pump station controller shall activate the lag pump in the event of lead pump failure during any pumping cycle.

Comment 3 – A detail of the emergency access drive fence is needed.

Response – Archetype will address this issue under separate cover.

Comment 4 – A guardrail, and detail, is needed where the road crosses the culvert.

Response – Archetype will address this issue under separate cover.

Comment 5 – A detail of the proposed tot lot is needed. Is the location proposed the safest due to its proximity to the driveway?

Response – Archetype will address this issue under separate cover.

Comment 6 – Not all of the locations delineated for snow storage are appropriate. For example, the area between buildings 6 and 7 will result in blocking of the sidewalk in addition to being placed in the wetlands, the area near the tot lot will impede its use and visibility and the areas in front of building 3 will result in poor visibility for motorists and pedestrians. Please limit the areas designated for snow storage to a minimal number of appropriate locations.

Response – The snow storage areas have been reconfigured according to the comments. The new storage areas have been shown on the Grading & Drainage Plan.

Comment 7 – When speaking with a representative of your office, I mentioned that the size of the multipurpose playfield did not need to encompass all of the required recreational open space. The minimum quantity of recreational open space of 300 square feet per unit must still be demonstrated through areas set aside for facilities such as tennis courts, basketball courts, playgrounds, etc. Please revise the plans to be consistent with the standard outline in Section 14-120(1).

Response – Archetype will address this issue under separate cover.

Comment 8 – Please provide details on the individual unit's private open space consistent with Section 14-526(14) c. 5.

Response – Archetype will address this issue under separate cover.

Comment 9 – The proposed stockade fence between this development and the Riverton development may be of an inappropriate material. Jeff Tarling is concerned that a wood fence would be "kicked out" to provide access between the two developments. A vinyl-coated chain link fence will be more appropriate.

Response – Archetype will address this issue under separate cover.

Comment 10 – The limits of work outline on sheet L-1 are unreasonable. Non-disturb areas and limits of work should allow for actual earthwork and construction. Please revise.

Response – Archetype will address this issue under separate cover.

Comment 11 – Parking must be setback at least 5 feet from all lot lines. The parking lot between buildings 1 and 3 appears to be less than 5 feet.

Response – Archetype will address this issue under separate cover.

*Comment 12 – Please address all of the PRUD standards under 14-526(14) c. These standards should be **clearly** recognized within the site plan. Please provide an additional narrative to support the plan's demonstration of these standards.*

Response – Archetype will address this issue under separate cover.

Gorrill-Palmer Consulting Engineers, Inc. appreciates the opportunity to respond to these comments and look forward to your review of our responses. Should you have any questions or require any additional information, please feel free to contact our office.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

Alton M. Palmer, P.E.
Vice President

cc: Adam Mack, Minat Corp. Real Estate Development
Bill Hopkins, Archetype

JML/rmg/JN442/SpenceComment&Response5-13-02

REV 05-13-02

FILE NAME: Pumpsize
PROJECT: Wellesley Estate
JOB NUMBER: 442
LOCATION: Portland, Maine
DATE: 8-Mar-02

COMPUTATION OF EQUIVALENT PIPE LENGTH AND TOTAL DYNAMIC HEAD

ENTER:			COMPUTES:		
PUMP STATION RIM =	73.00				
INV. ELEV. INTO STA. =	64.00		AVERAGE FLOW RATE (GPM) =	3.82	GPM
PUMP STA. DIAM. (FT) =	10.00		PEAK FLOW RATE (GPM) =	21.01	GPM
AVERAGE DAILY FLOW RATE =	5,500.00	GAL	MAXIMUM STORAGE ELEVATION	64.00	
AVERAGE CYCLES PER DAY =	10.00		STORAGE OUTSIDE OF WETWELL (CF)	0.00	
PEAK FACTOR =	5.50		STORAGE WITHIN WETWELL ABOVE INV IN	0.00	CF
PUMP FAILURE/ALARM ON DEPTH (FT) =	0.25		STA. SURFACE AREA =	78.54	
SUCTION SUBMERGENCE DEPTH (FT) =	2.00		EMERGENCY STORAGE VOLUME (CF) =	735.29	
EMERGENCY STORAGE TIME (HR) =	24.00		ALARM ON ELEV. =	54.64	
F. M. DISCHARGE INVERT ELEV. =	80.80		WETWELL PUMP ON ELEV. =	54.39	
HAZEN WILLIAMS C VALUE =	140		WETWELL PUMP OFF ELEV. =	53.45	
STARTING PUMP FLOW RATE =	50	GPM	TOP OF BASE SLAB ELEV. =	51.45	
PUMP FLOW RATE INTERVAL =	10	GPM	BOTTOM OF BASE SLAB ELEV. =	50.45	
			OVERALL HEIGHT OF PUMP STATION (FT)=	22.55	

SUCTION LINE DESCRIPTION:

NOMINAL PIPE DIAM. (IN)	STRAIGHT PIPE LENGTH (FT)	FITTING EQUIV. LENGTH (FT)	TOTAL EQUIV. LENGTH (FT)
3	0.00	0.00	0.00
4	0.00	0.00	0.00
6	0.00	0.00	0.00
8	0.00	0.00	0.00
10	0.00	0.00	0.00
12	0.00	0.00	0.00

DISCHARGE LINE DESCRIPTION:

NOMINAL PIPE DIAM. (IN)	STRAIGHT PIPE LENGTH (FT)	FITTING EQUIV. LENGTH (FT)	TOTAL EQUIV. LENGTH (FT)
3	0.00	0.00	0.00
4	477.00	97.11	574.11
6	0.00	0.00	0.00
8	0.00	0.00	0.00
10	0.00	0.00	0.00
12	0.00	0.00	0.00

TOTAL DYNAMIC HEAD:

PUMP	STATIC HEAD		FRICTION LOSS			TOTAL DYNAMIC HEAD	
FLOW RATE (GPM)	PUMP ON (FT)	PUMP OFF (FT)	SUCTION LINE LOSS (FT)	DISCHARGE LOSS (FT)	TOTAL LOSS (FT)	PUMP ON (FT)	PUMP OFF (FT)
50	26.41	27.35	0.00	1.15	1.15	27.56	28.50
60	26.41	27.35	0.00	1.61	1.61	28.02	28.96
70	26.41	27.35	0.00	2.15	2.15	28.56	29.49
80	26.41	27.35	0.00	2.75	2.75	29.16	30.10
90	26.41	27.35	0.00	3.42	3.42	29.83	30.77
100	26.41	27.35	0.00	4.15	4.15	30.56	31.50
110	26.41	27.35	0.00	4.95	4.95	31.37	32.30
120	26.41	27.35	0.00	5.82	5.82	32.23	33.17
130	26.41	27.35	0.00	6.75	6.75	33.16	34.10
140	26.41	27.35	0.00	7.74	7.74	34.16	35.09

EQUIVALENT PIPE ANALYSIS:
MID-SIZE DUCTILE IRON PIPE (CLASS 52) WITH DOUBLE CEMENT LINING

	PUMP SUCTION INLET CONDITION					
NOM. PIPE DIAM. (IN)	3	4	6	8	10	12
ACT. PIPE DIAM. (IN)	3.17	3.97	6.03	8.14	10.15	12.21
FRICTION FACTOR	0.019	0.016	0.015	0.014	0.014	0.013
1/4 LR BEND K VALUE	0.30	0.27	0.24	0.22	0.22	0.21
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
1/4 BEND K VALUE	0.57	0.51	0.45	0.42	0.42	0.39
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
1/8 BEND K VALUE	0.30	0.27	0.24	0.22	0.22	0.21
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
1/16 BEND K VALUE	0.15	0.14	0.12	0.11	0.11	0.11
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
1/32 BEND K VALUE	0.08	0.07	0.06	0.06	0.06	0.05
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
GATE VALVE K VALUE	0.15	0.14	0.12	0.11	0.11	0.10
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
PLUG VALVE K VALUE	0.34	0.31	0.27	0.25	0.25	0.23
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
SWING CHECK VALVE						
K VALUE	1.90	1.70	1.50	1.40	1.40	1.30
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
STRAIGHT TEE K VALUE	0.38	0.34	0.30	0.28	0.28	0.26
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
SIDE OUTLET TEE						
K VALUE	1.14	1.02	0.90	0.84	0.84	0.78
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
SHARP EDGE INLET						
K VALUE	0.50	0.50	0.50	0.50	0.50	0.50
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
FLARED EDGE INLET						
K VALUE	0.04	0.04	0.04	0.04	0.04	0.04
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
EXIT K VALUE	1.00	1.00	1.00	1.00	1.00	1.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
REDUCER						
SMALLER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00
LARGER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00
FITTING LENGTH (IN)	1.00	1.00	1.00	1.00	1.00	1.00
K VALUE	0.00	0.00	0.00	0.00	0.00	0.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
INCREASER						
SMALLER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00
LARGER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00
FITTING LENGTH (IN)	1.00	1.00	1.00	1.00	1.00	1.00
K VALUE	0.00	0.00	0.00	0.00	0.00	0.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00

	PUMP DISCHARGE OUTLET CONDITION					
	3	4	6	8	10	12
	3.17	3.97	6.03	8.14	10.15	12.21
	0.019	0.016	0.015	0.014	0.014	0.013
	0.30	0.27	0.24	0.22	0.22	0.21
	0.00	2.00	0.00	0.00	0.00	0.00
	0.00	11.17	0.00	0.00	0.00	0.00
	0.57	0.51	0.45	0.42	0.42	0.39
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.30	0.27	0.24	0.22	0.22	0.21
	0.00	6.00	0.00	0.00	0.00	0.00
	0.00	33.50	0.00	0.00	0.00	0.00
	0.15	0.14	0.12	0.11	0.11	0.11
	0.00	1.00	0.00	0.00	0.00	0.00
	0.00	2.89	0.00	0.00	0.00	0.00
	0.08	0.07	0.06	0.06	0.06	0.05
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.15	0.14	0.12	0.11	0.11	0.10
	0.00	1.00	0.00	0.00	0.00	0.00
	0.00	2.89	0.00	0.00	0.00	0.00
	0.34	0.31	0.27	0.25	0.25	0.23
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	1.90	1.70	1.50	1.40	1.40	1.30
	0.00	1.00	0.00	0.00	0.00	0.00
	0.00	35.15	0.00	0.00	0.00	0.00
	0.38	0.34	0.30	0.28	0.28	0.26
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	1.14	1.02	0.90	0.84	0.84	0.78
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.50	0.50	0.50	0.50	0.50	0.50
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.04	0.04	0.04	0.04	0.04	0.04
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	1.00	1.00	1.00	1.00	1.00	1.00
	0.00	1.00	0.00	0.00	0.00	0.00
	0.00	20.68	0.00	0.00	0.00	0.00
	2.00	4.00	6.00	8.00	10.00	12.00
	2.00	4.00	6.00	8.00	10.00	12.00
	1.00	1.00	1.00	1.00	1.00	1.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	2.00	3.00	4.00	8.00	10.00	12.00
	2.00	4.00	6.00	8.00	10.00	12.00
	1.00	1.00	1.00	1.00	1.00	1.00
	0.00	0.22	0.57	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	0.00	0.00	0.00	0.00	0.00
	0.00	97.11	0.00	0.00	0.00	0.00

FRICTION HEAD ANALYSIS:

	3" DUCTILE IRON		4" DUCTILE IRON		6" DUCTILE IRON		8" DUCTILE IRON		10" DUCTILE IRON		12" DUCTILE IRON	
	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE
PIPE I.D. (IN)	3.17	3.17	3.92	3.92	6.03	6.03	8.14	8.14	10.15	10.15	12.21	12.21
PIPE AREA (SF)	0.0548	0.0548	0.0838	0.0838	0.1983	0.1983	0.3614	0.3614	0.5619	0.5619	0.8131	0.8131
HYD. RAD. (FT)	0.0660	0.0660	0.0817	0.0817	0.1256	0.1256	0.1696	0.1696	0.2115	0.2115	0.2544	0.2544
C*R^0.63*1.38	33.3065	33.3065	38.0743	38.0743	49.9415	49.9415	60.3330	60.3330	69.3322	69.3322	77.8919	77.8919
FLOW (GPM)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
FLOW (CFS)	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114
HYD. SLOPE	0.0056	0.0056	0.0020	0.0020	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	2.0327	2.0327	1.3293	1.3293	0.5618	0.5618	0.3083	0.3083	0.1983	0.1983	0.1370	0.1370
FLOW (GPM)	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
FLOW (CFS)	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337
HYD. SLOPE	0.0079	0.0079	0.0028	0.0028	0.0003	0.0003	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	2.4392	2.4392	1.5951	1.5951	0.6741	0.6741	0.3699	0.3699	0.2379	0.2379	0.1644	0.1644
FLOW (GPM)	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
FLOW (CFS)	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560
HYD. SLOPE	0.0105	0.0105	0.0037	0.0037	0.0005	0.0005	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	2.8458	2.8458	1.8610	1.8610	0.7865	0.7865	0.4316	0.4316	0.2776	0.2776	0.1918	0.1918
FLOW (GPM)	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
FLOW (CFS)	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783
HYD. SLOPE	0.0135	0.0135	0.0048	0.0048	0.0006	0.0006	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	2.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	3.2523	3.2523	2.1269	2.1269	0.8988	0.8988	0.4932	0.4932	0.3172	0.3172	0.2192	0.2192
FLOW (GPM)	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
FLOW (CFS)	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005
HYD. SLOPE	0.0167	0.0167	0.0060	0.0060	0.0007	0.0007	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	3.6588	3.6588	2.3927	2.3927	1.0112	1.0112	0.5549	0.5549	0.3569	0.3569	0.2466	0.2466
FLOW (GPM)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
FLOW (CFS)	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228
HYD. SLOPE	0.0203	0.0203	0.0072	0.0072	0.0009	0.0009	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.0654	4.0654	2.6586	2.6586	1.1235	1.1235	0.6166	0.6166	0.3965	0.3965	0.2740	0.2740
FLOW (GPM)	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00
FLOW (CFS)	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451
HYD. SLOPE	0.0243	0.0243	0.0086	0.0086	0.0011	0.0011	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.4719	4.4719	2.9244	2.9244	1.2359	1.2359	0.6782	0.6782	0.4362	0.4362	0.3014	0.3014
FLOW (GPM)	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
FLOW (CFS)	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674
HYD. SLOPE	0.0285	0.0285	0.0101	0.0101	0.0012	0.0012	0.0003	0.0003	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.8785	4.8785	3.1903	3.1903	1.3482	1.3482	0.7399	0.7399	0.4758	0.4758	0.3288	0.3288
FLOW (GPM)	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
FLOW (CFS)	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897
HYD. SLOPE	0.0331	0.0331	0.0118	0.0118	0.0014	0.0014	0.0003	0.0003	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	6.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	5.2850	5.2850	3.4561	3.4561	1.4606	1.4606	0.8015	0.8015	0.5155	0.5155	0.3562	0.3562
FLOW (GPM)	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
FLOW (CFS)	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119
HYD. SLOPE	0.0379	0.0379	0.0135	0.0135	0.0017	0.0017	0.0004	0.0004	0.0001	0.0001	0.0001	0.0001
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	7.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	5.6915	5.6915	3.7220	3.7220	1.5729	1.5729	0.8632	0.8632	0.5552	0.5552	0.3836	0.3836

STORMWATER MANAGEMENT

Introduction

Gorrill-Palmer Consulting Engineers, Inc. has been retained by Archetype to prepare plans and permit applications for the proposed residential housing development located off Forest Avenue in Portland, Maine. Figure 1 is an excerpt from the U.S.G.S. Portland West quadrangle map showing the project location. This narrative contains the stormwater management measures, which supercedes the storm water report submitted on March 12, 2002 for the planning board review. Per the comments made by the Development Review Committee, the following adjustments have been made:

- The detention pond outfall was moved behind unit #38.
- Adjustments to the storm water areas, corresponding to the new layout.
- The elevations and shape of the detention pond due to the new grading layout.

Development Description

The project site is located on Forest Avenue westerly of the Maine Turnpike and northerly of the existing Riverton Housing Complex. The parcel is approximately 4.5 acres in size will be accessed through a 54 foot right of way to Forest Avenue. The site is currently undeveloped land consisting of a mixture of wooded and meadow areas. Abutting land uses include:

- East - Maine Turnpike
- Southwest - Riverton Housing Complex
- North - Mixture of Residential and Commercial Uses

Surface Water and Downstream Waterbodies

There are no lakes located on, adjacent to or downstream of the project site. The site includes wetlands, which typically drain from the eastern property line towards the southern property line through the Riverton Housing Complex. The last 120 feet of the drainage course, which is located on the property has been classified as a stream. The stream through the Riverton Complex is tributary to an unnamed brook that discharges to the Presumpscot River.

General Topography

The site generally slopes from Forest Avenue back to a drainage course at the rear of the site. The slopes vary from 2% adjacent to Forest Avenue to 50% adjacent to the drainage course at the rear of the site. Elevations on the site range from 58' to 80'.

Flooding

The owners of the project site have indicated that to their knowledge no flooding has occurred on the site, nor has there been any indication of any previous flooding. The site is not mapped to contain floodplain areas as shown on the FEMA maps.

Natural Drainage Ways

The drainage course, which bisects the property, will be directed through a culvert for approximately 120 feet. No alteration to the existing stream is proposed.

Alterations to Land Cover

Changes in land cover and use will include removal of wooded and meadow areas through portions of the project site. Changes in land cover would include the addition of paved surfaces, buildings and lawn.

Modeling Assumptions

The stormwater management study evaluates three elements of the project as follows:

1. Analysis of predevelopment and post-development stormwater runoff rates.
2. Evaluation of water quality requirements.
3. Evaluation of storm drainage requirements.

The medium intensity soil survey prepared by the Cumberland County SCS was used as the basis for surficial conditions for offsite and onsite drainage areas. Hydrologic soils group A,C and D soils were mapped on the site. An excerpt from the Cumberland County SCS Medium Intensity Soils in the vicinity of the Project Location follows this page.

The SCS TR-20 methodology was employed by Gorrill-Palmer Consulting Engineers, Inc. to analyze predevelopment and post development conditions. A 24 hour, SCS Type III storm distribution for the two, ten, and twenty-five year storm frequencies were used for analysis. The corresponding rainfall amounts for these storms are 3.0", 4.7", and 5.5" respectively.

The stage storage and culvert information for Pond 1 was based upon field reconnaissance, and review of USGS topographic data. The information used in the calculations is based on an assumed datum. The pond outlet is a 24" pipe that crosses the Maine Turnpike and outlets onto the site.

Design of the internal storm drainage system was based on the flows calculated by the rational method for the twenty-five year storm and are enclosed in the appendix.

Land use cover delineations of watershed hydraulic flow paths, and hydraulic soils data were obtained using the following data:

1. Portland West 7.5 Minute Quadrangle Map prepared by the U.S.G.S.
2. On-site topographic survey with 2 contour intervals.
3. Field Reconnaissance.
4. Soil Conservation Service Medium Intensity Soil Survey for Cumberland County.

Water Quantity Control

Predevelopment Conditions

The drainage study analyzes the watersheds in the predevelopment condition as depicted on Figure A, Predevelopment Watershed Map, contained in Attachment A. Off-site areas are shown on Figure C, Off-site Watershed Map, also contained in Attachment A.

The predevelopment condition was analyzed as two watersheds. Watershed 1 is the onsite watershed, which included the land west of the Maine Turnpike and south of Forest Avenue. Watershed 2 is a portion of Forest Avenue east of the Turnpike. Both watersheds are tributary to Point of Interest # 1 at the southern property line adjacent to the Riverton housing complex.

The predevelopment peak runoff flows were computed by cover type, land use, and hydrologic soil group. Cover type and land use was determined based upon review of aerial photographs and reconnaissance. Predevelopment time of concentrations were determined for the watershed using the procedure in the U.S.D.A. Soil Conservation Service TR-55 Urban Hydrology for Small Watershed, Second Edition, 1986. The flows for this watershed were calculated to Point of Interest # 1, where the stream crosses the southern property line. Predevelopment peak flows at Point of Interest # 1 for the 2, 10, and 25-year storm are presented below:

Table 1 – Predevelopment Peak Flows

Drainage Area	Peak Flow (cfs)		
	2 Year	10 Year	25 Year
Point of Interest #1	9	21	26

Copies of the calculations are included as Attachment B

Post Development Flows

The existing runoff conditions for the entire project site will be altered during the development of the site by the following changes:

Changes in Land Use:

Changes in land use will include the removal of wooded and meadow covered areas throughout the area to be replaced by access drives. Parking areas and buildings.

Changes in Watershed Size or Configuration

The development of the parcel results in a significant change to the configuration of the watershed, in the area that is to be developed. In post-development conditions, watershed 1 is separated into two drainage areas, watershed 1 and 11

Watershed 1 is the area located to the west of the drainage course, which bisects the site. Watershed 11 is the area located to the east of the drainage course and is tributary to the proposed detention basin. Watershed 2 remains unchanged in the post development condition, whereas it is an offsite area.

The post-development condition has been routed together to Point of Interest #1, where the drainage course crosses the property line. The flows to this point were calculated without detention to verify the need for detention. A post development watershed Map is enclosed in Attachment A as Figure B.

Post-development peak flows at Point of Interest # 1 for the 2, 10, and 25-year storm events without detention are presented below:

Table 2 – Post-development Peak Flows No Detention			
	Peak Flow (cfs)		
Drainage Area	2 Year	10 Year	25 Year
Point of Interest #1	10	22	26

Based upon comparison to predevelopment flows, it is evident that detention of a portion of the flows through stormwater management is required.

A stormwater detention pond will be constructed to attenuate flows in the post-development condition.

Attachment B includes the formal routing computations for the detention pond. The hydraulic performance for the pond is as follows:

Table 3 – Pond Performance			
	Storm Event		
	2 Year	10 Year	25 Year
Peak In Flow (cfs)	1.65	3.4	4.25
Peak Outflow (cfs)	0.39	1.97	3.14
Stage (Max. Elevation)	66.05	66.68	66.97
Storage (Max. cf)	4,729	7,075	8,126
Depth above Outlet (ft)	1.75	2.38	2.67

Post-development peak flows at Point of Interest #1 for the 2, 10, and 25-year storm events with detention are presented below:

Table 4 – Post Development Peak Flow Rates			
	Peak Flow (cfs)		
Drainage Area	2 Year	10 Year	25 Year
Point of Interest # 1	9	21	25

A comparison of the flows at Point of Interest # 1 for the pre and post-development conditions is presented below:

Table 5 – Comparison of Peak lows (cfs)			
	Storm Event		
Condition	2 Year	10 Year	25 Year
Predevelopment	9	21	26
Post Development	9	21	25

As can be seen, the post-development flows exiting the site have been reduced to at or below the predevelopment levels at each storm event. The proposed stormwater management facilities are therefore effective in controlling the peak discharge to the predevelopment levels.

Water Quality Control

General

The development is located within the watershed of the Presumpscot River. Under Chapter 500 & 502 of the MDEP Stormwater Law, the Presumpscot River is not listed as a watershed most at risk or a sensitive or threatened area. The construction of the project will result in approximately 1.78 acres of new non-vegetated surface. Therefore based upon Chapter 500 Stormwater Management from the MDEP, water quality treatment is not required apart from Best Management Practices for erosion control based upon the size of the project and the watershed it is located within.

The Applicant, due to their commitment to minimize the environmental impact of their project, has elected to implement water quality standards for this project.

Review of Current TSS Control Technology

MDEP has established methodologies for evaluating and controlling TSS export from development, as presented in the 1995 manual, Stormwater Management for Maine: Best Management Practices.

Gorrill-Palmer Consulting Engineers, Inc. has prepared a TSS control program for this project using the MDEP methodology established in the manual and regulations. TSS control often requires the integration of various reduction strategies. Common methods include the use of vegetated buffer strips, retention facilities, proprietary treatment devices and infiltration systems.

The following is a summary of the four primary TSS treatment methods, which are outlined in the MDEP methodology:

- **Vegetated Buffer Strips** - Buffer strips are naturally vegetated strips of land preserved downslope of developed areas. These strips intercept and store surface runoff, allowing it to infiltrate rather than flow off-site. Water needs to enter the buffer strips in a sheet flow regime since concentrated flows are not significantly treated by buffers.

- **Infiltration Systems** - Infiltration systems are more sophisticated. Runoff is collected from rooftop, driveway, and other impervious areas of a lot and then directed to an underground collection point, similar to a subsurface wastewater disposal area, from which it infiltrates into the soil.

- **Wet Ponds** – Wet ponds are generally used to treat runoff from a large area. They receive and retain stormwater from large drainage areas, allowing suspended solids to settle out. Generally, flows enter wet ponds in a concentrated flow regime.

- **Filters and Separators** – Filters and separators include treatment devices ranging from simple catch basin outlet hoods to proprietary filtering or settling units. Concentrated

flows enter the devices and are treated to remove TSS prior to discharge. Filters remove suspended solids by passing the stormwater through a filtering medium such as sand, fabric, peat, or composted leaves; separating units generally remove suspended solids through the use of gravity settling enhanced by system hydraulics or coalescing media.

Approach and Analysis for Control

The overall project strategy has been to determine the level of TSS treatment that would be required under the Stormwater Management Rules Sliding Scale TSS standard, and to devise a treatment regimen that would achieve the proper level of treatment.

Treatment Required - As noted above, removal is not required based upon MDEP requirements. The applicant has elected to implement water quality treatment to potentially meet the sliding scale TSS requirements.

Treatment Methods –

In evaluating the project site for compliance with 51% TSS removal standard, it is apparent that treatment of the non-vegetated surfaces can be attained based on the topography and grading of the property and surrounding area. The use of a separator was selected as the practicable manner in which to provide treatment for a large portion of the site. The detention pond will treat the remaining portion of the site. Also, it is proposed that "Casco" traps be installed on all storm drain structures with outlet pipes 15" or smaller.

Treatment Summary –

Based upon the treatment levels accepted by the MDEP for the Vortechnic Units of s 50% removal rate and a 10% removal rate for both the detention pond and Casco traps, a removal rate of 55.1% will be attained on the site. If the project were required to meet the sliding scale TSS removal rate, the 55.1% is greater than the 51% required. Therefore, the project would meet the MDEP requirement.

Construction BMPs

Additional water quality treatment will be provided during construction by best management practices (BMP). Standard BMPs to be employed include siltation fencing around the downslope construction perimeter, riprap pipe inlet and outlet protection, and erosion control fabrics applied to grassed slopes prior to revegetation. Plantings suited to the site soils and hydrology have been selected to stabilize areas to be revegetated.

Maintenance of Facilities

The stormwater facility will be maintained by the applicant, or their assigned, heirs after construction is completed. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion Control Report. Long-term operation/maintenance planned for the stormwater management facilities is presented below.

The Homeowner's Association will be responsible for maintenance and operation of the detention basin.

The "Parties" may contract with such professionals as may be necessary in order to comply with this provision and may rely on the advice of such professionals in carrying out its duty hereunder, provided, that the following operation and maintenance procedures are hereby established as a minimum for compliance with this section.

1. Inspect inlet and outlet piping on a weekly basis from March to November, all other times on a biweekly basis, to ensure that flow structures are not blocked.

2. Inspect riprap spillway annually for evidence of loose rocks or foreign matter and repair as necessary.

3. Inspect berm annually for evidence of sloughing and repair as necessary.

4. Remove sediment from catch basins when sediment has accumulated to within 6 inches of the outlet invert, but not less than annually.

5. Maintain Vortech units in accordance with manufacturer's recommendations.

Conclusion

Due to changes in land use and watershed size, the planned development increases runoff from the site. A detention pond has been designed to attenuate the increase in peak runoff rates in the post-development condition to below the predevelopment flows.

Attachments

Attached to this section are the following items:

Attachment A – Watershed Maps

Attachment B – TR-20 Calculations

Attachment C – Water Quality Calculations

Attachment D – Pipe Sizing Calculations

COPY

Wellesley Estates, LLC
c/o Adam Development Co.
34 Preble Street
Portland, ME 04101
Tel 774-8013
Fax 773-2448

February 22, 2002

To Whom It May Concern:

This letter is in response to the City of Portland planning department, request for funding information of our proposed development. Attached is a letter from Maine Bank and Trust showing that they will finance our project once all necessary approvals have been obtained and they have completed their due diligence and underwriting process.

We are also still in discussions with the City of Portland and Maine State Housing Authority about the subsidy level that will be provided to this development in order that 40% of the units will be rented at below market rates.

Please call if you have any questions. Thank you for your attention and diligence on our project.

Sincerely,

Mitchell Cope
Member Wellesley Estates LLC

Enclosure

MAINE BANK & TRUST

December 12, 2001

Wellesley Estate, LLC
c/o Adam Development Company
Mitchell Cope, President
34 Preble Street
Portland, Maine 04039

Dear Mr. Cope:

In response to your request relative to the interest of Maine Bank & Trust in financing your proposed project located at 1818 Forest Avenue, Portland, Maine, I wish to inform you that the bank is very interested in assisting you in the financial development of this project. As such, the bank will seriously consider the financing of the planned development when all necessary approvals have been obtained. Obviously, our review at this stage has been only preliminary and this letter does not constitute a commitment to lend. Final approval will depend on a complete and thorough underwriting and due diligence process.

If you have any questions, please call me at 828-3120.

Sincerely,

John Tyson
Vice President
Commercial Loan Officer

To: **Jonathan Spence, Portland City Planner**

From: **David Lloyd, Archetype Architects**

Date: **February 11, 2002**

Re: **Response to January 3, 2001 Comments from Sebago Technics for Wellesley Estates**

1. Stormwater Management. See response by Gorrill-Palmer , Engineers

2. Road Access/Circulation
   a. Police, Fire and Emergency Departments stated we should get the policy for 991 address assignment from the planning department. We have been attempting to contact Jay Reynolds for direction.
   b. The existing garage access for the Schwartz Residence will be discontinued. The garage will be removed and relocated to the rear of the Schwartz Residence and have a new access off the project driveway. This is shown on the site drawing SD-1.
   c. The size of a typical parking has been revised to 19' x 9' instead of 18' x 9'.
   d. Cross slopes of culverts will be addressed by Gorrill-Palmer.
   e. Snow dump areas are shown on the site plan SD-1.
   f. The gated and graveled emergency road is 16' as shown on the drawing SD-1.

3. Grading and Erosion Control. See response by Gorrill-Palmer

4. Utility Installation /Location
   a. All utilities are underground as shown on the drawings.
   b. See response by Gorrill-Palmer
   c. See response by Gorrill-Palmer
   d. See response by Gorrill-Palmer

5. Recreation Area
   a. The recreation area will be seeded grass on 4" of loam.
   b. A fence will be installed around the detention pond and is detailed on the drawings.
   c. The footbridge is shown connected to the recreation area.

6. Details
   a. We are unaware of any standards for driveway and parking area outside of the public way. Would you please give us the appropriate reference.
   b. Sidewalks, curbing and ramps are shown on drawing SD-1.
   c. The dumpster enclosure is detailed on the drawing.
   d. The footbridge is detailed on the drawing.
   e. The specification and elevation of the bus shelter is attached.
   f. Erosion control notes will be provided by Gorrill-Palmer
   g. Design criteria for the treatment tank will be provided by Gorrill-Palmer

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

SECTION IV

PUBLIC SAFETY STANDARDS

Fire Department Standards for Subdivision and Site Plan Review

1. INTENTION

Each site plan review and subdivision will be reviewed by the Fire Department in an effort to provide a reasonable degree of safety for the occupants and their properties of the proposed developments.

In order to review site plans and subdivisions the Fire Department requests, in addition to the required information, the following:

A. Existing and proposed hydrants.

B. All streets, cul-de-sacs, hammerheads and emergency access routes.

C. Any geographical or structural barriers to the site or to proposed structures.

2. FIRE HYDRANT STANDARDS

All structures constructed within the limits of Fire Districts I and II (as shown in figure VI-1) shall have a hydrant within five hundred feet (500').

Structures in all other areas shall have a hydrant within eight hundred feet (800').

All hydrants, private and public, shall comply with City standards. All private hydrants shall be maintained by the property owner and a maintenance agreement or other suitable document acceptable to the Corporation Counsel shall be required.

Fire Districts - Definition. Fire District Number 1 denotes the portion of the City with the highest density requiring increased Fire Department response. Fire District Number 2 denotes concentrations of industrial uses which may have hazardous chemicals on site.

3. ACCESS REQUIREMENTS

Access to subdivision shall comply with the following:

A. 1-34 units, a single access road.

B. 35-67 units, two (2) access roads or a single access road and an emergency access lane.

C. 68 or more units, two (2) access roads.

Where residential units are provided with an approved sprinkler system designed in accordance to NFPA #13D, the following requirements may prevail:

A. 1-67 units, one (1) access road.

B. 68-99 units, one (1) access road and an emergency access lane.

C. 100 units or more, two (2) access roads.

Building "set-backs" shall allow for access by emergency vehicles and their related activities and shall be evaluated on the following merits, but shall not exceed City zoning requirements:

A. Building height.

B. Building occupancy.

C. Construction type.

D. Impediments to the structures.

E. Safety features provided.

Wherever possible, access for Fire Department vehicles to at least two sides of structures shall be provided. Access may be from streets, access roads, emergency access lanes, or parking areas.

5. EMERGENCY ACCESS LANES

No turning radius (inside) shall be less than twenty five (25') feet.

New emergency access lanes shall be a minimum of sixteen (16) feet wide and may be required to be up to twenty (20) feet wide when:

a. the access is likely to be used by Fire Department ladder trucks to set up for buildings adjacent to the lane or;

b. the access lane is likely to be used by Fire Department Engine companies to set up pumping operations to fight a fire at buildings adjacent to the lane.

Access lanes shall be designed and maintained as to support the weight of emergency vehicles during all weather conditions.

The blockading of any emergency lane shall be done by gates which are locked by chain and padlock. Padlock shall be a "Knox" lock. Emergency lane shall be maintained and made accessible for emergency use at all times. No parking of vehicles or other use that might obstruct the emergency access lane shall be permitted. An access maintenance agreement or other suitable document acceptable to the Corporation Counsel shall be required.

A R C H E T Y P E

May 14, 2002

Mr. Jonathan Spence
City of Portland
389 Congress Street
Portland, Maine 04101

Dear Mr. Spence,

We are asking to appear before the Planning Board for a Public Hearing on May 28, 2002. In preparation for which we are resubmitting our documents with the following changes based on our meeting with you on April 23, 2002.

1. Details of Tot Lot.
   A detail plan of the Tot Lot is shown on Drawing SD-3.

2. Detail of Private Patios.
   The private patios are called out on Drawing L-1.

3. Detail pf Picnic Table
   A cut of the picnic table is attached.

4. Railing at culvert Fire Department.
   We propose the railing at the culvert be the same as Drawing SD-3.

5. Location of Emergency Access Gate.
   We have noted the gate be located at the direction of the Portland Fire Department.

6. Fence between Grange Hall and Access Drive.
   We believe the low railing shown on SD-3 to be the most unobtrusive.

7. Road cross section.
   A specification for the road and parking area is attached.

8. Statement of Financial Capacity
   A Statement is attached.

9. Raised garden.
   A detail of the raised garden is shown on Drawing SD-3.

We believe we have addressed all other outstanding issues in our letter of April 23, 2002. Please let me know what we may be missing.

Sincerely,

David Lloyd

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Chair Caron and Members of the Portland Planning Board

FROM: Jonathan Spence, Planner

DATE: February 26, 2001

SUBJECT: Wellesley Estates, 46 Unit PRUD, Vicinity of 1818 Forest Avenue

Introduction

This is the second workshop session before the Planning Board for a project known as Wellesley Estates in the vicinity of 1818 Forest Avenue. Mr. Lloyd is representing the Adam Development Corporation. The project site is approximately 4.5 acres in size and is located westerly of the Maine Turnpike and northerly of the existing Riverton Housing Complex. The undeveloped site consists of a mixture of wooded and meadow areas with a wetland/stream area. Wellesley Estates, as proposed, is a 46-unit Planned Residential Unit Development consisting of 7 buildings, each containing between 4 and 8, 2 or 3 bedroom units. The housing types will be a mixture of walk-up flats and townhomes with 27 of the units to be offered at market rate and 18 units subsidized. No garages are proposed. In addition to the residential units, the site will also consist of 100 parking spaces for residents and guests, a laundry and maintenance building attached to one of the buildings, a 13,800 square foot recreation area, a tot lot, an enclosed bus shelter and a ± 5,000 square foot stormwater detention area. This revised submittal contains greater details and changes to the grading and drainage plans, a redesign of the detention pond with fencing and the addition of a 6' high fence along the property boundary with the Riverton development.

Access/Circulation

The primary access for the development is proposed directly from Forest Avenue via a non-signalized intersection. This new access road will be located to the east of the existing Grange and will result in the relocation or removal of an existing garage/storage structure used by an adjacent residence. Emergency access will be from an access drive constructed to the west of the Grange. A traffic study was submitted by the applicant which is included as attachment 5. The City's Traffic Engineer has reviewed the study and concurs that the site lines and the level of service are adequate. A memo providing greater detail of this assessment is included as attachment 16.

The internal pedestrian circulation plan has been upgraded on this revised submittal to include more sidewalks and a connection with the bridge feature via a pea stone walkway. The sidewalk on the east side of the access drive has been moved to the west side to tie into the bus shelter.

Deb - lighting, landscaping

Mark - snow storage - dumpsters

Jaime - PRUD - Traffic - more from - Riverside Industrial into signalization

Larry

Utilities

The project proposes to tie into an existing water line in Forest Avenue at both the primary and emergency access drive locations. A letter requesting confirmation of capacity addressed to the Portland Water District is included as attachment 7. Electrical service will be underground from existing overhead service located on Forest Avenue. After further exploration of available sewer options, the applicant has chosen to construct an on-site sanitary sewer gravity collection system with a pump station discharging via a force main to be installed in the Forest Avenue R.O.W. to the existing sewer system on the east side of the turnpike. The applicant is working to obtain letters confirming the ability to serve the project from the appropriate agencies. Public Works has reviewed this plan and has requested slight modifications and further details. That memo is included as attachment 17.

A refuse analysis concerning solid waste is included as attachment 8. It indicates that approximately 23 yards of refuse would be generated in a given week and that 4 dumpsters, emptied weekly would be adequate.

Drainage/Grading/Stormwater Management

The site generally slopes from Forest Avenue back to a drainage course at the rear of the site. The slopes vary from as low as 2% adjacent to Forest Avenue to 50% at the rear of the site with elevations ranging from 58 to 80'. The drainage/grading/stormwater management plan consists of a series of catch basins that will be directed to a Vortechnics unit and then discharged into the wetland/stream that flows southerly off the site. A separate catch basin captures flows from the easterly portion of the site which is then discharged into a detention pond. All of the outlet pipes 15" or smaller will include Casco traps for additional stormwater treatment. The drainage/grading/stormwater plan is currently under review by the City's Engineering Consultant and comments will be available soon. The stormwater analysis and erosion control report are included as attachments 10 and 11. The proposal includes wetland alterations that will require a permit by rule issued by the Maine DEP.

Jim Seymour has evaluated the plan and provided comments that have been incorporated into the revised submittal. These comments, the applicant's response and Mr. Seymour's additional review are included as attachments 13, 14 and 15.

Landscaping

The proposed landscape plan consists of a combination of deciduous and coniferous trees and foundation plantings. The City Arborist is currently reviewing this plan included as attachment 35. Initial planning staff review of the plan submitted finds that the quantity and placement of the plantings does not meet the landscape standards and guidelines for PRUDs. The guidelines recommend a minimum of two trees per unit and also require that the recreational area be screened with plantings. Staff encourages the applicant to work with the Arborist to establish a plan that demonstrates the standards and guidelines.

Building Design

The applicant has provided elevations illustrating a two-story structure with vinyl siding and an asphalt shingle roof (see attachment 36 and 37). The elevations portray predominately double windows with shutters.

Lighting

Site lighting consists of 18' high pole lights and wall units mounted adjacent to entry doors. The photometric plan submitted (see attachment 34) is not in compliance with the City standards as there is light trespass in excess of .1 occurs near the grange. Staff requests that the applicant provide catalog cuts for the wall units and a pole fixture that meets the "full cut-off" requirement.

Fire Safety

The project has been reviewed and approved with conditions by the Fire Department. (see attachment 18)

Financing

This project is being funded through both private funds and monies from the Maine State Housing Authority. Preliminary letters of interest from the Authority and the Maine Bank and Trust are included as attachments 9 and 10. Confirmation of the funding mix will be required prior to a Public Hearing before the Planning Board.

Planned Residential Unit Development Standards

The site plan ordinance contains specific standards for PRUDs. These standards relate to design relationship to site, internal design character and relationship to surrounding neighborhoods and recreation and open space. **Staff requests that the applicant provide a narrative addressing each of these standards and how they will be met by this proposed development.**

Staff has identified the following remaining needed materials:

1. The utility plan must be finalized and letters of capacity received prior to a scheduling of a public hearing before the Planning Board.

2. Copies of the appropriate DEP permits for the wetland alterations and bridge construction are necessary.

3. Revised photometrics and catalog cuts are needed prior to the Public Hearing before the Planning Board.

4. Additional information on the project's funding is requested.

5. A revised landscape plan compatible with the standards and guidelines.

Attachments:

1. Project Description
2. Letter to Applicant 11-29-01
3. Option to Purchase Property
4. Option to Purchase Land for Emergency Access and Water Line
5. Traffic Study
6. Utility Letter Regarding Sewer Service (Portland Public Works)
7. Utility Letter Regarding Water Service (Portland Water District)
8. Refuse Analysis
9. Letter of Financial Capacity Maine State Housing Authority
10. Letter of Financial Capacity Maine Bank and Trust
11. Erosion Control Report
12. Stormwater Analysis
13. Jim Seymour's Engineering Review Comments, 1-3-2002
14. Applicant's Response, 2-11-2002, 2-22-2002, 2-12, 2002
15. Jim Seymour's Engineering Review Comments, 2-20-2002
16. Memo from Larry Ash, 2-8-2002
17. Memo from Tony Lombardo, 2-14-2002
18. Fire Approval w/conditions
19. Bus Shelter Detail
20. Survey Plan
21. Drawing SD-1 Site Plan
22. Drawing SD-2 Utility Plan
23. Drawing SD-3 Site Details
24. Drawing SD-3A Grading and Drainage Plan
25. Drawing SD-3B Erosion Control plan
26. Drawing SD-4 Utility Details
27. Drawing SD-5 Utility Plan
28. Drawing SD-6 Pond and Misc. Details
29. Drawing SD-7 Erosion Control Details
30. Drawing SD-8 Erosion and Sediment Control Details
31. Drawing SD-9 Utility Profiles
32. Drawing EO1 Site Plan Electrical
33. Drawing EO2 Site Plan Electrical Details
34. Drawing LC1 Site Plan Electrical Photometrics
35. Drawing L-1 Landscape Plan
36. Drawing A-1 Typical Building Elevation
37. Drawing A-2 Typical Building Elevation

AH #1

Wellesley Estates, LLC
c/o Adam Development Co.
34 Preble Street
Portland, ME 04101
Tel 207-774-8013
Fax 207-773-2448

December 18, 2001

City of Portland
Planning & Urban Development
389 Congress Street
Portland. Maine 04101

Attn.: Jonathan Spence, Planner

Dear Mr. Spence:

The following letter is sent in compliance with the need for written statements under Section 14-525 of the Portland Code for proposed project review. Written statements are as follows:

[1] *A description of the proposed uses to be located on the site, including quantity and type of residential units:*

Wellesley Estates, as designed, will provide for 45 residential dwelling units for occupancy by families. As indicated on the enclosed Site Plan, the project development will consist of 7 buildings, each containing between 4 and 8 dwelling units. The unit design will be a combination of townhouse apartments and walk-up apartments; currently, the development will contain 10 walk-up units and 36 townhouse units. The unit mix as delineated on the Site Plan will be:

Type:	Number:	Square Footage:
2 Bedroom Townhouses	27	884
3 Bedroom Townhouse	10	1,087
2 Bedroom Walk-up Flats	2	720
3 Bedroom Walk-up Flats	6	1,012

There will be an attached Laundry and Maintenance room to one of the buildings, approximately 500 square feet in area. The design includes 100 paved parking spaces for tenant end visitor usage.

[2] *The total land area of the site and the total floor area and ground coverage of each proposed building and structure:*

See attached Site Plan for summary of land area, floor area and ground coverage.

[3] *General Summary* of *existing and proposed easements or other burdens now existing or to* be *placed* on the *properly:*

There are no existing easements or encumbrances on the property except those easements and encumbrances which are currently shown on the attached boundary survey. The developer/applicant is currently negotiating with the Portland Housing Authority for a sewer easement across their abutting property for construction of a sewer line. Additionally, an easement will be retained for utility access across the 30,000 square foot lot to be retained by the seller of the property, ServiceMaster of Maine, Inc.

[4] *The types* and *estimated quantities of solid* waste *to be generated by* the development:

See attached Architect calculation relative to solid waste quantities.

[5] *Evidence of availability of off-sit facilities including sewer, water and streets:*

See attached Site Plan and architectural exhibits for such evidence.

[6] *A narrative describing the existing surface drainage on the site and* a *storm water management plan indicating* measures *which will be taken* to c*ontrol surface water runoff:*

See attached narrative from the engineering firm for drainage issues and plan of action

[7] A *detailed Construction Plan:*

See attached Site Plan and architectural exhibit for this response,

[8] *A list of all state and federal regulatory approvals to which the development may* be *subject,* the status *of any pending applications, and the anticipated time frame for obtaining such permits or that a determination* of no *jurisdiction from the agency will be requested:*

The development will require a wetland disturbance permit by rule issued by the Army Corp of Engineers and the MDEP. The submission of the permit application will occur within the next few weeks.

[9] *Evidence of financial and technical capacity to undertake end complete the development including, but not limited to, a letter from a responsible financial institution stating that it has reviewed the planned development and would seriously consider financing it when approved:*

Attached please find recent letters from Maine State Housing Authority and Maine Bank & Trust relative to their review and continued interest in financing the development when finalized.

[10] *Evidence of the applicant's title, right or interest in the properly, including without limitation deeds, leases, purchase options and or any other documentation:*

Attached please find an option to purchase the property .

[11] *A narrative describing any unusual areas, wildlife and fisheries habitats, or archaeological sites located on or near the project site and a description of the methods that will be used to protect such areas or sites:*

There are to the best of belief and investigation by the applicant, no known unusual natural areas, wildlife and fisheries habitats, or archaeological sites located on or near the project site.

The above. summary is provided is an exhibit to the application of Wellesley Estates, LLC for Planning Board approval and if any additional information or clarification is needed please contact, Adam Mack at 774-8013.

Sincerely.

Mitchell Cope, Member

Enclosures

AH. #2

Planning & Urban Development

CITY OF PORTLAND

November 29, 2001

Mr. David Lloyd
48 Union Wharf
Portland, ME 04101

RE: Forest Avenue Housing Development
(ID# 20010307, CBL#327-B-007)

Dear Mr. Lloyd:

I would like to thank your recent submittal of the Forest Avenue Housing Development, located in the vicinity of 1818 Forest Avenue. I have enclosed a copy of our "site plan checklist" which will enable you to supplement the items already submitted with additional material that will together constitute a complete application. Below are a few of the items taken from the checklist presented in greater detail.

1. A standard boundary survey prepared by a registered land surveyor at an appropriate scale. This survey should include the boundaries of the property in addition to the existing and proposed topography at intervals of not more than 2 feet.

2. Plans prepared, based on the boundary survey, including locations of proposed buildings, lighting, parking areas, pedestrian walkways and vehicular access.

3. Proposed elevations for all structures in addition to a narrative describing construction materials (siding, roofing, etc.).

4. A landscape plan must be provided that illustrates existing, preserved and proposed vegetation. Preservation methods for landscaping within close proximity to proposed development sites should also be included.

5. Evidence of financial and technical capability to undertake and complete the development. A letter from a financial institution stating that it has reviewed the planned development and that funding is available and an outline of all other funding sources that will be used in this project.

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6. A narrative describing existing surface drainage on the site and a stormwater management/treatment plan indicating measures that will be taken.

7. A list of all State and Federal regulatory approvals which the development may be subject to including status of all pending applications.

8. Evidence of availability of off-site facilities including sewer and water service.

9. A traffic study for the proposed development.

Please address each numbered item on the attached checklist. If you have any questions related to these submittal requirements or any other questions concerning the development review process, please do not hesitate to contact me at 756-8083. We have tentatively scheduled a workshop session before the Planning Board for this project on January 8, 2002. In order to make the session as valuable as possible, a complete submittal packet must be received prior to December 17, 2001.

Sincerely,

Jonathan Spence
Planner

CC: Sarah Hopkins, Development Review Services Manager

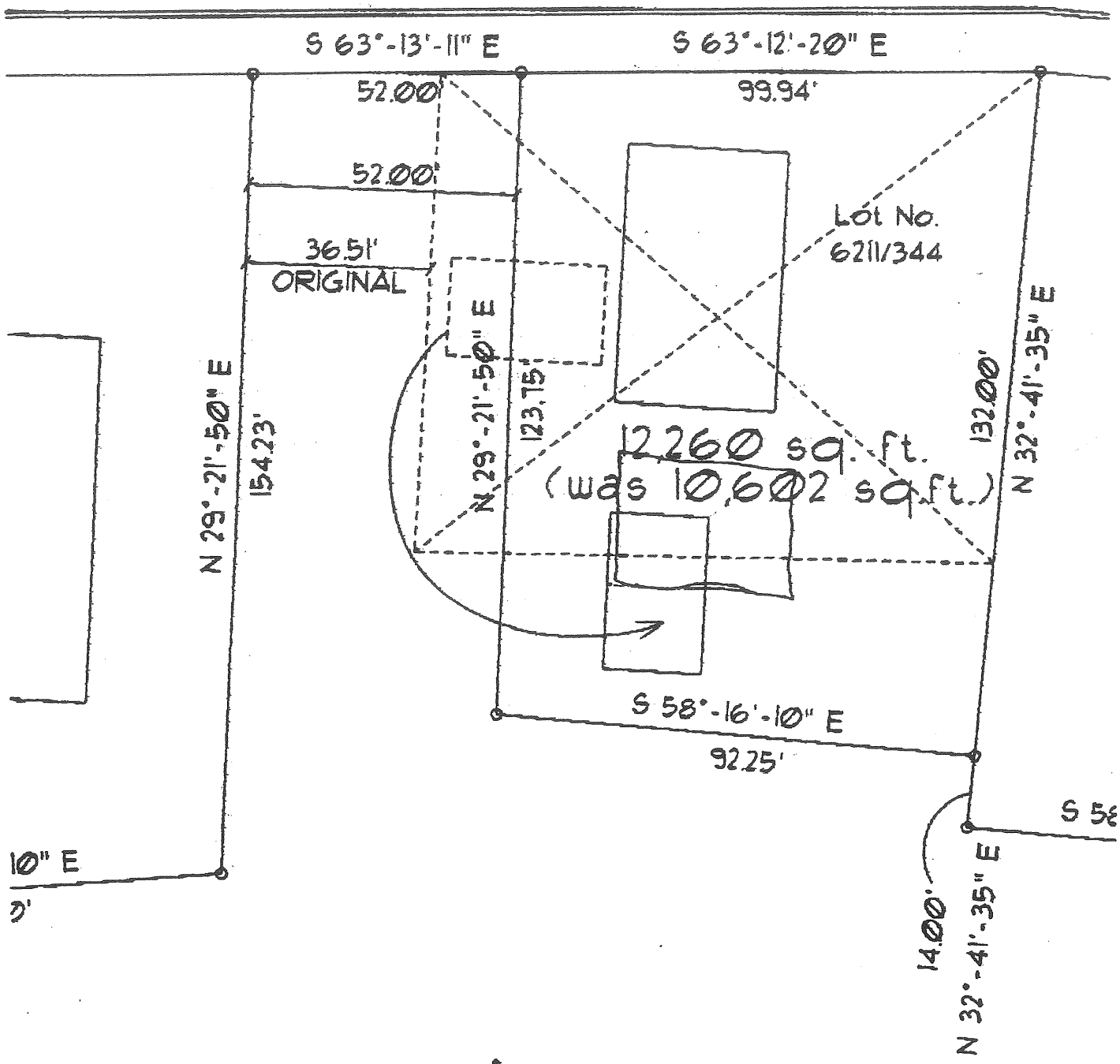

FOREST AVENUE
S 63°-13'-11" E
S 63°-12'-20" E
52.00'
99.94'
52.00'
36.51'
ORIGINAL
Lot No.
6211/344
N 29°-21'-50" E
154.23'
N 29°-21'-50" E
123.75'
2260 sq. ft.
(was 10,602 sq.ft.)
132.00'
N 32°-41'-35" E
S 58°-16'-10" E
92.25'
10" E
2'
14.00'
N 32°-41'-35" E

Exhibit A

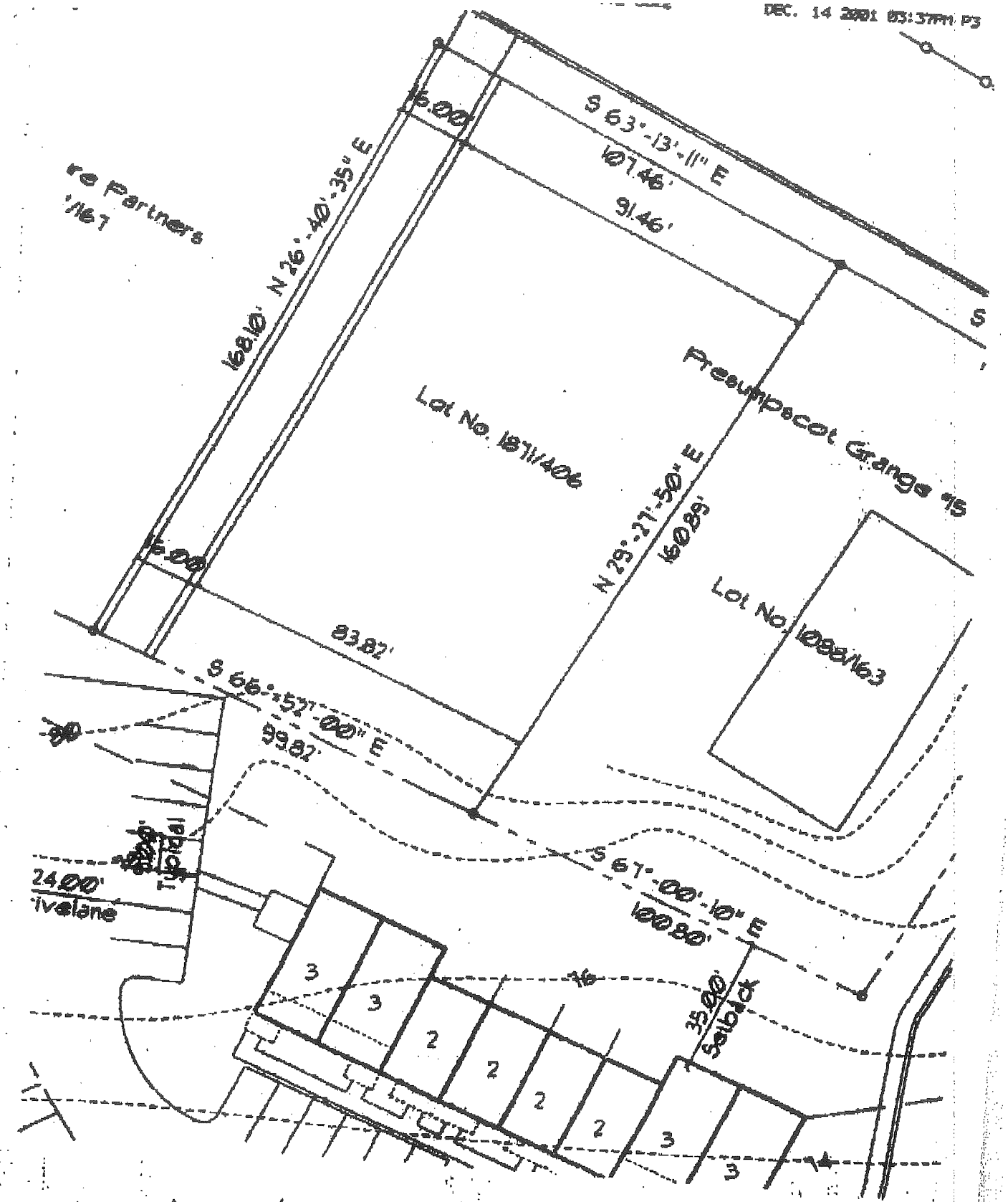

re Partners
'/167
6.00
S 63°-13'-11" E
107.46'
91.46'
168.10' N 26°-40'-35" E
6.00
Presumpscot Grange #15
Lot No. 187/406
N 29°-27'-50" E
160.89'
Lot No. 188/163
83.87'
S 66°-52'-00" E
99.87'
24.00'
'ivelane
S 67°-00'-10" E
100.80'
35.00'
Setback
3
3
2
2
2
3
3

Exhibit A

AH.18

CITY OF PORTLAND, MAINE
DEVELOPMENT REVIEW APPLICATION
PLANNING DEPARTMENT PROCESSING FORM
Fire Copy

2001-0307
Application I. D. Number

11/22/01
Application Date

David Lloyd
Applicant

48 Union Wharf, Portland, ME
Applicant's Mailing Address

Forest Avenue Housing Development
Project Name/Description

Lloyd, David
Consultant/Agent

1818 - 1818 Forest Ave, Portland, Maine
Address of Proposed Site

Applicant Ph: (207) 772-6022 **Agent Fax:**
Applicant or Agent Daytime Telephone, Fax

327 B007001
Assessor's Reference: Chart-Block-Lot

Proposed Development (check all that apply): ☑ New Building ☐ Building Addition ☐ Change Of Use ☑ Residential ☐ Office ☐ Retail ☐ Manufacturing ☐ Warehouse/Distribution ☐ Parking Lot ☑ Other (specify) **PRUD housing units**

46 units	**4.52 acres**	**R-5 & B-2**
Proposed Building square Feet or # of Units	Acreage of Site	Zoning

Check Review Required:

☑ Site Plan (major/minor)
☐ Subdivision # of lots ____
☐ PAD Review
☐ 14-403 Streets Review
☐ Flood Hazard
☐ Shoreland
☐ HistoricPreservation
☐ DEP Local Certification
☐ Zoning Conditional Use (ZBA/PB)
☐ Zoning Variance
☐ Other ____

Fees Paid: Site Plan **$500.00** Subdivision ____ Engineer Review ____ Date **11/22/01**

Fire Approval Status:

Reviewer **Lt. McDougall**

☐ **Approved**
☑ **Approved w/Conditions** See Attached
☐ **Denied**

Approval Date **11/28/01** Approval Expiration **11/28/02** Extension to ____ ☑ Additional Sheets Attached

☑ Condition Compliance **Lt. McDougall** (signature) **11/28/01** (date) ____

Performance Guarantee ☐ **Required*** ☐ **Not Required**

* No building permit may be issued until a performance guarantee has been submitted as indicated below

☐ Performance Guarantee Accepted	date	amount	expiration date
☐ Inspection Fee Paid	date	amount	
☐ Building Permit Issue	date		
☐ Performance Guarantee Reduced	date	remaining balance	signature
☐ Temporary Certificate of Occupancy	date	☐ Conditions (See Attached)	expiration date
☐ Final Inspection	date	signature	
☐ Certificate Of Occupancy	date		
☐ Performance Guarantee Released	date	signature	
☐ Defect Guarantee Submitted	submitted date	amount	expiration date
☐ Defect Guarantee Released	date	signature	

A R C H E T Y P E

MEETING NOTES
WELLESLEY ESTATES - PORTLAND, MAINE
April 23, 2002

Present:

David Lloyd	Architect, Archetype, P.A.
Jonathan Spence	City of Portland Planning Board
Adam Mack	Minat Corp.
Al Palmer	Gorrill-Palmer Consulting Engineers, Inc.
Mitchell Cope	Minat Corp.
Jim Seymour	Sebago Technics
Aaron Shapiro	Housing & Neighborhood Services

The following item were discusses:

1. We will be submitting for the May 28th Public Hearing Meeting. David Lloyd noted that he will not be available at that meeting. Al Palmer will represent the project with information from Archetype on architecture.

2. Jonathan Spence letters on all utilities issues to be submitted. Al Palmer presently is working on this.

3. The submission for the May 28th meeting is a drop dead date of May 14th.

4. Jonathan Spence requested, from the owner, all funding certification to be submitted.

5. There will be a presentation to the Housing Committee on May 7th at 4:30 p.m. The Architect is to submit to Adam Mack (4) four copies of Landscape Drawings, Site Drawings and Building Elevations. David Lloyd will attend this meeting with Adam Mack. These drawing should be ready on Tuesday April 30th so Adam Mack can deliver to the Housing Committee.

6. Jonathan Spence requested details of Tot Lot to be submitted.

7. Details on the Private Patios are to be submitted.

8. Discussion was had regarding the fence along the property lines. The fence between the Riverton Project and ours will be a minimum 7 foot high fence with a Juniper hedge for visual screening. This was requested by Adam Mack. The fencing against the turnpike can be eliminated, but the Architect is to show the existing fence on the plan.

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

9. Details of the Picnic Area and raised Garden Plot are to be submitted. Adam Mack requested flowing trees be set in these areas.

10. On SD-3, a discussion was had regarding the rip rap. This is to be built out of pressure treated wood. Adam requested that it look good. Al Palmer made a comment that the cost of this would be around $1,000.00. Guard rails are not necessary.

11. The Emergency Gate location is to be moved further towards Forest Avenue, allowing enough room for Emergency Vehicle to get in, but not the full length. The exact location of the Emergency Gate should be discussed with Lt. MacDougall, Architect to coordinate.

12. The fencing between the Emergency Access and the Grange Hall land is to be a split rail type fence.

13. Adam Mack mentioned that he does have an agreement with the Grange Hall to use some of their parking lot for a field construction office during construction.

14. A discussion was had in regards to the Curb Cut issue with the neighbors at the entry way. Adam Mack is to discuss with owner to eliminate Curb Cut at Forrest Avenue.

15. Section at Access Drive needs to show what the depth of gravel is.

16. Regarding the cross section in the Parking Lot area, it was mentioned these sections should be in the Technical Standards. Al Palmer said he could coordinate with Architect with getting these sections. Owner had no comments during this period.

17. If sub pumps are necessary in any of the basements, these are to be noted. Al Palmer said he would try to basically day light all drainage tile.

18. Questions were had in the amount of Handicap Units. Adam Mack mentioned that (5) five handicap units would be incorporated into the project.

19. Where the controls would be located on the pump station was discussed, Al Palmer will coordinate.

20. Stock pile areas for snow will be designated on the plans by Al Palmer.

21. Discussion was had in regards to construction timing and startup. Adam Mack mentioned that a late summer / early fall construction start and a (10) ten-month construction period is anticipated.

Planning & Urban Development

Alexander Jaegerman
Planning Director

CITY OF PORTLAND

March 13, 2002

Mr. David Lloyd
48 Union Wharf
Portland, ME 04101

RE: Forest Avenue Housing Development
(ID# 20010307, CBL#327-B-007)

Dear Mr. Lloyd:

I would like to thank your recent revised submittal of the Forest Avenue Housing Development, located in the vicinity of 1818 Forest Avenue. I have reviewed these materials and offer the following comments related to unresolved aspects of the project. Additional comments from James Seymour, Tony Lombardo and Jeff Tarling will be forwarded to you immediately when available.

1. A water capacity letter from the Portland Water District is required.
2. A wastewater capacity letter from Portland Public Works is required.
3. A detail of the emergency access drive fence is needed.
4. A guardrail, and detail, is needed where the road crosses the culvert.
5. A detail of the proposed tot lot is needed. Is the location proposed the safest due to its proximity to the driveway?
6. Not all of the locations delineated for snow storage are appropriate. For example, the area between buildings 6 and 7 will result in blocking of the sidewalk in addition to being placed in the wetlands, the area near the tot lot will impede its use and visibility and the areas in front of building 3 will result in poor visibility for motorists and pedestrians. Please limit the areas designated for snow storage to a minimal number of appropriate locations.
7. When speaking with a representative of your office, I mentioned that the size of the multi-purpose playfield did not need to encompass all of the required recreational open space. The minimum quantity of recreational open space of 300 square feet per unit must still be demonstrated through areas set aside for facilities such as tennis courts, basketball courts, playgrounds etc. Please revise the plans to be consistent with the standard outlined in Sec. 14-120 (l).
8. Please provide details on the individual unit's private open space consistent with Sec. 14 – 526 (14) c. 5.
9. The proposed stockade fence between this development and the Riverton development may be of an inappropriate material. Jeff Tarling is concerned that a wood fence would be "kicked out" to provide access between the two developments. A vinyl-coated chain link fence will be more appropriate.
10. The limits of work outlined on sheet L-1 are unreasonable. Non-disturb areas and limits of work should allow for actual earthwork and construction. Please revise.
11. Parking must be setback at least 5 feet from all lot lines. The parking lot between buildings 1 and 3 appears to be less than 5 feet.

389 Congress Street • Portland, Maine 04101 • (207) 874-8721 • FAX 756-8258 • TTY 874-8936

A R C H E T Y P E

March 12, 2002

Jonathan Spence
City of Portland
389 Congress Street
Portland, ME 04101

RE: Wellesley Estates, Public Hearing

We are requesting being scheduled for a public hearing on March 26, 2002. Since our last workshop on February 26, we have made the following three general revisions to our drawings.

1. The sanitary sewer will go directly to Forest Avenue. Locations, pump systems etc. are shown on drawings by Gorrill-Palmer.

2. The project has been regraded. This will allow for less earthwork, the retention of more natural plantings, and better drainage around the buildings.

3. The planting plan, including the recreational field, has been redesigned based on meeting with Jeff Tarling.

Additional detail and development has been added:

1. The entrance drive has been further detailed with extent of paving, granite curbing and demolition.

2. The Schwartz garage will be rebuilt instead of moved. The driveway has been increased on size and backup space added. A culvert has been added to the drainage drawings.

3. A unit was moved from Building #1 to Building #8.

4. A detail of the typical cross-section of the emergency access road construction has been added.

5. The bridge has been deleted and a sidewalk added between Building #5 and Building #8.

6. Further evidence of financial capability is submitted based on your discussion with Adam Mack.

Additional items from the Seymour memo of February 20, 2002 will be covered by separate attachments by Gorrill-Palmer.

Sincerely,

David Lloyd

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
26 Main St.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:gpcei@maine.rr.com

March 12, 2002

Mr. Jonathan Spence, Planner
City of Portland
389 Congress Street
Portland, ME 04101-3503

RE: Wellsely Estates – Rental Housing Project
1818 Forest Avenue Portland, Maine

Dear Jonathan:

Gorrill-Palmer Consulting Engineers, Inc. is pleased to respond to the comments from Jim Seymour of Sebago Technics, Inc. dated February 20, 2002 in regards to the above referenced project.

1. Stormwater Management:

Comment A – After reviewing the pre- and post-development runoff calculations, it was difficult to determine the elevation difference of Pond 1. The elevations are nearly 30 feet above the site. I assume that this was estimated; however, no where in the attached report is there a discussion concerning this 24-inch culvert and assumed elevation. The engineer needs to comment on this pipe's elevation and origin.

Response – The stage storage and culvert information for Pond 1 was based upon field reconnaissance and review of USGS topographic data. The information used in the calculations is based in an assumed datum.

Comment B – The detention pond outfall should be moved to the west side of the proposed pedestrian bridge. The current location of the pipe outfall under the bridge will conflict with the bridge's footing and be difficult to maintain.

Response – The bridge was removed so there will be no conflict with the pipe outlet.

Comment C – The grading at the bottom of the emergency access drive and parking area does not propose drainage collection. The design requires the flows originating from Forest Avenue, the access drive, and gravel area to travel 200 feet +, then sheet flow over the pavement, and then travel another 220 feet before being collected by a catch basin. A culvert could be installed at the northerly corner of the parking lot and convey drainage along the easterly side of Units 22-29, and enter the swale that enters the riprapped inlet near Unit 29.

Response – A catch basin was added in the parking lot in front of building 3, and will be piped and discharged behind building 22. The stormwater calculations have been modified to account for the change.

Comment D – It would be beneficial if the engineer could calculate the individual areas of roof, parking lot, access roads, and sidewalks. I came up with a slightly higher volume than indicated within the stormwater report. This calculation would eliminate any confusion that I may have regarding the total impervious area.

Response – At your request, the areas for the stormwater calculations have been updated to match the current layout. With the limitations imposed by the TR-20 model, the impervious areas have been grouped together. The impervious area ended up being slightly higher because of the layout changes..

2. **Road Access/Circulation:**

Comment A – Further information may be needed regarding the blending of elevations at Forest Avenue with both the primary and emergency access roads. Limits of paving should be indicated; spot elevations to assure street gutter lines are maintained and limits of granite curbing should be clearly shown. Public Works will likely have their own list of separate items.

Response – More detail regarding the blending of elevations at the entrance and the emergency access has been provided on a separate detail sheet Access Drive Details. The layout and curbing issues will be addressed under separate cover by Archetype.

Comment B – The proposed driveway for the relocated garage is not well placed. The length of the driveway is short and could be problematic backing out onto the moderate sloped access drive. Since no curbing is proposed on that side, drainage could cause icing during winter periods further aggravating the situation. A deeper driveway could solve this problem.

Response – This will be addressed under separate cover by Archetype.

Comment C – A detail is needed regarding the typical cross-section of the emergency access drive. This should include base and sub-base depths and specifications.

Response – This will be addressed under separate cover by Archetype.

Comment D – The parking areas should have the same cross-section detail as the driveway. The detail should be relabeled to accurately indicate this correction for construction purposes. If the parking areas are different in construction with regards to materials depth, then a separate detail is needed.

Response – This will be addressed under separate cover by Archetype.

Comment E – The areas labeled as snow storage areas along the eastern side of the primary access drive are not appropriate. I feel they will create visual obstructions to Forest Avenue, the garage access, and main entrance into the site. Melt runoff will complicate the garage access. The area adjacent to the Tot Lot is also not appropriate for the same reason.

Response – This will be addressed under separate cover by Archetype.

Comment F – A pedestrian guardrail should be considered along the edge of the sidewalk where the culverts cross the driveway. The slope from the sidewalk is steep and would be a safety concern regarding pedestrians and bicyclists.

Response – This will be addressed under separate cover by Archetype.

Comment G – A detail is needed for the heavy-duty timber rail (2 feet high) planned along the emergency access.

Response – This will be addressed under separate cover by Archetype.

3. **Grading/Erosion Control:**

Comment A – Some of the finish floor elevations appear low. This may be an area that needs clarification with the applicant. My concern is that the elevation of the slab is proposed to be level with the ground elevation. Some of the finish floor elevations are just six inches higher than the outside ground elevation. A note may be necessary to state that the finish concrete slab should be a minimum 4" higher than the highest outside ground elevation. I believe there may be some building codes which address the step heights into the structure, which may play a part in the finish floor elevation selection. I would request that the sills be high enough to be protected from saturation due to surface water/drip edge gutter flows.

Response – The proposed finish floor elevations will be 6" above the ground elevation at the entrance to the units. The elevations near the side and rear of the building will remain 10" below the finish floor elevations of the units. This has been clarified on the Grading & Drainage Plan.

Comment B – A silt fence should be run along the toe of the slope between the Grange Hall property and the swale to protect the new slope from eroding into the swale and storm drain system.

Response – A silt fence was added along the toe of the slope between the grange hall property and the swale to protect the new slope from eroding into the swale and storm drain system.

4. **Utility Installation/Location:**

Comment A – The profiles attached showing underground utilities need to show on an plan the stationing associated with the selected baseline.

Response – The stationing of the underground utilities has been shown on the plan.

Comment B – The pump station design shall be submitted for review. It shall indicate pump sizing calculations, force main sizing, pump wet well sizing, indicated alarm systems, and should include force main clean outs at abrupt bends in the main.

Response – The pump station design has been submitted for review. Calculations for the station are appended to this letter.

Comment C – The design should also be submitted to Public Works for their review. Also, there may have to be an agreement or easement in place with the City to locate private utility mains in the right-of-way of Forest Avenue. Maintenance and responsibilities for the pumping system should be addressed as well.

Response – The pump station design will be submitted to Public Works via the Planning Department. The Applicant will be responsible for maintenance of the pump station and force main. No easement will be necessary as Public Works has requested a terminous manhole be added as shown on the plans.

Comment D – There is a conflict with the location of underground mains from a transformer located adjacent to the Vortechs treatment tank near the culvert crossing. The services would run into the tank as shown on the electrical layout
plan. The services may have to be run into and along the driveway to serve Units 42-46.

Response – The transformers location has been moved to alleviate the conflict with the Vortechnics Unit. Refer to Archetype's plan for transformer information.

5. **Additional Concerns:**

Comment A – A geotechnical search into the design of the bridge footings may be appropriate given the soils types, slopes near the stream, and water levels. My concerns are that the bridge is designed appropriately to account for soil stability and safety.

Response – The footbridge has been removed.

Comment B – The dumpster location for the twin dumpsters at the end of the primary access lane designed at an angle does not seem like a good location. Besides aesthetics, the maneuvering of garbage trucks at this location does not seem reasonable. Other areas may be less convenient, but may function more favorably.

Response – Archetype will address this issue under separate cover.

Comment C – The plans should indicate areas during construction for stockpiling materials and excavated soils. Loam will likely be stripped and re-used on the site. Those areas chosen for stockpiling beyond 14 days shall be identified and addressed with erosion control measures.

Response – Areas have been located on the plan for stockpiling with the necessary erosion control measures.

6. Verbal Comments from Planning Board Workshop:

Comment A - It was noted in the comments from Larry Ash that signalization of the intersection of Forest Avenue and Riverside Industrial Parkway is anticipated. What is the schedule for these improvements, and will the Consultant's recommendations with respect to the post office boxes be incorporated into that project?

Response - It is anticipated that modifications made to this intersection as part of the City's signalization work will improve operations and safety at this location. This location is scheduled to be signalized this year, prior to the completion of Wellesley Estates, and the work has already been bid. As part of these improvements, the mailboxes near the intersection will be relocated further away from the intersection and reconfigured to provide for better operations and safety.

Comment B - At the various intersections included in the traffic analysis, please address Section 14-526 of the Ordinance which requires that the Applicant document that the project will not cause a substantial increase in congestion for any street which is already at a level of service below Level "D".

Response - The Portland Ordinance, in Section 14-526 states that a site plan must not "substantially increase congestion on any street which is already at a level of service below Level 'D'." Both the Riverton Drive and Riverside Industrial Parkway approaches to Forest Avenue currently operate at a level of service 'E' or 'F," typical of unsignalized locations along this principal arterial during weekday peak hours of traffic. It should be noted that the development is not expected to reduce these levels of service. Also of note is the small degree to which the development will affect traffic volumes along Forest Avenue in this area. The development is anticipated to increase traffic volumes by about one percent for the AM and PM peak hours along Forest Avenue at Riverton Drive. This increase can also be expected along Forest Avenue at Riverside Industrial Parkway. A one percent increase is typically less than what can be expected for daily fluctuations in traffic volumes. Therefore, it is the opinion of this office that the proposed development will not result in a substantial increase in congestion.

Gorrill-Palmer Consulting Engineers, Inc. appreciates the opportunity to respond to these comments and look forward to your review of our responses. Should you have any questions or require any additional information, please feel free to contact our office.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

Jeffrey M. Lewis, E.I.
Design Engineer

cc: Jim Seymour, Sebago Technics, Inc.
Bill Hopkins, Archetype
Adam Mack, Minat Corp. Real Estate Development

JML/rmg/JN442SpenceComment&Response02-22-02

April 23, 2002

Jonathan Spence
City of Portland
Congress Street
Portland, ME 04101

RE: Wellesley Estates – Portland, Maine

Dear Jonathan,

We are requesting a public hearing for Wellesley estates at the May 14th meeting. Let me therefore respond to your comments of March 13th, 2002. We have not received any further comments from Lames, Seymour or Tony Lombardo but hopefully they can attend our meeting with you on April 23.

1. Al Palmer has written to Portland Water District for capacity letter and will address this issue.

2. Same for Public Works.

3. There is a detail of the Emergency Access fence on drawing SD-3.

4. There is a detail of the Culvert Guard on drawing SD-3.

5. With the addition of basements to the units, there is no longer a need for a community laundry. The tot lot has therefore been moved and joined to the playfield.

6. Gorrill-Palmer will re-address snow storage.

7. The playfield has been returned to its prior state which meets the PRUD standard as follows;

   ..... "and shall include 1 or more uses per sec 14-526(a) (14) c. 4 but shall at least be usable as a *multipurpose game field"*....

   The specific 526 sec reads;

"Active recreational space: open spaces designated and improved for active recreational use with facilities such as tennis courts, basketball courts, *multipurpose game fields*, swimming pools and children's playground.

8. We are providing private exterior space for all units save 2nd story flats. This is shown on L-1 & SD-3.

JN 442
Computed By: DER

Task: Determine pump sizing criteria for the proposed pump station to serve Wellesley Estates, Forest Avenue, Portland, Maine

References:

1 Utility Plans for Wellesley Estates prepared by Gorrill-Palmer Consulting Engineers, Inc. dated January 2002

2 Water Supply and Pollution Control, Third Edition, by Clark, Viessman & Hammer Chapter 4, Section 5

3 Maine Subsurface Waste Water Disposal Rules effective Date June 1, 2000 Table 501.1 Design Flows for Dwellings

Assumptions:

1 Station will be designed based upon serving the 28 - 2 bedroom units and 18 - 3 bedroom units.

2 For the purposes of these calculations, it will be assumed that a 2 bedroom unit will have 2 occupants and a 3 bedroom unit will have 3 occupants. Based upon reference 2, "the United States has an average domestic consumption of about 50 gallons per capita per day."

3 To further support the use of 50 gpcd, Reference 2 indicates that "maximum daily use can be considered to be about 180% of the average daily use"

4 Pump stations are designed for average daily use and subsurface waste water disposal systems are designed for maximum daily use.

Computations:

1 Determine Average Daily Use based upon Assumption 2

28 units x 3 occupants/home x 50 gallon per capita per day
18 units x 4 occupants/home x 50 gallon per capita per day

28 x 3 x 50=	2800 gallons per day
18 x 4 x 50=	2700
Total	**5500**

2 Determine Maximum Daily Use based upon Reference 3

28 - 2-bedroom units x 180 gallons per day	5040
18 - 3-bedroom units x 270 gallons per day	4860
Total	**9900**

3 Confirm Assumption 3

Based upon Assumption 3, the maximum daily use should be approximately 180% of the average daily use.

5500 x 180%= 9900 gallons per day

Based upon the confirmation above, the average daily flow for the pump station should be designed for the 5500 gallons per day.

JN 442
Computed By: DER

Calculations:

Based upon information provided by the City of Portland, the City would require that the station provide emergency storage for one day or 24 hours. This would require that storage volume be provided for 5500 gallons. The storage would be realized within a portion of the gravity system tributary to the pump station. The remainder of the storage will be obtained within the pump station wet-well.

The 24 hours emergency storage will only be allowed to elevation 63, whereas the lowest building invert is at elevation 64.0. This will allow storage within the system as follows:

8" sewer pipe	69.5 feet	24.2 cubic feet
4' dia. Manholes	.93 vf	11.7 cubic feet
	Total	35.9 cubic feet

To store 5500 gallons, it will be necessary to provide (5500/7.48) or 736 cubic feet of storage volume.

The proposed pump station wet-well is proposed to be a 10 foot diameter structure. The invert into the structure is at elevation 61.91. Storage is allowed to elevation 63, therefore 1.09 vertical feet of storage is available within the pump station or:

1.09 vf	85.6 cubic feet

The total volume of storage available above the invert into the pump station is 35.9 + 85.6 = 121.5 cubic feet. Therefore, (736-121.5) 614.5 cubic feet is required below the invert into the pump station above the alarm on condition. Based upon the 10' diameter pump station having 78.54 cubic feet of storage per vertical foot, the additional storage required below the invert will be:

614.5/78.54 =	7.82 feet

Therefore, the alarm on elevation will be (61.91-7.82) or 54.10

Conclusions:

Based upon the above information and the attached head calculations, a Barnes SGV submersible grinder pump has been selected for this pump station. The pump curve for the selected pump is also attached.

FiLE NAME: Pumpsize
PROJECT: Wellesley Estate
JOB NUMBER: 442
LOCATION: Portland, Maine
DATE: 8-Mar-02

COMPUTATION OF EQUIVALENT PIPE LENGTH AND TOTAL DYNAMIC HEAD

ENTER:			COMPUTES:		
PUMP STATION RIM =	71.70				
INV. ELEV. INTO STA. =	61.91		AVERAGE FLOW RATE (GPM) =	3.82	GPM
PUMP STA. DIAM. (FT) =	10.00		PEAK FLOW RATE (GPM) =	21.01	GPM
AVERAGE DAILY FLOW RATE =	5,500.00	GAL	MAXIMUM STORAGE ELEVATION	63.00	
AVERAGE CYCLES PER DAY =	10.00		STORAGE OUTSIDE OF WETWELL (CF)	35.90	
PEAK FACTOR =	5.50		STORAGE WITHIN WETWELL ABOVE INV IN.	85.61	CF
PUMP FAILURE/ALARM ON DEPTH (FT) =	0.25		STA. SURFACE AREA =	78.54	
SUCTION SUBMERGENCE DEPTH (FT) =	2.00		EMERGENCY STORAGE VOLUME (CF) =	735.29	
EMERGENCY STORAGE TIME (HR) =	24.00		ALARM ON ELEV. =	54.10	
F. M. DISCHARGE INVERT ELEV. =	80.80		WETWELL PUMP ON ELEV. =	53.85	
HAZEN WILLIAMS C VALUE =	140		WETWELL PUMP OFF ELEV. =	52.91	
STARTING PUMP FLOW RATE =	50	GPM	TOP OF BASE SLAB ELEV. =	50.91	
PUMP FLOW RATE INTERVAL =	10	GPM	BOTTOM OF BASE SLAB ELEV. =	49.58	
			OVERALL HEIGHT OF PUMP STATION (FT)=	22.12	

SUCTION LINE DESCRIPTION:

NOMINAL PIPE DIAM. (IN)	STRAIGHT PIPE LENGTH (FT)	FITTING EQUIV. LENGTH (FT)	TOTAL EQUIV. LENGTH (FT)
3	0.00	0.00	0.00
4	0.00	0.00	0.00
6	0.00	0.00	0.00
8	0.00	0.00	0.00
10	0.00	0.00	0.00
12	0.00	0.00	0.00

DISCHARGE LINE DESCRIPTION:

NOMINAL PIPE DIAM. (IN)	STRAIGHT PIPE LENGTH (FT)	FITTING EQUIV. LENGTH (FT)	TOTAL EQUIV. LENGTH (FT)
3	0.00	0.00	0.00
4	477.00	97.11	574.11
6	0.00	0.00	0.00
8	0.00	0.00	0.00
10	0.00	0.00	0.00
12	0.00	0.00	0.00

TOTAL DYNAMIC HEAD:

PUMP	STATIC HEAD		FRICTION LOSS			TOTAL DYNAMIC HEAD	
FLOW RATE (GPM)	PUMP ON (FT)	PUMP OFF (FT)	SUCTION LINE LOSS (FT)	DISCHARGE LOSS (FT)	TOTAL LOSS (FT)	PUMP ON (FT)	PUMP OFF (FT)
50	26.95	27.89	0.00	1.15	1.15	28.11	29.04
60	26.95	27.89	0.00	1.61	1.61	28.57	29.50
70	26.95	27.89	0.00	2.15	2.15	29.10	30.04
80	26.95	27.89	0.00	2.75	2.75	29.70	30.64
90	26.95	27.89	0.00	3.42	3.42	30.37	31.31
100	26.95	27.89	0.00	4.15	4.15	31.11	32.04
110	26.95	27.89	0.00	4.95	4.95	31.91	32.85
120	26.95	27.89	0.00	5.82	5.82	32.78	33.71
130	26.95	27.89	0.00	6.75	6.75	33.71	34.64
140	26.95	27.89	0.00	7.74	7.74	34.70	35.63

EQUIVALENT PIPE ANALYSIS:
MID-SIZE DUCTILE IRON PIPE (CLASS 52) WITH DOUBLE CEMENT LINING

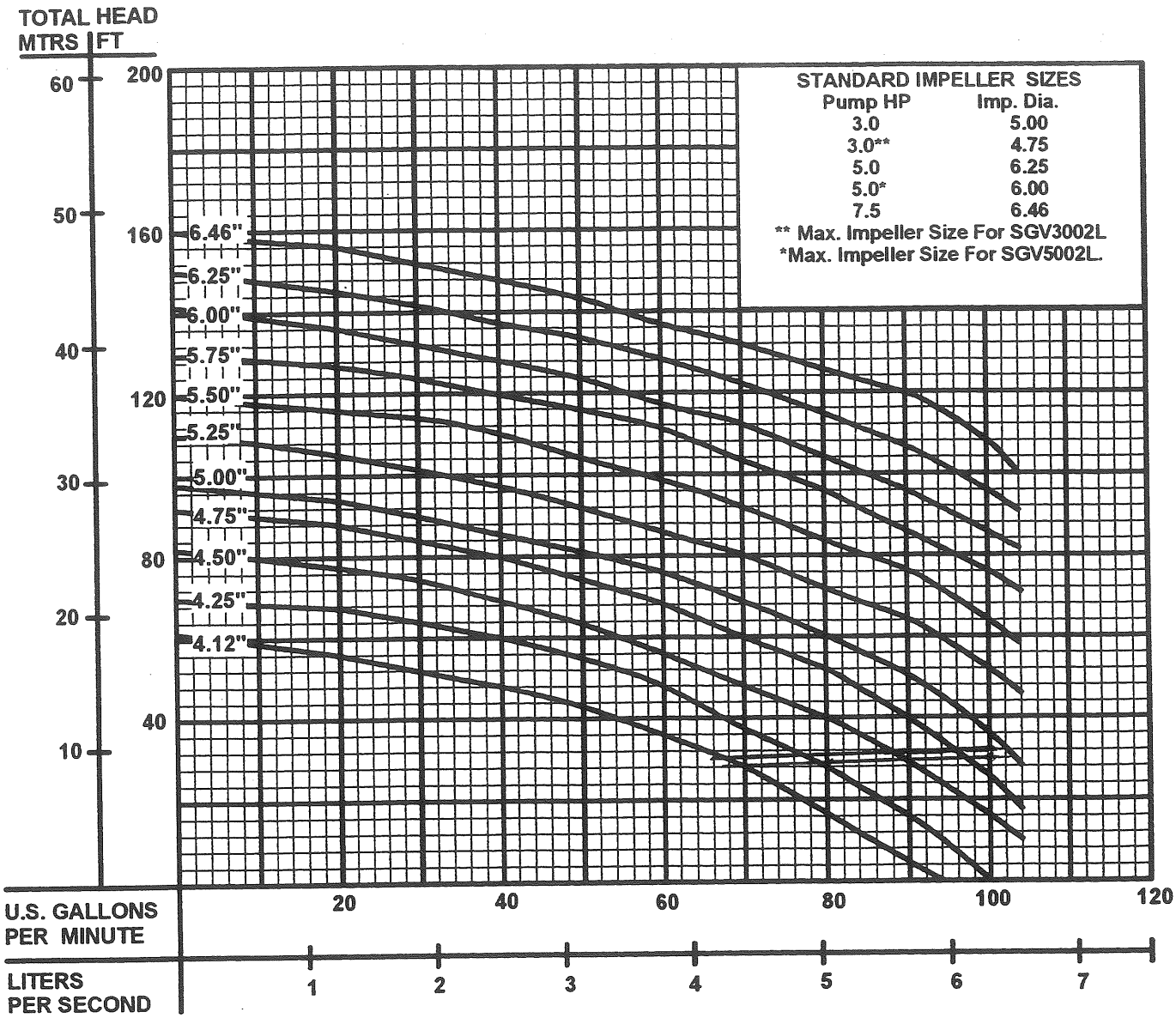
	PUMP SUCTION INLET CONDITION						PUMP DISCHARGE OUTLET CONDITION					
NOM. PIPE DIAM. (IN)	3	4	6	8	10	12	3	4	6	8	10	12
ACT. PIPE DIAM. (IN)	3.17	3.97	6.03	8.14	10.15	12.21	3.17	3.97	6.03	8.14	10.15	12.21
FRICTION FACTOR	0.019	0.016	0.015	0.014	0.014	0.013	0.019	0.016	0.015	0.014	0.014	0.013
1/4 LR BEND K VALUE	0.30	0.27	0.24	0.22	0.22	0.21	0.30	0.27	0.24	0.22	0.22	0.21
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.17	0.00	0.00	0.00	0.00
1/4 BEND K VALUE	0.57	0.51	0.45	0.42	0.42	0.39	0.57	0.51	0.45	0.42	0.42	0.39
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/8 BEND K VALUE	0.30	0.27	0.24	0.22	0.22	0.21	0.30	0.27	0.24	0.22	0.22	0.21
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	33.50	0.00	0.00	0.00	0.00
1/16 BEND K VALUE	0.15	0.14	0.12	0.11	0.11	0.11	0.15	0.14	0.12	0.11	0.11	0.11
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.89	0.00	0.00	0.00	0.00
1/32 BEND K VALUE	0.08	0.07	0.06	0.06	0.06	0.05	0.08	0.07	0.06	0.06	0.06	0.05
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GATE VALVE K VALUE	0.15	0.14	0.12	0.11	0.11	0.10	0.15	0.14	0.12	0.11	0.11	0.10
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.89	0.00	0.00	0.00	0.00
PLUG VALVE K VALUE	0.34	0.31	0.27	0.25	0.25	0.23	0.34	0.31	0.27	0.25	0.25	0.23
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SWING CHECK VALVE												
K VALUE	1.90	1.70	1.50	1.40	1.40	1.30	1.90	1.70	1.50	1.40	1.40	1.30
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	35.15	0.00	0.00	0.00	0.00
STRAIGHT TEE K VALUE	0.38	0.34	0.30	0.28	0.28	0.26	0.38	0.34	0.30	0.28	0.28	0.26
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SIDE OUTLET TEE												
K VALUE	1.14	1.02	0.90	0.84	0.84	0.78	1.14	1.02	0.90	0.84	0.84	0.78
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SHARP EDGE INLET												
K VALUE	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FLARED EDGE INLET												
K VALUE	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EXIT K VALUE	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.68	0.00	0.00	0.00	0.00
REDUCER												
SMALLER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00	2.00	4.00	6.00	8.00	10.00	12.00
LARGER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00	2.00	4.00	6.00	8.00	10.00	12.00
FITTING LENGTH (IN)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
K VALUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
INCREASER												
SMALLER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00	2.00	3.00	4.00	8.00	10.00	12.00
LARGER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00	2.00	4.00	6.00	8.00	10.00	12.00
FITTING LENGTH (IN)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
K VALUE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.57	0.00	0.00	0.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	97.11	0.00	0.00	0.00	0.00

FRICTION HEAD ANALYSIS:

	3" DUCTILE IRON		4" DUCTILE IRON		6" DUCTILE IRON		8" DUCTILE IRON		10" DUCTILE IRON		12" DUCTILE IRON	
	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE
PIPE I.D. (IN)	3.17	3.17	3.92	3.92	6.03	6.03	8.14	8.14	10.15	10.15	12.21	12.21
PIPE AREA (SF)	0.0548	0.0548	0.0838	0.0838	0.1983	0.1983	0.3614	0.3614	0.5619	0.5619	0.8131	0.8131
HYD. RAD. (FT)	0.0660	0.0660	0.0817	0.0817	0.1256	0.1256	0.1696	0.1696	0.2115	0.2115	0.2544	0.2544
C*R^0.63*1.38	33.3065	33.3065	38.0743	38.0743	49.9415	49.9415	60.3330	60.3330	69.3322	69.3322	77.8919	77.8919
FLOW (GPM)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
FLOW (CFS)	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228
HYD. SLOPE	0.0203	0.0203	0.0072	0.0072	0.0009	0.0009	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.0654	4.0654	2.6586	2.6586	1.1235	1.1235	0.6166	0.6166	0.3965	0.3965	0.2740	0.2740
FLOW (GPM)	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00
FLOW (CFS)	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451
HYD. SLOPE	0.0243	0.0243	0.0086	0.0086	0.0011	0.0011	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.4719	4.4719	2.9244	2.9244	1.2359	1.2359	0.6782	0.6782	0.4362	0.4362	0.3014	0.3014
FLOW (GPM)	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
FLOW (CFS)	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674
HYD. SLOPE	0.0285	0.0285	0.0101	0.0101	0.0012	0.0012	0.0003	0.0003	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.8785	4.8785	3.1903	3.1903	1.3482	1.3482	0.7399	0.7399	0.4758	0.4758	0.3288	0.3288
FLOW (GPM)	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
FLOW (CFS)	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897
HYD. SLOPE	0.0331	0.0331	0.0118	0.0118	0.0014	0.0014	0.0003	0.0003	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	6.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	5.2850	5.2850	3.4561	3.4561	1.4606	1.4606	0.8015	0.8015	0.5155	0.5155	0.3562	0.3562
FLOW (GPM)	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
FLOW (CFS)	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119
HYD. SLOPE	0.0379	0.0379	0.0135	0.0135	0.0017	0.0017	0.0004	0.0004	0.0001	0.0001	0.0001	0.0001
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	7.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	5.6915	5.6915	3.7220	3.7220	1.5729	1.5729	0.8632	0.8632	0.5552	0.5552	0.3836	0.3836
FLOW (GPM)	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00
FLOW (CFS)	0.3342	0.3342	0.3342	0.3342	0.3342	0.3342	0.3342	0.3342	0.3342	0.3342	0.3342	0.3342
HYD. SLOPE	0.0431	0.0431	0.0153	0.0153	0.0019	0.0019	0.0004	0.0004	0.0001	0.0001	0.0001	0.0001
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	8.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	6.0981	6.0981	3.9879	3.9879	1.6853	1.6853	0.9248	0.9248	0.5948	0.5948	0.4110	0.4110
FLOW (GPM)	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00	160.00
FLOW (CFS)	0.3565	0.3565	0.3565	0.3565	0.3565	0.3565	0.3565	0.3565	0.3565	0.3565	0.3565	0.3565
HYD. SLOPE	0.0486	0.0486	0.0173	0.0173	0.0021	0.0021	0.0005	0.0005	0.0002	0.0002	0.0001	0.0001
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	9.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	6.5046	6.5046	4.2537	4.2537	1.7976	1.7976	0.9865	0.9865	0.6345	0.6345	0.4384	0.4384
FLOW (GPM)	170.00	170.00	170.00	170.00	170.00	170.00	170.00	170.00	170.00	170.00	170.00	170.00
FLOW (CFS)	0.3788	0.3788	0.3788	0.3788	0.3788	0.3788	0.3788	0.3788	0.3788	0.3788	0.3788	0.3788
HYD. SLOPE	0.0544	0.0544	0.0193	0.0193	0.0024	0.0024	0.0006	0.0006	0.0002	0.0002	0.0001	0.0001
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	11.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	6.9111	6.9111	4.5196	4.5196	1.9100	1.9100	1.0481	1.0481	0.6741	0.6741	0.4658	0.4658
FLOW (GPM)	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00
FLOW (CFS)	0.4011	0.4011	0.4011	0.4011	0.4011	0.4011	0.4011	0.4011	0.4011	0.4011	0.4011	0.4011
HYD. SLOPE	0.0604	0.0604	0.0215	0.0215	0.0026	0.0026	0.0006	0.0006	0.0002	0.0002	0.0001	0.0001
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	12.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	7.3177	7.3177	4.7854	4.7854	2.0224	2.0224	1.1098	1.1098	0.7138	0.7138	0.4932	0.4932
FLOW (GPM)	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00	190.00
FLOW (CFS)	0.4234	0.4234	0.4234	0.4234	0.4234	0.4234	0.4234	0.4234	0.4234	0.4234	0.4234	0.4234
HYD. SLOPE	0.0668	0.0668	0.0237	0.0237	0.0029	0.0029	0.0007	0.0007	0.0002	0.0002	0.0001	0.0001
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	13.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	7.7242	7.7242	5.0513	5.0513	2.1347	2.1347	1.1715	1.1715	0.7534	0.7534	0.5206	0.5206

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Wellesley Estates, LLC
c/o Adam Development Co.
34 Preble Street
Portland, ME 04101

Tel 207-774-8013
Fax 207-773-2448

March 12, 2002

To Whom It May Concern:

This letter is in response to the City of Portland planning department, request for funding information of our proposed development. Attached is a letter from Maine Bank and Trust showing that they will finance our project once all necessary approvals have been obtained and they have completed their due diligence and underwriting process.

We have also made application and received preliminary approval for financing and grant funding from the City of Portland and Maine State Housing Authority that will provided for the development of at least 40% of the units to be rented as affordable housing.

The financing application with Maine State Housing Authority calls for a tax exempt loan in the amount of $3,950,000 and a no interest subsidy loan in the amount of $845,000. The amended City of Portland funding request will be in the amount of $250,000, provided either through CBDG funds or HOME funds. The remaining development costs will be defrayed through Low Income Housing Tax Credit equity funds.

Please call if you have any question. Thank you for your attention and diligence on our project.

Sincerely,

Mitchell Cope
Member Wellesley Estates, LLC

MAINE BANK & TRUST

COPY

December 12, 2001

Wellesley Estate, LLC
c/o Adam Development Company
Mitchell Cope, President
34 Preble Street
Portland, Maine 04039

Dear Mr. Cope:

In response to your request relative to the interest of Maine Bank & Trust in financing your proposed project located at 1818 Forest Avenue, Portland, Maine, I wish to inform you that the bank is very interested in assisting you in the financial development of this project. As such, the bank will seriously consider the financing of the planned development when all necessary approvals have been obtained. Obviously, our review at this stage has been only preliminary and this letter does not constitute a commitment to lend. Final approval will depend on a complete and thorough underwriting and due diligence process.

If you have any questions, please call me at 828-3120.

Sincerely,

John Tyson
Vice President
Commercial Loan Officer

Lighting

Site lighting consists of 18' high pole lights and wall units mounted adjacent to entry doors. The photometric plan submitted appears to be in compliance with the City standards although the data does not extend to the property line. Staff requests that the applicant provide a photometric plan that extends to the property line, catalog cuts for the wall units and a clearer illustration of the pole fixture to determine if it meets the "full cut-off" requirement.

Fire Safety

The project is currently being reviewed by the Fire Department.

Financing

This project is being funded through both private funds and monies from the Maine State Housing Authority. Preliminary letters of interest from the Authority and the Maine Bank and Trust are included as attachments 9 and 10. Confirmation of the funding mix will be required prior to a Public Hearing before the Planning Board.

Planned Residential Unit Development Standards

The site plan ordinance contains specific standards for PRUDs. These standards relate to design relationship to site, internal design character and relationship to surrounding neighborhoods and recreation and open space. Staff requests that the applicant address each of these standards and how they will be met by this proposed development

Homeowner Documents

Homeowner documents for review and approval by Corporation Counsel will be required prior to a Public Hearing before the Planning Board.

Staff has identified the following items of concern.

1. The internal site circulation needs to provide pedestrians will full and safe access throughout the site. The site plan should be amended to accomplish this including integration of the bridge feature.

2. It is unclear the program for the bus stop.

3. Clarification with regards to the relocation of the existing garage and its vehicular access is requested.

4. The utility plan must be finalized and letters of capacity received prior to additional meetings before the Planning Board.

5. Copies of the appropriate DEP permits for the wetland alterations and bridge construction are necessary

6. Additional elevations and floorplans illustrating the proposed units and buildings are requested.

7. Revised photometrics and catalog cuts are needed prior to Public Hearing before the Planning Board.

8. Additional information on the projects funding is requested.

9. It is unclear if the development as proposed meets the site plan standards related to PRUDs.

10. Homeowner documents must be provided for review and approval.

The City's Traffic Engineer, Engineering Consultant, Fire Department, Arborist, Zoning Administration and Public Works may identify additional items of concern through further review.

Attachments:

1. Project Description
2. Letter to Applicant 11-29-01
3. Option to Purchase Property
4. Option to Purchase Land for Emergency Access and Water Line
5. Traffic Study
6. Utility Letter Regarding Sewer Service (Portland Public Works)
7. Utility Letter Regarding Water Service (Portland Water District)
8. Refuse Analysis
9. Letter of Financial Capacity Maine State Housing Authority
10. Letter of Financial Capacity Maine Bank and Trust
11. Erosion Control Report
12. Stormwater Analysis
13. Survey Plan
14. Drawing SD-1 Site Plan
15. Drawing SD-2 Utility Plan
16. Drawing SD-3A Grading and Drainage Plan
17. Drawing SD-3B Erosion Control plan
18. Drawing SD-4 Utility Details
19. Drawing SD-5 Utility Plan
20. Drawing SD-6 Pond and Misc. Details
21. Drawing SD-7 Erosion Control Details
22. Drawing L-1 Landscape Plan
23. Drawing EO1 Site Plan Electrical
24. Drawing EO2 Site Plan Electrical Details
25. Drawing LC1 Site Plan Electrical Photometrics
26. Drawing A-1 Typical Building Elevation

A4.
#2

Planning & Urban Development

CITY OF PORTLAND

November 29, 2001

Mr. David Lloyd
48 Union Wharf
Portland, ME 04101

RE: Forest Avenue Housing Development
(ID# 20010307, CBL#327-B-007)

Dear Mr. Lloyd:

I would like to thank your recent submittal of the Forest Avenue Housing Development, located in the vicinity of 1818 Forest Avenue. I have enclosed a copy of our "site plan checklist" which will enable you to supplement the items already submitted with additional material that will together constitute a complete application. Below are a few of the items taken from the checklist presented in greater detail.

1. A standard boundary survey prepared by a registered land surveyor at an appropriate scale. This survey should include the boundaries of the property in addition to the existing and proposed topography at intervals of not more than 2 feet.

2. Plans prepared, based on the boundary survey, including locations of proposed buildings, lighting, parking areas, pedestrian walkways and vehicular access.

3. Proposed elevations for all structures in addition to a narrative describing construction materials (siding, roofing, etc.).

4. A landscape plan must be provided that illustrates existing, preserved and proposed vegetation. Preservation methods for landscaping within close proximity to proposed development sites should also be included.

5. Evidence of financial and technical capability to undertake and complete the development. A letter from a financial institution stating that it has reviewed the planned development and that funding is available and an outline of all other funding sources that will be used in this project.

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6. A narrative describing existing surface drainage on the site and a stormwater management/treatment plan indicating measures that will be taken.

7. A list of all State and Federal regulatory approvals which the development may be subject to including status of all pending applications.

8. Evidence of availability of off-site facilities including sewer and water service.

9. A traffic study for the proposed development.

Please address each numbered item on the attached checklist. If you have any questions related to these submittal requirements or any other questions concerning the development review process, please do not hesitate to contact me at 756-8083. We have tentatively scheduled a workshop session before the Planning Board for this project on January 8, 2002. In order to make the session as valuable as possible, a complete submittal packet must be received prior to December 17, 2001.

Sincerely,

Jonathan Spence
Planner

CC: Sarah Hopkins, Development Review Services Manager

COPY AH. # 3

OPTION TO PURCHASE

This Agreement is made this 31st day of August, 2001 by and between Daniel N. Link, of East Waterboro, Maine, with a mailing address of HCR 72, Box 3161, E. Waterboro, ME 04030 (hereinafter called "Seller") and Adam Development Co., or it's assigns, a Maine corporation with a place of business in Portland, Maine and mailing address of 34 Preble Street, Portland, Maine 04101 (hereinafter referred as "Buyer").

1. **PREMISES:** This option affects the premises of the Seller as described in deed to Grantor dated May 10, 2000 and recorded at the Cumberland County Registry of Deeds in Book 15620, Page 122, but excluding the portion of the Premises fronting at 1816-1822 Forest Avenue, Portland, and extending back from Forest Avenue the minimum distance required to constitute legal lots for zoning requirements, which excludes all buildings on the Premises (Land to be Retained).

2. **OPTION TO PURCHASE:** The Buyer shall have the option to purchase the Premises upon the following terms and conditions:

a. **OPTION PRICE:** Buyer agrees to pay for the Option $5,000.00 upon execution of this agreement. All option payments are nonrefundable and do not apply to the purchase price.

b. **EXERCISE OF OPTION:** Buyer may exercise the option to purchase the property by providing notice to Seller of its intent to purchase the property. Said notice shall be given no later than one year from the date of this agreement.

c. **RIGHT OF ENTRY:** Buyer shall have the right to enter the Premises during the Option period in order to survey, take soil samples and otherwise test and conduct its due diligence investigations. Buyer shall also indemnify and hold Seller harmless for any damage, injury or liens occasioned by such entry. Buyer shall at Buyer's expense return the property to substantially the same condition it was in prior to such activities. This paragraph shall survive the closing.

d. **RECORDING OF OPTION:** The Seller shall execute a memorandum of option for recording at the Registry of Deeds upon request of Buyer.

3. **EXCERSISING THE OPTION:** If Buyer decides to exercise this option he will do so as follows:

a. **NOTICE:** Any time before the expiration of this option Buyer may notify Seller of his intension to purchase the property.

b. **PURCHASE PRICE:** The purchase price for the property shall be $295,000.00.

c. **CLOSING:** The closing of this transaction shall take place within sixty days of the notice from Buyer to Seller of the exercise of the Option.

d. **CASH AT CLOSING:** The purchase price, adjusted for any other costs as described in section #6. shall be paid in certified check, wire transfer or other immediately available funds, at time of closing.

4. **TITLE:** Seller shall convey the Premises to Buyer at the closing by Warranty Deed in fee simple with good and marketable title, subject to easements, privileges, restrictions, and agreements of record so long as such encumbrances do not affect Buyer's intended use of Premises. If counsel for the Buyer shall be of the opinion, given in good faith, that the title to the property is defective or is otherwise not free and clear of all encumbrances, or is not marketable, the closing shall be postponed for a reasonable period of time during which Seller shall diligently pursue the removal of such defect or encumbrance at his own expense, to the reasonable satisfaction of counsel for Buyer. If the title proves defective and if Seller shall fail to remove such defect or encumbrance within thirty (30) days after notice from Buyer of the nature of the defect or encumbrance, Buyer may, at its election, either: (i) close this transaction notwithstanding the existence of any such defect or encumbrance and without a deduction in the purchase price; or (ii) terminate this Agreement, in which event Seller shall return the deposit to Buyer, and the parties hereto shall thereafter have no further rights or obligations hereunder.

5. **SELLER'S WARRANTIES AND REPRESENTATIONS:** Seller hereby represents and warrants that as of the date hereof, and as of the date of the closing hereunder:

a. Seller has no knowledge of the existence, at any time, of any violations of laws and regulations affecting the Premises. Seller has not received any notice or inquiry from any federal, state or local government authority or representative thereof claiming or inquiring into the existence of any such violations.

b. Seller has no knowledge of any pending or threatened actions or proceedings regarding condemnation of or encumbrances on the ownership, use or possession of the Premises or any party thereof.

c. There are no underground storage tanks on the

Premises.

d. Seller represents that the Premises shall be free from any mechanic or material men liens.

6. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS:**

a. All water and sewer charges, rents, current real estate taxes, municipal and sewer assessments against the Premises and all utilities shall be apportioned pro rata between Seller and Buyer as of the date of closing. Real estate taxes and assessments shall be prorated on the basis of the City of Portland tax year.

b. The Maine Real Estate Transfer Tax shall be paid for by Seller and Buyer according to Maine statutory law.

c. The preparation of the Deed shall be paid by the Seller. Buyer shall prepare the legal description. If there is any discrepancy between the historical description and the legal description of the property, such discrepancy will be passed by quitclaim deed without warranty covenants.

d. The Buyer shall pay for surveys and inspections, the title search, recording the deed, and closing services.

7. **POSSESSION:** Seller shall deliver possession of Premises to Buyer at transfer of title free and clear of all leases, tenancies or occupancies by any person.

8. **INDEMNITY:** Buyer and Seller agree to indemnify and hold each other harmless from and against any and all damages, claims, losses, obligations, liabilities and expenses, including reasonable attorney's fees, incurred as a result of the breach of any representation contained in this Contract. The warranties of this Contract shall survive the closing hereunder.

9. **RISK OF LOSS:** The risk of loss or damage to the property by any cause, or of a taking of all or any part of the property by eminent domain, prior to the closing, shall be on Seller. In the event that, prior to the closing, the property or any portion is taken by eminent domain, Buyer shall have the option of either (i) terminating this Agreement and receiving back the deposit, or (ii) accepting the insurance proceeds payable be reason of such damage or destruction, or the condemnation award payable by reason of such taking, and closing the transaction contemplated by this Agreement notwithstanding the same, and without reduction in the purchase price.

10. **REMEDIES FOR BREACH:**

a. If Buyer defaults in its performance under this contract, the Seller shall retain the deposit. If Buyer fails to return the property to substantially the same condition it was in prior to having work done, or a lien was placed on the property from work Buyer had done, Seller may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

b. If Seller defaults in his performance under this contract, the Buyer may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

11. **NOTICE:** All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been given on the date of service if delivered personally to the party to whom notice is to be given, or on the date of mailing. If mailed, all notices are to be sent by First Class Mail postage prepaid, certified with return receipt requested, addressed as provided above.

12. **BROKERAGE:** Seller and Buyer represent to one another that neither has dealt or had contact with any broker in connection with this transaction and each agrees to indemnify and hold harmless the other from any and all costs, expenses or damages resulting from any claims for brokerage fees or other similar forms of compensation made by any real estate broker or any other person or entity because of the sale of the Premises hereunder.

13. **RETAINED PROPERTY DESCRIPTION:** If Seller requires a description of the land to be retained (as described in section 1 of this Option) for sale, refinancing, or other reasonable purpose the buyer shall within 30 days upon receiving a written notice from the Seller, provide the seller with a description of the land to be retained.

14, **RELEASE OF RIGHT OF FIRST REFUSAL**: Upon the signing of this option, the right of first refusal dated 4/25/2001 between Dan Link and Adam Development Co. is hereby released.

15. **RIGHT OF WAY:** Upon transfer of title Seller shall upon Buyers request provide Buyer with an easement extending from Forest Avenue, along the property line bordering the Maine Turnpike, across the Land to be Retained for underground utility purposes. This would include sewer, water, or any other utilities that may be necessary for the development of the Buyers land. Utilities shall be in one easement area, which shall be

the minimum width required for said purposes. Any use or disturbance to the easement area by Buyer, its successors or assigns, shall require Buyer, its successors or assigns, to return the property to substantially the same condition it was in prior to such use or disturbance. Seller will have access to hook into any utilities buyer may install at seller's own cost.

16. **WITHHOLDING**: The Seller is aware that Maine law requires Buyer to withhold two and one-half percent (2.5%) of the sale proceeds unless the Seller certifies he is a resident of Maine at the time of closing or is otherwise exempt from the provisions of 36 M.R.S.A. Section 5250-A.

17. **SELLER NOT A FOREIGN PERSON:** The Seller warrants and represents to the Buyer that the Seller is not a "foreign person" as that term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended.

18. **GENERAL PROVISIONS:** This agreement constitutes the entire agreement between Seller and Buyer, and there are no other agreements, understandings, warranties or representations. This agreement will inure to the benefit of and bind the respective heirs, successors and assigns of Seller and Buyer. This agreement may be simultaneously executed in any number of counterparts, each of which, when so executed and delivered shall be deemed an original. This agreement shall be governed by and construed in accordance with the laws of the State of Maine. The signature of a party upon a facsimile copy shall be deemed to be an original. This Option may be recorded at the election of the Buyer.

Dated this 31st day of August, 2001

Witness

Daniel N. Link

Adam Development Co.

Witness

Adam Mack, Vice President

COPY

OPTION TO TRADE PROPERTY

This Agreement is made this 18th day of December, 2001 by and between James A. Rodway (006-54-5763), of Portland, Maine, with a mailing address of 1832 Forest Avenue, Portland, ME 04103 (hereinafter called "Seller") and Adam Development Co. (01-046-7941), and assigns, a Maine corporation with a place of business in Portland, Maine and mailing address of 34 Preble Street, Portland, Maine 04101 (hereinafter referred as "Buyer").

1. PREMISES: This option affects part of the premises of the Seller as described in a deed recorded at the Cumberland County Registry of Deeds in Book 13306, Page 147. This option also affects property Buyer has an option on and currently owned by Dan Link and Service Master of Maine registered in the Cumberland County Registry of Deeds Book 15620 Page 122. The land is further described in Exibit A. Buyer shall obtain frontage on Forest Ave for a total of 52 feet including other property. Seller shall obtain land in back bringing his total area to 12,260 Square Feet.

2. **OPTION TO PURCHASE**: The Buyer shall have the option to trade the Premises upon the following terms and conditions:

a. **OPTION PRICE:** Buyer agrees to pay for the Option $1.00 upon execution of this agreement. All option payments are nonrefundable and do apply to the purchase price.

b. **EXERCISE OF OPTION:** Buyer may exercise the option to trade the property by providing notice to Seller of its intent to purchase the property. Said notice shall be given no later than one year from the date of this agreement.

c. **RIGHT OF ENTRY**: Buyer and Seller shall have the right to enter the Premises during the Option period in order to survey, take soil samples and otherwise test and conduct its due diligence investigations. Buyer and Seller shall also indemnify and hold each other harmless for any damage, injury or liens occasioned by such entry. Buyer or Seller shall at their own expense return the property to substantially the same condition it was in prior to such activities they may have done. This paragraph shall survive the closing.

d. **RECORDING OF OPTION**: The Seller shall execute a memorandum of option for recording at the Registry of Deeds upon request of Buyer.

3. **EXCERSISING THE OPTION:** If Buyer decides to exercise this option he will do so as follows:

a. **NOTICE:** Any time before the expiration of this

option Buyer may notify Seller of his intension to trade the property.

b. **PURCHASE PRICE:** The purchase price for the property shall be $1.00. In addition Buyer will pay have Sellers garage removed from the property and a new one constructed to the approximate position in exhibit A. Buyer shall have 3 months from closing to arrange to have the new garage designed and built. Buyer shall arrange and pay to have the entry to the garage paved when Buyer has other pavement work done on Buyers property. The entry shall be from a road Buyer may build along the 52-foot strip. The pavement shall be the width of the garage plus 2 feet on each side, and the space on Sellers retained property where the garage is to be moved from shall be paved. Buyer shall also give seller a Right of Way across Buyers property to access the garage. The new garage will be approximately the same dimensions as the existing garage. It will have electrical service and 3, 9 foot by 8 foot garage doors. The garage will have vinyl siding with a color to be agreed upon by Buyer and Seller. Buyer also agrees to put either fencing or a line of evergreen trees or shrubs (to be agreed upon by both Buyer and Seller) within 10 feet of the new property lines on both the property lines to witch Buyer and Seller shall be adjoining.

c. **CLOSING:** The closing of this transaction shall take place within sixty days of the notice from Buyer to Seller of the exercise of the Option.

d. **CASH AT CLOSING:** The purchase price, adjusted for any other costs as described in section #6. shall be paid in certified check, wire transfer or other immediately available funds, at time of closing.

4. **TITLE:** Seller and Buyer shall convey the Premises to each other at the closing by Warranty Deed in fee simple with good and marketable title, subject to easements, privileges, restrictions, and agreements of record so long as such encumbrances do not affect Buyer's or Seller's intended use of Premises. If counsel for the Buyer shall be of the opinion, given in good faith, that the title to the property is defective or is otherwise not free and clear of all encumbrances, or is not marketable, the closing shall be postponed for a reasonable period of time during which Seller shall diligently pursue the removal of such defect or encumbrance at his own expense, to the reasonable satisfaction of counsel for Buyer. If the title proves defective and if Seller shall fail to remove such defect or encumbrance within thirty (30) days after notice from Buyer of the nature of the defect or encumbrance, Buyer may, at its election, either: (i) close this transaction notwithstanding the existence of any such defect or encumbrance and without a deduction in the purchase price; or (ii) terminate this

Agreement, in which event Seller shall return the deposit to Buyer, and the parties hereto shall thereafter have no further rights or obligations hereunder.

5 a). **SELLER'S AND BUYER'S WARRANTIES AND REPRESENTATIONS:** Seller and Buyer hereby represents and warrants that as of the date hereof, and as of the date of the closing hereunder:

a. Seller or Buyer has no knowledge of the existence, at any time, of any violations of laws and regulations affecting the Premises. Seller or Buyer has not received any notice or inquiry from any federal, state or local government authority or representative thereof claiming or inquiring into the existence of any such violations.

b. Seller or Buyer has no knowledge of any pending or threatened actions or proceedings regarding condemnation of or encumbrances on the ownership, use or possession of the Premises or any party thereof.

c. There are no underground storage tanks on the Premises.

d. Buyer & Seller represents that the Premises shall be free from any mechanic or material men liens.

e. The Premises are now and will be as of the closing in full compliance with applicable building codes, zoning, environmental and land use laws and all other applicable laws, ordinances and regulations.

5 b). **PROPERTY SOLD AS IS:** Except as described above in section #5. Buyer and Seller agree to trade property as is including any fences, trees, children's play equipment or any thing else that may be on the property. Buyer and Seller further assume all risk as to the condition, legality or safety of any of the property they are to receive or of the above-described items or other items that may be on the property.

6. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS:**

a. All water and sewer charges, rents, current real estate taxes, municipal and sewer assessments against the Premises and all utilities shall be apportioned pro rata between Seller and Buyer as of the date of closing. Real estate taxes and assessments shall be prorated on the basis of the City of Portland tax year.

b. The Maine Real Estate Transfer Tax shall be paid

for by Seller and Buyer according to Maine statutory law.

c. The preparation of the Deed shall be paid by the Buyer. Buyer shall prepare the legal description

d. The Buyer shall pay for surveys and inspections, the title search, recording the deed, and closing services.

e. Any costs associated with adjusting Sellers mortgage shall be paid for by Buyer (up to $500.00).

d. Any deeds, permitting or other regulatory costs of the trade and construction of the garage shall be paid for by Buyer.

7. **POSSESSION:** Seller and Buyer shall deliver possession of Premises to each other at transfer of title free and clear of all leases, tenancies or occupancies by any person.

8. **INDEMNITY:** Buyer and Seller agree to indemnify and hold each other harmless from and against any and all damages, claims, losses, obligations, liabilities and expenses, including reasonable attorney's fees, incurred as a result of the breach of any representation contained in this Contract. The warranties of this Contract shall survive the closing hereunder.

9. **RISK OF LOSS:** The risk of loss or damage to the property by any cause, or of a taking of all or any part of the property by eminent domain, prior to the closing, shall be on Seller and Buyer respectively for the pieces of land they will trade. In the event that, prior to the closing, the property or any portion is taken by eminent domain, Buyer or Seller shall have the option of either (i) terminating this Agreement and receiving back the deposit, or (ii) accepting the insurance proceeds payable be reason of such damage or destruction, or the condemnation award payable by reason of such taking, and closing the transaction contemplated by this Agreement notwithstanding the same, and without reduction in the purchase price.

10. **REMEDIES FOR BREACH:**

a. If Buyer defaults in its performance under this contract, the Seller shall retain the deposit. If Buyer or Seller fails to return the property to substantially the same condition it was in prior to having work done, or a lien was placed on the property from work Buyer or Seller had done, Seller or Buyer may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

11. **NOTICE:** All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been given on the date of service if delivered personally to the party to whom notice is to be given, or on the date of mailing. If mailed, all notices are to be sent by First Class Mail postage prepaid, certified with return receipt requested, addressed as provided above.

12. **BROKERAGE:** Seller and Buyer represent to one another that neither has dealt or had contact with any broker in connection with this transaction and each agrees to indemnify and hold harmless the other from any and all costs, expenses or damages resulting from any claims for brokerage fees or other similar forms of compensation made by any real estate broker or any other person or entity because of the sale of the Premises hereunder.

13. **WITHHOLDING:** The Seller is aware that Maine law requires Buyer to withhold two and one-half percent (2.5%) of the sale proceeds unless the Seller certifies he is a resident of Maine at the time of closing or is otherwise exempt from the provisions of 36 M.R.S.A. Section 5250-A.

14. **SELLER NOT A FOREIGN PERSON:** The Seller warrants and represents to the Buyer that the Seller is not a "foreign person" as that term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended.

15. **GENERAL PROVISIONS:** This agreement constitutes the entire agreement between Seller and Buyer, and there are no other agreements, understandings, warranties or representations. This agreement will inure to the benefit of and bind the respective heirs, successors and assigns of Seller and Buyer. This agreement may be simultaneously executed in any number of counterparts, each of which, when so executed and delivered shall be deemed an original. This agreement shall be governed by and construed in accordance with the laws of the State of Maine. The signature of a party upon a facsimile copy shall be deemed to be an original. This Option may be recorded at the election of the Buyer.

Dated this 18th day of December, 2001

James A. Pato
Witness

James A. Rodway

Adam Development Co.

James A. Pato
Witness

Adam Mack, Vice President

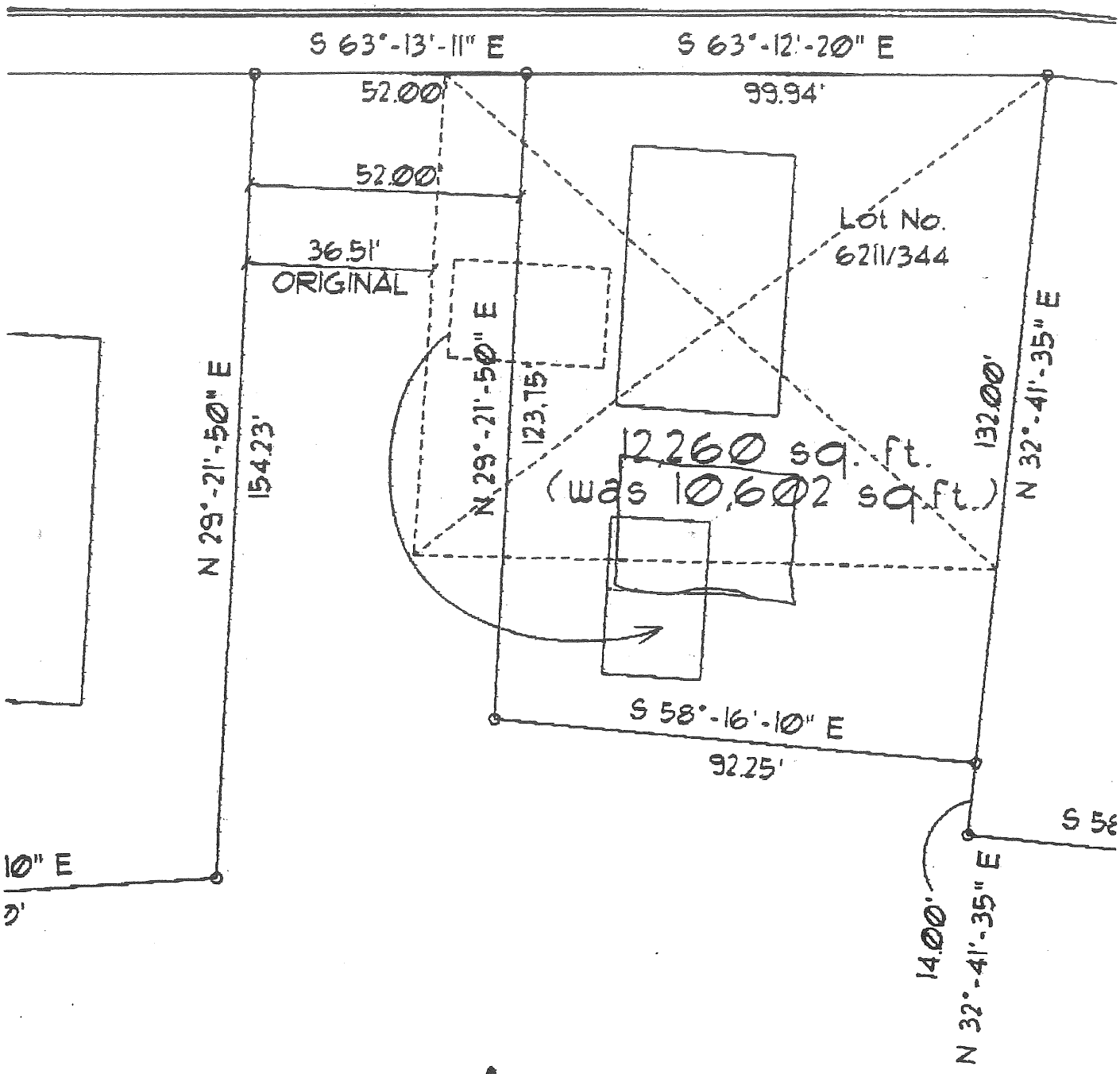

FOREST AVENUE
S 63°-13'-11" E
S 63°-12'-20" E
52.00'
99.94'
52.00'
36.51'
ORIGINAL
Lot No.
6211/344
N 29°-21'-50" E
154.23'
N 29°-21'-50" E
123.75'
12260 sq. ft.
(was 10,602 sq.ft.)
132.00'
N 32°-41'-35" E
S 58°-16'-10" E
92.25'
10" E
14.00'
N 32°-41'-35" E

Exhibit A

AH. #4

A R C H E T Y P E

January 2, 2002

Jonathan Spence
Portland Planning Staff
City of Portland
Congress Street
Portland, ME 04101

RE: Wellesley Estates – Portland, Maine

Dear Mr. Spence,

We are forwarding a copy of the Option to Purchase Agreement between Presumpscott Grange #15 and our client Adam Development Company. The land meets the requirements of an emergency access road from Forest Avenue to our project. We are including a revised site. The emergency access road is already shown on the Civil Engineering drawings.

Please let me know of any further information we can provide.

Sincerely,

David Lloyd

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

OPTION TO PURCHASE

This Agreement is made this 28 day of December, 2001 by and between Presumpscott Grange #15, of Portland, Maine, with a mailing address of 1844 Forest Ave., Portland, ME 04103 (hereinafter called "Seller") and Adam Development Co., and assigns, a Maine corporation with a place of business in Portland, Maine and mailing address of 34 Preble Street, Portland, Maine 04101 (hereinafter referred as "Buyer").

1. PREMISES: This option affects part of the premises of the Seller as described in deed dated August 21, 1947 and recorded at the Cumberland County Registry of Deeds in Book 1871, Page 406, The part to be transferred is a 16 foot strip (exhibit A) along the land owned by Forest Ave. Assoc. The property will extend from Forest Ave. to land currently owned by Dan Link and Service Master of Maine.

16 AM VE

2. **OPTION TO PURCHASE**: The Buyer shall have the option to purchase the Premises upon the following terms and conditions:

a. **OPTION PRICE:** Buyer agrees to pay for the Option $ 2,500.00 upon execution of this agreement. All option payments are nonrefundable and do apply to the purchase price.

b. **EXERCISE OF OPTION:** Buyer may exercise the option to purchase the property by providing notice to Seller of its intent to purchase the property. Said notice shall be given no later than one year from the date of this agreement.

c. **RIGHT OF ENTRY**: Buyer shall have the right to enter the Premises during the Option period in order to survey, take soil samples and otherwise test and conduct its due diligence investigations. Buyer shall have the right after closing to place a construction office (trailer) on the retained grange property close to the property line Buyer obtained. Buyer shall also indemnify and hold Seller harmless for any damage, injury or liens occasioned by such entry. Buyer shall at Buyer's expense return the property to substantially the same condition it was in prior to such activities. This paragraph shall survive the closing.

d. **RECORDING OF OPTION**: The Seller shall execute a memorandum of option for recording at the Registry of Deeds upon request of Buyer.

3. **EXCERSISING THE OPTION:** If Buyer decides to exercise this option he will do so as follows:

a. **NOTICE:** Any time before the expiration of this

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option Buyer may notify Seller of his intension to purchase the property.

b. **PURCHASE PRICE:** The purchase price for the property shall be $ 17,500.00. In addition Seller shall within 4 months of closing have the Grange Building located on a neighboring property (CCRD Book 1088 Page 163) fitted with vinyl siding or painted. Paint or siding color shall be chosen and approved by both Buyer and Seller.

c. **CLOSING:** The closing of this transaction shall take place within sixty days of the notice from Buyer to Seller of the exercise of the Option.

d. **CASH AT CLOSING:** The purchase price, adjusted for any other costs as described in section #6, shall be paid in certified check, wire transfer or other immediately available funds, at time of closing.

4. **TITLE:** Seller shall convey the Premises to Buyer at the closing by Warranty Deed in fee simple with good and marketable title, subject to easements, privileges, restrictions, and agreements of record so long as such encumbrances do not affect Buyer's intended use of Premises. If counsel for the Buyer shall be of the opinion, given in good faith, that the title to the property is defective or is otherwise not free and clear of all encumbrances, or is not marketable, the closing shall be postponed for a reasonable period of time during which Seller shall diligently pursue the removal of such defect or encumbrance at his own expense, to the reasonable satisfaction of counsel for Buyer. If the title proves defective and if Seller shall fail to remove such defect or encumbrance within thirty (30) days after notice from Buyer of the nature of the defect or encumbrance, Buyer may, at its election, either: (i) close this transaction notwithstanding the existence of any such defect or encumbrance and without a deduction in the purchase price; or (ii) terminate this Agreement, in which event Seller shall return the deposit to Buyer, and the parties hereto shall thereafter have no further rights or obligations hereunder.

5. **SELLER'S WARRANTIES AND REPRESENTATIONS:** Seller hereby represents and warrants that as of the date hereof, and as of the date of the closing hereunder:

a. Seller has no knowledge of the existence, at any time, of any violations of laws and regulations affecting the Premises. Seller has not received any notice or inquiry from any federal, state or local government authority or representative thereof claiming or inquiring into the existence of any such

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violations.

b. Seller has no knowledge of any pending or threatened actions or proceedings regarding condemnation of or encumbrances on the ownership, use or possession of the Premises or any party thereof.

c. There are no underground storage tanks on the Premises.

d. Seller represents that the Premises shall be free from any mechanic or material men liens.

e. The Premises are now and will be as of the closing in full compliance with applicable building codes, zoning, environmental and land use laws and all other applicable laws, ordinances and regulations.

6. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS:**

a. All water and sewer charges, rents, current real estate taxes, municipal and sewer assessments against the Premises and all utilities shall be apportioned pro rata between Seller and Buyer as of the date of closing. Real estate taxes and assessments shall be prorated on the basis of the City of Portland tax year.

b. The Maine Real Estate Transfer Tax shall be paid for by Seller and Buyer according to Maine statutory law.

c. The preparation of the Deed shall be paid by the Seller. Buyer shall prepare the legal description

d. The Buyer shall pay for surveys and inspections, the title search, recording the deed, and closing services.

7. **POSSESSION:** Seller shall deliver possession of Premises to Buyer at transfer of title free and clear of all leases, tenancies or occupancies by any person.

8. **INDEMNITY:** Buyer and Seller agree to indemnify and hold each other harmless from and against any and all damages, claims, losses, obligations, liabilities and expenses, including reasonable attorney's fees, incurred as a result of the breach of any representation contained in this Contract. The warranties of this Contract shall survive the closing hereunder.

9. **RISK OF LOSS:** The risk of loss or damage to the property by any cause, or of a taking of all or any part of the

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property by eminent domain, prior to the closing, shall be on Seller. In the event that, prior to the closing, the property or any portion is taken by eminent domain, Buyer shall have the option of either (i) terminating this Agreement and receiving back the deposit, or (ii) accepting the insurance proceeds payable be reason of such damage or destruction, or the condemnation award payable by reason of such taking, and closing the transaction contemplated by this Agreement notwithstanding the same, and without reduction in the purchase price.

10. **REMEDIES FOR BREACH:**

a. If Buyer defaults in its performance under this contract, the Seller shall retain the deposit. If Buyer fails to return the property to substantially the same condition it was in prior to having work done, or a lien was placed on the property from work Buyer had done, Seller may employ all legal and equitable remedies. Attorney fees shall be awarded to the prevailing party.

b. If Seller defaults in his performance under this contract, the Buyer may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

11. **NOTICE:** All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been given on the date of service if delivered personally to the party to whom notice is to be given, or on the date of mailing. If mailed, all notices are to be sent by First Class Mail postage prepaid, certified with return receipt requested, addressed as provided above.

12. **BROKERAGE:** Seller and Buyer represent to one another that neither has dealt or had contact with any broker in connection with this transaction and each agrees to indemnify and hold harmless the other from any and all costs, expenses or damages resulting from any claims for brokerage fees or other similar forms of compensation made by any real estate broker or any other person or entity because of the sale of the Premises hereunder.

13. **WITHHOLDING:** The Seller is aware that Maine law requires Buyer to withhold two and one-half percent (2.5%) of the sale proceeds unless the Seller certifies he is a resident of Maine at the time of closing or is otherwise exempt from the provisions of 36 M.R.S.A. Section 5250-A.

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14. **SELLER NOT A FOREIGN PERSON:** The Seller warrants and represents to the Buyer that the Seller is not a "foreign person" as that term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended.

15. **GENERAL PROVISIONS:** This agreement constitutes the entire agreement between Seller and Buyer, and there are no other agreements, understandings, warranties or representations. This agreement will inure to the benefit of and bind the respective heirs, successors and assigns of Seller and Buyer. This agreement may be simultaneously executed in any number of counterparts, each of which, when so executed and delivered shall be deemed an original. This agreement shall be governed by and construed in accordance with the laws of the State of Maine. The signature of a party upon a facsimile copy shall be deemed to be an original. This Option may be recorded at the election of the Buyer.

Dated this 28 day of December, 2001

I Presumpscot Grange #150

Presumpscot Grange #150

Witness

Virginia E. Ewell MASTER
VIRGINIA EWELL

Adam Development Co.

Witness

Adam Mack, Vice President

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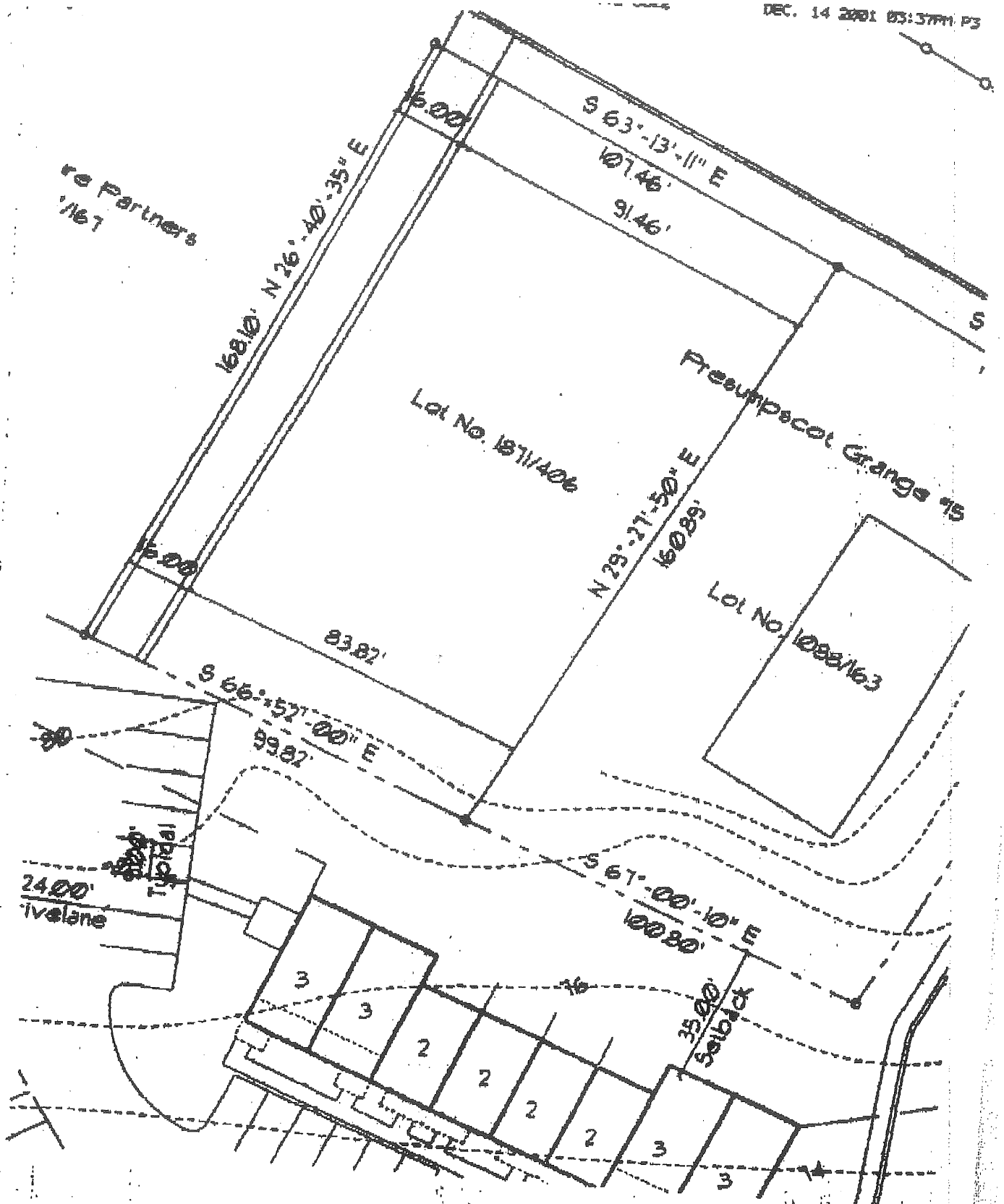

S 63°-13'-11" E
107.46'
91.46'
6.00'
168.10' N 26°-40'-35" E
Lot No. 1871/406
Presumpscot Grange #15
N 29°-21'-50" E
160.89'
Lot No. 1088/163
83.82'
S 66°-57'-00" E
99.87'
24.00'
Ivelane
S 67°-00'-10" E
160.80'
35.00'
Setback
3
2
2
2
2
3
3

Exhibit A

AH. #5

Traffic Impact Study
Proposed Wellesley Estates Housing Development
Portland Maine, Maine

Index

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VIII.	2002 Post Development Traffic	6
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Appendix A

Location Map
Turning Movement Diagrams

Appendix B

Capacity Analyses

Appendix C

Collision Diagrams

Executive Summary

The following Executive Summary is prepared for the reader's convenience, but is not intended to be a substitute for reading the full report.

Gorrill-Palmer Consulting Engineers, Inc. was retained by Archetype of Portland, Maine to complete a traffic impact study for the proposed development of a 45-unit subdivision in Portland Maine, south of Forest Avenue, known as Wellesley Estates.

The following is a summary of the major findings of the traffic study:

1. The proposed site is forecast to generate 26 trip ends for the AM peak hour, and 31 trip ends during the PM peak hour.

2. The level of service analysis shows that all locations within the study area will operate at an acceptable level of service.

3. The accident history indicates that the following locations within the study area are high crash locations:

   - Forest Avenue at Riverside Industrial Parkway
   - Forest Avenue at Riverton Drive
   - Forest Avenue from Riverton Drive to Riverside Street

4. The sight lines exiting the proposed site drive at Forest Avenue are adequate. The area of the site drive is not a high crash location, so it is our opinion that the sight lines will provide adequate safety.

   Gorrill-Palmer Consulting Engineers, Inc. recommends that all plantings that will be located within the right of way, not exceed 3 feet in height and be maintained at or below that height. Signage should not interfere with sight lines. In addition, we recommend that during construction, when heavy equipment is entering and exiting into the site, that appropriate measures, such as signage and flag persons, be utilized in accordance with the Manual on Uniform Traffic Control Devices.

Based on these findings, it is the opinion of Gorrill-Palmer Consulting Engineers, Inc. that the local transportation network can accommodate traffic generated by the proposed development.

I. *Existing and Proposed Site*

The existing site is located south of Forest Avenue. It is currently undeveloped, consisting of a mixture of woodlands and brushed areas. Proposed for the site is a 45-lot residential housing, to be completed by 2002. One driveway connecting to Forest Avenue would service the site. The location of the site can be found on Figure 1 in Appendix A.

II. *Background Traffic Conditions*

Gorrill-Palmer Consulting Engineers, Inc. based the study on the following information:

- A concept plan prepared by Archetype dated December 7, 2001.
- Turning movement volumes collected by Gorrill-Palmer Consulting Engineers, Inc. from 7:00 to 9:00 AM and again from 4:00 PM to 6:00 PM on December 11, 2001 at the following locations:
  - Forest Avenue at Riverton Drive
  - Forest Avenue at Riverside Industrial Parkway

Following the count, it was determined that the peak hours were 7:15 to 8:15 AM and 4:30 to 5:30 PM. The 2001 raw turning volumes compiled by Gorrill-Palmer Consulting Engineers, Inc. are presented in Figures 2 and 3 of Appendix A for the AM and PM peak hours, respectively.

Predevelopment Traffic Volumes

Seasonal Adjustment

The MDOT utilizes highway classifications of I, II, or III for state and local roadways. Type I roadways are defined as urban roadways, or those roads that typically see commuter traffic and experience little fluctuation from week to week throughout the year. Type II roadways, or arterial roadways are those that see a combination of commuter and recreational traffic and therefore experience moderate fluctuations during the year. Type III roadways, or recreational roadways are typically used for recreational purposes and experience significant seasonal fluctuation.

Forest Avenue is designated as an urban, or Type I, roadway. Typically, volumes are adjusted to reflect the 30th highest hour of traffic volumes, in accordance with MDOT guidelines. Therefore, volumes have been increased 17 percent to estimate the 30th highest hour.

Annual Growth

The proposed development is anticipated to be fully operational by 2002. The roadway volumes were increased by three percent per year to reflect traffic increases in the area.

Background Growth

Gorrill-Palmer Consulting Engineers, Inc. contacted the City of Portland planning department to determine whether there are any projects approved or in the approval process whose traffic should be added into this projects predevelopment volumes, and found that there are no other projects in the vicinity of this project.

The raw volumes were seasonally adjusted and annually adjusted, to yield the 2002 predevelopment volumes as shown on Figures 4 and 5 in Appendix A for the AM and PM peak hours, respectively.

III. *High Crash Locations*

In order to evaluate whether a location has a crash problem, MDOT uses two criteria to define High Crash Locations (HCL). Both criteria must be met in order to be classified as a HCL.

1. A critical rate factor of 1.00 or more for a three-year period. (A Critical Rate Factor {CRF} compares the actual crash rate to the rate for similar intersections in the State. A CRF of less than 1.00 indicates a rate less than average) and:
2. A minimum of 8 crashes over a three-year period.

Gorrill-Palmer Consulting Engineers, Inc. obtained the crash data for 1998-2000 for the study area locations. This information is shown in the following tables:

High Crash Locations for 1998-2000: Intersections

Node	Intersection	# of Collisions	CRF	HCL?
7309	Forest Avenue / Castine Avenue	0	0.00	No
3735	Riverside Industrial Parkway / Forest Avenue	11	1.18	Yes
8928	Riverton Drive / Forest Avenue	9	1.06	Yes
7310	Forest Avenue / Riverside Street	33	0.86	No
7311	Portland / Westbrook Town Line	0	0.00	No

High Crash Locations for 1998-2000: Road Segments

Nodes	Street	From	To	# of Collisions	CRF	HCL?
7309 – 3735	Forest Avenue	Castine Avenue	Riverside Industrial Parkway	3	2.22	No
3735 – 8928	Forest Avenue	Riverside Industrial Parkway	Riverton Drive	8	0.44	No
8928 – 7310	Forest Avenue	Riverton Drive	Riverside Street	12	1.60	Yes
7310 – 7311	Forest Avenue	Riverside Street	Portland / Westbrook Town Line	11	0.66	No

As can be seen by the above tables, there are three HCL's within the study area, as listed below:

- Forest Avenue at Riverside Industrial Parkway
- Forest Avenue at Riverton Drive
- Forest Avenue from Riverton Drive to Riverside Street

Forest Avenue at Riverside Industrial Parkway

The crash history at this location shows a pattern of passenger vehicles turning right from Riverside Industrial Parkway on to Forest Avenue colliding with heavy trucks trying to make the same turn. The majority of these accidents appear to be the result of the driver of the passenger vehicle being unaware that the larger vehicle was turning right, and as a result improperly passing them on the right. We recommend that Riverside Industrial Parkway should be restriped with better lane designation. IN addition we recommend that that the city investigate the possibility of relocating the parcel post drop off boxes at the intersection on Riverside Industrial Parkway.

Forest Avenue at Riverton Drive

This location experienced nine collisions for the most recent three-year period. Of these, seven collisions were due to conflicts between vehicles entering Riverton Avenue and those traveling along Forest Avenue. Forest Avenue in this area has a very wide travel lane, approximately 18 feet. It has been our observation that this width leads to excessive speeds in this area, and when combined with a horizontal curve south of this location and inadequate signage for Riverton, collisions may be the result. Gorrill-Palmer Consulting Engineers, Inc. recommends that the City investigate restriping the travelway along Forest Avenue to 12 feet, and that improved signage be posted to clearly designate the intersection.

Forest Avenue from Riverton Drive to Riverside Street

The collisions at this location consisted of 1 head on, 3 rear-end, 4 side-swipe and 4 angle collisions. The majority of the collisions in this location appear to be related vehicles turning into or out of the convenience store located on the corner of Riverside Street and Forest Avenue.

IV. *Trip Generation*

Gorrill-Palmer Consulting Engineers, Inc. has estimated the potential trip generation for the proposed development consisting of 45 Townhouse Apartments utilizing the Institute of Transportation Engineers (ITE) publication, *Trip Generation*, 6th Edition. Two Land Use Codes (LUC's) were referenced for the purposes of trip generation, LUC 220, Apartment and LUC 221, Low-Rise Apartment. The trip generation results are illustrated in the following table:

Trip Rates for Proposed Housing Development

Source	AM Peak Hour		PM Peak Hour	
	Rate	Trips	Rate	Trips
ITE LUC 220	0.56	26	0.67	31
ITE LUC 221	0.51	23	0.62	29

As can be seen by the above table, trip generation rates for apartments results in greater trip generation. Therefore, Gorrill-Palmer Consulting Engineers, Inc. has based trip generation of the LUC 220 estimates for the purposes of this study.

V. *Trip Distribution*

Gorrill-Palmer Consulting Engineers, Inc. has obtained the ratio of entering and exiting traffic from the Institute of Transportation Engineers publication *Trip Generation*, 6th Edition. The distribution for LUC 220, Apartment has been determined to be the following:

AM Peak Hour: 30% Entering, 70% Exiting
PM Peak Hour: 60% Entering, 40% Exiting

VI. *Trip Composition*

Gorrill-Palmer Consulting Engineers, Inc. has based the trip composition for the project to be entirely primary trips. This composition is typical of housing.

VII. *Trip Assignment*

Gorrill-Palmer Consulting Engineers, Inc. utilized the existing roadway and traffic patterns to determine the trip assignment for traffic generated by the proposed project. The trip distribution is shown on Figures 6 and 7 of Appendix A. The trip assignment is shown on Figures 8 and 9 for the AM and PM peak hours, respectively.

VIII. *2002 Post-development Traffic*

The anticipated year 2002 predevelopment traffic shown in Figures 4 and 5 has been combined with the trip assignment shown on Figures 8 and 9 to yield the 2002 post development traffic shown in Figures 10 and 11 in Appendix A for the AM and PM peak hours, respectively.

IX. *Study Area*

Gorrill-Palmer Consulting Engineers, Inc. has included the following intersections for examination and analysis for the purposes of this study:

- Forest Avenue / Riverton Drive
- Forest Avenue / Riverside Industrial Parkway
- Forest Avenue / Site Drive

X. *Capacity Analyses*

Gorrill-Palmer Consulting Engineers, Inc. completed analyses for the intersections listed above. The study area intersections were evaluated using the HCS 2000 software package. Level of service rankings are similar to the academic ranking system where an 'A' is very good with little delay and an 'F' represents very poor conditions. At an unsignalized intersection, if the level of service falls below a 'D', an evaluation should be made to determine if a traffic signal is warranted.

The following table summarizes the relationship between control delay and level of service for unsignalized intersections:

Level of Service Criteria for Unsignalized Intersections

Level of Service	Total Control Delay per Vehicle (sec/veh)
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

Gorrill-Palmer Consulting Engineers, Inc. based our analyses on the existing roadway configuration for the predevelopment conditions, and with the proposed changes for the postdevelopment conditions. These improvements are listed, where applicable, at each location in the following section.

The analyses have been based on Figures 4, 5, 10 and 11 of Appendix A. The results of the capacity analyses for the AM and PM peak hours are summarized below. The detailed computer printouts are included in Appendix B.

Site Drive at Forest Ave

Analysis for this intersection was performed with and summarized below.

Level of Service for Site Drive at Forest Ave

Approach	Level of Service – Total Delay			
	2005 AM Peak Hour		2005 PM Peak Hour	
	Postdevelopment		Postdevelopment	
	Delay	LOS	Delay	LOS
Site Drive NB	23	A	32	D
Forest Ave WB	10	C	9	A

As can be seen from the previous table, the proposed intersection of the site drive and Forest Avenue operates at an acceptable level of service for all scenarios analyzed.

Riverton Drive at Forest Ave.

Analysis for this intersection was performed with existing geometrics for all scenarios.

Level of Service for Riverton Drive at Forest Ave.

Approach	Level of Service – Total Delay							
	2002 AM Peak Hour				2002 PM Peak Hour			
	Predevelopment		Postdevelopment		Predevelopment		Postdevelopment	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Riverton NB	37	E	37	E	64	F	67	F
Forest Ave WB	11	B	11	B	10	A	10	A

As can be seen from the previous table, the Riverton operates at a low level of service, however this is not uncommon for local streets that intersect with arterial streets. Increases in delay at this location are negligible.

Riverside Industrial Parkway at Forest Ave

Analysis for this intersection was performed with existing geometrics for all scenarios.

Level of Service for Riverside Industrial Parkway at Forest Ave.

Approach	Level of Service – Total Delay							
	2005 AM Peak Hour				2005 PM Peak Hour			
	Predevelopment		Postdevelopment		Predevelopment		Postdevelopment	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Forest Ave EB	10	A	10	A	11	B	11	B
Riverside PWY SB	>100	F	>100	F	61	F	63	F

As can be seen from the previous table, the Riverside Parkway operates at a low level of service. However, as stated above, this is not uncommon for local streets that intersect with arterial streets. Increases in delay at this location are negligible.

XI. *Sight Lines*

The Maine Department of Transportation publication "Access Management, Improving the Efficiency of Maine Arterials" provides recommended sight distance based on entrance classifications. The classifications are as follows:

Low Volume Entrance: Entrances with a traffic volume of less than 500 vehicle-trips per day or 50 or less vehicle-trips per peak hour.

Medium Volume Entrance: Entrances with a traffic volume of 500 to less than 1,500 vehicle-trips per day, or 50 to less than 150 trips per peak hour.

High Volume Entrance: Entrances with a traffic volume of 1,500 or more vehicle-trips per day or 150 or more vehicle-trips per peak hour.

Based on the post-development volumes, all study area entrances are low to medium-volume entrances. The sight distance standards for low and medium-volume driveways are shown in the following table:

MDOT Standards for Sight Distance – Low and Medium-Volume Entrance

Speed (mph)	Sight Distance
25	250
30	300
35	350
40	400
45	450
50	500
55	550

Gorrill-Palmer Consulting Engineers, Inc. has evaluated the available sight lines at the proposed driveways in accordance with MDOT standards.

The MDOT standards are as follows:

Driveway observation point:	10 feet off major street travelway
Height of eye at driveway:	3 ½ feet above ground
Height of approaching vehicle:	4 ¼ feet above road surface

The design speed used for the major road is generally the 85th percentile travel speed. This is the speed which 85% of the traffic is traveling at or below. The posted speed limit for Forest Avenue is 30 mph, the estimated 85th percentile speed, 35 mph. The results of the sight line analyses are summarized on the following tables:

Forest Avenue at Site Drive

Direction	85th Percentile Speed (mph)	Recommended Sight Line (ft)	Actual Sight Line (ft)
Exiting onto Forest Avenue Looking:			
Left	35	350	425
Right	35	350	640

The sight lines exiting the proposed site drive at Forest Avenue are adequate. The area of the site drive is not a high crash location, so it is our opinion that the sight lines will provide adequate safety.

Gorrill-Palmer Consulting Engineers, Inc. recommends that all plantings that will be located within the right of way, not exceed 3 feet in height and be maintained at or below that height. Signage should not interfere with sight lines. In addition, we recommend that during construction, when heavy equipment is entering and exiting into the site, that appropriate measures, such as signage and flag persons, be utilized in accordance with the Manual on Uniform Traffic Control Devices.

XII. *Conclusions*

The following is a summary of the major findings of the traffic study:

1. The proposed site is forecast to generate 26 trip ends for the AM peak hour, and 31 trip ends during the PM peak hour.
2. The level of service analysis shows that all locations within the study area will operate at an acceptable level of service.
3. The accident history indicates that the following locations within the study area are High Crash Locations:

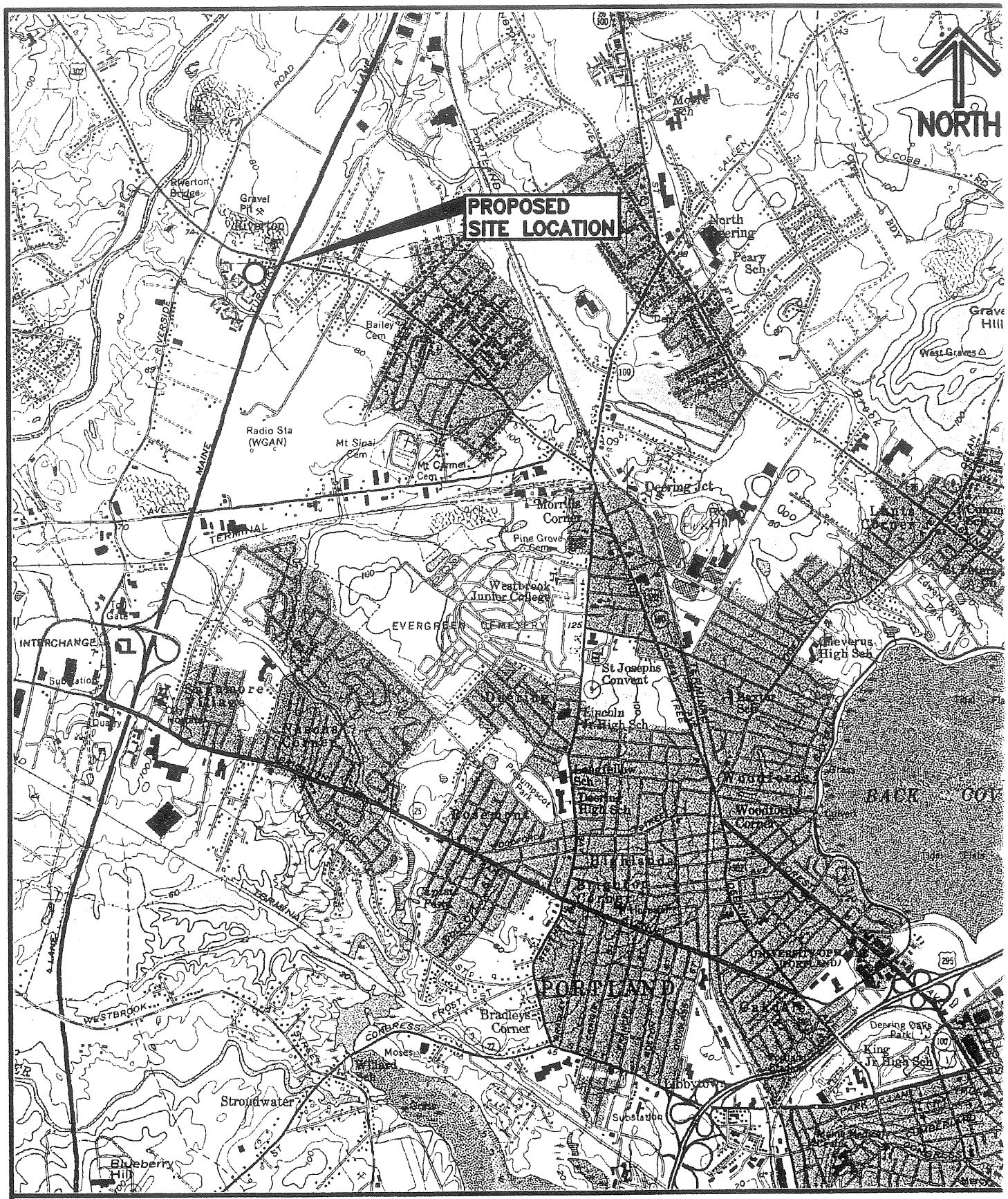
- Forest Avenue at Riverside Industrial Parkway
- Forest Avenue at Riverton Drive
- Forest Avenue from Riverton Drive to Riverside Street

4. The sight lines exiting the proposed site drive at Forest Avenue are adequate. The area of the site drive is not a high crash location, so it is our opinion that the sight lines will provide adequate safety.

   Gorrill-Palmer Consulting Engineers, Inc. recommends that all plantings that will be located within the right of way, not exceed 3 feet in height and be maintained at or below that height. Signage should not interfere with sight lines. In addition, we recommend that during construction, when heavy equipment is entering and exiting into the site, that appropriate measures, such as signage and flag persons, be utilized in accordance with the Manual on Uniform Traffic Control Devices.

Based on these findings, it is the opinion of Gorrill-Palmer Consulting Engineers, Inc. that the local transportation network can accommodate traffic generated by the proposed development.

Appendix A



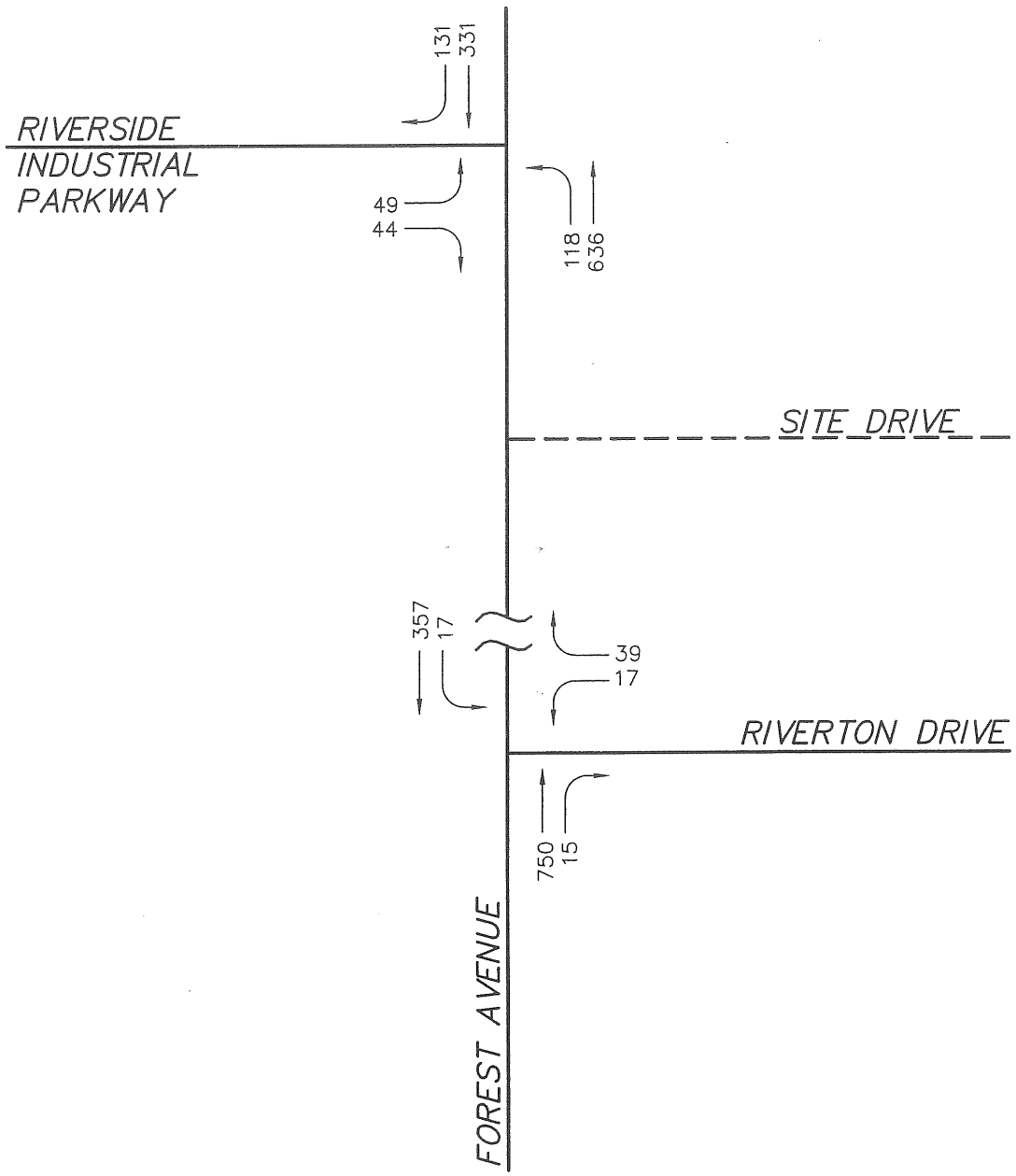
U.S.G.S. Location Map

Wellesley Estates - Portland, Maine

U.S.G.S. Portland-West, Maine-7.5 Minute Series (Topographic)

Design: RJS	Date: DEC 2001	Gorrill–Palmer Consulting Engineers, Inc.	Figure 1
Draft: DB	Job No.: 442	*Traffic and Civil Engineering Services*	
Checked: TLG	Scale: None		
File Name: 442–LOCMAP.DWG			

PO Box 1237
26 Main Street
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: gpcel@maine.rr.com



AM PEAK HOUR: 7:15–8:15

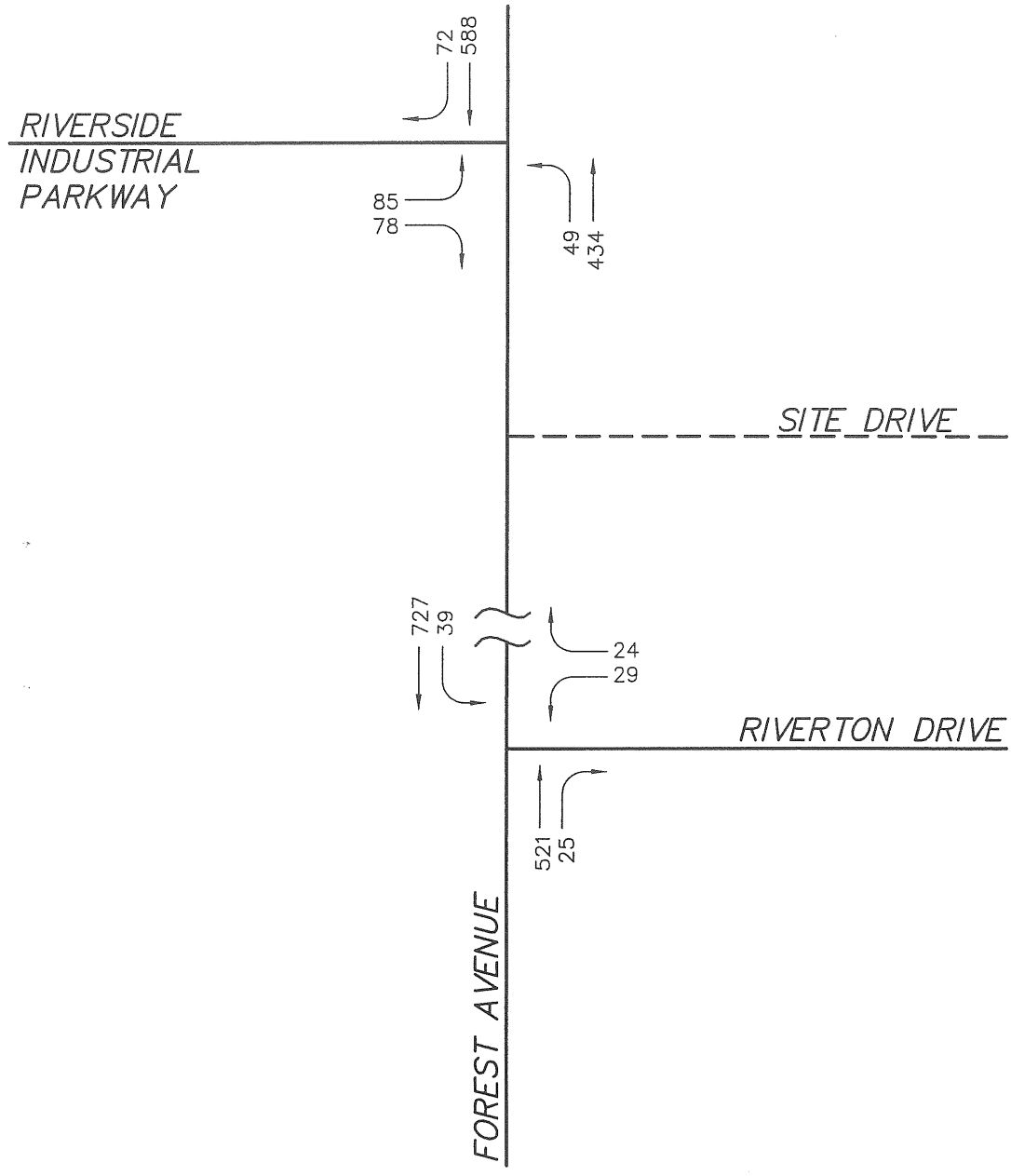
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Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: Raw Data

Project: WELLESLEY ESTATES

Figure No. 2



PM PEAK HOUR: 4:30–5:30

Design: RJB	Date: DEC 2001	Gorrill-Palmer Consulting Engineers, Inc. *Traffic and Civil Engineering Services* PO Box 1237, 26 Main Street Gray, ME 04039 207-657-6910	Drawing Name: Raw Data
Draft: DB	Job No.: 442		Project: WELLESLEY ESTATES
Checked: RCN	Scale: NTS		Figure No. 3
File Name: 442-TRAF-REV.DWG			

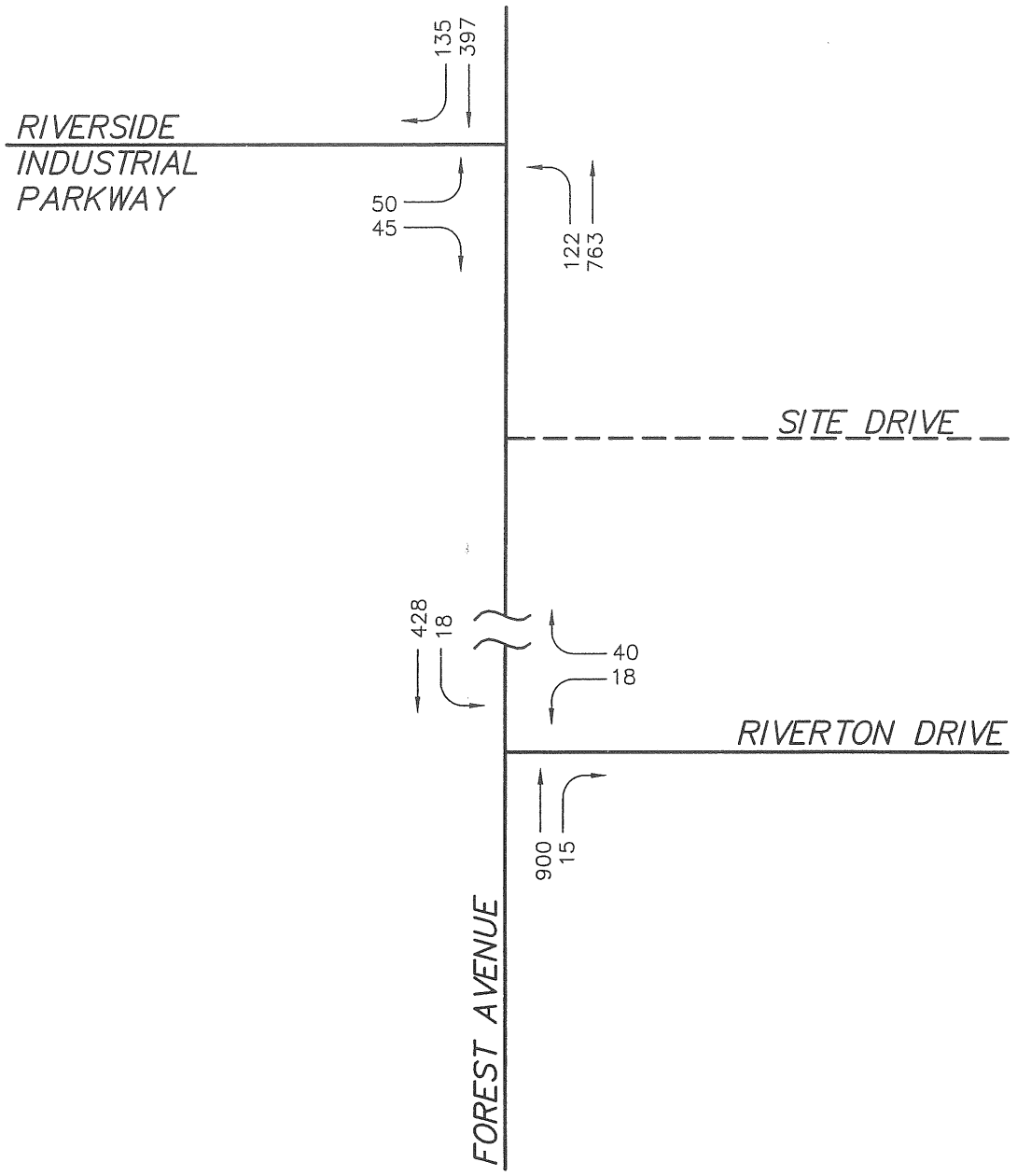
ADJUSTMENTS

SEASONAL: $\frac{1.03}{0.88} = 1.17$

ANNUAL: $(1.03)^1 = 1.03$

TOTAL: 1.20

ONLY FOREST AVE. TRAFFIC SEASONALLY ADJUSTED



AM PEAK HOUR: 7:15–8:15

Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

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Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: 2002 Predevelopment Volumes

Project: WELLESLEY ESTATES

Figure No. 4

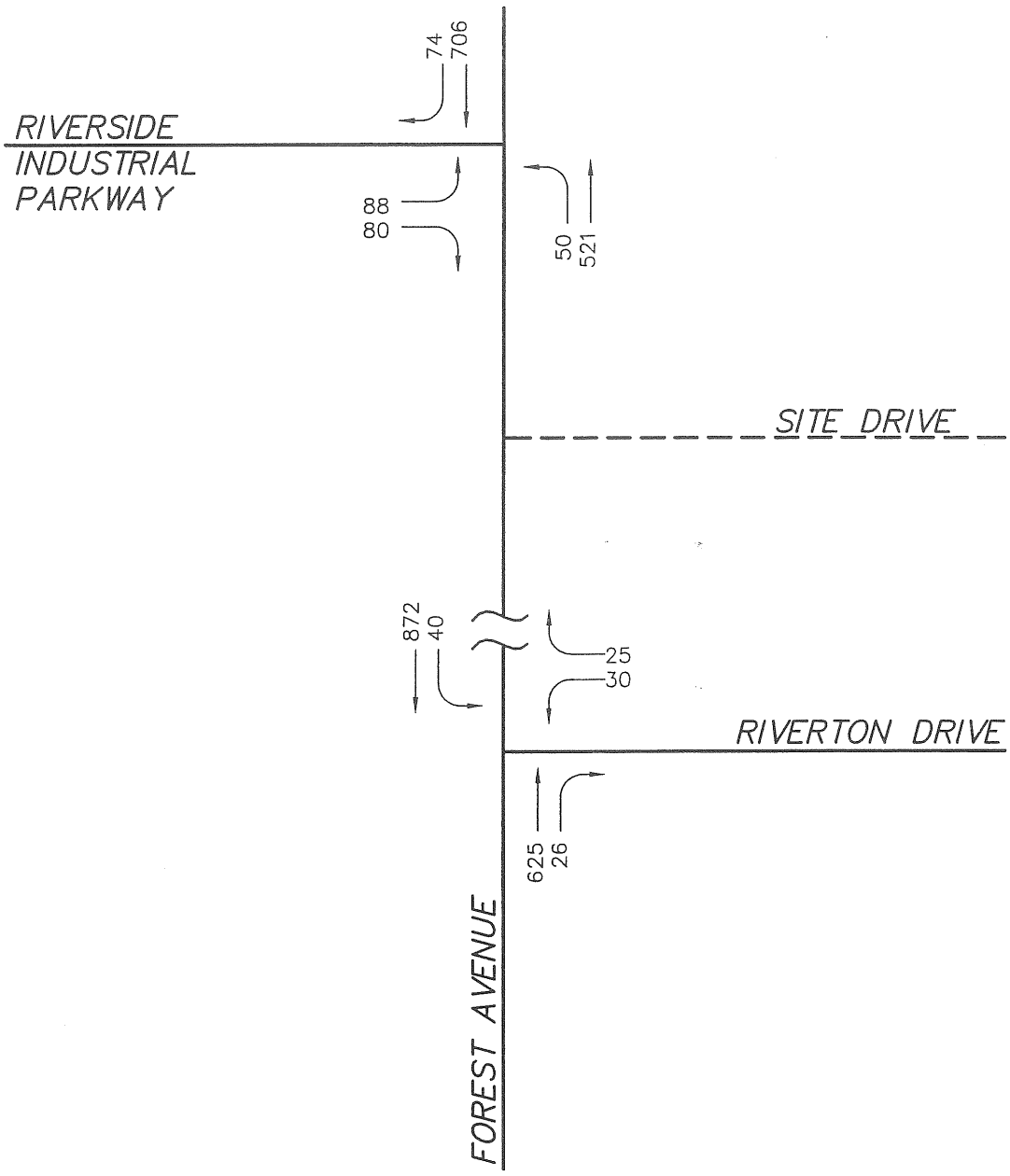
ADJUSTMENTS

SEASONAL: $\frac{1.03}{0.88} = 1.17$

ANNUAL: $(1.03)^1 = 1.03$

TOTAL: 1.20

ONLY FOREST AVE. TRAFFIC SEASONALLY ADJUSTED



PM PEAK HOUR: 4:30–5:30

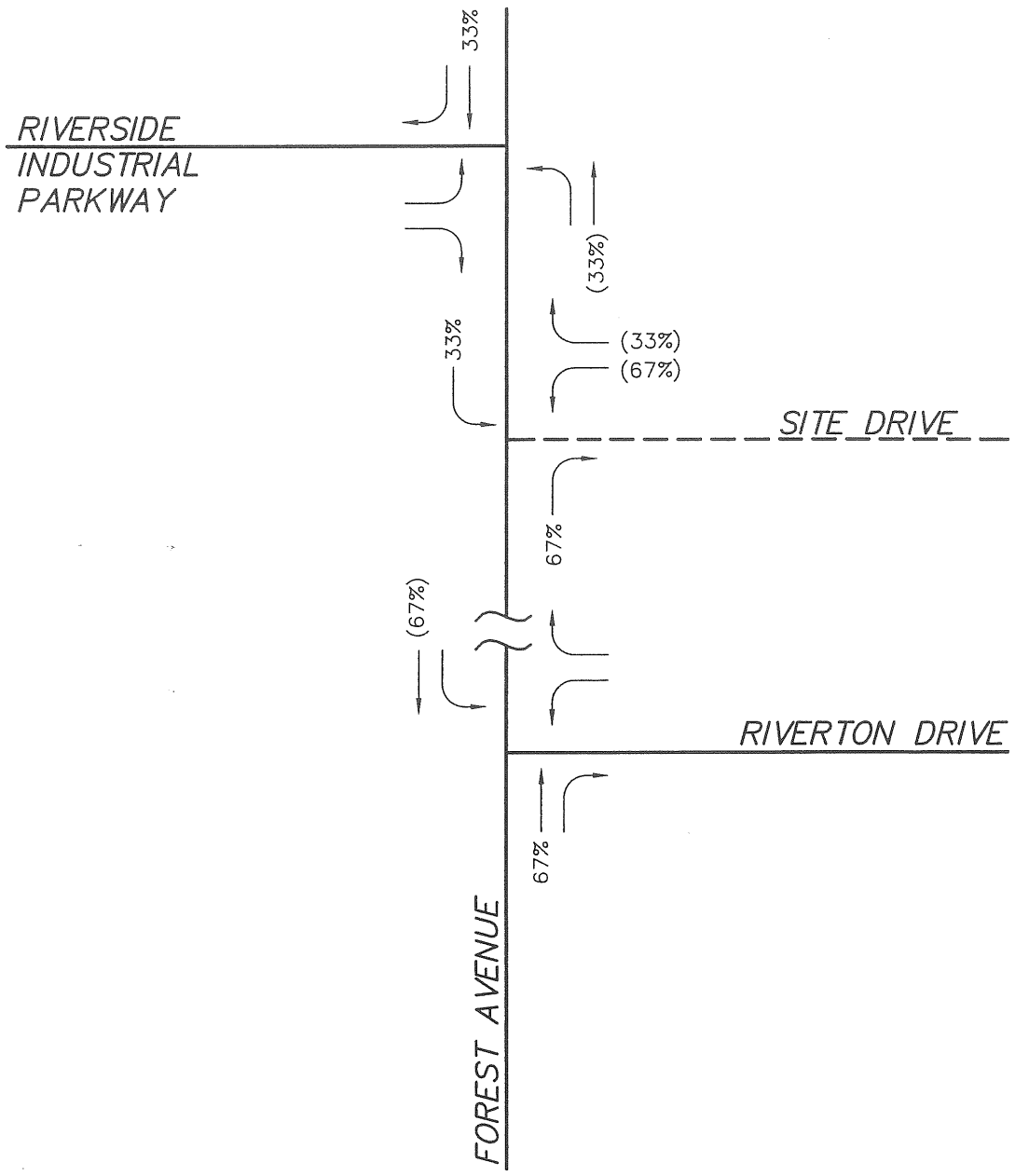
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Draft: DB	Job No.: 442
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File Name: 442–TRAF–REV.DWG	

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: 2002 Predevelopment Volumes

Project: WELLESLEY ESTATES

Figure No. 5



XX% = ENTER
(XX%) = EXIT

AM PEAK HOUR: 7:15–8:15

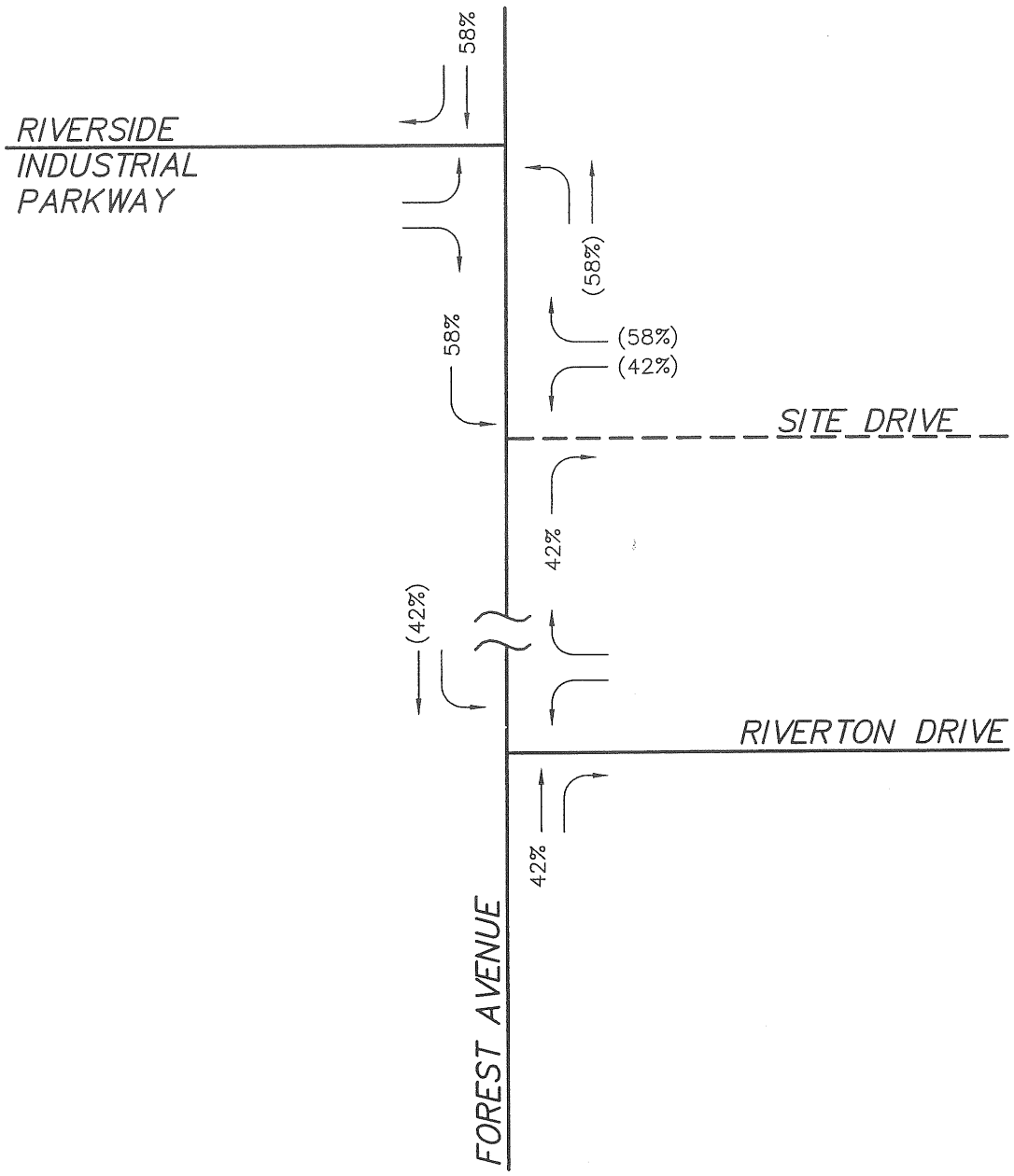
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Draft: DB	Job No.: 442		
Checked: RCN	Scale: NTS		
File Name: 442–TRAF–REV.DWG			

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: TRIP DISTRIBUTION

Project: WELLESLEY ESTATES

Figure No. 6



XX% = ENTER
(XX%) = EXIT

PM PEAK HOUR: 4:30–5:30

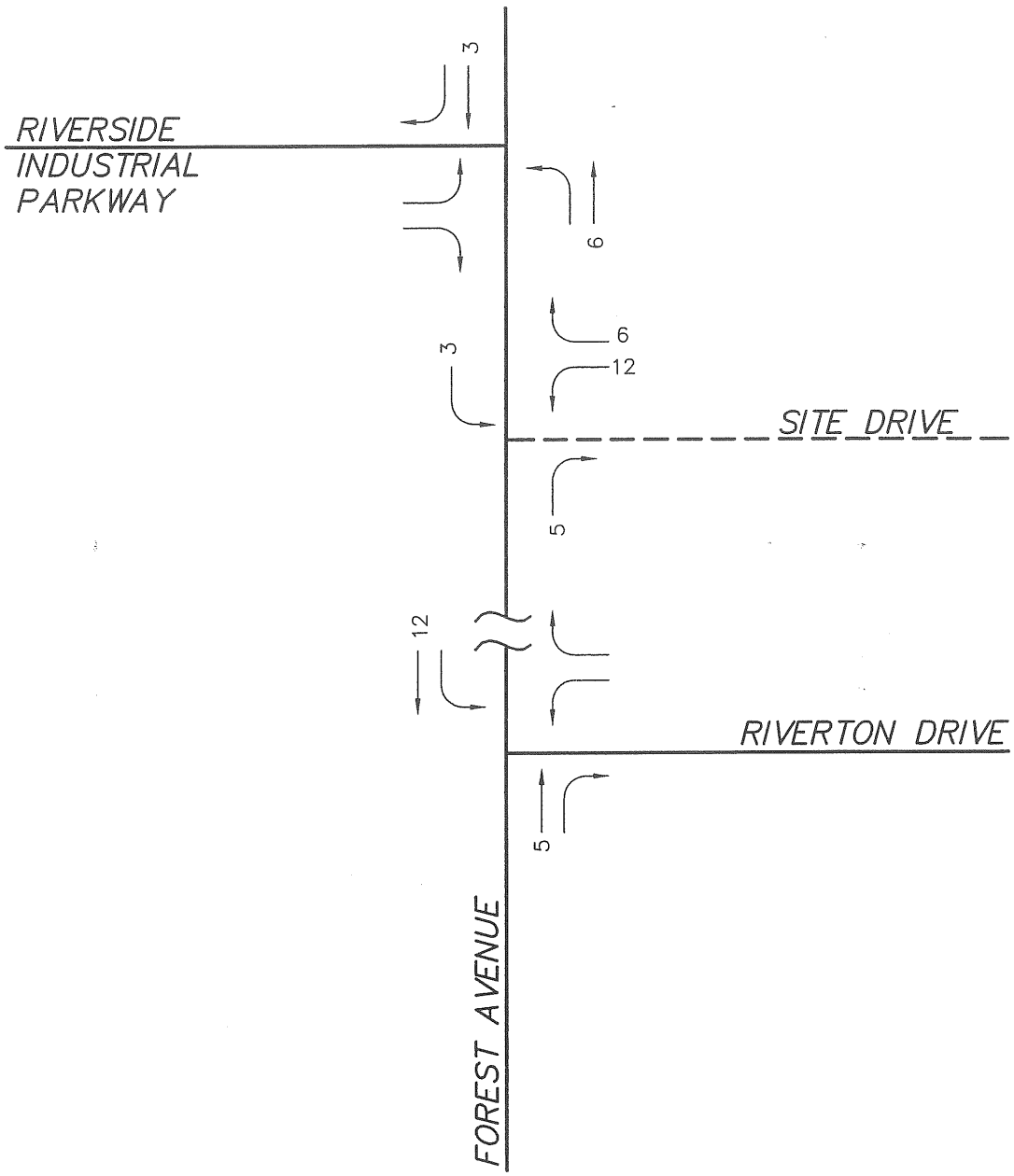
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Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: TRIP DISTRIBUTION

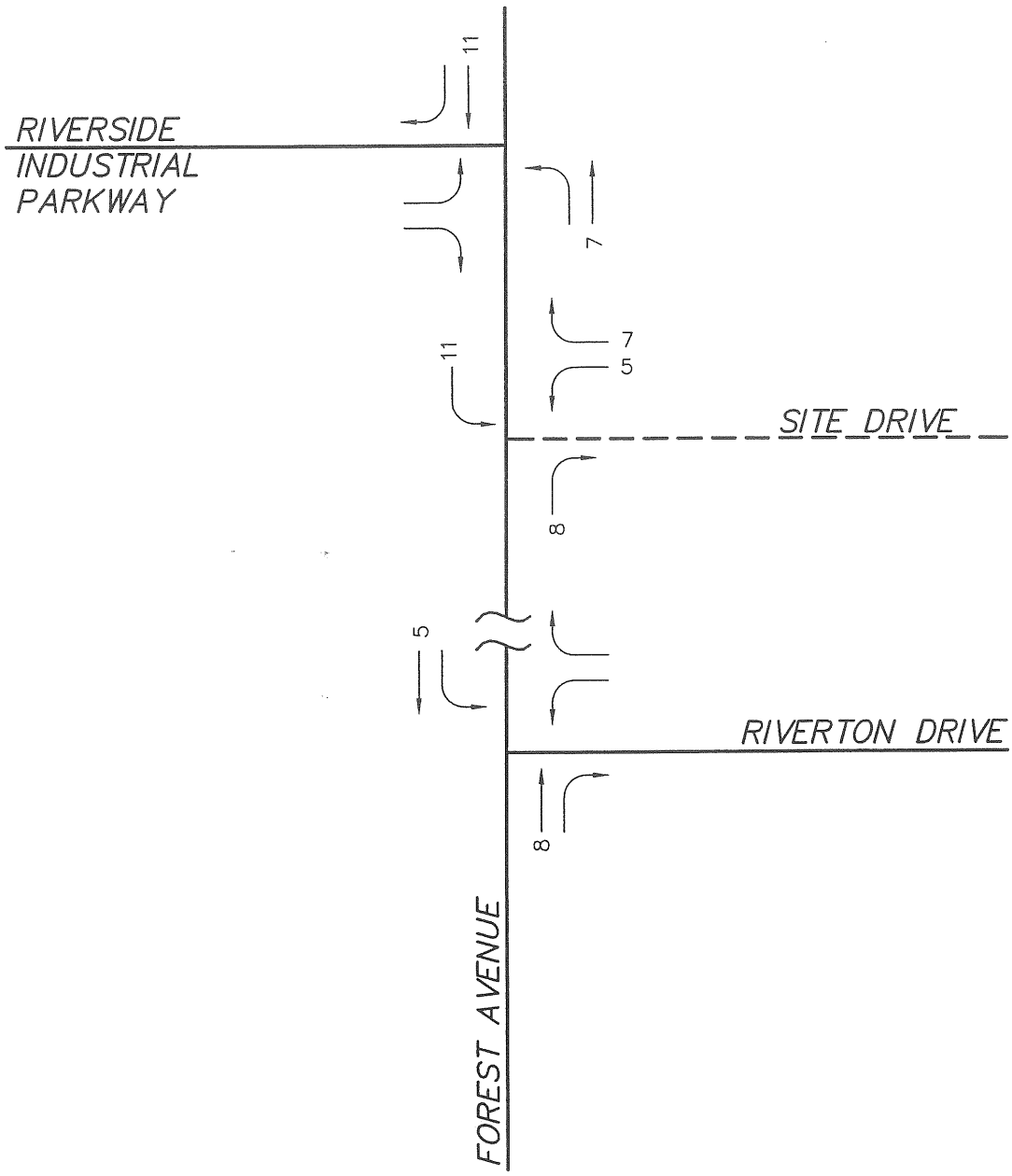
Project: WELLESLEY ESTATES

Figure No. 7



AM PEAK HOUR: 7:15–8:15

Design: RJB	Date: DEC 2001	Gorrill-Palmer Consulting Engineers, Inc. *Traffic and Civil Engineering Services*	Drawing Name: TRIP ASSIGNMENT
Draft: DB	Job No.: 442	PO Box 1237, 26 Main Street Gray, ME 04039 207-657-6910	Project: WELLESLEY ESTATES
Checked: RCN	Scale: NTS		Figure No. 8
File Name: 442-TRAF-REV.DWG			



PM PEAK HOUR: 4:30–5:30

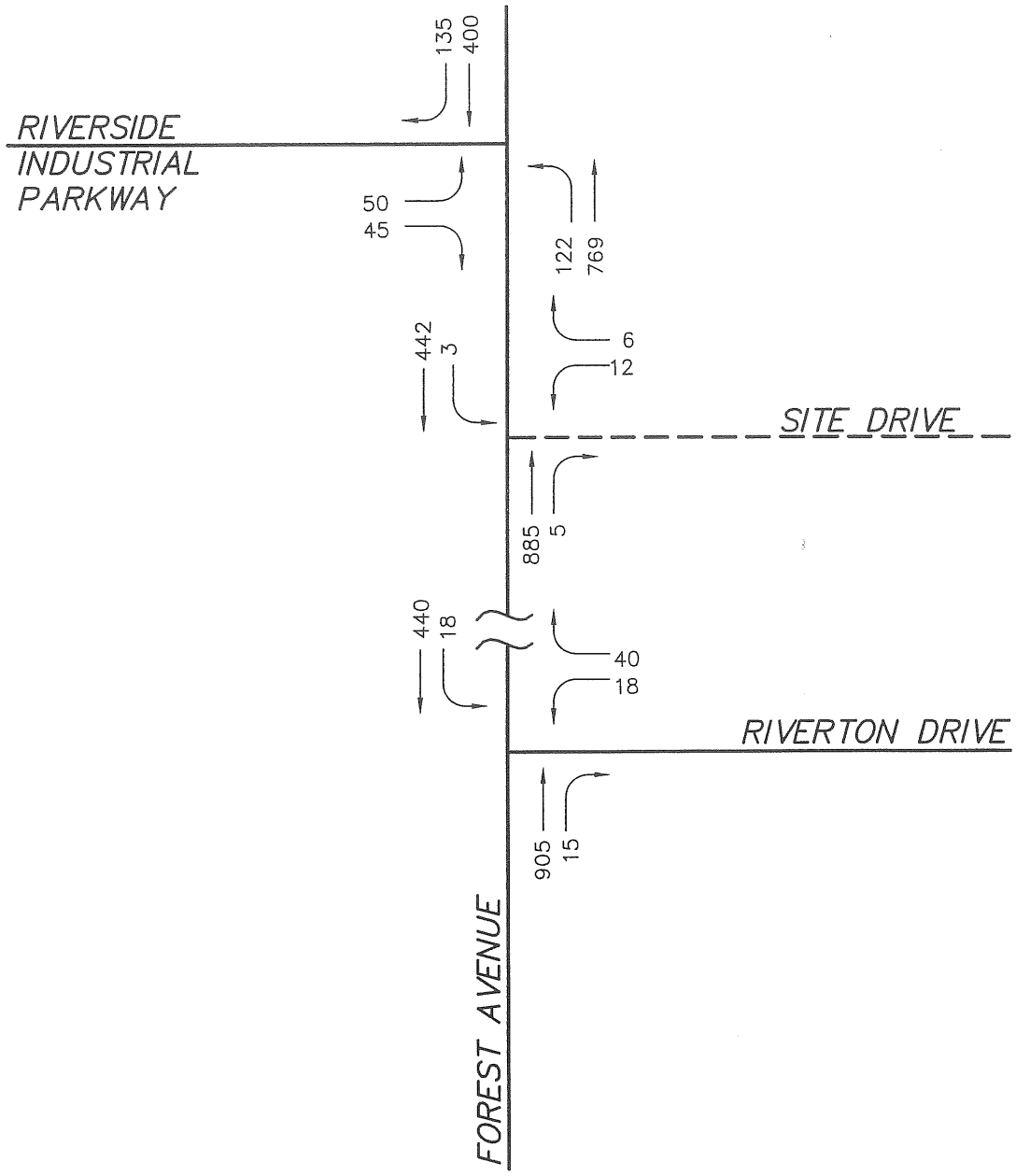
Design: RJB	Date: DEC 2001		
Draft: DB	Job No.: 442		
Checked: RCN	Scale: NTS		
File Name: 442–TRAF–REV.DWG			

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: TRIP ASSIGNMENT

Project: WELLESLEY ESTATES

Figure No. 9



AM PEAK HOUR: 7:15–8:15

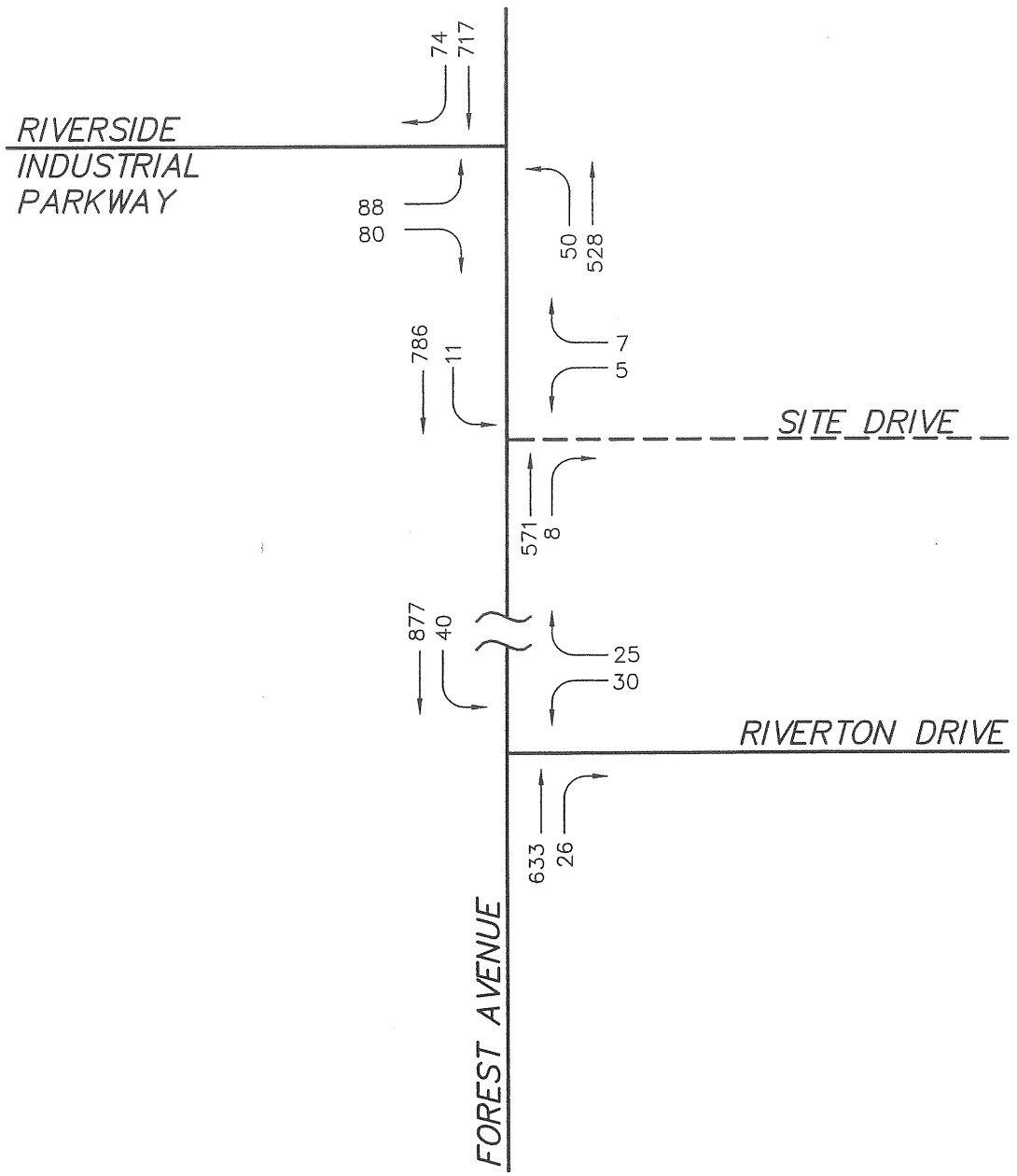
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Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: POST DEVELOPMENT

Project: WELLESLEY ESTATES

Figure No. 10



PM PEAK HOUR: 4:30–5:30

Design: RJB	Date: DEC 2001
Draft: DB	Job No.: 442
Checked: RCN	Scale: NTS
File Name: 442–TRAF–REV.DWG	

Gorrill–Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237, 26 Main Street
Gray, ME 04039
207–657–6910

Drawing Name: Post Development

Project: WELLESLEY ESTATES

Figure No. 11

Appendix B

TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*7-9 am*

Site Information

Intersection	*Site Drive*
Jurisdiction	
Analysis Year	*2002 Post*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Site Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*885*	*5*	*3*	*442*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.92*	*0.68*	*0.81*	*1.00*
Hourly Flow Rate, HFR	*0*	*951*	*5*	*4*	*545*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*12*	*0*	*6*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*12*	*0*	*6*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*4*		*18*				
C (m) (vph)		*727*		*165*				
v/c		*0.01*		*0.11*				
95% queue length		*0.02*		*0.37*				
Control Delay		*10.0-*		*29.5*				
LOS		*A*		*D*				
Approach Delay	--	--	*29.5*					
Approach LOS	--	--	*D*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*4:00 - 6:00 PM*

Site Information

Intersection	*Site Drive*
Jurisdiction	
Analysis Year	*2002 Post*
Project ID	*442*

East/West Street: *Forest Avenue*

North/South Street: *Site Drive*

Intersection Orientation: *East-West*

Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*571*	*8*	*11*	*786*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.78*	*0.61*	*0.87*	*0.82*	*1.00*
Hourly Flow Rate, HFR	*0*	*732*	*13*	*12*	*958*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*5*	*0*	*7*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*5*	*0*	*7*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*12*		*12*				
C (m) (vph)		*872*		*179*				
v/c		*0.01*		*0.07*				
95% queue length		*0.04*		*0.22*				
Control Delay		*9.2*		*26.6*				
LOS		*A*		*D*				
Approach Delay	--	--		*26.6*				
Approach LOS	--	--		*D*				

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*7-9 am*

Site Information

Intersection	*Riverton Drive*
Jurisdiction	
Analysis Year	*2002 PRE*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverton Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*900*	*15*	*18*	*428*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.75*	*0.71*	*0.84*	*1.00*
Hourly Flow Rate, HFR	*0*	*967*	*20*	*25*	*509*	*0*
Percent Heavy Vehicles	*0*	--	--	*30*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*18*	*0*	*40*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.61*	*1.00*	*0.87*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*29*	*0*	*45*	*0*	*0*	*0*
Percent Heavy Vehicles	*6*	*0*	*10*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*25*		*74*				
C (m) (vph)		*600*		*187*				
v/c		*0.04*		*0.40*				
95% queue length		*0.13*		*1.90*				
Control Delay		*11.3*		*36.7*				
LOS		*B*		*E*				
Approach Delay	--	--	*36.7*					
Approach LOS	--	--	*E*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*7-9 am*

Site Information

Intersection	*Riverton Drive*
Jurisdiction	
Analysis Year	*2002 POST*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverton Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*905*	*15*	*18*	*440*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.93*	*0.75*	*0.71*	*0.84*	*1.00*
Hourly Flow Rate, HFR	*0*	*973*	*20*	*25*	*523*	*0*
Percent Heavy Vehicles	*0*	--	--	*30*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*18*	*0*	*40*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.61*	*1.00*	*0.87*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*29*	*0*	*45*	*0*	*0*	*0*
Percent Heavy Vehicles	*6*	*0*	*10*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*25*		*74*				
C (m) (vph)		*597*		*184*				
v/c		*0.04*		*0.40*				
95% queue length		*0.13*		*1.95*				
Control Delay		*11.3*		*37.6*				
LOS		*B*		*E*				
Approach Delay	--	--		*37.6*				
Approach LOS	--	--		*E*				

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*4-6 pm*

Site Information

Intersection	*Riverton Drive*
Jurisdiction	
Analysis Year	*2002 PRE*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverton Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*625*	*26*	*40*	*872*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.78*	*0.70*	*0.94*	*1.00*
Hourly Flow Rate, HFR	*0*	*718*	*33*	*57*	*927*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*0*	*25*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.75*	*1.00*	*0.81*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*40*	*0*	*30*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*7*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*57*		*70*				
C (m) (vph)		*854*		*130*				
v/c		*0.07*		*0.54*				
95% queue length		*0.21*		*3.17*				
Control Delay		*9.5*		*63.8*				
LOS		*A*		*F*				
Approach Delay	--	--	*63.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*4-6 pm*

Site Information

Intersection	*Riverton Drive*
Jurisdiction	
Analysis Year	*2002 POST*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverton Drive*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*633*	*26*	*40*	*877*	*0*
Peak-Hour Factor, PHF	*1.00*	*0.87*	*0.78*	*0.70*	*0.94*	*1.00*
Hourly Flow Rate, HFR	*0*	*727*	*33*	*57*	*932*	*0*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*30*	*0*	*25*	*0*	*0*	*0*
Peak-Hour Factor, PHF	*0.75*	*1.00*	*0.81*	*1.00*	*1.00*	*1.00*
Hourly Flow Rate, HFR	*40*	*0*	*30*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*7*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (vph)		*57*		*70*				
C (m) (vph)		*847*		*127*				
v/c		*0.07*		*0.55*				
95% queue length		*0.22*		*3.30*				
Control Delay		*9.6*		*66.8*				
LOS		*A*		*F*				
Approach Delay	--	--	*66.8*					
Approach LOS	--	--	*F*					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*7-9 am*

Site Information

Intersection	*Riverside PWY*
Jurisdiction	
Analysis Year	*2002 PRE*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverside PWY*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*122*	*763*	*0*	*0*	*397*	*135*
Peak-Hour Factor, PHF	*0.92*	*0.93*	*1.00*	*1.00*	*0.81*	*0.68*
Hourly Flow Rate, HFR	*132*	*820*	*0*	*0*	*490*	*198*
Percent Heavy Vehicles	*6*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*50*	*0*	*45*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.82*	*1.00*	*0.79*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*60*	*0*	*56*
Percent Heavy Vehicles	*0*	*0*	*0*	*18*	*0*	*30*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (vph)	*132*						*116*	
C (m) (vph)	*888*						*136*	
v/c	*0.15*						*0.85*	
95% queue length	*0.52*						*9.11*	
Control Delay	*9.8*						*140.3*	
LOS	*A*						*F*	
Approach Delay	--	--					*140.3*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*RJB*	Intersection	*Riverside PWY*
Agency/Co.	*Gorrill-Palmer*	Jurisdiction	
Date Performed	*12/17/01*	Analysis Year	*2002 POST*
Analysis Time Period	*7-9 am*	Project ID	*442*

East/West Street: *Forest Avenue*	North/South Street: *Riverside PWY*
Intersection Orientation: *East-West*	Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*122*	*769*	*0*	*0*	*400*	*135*
Peak-Hour Factor, PHF	*0.92*	*0.93*	*1.00*	*1.00*	*0.81*	*0.68*
Hourly Flow Rate, HFR	*132*	*826*	*0*	*0*	*493*	*198*
Percent Heavy Vehicles	*6*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*50*	*0*	*45*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.82*	*1.00*	*0.79*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*60*	*0*	*56*
Percent Heavy Vehicles	*0*	*0*	*0*	*18*	*0*	*30*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (vph)	*132*						*116*	
C (m) (vph)	*885*						*134*	
v/c	*0.15*						*0.87*	
95% queue length	*0.53*						*9.44*	
Control Delay	*9.8*						*148.6*	
LOS	*A*						*F*	
Approach Delay	--	--					*148.6*	
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*4-6 pm*

Site Information

Intersection	*Riverside PWY*
Jurisdiction	
Analysis Year	*2002 PRE*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverside PWY*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*50*	*521*	*0*	*0*	*706*	*74*
Peak-Hour Factor, PHF	*0.61*	*0.78*	*1.00*	*1.00*	*0.82*	*0.87*
Hourly Flow Rate, HFR	*81*	*667*	*0*	*0*	*860*	*85*
Percent Heavy Vehicles	*12*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*88*	*0*	*80*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.76*	*1.00*	*0.57*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*115*	*0*	*140*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (vph)	*81*						*255*	
C (m) (vph)	*687*						*145*	
v/c	*0.12*						*1.76*	
95% queue length	*0.40*						*61.25*	
Control Delay	*10.9*							
LOS	*B*						*F*	
Approach Delay	--	--						
Approach LOS	--	--					*F*	

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*RJB*
Agency/Co.	*Gorrill-Palmer*
Date Performed	*12/17/01*
Analysis Time Period	*4-6 pm*

Site Information

Intersection	*Riverside PWY*
Jurisdiction	
Analysis Year	*2002 POST*
Project ID	*442*

East/West Street: *Forest Avenue* | North/South Street: *Riverside PWY*

Intersection Orientation: *East-West* | Study Period (hrs): *1.00*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*50*	*528*	*0*	*0*	*717*	*74*
Peak-Hour Factor, PHF	*0.61*	*0.78*	*1.00*	*1.00*	*0.82*	*0.87*
Hourly Flow Rate, HFR	*81*	*676*	*0*	*0*	*874*	*85*
Percent Heavy Vehicles	*12*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*88*	*0*	*80*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.76*	*1.00*	*0.57*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*115*	*0*	*140*
Percent Heavy Vehicles	*0*	*0*	*0*	*1*	*0*	*4*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*1*	*0*
Configuration					*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (vph)	*81*						*255*	
C (m) (vph)	*678*						*141*	
v/c	*0.12*						*1.81*	
95% queue length	*0.41*						*63.07*	
Control Delay	*11.0*							
LOS	*B*						*F*	
Approach Delay	--	--						
Approach LOS	--	--					*F*	

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Appendix C

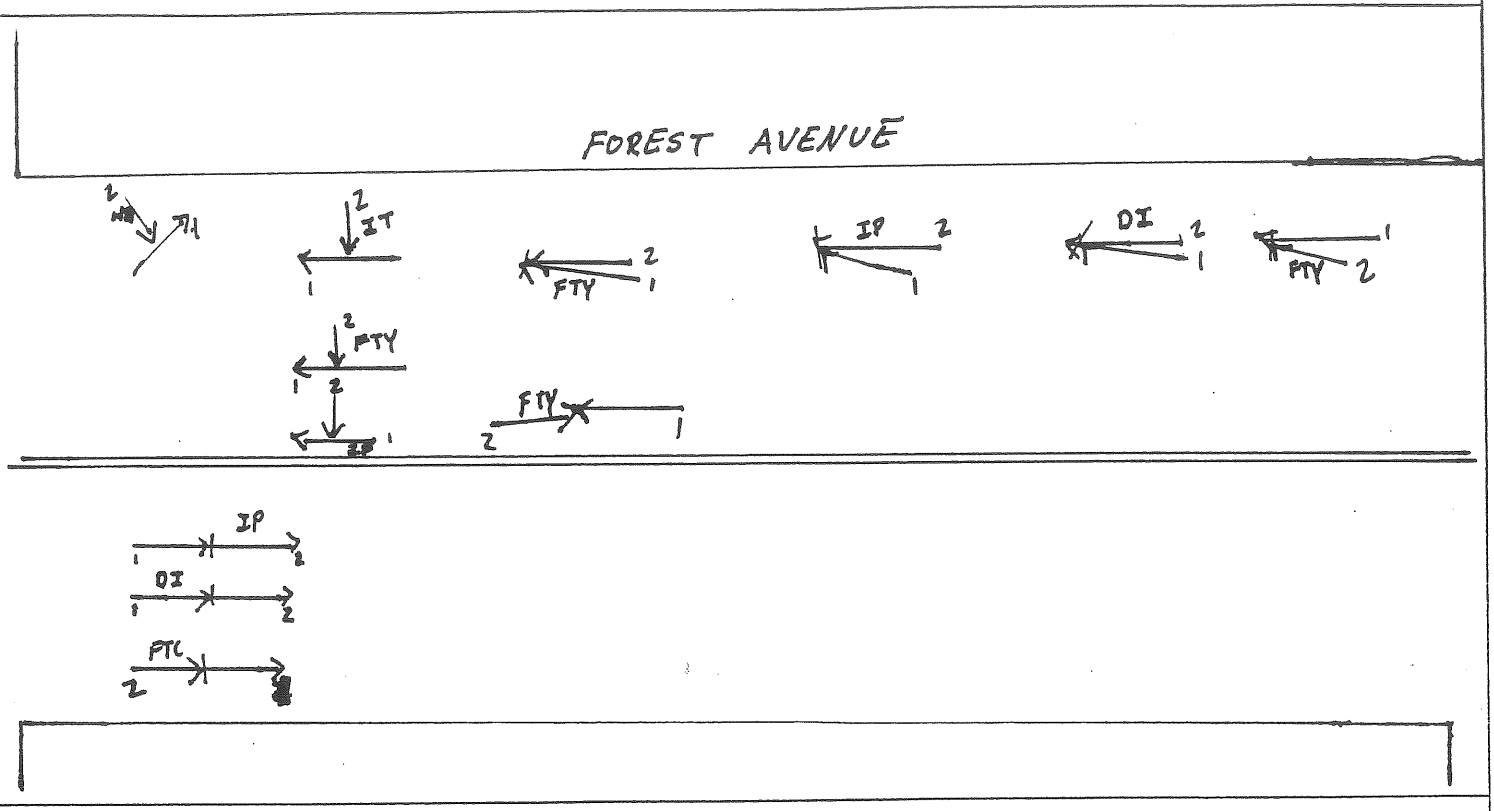
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION FOREST AVENUE

TOWN Portland NODE NO(S) 7310-8928

YEAR(S) REVIEWED 1998-2000 DATE PREPARED 12-14-01



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE/PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER - NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION - DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED - WINDSHIELD GLASS
19. VISION OBSCURED - SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 48. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE	→	PEDESTRIAN	→P	FATAL ACCIDENT	●
BACKING	←←	REAR END	→|		
FIXED OBJECT	→□	SIDE SWIPE	⇉	VEHICLE (MOVING)	→
HEAD ON	→|←	TURNING MOVE	↩	BICYCLE	---B
OVERTURN	→○	CHANGE LANE	⇉	ANIMAL	---A
PARKED VEHICLE	▨	OUT OF CONTROL	↝	SLED	---S

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
98102 64	3-11-98	1823					DARK-4 S.L.	DRY-1	1,10	SIDESWIPE (1617)
98 29541	8-19-98	1645					DAYLIGHT-2	DRY-1	4,1	FTC
9835402	10-8-98	1505					DAYLIGHT-2	WET-2	1,14	Inattention
98 39510	11-6-98	2015					DARK-4 S.L.	DRY-1	1,7	IMPROPER PASS
98 45228	12-14-98	1450					DUSK-1	DRY-1	1,2	FTY (1617)
99 11361	3-13-99	1550					DAYLIGHT-2	DRY-1	2,1	FTY (1617)
99 21114	4-25-99	0858					DAYLIGHT-2	DRY-1	1,7	Improper Pass

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION FOREST AVENUE

TOWN Portland NODE NO(S) 7316 - 8928

YEAR(S) REVIEWED 1998 - 2000 DATE PREPARED 12-14-01

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
993539	9-21-99	1620					DAYLIGHT-2	WET - 2	1, 2	(1917)
9943549	12-7-99	0905					DUSK - 1	WET - 2	1, 14	Inattention
0003182	1-19-00	1500					DAYLIGHT-2	WET- 2	1, 2	FTY
0010544	2-20-00	2053					DARK-4 S.L.	WET-2	1, 31	(1917) POSSIBLE OUI
00 25973	8-27-00	1421				1	DAYLIGHT-2	DRY-1	7, 1	(1917)

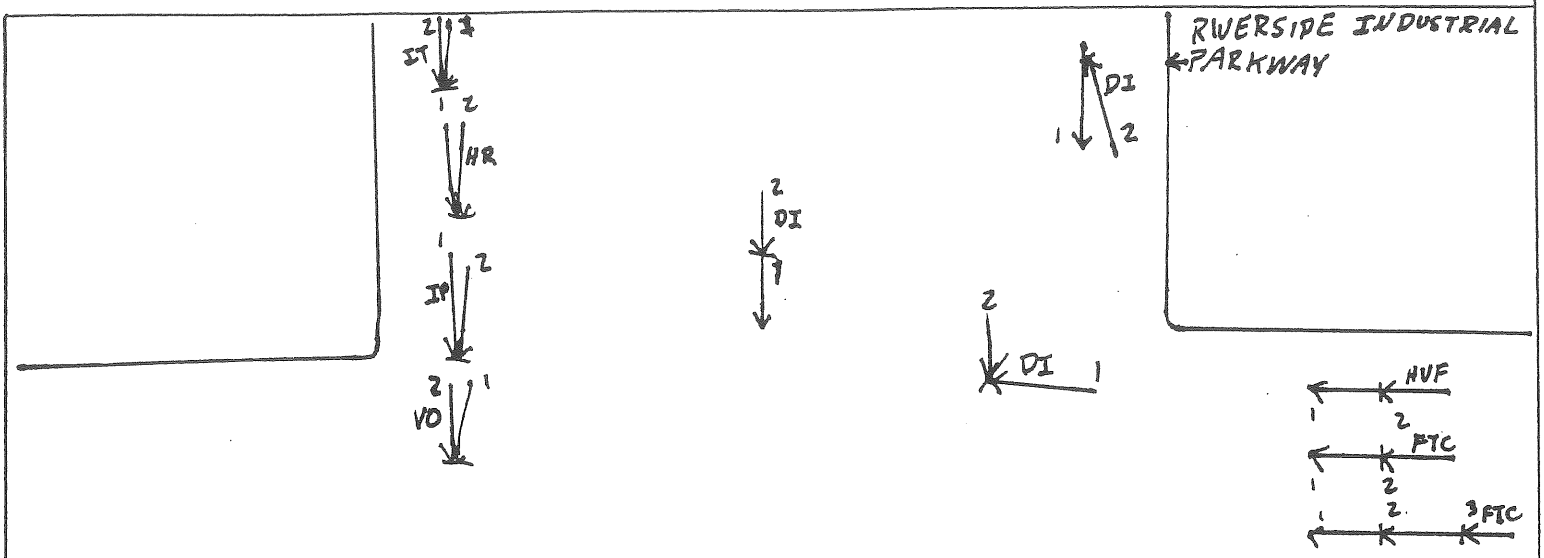
COLLISION DIAGRAM

SHEET 1 OF 2

LOCATION FOREST AVENUE at RIVERSIDE INDUSTRIAL PARKWAY

TOWN Portland NODE NO(S) 3735

YEAR(S) REVIEWED 1998-2000 DATE PREPARED 12-14-01



FOREST AVENUE

CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE/PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER - NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION - DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED - WINDSHIELD GLASS
19. VISION OBSCURED - SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE	PEDESTRIAN (P)	FATAL ACCIDENT	●
BACKING	REAR END		
FIXED OBJECT	SIDE SWIPE	VEHICLE (MOVING)	→
HEAD ON	TURNING MOVE	BICYCLE	(B)
OVERTURN	CHANGE LANE	ANIMAL	(A)
PARKED VEHICLE	OUT OF CONTROL	SLED	(S)

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CL = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
9823609	6-16-98	0722					DAYLIGHT-2	WET-2	7, 1	IMPROPER PASS
9822292	6-23-98	1255					DAYLIGHT-2	DRY-1	1, 31	HIT + RUN
9826915	7-30-98	2337					DARK-5	DRY-1	1, 30	HIT + RUN
9828941	8-14-98	1600					DAYLIGHT-2	DRY-1	1, 14	BEES
9844205	12-8-98	1642				2	DUSK-3	SNOW-8	1, 4	Tailgate
9912416	3-7-99	0829					DAYLIGHT-2	DRY-1	1, 14	Inattention
9916624	5-1-99	1755					DAYLIGHT-2	DRY-1	1, 10	IMPROPER TURN

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION FOREST AVENUE at RIVERSIDE INDUSTRIAL PARKWAY

TOWN Portland NODE NO(S) 3735

YEAR(S) REVIEWED 1998-2000 DATE PREPARED 12-14-01

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
9917357	5-6-99	0732					DAYLIGHT-2	DRY-1	1,14	Inattention
9934228	9-13-99	1315					DAYLIGHT-2	DRY-1	20,20	Improper pass
0007032	2-17-00	1546				1	DAYLIGHT-2	ICE-9	1,4,4	

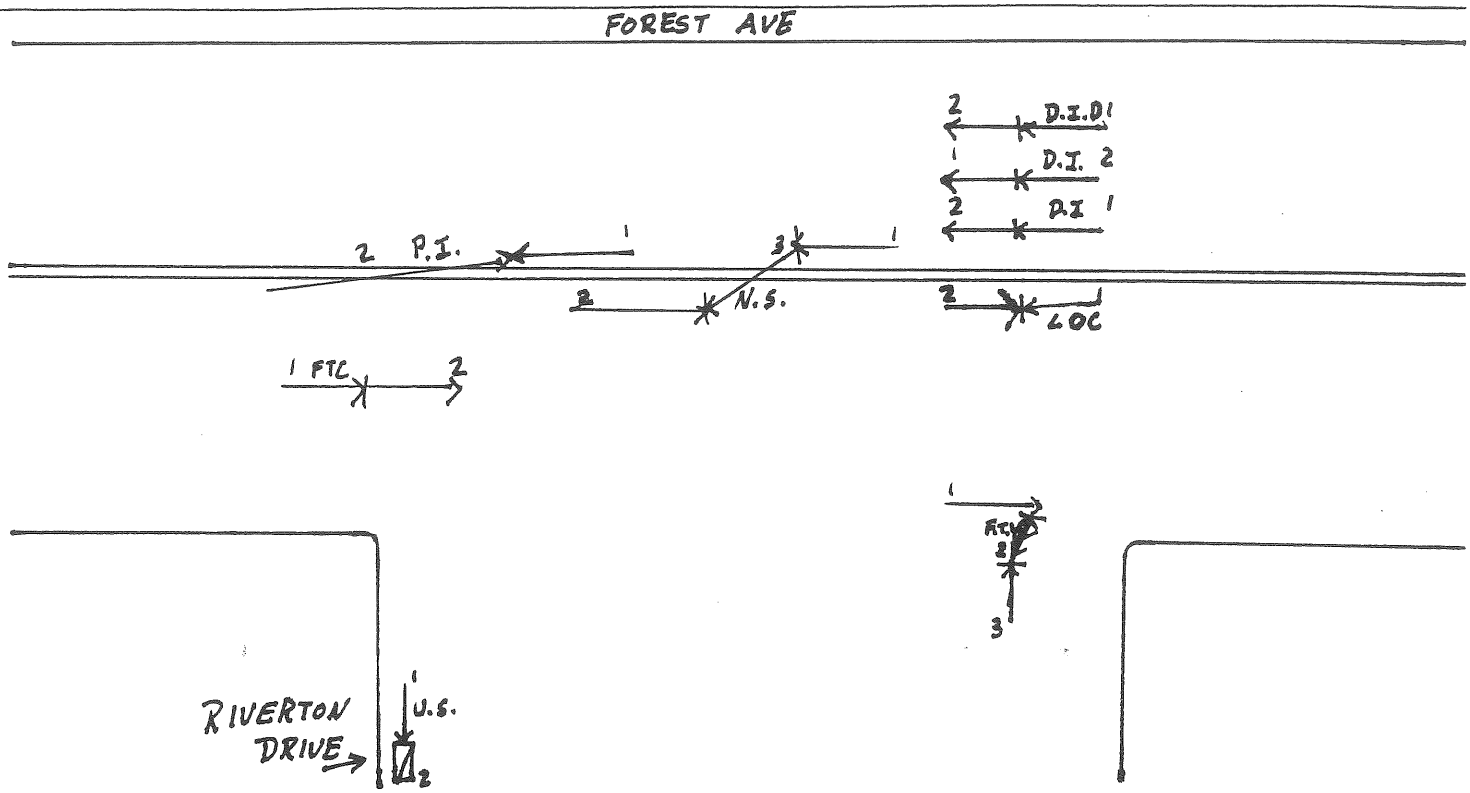
COLLISION DIAGRAM

SHEET 1 OF

LOCATION FOREST AVE. at RIVERTON DRIVE

TOWN PORTLAND NODE NO(S) 8928

YEAR(S) REVIEWED 1998 - 2000 DATE PREPARED 12-13-01



CRITICAL RATE FACTOR _____ EQUIV. PROP. DAMAGE ACC/YEAR _____ ACC/MEV _____

LIGHT
1. DAWN (MORNING) 2. DAYLIGHT 3. DUSK (EVENING)
4. DARK (ST. LIGHTS ON) 5. DARK (NO ST. LIGHTS) 6. DARK (ST. LIGHTS OFF)
7. OTHER

ROAD SURFACE
1. DRY 2. WET 3. SNOW/SLUSH-SANDED
4. ICE/PACKED SNOW-SANDED 5. MUDDY 6. DEBRIS
7. OILY 8. SNOW/SLUSH-NOT SANDED 9. ICE/PKD. SNOW-NOT SANDED
10. OTHER

APPARENT CONTRIBUTING FACTORS - HUMAN
1. NO IMPROPER ACTION 2. FAIL TO YLD. RIGHT OF WAY 3. ILLEGAL UNSAFE SPEED
4. FOLLOW TOO CLOSE 5. DISREGARD TRAFFIC CONTROL DEVICE
6. DRIVING LEFT OF CENTER - NO PASSING 7. IMPROPER PASS-OVERTAKING
8. IMP. UNSAFE LANE CHANGE 9. IMP. PARKING START/STOP 10. IMPROPER TURN
11. UNSAFE BACKING 12. NO SIGNAL OR IMP. SIGNAL 13. IMPEDING TRAFFIC
14. DRIVER INATTENTION - DISTRACTION 15. DRIVER INEXPERIENCE
16. PEDEST. VIOLATION ERROR 17. PHYSICAL IMPAIRMENT 18. VISION OBSCURED - WINDSHIELD GLASS
19. VISION OBSCURED - SUN/HEADLIGHTS
20. OTHER VISION OBSCUREMENT 30. OTHER HUMAN VIOLATION FACTOR
31. HIT AND RUN 51. UNKNOWN

- VEHICULAR
41. DEFECTIVE BRAKES 42. DEFECTIVE TIRE/FAILURE 43. DEFECTIVE LIGHTS
44. DEFECTIVE SUSPENSION OR FACTOR 45. DEFECTIVE STEERING 50. OTHER VEHICLE DEFECT
51. UNKNOWN

SYMBOLS

ANGLE	→	PEDESTRIAN	→ P	FATAL ACCIDENT	
BACKING	←←	REAR END	→|		
FIXED OBJECT	→□	SIDE SWIPE	⇉	VEHICLE (MOVING)	—
HEAD ON	→←	TURNING MOVE	↩	BICYCLE	- - -
OVERTURN	→○	CHANGE LANE	⇉	ANIMAL	- - -
PARKED VEHICLE	▨	OUT OF CONTROL	↝	SLED	- - -

WEATHER
C = CLEAR F = FOG R = RAIN
SL = SLEET S = SNOW CY = CLOUDY
XW = CROSS WINDS

INJURIES
K = FATAL B = NON-INCAPACITATING
A = INCAPACITATING C = POSSIBLE INJURY

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
9836022	10-12-98	2358	—	1	2	—	DARK-4 S.L.	DRY-1	6,1	SPEED CROSSING
9841090	11-17-98	1740					DARK-4 S.L.	RAIN-2	15,1	inexperi
984309	11-29-98	1443				1	DAYLIGHT-2	DRY-1	1,1,12	No Sign
9846541	12-19-98	2257					DARK-4 S.L.	SNOW-3	3	SPEED SNOW
9848421	12-30-98	0851					DAYLIGHT-2	SNOW-3	1,15	Inexper
9934178	9-13-99	1615					DAYLIGHT-2	DRY-1	1,2,1	Improper Turn
9938573	10-25-99	0940					DAYLIGHT-2	DRY-1	14,1	Inatte

COLLISION DIAGRAM

SHEET 2 OF 2

LOCATION FOREST AVE at RIVERTON DRIVE

TOWN PORTLAND NODE NO(S) 8928

YEAR(S) REVIEWED 1998 - 2000 DATE PREPARED 12-13-01

REPORT NO.	DATE	TIME	INJURIES K	A	B	C	LIGHT	ROAD SURFACE	ACF	OTHER
0021539	7-14-00	0939				1	DAYLIGHT-2	DRY-1	4, 1	
0027436	9-3-00	0145					DARK-4 S.L.	DRY-1	1, 17	impairment

AH. #
6

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
26 Main St.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:gpcei@maine.rr.com

December 17, 2001

Mr. Frank Brancely
Portland Public Works
55 Portland Street
Portland, ME 04101

Re: Wellesley Estates
Letter of Ability to Serve

Dear Frank:

On behalf of Archetype, P.A., Gorrill-Palmer Consulting Engineers, Inc. is preparing utility plans for the development of Wellesley Estates. The project site is currently an undeveloped lot south of Forest Avenue and West of the Maine Turnpike. The project will be accessed from Forest Avenue. The current project envisions 46 residential dwelling units in a series of attached structures varying from 4-8 units per structure. The latest utility plans are enclosed for you information.

Utility Improvements

At this time there are three viable options for the sewer service. These three options are as follows:

1) Construction of an on-site sanitary sewer gravity collection system with a pump station discharging via a force main to be installed in the Forest Avenue right of way to the gravity sewer system on the east side of the Turnpike. The gravity sewer system on the east side of the Turnpike is reportedly surcharged if area pump stations operate simultaneously. Installation of a pump station to service the development would require coordination with other area stations relative to pumping times, as well as supplemental storage. Based upon meetings with the City to date, installation of an on-site pump station would not be the primary choice for service.

2) Extension of the existing gravity sewer system that exists at the intersection of Forest Avenue and Riverside Street to the site frontage, and connection to this extension from an on-site pump station. This scenario would result in a discharge to the City of Westbrook sewer system, thereby requiring a Municipal Agreement between the two cities. While an agreement had been discussed previously between the cities, a formal document has not been executed and could result in delays to the project.

3) Extension of a gravity sewer system from the project site connecting to the existing gravity sewer and pump station in the Riverton Housing project. This connection would require approval from the Portland Housing Authority as they own and operate the gravity sewers in the Riverton project as well as approval from the City as they own and operate the pump station

It is a possibility that any of these three options could be implemented for service of the sanitary sewer. At this time, it is anticipated that option three will be implemented; therefore it is the option that is illustrated on the design plans. It is anticipated that one connection to the existing gravity system and pump station in the Riverton Housing project will be sufficient to carry the anticipated flows of this development. This connection will service all structures on the project and will connect into SMH9A of the Riverton Housing project.

Anticipated Flows

It is envisioned that there will be 28 x 2-bedroom units and 18 x 3-bedroom units ((180 gpd (gallons per day) and 270 gallons per day respectively) Table 901.1 of Subsurface Disposal Rules). The average daily flow would be

28 x 2-bedroom dwellings x 180 gpd = 5,040 gpd
\+ 18 x 3-bedroom dwellings x 270 gpd = 4,860 gpd
Total = 9,900 gpd

Therefore, the approximate increase of wastewater demand would be approximately 9,900 gallons per day.

Ability to Serve

In support of the applications to the reviewing authorities, we are writing to request a letter indicating the ability of the City of Portland's infrastructure to serve the project.

We appreciate your assistance on this project. Please contact me if you have any questions or required further information.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

Jeff Lewis, E.I.
Design Engineer

Enclosure

Copy: Bill Hopkins, Archetype, w/o enc.

DER/cmp/JN98089/Brancely12-17-01

A#. #7

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
26 Main St.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:gpcei@maine.rr.com

December 17, 2001

Mr. David Coffin
Portland Water District
225 Douglas Street
Portland, ME 04104-3553

Re: Wellesley Estates
Letter of Ability to Serve

Dear Dave:

On behalf of Archetype, P.A., Gorrill-Palmer Consulting Engineers, Inc. is preparing utility plans for the development of Wellesley Estates. The project site is currently an undeveloped lot south of Forest Avenue and West of the Maine Turnpike. The project will be accessed from Forest Avenue. The current project envisions 46 residential dwelling units in a series of attached structures varying from 4-8 units per structure. The latest utility plans are enclosed for you information.

Utility Improvements

Access to the subdivision will be available from Forest Avenue at two locations. The first location will be the main site drive and the second location will be utilized as an emergency access road. At this time it is anticipated that 2-8" water mains would be extended from the existing main within Forest Avenue. The first of these mains would enter the site within the proposed emergency access road located the west side of the site, and the second would enter the site within the main site drive located at the center of the development. These proposed mains would connect within the site to create a loop system. There would also be a main that branches off this closed loop to service the east end of the site. One 2" service is proposed for each structure at this time. A hydrant is shown within the development.

Anticipated Flows

It is envisioned that there will be 28 x 2-bedroom units and 18 x 3-bedroom units ((180 gpd (gallons per day) and 270 gallons per day respectively) Table 901.1 of Subsurface Disposal Rules). The average daily flow would be:

28 x 2-bedroom dwellings x 180 gpd = 5,040 gpd
\+ 18 x 3-bedroom dwellings x 270 gpd = 4,860 gpd
Total = 9,900 gpd

Therefore, the anticipated increase in water demand would be approximately 9,900 gallons per day.

Ability to Serve

In support of the applications to the reviewing authorities, we are writing to request a letter indicating the ability of the Portland Water District to serve the project. In addition, we are interested in receiving:

- An estimate for any work the Water District would perform within the right-of-way.
- Information as to any additional easements that the District may require on-site.
- The manner in which the District would prefer that the structures be metered.
- Any results of hydrant tests in the vicinity of the site.
- Any other information that you believe would be useful as this project proceeds.

We have appreciated your assistance to date on this project. Please contact me if you have any questions relative to this matter.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

Jeff Lewis, E.I.
Design Engineer

Enclosure

Copy: Bill Hopkins, Archetype, w/o enc.

cmp/JN442/Coffin12-17-01WellesleyEstates

Att 8

Refuse Analysis: Wellesley Estates

Each unit will generate approximately 1/2 yard of household waste per week. This includes both 2 and 3 bedroom units. For 23 yards of refuse, 4 dumpsters, of 8 or 10 yard capacity will be supplied and picked up once per week by private carrier.

Maine State Housing Authority

Att. #9

COPY

November 30, 2001

Friendship Village LLC
C/o Adam Development Company
Mr. Adam Mack
34 Preble St
Portland, Maine 04101

Dear Mr. Mack:

As you are aware, Maine State Housing Authority has completed its review of the application submitted by Friendship Village LLC in the 2001 Workforce Housing RFP and issued a Notice to Proceed on October 25, 2001. This application is a proposal for 46 units of family housing located on Forest Avenue in Portland, Maine. The Notice to Proceed is an indication that the proposal has been selected for further processing, and is **not** a commitment of financing. MSHA will continue its underwriting process which will include, but is not limited to, commissioning a real estate appraisal, a site visit and reviewing the technical submissions, reviewing the operating budgets, and final underwriting.

The Notice to Proceed listed a number of items needed by MSHA to complete the processing of the application. If these items are submitted in a form satisfactory to MSHA, and in accordance with the schedule discussed, we would expect to be in a position to perform final underwriting of the proposal.

If you have any questions about the process, please feel free to contact Suzanne Roy, the Development Program Officer who has been assigned to the Project, at either (207) 626-4671 or 1-800-452-4668(ext. 671).

Sincerely,

Michael R. DeVos
Director of Development

cc: Suzanne Roy

353 Water Street Augusta, Maine 04330-4633 207-626-4600 800-452-4668
TTY 800-452-4603 Fax 207-626-4678 www.mainehousing.org

MAINE BANK & TRUST

AH. # 10

COPY

December 12, 2001

Wellesley Estate, LLC
c/o Adam Development Company
Mitchell Cope, President
34 Preble Street
Portland, Maine 04039

Dear Mr. Cope:

In response to your request relative to the interest of Maine Bank & Trust in financing your proposed project located at 1818 Forest Avenue, Portland, Maine, I wish to inform you that the bank is very interested in assisting you in the financial development of this project. As such, the bank will seriously consider the financing of the planned development when all necessary approvals have been obtained. Obviously, our review at this stage has been only preliminary and this letter does not constitute a commitment to lend. Final approval will depend on a complete and thorough underwriting and due diligence process.

If you have any questions, please call me at 828-3120.

Sincerely,

John Tyson
Vice President
Commercial Loan Officer

AH.
12

STORMWATER MANAGEMENT

Introduction

Gorrill-Palmer Consulting Engineers, Inc. has been retained by Archetype to prepare plans and permit applications for the proposed residential housing development located off Forest Avenue in Portland, Maine. Figure 1 is an excerpt from the U.S.G.S. Portland West quadrangle map showing the project location. This narrative contains the stormwater management measures appropriate for the project.

Development Description

The project site is located on Forest Avenue westerly of the Maine Turnpike and northerly of the existing Riverton Housing Complex. The parcel is approximately 4.5 acres in size will be accessed through a 54 foot right of way to Forest Avenue. The site is currently undeveloped land consisting of a mixture of wooded and meadow areas. Abutting land uses include:

- East - Maine Turnpike
- Southwest - Riverton Housing Complex
- North - Mixture of Residential and Commercial Uses

Surface Water and Downstream Waterbodies

There are no lakes located on, adjacent to or downstream of the project site. The site includes wetlands, which typically drain from the eastern property line towards the southern property line through the Riverton Housing Complex. The last 120 feet of the drainage course, which is located on the property has been classified as a stream. The stream through the Riverton Complex is tributary to an unnamed brook that discharges to the Presumpscot River.

General Topography

The site generally slopes from Forest Avenue back to a drainage course at the rear of the site. The slopes vary from 2% adjacent to Forest Avenue to 50% adjacent to the drainage course at the rear of the site. Elevations on the site range from 58' to 80'.

Flooding

The owners of the project site have indicated that to their knowledge no flooding has occurred on the site, nor has there been any indication of any previous flooding. The site is not mapped to contain floodplain areas as shown on the FEMA maps.

Natural Drainage Ways

The drainage course, which bisects the property, will be directed through a culvert for approximately 120 feet. No alteration to the existing stream is proposed.

9. The stockade fence will be addressed at our meeting by the developer.

10. We will discuss work limits at the meeting.

11. The parking has been moved.

12. PRUD standards for recreation and open standards Sec. 14-52 6. c.

    1. External buffers. We have incorporated a permanent fence between our project and the adjoining Riverton Housing. In addition we have compressed the perimeter work line to allow as much existing vegetation to remain.
    2. Internal buffers. We have added extensive landscape in consultation with Jeff Tarling, city arborist. Both the waste collection and water detention are screened with fencing.
    3. Passive recreational open space: Our project incorporates a vegetable gardening area and two picnic areas along side the stream and wetlands.
    4. Active recreational open space. We are providing a play field for active recreation such as soccer or baseball. Along side is a fenced tot lot with seating for parents.
    5. All units, except 5-second floor, flats will have adjoining private spaces. This is shown and detailed on the landscape plan.

Sincerely,

David Lloyd

Subcatchment 1S: East Route 495

Runoff = 11.97 cfs @ 12.47 hrs, Volume= 1.528 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
2.050	98	Impervious
0.600	77	Woods-D
0.670	30	Woods-A
0.980	39	Lawn-A
0.800	61	Lawn-B
1.880	80	Lawn- D
0.090	93	Gravel-A
0.400	89	Gravel-A
7.470	73	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	150	0.0200	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	105	0.0286	3.4		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
0.3	171	0.0290	9.1	7.17	**Circular Channel (pipe), Segment ID: CD**
0.4	120	0.0275	4.6	99.17	**Trap/Vee/Rect Channel Flow, Segment ID: DE** Bot.W=10.00' D=1.00' Z= 3.0 & 20.0 '/' n= 0.040
0.2	66	0.0050	6.0	18.90	**Circular Channel (pipe), Segment ID: EF**
4.4	240	0.0330	0.9		**Shallow Concentrated Flow, Segment ID: FG** Woodland Kv= 5.0 fps
36.5	852	Total			

Subcatchment 2S: Forest Avenue

Runoff = 21.41 cfs @ 12.40 hrs, Volume= 2.545 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
2.920	98	Impervious
4.490	61	1/4 Acre Lots- A
1.740	83	1/4 Acre Lots- C
0.620	87	1/4 Acre Lots- D
0.060	55	Woods- B
1.120	77	Woods- D
10.950	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	100	0.0200	0.1		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
8.9	1,670	0.0240	3.1		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
1.5	370	0.0200	4.0	4.95	**Circular Channel (pipe), Segment ID: CD**
6.7	200	0.0100	0.5		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
31.8	2,340	Total			

Subcatchment 11S: 495

Runoff = 4.25 cfs @ 12.49 hrs, Volume= 0.558 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
0.440	98	Impervious
0.540	80	Grass-D
1.110	77	Woods-D
2.090	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	65	0.0100	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
18.7	117	0.0150	0.1		**Sheet Flow, Segment ID: BC** Grass: Dense n= 0.240 P2= 3.00"
0.0	20	0.2000	6.7		**Shallow Concentrated Flow, Segment ID: CD** Grassed Waterway Kv= 15.0 fps
0.2	15	0.0100	1.5		**Shallow Concentrated Flow, Segment ID: DE** Grassed Waterway Kv= 15.0 fps
39.6	217	Total			

Reach 1R: 495 Channel

[65] Warning: Inlet elevation not specified

Inflow = 13.76 cfs @ 12.72 hrs, Volume= 2.502 af
Outflow = 13.72 cfs @ 12.77 hrs, Volume= 2.496 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.4 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.8 fps, Avg. Travel Time= 3.0 min

Peak Depth= 0.75'
Capacity at bank full= 103.71 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 140.0' Slope= 0.0100 '/'
Side Slope Z-value= 6.7 '/'

Reach 3R: Channel Riverton

[65] Warning: Inlet elevation not specified

Inflow	=	13.57 cfs @	12.91 hrs, Volume=	2.485 af
Outflow	=	13.53 cfs @	12.97 hrs, Volume=	2.478 af, Atten= 0%, Lag= 3.4 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 2.1 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 1.1 fps, Avg. Travel Time= 3.6 min

Peak Depth= 0.55'
Capacity at bank full= 183.45 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 240.0' Slope= 0.0313 '/'
Side Slope Z-value= 6.7 '/'

Reach 4R: Pipe from Pond

[52] Hint: Inlet conditions not evaluated
[65] Warning: Inlet elevation not specified

Inflow	=	3.14 cfs @	12.82 hrs, Volume=	0.462 af
Outflow	=	3.11 cfs @	12.82 hrs, Volume=	0.462 af, Atten= 1%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 5.8 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.1 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.51'
Capacity at bank full= 12.41 cfs

Reach 5R: CHANNEL RIVERTON

[65] Warning: Inlet elevation not specified

Inflow	=	3.11 cfs @	12.82 hrs, Volume=	0.462 af
Outflow	=	2.93 cfs @	12.85 hrs, Volume=	0.461 af, Atten= 6%, Lag= 2.1 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.3 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 0.6 fps, Avg. Travel Time= 2.8 min

Peak Depth= 0.24'
Capacity at bank full= 183.58 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 105.0' Slope= 0.0313 '/'
Side Slope Z-value= 6.7 '/'

Reach 33R:

[40] Hint: Not Described (Outflow=Inflow)

Inflow	=	25.23 cfs @	12.61 hrs, Volume=	4.466 af
Outflow	=	25.23 cfs @	12.61 hrs, Volume=	4.466 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Pond 1P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow	=	21.41 cfs @	12.40 hrs, Volume=	2.545 af
Outflow	=	13.76 cfs @	12.72 hrs, Volume=	2.502 af, Atten= 36%, Lag= 19.3 min
Primary	=	13.76 cfs @	12.72 hrs, Volume=	2.502 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 102.33' Storage= 18,754 cf
Plug-Flow detention time= 21.9 min calculated for 2.502 af (98% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	100	0	0
102.00	9,000	9,100	9,100
104.00	50,000	59,000	68,100

Primary OutFlow (Free Discharge)
└1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	100.00'	**24.0" x 120.0' long Culvert** Ke= 0.900

Pond 2P: Detention

[82] Warning: Early inflow requires earlier time span

Inflow	=	4.25 cfs @	12.49 hrs, Volume=	0.558 af
Outflow	=	3.14 cfs @	12.82 hrs, Volume=	0.462 af, Atten= 26%, Lag= 19.4 min
Primary	=	3.14 cfs @	12.82 hrs, Volume=	0.462 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 66.97' Storage= 8,126 cf
Plug-Flow detention time= 89.6 min calculated for 0.462 af (83% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.30	2,000	0	0
65.00	2,580	1,603	1,603
66.00	3,308	2,944	4,547
67.00	4,080	3,694	8,241
68.00	4,880	4,480	12,721

Primary OutFlow (Free Discharge)
- 1=Broad-Crested Rectangular Weir
- 2=Orifice/Grate
- 3=Orifice/Grate

#	Routing	Invert	Outlet Devices
1	Primary	66.90'	**12.0' long Broad-Crested Rectangular Weir X 1.81** Head (feet) 0.50 1.00 1.50 Coef. (English) 1.72 1.88 1.98
2	Primary	63.80'	**2.0" Vert. Orifice/Grate** C= 0.600
3	Primary	65.80'	**10.0" Vert. Orifice/Grate** C= 0.600

Pond 3P: CULVERT POND

Inflow	=	13.72 cfs @	12.77 hrs, Volume=	2.496 af
Outflow	=	13.57 cfs @	12.91 hrs, Volume=	2.485 af, Atten= 1%, Lag= 8.4 min
Primary	=	13.57 cfs @	12.91 hrs, Volume=	2.485 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 68.22' Storage= 4,422 cf
Plug-Flow detention time= 6.5 min calculated for 2.460 af (99% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.90	5	0	0
67.00	144	7	7
68.00	5,312	2,728	2,735
69.00	10,096	7,704	10,439
69.50	12,400	5,624	16,063

Primary OutFlow (Free Discharge)
- 1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	66.90'	**24.0" x 72.0' long Culvert X 2.00** Ke= 0.900

ATTACHMENT C

WATER QUALITY CALCULATIONS

Vortechnics

ENGINEERED PRODUCTS
FOR STORMWATER TREATMENT

Wellesley Estates – Portland, Maine

Vortechs Stormwater Treatment System
Design Confirmation and Sizing Calculations

Vortech #1

Site and System Specifics

$Q_{1\text{-year}} = 1.8$ cfs
Specified System – Vortechs Model 3000
Treatment Capacity = 4.5 cfs
Grit Chamber Diameter = 5 ft

Vortechs System Swirl Chamber Surface Area Calculation

Surface Area = $(pi)r^2$ $= (3.14)(2.5 \text{ ft})^2$
$= 19$ sqft

$Q_{1\text{-year}}$ Water Loading Rate Calculation

$Q_{1\text{-year}}$ Operating Rate $= Q_{1\text{-year}}$ /Grit Chamber Surface Area
$= (1.8 \text{ cfs} * 448.8 \text{ gpm/cfs})/19 \text{ sqft}$
$= 41$ gpm/sqft

50% ME DEP Total Suspended Solids Removal Rating Verification

As stated in the attached letter from the ME DEP dated May 24, 2001, a removal rating of 50% will apply to Vortechs Systems, provided that the projected one year peak flow does not exceed a water loading rate of 42 gpm/sqft within the Vortechs System.

Since the calculated water loading rate 41 gpm/sqft for a one year flow does not exceed the upper limit of 42 gpm/sqft as set by the ME DEP, the Vortechs Model 3000 is sized appropriately for a 50% TSS removal rating.

ATTACHMENT D

PIPE SIZING CALCULATIONS

Rational Method Runoff Computations: Tributary Areas and Flows
Project: Wellesley Estates
Job Number: 442
Original Date: 2/12/02
Revised Date: 2/28/02

		Tributary Area Characteristics													
						HydroCad	10 Year		25 Year		50 Year		100 Year	
Structure	Cover/ Land Use	Area (ac)	C	CA	Tc(min)	Tc(min)	I(in/hr)	Q(cfs)	I(in/hr)	Q(cfs)	I(in/hr)	Q(cfs)	I(in/hr)	Q(cfs)
CB4	Weighted	0.37	0.89	0.329	5		5.30	1.74	6.20	2.04				
CB4-a	Impervious	0.32	0.95	0.30										
CB4-b	Grass, HSG D	0.05	0.50	0.03										
CB4-c														
CB4-d														
CB4-e														
CB4-f														
CB5	Weighted	0.41	0.91	0.372	5		5.30	1.97	6.20	2.30				
CB5-a	Impervious	0.37	0.95	0.35										
CB5-b	Grass, HSG D	0.04	0.50	0.02										
CB5-c														
CB5-d														
CB5-e														
CB5-f														
CB3	Weighted	0.11	0.95	0.105	5		5.30	0.55	6.20	0.65				
CB3-a	Impervious	0.11	0.95	0.10										
CB3-b														
CB3-c														
CB3-d														
CB3-e														
CB3-f														
CB6	Weighted	0.09	0.95	0.086	5		5.30	0.45	6.20	0.53				
CB6-a	Impervious	0.09	0.95	0.09										
CB6-b														
CB6-c														
CB6-d														
CB6-e														
CB6-f														
CB2	Weighted	0.23	0.87	0.201	5		5.30	1.06	6.20	1.24				
CB2-a	Impervious	0.19	0.95	0.18										
CB2-b	Grass, HSG D	0.04	0.50	0.02										
CB2-c			0.12											
CB2-d														
CB2-e														
CB2-f														
CB1	Weighted	0.62	0.81	0.499	5		5.30	2.65	6.20	3.10				
CB1-a	Impervious	0.48	0.95	0.46										
CB1-b	Grass, HSG D	0.07	0.50	0.04										
CB1-c	Grass, HSG A	0.07	0.12	0.01										
CB1-d														
CB1-e														
CB1-f														
CB7	Weighted	1.11	0.24	0.267	5		5.30	1.42	6.20	1.66				
CB7-a	Impervious	0.07	0.95	0.07										
CB7-b	Grass, HSG D	0.20	0.50	0.10										
CB7-c	Grass, HSG A	0.84	0.12	0.10										
CB7-d														
CB7-e														
CB7-f														
FI 1	Weighted	0.91	0.37	0.332	5		5.30	1.76	6.20	2.06				
FI 1-a	Impervious	0.20	0.95	0.19										
FI 1-b	Grass, HSG D	0.15	0.50	0.08										
FI 1-c	Grass, HSG A	0.56	0.12	0.07										
FI 1-d														
FI 1-e														
FI 1-f														
CB8	Weighted	0.56	0.24	0.134	5		5.30	0.71	6.20	0.83				
CB8-a	Impervious	0.08	0.95	0.08										
CB8-b	Grass, HSG A	0.48	0.12	0.06										
CB8-c														
CB8-d														
CB8-e														
CB8-f														

Rational Method Runoff Computations: Secondary Watersheds, With Connectivity Input

Project: Wellesley Estates
Job Number: 442
Original Date: 2/12/02
Revised Date: 2/28/02

Runoff Computed for 25 *Year Storm Frequency* *I is for IDF25 year*

Primary Structure	Secondary Structure	Inlet Flow to Primary Structure						Pipe Flow to Secondary Structure								Pipe Size
		Area (ac)	C	CA	Tc(min)	I(in/hr)	Q(cfs)	Sum(CA)	Tc(min)	I(in/hr)	Q(cfs)	L(ft)	V(fps)	Tt(min)	Tc+Tt(min)	inches
SITE																
CB4	OUTLET	0.37	0.89	0.33	5.00	6.20	2.04	0.33	5.00	6.20	2.04	84	3.45	0.41	5.41	12
CB8	FI 1	0.56	0.24	0.13	5.00	6.20	0.83	0.13	5.00	6.20	0.83	66	2.75	0.40	5.40	12
FI 1	CB6	0.91	0.37	0.33	5.00	6.20	2.06	0.47	5.40	6.08	2.83	42	10.28	0.07	5.47	12
CB6	CB3	0.09	0.95	0.09	5.00	6.20	0.53	0.55	5.47	6.06	3.34	17	4.74	0.06	5.53	12
CB3	CB5	0.11	0.95	0.10	5.00	6.20	0.65	0.66	5.53	6.04	3.96	46	5.63	0.14	5.66	12
CB7	CB1	1.11	0.24	0.27	5.00	6.20	1.66	0.27	5.00	6.20	1.66	99	5.43	0.30	5.30	12
CB1	DMH1	0.62	0.81	0.50	5.00	6.20	3.10	0.77	5.30	6.11	4.68	39	3.41	0.19	5.49	18
CB2	DMH1	0.23	0.87	0.20	5.00	6.20	1.24	0.20	5.00	6.20	1.24	39	3.05	0.21	5.21	12
DMH1	CB5							0.97	5.49	6.05	5.85	91	3.57	0.42	5.92	18
CB5	OUTLET	0.41	0.91	0.37	5.00	6.20	2.30	1.99	5.92	5.92	11.82	66	5.35	0.21	6.12	24
		3.48														

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB8 - Ditch

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0050 ft/ft
Manning's n.....	0.011
Discharge.....	0.83 cfs

Computed Results:

Full Flow Diameter.....	0.62 ft
Full Flow Depth.....	0.62 ft
Velocity.....	2.75 fps
Flow Area.....	0.30 sf
Critical Depth....	0.44 ft
Percent Full.....	100.00 %
Full Capacity.....	0.83 cfs
QMAX @.94D.....	0.89 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB4 TO OUTLET

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0050 ft/ft
Manning's n.....	0.011
Discharge.....	2.04 cfs

Computed Results:

Full Flow Diameter.....	0.87 ft
Full Flow Depth.....	0.87 ft
Velocity.....	3.45 fps
Flow Area.....	0.59 sf
Critical Depth.....	0.63 ft
Percent Full.....	100.00 %
Full Capacity.....	2.04 cfs
QMAX @.94D.....	2.19 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: FIELD INTLET TO CB6

Solve For Full Flow Diameter

Given Input Data:

Slope	0.1070 ft/ft
Manning's n	0.011
Discharge	2.06 cfs

Computed Results:

Full Flow Diameter	0.49 ft
Full Flow Depth	0.49 ft
Velocity	10.91 fps
Flow Area	0.19 sf
Critical Depth	0.49 ft
Percent Full	100.00 %
Full Capacity	2.06 cfs
QMAX @.94D	2.22 cfs
Froude Number	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB6 TO CB3

Solve For Full Flow Diameter

Given Input Data:

Slope	0.0100 ft/ft
Manning's n	0.011
Discharge	2.58 cfs

Computed Results:

Full Flow Diameter	0.83 ft
Full Flow Depth	0.83 ft
Velocity	4.74 fps
Flow Area	0.54 sf
Critical Depth	0.71 ft
Percent Full	100.00 %
Full Capacity	2.58 cfs
QMAX @.94D	2.78 cfs
Froude Number	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB3 TO CB5

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0136 ft/ft
Manning's n.....	0.011
Discharge.....	3.22 cfs

Computed Results:

Full Flow Diameter.....	0.85 ft
Full Flow Depth.....	0.85 ft
Velocity.....	5.63 fps
Flow Area.....	0.57 sf
Critical Depth....	0.77 ft
Percent Full.....	100.00 %
Full Capacity.....	3.22 cfs
QMAX @.94D.....	3.46 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB7 TO CB1

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0192 ft/ft
Manning's n.....	0.011
Discharge.....	1.66 cfs

Computed Results:

Full Flow Diameter.....	0.62 ft
Full Flow Depth.....	0.62 ft
Velocity.....	5.43 fps
Flow Area.....	0.31 sf
Critical Depth.....	0.58 ft
Percent Full.....	100.00 %
Full Capacity.....	1.66 cfs
QMAX @.94D.....	1.79 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB1 TO DMH1

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0025 ft/ft
Manning's n.....	0.011
Discharge.....	5.50 cfs

Computed Results:

Full Flow Diameter.....	1.43 ft
Full Flow Depth.....	1.43 ft
Velocity.....	3.41 fps
Flow Area.....	1.61 sf
Critical Depth.....	0.92 ft
Percent Full.....	100.00 %
Full Capacity.....	5.50 cfs
QMAX @.94D.....	5.92 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB2 TO DMH1

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0050 ft/ft
Manning's n.....	0.011
Discharge.....	1.24 cfs

Computed Results:

Full Flow Diameter.....	0.72 ft
Full Flow Depth.....	0.72 ft
Velocity.....	3.05 fps
Flow Area.....	0.41 sf
Critical Depth.....	0.52 ft
Percent Full.....	100.00 %
Full Capacity.....	1.24 cfs
QMAX @.94D.....	1.33 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: DMH1 TO CB5

Solve For Full Flow Diameter

Given Input Data:

Slope	0.0025 ft/ft
Manning's n	0.011
Discharge	6.66 cfs

Computed Results:

Full Flow Diameter	1.54 ft
Full Flow Depth	1.54 ft
Velocity	3.57 fps
Flow Area	1.86 sf
Critical Depth	0.99 ft
Percent Full	100.00 %
Full Capacity	6.66 cfs
QMAX @.94D	7.16 cfs
Froude Number	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

Circular Channel Analysis & Design
Solved with Manning's Equation

Open Channel - Uniform flow

Worksheet Name:

Comment: CB5 TO WQU

Solve For Full Flow Diameter

Given Input Data:

Slope.....	0.0050 ft/ft
Manning's n.....	0.011
Discharge.....	11.82 cfs

Computed Results:

Full Flow Diameter.....	1.68 ft
Full Flow Depth.....	1.68 ft
Velocity.....	5.35 fps
Flow Area.....	2.21 sf
Critical Depth....	1.29 ft
Percent Full.....	100.00 %
Full Capacity.....	11.82 cfs
QMAX @.94D.....	12.71 cfs
Froude Number.....	FULL

Open Channel Flow Module, Version 2.06 (c) 1990
Haestad Methods, Inc. * 37 Brookside Rd * Waterbury, Ct 06708

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Chair Caron and Members of the Portland Planning Board

FROM: Jonathan Spence, Planner

DATE: January 8, 2001

SUBJECT: Wellesley Estates, 45 Unit PRUD, Vicinity of 1818 Forest Avenue

Introduction

David Lloyd of Archetype has requested a workshop session before the Planning Board to introduce a project known as Wellesley Estates in the vicinity of 1818 Forest Avenue. Mr. Lloyd is representing the Adam Development Corporation. The project site is approximately 4.5 acres in size and is located westerly of the Maine Turnpike and northerly of the existing Riverton Housing Complex. The undeveloped site consists of a mixture of wooded and meadow areas with a wetland/stream area. Wellesley Estates, as proposed, is a 45-unit Planned Residential Unit Development consisting of 7 buildings, each containing between 4 and 8, 2 or 3 bedroom units. The housing types will be a mixture of walk-up flats and townhomes with 27 of the units to be offered at market rate and 18 units subsidized. No garages are proposed. In addition to the residential units, the site will also consist of 100 parking spaces for residents and guests, a laundry and maintenance building attached to one of the buildings, a 13,800 square foot recreation area, a tot lot, an enclosed bus shelter and a ± 5,000 square foot stormwater detention area.

Access/Circulation

The primary access for the development is proposed directly from Forest Avenue via a non-signalized intersection. This new access road will be located to the east of the existing Grange and will result in the relocation or removal of an existing garage/storage structure used by an adjacent residence. Emergency access will be from an access drive constructed to the west of the Grange. A traffic study was submitted by the applicant which is included as attachment 5. The City's Traffic Engineer is currently reviewing this traffic study in addition to the internal vehicular circulation plan.

Internal pedestrian circulation consists of sidewalks which primarily provide access for residents to the adjacent parking areas. One sidewalk does run along the west side of the access drive and connects to the sidewalk in front of one of the seven buildings. It is unclear from the plans provided how the proposed bridge ties into the internal circulation plan and how residents from the northerly section of the property would access the recreation area.

A bus shelter near the intersection of the access road and Forest Avenue is indicated on the plan. It is unclear if this shelter will be for school students or for patrons of the city bus system.

Utilities

The project proposes to tie into an existing water line in Forest Avenue at both the primary and emergency access drive locations. A letter requesting confirmation of capacity addressed to the Portland Water District is included as attachment 7. Electrical service will be underground from existing overhead service located on Forest Avenue. Currently there are three options for sewer service. These include; the construction of an on-site sanitary sewer gravity collection system with a pump station discharging via a force main to be installed in the Forest Avenue R.O.W. to the existing sewer system on the east side of the turnpike, extension of the existing gravity sewer system that exists at the intersection of Forest Avenue and Riverside Street (discharging to the City of Westbrook sewer system), and the extension of the gravity sewer system located at the adjacent Riverton Housing Project. At this time, through conversations with the City, the applicant has identified option three as the preferred option. The applicant is working to obtain letters confirming the ability to serve the project from the appropriate agencies. A letter addressed to Portland Public Works from the applicant's consulting engineer outlining the options in further detail and requesting assistance is included as attachment 6.

A refuse analysis concerning solid waste is included as attachment 8. It indicates that approximately 23 yards of refuse would be generated in a given week and that 4 dumpsters, emptied weekly would be adequate.

Drainage/Grading/Stormwater Management

The site generally slopes from Forest Avenue back to a drainage course at the rear of the site. The slopes vary from as low as 2% adjacent to Forest Avenue to 50% at the rear of the site with elevations ranging from 58 to 80'. The drainage/grading/stormwater management plan consists of a series of catch basins that will be directed to a Vortechnics unit and then discharged into the wetland/stream that flows southerly off the site. A separate catch basin captures flows from the easterly portion of the site which is then discharged into a detention pond. All of the outlet pipes 15" or smaller will include Casco traps for additional stormwater treatment. The drainage/grading/stormwater plan is currently under review by the City's Engineering Consultant and comments will be available soon. The stormwater analysis and erosion control report are included as attachments 10 and 11. The proposal includes wetland alterations that will require a permit by rule issued by the Maine DEP.

Landscaping

The proposed landscape plan consists of a combination of deciduous and coniferous trees and foundation plantings. The City Arborist is currently reviewing this plan included as attachment 22.

Building Design

A typical elevation included with the applicant's submittal illustrates a two-story structure with vinyl siding and an asphalt shingle roof (see attachment 26). The elevation portrays predominately double windows with shutters. Staff requests that a full set of elevations in addition to a color rendering be provided prior to the next workshop.

Recommended Pavement Sections
Haley & Aldrich – Consulting Engineers

Pavement Section

The recommended pavement sections for roads and parking areas are as follows:

Roads
3 in. bituminous concrete, placed in two layers
5 in. base course
12 in. sand or gravel subbase course

Automobile Parking Areas
3 in. bituminous concrete, placed in two layers
3 in. base course
12 in. sand or gravel subbase course

Base and subbase course materials should conform to the following gradations:

Base Course

Screened or Crushed Gravel (Maine DOT Standard Specification, Highways and Bridges; Section 703.06a, Type B)

Sieve Size	Percent Finer by Weight
4 in.	100
½ in.	35-75
¼ in.	25-60
No. 40	0-25
No. 200	0-5

Subbase Course

Sand or Gravel (Maine DOT Standard Specification, Highways and Bridges; Section 703.06b, Type E)

Sieve Size	Percent Finer by Weight
6 in.	100
¼ in.	25-100
No. 40	0-50
No. 200	0-7

(Note: Compacted structural fill may be substituted for gravel subbase course)

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
15 Shaker Rd.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:gpcei@maine.rr.com

May 14, 2002

Mr. Jonathan Spence, Planner
City of Portland
389 Congress Street
Portland, ME 04101-3503

COPY

RE: Wellesley Estates, 1818 Forest Avenue Portland, Maine
Forest Avenue Housing Development
(ID #: 20010307, CBL#: 327-B-007)

Dear Jonathan:

Gorrill-Palmer Consulting Engineers, Inc. is pleased to respond to the review comments in your letter to David Lloyd, Archetype, dated March 13th regarding the above referenced project.

Comment 1 – A water capacity letter from the Portland Water District is required.

Response – A water capacity letter from the Portland Water District is enclosed.

Comment 2 – A wastewater capacity letter from Portland Public Works is required.

Response – The Applicant received an email from Public Works on May 3, 2002 which indicated the following options for modifications to the sanitary sewer system design due to City concerns with the downstream system:

"1. Wellesley Estates can tie into the existing force main, as they have planned, if they build a deeper and bigger wet well, adjust their floats, and controls, et cetera, and take third place on the pump station pumping schedule (behind #1Riverton, and #2 Farnham). The Wellesley Pump Station, in most instances, would become the "item" in violation of state law resulting in their filing of the Incident Reports.

2. Wellesley Estates can extend the existing Forest Avenue gravity sewer approximately 500 feet, construct a terminal manhole, and discharge their wastewater into it. Their design flow is less than 10,000 gallons per day, the remaining flow capacity in the last Inter-municipal Sewer Agreement between the cities of Portland and Westbrook. This will allow Wellesley Estates to escape the pumping station interlock pecking order, as well as those Incident Reports, when surcharging of the Riverside Industrial Park Sewer, or other violations, occur.

3. Wellesley Estates can tie into the existing force main, as they have planned, if they intercept the Riverton Park force main downstream, at the entrance to Riverton Park, redirecting Riverton's flows to a new terminal manhole on the Forest Avenue gravity sewer. They will move up to second place on the

pumping station pecking order, behind the Farnham station, as Riverton drops out of the picture. Note, this option is only valid if the flows from Riverton Park are 10,000 gallons per day, or less, due to the 14,000 gallon per day limit in the old Inter-municipal Sewer Agreement."

The Applicant has elected to proceed with the first option, and the pump station has been revised as follows:

- Adequate storage is provided within the wet well to receive the average daily flow from the development below the lowest invert into the pump station.
- The pump station controller shall include a timer to activate the lead pump starting at 2:00 am (or other time selected by the City) and pump for 10 minutes on/10 minutes off until "pump off" is attained. Based upon the projected flow rate of 90 gpm, the pump station should pump for 6 cycles, thereby resulting in the pump station being in the "pump off" configuration by 3:50 am.
- The pump station controller will alternate the pumps during the cycle.
- The pump station controller shall activate the lag pump in the event of lead pump failure during any pumping cycle.

Comment 3 – A detail of the emergency access drive fence is needed.

Response – Archetype will address this issue under separate cover.

Comment 4 – A guardrail, and detail, is needed where the road crosses the culvert.

Response – Archetype will address this issue under separate cover.

Comment 5 – A detail of the proposed tot lot is needed. Is the location proposed the safest due to its proximity to the driveway?

Response – Archetype will address this issue under separate cover.

Comment 6 – Not all of the locations delineated for snow storage are appropriate. For example, the area between buildings 6 and 7 will result in blocking of the sidewalk in addition to being placed in the wetlands, the area near the tot lot will impede its use and visibility and the areas in front of building 3 will result in poor visibility for motorists and pedestrians. Please limit the areas designated for snow storage to a minimal number of appropriate locations.

Response – The snow storage areas have been reconfigured according to the comments. The new storage areas have been shown on the Grading & Drainage Plan.

Comment 7 – When speaking with a representative of your office, I mentioned that the size of the multipurpose playfield did not need to encompass all of the required recreational open space. The minimum quantity of recreational open space of 300 square feet per unit must still be demonstrated through areas set aside for facilities such as tennis courts, basketball courts, playgrounds, etc. Please revise the plans to be consistent with the standard outline in Section 14-120(1).

Response – Archetype will address this issue under separate cover.

Comment 8 – Please provide details on the individual unit's private open space consistent with Section 14-526(14) c. 5.

Response – Archetype will address this issue under separate cover.

Comment 9 – The proposed stockade fence between this development and the Riverton development may be of an inappropriate material. Jeff Tarling is concerned that a wood fence would be "kicked out" to provide access between the two developments. A vinyl-coated chain link fence will be more appropriate.

Response – Archetype will address this issue under separate cover.

Comment 10 – The limits of work outline on sheet L-1 are unreasonable. Non-disturb areas and limits of work should allow for actual earthwork and construction. Please revise.

Response – Archetype will address this issue under separate cover.

Comment 11 – Parking must be setback at least 5 feet from all lot lines. The parking lot between buildings 1 and 3 appears to be less than 5 feet.

Response – Archetype will address this issue under separate cover.

*Comment 12 – Please address all of the PRUD standards under 14-526(14) c. These standards should be **clearly** recognized within the site plan. Please provide an additional narrative to support the plan's demonstration of these standards.*

Response – Archetype will address this issue under separate cover.

Gorrill-Palmer Consulting Engineers, Inc. appreciates the opportunity to respond to these comments and look forward to your review of our responses. Should you have any questions or require any additional information, please feel free to contact our office.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

Alton M. Palmer, P.E.
Vice President

cc: Adam Mack, Minat Corp. Real Estate Development
Bill Hopkins, Archetype

JML/rmg/JN442/SpenceComment&Response5-13-02

CORR IN 442

Portland Water District

225 Douglass St. • P.O. Box 3553 • Portland, ME 04104-3553
(207) 774-5961
FAX (207) 761-8307
www.pwd.org

To: JEFF LEWIS	Date 3/18	Portland Water District 225 Douglass St. • Portland, ME 04102 (207) 774-5961 • Fax (207) 761-8307
Co. GORRILL-PALMER	# of Pgs. 1	
Dept.	From D COFFIN	
Fax No. 657-6912	Phone #	Fax #

March 18, 2002

Mr. Jeffrey Lewis
Gorrill-Palmer Consulting Engineers, Inc.
P.O. Box 1237
22 Shaker Road
Gray, Maine 04039

Re: Wellesley Estates, Portland

Dear Jeff:

The Portland Water District has a 6" water main in Forest Avenue, Portland, near the proposed site. A test on a nearby hydrant produced the following results: static pressure 78 psi; pito pressure 30 psi; with a flow of 817 gpm. With these results in mind, the District feels we have sufficient capacity (with system upgrade) available to serve this proposed project and meet all normal fire protection and domestic water service demands. **Please notify your plumber of these results so that they can design your system to best fit the available pressure.**

With certification by the developer that all required permits have been received, we look forward to serving this project.

Sincerely,

PORTLAND WATER DISTRICT

David Coffin

David W. Coffin, PLS
Engineering Supervisor

REV 05-13-02

FILE NAME: Pumpsize
PROJECT: Wellesley Estate
JOB NUMBER: 442
LOCATION: Portland, Maine
DATE: 8-Mar-02

COMPUTATION OF EQUIVALENT PIPE LENGTH AND TOTAL DYNAMIC HEAD

ENTER:

PUMP STATION RIM =	73.00	
INV. ELEV. INTO STA. =	64.00	
PUMP STA. DIAM. (FT) =	10.00	
AVERAGE DAILY FLOW RATE =	5,500.00	GAL
AVERAGE CYCLES PER DAY =	10.00	
PEAK FACTOR =	5.50	
PUMP FAILURE/ALARM ON DEPTH (FT) =	0.25	
SUCTION SUBMERGENCE DEPTH (FT) =	2.00	
EMERGENCY STORAGE TIME (HR) =	24.00	
F. M. DISCHARGE INVERT ELEV. =	80.80	
HAZEN WILLIAMS C VALUE =	140	
STARTING PUMP FLOW RATE =	50	GPM
PUMP FLOW RATE INTERVAL =	10	GPM

COMPUTES:

AVERAGE FLOW RATE (GPM) =	3.82	GPM
PEAK FLOW RATE (GPM) =	21.01	GPM
MAXIMUM STORAGE ELEVATION	64.00	
STORAGE OUTSIDE OF WETWELL (CF)	0.00	
STORAGE WITHIN WETWELL ABOVE INV IN	0.00	CF
STA. SURFACE AREA =	78.54	
EMERGENCY STORAGE VOLUME (CF) =	735.29	
ALARM ON ELEV. =	54.64	
WETWELL PUMP ON ELEV. =	54.39	
WETWELL PUMP OFF ELEV. =	53.45	
TOP OF BASE SLAB ELEV. =	51.45	
BOTTOM OF BASE SLAB ELEV. =	50.45	
OVERALL HEIGHT OF PUMP STATION (FT)=	22.55	

SUCTION LINE DESCRIPTION:

NOMINAL PIPE DIAM. (IN)	STRAIGHT PIPE LENGTH (FT)	FITTING EQUIV. LENGTH (FT)	TOTAL EQUIV. LENGTH (FT)
3	0.00	0.00	0.00
4	0.00	0.00	0.00
6	0.00	0.00	0.00
8	0.00	0.00	0.00
10	0.00	0.00	0.00
12	0.00	0.00	0.00

DISCHARGE LINE DESCRIPTION:

NOMINAL PIPE DIAM. (IN)	STRAIGHT PIPE LENGTH (FT)	FITTING EQUIV. LENGTH (FT)	TOTAL EQUIV. LENGTH (FT)
3	0.00	0.00	0.00
4	477.00	97.11	574.11
6	0.00	0.00	0.00
8	0.00	0.00	0.00
10	0.00	0.00	0.00
12	0.00	0.00	0.00

TOTAL DYNAMIC HEAD:

PUMP	STATIC HEAD		FRICTION LOSS			TOTAL DYNAMIC HEAD	
FLOW RATE (GPM)	PUMP ON (FT)	PUMP OFF (FT)	SUCTION LINE LOSS (FT)	DISCHARGE LOSS (FT)	TOTAL LOSS (FT)	PUMP ON (FT)	PUMP OFF (FT)
50	26.41	27.35	0.00	1.15	1.15	27.56	28.50
60	26.41	27.35	0.00	1.61	1.61	28.02	28.96
70	26.41	27.35	0.00	2.15	2.15	28.56	29.49
80	26.41	27.35	0.00	2.75	2.75	29.16	30.10
90	26.41	27.35	0.00	3.42	3.42	29.83	30.77
100	26.41	27.35	0.00	4.15	4.15	30.56	31.50
110	26.41	27.35	0.00	4.95	4.95	31.37	32.30
120	26.41	27.35	0.00	5.82	5.82	32.23	33.17
130	26.41	27.35	0.00	6.75	6.75	33.16	34.10
140	26.41	27.35	0.00	7.74	7.74	34.16	35.09

EQUIVALENT PIPE ANALYSIS:
MID-SIZE DUCTILE IRON PIPE (CLASS 52) WITH DOUBLE CEMENT LINING

	PUMP SUCTION INLET CONDITION					
NOM. PIPE DIAM. (IN)	3	4	6	8	10	12
ACT. PIPE DIAM. (IN)	3.17	3.97	6.03	8.14	10.15	12.21
FRICTION FACTOR	0.019	0.016	0.015	0.014	0.014	0.013
1/4 LR BEND K VALUE	0.30	0.27	0.24	0.22	0.22	0.21
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
1/4 BEND K VALUE	0.57	0.51	0.45	0.42	0.42	0.39
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
1/8 BEND K VALUE	0.30	0.27	0.24	0.22	0.22	0.21
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
1/16 BEND K VALUE	0.15	0.14	0.12	0.11	0.11	0.11
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
1/32 BEND K VALUE	0.08	0.07	0.06	0.06	0.06	0.05
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
GATE VALVE K VALUE	0.15	0.14	0.12	0.11	0.11	0.10
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
PLUG VALVE K VALUE	0.34	0.31	0.27	0.25	0.25	0.23
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
SWING CHECK VALVE						
K VALUE	1.90	1.70	1.50	1.40	1.40	1.30
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
STRAIGHT TEE K VALUE	0.38	0.34	0.30	0.28	0.28	0.26
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
SIDE OUTLET TEE						
K VALUE	1.14	1.02	0.90	0.84	0.84	0.78
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
SHARP EDGE INLET						
K VALUE	0.50	0.50	0.50	0.50	0.50	0.50
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
FLARED EDGE INLET						
K VALUE	0.04	0.04	0.04	0.04	0.04	0.04
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
EXIT K VALUE	1.00	1.00	1.00	1.00	1.00	1.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
REDUCER						
SMALLER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00
LARGER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00
FITTING LENGTH (IN)	1.00	1.00	1.00	1.00	1.00	1.00
K VALUE	0.00	0.00	0.00	0.00	0.00	0.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
INCREASER						
SMALLER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00
LARGER DIAMETER	2.00	4.00	6.00	8.00	10.00	12.00
FITTING LENGTH (IN)	1.00	1.00	1.00	1.00	1.00	1.00
K VALUE	0.00	0.00	0.00	0.00	0.00	0.00
NUMBER OF FITTINGS	0.00	0.00	0.00	0.00	0.00	0.00
EQUIV. PIPE LENGTH	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	0.00	0.00	0.00	0.00	0.00	0.00

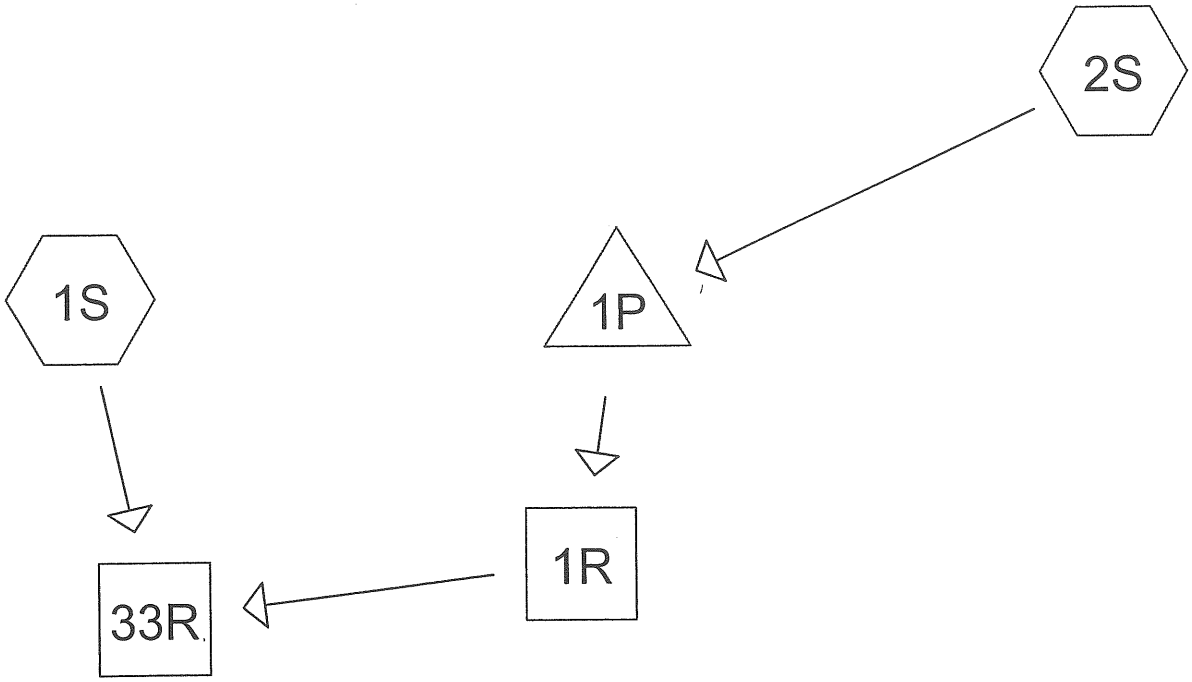
PUMP DISCHARGE OUTLET CONDITION					
3	4	6	8	10	12
3.17	3.97	6.03	8.14	10.15	12.21
0.019	0.016	0.015	0.014	0.014	0.013
0.30	0.27	0.24	0.22	0.22	0.21
0.00	2.00	0.00	0.00	0.00	0.00
0.00	11.17	0.00	0.00	0.00	0.00
0.57	0.51	0.45	0.42	0.42	0.39
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.30	0.27	0.24	0.22	0.22	0.21
0.00	6.00	0.00	0.00	0.00	0.00
0.00	33.50	0.00	0.00	0.00	0.00
0.15	0.14	0.12	0.11	0.11	0.11
0.00	1.00	0.00	0.00	0.00	0.00
0.00	2.89	0.00	0.00	0.00	0.00
0.08	0.07	0.06	0.06	0.06	0.05
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.15	0.14	0.12	0.11	0.11	0.10
0.00	1.00	0.00	0.00	0.00	0.00
0.00	2.89	0.00	0.00	0.00	0.00
0.34	0.31	0.27	0.25	0.25	0.23
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
1.90	1.70	1.50	1.40	1.40	1.30
0.00	1.00	0.00	0.00	0.00	0.00
0.00	35.15	0.00	0.00	0.00	0.00
0.38	0.34	0.30	0.28	0.28	0.26
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
1.14	1.02	0.90	0.84	0.84	0.78
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.50	0.50	0.50	0.50	0.50	0.50
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.04	0.04	0.04	0.04	0.04	0.04
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
1.00	1.00	1.00	1.00	1.00	1.00
0.00	1.00	0.00	0.00	0.00	0.00
0.00	20.68	0.00	0.00	0.00	0.00
2.00	4.00	6.00	8.00	10.00	12.00
2.00	4.00	6.00	8.00	10.00	12.00
1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
2.00	3.00	4.00	8.00	10.00	12.00
2.00	4.00	6.00	8.00	10.00	12.00
1.00	1.00	1.00	1.00	1.00	1.00
0.00	0.22	0.57	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00
0.00	97.11	0.00	0.00	0.00	0.00

FRICTION HEAD ANALYSIS:

	3" DUCTILE IRON		4" DUCTILE IRON		6" DUCTILE IRON		8" DUCTILE IRON		10" DUCTILE IRON		12" DUCTILE IRON	
	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE	SUCTION	DISCHARGE
PIPE I.D. (IN)	3.17	3.17	3.92	3.92	6.03	6.03	8.14	8.14	10.15	10.15	12.21	12.21
PIPE AREA (SF)	0.0548	0.0548	0.0838	0.0838	0.1983	0.1983	0.3614	0.3614	0.5619	0.5619	0.8131	0.8131
HYD. RAD. (FT)	0.0660	0.0660	0.0817	0.0817	0.1256	0.1256	0.1696	0.1696	0.2115	0.2115	0.2544	0.2544
C*R^0.63*1.38	33.3065	33.3065	38.0743	38.0743	49.9415	49.9415	60.3330	60.3330	69.3322	69.3322	77.8919	77.8919
FLOW (GPM)	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
FLOW (CFS)	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114	0.1114
HYD. SLOPE	0.0056	0.0056	0.0020	0.0020	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	2.0327	2.0327	1.3293	1.3293	0.5618	0.5618	0.3083	0.3083	0.1983	0.1983	0.1370	0.1370
FLOW (GPM)	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
FLOW (CFS)	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337	0.1337
HYD. SLOPE	0.0079	0.0079	0.0028	0.0028	0.0003	0.0003	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	1.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	2.4392	2.4392	1.5951	1.5951	0.6741	0.6741	0.3699	0.3699	0.2379	0.2379	0.1644	0.1644
FLOW (GPM)	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00
FLOW (CFS)	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560	0.1560
HYD. SLOPE	0.0105	0.0105	0.0037	0.0037	0.0005	0.0005	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	2.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	2.8458	2.8458	1.8610	1.8610	0.7865	0.7865	0.4316	0.4316	0.2776	0.2776	0.1918	0.1918
FLOW (GPM)	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
FLOW (CFS)	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783	0.1783
HYD. SLOPE	0.0135	0.0135	0.0048	0.0048	0.0006	0.0006	0.0001	0.0001	0.0000	0.0000	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	2.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	3.2523	3.2523	2.1269	2.1269	0.8988	0.8988	0.4932	0.4932	0.3172	0.3172	0.2192	0.2192
FLOW (GPM)	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00	90.00
FLOW (CFS)	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005	0.2005
HYD. SLOPE	0.0167	0.0167	0.0060	0.0060	0.0007	0.0007	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	3.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	3.6588	3.6588	2.3927	2.3927	1.0112	1.0112	0.5549	0.5549	0.3569	0.3569	0.2466	0.2466
FLOW (GPM)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
FLOW (CFS)	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228	0.2228
HYD. SLOPE	0.0203	0.0203	0.0072	0.0072	0.0009	0.0009	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	4.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.0654	4.0654	2.6586	2.6586	1.1235	1.1235	0.6166	0.6166	0.3965	0.3965	0.2740	0.2740
FLOW (GPM)	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00	110.00
FLOW (CFS)	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451	0.2451
HYD. SLOPE	0.0243	0.0243	0.0086	0.0086	0.0011	0.0011	0.0002	0.0002	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	4.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.4719	4.4719	2.9244	2.9244	1.2359	1.2359	0.6782	0.6782	0.4362	0.4362	0.3014	0.3014
FLOW (GPM)	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
FLOW (CFS)	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674	0.2674
HYD. SLOPE	0.0285	0.0285	0.0101	0.0101	0.0012	0.0012	0.0003	0.0003	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	4.8785	4.8785	3.1903	3.1903	1.3482	1.3482	0.7399	0.7399	0.4758	0.4758	0.3288	0.3288
FLOW (GPM)	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
FLOW (CFS)	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897	0.2897
HYD. SLOPE	0.0331	0.0331	0.0118	0.0118	0.0014	0.0014	0.0003	0.0003	0.0001	0.0001	0.0000	0.0000
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	6.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	5.2850	5.2850	3.4561	3.4561	1.4606	1.4606	0.8015	0.8015	0.5155	0.5155	0.3562	0.3562
FLOW (GPM)	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00	140.00
FLOW (CFS)	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119	0.3119
HYD. SLOPE	0.0379	0.0379	0.0135	0.0135	0.0017	0.0017	0.0004	0.0004	0.0001	0.0001	0.0001	0.0001
LENGTH (FT)	0.00	0.00	0.00	574.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRIC. HEAD (FT)	0.00	0.00	0.00	7.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VELOCITY (FPS)	5.6915	5.6915	3.7220	3.7220	1.5729	1.5729	0.8632	0.8632	0.5552	0.5552	0.3836	0.3836

ATTACHMENT B

TR-20 CALCULATIONS



Subcat Reach Pond Link

Drainage Diagram for 442 WELLESLEY ESTATES PRE-DEVELOPMENT 3-12-02
Prepared by Gorrill-Palmer Consulting Engineers, Inc. 5/13/02
HydroCAD® 6.00 s/n 001265 © 1986-2001 Applied Microcomputer Systems

Time span=10.00-20.00 hrs, dt=0.10 hrs, 101 points

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: East Route 495

Subcatchment 2S: Forest Avenue

Reach 1R: Inflow= 6.31 cfs 0.860 af
Length= 460.0' Max Vel= 1.4 fps Capacity= 152.76 cfs Outflow= 6.11 cfs 0.851 af

Reach 33R: Inflow= 8.94 cfs 1.323 af
Outflow= 8.94 cfs 1.323 af

Pond 1P: Pond Peak Storage= 5,742 cf Inflow= 7.24 cfs 0.887 af
Primary= 6.31 cfs 0.860 af Outflow= 6.31 cfs 0.860 af

Subcatchment 1S: East Route 495

Runoff = 3.35 cfs @ 12.52 hrs, Volume= 0.472 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
1.100	94	Impervious/Gravel
4.850	77	Woods-D
1.120	30	Woods-A
0.760	39	Lawn-A
0.650	61	Lawn-B
0.150	55	Woods-B
0.930	80	Grass-D
9.560	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	100	0.0266	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
7.6	50	0.0266	0.1		**Sheet Flow, Segment ID: BC** Grass: Dense n= 0.240 P2= 3.00"
5.5	365	0.0493	1.1		**Shallow Concentrated Flow, Segment ID: CD** Woodland Kv= 5.0 fps
0.1	15	0.4166	3.2		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
2.3	103	0.0218	0.7		**Shallow Concentrated Flow, Segment ID: EF** Woodland Kv= 5.0 fps
35.3	633	Total			

Subcatchment 2S: Forest Avenue

Runoff = 7.24 cfs @ 12.43 hrs, Volume= 0.887 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
2.920	98	Impervious
4.490	61	1/4 Acre Lots- A
1.740	83	1/4 Acre Lots- C
0.620	87	1/4 Acre Lots- D
0.060	55	Woods- B
1.120	77	Woods- D
10.950	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	100	0.0200	0.1		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
8.9	1,670	0.0240	3.1		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
1.5	370	0.0200	4.0	4.95	**Circular Channel (pipe), Segment ID: CD**
6.7	200	0.0100	0.5		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
31.8	2,340	Total			

Reach 1R:

[65] Warning: Inlet elevation not specified

Inflow = 6.31 cfs @ 12.60 hrs, Volume= 0.860 af
Outflow = 6.11 cfs @ 12.76 hrs, Volume= 0.851 af, Atten= 3%, Lag= 9.4 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.4 fps, Min. Travel Time= 5.3 min
Avg. Velocity = 0.7 fps, Avg. Travel Time= 11.0 min

Peak Depth= 0.40'
Capacity at bank full= 152.76 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 460.0' Slope= 0.0217 '/'
Side Slope Z-value= 6.7 '/'

Reach 33R:

[40] Hint: Not Described (Outflow=Inflow)

Inflow = 8.94 cfs @ 12.70 hrs, Volume= 1.323 af
Outflow = 8.94 cfs @ 12.70 hrs, Volume= 1.323 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Pond 1P: Pond

Inflow = 7.24 cfs @ 12.43 hrs, Volume= 0.887 af
Outflow = 6.31 cfs @ 12.60 hrs, Volume= 0.860 af, Atten= 13%, Lag= 10.3 min
Primary = 6.31 cfs @ 12.60 hrs, Volume= 0.860 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 101.26' Storage= 5,742 cf
Plug-Flow detention time= 27.5 min calculated for 0.860 af (97% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	100	0	0
102.00	9,000	9,100	9,100
104.00	50,000	59,000	68,100

Primary OutFlow (Free Discharge)
└─1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	100.00'	**24.0" x 120.0' long Culvert** Ke= 0.900

Time span=10.00-20.00 hrs, dt=0.10 hrs, 101 points

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: East Route 495

Subcatchment 2S: Forest Avenue

Reach 1R: Inflow= 12.54 cfs 1.949 af
Length= 460.0' Max Vel= 1.8 fps Capacity= 152.76 cfs Outflow= 12.49 cfs 1.936 af

Reach 33R: Inflow= 21.42 cfs 3.196 af
Outflow= 21.42 cfs 3.196 af

Pond 1P: Pond Peak Storage= 12,128 cf Inflow= 16.64 cfs 1.987 af
Primary= 12.54 cfs 1.949 af Outflow= 12.54 cfs 1.949 af

Subcatchment 1S: East Route 495

Runoff = 9.84 cfs @ 12.48 hrs, Volume= 1.260 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
1.100	94	Impervious/Gravel
4.850	77	Woods-D
1.120	30	Woods-A
0.760	39	Lawn-A
0.650	61	Lawn-B
0.150	55	Woods-B
0.930	80	Grass-D
9.560	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	100	0.0266	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
7.6	50	0.0266	0.1		**Sheet Flow, Segment ID: BC** Grass: Dense n= 0.240 P2= 3.00"
5.5	365	0.0493	1.1		**Shallow Concentrated Flow, Segment ID: CD** Woodland Kv= 5.0 fps
0.1	15	0.4166	3.2		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
2.3	103	0.0218	0.7		**Shallow Concentrated Flow, Segment ID: EF** Woodland Kv= 5.0 fps
35.3	633	Total			

Subcatchment 2S: Forest Avenue

Runoff = 16.64 cfs @ 12.40 hrs, Volume= 1.987 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
2.920	98	Impervious
4.490	61	1/4 Acre Lots- A
1.740	83	1/4 Acre Lots- C
0.620	87	1/4 Acre Lots- D
0.060	55	Woods- B
1.120	77	Woods- D
10.950	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	100	0.0200	0.1		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
8.9	1,670	0.0240	3.1		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
1.5	370	0.0200	4.0	4.95	**Circular Channel (pipe), Segment ID: CD**
6.7	200	0.0100	0.5		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
31.8	2,340	Total			

Reach 1R:

[65] Warning: Inlet elevation not specified

Inflow = 12.54 cfs @ 12.65 hrs, Volume= 1.949 af
Outflow = 12.49 cfs @ 12.77 hrs, Volume= 1.936 af, Atten= 0%, Lag= 7.6 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.8 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.9 fps, Avg. Travel Time= 8.5 min

Peak Depth= 0.58'
Capacity at bank full= 152.76 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 460.0' Slope= 0.0217 '/'
Side Slope Z-value= 6.7 '/'

Reach 33R:

[40] Hint: Not Described (Outflow=Inflow)

Inflow = 21.42 cfs @ 12.56 hrs, Volume= 3.196 af
Outflow = 21.42 cfs @ 12.56 hrs, Volume= 3.196 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Pond 1P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow = 16.64 cfs @ 12.40 hrs, Volume= 1.987 af
Outflow = 12.54 cfs @ 12.65 hrs, Volume= 1.949 af, Atten= 25%, Lag= 14.5 min
Primary = 12.54 cfs @ 12.65 hrs, Volume= 1.949 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 102.10' Storage= 12,128 cf
Plug-Flow detention time= 21.2 min calculated for 1.949 af (98% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	100	0	0
102.00	9,000	9,100	9,100
104.00	50,000	59,000	68,100

Primary OutFlow (Free Discharge)
└─1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	100.00'	**24.0" x 120.0' long Culvert** Ke= 0.900

Time span=10.00-20.00 hrs, dt=0.10 hrs, 101 points

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: East Route 495

Subcatchment 2S: Forest Avenue

Reach 1R: Inflow= 13.76 cfs 2.502 af
Length= 460.0' Max Vel= 1.8 fps Capacity= 152.76 cfs Outflow= 13.71 cfs 2.487 af

Reach 33R: Inflow= 25.90 cfs 4.181 af
Outflow= 25.90 cfs 4.181 af

Pond 1P: Pond Peak Storage= 18,754 cf Inflow= 21.41 cfs 2.545 af
Primary= 13.76 cfs 2.502 af Outflow= 13.76 cfs 2.502 af

Subcatchment 1S: East Route 495

Runoff = 13.37 cfs @ 12.46 hrs, Volume= 1.694 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
1.100	94	Impervious/Gravel
4.850	77	Woods-D
1.120	30	Woods-A
0.760	39	Lawn-A
0.650	61	Lawn-B
0.150	55	Woods-B
0.930	80	Grass-D
9.560	69	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.8	100	0.0266	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
7.6	50	0.0266	0.1		**Sheet Flow, Segment ID: BC** Grass: Dense n= 0.240 P2= 3.00"
5.5	365	0.0493	1.1		**Shallow Concentrated Flow, Segment ID: CD** Woodland Kv= 5.0 fps
0.1	15	0.4166	3.2		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
2.3	103	0.0218	0.7		**Shallow Concentrated Flow, Segment ID: EF** Woodland Kv= 5.0 fps
35.3	633	Total			

Subcatchment 2S: Forest Avenue

Runoff = 21.41 cfs @ 12.40 hrs, Volume= 2.545 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=5.50"

Area (ac)	CN	Description
2.920	98	Impervious
4.490	61	1/4 Acre Lots- A
1.740	83	1/4 Acre Lots- C
0.620	87	1/4 Acre Lots- D
0.060	55	Woods- B
1.120	77	Woods- D
10.950	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	100	0.0200	0.1		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
8.9	1,670	0.0240	3.1		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
1.5	370	0.0200	4.0	4.95	**Circular Channel (pipe), Segment ID: CD**
6.7	200	0.0100	0.5		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
31.8	2,340	Total			

Reach 1R:

[65] Warning: Inlet elevation not specified

Inflow = 13.76 cfs @ 12.72 hrs, Volume= 2.502 af
Outflow = 13.71 cfs @ 12.84 hrs, Volume= 2.487 af, Atten= 0%, Lag= 7.3 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.8 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 1.0 fps, Avg. Travel Time= 7.7 min

Peak Depth= 0.61'
Capacity at bank full= 152.76 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 460.0' Slope= 0.0217 '/'
Side Slope Z-value= 6.7 '/'

Reach 33R:

[40] Hint: Not Described (Outflow=Inflow)

Inflow = 25.90 cfs @ 12.52 hrs, Volume= 4.181 af
Outflow = 25.90 cfs @ 12.52 hrs, Volume= 4.181 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Pond 1P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow = 21.41 cfs @ 12.40 hrs, Volume= 2.545 af
Outflow = 13.76 cfs @ 12.72 hrs, Volume= 2.502 af, Atten= 36%, Lag= 19.3 min
Primary = 13.76 cfs @ 12.72 hrs, Volume= 2.502 af

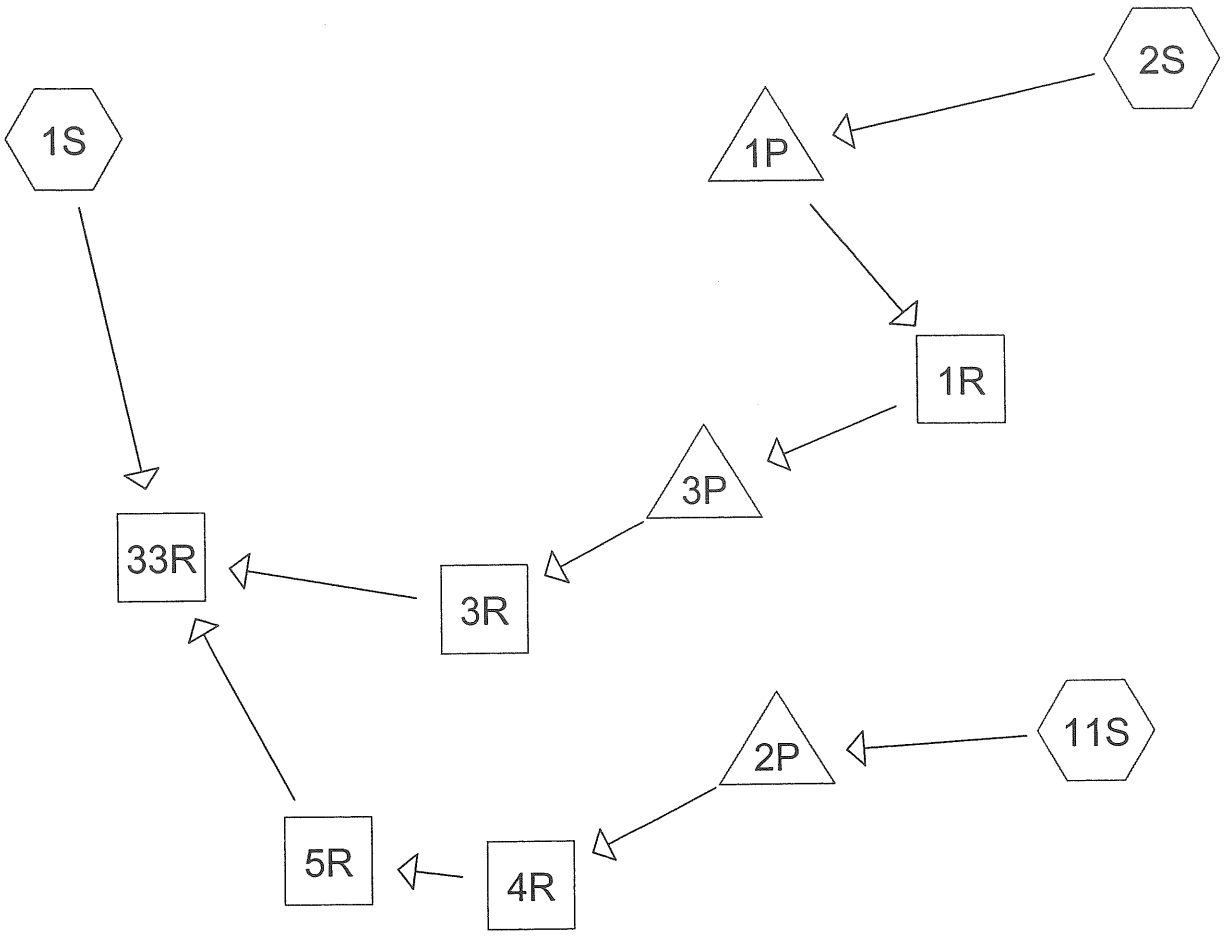
Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 102.33' Storage= 18,754 cf
Plug-Flow detention time= 21.9 min calculated for 2.502 af (98% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	100	0	0
102.00	9,000	9,100	9,100
104.00	50,000	59,000	68,100

Primary OutFlow (Free Discharge)
↑—1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	100.00'	**24.0" x 120.0' long Culvert** Ke= 0.900



Subcat Reach Pond Link

Drainage Diagram for 442 WELLESLEY ESTATES POST-DEVELOPMENT 5-14-02
Prepared by Gorrill-Palmer Consulting Engineers, Inc. 5/13/02
HydroCAD® 6.00 s/n 001265 © 1986-2001 Applied Microcomputer Systems

Time span=10.00-20.00 hrs, dt=0.10 hrs, 101 points

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: East Route 495

Subcatchment 2S: Forest Avenue

Subcatchment 11S: 495

Reach 1R: 495 Channel Inflow= 6.31 cfs 0.860 af
Length= 140.0' Max Vel= 1.1 fps Capacity= 103.71 cfs Outflow= 6.17 cfs 0.857 af

Reach 3R: Channel Riverton Inflow= 6.09 cfs 0.851 af
Length= 240.0' Max Vel= 1.6 fps Capacity= 183.45 cfs Outflow= 5.96 cfs 0.847 af

Reach 4R: Pipe from Pond Inflow= 0.39 cfs 0.140 af
Length= 58.0' Max Vel= 3.2 fps Capacity= 12.41 cfs Outflow= 0.39 cfs 0.140 af

Reach 5R: CHANNEL RIVERTON Inflow= 0.39 cfs 0.140 af
Length= 105.0' Max Vel= 0.6 fps Capacity= 183.58 cfs Outflow= 0.39 cfs 0.139 af

Reach 33R: Inflow= 8.84 cfs 1.464 af
Outflow= 8.84 cfs 1.464 af

Pond 1P: Pond Peak Storage= 5,742 cf Inflow= 7.24 cfs 0.887 af
Primary= 6.31 cfs 0.860 af Outflow= 6.31 cfs 0.860 af

Pond 2P: Detention Peak Storage= 4,729 cf Inflow= 1.65 cfs 0.220 af
Primary= 0.39 cfs 0.140 af Outflow= 0.39 cfs 0.140 af

Pond 3P: CULVERT POND Peak Storage= 2,011 cf Inflow= 6.17 cfs 0.857 af
Primary= 6.09 cfs 0.851 af Outflow= 6.09 cfs 0.851 af

Subcatchment 1S: East Route 495

Runoff = 3.54 cfs @ 12.51 hrs, Volume= 0.478 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
2.050	98	Impervious
0.600	77	Woods-D
0.670	30	Woods-A
0.980	39	Lawn-A
0.800	61	Lawn-B
1.880	80	Lawn- D
0.090	93	Gravel-A
0.400	89	Gravel-A
7.470	73	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	150	0.0200	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	105	0.0286	3.4		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
0.3	171	0.0290	9.1	7.17	**Circular Channel (pipe), Segment ID: CD**
0.4	120	0.0275	4.6	99.17	**Trap/Vee/Rect Channel Flow, Segment ID: DE** Bot.W=10.00' D=1.00' Z= 3.0 & 20.0 '/' n= 0.040
0.2	66	0.0050	6.0	18.90	**Circular Channel (pipe), Segment ID: EF**
4.4	240	0.0330	0.9		**Shallow Concentrated Flow, Segment ID: FG** Woodland Kv= 5.0 fps
36.5	852	Total			

Subcatchment 2S: Forest Avenue

Runoff = 7.24 cfs @ 12.43 hrs, Volume= 0.887 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
2.920	98	Impervious
4.490	61	1/4 Acre Lots- A
1.740	83	1/4 Acre Lots- C
0.620	87	1/4 Acre Lots- D
0.060	55	Woods- B
1.120	77	Woods- D
10.950	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	100	0.0200	0.1		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
8.9	1,670	0.0240	3.1		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
1.5	370	0.0200	4.0	4.95	**Circular Channel (pipe), Segment ID: CD**
6.7	200	0.0100	0.5		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
31.8	2,340	Total			

Subcatchment 11S: 495

Runoff = 1.65 cfs @ 12.52 hrs, Volume= 0.220 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=3.00"

Area (ac)	CN	Description
0.440	98	Impervious
0.540	80	Grass-D
1.110	77	Woods-D
2.090	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	65	0.0100	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
18.7	117	0.0150	0.1		**Sheet Flow, Segment ID: BC** Grass: Dense n= 0.240 P2= 3.00"
0.0	20	0.2000	6.7		**Shallow Concentrated Flow, Segment ID: CD** Grassed Waterway Kv= 15.0 fps
0.2	15	0.0100	1.5		**Shallow Concentrated Flow, Segment ID: DE** Grassed Waterway Kv= 15.0 fps
39.6	217	Total			

Reach 1R: 495 Channel

[65] Warning: Inlet elevation not specified

Inflow = 6.31 cfs @ 12.60 hrs, Volume= 0.860 af
Outflow = 6.17 cfs @ 12.66 hrs, Volume= 0.857 af, Atten= 2%, Lag= 3.9 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.1 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 0.5 fps, Avg. Travel Time= 4.3 min

Peak Depth= 0.50'
Capacity at bank full= 103.71 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 140.0' Slope= 0.0100 '/'
Side Slope Z-value= 6.7 '/'

Reach 3R: Channel Riverton

[65] Warning: Inlet elevation not specified

Inflow	=	6.09 cfs @	12.73 hrs, Volume=	0.851 af
Outflow	=	5.96 cfs @	12.81 hrs, Volume=	0.847 af, Atten= 2%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.6 fps, Min. Travel Time= 2.5 min
Avg. Velocity = 0.8 fps, Avg. Travel Time= 5.0 min

Peak Depth= 0.35'
Capacity at bank full= 183.45 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 240.0' Slope= 0.0313 '/'
Side Slope Z-value= 6.7 '/'

Reach 4R: Pipe from Pond

[52] Hint: Inlet conditions not evaluated
[65] Warning: Inlet elevation not specified

Inflow	=	0.39 cfs @	13.60 hrs, Volume=	0.140 af
Outflow	=	0.39 cfs @	13.61 hrs, Volume=	0.140 af, Atten= 0%, Lag= 0.7 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 3.2 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.4 fps, Avg. Travel Time= 0.4 min

Peak Depth= 0.18'
Capacity at bank full= 12.41 cfs

Reach 5R: CHANNEL RIVERTON

[65] Warning: Inlet elevation not specified

Inflow	=	0.39 cfs @	13.61 hrs, Volume=	0.140 af
Outflow	=	0.39 cfs @	13.69 hrs, Volume=	0.139 af, Atten= 0%, Lag= 5.1 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 0.6 fps, Min. Travel Time= 2.8 min
Avg. Velocity = 0.4 fps, Avg. Travel Time= 3.9 min

Peak Depth= 0.07'
Capacity at bank full= 183.58 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 105.0' Slope= 0.0313 '/'
Side Slope Z-value= 6.7 '/'

Reach 33R:

[40] Hint: Not Described (Outflow=Inflow)

Inflow	=	8.84 cfs @	12.74 hrs, Volume=	1.464 af
Outflow	=	8.84 cfs @	12.74 hrs, Volume=	1.464 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Pond 1P: Pond

Inflow	=	7.24 cfs @	12.43 hrs, Volume=	0.887 af
Outflow	=	6.31 cfs @	12.60 hrs, Volume=	0.860 af, Atten= 13%, Lag= 10.3 min
Primary	=	6.31 cfs @	12.60 hrs, Volume=	0.860 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 101.26' Storage= 5,742 cf
Plug-Flow detention time= 27.5 min calculated for 0.860 af (97% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	100	0	0
102.00	9,000	9,100	9,100
104.00	50,000	59,000	68,100

Primary OutFlow (Free Discharge)
↑—1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	100.00'	**24.0" x 120.0' long Culvert** Ke= 0.900

Pond 2P: Detention

[82] Warning: Early inflow requires earlier time span

Inflow	=	1.65 cfs @	12.52 hrs, Volume=	0.220 af
Outflow	=	0.39 cfs @	13.60 hrs, Volume=	0.140 af, Atten= 76%, Lag= 64.7 min
Primary	=	0.39 cfs @	13.60 hrs, Volume=	0.140 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 66.05' Storage= 4,729 cf
Plug-Flow detention time= 167.2 min calculated for 0.139 af (63% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.30	2,000	0	0
65.00	2,580	1,603	1,603
66.00	3,308	2,944	4,547
67.00	4,080	3,694	8,241
68.00	4,880	4,480	12,721

Primary OutFlow (Free Discharge)
- 1=Broad-Crested Rectangular Weir
- 2=Orifice/Grate
- 3=Orifice/Grate

#	Routing	Invert	Outlet Devices
1	Primary	66.90'	**12.0' long Broad-Crested Rectangular Weir X 1.81** Head (feet) 0.50 1.00 1.50 Coef. (English) 1.72 1.88 1.98
2	Primary	63.80'	**2.0" Vert. Orifice/Grate** C= 0.600
3	Primary	65.80'	**10.0" Vert. Orifice/Grate** C= 0.600

Pond 3P: CULVERT POND

Inflow	=	6.17 cfs @	12.66 hrs, Volume=	0.857 af
Outflow	=	6.09 cfs @	12.73 hrs, Volume=	0.851 af, Atten= 1%, Lag= 4.0 min
Primary	=	6.09 cfs @	12.73 hrs, Volume=	0.851 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 67.73' Storage= 2,011 cf
Plug-Flow detention time= 8.2 min calculated for 0.851 af (99% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.90	5	0	0
67.00	144	7	7
68.00	5,312	2,728	2,735
69.00	10,096	7,704	10,439
69.50	12,400	5,624	16,063

Primary OutFlow (Free Discharge)
- 1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	66.90'	**24.0" x 72.0' long Culvert X 2.00** Ke= 0.900

Time span=10.00-20.00 hrs, dt=0.10 hrs, 101 points

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: East Route 495

Subcatchment 2S: Forest Avenue

Subcatchment 11S: 495

Reach 1R: 495 Channel Inflow= 12.54 cfs 1.949 af
Length= 140.0' Max Vel= 1.4 fps Capacity= 103.71 cfs Outflow= 12.51 cfs 1.944 af

Reach 3R: Channel Riverton Inflow= 12.34 cfs 1.934 af
Length= 240.0' Max Vel= 2.0 fps Capacity= 183.45 cfs Outflow= 12.30 cfs 1.928 af

Reach 4R: Pipe from Pond Inflow= 1.97 cfs 0.353 af
Length= 58.0' Max Vel= 5.1 fps Capacity= 12.41 cfs Outflow= 1.97 cfs 0.354 af

Reach 5R: CHANNEL RIVERTON Inflow= 1.97 cfs 0.354 af
Length= 105.0' Max Vel= 1.1 fps Capacity= 183.58 cfs Outflow= 1.95 cfs 0.352 af

Reach 33R: Inflow= 20.88 cfs 3.445 af
Outflow= 20.88 cfs 3.445 af

Pond 1P: Pond Peak Storage= 12,128 cf Inflow= 16.64 cfs 1.987 af
Primary= 12.54 cfs 1.949 af Outflow= 12.54 cfs 1.949 af

Pond 2P: Detention Peak Storage= 7,075 cf Inflow= 3.40 cfs 0.447 af
Primary= 1.97 cfs 0.353 af Outflow= 1.97 cfs 0.353 af

Pond 3P: CULVERT POND Peak Storage= 3,857 cf Inflow= 12.51 cfs 1.944 af
Primary= 12.34 cfs 1.934 af Outflow= 12.34 cfs 1.934 af

Subcatchment 1S: East Route 495

Runoff = 9.07 cfs @ 12.48 hrs, Volume= 1.165 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
2.050	98	Impervious
0.600	77	Woods-D
0.670	30	Woods-A
0.980	39	Lawn-A
0.800	61	Lawn-B
1.880	80	Lawn- D
0.090	93	Gravel-A
0.400	89	Gravel-A
7.470	73	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
30.7	150	0.0200	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
0.5	105	0.0286	3.4		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
0.3	171	0.0290	9.1	7.17	**Circular Channel (pipe), Segment ID: CD**
0.4	120	0.0275	4.6	99.17	**Trap/Vee/Rect Channel Flow, Segment ID: DE** Bot.W=10.00' D=1.00' Z= 3.0 & 20.0 '/' n= 0.040
0.2	66	0.0050	6.0	18.90	**Circular Channel (pipe), Segment ID: EF**
4.4	240	0.0330	0.9		**Shallow Concentrated Flow, Segment ID: FG** Woodland Kv= 5.0 fps
36.5	852	Total			

Subcatchment 2S: Forest Avenue

Runoff = 16.64 cfs @ 12.40 hrs, Volume= 1.987 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
2.920	98	Impervious
4.490	61	1/4 Acre Lots- A
1.740	83	1/4 Acre Lots- C
0.620	87	1/4 Acre Lots- D
0.060	55	Woods- B
1.120	77	Woods- D
10.950	77	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	100	0.0200	0.1		**Sheet Flow, Segment ID: AB** Grass: Dense n= 0.240 P2= 3.00"
8.9	1,670	0.0240	3.1		**Shallow Concentrated Flow, Segment ID: BC** Paved Kv= 20.3 fps
1.5	370	0.0200	4.0	4.95	**Circular Channel (pipe), Segment ID: CD**
6.7	200	0.0100	0.5		**Shallow Concentrated Flow, Segment ID: DE** Woodland Kv= 5.0 fps
31.8	2,340	Total			

Subcatchment 11S: 495

Runoff = 3.40 cfs @ 12.50 hrs, Volume= 0.447 af

Runoff by SCS TR-20 method, UH=SCS, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs
Type III 24-hr Rainfall=4.70"

Area (ac)	CN	Description
0.440	98	Impervious
0.540	80	Grass-D
1.110	77	Woods-D
2.090	82	Weighted Average

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.7	65	0.0100	0.1		**Sheet Flow, Segment ID: AB** Woods: Light underbrush n= 0.400 P2= 3.00"
18.7	117	0.0150	0.1		**Sheet Flow, Segment ID: BC** Grass: Dense n= 0.240 P2= 3.00"
0.0	20	0.2000	6.7		**Shallow Concentrated Flow, Segment ID: CD** Grassed Waterway Kv= 15.0 fps
0.2	15	0.0100	1.5		**Shallow Concentrated Flow, Segment ID: DE** Grassed Waterway Kv= 15.0 fps
39.6	217	Total			

Reach 1R: 495 Channel

[65] Warning: Inlet elevation not specified

Inflow = 12.54 cfs @ 12.65 hrs, Volume= 1.949 af
Outflow = 12.51 cfs @ 12.70 hrs, Volume= 1.944 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.4 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 0.7 fps, Avg. Travel Time= 3.3 min

Peak Depth= 0.72'
Capacity at bank full= 103.71 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 140.0' Slope= 0.0100 '/'
Side Slope Z-value= 6.7 '/'

Reach 3R: Channel Riverton

[65] Warning: Inlet elevation not specified

Inflow	=	12.34 cfs @	12.85 hrs, Volume=	1.934 af
Outflow	=	12.30 cfs @	12.89 hrs, Volume=	1.928 af, Atten= 0%, Lag= 2.5 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 2.0 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 1.0 fps, Avg. Travel Time= 3.9 min

Peak Depth= 0.53'
Capacity at bank full= 183.45 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 240.0' Slope= 0.0313 '/'
Side Slope Z-value= 6.7 '/'

Reach 4R: Pipe from Pond

[52] Hint: Inlet conditions not evaluated
[65] Warning: Inlet elevation not specified

Inflow	=	1.97 cfs @	12.92 hrs, Volume=	0.353 af
Outflow	=	1.97 cfs @	12.93 hrs, Volume=	0.354 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 5.1 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.0 fps, Avg. Travel Time= 0.3 min

Peak Depth= 0.40'
Capacity at bank full= 12.41 cfs

Reach 5R: CHANNEL RIVERTON

[65] Warning: Inlet elevation not specified

Inflow	=	1.97 cfs @	12.93 hrs, Volume=	0.354 af
Outflow	=	1.95 cfs @	12.98 hrs, Volume=	0.352 af, Atten= 1%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs / 2
Max. Velocity= 1.1 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 0.6 fps, Avg. Travel Time= 3.0 min

Peak Depth= 0.19'
Capacity at bank full= 183.58 cfs
8.00' x 2.00' deep channel, n= 0.070 Length= 105.0' Slope= 0.0313 '/'
Side Slope Z-value= 6.7 '/'

Reach 33R:

[40] Hint: Not Described (Outflow=Inflow)

Inflow	=	20.88 cfs @	12.65 hrs, Volume=	3.445 af
Outflow	=	20.88 cfs @	12.65 hrs, Volume=	3.445 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Pond 1P: Pond

[82] Warning: Early inflow requires earlier time span

Inflow	=	16.64 cfs @	12.40 hrs, Volume=	1.987 af
Outflow	=	12.54 cfs @	12.65 hrs, Volume=	1.949 af, Atten= 25%, Lag= 14.5 min
Primary	=	12.54 cfs @	12.65 hrs, Volume=	1.949 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 102.10' Storage= 12,128 cf
Plug-Flow detention time= 21.2 min calculated for 1.949 af (98% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.00	100	0	0
102.00	9,000	9,100	9,100
104.00	50,000	59,000	68,100

Primary OutFlow (Free Discharge)
└1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	100.00'	**24.0" x 120.0' long Culvert** Ke= 0.900

Pond 2P: Detention

[82] Warning: Early inflow requires earlier time span

Inflow	=	3.40 cfs @	12.50 hrs, Volume=	0.447 af
Outflow	=	1.97 cfs @	12.92 hrs, Volume=	0.353 af, Atten= 42%, Lag= 25.4 min
Primary	=	1.97 cfs @	12.92 hrs, Volume=	0.353 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 66.68' Storage= 7,075 cf
Plug-Flow detention time= 101.7 min calculated for 0.353 af (79% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
64.30	2,000	0	0
65.00	2,580	1,603	1,603
66.00	3,308	2,944	4,547
67.00	4,080	3,694	8,241
68.00	4,880	4,480	12,721

Primary OutFlow (Free Discharge)
- 1=Broad-Crested Rectangular Weir
- 2=Orifice/Grate
- 3=Orifice/Grate

#	Routing	Invert	Outlet Devices
1	Primary	66.90'	**12.0' long Broad-Crested Rectangular Weir X 1.81** Head (feet) 0.50 1.00 1.50 Coef. (English) 1.72 1.88 1.98
2	Primary	63.80'	**2.0" Vert. Orifice/Grate** C= 0.600
3	Primary	65.80'	**10.0" Vert. Orifice/Grate** C= 0.600

Pond 3P: CULVERT POND

Inflow	=	12.51 cfs @	12.70 hrs, Volume=	1.944 af
Outflow	=	12.34 cfs @	12.85 hrs, Volume=	1.934 af, Atten= 1%, Lag= 9.2 min
Primary	=	12.34 cfs @	12.85 hrs, Volume=	1.934 af

Routing by Stor-Ind method, Time Span= 10.00-20.00 hrs, dt= 0.10 hrs

Peak Elev= 68.15' Storage= 3,857 cf
Plug-Flow detention time= 6.7 min calculated for 1.934 af (100% of inflow)
Storage and wetted areas determined by Prismatic sections

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.90	5	0	0
67.00	144	7	7
68.00	5,312	2,728	2,735
69.00	10,096	7,704	10,439
69.50	12,400	5,624	16,063

Primary OutFlow (Free Discharge)
- 1=Culvert

#	Routing	Invert	Outlet Devices
1	Primary	66.90'	**24.0" x 72.0' long Culvert X 2.00** Ke= 0.900

Time span=10.00-20.00 hrs, dt=0.10 hrs, 101 points

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: East Route 495

Subcatchment 2S: Forest Avenue

Subcatchment 11S: 495

Reach 1R: 495 Channel Inflow= 13.76 cfs 2.502 af
Length= 140.0' Max Vel= 1.4 fps Capacity= 103.71 cfs Outflow= 13.72 cfs 2.496 af

Reach 3R: Channel Riverton Inflow= 13.57 cfs 2.485 af
Length= 240.0' Max Vel= 2.1 fps Capacity= 183.45 cfs Outflow= 13.53 cfs 2.478 af

Reach 4R: Pipe from Pond Inflow= 3.14 cfs 0.462 af
Length= 58.0' Max Vel= 5.8 fps Capacity= 12.41 cfs Outflow= 3.11 cfs 0.462 af

Reach 5R: CHANNEL RIVERTON Inflow= 3.11 cfs 0.462 af
Length= 105.0' Max Vel= 1.3 fps Capacity= 183.58 cfs Outflow= 2.93 cfs 0.461 af

Reach 33R: Inflow= 25.23 cfs 4.466 af
Outflow= 25.23 cfs 4.466 af

Pond 1P: Pond Peak Storage= 18,754 cf Inflow= 21.41 cfs 2.545 af
Primary= 13.76 cfs 2.502 af Outflow= 13.76 cfs 2.502 af

Pond 2P: Detention Peak Storage= 8,126 cf Inflow= 4.25 cfs 0.558 af
Primary= 3.14 cfs 0.462 af Outflow= 3.14 cfs 0.462 af

Pond 3P: CULVERT POND Peak Storage= 4,422 cf Inflow= 13.72 cfs 2.496 af
Primary= 13.57 cfs 2.485 af Outflow= 13.57 cfs 2.485 af

OPTION TO PURCHASE

This Agreement is made this 31st day of August, 2001 by and between Daniel N. Link, of East Waterboro, Maine, with a mailing address of HCR 72, Box 3161, E. Waterboro, ME 04030 (hereinafter called "Seller") and Adam Development Co., or it's assigns, a Maine corporation with a place of business in Portland, Maine and mailing address of 34 Preble Street, Portland, Maine 04101 (hereinafter referred as "Buyer").

1. **PREMISES:** This option affects the premises of the Seller as described in deed to Grantor dated May 10, 2000 and recorded at the Cumberland County Registry of Deeds in Book 15620, Page 122, but excluding the portion of the Premises fronting at 1816-1822 Forest Avenue, Portland, and extending back from Forest Avenue the minimum distance required to constitute legal lots for zoning requirements, which excludes all buildings on the Premises (Land to be Retained).

2. **OPTION TO PURCHASE**: The Buyer shall have the option to purchase the Premises upon the following terms and conditions:

a. **OPTION PRICE:** Buyer agrees to pay for the Option $5,000.00 upon execution of this agreement. All option payments are nonrefundable and do not apply to the purchase price.

b. **EXERCISE OF OPTION:** Buyer may exercise the option to purchase the property by providing notice to Seller of its intent to purchase the property. Said notice shall be given no later than one year from the date of this agreement.

c. **RIGHT OF ENTRY**: Buyer shall have the right to enter the Premises during the Option period in order to survey, take soil samples and otherwise test and conduct its due diligence investigations. Buyer shall also indemnify and hold Seller harmless for any damage, injury or liens occasioned by such entry. Buyer shall at Buyer's expense return the property to substantially the same condition it was in prior to such activities. This paragraph shall survive the closing.

d. **RECORDING OF OPTION**: The Seller shall execute a memorandum of option for recording at the Registry of Deeds upon request of Buyer.

3. **EXCERSISING THE OPTION:** If Buyer decides to exercise this option he will do so as follows:

a. **NOTICE:** Any time before the expiration of this option Buyer may notify Seller of his intension to purchase the property.

b. **PURCHASE PRICE:** The purchase price for the property shall be $295,000.00.

c. **CLOSING:** The closing of this transaction shall take place within sixty days of the notice from Buyer to Seller of the exercise of the Option.

d. **CASH AT CLOSING:** The purchase price, adjusted for any other costs as described in section #6. shall be paid in certified check, wire transfer or other immediately available funds, at time of closing.

4. **TITLE:** Seller shall convey the Premises to Buyer at the closing by Warranty Deed in fee simple with good and marketable title, subject to easements, privileges, restrictions, and agreements of record so long as such encumbrances do not affect Buyer's intended use of Premises. If counsel for the Buyer shall be of the opinion, given in good faith, that the title to the property is defective or is otherwise not free and clear of all encumbrances, or is not marketable, the closing shall be postponed for a reasonable period of time during which Seller shall diligently pursue the removal of such defect or encumbrance at his own expense, to the reasonable satisfaction of counsel for Buyer. If the title proves defective and if Seller shall fail to remove such defect or encumbrance within thirty (30) days after notice from Buyer of the nature of the defect or encumbrance, Buyer may, at its election, either: (i) close this transaction notwithstanding the existence of any such defect or encumbrance and without a deduction in the purchase price; or (ii) terminate this Agreement, in which event Seller shall return the deposit to Buyer, and the parties hereto shall thereafter have no further rights or obligations hereunder.

5. **SELLER'S WARRANTIES AND REPRESENTATIONS:** Seller hereby represents and warrants that as of the date hereof, and as of the date of the closing hereunder:

a. Seller has no knowledge of the existence, at any time, of any violations of laws and regulations affecting the Premises. Seller has not received any notice or inquiry from any federal, state or local government authority or representative thereof claiming or inquiring into the existence of any such violations.

b. Seller has no knowledge of any pending or threatened actions or proceedings regarding condemnation of or encumbrances on the ownership, use or possession of the Premises or any party thereof.

c. There are no underground storage tanks on the

Premises.

d. Seller represents that the Premises shall be free from any mechanic or material men liens.

6. **ADJUSTMENTS, PRORATIONS AND CLOSING COSTS:**

a. All water and sewer charges, rents, current real estate taxes, municipal and sewer assessments against the Premises and all utilities shall be apportioned pro rata between Seller and Buyer as of the date of closing. Real estate taxes and assessments shall be prorated on the basis of the City of Portland tax year.

b. The Maine Real Estate Transfer Tax shall be paid for by Seller and Buyer according to Maine statutory law.

c. The preparation of the Deed shall be paid by the Seller. Buyer shall prepare the legal description. If there is any discrepancy between the historical description and the legal description of the property, such discrepancy will be passed by quitclaim deed without warranty covenants.

d. The Buyer shall pay for surveys and inspections, the title search, recording the deed, and closing services.

7. **POSSESSION:** Seller shall deliver possession of Premises to Buyer at transfer of title free and clear of all leases, tenancies or occupancies by any person.

8. **INDEMNITY:** Buyer and Seller agree to indemnify and hold each other harmless from and against any and all damages, claims, losses, obligations, liabilities and expenses, including reasonable attorney's fees, incurred as a result of the breach of any representation contained in this Contract. The warranties of this Contract shall survive the closing hereunder.

9. **RISK OF LOSS:** The risk of loss or damage to the property by any cause, or of a taking of all or any part of the property by eminent domain, prior to the closing, shall be on Seller. In the event that, prior to the closing, the property or any portion is taken by eminent domain, Buyer shall have the option of either (i) terminating this Agreement and receiving back the deposit, or (ii) accepting the insurance proceeds payable be reason of such damage or destruction, or the condemnation award payable by reason of such taking, and closing the transaction contemplated by this Agreement notwithstanding the same, and without reduction in the purchase price.

10. **REMEDIES FOR BREACH:**

a. If Buyer defaults in its performance under this contract, the Seller shall retain the deposit. If Buyer fails to return the property to substantially the same condition it was in prior to having work done, or a lien was placed on the property from work Buyer had done, Seller may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

b. If Seller defaults in his performance under this contract, the Buyer may employ all legal and equitable remedies including specific performance. Attorney fees shall be awarded to the prevailing party.

11. **NOTICE:** All notices, demands and other communications hereunder shall be in writing and shall be deemed to have been given on the date of service if delivered personally to the party to whom notice is to be given, or on the date of mailing. If mailed, all notices are to be sent by First Class Mail postage prepaid, certified with return receipt requested, addressed as provided above.

12. **BROKERAGE:** Seller and Buyer represent to one another that neither has dealt or had contact with any broker in connection with this transaction and each agrees to indemnify and hold harmless the other from any and all costs, expenses or damages resulting from any claims for brokerage fees or other similar forms of compensation made by any real estate broker or any other person or entity because of the sale of the Premises hereunder.

13. **RETAINED PROPERTY DESCRIPTION:** If Seller requires a description of the land to be retained (as described in section 1 of this Option) for sale, refinancing, or other reasonable purpose the buyer shall within 30 days upon receiving a written notice from the Seller, provide the seller with a description of the land to be retained.

14, **RELEASE OF RIGHT OF FIRST REFUSAL**: Upon the signing of this option, the right of first refusal dated 4/25/2001 between Dan Link and Adam Development Co. is hereby released.

15. **RIGHT OF WAY:** Upon transfer of title Seller shall upon Buyers request provide Buyer with an easement extending from Forest Avenue, along the property line bordering the Maine Turnpike, across the Land to be Retained for underground utility purposes. This would include sewer, water, or any other utilities that may be necessary for the development of the Buyers land. Utilities shall be in one easement area, which shall be

the minimum width required for said purposes. Any use or disturbance to the easement area by Buyer, its successors or assigns, shall require Buyer, its successors or assigns, to return the property to substantially the same condition it was in prior to such use or disturbance. Seller will have access to hook into any utilities buyer may install at seller's own cost.

16. **WITHHOLDING**: The Seller is aware that Maine law requires Buyer to withhold two and one-half percent (2.5%) of the sale proceeds unless the Seller certifies he is a resident of Maine at the time of closing or is otherwise exempt from the provisions of 36 M.R.S.A. Section 5250-A.

17. **SELLER NOT A FOREIGN PERSON:** The Seller warrants and represents to the Buyer that the Seller is not a "foreign person" as that term is defined in Section 1445 of the Internal Revenue Code of 1986, as amended.

18. **GENERAL PROVISIONS:** This agreement constitutes the entire agreement between Seller and Buyer, and there are no other agreements, understandings, warranties or representations. This agreement will inure to the benefit of and bind the respective heirs, successors and assigns of Seller and Buyer. This agreement may be simultaneously executed in any number of counterparts, each of which, when so executed and delivered shall be deemed an original. This agreement shall be governed by and construed in accordance with the laws of the State of Maine. The signature of a party upon a facsimile copy shall be deemed to be an original. This Option may be recorded at the election of the Buyer.

Dated this 31st day of August, 2001

Witness

Daniel N. Link

Adam Development Co.

Witness

Adam Mack, Vice President

Sweet Associates HYDROGEOLOGY • SITE EVALUATIONS
155 GRAY ROAD • FALMOUTH, MAINE 04105 • (207) 797-2110 • FAX (207) 878-2364

DATE: August 30, 2001

TO: Adam Mack
Minat Corporation
34 Preble Street
Portland, Maine 04101

RE: WETLAND MAPPING: This property is located on Forest Avenue, Portland. It is a portion of the ServiceMaster of Maine, Inc. property. A survey, with topographic contours, of the property was done by John Schwanda, P.L.S., dated 2/5/88.

DATE OF INVESTIGATION: August 29, 2001

PURPOSE OF INVESTIGATION: The purpose was to delineate wetlands for measurement and calculate the area of land to be subtracted from the Net land area, as per the Portland Code.

METHOD OF INVESTIGATION: Hand auger and plant identification.

RESULTS OF INVESTIGATION:

The delineation of wetlands by was conducted according to Section 14-47 of the Portland Code. The *Net Land Area* calculations require wetlands, as defined in the section, existing watercourses and areas of steep slopes (25%) to be subtracted from the gross square footage of the lot. Wetlands are defined as:

Those areas which have two (2) of the following:

(1) A water table at or near the surface during the growing season;

(2) Very poorly drained soils, including Sebago mucky peat; or

(3) Obligate wetland vegetation.

Wetlands were found and delineated on the property. The wetlands are a portion of an intermittent stream drainage system, which is channelized in a small ravine on the western side of the property. Above the ravine, there are small areas of obligate hydrophytic vegetation growing in very poorly drained soils.

These areas were mapped by compass and hip chain and plotted on the topographic map. The size of these areas was calculated by planimeter. The wetlands comprise approximately 10,312 square feet of the property.

The planimeter was also used to calculate the area of steep slopes (25%) and the existing water courses. These natural features comprise approximately 9,502 square feet of the property.

The combined area is approximately 19,814 square feet, or 0.45 acres.

Mark Cenci
Wetlands Delineator

WETLANDS
STEEP SLOPES
AND/OR STREAM
DRAINAGE
MAINE TURNPIKE AUTHORITY
FENCE HELD
FENCE POST
FENCE ENCROACHMENT
SEE NOTE 9
5.24 ACRES
24.91'
S48-10'

DUPLICATE

GENERAL RECEIPT

CITY OF PORTLAND, MAINE

DEPARTMENT: M. Richards | DATE: 11/22/01

RECEIVED FROM: Archetype

ADDRESS:

327-B-007

UNIT	ITEM	REVENUE CODE	DOLLAR AMOUNT
1	major		500 —
	CC 6384		

☐ CASH ☑ CHECK ☐ OTHER | TOTAL 500 —

RECEIVED BY _____

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Department of Planning & Development
Lee D. Urban, Director

CITY OF PORTLAND

Division Directors
Mark B. Adelson
Housing & Neighborhood Services

Alexander Q. Jaegerman, AICP
Planning

John N. Lufkin
Economic Development

Wellesley Estates
C/o Thomas Jewell
FAX 774-1626

Re: Status of Wellesley Estates Project

The applicant has satisfied to the extent necessary to procure a building permit the five conditions of approval set by the Planning Board.

Remaining items to be addressed prior to a Planning Department sign-off are considered minor or routine and include providing an acceptable performance guarantee and requested plan drawings.

If I can be of any further assistance, please do not hesitate to call.

Sincerely,

Jonathan C. Spence, Planner

756-8083

CITY OF PORTLAND, MAINE
MEMORANDUM

TO: Chair Caron and Members of the Portland Planning Board

FROM: Jonathan Spence, Planner

DATE: May 28, 2002

SUBJECT: Wellesley Estates, 46 Unit PRUD, Vicinity of 1818 Forest Avenue

Staff requests that the Planning Board consider the attached memos and the subsequent additional potential conditions of approval.

2. 1. *that the plans be amended to illustrate a 25' separation between the recreation area's fence and any dwelling area.*

3. 2. *that the plans be amended to reflect concerns in comments numbered two thru six of ~~Mr.~~ Jim Seymour's 5-24-2002 memo* Attached to Jon's memo dated 5-28-02

4. 3. *that the existing curb cut located next to the proposed access drive be discontinued and replaced with granite curbing and that ~~any~~ alternative ~~be reviewed and approved by Public Works~~.*

Access for the Rodway property will be subject to the review and approval of the Planning Authority.

Attachments:

1. Memo from Marge Schmuckal, Zoning Administrator, 5-24-2002
2. Memo from Jim Seymour, Engineering Consultant, 5-24-2002

5. Applicant work w/ staff to find a more suitable location for the dumpster located along the SW property line.

From: Marge Schmuckal
To: Jonathan Spence
Date: Fri, May 24, 2002 4:16 PM
Subject: Wellesley Estates

Jonathan,
I have made an updated review on this R-5 PRUD. It is meeting all the standards as far as setbacks, parking, net land area and building height.
However, there is one criteria that needs to be adjusted. The regulations state that the recreation area shall be 25 feet from any dwelling areas. The current fence should be adjusted 25 feet away from building #8. I believe that there is more than enough room to do that and meet the minimum recreation area.

Marge Schmuckal
5/24/02

CC: Sarah Hopkins

Wellesley Estates
Summary of Financing

Adam Development Company, the development entity, has made application to and received preliminary approval from MSHA in response to its request for proposals on its Work Force Housing Loan Program. The advantage of the Work Force Housing Loan Program is that the loan program provides tax-exempt bond financing at the rate of 5.5% and access to Housing Subsidy funds from a separate pool of set aside funds. In addition, available to the project is entity funds pursuant to its qualification for 4 percent Low Income Housing Tax Credits.

The following table summarizes the project financing sources:

PROJECT FINANCING
[Sources of Funds]:

MSHA Rental Loan Program Mortgage Loan	$ 3,838,871	[1]
MSHA Subsidy Loan	1,116,040	[2]
City of Portland HOME/CDBG Funds	256,000	[3]
Development Fee Loan	393,477	
LIHTC Net Syndication Proceeds	$ 893,886	
Total Sources of Funds [Covering Development Costs]	$ 6,498,274	

[1] Maine State Housing Authority mortgage loan is, interest only for first 10 years at 5.5% interest, at end of first 10 years, the loan amortizes over a 30-year term at 5.5% Interest rate. There is a balloon payment at the end of the first 30 years of the loan.

[2] Maine State Housing Authority subsidy loan is at no interest, balloon payment at end of 30-year term.

[3] City of Portland subsidy loan as recommended by the Housing Committee on May 9, 2002. The loan is for 30 years, no interest or principal repayments during the initial 20 years of its term with interest and principal payments at 1% interest over the remaining 10 years computed over a 20-year amortization period. Balloon payment is scheduled at the end of the 30-year term.

AH. #1

Wellesley Estates, LLC
c/o Adam Development Co.
34 Preble Street
Portland, ME 04101
Tel 207-774-8013
Fax 207-773-2448

December 18, 2001

City of Portland
Planning & Urban Development
389 Congress Street
Portland. Maine 04101

Attn.: Jonathan Spence, Planner

Dear Mr. Spence:

The following letter is sent in compliance with the need for written statements under Section 14-525 of the Portland Code for proposed project review. Written statements are as follows:

[1] *A description of the proposed uses to be located on the site, including quantity and type of residential units:*

Wellesley Estates, as designed, will provide for 45 residential dwelling units for occupancy by families. As indicated on the enclosed Site Plan, the project development will consist of 7 buildings, each containing between 4 and 8 dwelling units. The unit design will be a combination of townhouse apartments and walk-up apartments; currently, the development will contain 10 walk-up units and 36 townhouse units. The unit mix as delineated on the Site Plan will be:

Type:	Number:	Square Footage:
2 Bedroom Townhouses	27	884
3 Bedroom Townhouse	10	1,087
2 Bedroom Walk-up Flats	2	720
3 Bedroom Walk-up Flats	6	1,012

There will be an attached Laundry and Maintenance room to one of the buildings, approximately 500 square feet in area. The design includes 100 paved parking spaces for tenant end visitor usage.

[2] *The total land area of the site and the total floor area and ground coverage of each proposed building and structure:*

See attached Site Plan for summary of land area, floor area and ground coverage.

Att 1

Site Review Pre-Application
Multi-Family/Attached Single Family Dwellings/Two-Family Dwelling or Commercial Structures and Additions Thereto

In the interest of processing your application in the quickest possible manner, please complete the Information below for Site Plan Review

NOTEIf you or the property owner owes real estate or personal property taxes or user charges on ANY PROPERTY within the City, payment arrangements must be made before permits of any kind are accepted.**

Minat Corporation
Applicant

11/19/01
Application Date

34 Preble Street, Portland, ME 04101
Applicant's Mailing Address

Forest Avenue Housing Development
Project Name/Description

Adam Mack
Consultant/Agent

Forest Avenue, Portland, ME
Address Of Proposed Site

774-8013 Fax 773-2448
Applicant/Agent Daytime telephone and FAX

Assessor's Map 327
Block B, Lots 7-8
Assessor's Reference, Chart#, Block. Lot#

Proposed Development (Check all that apply) _X_ New Building _____ Building Addition _____ Change of Use _X_ Residential _____ Office _____ Retail _____ Manufacturing _____ Warehouse/Distribution _____ Parking Lot _____ Other(Specify) _____

46 Units
Proposed Building Square Footage and /or # of Units

4.52
Acreage of Site

R-5 & R-2
Zoning

Major Site Plan X Minor Site Plan _____

You must Include the following with you application:

1) A Copy of Your Deed or Purchase and Sale Agreement

2) 9 sets of Site Plan packages containing the information found in the attached sample plans and checklist.

(Section 14-522 of the Zoning Ordinance outlines the process, copies are available for review at the counter, photocopies are $ 0.25 per page)

I hereby certify that I am the Owner of record of the named property, or that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if an approval for the proposed project or use described in this application is issued, I certify that the Code Official's authorized representative shall have the authority to enter all areas covered by this approval at any reasonable hour to enforce the provisions of the codes applicable to this approval.

Signature of applicant:	Date: 11/21/01

Site Review Fee: Major $500.00 Minor 400.00

This application is for site review ONLY, a Building Permit application and associated fees will be required prior to construction.

12/2001

DEPARTMENT OF ENVIRONMENTAL PROTECTION

PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Chapter 305)

PLEASE TYPE OR PRINT IN *BLACK INK ONLY* (3 COPIES, PLEASE BEAR DOWN)

Name of Applicant:	Wellesley Estates, LLC	**Name of Owner:**	Adam Development Co.
Mailing Address:	34 Preble Street	**Town/City:**	Portland
State: ME	**Zip Code:** 04093	**Daytime Telephone No: (include area code)**	(207) 772-6022
Name of Wetland, Water Body or Stream:	Unnamed Stream		
Detailed Directions to Site:	1816-1822 Forest Avenue Across from Tortilla Flat		
Project Location: (Town/City):	Portland	**UTM Northing:** 4839051	**UTM Easting:** 393770E
Map #: 327	**Lot #:** B7 & B8	**County:**	Cumberland
Description of Project:	Multi Family Housing Project		
	Part of a larger project?	X **Yes**	**No**

(CHECK ONE) This project: does ☐ does not ☒ involve work below mean low water.

I am filing notice of my intent to carry out work which meets the requirements for Permit By Rule (PBR) under DEP Regulation, Chapter 305. I have a copy of PBR Sections checked below. I have read and will comply with all of the standards.

- ☒ **Sec. (2) Soil Disturbance**
- ☐ **Sec. (3) Intake Pipes**
- ☐ **Sec. (4) Replacement of Structures**
- ☐ **Sec. (5) REPEALED**
- ☐ **Sec. (6) Movement of Rocks or Vegetation**
- ☐ **Sec. (7) Outfall Pipes**
- ☐ **Sec. (8) Shoreline stabilization**
- ☐ **Sec. (9) Utility Crossing**
- ☐ **Sec. (10) Stream Crossing**
- ☐ **Sec. (11) State Transportation Facilities**
- ☐ **Sec. (12) Restoration of Natural Areas**
- ☐ **Sec. (13) F&W Creation/Enhance/Water Quality Improvement**
- ☐ **Sec. (14) Piers, Wharves & Pilings**
- ☐ **Sec. (15) Public Boat Ramps**
- ☐ **Sec. (16) Coastal Sand Dune Projects**
- ☐ **Sec. (17) Transfers/Permit Extension**
- ☐ **Sec. (18) Maintenance Dredging**

I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules. I also understand that ***this permit is not valid until approved by the Department or 14 days after receipt by the Department, whichever is less.***

I have attached all of the following required submittals. **NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS:**

- ☐ ***Attach*** **a check for $50 (non-refundable) made payable to: "Treasurer, State of Maine".**
- ☐ ***Attach*** **a U.S.G.S. topo map or Maine Atlas & Gazetteer map with the project site clearly marked.**
- ☐ ***Attach*** **photographs showing existing site conditions (unless not required under standards).**

Signature of Applicant:	William Hopkins, Agent for Applicant	**Date:**	October 10, 2002

Keep a copy as a record of permit. Send two copies the form with one set of attachments via certified mail to the Maine Dept. of Environmental Protection **at the appropriate regional office listed below.** The DEP will send a copy to the Town Office as evidence of the DEP's receipt of notification. No further authorization by DEP will be issued after receipt of notice. Permits are valid for two years. **Work carried out in violation of any standard is subject to enforcement action.**

AUGUSTA DEP
STATE HOUSE STATION 17
AUGUSTA, ME 04333-0017
(207)287-2111

PORTLAND DEP
312 CANCO ROAD
PORTLAND, ME 04103
(207)822-6300

BANGOR DEP
106 HOGAN ROAD
BANGOR, ME 04401
(207)941-4570

PRESQUE ISLE DEP
1235 CENTRAL DRIVE
PRESQUE ISLE, ME 04769
(207)764-0477

PBR # 31124 CK # 2558 10/15/02 1083 10/15/02 $50.00

Department of Public Works

William J. Bray
Director

CITY OF PORTLAND

18 November 2002

Mr. William C. Haskell, P.E.,
Gorrill-Palmer Consulting Engineers, Incorporated,
P. O. Box 1237,
Gray, Maine 04039.

RE: The Capacity to Handle Wastewater Flows, from The Site of the Proposed "Wellesley Estates" Development, at 1838 Forest Avenue.

Dear Mr. Haskell:

The existing six-inch diameter polyvinyl chloride (PVC) forced sanitary sewer pipe located in Forest Avenue has adequate capacity to **transport,** while The Portland Water District sewage treatment facilities, located off Marginal Way, have adequate capacity to **treat** the total anticipated wastewater flows of 9,900 GPD, from the proposed project. In order to ensure this, the "Wellesley Estates" pump station is to be designed to coordinate its pumping schedule with the City's Farnham (Castine) pump station, so that the proposed "Wellesley Estates" pump station does not conflict with the pumping operations of the existing Riverton and the Farnham (Castine) pump stations.

Anticipated Wastewater Flows from the Proposed Housing Project	
Proposed 28 Two Bedroom Units @ 180 GPD/ Unit	= 5,040 GPD
Proposed 18 Three Bedroom Units @ 270 GPD/ Unit	= 4,860 GPD
Total Proposed Increase in Wastewater Flows for this Project	**= 9,900 GPD**

The City combined sewer overflow (C.S.O.) abatement consent agreement, with the U.S.E.P.A. and the Maine D.E.P., requires C.S.O. abatement, as well as Stormwater mitigation, from all projects, in order to offset any increase in sanitary flows.

If I can be of further help, please call me at 874-8832.

Sincerely,
CITY OF PORTLAND

Frank Brancely

Frank J Brancely, B.A., and M.A.
Senior Engineering Technician

FJB

cc: Alexander Q. Jaegerman, Acting Co-Director, Department of Planning, and Urban Development, City of Portland
Jonathan Spence, Planner, Department of Planning, and Urban Development, City of Portland
Eric Labelle, P.E., City Engineer, City of Portland
Bradley A. Roland, P.E., Environmental Projects Engineer, City of Portland
Anthony W. Lombardo, P.E., Project Engineer, City of Portland
Stephen K. Harris, Assistant Engineer, City of Portland
Todd Merkle, Field Inspections Coordinator, City of Portland
Desk file

O:\Engshare\FJB\Capacity Letters\Forest Ave. 1838
C:\Frank's\Capacity Letters\ Forest Avenue 1838

A R C H E T Y P E

October 15, 2002

Jonathan Spence
City of Portland
Congress Street
Portland, ME 04101

RE: Wellesley Estates – Portland, Maine

Dear Jonathan,

As required to obtain a Performance Guarantee attached are seven (7) sets of the site plan packet, Gorrill Palmers response to Jim Seymour and planning board comments and conditions, and the completed cost estimate form.

The Plat Mylar will be submitted under separate cover.

Please call if you have any questions.

Sincerely,

William K. Hopkins
Architect

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

Department of Public Works

William J. Bray
Director

CITY OF PORTLAND

25 October 2002

Mr. Jeff Lewis, E. I., Design Engineer,
Gorrill-Palmer Consulting Engineers, Incorporated,
P. O. Box 1237,
Gray, Maine 04039.

RE: The Recent Submittal for "Wellesley Estates" 1838 Forest Avenue.

Dear Mr. Lewis:

Unfortunately the option of extending the existing Forest Avenue gravity sewer approximately four hundred and sixty-five feet, et cetera, in order to receive wastewaters from the proposed subdivision is no longer available to you. Under an inter-municipal sewer service agreement executed September 19, 2002 (see enclosure: "Sewer Service Agreement") The City of Westbrook agreed to receive 0.15 million gallons per day, but only from a "service area" (see enclosure: "Exhibit A") that excludes your proposed development. Moreover this agreement is for the next ten years, modified, altered or amended, only in writing, by all the duly executed parties (i.e. City Manager, etc.).

This leaves you with the remaining option of tying into the existing force main in Forest Avenue, building a deeper and bigger wet well, adjusting your floats and controls, supplying a Yokogawa (DAQ-Station DX200) to the City's Farnham (a.k.a. Castine) pump station, taking third place on the pump station pumping schedule (behind #1 Riverton, and #2 Farnham) and becoming the "item" filing Incident Reports, when state law re a pumping station bypass is violated et cetera, unless you can come up with a better option.

If I can be of further help, please call me at 874-8832.

Sincerely,
CITY OF PORTLAND

Frank Brancely

Frank J Brancely, B.A., and M.A.
Senior Engineering Technician

FJB

cc: Alexander Q. Jaegerman, Acting Co-Director, Department of Planning, and Urban Development, City of Portland
✓Jonathan Spence, Planner, Department of Planning, and Urban Development, City of Portland
Eric Labelle, P.E., City Engineer, City of Portland
Bradley A. Roland, P.E., Environmental Projects Engineer, City of Portland
Anthony W. Lombardo, P.E., Project Engineer, City of Portland
Clifford Farris, Wastewater Coordinator, City of Portland
Stephen K. Harris, Assistant Engineer, City of Portland
Todd Merkle, Field Inspections Coordinator, City of Portland
Desk file

O:\Engshare\FJB\Capacity Letters\Forest Avenue 1838 (102502)
C:\Frank's\Capacity Letters\ Forest Avenue 1838 (102502)

COPY

SEWER SERVICE AGREEMENT

THIS AGREEMENT is made this 19 day of September, 2002, by and among the CITY OF PORTLAND, a municipal corporation existing under the laws of the State of Maine with a business address of 389 Congress Street, Portland, Maine ("PORTLAND"); the CITY OF WESTBROOK, a municipal corporation existing under the laws of the State of Maine, with a business address of 2 York Street, Westbrook, Maine ("WESTBROOK"); and the PORTLAND WATER DISTRICT, a quasi-municipal corporation existing pursuant to Chapter 84 of the Private and Special Laws of Maine of 1975, as amended, with a business address of 225 Douglass Street, Portland, Maine ("DISTRICT").

WHEREAS, there is a significant need for public sewage collection and treatment in the Riverside Street/Warren Avenue/Forest Avenue vicinity of Portland, which area is specifically described on the plan attached as Exhibit A hereto (the "SERVICE AREA"); and

WHEREAS, the development of the sewer facilities will be enhanced and made more timely if DISTRICT provides the interception and treatment of the sewage using the existing Westbrook Gorham regional treatment plant; and

WHEREAS, the parties have previously entered into an agreement for the provision of sewerage services dated October 17, 1994, which agreement by its terms has expired, although the parties are continuing to operate the sewerage services in accordance with its terms; and

WHEREAS, the parties deem it appropriate and in the interests of the public health, safety and welfare to provide the sewerage services to the SERVICE AREA pursuant to the terms hereof.

NOW, THEREFORE, in consideration of the mutual conditions and covenants contained herein, the parties agree as follows:

1. The domestic and sanitary sewage and waste water from the SERVICE AREA, as defined on the plan attached as Exhibit A, will be intercepted by the DISTRICT and delivered to the existing Westbrook Gorham Regional Treatment Plant for treatment. WESTBROOK agrees that PORTLAND sewage treated at the Westbrook Gorham Plant will

be allocated to the design capacity of the Plant as originally provided to Westbrook. The parties agree that the flow pursuant to this Agreement shall not exceed 0.15 million gallons per day computed as a monthly average flow. DISTRICT shall install a flow measuring device that will be used solely to measure the flow of PORTLAND sewage into the WESTBROOK system and to calculate the percentage of use of the Westbrook Gorham Treatment Plant (hereinafter "Treatment Plant") by PORTLAND. DISTRICT shall maintain the device and bill PORTLAND annually for the maintenance of such device through its annual assessment to PORTLAND.

2. Sewer users in the SERVICE AREA will comply with use standards in the Westbrook Sewer User Ordinance as found in Chapters 26 and 27 of the City of Westbrook Ordinance.

3. PORTLAND shall approve all new sewer connections in the SERVICE AREA. All parties to this Agreement shall be notified in writing of all new sewer connections in the SERVICE AREA. PORTLAND will collect all sewer connection fees for the SERVICE AREA.

4. PORTLAND shall administer the Industrial Pretreatment Program in the SERVICE AREA. PORTLAND agrees to amend its Ordinance and/or rules and regulations as required, to make the Westbrook Industrial Pretreatment Program applicable to the SERVICE AREA. The DISTRICT reserves the right to audit PORTLAND's records related to the Program and to conduct on-site inspections on customers who require pretreatment. PORTLAND will collect all industrial pretreatment program fees for the SERVICE AREA.

5. Sewer users in the SERVICE AREA shall be billed the Portland sewer user rate, providing that said rate is higher than WESTBROOK's rate. In the event that the WESTBROOK sewer user unit rate (excluding minimum unit rate) becomes higher than PORTLAND's sewer user rate at any time in the future, this Agreement shall be renegotiated. Sewer user fees shall be billed and collected by the DISTRICT in accordance with the billing agreement between PORTLAND and DISTRICT. All fees collected from users in the SERVICE AREA shall be credited to WESTBROOK's annual sewer assessment.

6. In the event that sewer users in the SERVICE AREA do not pay their sewer assessments and the outstanding

delinquent balance is included in the credit made by the DISTRICT to PORTLAND's assessment, the DISTRICT will credit to WESTBROOK's sewer assessment such delinquent balance and add such amount to PORTLAND's annual assessment.

7. WESTBROOK represents that it has the allocated capacity in the DISTRICT's treatment plant to accommodate the sewage generated in the SERVICE AREA, and that it has 800,000 gallons in remaining capacity.

WESTBROOK shall provide PORTLAND a two (2) year written notice in the event that the treatment plant is reaching its capacity. PORTLAND shall have the option of:

a. Disconnecting its sewerage service from the treatment plant within the two (2) year period, without penalty; or

b. May request DISTRICT and WESTBROOK to expand the DISTRICT's treatment plant capacity at PORTLAND's cost, in an amount equal to PORTLAND's annual flow volumes into the plant, in the minimum amount of 150,000 gallons per day up to a mutually agreed-upon maximum amount ; or

c. Negotiate an alternative agreement agreeable to all parties to this Agreement.

8. PORTLAND and WESTBROOK shall calculate, on an annual basis, an amount which shall be considered a credit to PORTLAND to be used in the event the Treatment Plant is expanded as provided in Paragraph 7(b). DISTRICT shall provide billing records reflecting billings in the Service Area to PORTLAND and WESTBROOK for the purposes of calculating such credit. The credit shall be calculated as follows:

PORTLAND shall receive as a credit 50% of:

Annual billable flow (hundreds of cubic feet) into Treatment Plant from SERVICE AREA X PORTLAND rate.

Less

Annual billable flow (hundreds of cubic feet) into Treatment Plant from SERVICE AREA X WESTBROOK rate.

WESTBROOK and PORTLAND shall notify DISTRICT of the credit amount. DISTRICT shall create a fund and deposit into such fund said credit amount, which shall be utilized by PORTLAND solely for the costs of the expansion of the Treatment Plant, as provided in paragraph 7(b), should one occur. Any interest generated on funds in such escrow account shall be paid to WESTBROOK.

In the event that this Agreement is terminated or expires and is not renewed, and the Treatment Plant expansion, as provided in paragraph 7(b), has not occurred, any amount remaining in such escrow account shall be paid to WESTBROOK.

9. The DISTRICT shall construct all interception and treatment facilities necessary for providing the sewage services to the SERVICE AREA and shall apportion all such costs to PORTLAND, including the financing and operating and maintenance costs in accordance with the terms of its Charter.

10. PORTLAND shall construct all collector facilities constructed or to be constructed within the SERVICE AREA, which collector facilities shall remain the property and the responsibility of PORTLAND. PORTLAND shall deliver such sewage to the DISTRICT at the following locations: (1) the manhole located on Forest Avenue, Route 302, Portland, Maine, at MDOT Station 207+06.56-4.41 feet left, as shown on Plan Number 945/1A, City of Portland, Engineering Archives; and (2) the manhole located on Riverside Street, Portland, Maine at PPW Station 40+00, as shown on Plan Number 978/1, City of Portland, Engineering Archives.

11. This Agreement shall continue for a ten (10) year period unless terminated by two (2) years written notice of any party. Upon termination, the interception and treatment of the sewage from the SERVICE AREA shall be performed by the DISTRICT in accordance with the terms of its Charter. In the event of termination, PORTLAND will notify its customers of any changes in the sewer service resulting from such termination. This Agreement may be renewed for an additional ten (10) year period upon agreement of all the parties.

12. The entire agreement among the parties relating to the subject matter hereof is contained herein, and no other terms or provisions and no representations or warranties of

any of the parties not expressly set forth shall be of any force or effect. Each of the parties agrees to take whatever action and execute whatever document may be necessary to effectuate all the provisions of this Agreement. This Agreement may not be modified, altered or amended, except in writing, duly executed by all the parties.

13. In the event any inconsistency should arise between this Agreement and the DISTRICT's Charter, the Charter shall prevail.

IN WITNESS WHEREOF, the CITY OF PORTLAND, the CITY OF WESTBROOK and the PORTLAND WATER DISTRICT have caused this instrument to be signed and sealed in their respective names by their respective duly authorized officers the day and year first written above.

WITNESS

Judith Rosen

CITY OF PORTLAND

By _____
Joseph E. Gray, Jr.
Its City Manager

WITNESS

Rebecca L. Smith

CITY OF WESTBROOK

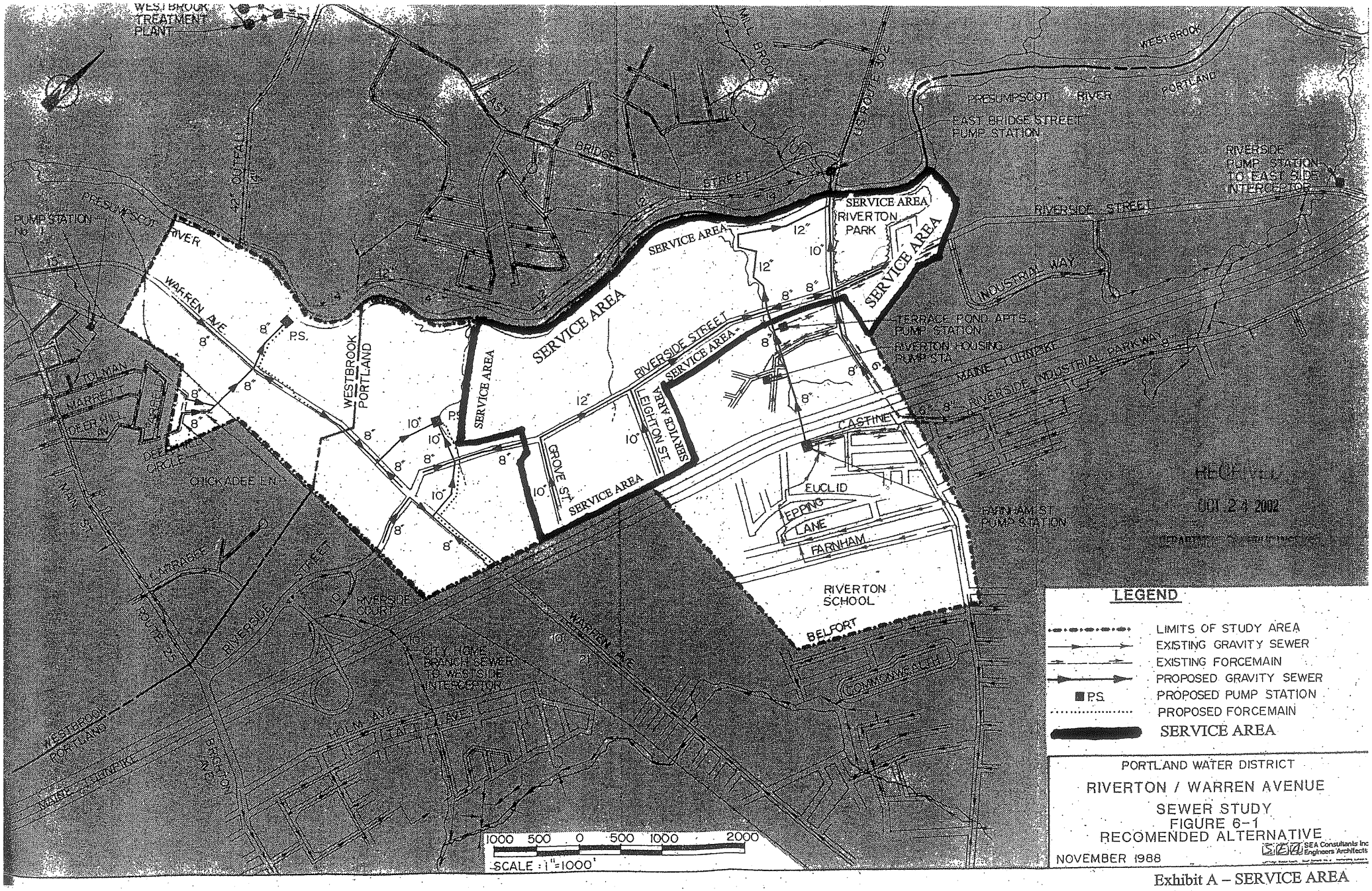
By _____
Donald Esty
Its Mayor

WITNESS

PORTLAND WATER DISTRICT

By _____
Ronald Miller
Its General Manager

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RECEIVED
DEC 23 2002
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Exhibit A – SERVICE AREA

[10] *Evidence of the applicant's title, right or interest in the properly, including without limitation deeds, leases, purchase options and or any other documentation:*

Attached please find an option to purchase the property .

[11] *A narrative describing any unusual areas, wildlife and fisheries habitats, or archaeological sites located on or near the project site and a description of the methods that will be used to protect such areas or sites:*

There are to the best of belief and investigation by the applicant, no known unusual natural areas, wildlife and fisheries habitats, or archaeological sites located on or near the project site.

The above. summary is provided is an exhibit to the application of Wellesley Estates, LLC for Planning Board approval and if any additional information or clarification is needed please contact, Adam Mack at 774-8013.

Sincerely.

Mitchell Cope, Member

Enclosures

A R C H E T Y P E

November 21, 2001

Mrs. Sarah Hopkins
Planning Department
Portland City Hall
389 Congress Street
Portland, ME 04101

Dear Sarah,

We are submitting our application for Site Plan Review for the proposed project "Forest Avenue Housing Development". The project consists of 46 PRUD housing units, both market rate and subsidized, in a R-5 and B-2 zone. The City of Portland and the Maine State Housing Authority will be providing partial funding.

Included in our submission are:

1. Application Fee
2. Site Plan
3. Survey
4. Typical Building Elevation
5. Option Agreement
6. Wetland Description

Gorrill-Palmer is forwarding Civil Engineering drawings and calculations.

We look forward to appearing before the Portland Planning Board on January 8, 2002. Please contact us with any additional items you may need.

Sincerely,

David Lloyd
Architect

48 Union Wharf, Portland, Maine 04101 (207) 772-6022 • Fax (207) 772-4056

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
15 Shaker Rd.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:mailbox@gorrillpalmer.com

October 14, 2002

Mr. Jonathan Spence
City of Portland
389 Congress Street
Portland, ME 04101

RE: Wellesley Estates – Comment Response to Site Design Issues
(ID 20010307, CBL#327-B-007)

Dear Jonathan:

Gorrill-Palmer Consulting Engineers, Inc. is pleased to respond to the conditions of approval from the May 28, 2002 Portland Planning Board for the above referenced project. For ease of review, each of the comments is repeated below followed by our response.

Comment 1 *– That if the project's sewer is to be serviced by the City of Portland, the final engineering specifications for the sewer pump station and tie in be submitted for Public Works review and approval, at which time a capacity letter would be secured from Public Works, and no building permit will be issued and no site work commenced until such time.*

Response – A final sewer plan along with the pump station calculations has been submitted to the Public Works for their final review. Upon review of the design, a copy of their findings will be forwarded to your office for your records.

Comment 2 *– That the plans be amended to illustrate a 25' separation between the recreation area's fence and any dwelling area.*

Response – Archetype will address this issue under separate cover.

Comment 3 *– That the plans be amended to reflect concerns in comments numbered two thru six of Jim Seymour's May 24, 2002 memo, attached to Jonathan Spence's memo dated May 28, 2002.*

Response – Responses to these comments follow below.

Comment 4 *– That the existing curb cut located next to the proposed access drive be discontinued and replaced with granite curbing and that an alternative access for the roadway Property will be submitted for review and approval by the Planning Authority.*

Response – The existing curb cut located next to the proposed access drive has been discontinued and replaced with granite curbing. The alternate access for the driveway has been relocated to the other side of the house.

Comment 5 *– That the applicant will work with staff to find a more suitable location for the dumpster located along the SW property line.*

Response – Archetype will address this issue under separate cover.

Comments received from Jim Seymour to Jonathan Spence in an e-mail to Jonathan Spence dated May 28, 2002.

Comment 1 *– The applicant has stated that a guardrail/railing has been added but I did not receive Sheet SD-3, and did not see the improvement on any other design sheet.*

Response – Guardrail has been added and is shown on Sheet SD-2 of the design set.

Comment 2 *- The storm water outlet control structure elevations are different in the actual calculations than what was shown in the detail on sheet SD-6. The orifice inverts appear to have been revised in the calculations but not on the detail sheet.*

Response – The orifice inverts and storm water information has been updated on the detail sheet SD-6 to reflect the storm water calculations.

Comment 3 *- The material shown, as spillway bedding in the spillway detail shall require a specification comparable to an MDOT standard aggregate or material.*

Response – The spillway bedding material has been specified on the plans.

Comment 4 *- The inlet end of the 24-inch culverts shall be built with a trash rack to protect the culvert from debris blocking the culvert end. This is a common application used by MDEP for culverts of this size.*

Response – Trash racks have been added to the inlet ends of the two 24-inch culverts.

Comment 5 *- On sheet SD-3A the recommended finish floor grades are listed in a table, however the unit numbers corresponding to the elevations are in the table, but are not shown on the plans. The plans need to indicate the intended unit numbering.*

Response – Sheet SD-3A has been updated to show the finish floor elevations on each of the individual units.

Comment 6 *- Please make sure that the applicant includes a maintenance plan for the stormwater treatment system and detention/drainage facilities with the Homeowners agreement. The application states that the homeowners are responsible for these amenities, and we believe that maintenance plan should be reflected in the actual documents for your review.*

Response – A maintenance plan has been created and is attached to this letter.

Comment 7 *- Lastly, you should check with Larry Ash regarding the proximity of the existing driveway curb cut so close to the proposed entrance on Forest Avenue. I understand that the applicant has an agreement in place for this curb cut and garage relocation, but the leaving of this opening so close to the entrance is not a good practice. It would leave a potential confusing access area where safety could be jeopardized by either parked vehicles in the driveway or vehicles backing out of the driveway into Forest Avenue in front of a turning vehicle exiting or entering the sites access road. This does not appear to be a safe solution to leave the driveway opening. If the owner wishes to have additional driveway space extend the turnout area of the new driveway towards Forest Avenue and curb the existing opening. I will leave discretion of this matter with you, Larry and the Planning Board.*

Response – As mentioned earlier, the curb cut has been discontinued and replaced with granite curbing as shown in the updated plan set.

Gorrill-Palmer Consulting Engineers, Inc. appreciates the opportunity to respond to these comments and looks forward to your review. Should you have any questions or require any additional information please contact our office.

Sincerely,

Gorrill-Palmer Consulting Engineers, Inc.

William C. Haskell

William Haskell, P.E.
Senior Engineer

AMP/hh/JN442/Spence-Response 10/14/02

Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services

PO Box 1237
15 Shaker Rd.
Gray, ME 04039

207-657-6910
FAX: 207-657-6912
E-Mail:mailbox@gorrillpalmer.com

Wellesley Estates
Stormwater Maintenance Plan

The Homeowner's Association is responsible for maintaining the stormwater system to ensure that the system continues to operate efficiently. Maintenance shall be performed in accordance with the following schedule:

System	Required Maintenance	Schedule
Catch Basins	Inspect basin and remove sediment from sump	Once every 6 months or when the sediment depth is 1 foot below the outlet pipe invert
Drainage Ditches	Inspect ditches for erosion and remove debris, leaves and sediment. Eroded areas shall be repaired immediately	Annually
Detention Pond Outlet Structure	Inspect structure and remove sediment and debris	Once every 6 months
Detention Pond/Overflow Spillway	Inspect pond for erosion and remove debris and sediment. Eroded areas shall be repaired immediately	Annually
24" culverts under access road	Inspect and clean debris away from trash racks on inlet end	Annually or as needed
Vortechnics Stormwater Quality Unit	Clean and remove sediment	In accordance with attached maintenance recommendations
Paved Areas	Sweep and clean paved areas	Annually, preferably in the spring after snowmelt

The Homeowner's Association shall keep a maintenance log identifying the date and action of each maintenance activity. Refer to the attached sample maintenance log for the Vortechnics stormwater quality unit for an example of a maintenance log. In

addition receipts or other evidence that the maintenance has been completed should be retained with the records of the Homeowner's Association.

Disposal of Accumulated Sediment

Any sediment or debris collected during the maintenance shall be disposed off-site in an acceptable solid waste facility and in accordance with local and state regulations.

Vortechs™
STORMWATER TREATMENT SYSTEM

MAINTENANCE

The Vortechs System requires minimal routine maintenance. However, it is important that the system be inspected at regular intervals and cleaned when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit, e.g., heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping will slow accumulation.

Inspection

Inspection is the key to effective maintenance and it is easily performed. Vortechnics recommends ongoing quarterly inspections of the accumulated sediment. Note that is not unusual for sediment accumulation to be relatively light in the first year as initial sediment loads in new storm drainage systems may be diverted to catch basin sumps. Pollutant deposition and transport may vary from year to year and quarterly inspections will help insure that systems are cleaned out at the appropriate time. Inspections should be performed more often in the winter months in climates where sanding operations may lead to rapid accumulations, or in equipment washdown areas. It is very useful to keep a record of each inspection. A simple form for doing so is provided.

The Vortechs System only needs to be cleaned when inspection reveals that it is nearly full; specifically, when sediment depth has accumulated to within six inches of the dry-weather water level. This determination can be made by taking 2 measurements with a stadia rod or similar measuring device: one measurement is the distance from the manhole opening to the top of the sediment pile and the other is the distance from the manhole opening to the water surface. If the difference between the two measurements is less than six inches the system should be cleaned out. Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Finer, silty particles at the top of the pile typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.

In Vortechs installations where the risk of large petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, an oil or gasoline spill should be cleaned out immediately. Oil or gas that accumulates on a more routine basis should be removed when an appreciable layer has been captured.

Cleaning

Cleanout of the Vortechs System with a vacuum truck is generally the most effective and convenient method. Cleanout should not occur within 6 hours of a rain event to allow the entire collection system to drain down. Properly maintained Vortechs Systems will only require evacuation of the grit chamber portion of the system, in which case only the manhole cover nearest to the system inlet need be opened to remove water and contaminants. However, all chambers should be checked to ensure the integrity of the system. In installations where a "clamshell" is being utilized for solids removal, prior to removing the grit, absorbent pads or pillows can be placed in the oil chamber to remove floating contaminants. Once this is done, sediment may then be easily removed with the clamshell.

In some cases, it may be necessary to pump out all chambers. An important maintenance feature built into Vortechs Systems is that floatables remain trapped after a cleaning. A pocket of water between the grit chamber and the outlet panel keeps the bottom of the baffle submerged, so that all floatables remain trapped when the system begins to fill up again. Therefore, in the event of cleaning other chambers it is imperative that the grit chamber be drained first. Manhole covers should be securely seated following cleaning activities, to ensure that surface runoff does not leak into the unit from above.

Vortechs™
STORMWATER TREATMENT SYSTEM

Inspection & Maintenance Log

Model:			Location:		
Date	Water Depth to Sediment[1]	Floatable Layer Thickness[2] (approx)	Maintenance Performed	Maintenance Personnel	Comments

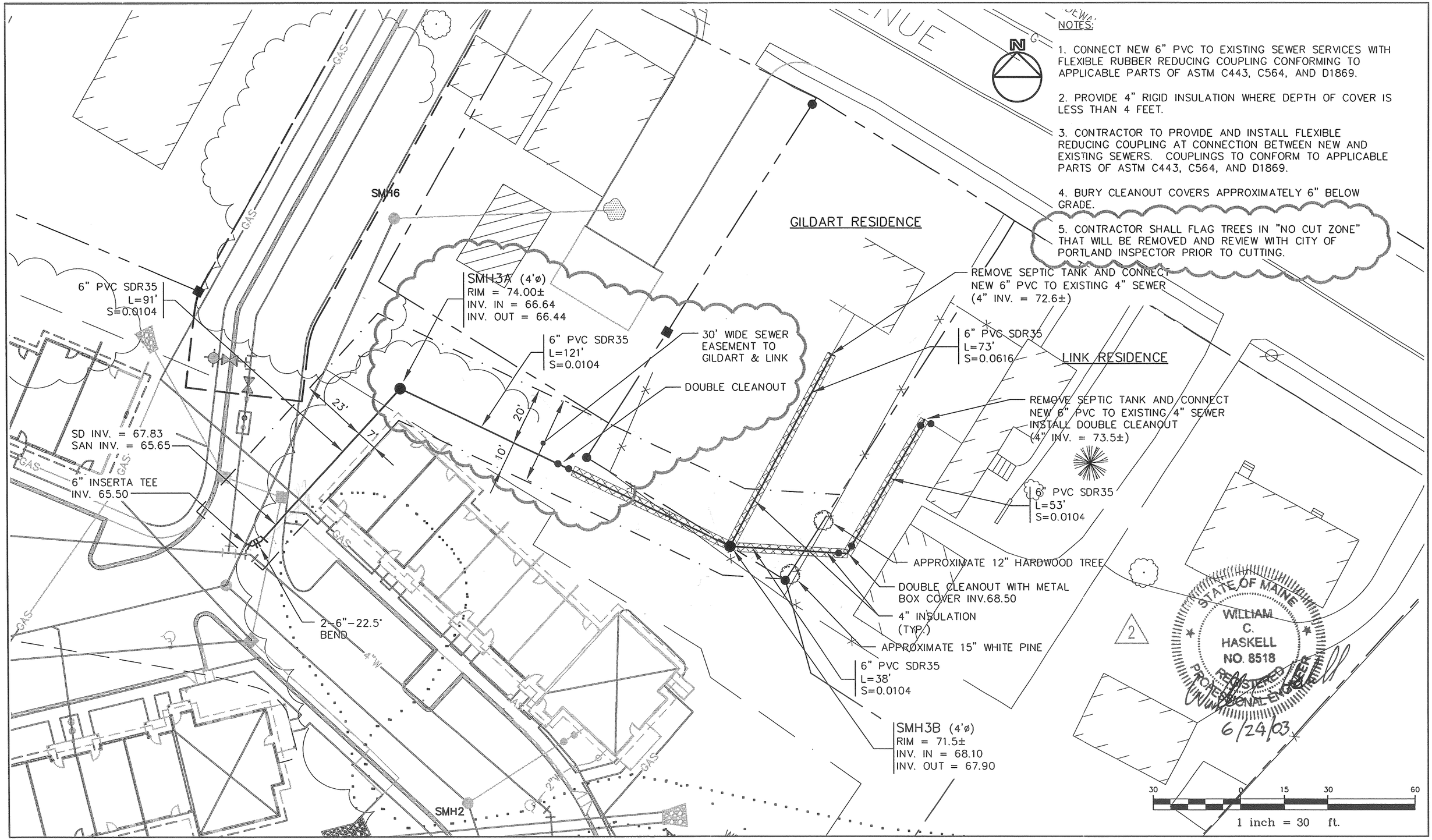
1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement is the distance from the manhole opening to the top of the sediment pile and the other is the distance from the manhole opening to the water surface. If the difference between the two measurements is less than six inches the system should be cleaned out.

2. The system should be cleaned out if the floating layer of trapped debris is 3-6" in depth.

6.	SITE LIGHTING				19	500	9,500
7.	EROSION CONTROL						
	Silt Fence				1700	5	8500
	Check Dams						
	Pipe Inlet/Outlet Protection				3	200	600
	Level Lip Spreader				1	1000	1000
	Slope Stabilization				1	5000	5000
	Geotextile						
	Hay Bale Barriers				9	100	900
	Catch Basin Inlet Protection				9	100	900
8.	RECREATION AND OPEN SPACE AMENITIES				1	10,300	10,300
9.	LANDSCAPING (Attach breakdown of plant materials, quantities, and unit costs)				1	23,000	23,000
10.	MISCELLANEOUS						
	TOTAL:						
	GRAND TOTAL:	69,600			418,054.92		

INSPECTION FEE (to be filled out by the City)

		PUBLIC	PRIVATE	TOTAL
A:	2.0% of totals:			
	or			
B:	Alternative Assessment:			
	Assessed by:	(name)	(name)	



Rev.	Date	Revision
3	6/20/03	REVISED SEWER PER CITY STAFF COMMENTS
2	6/12/03	ADDED SEWER EASEMENT
1	5/16/03	ISSUED FOR PRICING

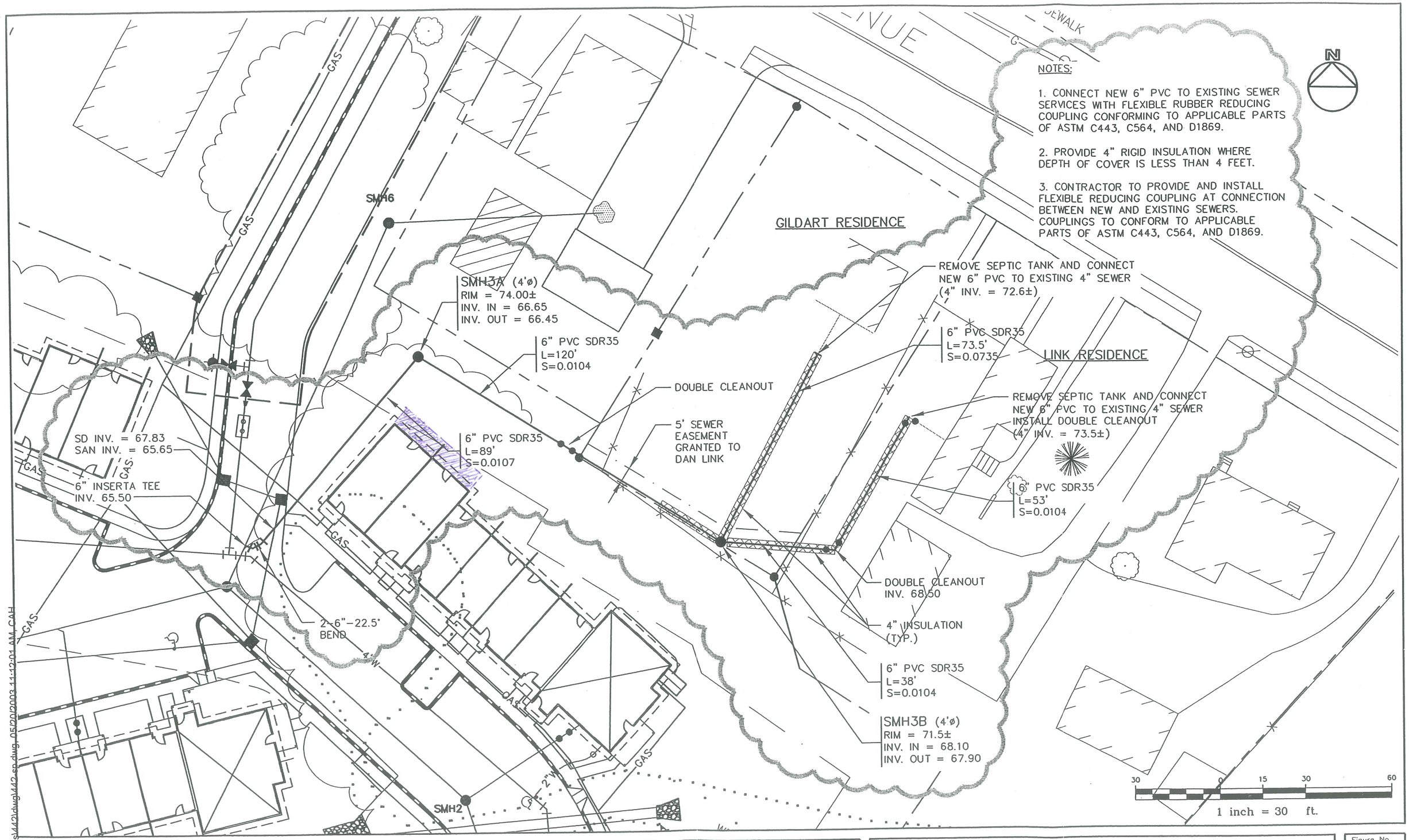
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Draft: CAH	Job No.: 442		
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File Name: 442-SP			

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Abutter Sanitary Sewer Services

Project: WELLESLEY ESTATES

Figure No. SK47



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Rev.	Date	Revision
1	5/16/03	ISSUED FOR PRICING

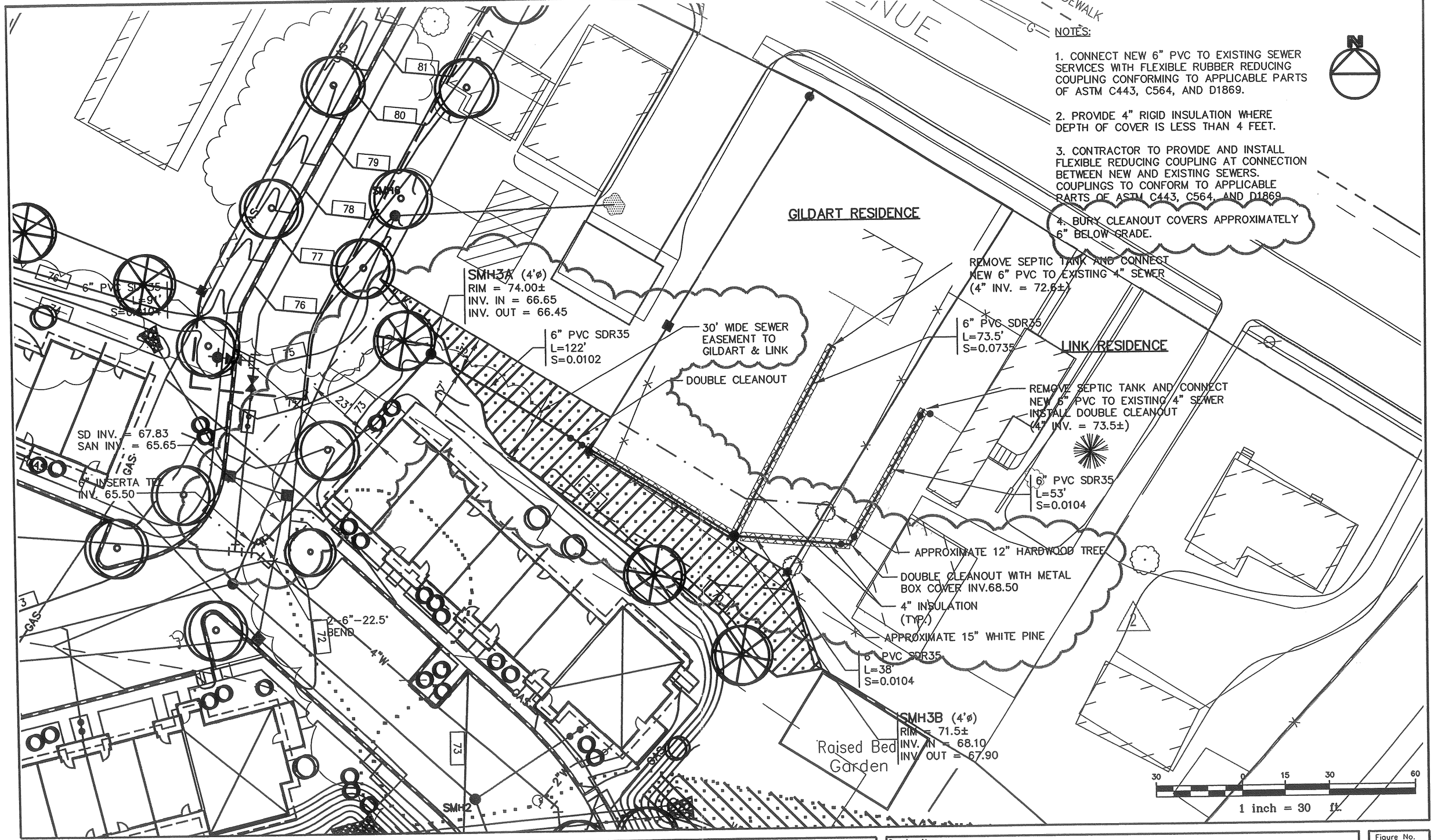
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Drawing Name: Abutter Sanitary Sewer Services

Project: WELLESLEY ESTATES

Figure No. SK47



Rev.	Date	Revision
2	6/12/03	ADDED SEWER EASEMENT
1	5/16/03	ISSUED FOR PRICING

Design:	WCH	Date:	5/03
Draft:	CAH	Job No.:	442
Checked:	WCH	Scale:	1"=30'
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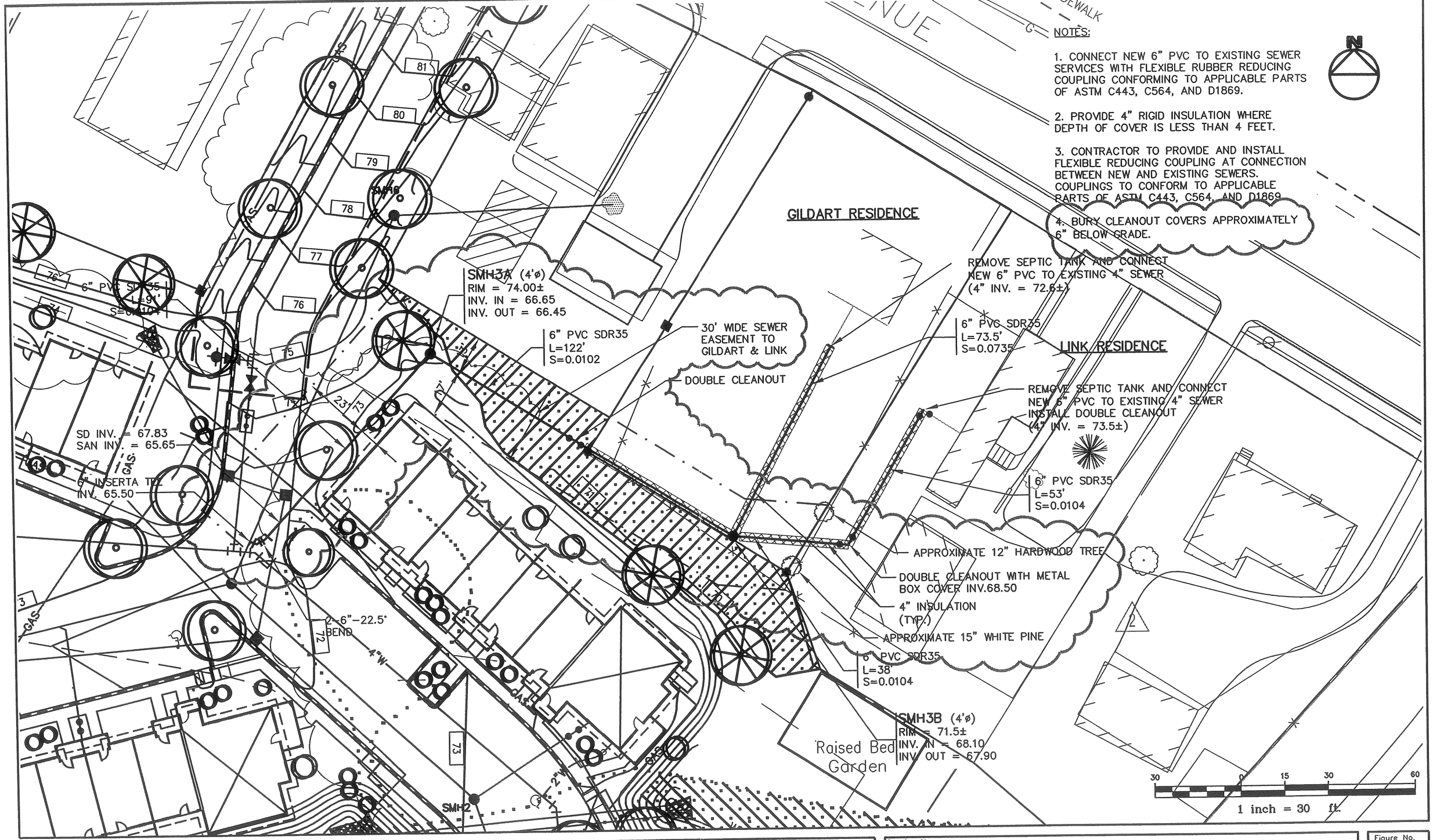
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Drawing Name: Abutter Sanitary Sewer Services

Project: WELLESLEY ESTATES

Figure No. SK47

* 10' off Cor Bdy #6



Rev.	Date	Revision
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1	5/16/03	ISSUED FOR PRICING

Design: WCH	Date: 5/03
Draft: CAH	Job No.: 442
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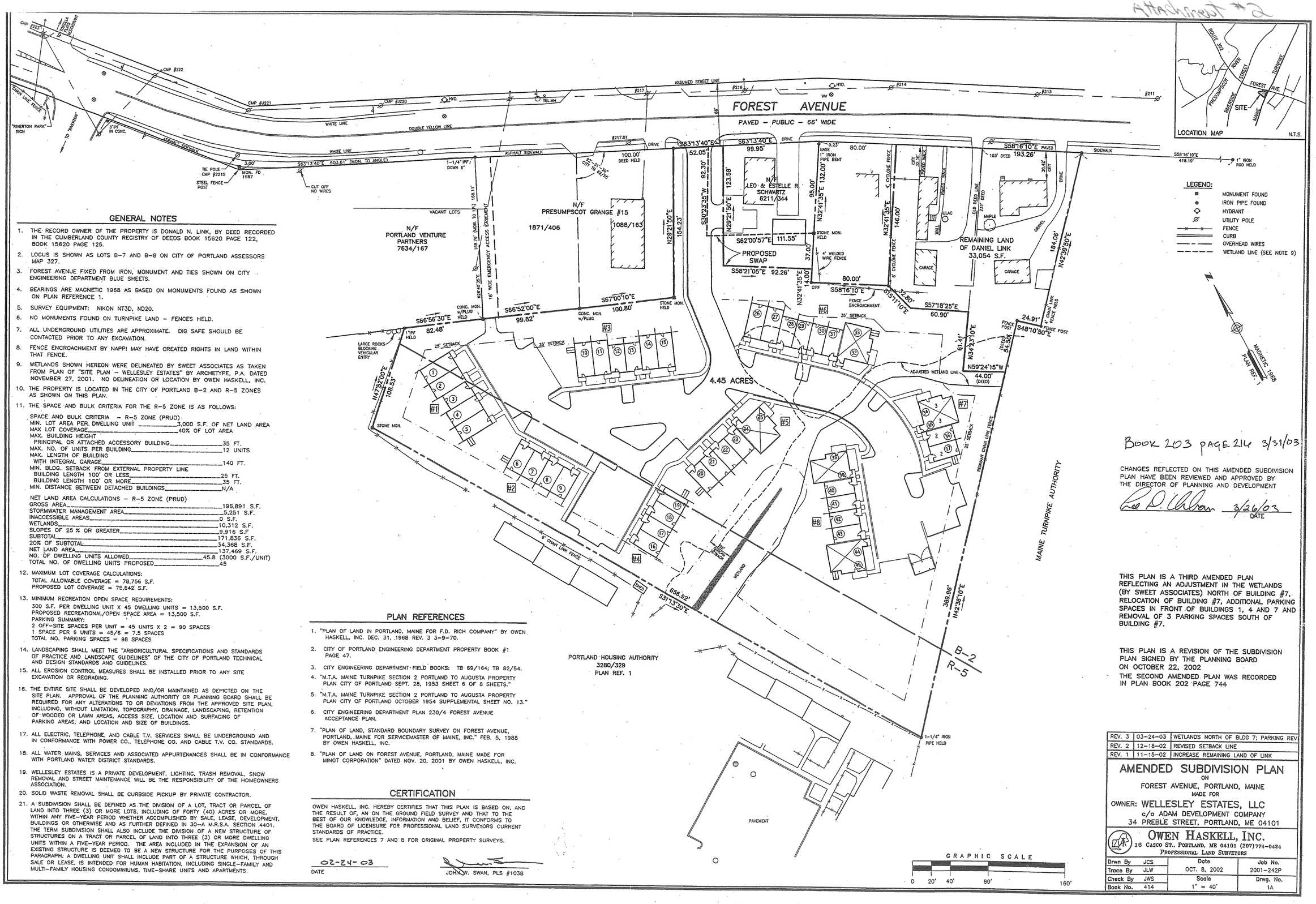
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Drawing Name: Abutter Sanitary Sewer Services

Project: WELLESLEY ESTATES

Figure No. SK47

Attachment #2



GENERAL NOTES

1. THE RECORD OWNER OF THE PROPERTY IS DONALD N. LINK, BY DEED RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 15620 PAGE 122, BOOK 15620 PAGE 125.
2. LOCUS IS SHOWN AS LOTS B-7 AND B-8 ON CITY OF PORTLAND ASSESSORS MAP 327.
3. FOREST AVENUE FIXED FROM IRON, MONUMENT AND TIES SHOWN ON CITY ENGINEERING DEPARTMENT BLUE SHEETS.
4. BEARINGS ARE MAGNETIC 1968 AS BASED ON MONUMENTS FOUND AS SHOWN ON PLAN REFERENCE 1.
5. SURVEY EQUIPMENT: NIKON NT3D, ND20.
6. NO MONUMENTS FOUND ON TURNPIKE LAND – FENCES HELD.
7. ALL UNDERGROUND UTILITIES ARE APPROXIMATE. DIG SAFE SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION.
8. FENCE ENCROACHMENT BY NAPP! MAY HAVE CREATED RIGHTS IN LAND WITHIN THAT FENCE.
9. WETLANDS SHOWN HEREON WERE DELINEATED BY SWEET ASSOCIATES AS TAKEN FROM PLAN OF "SITE PLAN – WELLESLEY ESTATES" BY ARCHETYPE, P.A. DATED NOVEMBER 27, 2001. NO DELINEATION OR LOCATION BY OWEN HASKELL, INC.
10. THE PROPERTY IS LOCATED IN THE CITY OF PORTLAND B-2 AND R-5 ZONES AS SHOWN ON THIS PLAN.
11. THE SPACE AND BULK CRITERIA FOR THE R-5 ZONE IS AS FOLLOWS:

SPACE AND BULK CRITERIA – R-5 ZONE (PRUD)	
MIN. LOT AREA PER DWELLING UNIT	3,000 S.F. OF NET LAND AREA
MAX LOT COVERAGE	40% OF LOT AREA
MAX. BUILDING HEIGHT	
PRINCIPAL OR ATTACHED ACCESSORY BUILDING	35 FT.
MAX. NO. OF UNITS PER BUILDING	12 UNITS
MAX. LENGTH OF BUILDING WITH INTEGRAL GARAGE	140 FT.
MIN. BLDG. SETBACK FROM EXTERNAL PROPERTY LINE	
BUILDING LENGTH 100' OR LESS	25 FT.
BUILDING LENGTH 100' OR MORE	35 FT.
MIN. DISTANCE BETWEEN DETACHED BUILDINGS	N/A

NET LAND AREA CALCULATIONS – R-5 ZONE (PRUD)	
GROSS AREA	196,891 S.F.
STORMWATER MANAGEMENT AREA	5,251 S.F.
INACCESSIBLE AREAS	0 S.F.
WETLANDS	10,312 S.F.
SLOPES OF 25 % OR GREATER	9,916 S.F.
SUBTOTAL	171,836 S.F.
20% OF SUBTOTAL	34,368 S.F.
NET LAND AREA	137,469 S.F.
NO. OF DWELLING UNITS ALLOWED	45.8 (3000 S.F./UNIT)
TOTAL NO. OF DWELLING UNITS PROPOSED	45

12. MAXIMUM LOT COVERAGE CALCULATIONS:
    TOTAL ALLOWABLE COVERAGE = 78,756 S.F.
    PROPOSED LOT COVERAGE = 75,642 S.F.
13. MINIMUM RECREATION OPEN SPACE REQUIREMENTS:
    300 S.F. PER DWELLING UNIT X 45 DWELLING UNITS = 13,500 S.F.
    PROPOSED RECREATIONAL/OPEN SPACE AREA = 13,500 S.F.
    PARKING SUMMARY:
    2 OFF-SITE SPACES PER UNIT = 45 UNITS X 2 = 90 SPACES
    1 SPACE PER 6 UNITS = 45/6 = 7.5 SPACES
    TOTAL NO. PARKING SPACES = 98 SPACES
14. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
15. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.
16. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATIONS TO OR DEVIATIONS FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION, TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS SIZE, LOCATION AND SURFACING OF PARKING AREAS, AND LOCATION AND SIZE OF BUILDINGS.
17. ALL ELECTRIC, TELEPHONE, AND CABLE T.V. SERVICES SHALL BE UNDERGROUND AND IN CONFORMANCE WITH POWER CO., TELEPHONE CO. AND CABLE T.V. CO. STANDARDS.
18. ALL WATER MAINS, SERVICES AND ASSOCIATED APPURTENANCES SHALL BE IN CONFORMANCE WITH PORTLAND WATER DISTRICT STANDARDS.
19. WELLESLEY ESTATES IS A PRIVATE DEVELOPMENT. LIGHTING, TRASH REMOVAL, SNOW REMOVAL AND STREET MAINTENANCE WILL BE THE RESPONSIBILITY OF THE HOMEOWNERS ASSOCIATION.
20. SOLID WASTE REMOVAL SHALL BE CURBSIDE PICKUP BY PRIVATE CONTRACTOR.
21. A SUBDIVISION SHALL BE DEFINED AS THE DIVISION OF A LOT, TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE LOTS, INCLUDING OF FORTY (40) ACRES OR MORE, WITHIN ANY FIVE-YEAR PERIOD WHETHER ACCOMPLISHED BY SALE, LEASE, DEVELOPMENT, BUILDINGS OR OTHERWISE AND AS FURTHER DEFINED IN 30-A M.R.S.A. SECTION 4401. THE TERM SUBDIVISION SHALL ALSO INCLUDE THE DIVISION OF A NEW STRUCTURE OF STRUCTURES ON A TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD. THE AREA INCLUDED IN THE EXPANSION OF AN EXISTING STRUCTURE IS DEEMED TO BE A NEW STRUCTURE FOR THE PURPOSES OF THIS PARAGRAPH. A DWELLING UNIT SHALL INCLUDE PART OF A STRUCTURE WHICH, THROUGH SALE OR LEASE, IS INTENDED FOR HUMAN HABITATION, INCLUDING SINGLE-FAMILY AND MULTI-FAMILY HOUSING CONDOMINIUMS, TIME-SHARE UNITS AND APARTMENTS.

PLAN REFERENCES

1. "PLAN OF LAND IN PORTLAND, MAINE FOR F.D. RICH COMPANY" BY OWEN HASKELL, INC. DEC. 31, 1968 REV. 3 3-9-70.
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3. CITY ENGINEERING DEPARTMENT FIELD BOOKS: TB 69/164; TB 82/54.
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5. "M.T.A. MAINE TURNPIKE SECTION 2 PORTLAND TO AUGUSTA PROPERTY PLAN CITY OF PORTLAND OCTOBER 1954 SUPPLEMENTAL SHEET NO. 13."
6. CITY ENGINEERING DEPARTMENT PLAN 230/4 FOREST AVENUE ACCEPTANCE PLAN.
7. "PLAN OF LAND, STANDARD BOUNDARY SURVEY ON FOREST AVENUE, PORTLAND, MAINE FOR SERVICEMASTER OF MAINE, INC." FEB. 5, 1988 BY OWEN HASKELL, INC.
8. "PLAN OF LAND ON FOREST AVENUE, PORTLAND, MAINE MADE FOR MINOT CORPORATION" DATED NOV. 20, 2001 BY OWEN HASKELL, INC.

CERTIFICATION

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

SEE PLAN REFERENCES 7 AND 8 FOR ORIGINAL PROPERTY SURVEYS.

02-24-03
DATE

JOHN W. SWAN, PLS #1038

BOOK 203 PAGE 216 3/31/03

CHANGES REFLECTED ON THIS AMENDED SUBDIVISION PLAN HAVE BEEN REVIEWED AND APPROVED BY THE DIRECTOR OF PLANNING AND DEVELOPMENT

3/26/03
DATE

THIS PLAN IS A THIRD AMENDED PLAN REFLECTING AN ADJUSTMENT IN THE WETLANDS (BY SWEET ASSOCIATES) NORTH OF BUILDING #7, RELOCATION OF BUILDING #7, ADDITIONAL PARKING SPACES IN FRONT OF BUILDINGS 1, 4 AND 7 AND REMOVAL OF 3 PARKING SPACES SOUTH OF BUILDING #7.

THIS PLAN IS A REVISION OF THE SUBDIVISION PLAN SIGNED BY THE PLANNING BOARD ON OCTOBER 22, 2002

THE SECOND AMENDED PLAN WAS RECORDED IN PLAN BOOK 202 PAGE 744

REV. 3	03-24-03	WETLANDS NORTH OF BLDG 7; PARKING REV.
REV. 2	12-18-02	REVISED SETBACK LINE
REV. 1	11-15-02	INCREASE REMAINING LAND OF LINK

AMENDED SUBDIVISION PLAN

ON

FOREST AVENUE, PORTLAND, MAINE

MADE FOR

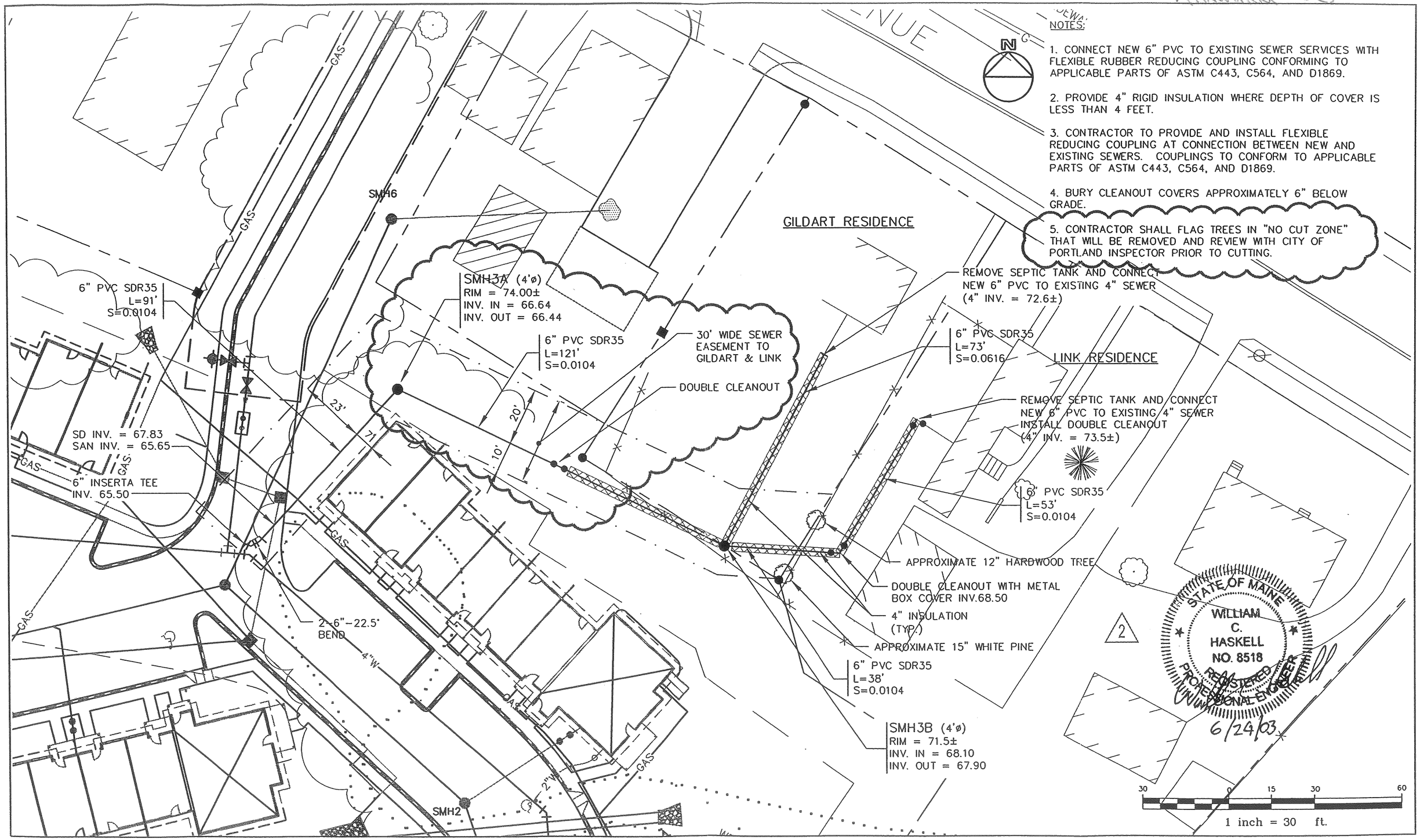
OWNER: WELLESLEY ESTATES, LLC
c/o ADAM DEVELOPMENT COMPANY
34 PREBLE STREET, PORTLAND, ME 04101

OWEN HASKELL, INC.
16 CASCO ST., PORTLAND, ME 04101 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	JCS	Date	Job No.
Trace By	JLW	OCT. 8, 2002	2001-242P
Check By	JWS	Scale	Drwg. No.
Book No.	414	1" = 40'	1A

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Attachment # 3



Rev.	Date	Revision
3	6/20/03	REVISED SEWER PER CITY STAFF COMMENTS
2	6/12/03	ADDED SEWER EASEMENT
1	5/16/03	ISSUED FOR PRICING

Design: WCH	Date: 5/03		
Draft: CAH	Job No.: 442		
Checked: WCH	Scale: 1"=30'		
File Name: 442-SP			

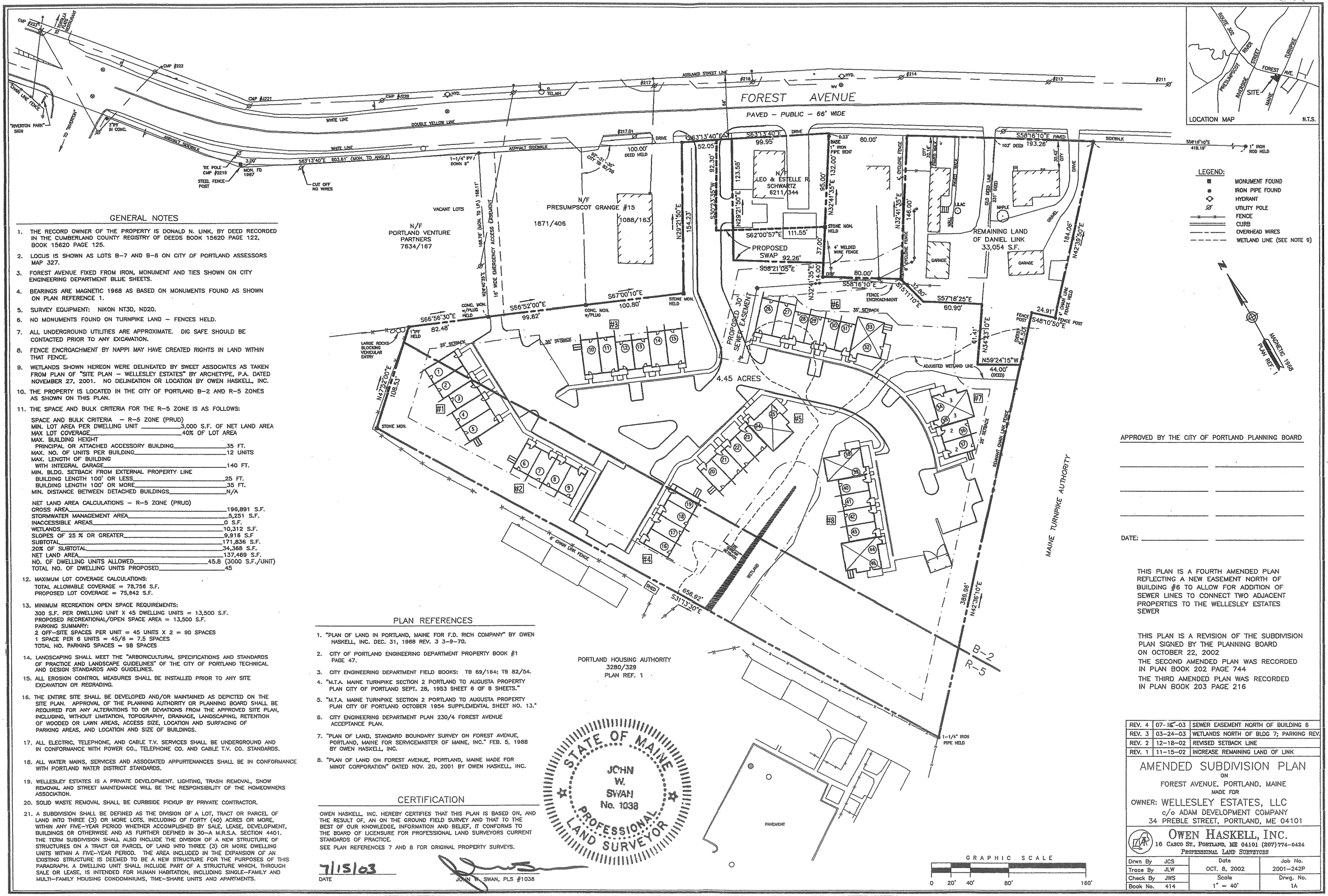
GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Abutter Sanitary Sewer Services

Project: WELLESLEY ESTATES

Figure No. SK47

Attachment #5



GENERAL NOTES

1. THE RECORD OWNER OF THE PROPERTY IS DONALD N. LINK, BY DEED RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 15620 PAGE 122, BOOK 15620 PAGE 125.
2. LOCUS IS SHOWN AS LOTS B-7 AND B-8 ON CITY OF PORTLAND ASSESSORS MAP 327.
3. FOREST AVENUE FIXED FROM IRON, MONUMENT AND TIES SHOWN ON CITY ENGINEERING DEPARTMENT BLUE SHEETS.
4. BEARINGS ARE MAGNETIC 1968 AS BASED ON MONUMENTS FOUND AS SHOWN ON PLAN REFERENCE 1.
5. SURVEY EQUIPMENT: NIKON NT3D, ND20.
6. NO MONUMENTS FOUND ON TURNPIKE LAND – FENCES HELD.
7. ALL UNDERGROUND UTILITIES ARE APPROXIMATE. DIG SAFE SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION.
8. FENCE ENCROACHMENT BY NAPPI MAY HAVE CREATED RIGHTS IN LAND WITHIN THAT FENCE.
9. WETLANDS SHOWN HEREON WERE DELINEATED BY SWEET ASSOCIATES AS TAKEN FROM PLAN OF "SITE PLAN – WELLESLEY ESTATES" BY ARCHETYPE, P.A. DATED NOVEMBER 27, 2001. NO DELINEATION OR LOCATION BY OWEN HASKELL, INC.
10. THE PROPERTY IS LOCATED IN THE CITY OF PORTLAND B-2 AND R-5 ZONES AS SHOWN ON THIS PLAN.
11. THE SPACE AND BULK CRITERIA FOR THE R-5 ZONE IS AS FOLLOWS:

SPACE AND BULK CRITERIA – R-5 ZONE (PRUD)	
MIN. LOT AREA PER DWELLING UNIT	3,000 S.F. OF NET LAND AREA
MAX LOT COVERAGE	40% OF LOT AREA
MAX. BUILDING HEIGHT	
PRINCIPAL OR ATTACHED ACCESSORY BUILDING	35 FT.
MAX. NO. OF UNITS PER BUILDING	12 UNITS
MAX. LENGTH OF BUILDING WITH INTEGRAL GARAGE	140 FT.
MIN. BLDG. SETBACK FROM EXTERNAL PROPERTY LINE	
BUILDING LENGTH 100' OR LESS	25 FT.
BUILDING LENGTH 100' OR MORE	35 FT.
MIN. DISTANCE BETWEEN DETACHED BUILDINGS	N/A

NET LAND AREA CALCULATIONS – R-5 ZONE (PRUD)	
GROSS AREA	196,891 S.F.
STORMWATER MANAGEMENT AREA	5,251 S.F.
INACCESSIBLE AREAS	0 S.F.
WETLANDS	10,312 S.F.
SLOPES OF 25 % OR GREATER	9,916 S.F.
SUBTOTAL	171,836 S.F.
20% OF SUBTOTAL	34,368 S.F.
NET LAND AREA	137,469 S.F.
NO. OF DWELLING UNITS ALLOWED	45.8 (3000 S.F./UNIT)
TOTAL NO. OF DWELLING UNITS PROPOSED	45

12. MAXIMUM LOT COVERAGE CALCULATIONS:
    TOTAL ALLOWABLE COVERAGE = 78,756 S.F.
    PROPOSED LOT COVERAGE = 75,642 S.F.
13. MINIMUM RECREATION OPEN SPACE REQUIREMENTS:
    300 S.F. PER DWELLING UNIT X 45 DWELLING UNITS = 13,500 S.F.
    PROPOSED RECREATIONAL/OPEN SPACE AREA = 13,500 S.F.
    PARKING SUMMARY:
    2 OFF-SITE SPACES PER UNIT = 45 UNITS X 2 = 90 SPACES
    1 SPACE PER 6 UNITS = 45/6 = 7.5 SPACES
    TOTAL NO. PARKING SPACES = 98 SPACES
14. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
15. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.
16. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATIONS TO OR DEVIATIONS FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION, TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS SIZE, LOCATION AND SURFACING OF PARKING AREAS, AND LOCATION AND SIZE OF BUILDINGS.
17. ALL ELECTRIC, TELEPHONE, AND CABLE T.V. SERVICES SHALL BE UNDERGROUND AND IN CONFORMANCE WITH POWER CO., TELEPHONE CO. AND CABLE T.V. CO. STANDARDS.
18. ALL WATER MAINS, SERVICES AND ASSOCIATED APPURTENANCES SHALL BE IN CONFORMANCE WITH PORTLAND WATER DISTRICT STANDARDS.
19. WELLESLEY ESTATES IS A PRIVATE DEVELOPMENT. LIGHTING, TRASH REMOVAL, SNOW REMOVAL AND STREET MAINTENANCE WILL BE THE RESPONSIBILITY OF THE HOMEOWNERS ASSOCIATION.
20. SOLID WASTE REMOVAL SHALL BE CURBSIDE PICKUP BY PRIVATE CONTRACTOR.
21. A SUBDIVISION SHALL BE DEFINED AS THE DIVISION OF A LOT, TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE LOTS, INCLUDING OF FORTY (40) ACRES OR MORE, WITHIN ANY FIVE-YEAR PERIOD WHETHER ACCOMPLISHED BY SALE, LEASE, DEVELOPMENT, BUILDINGS OR OTHERWISE AND AS FURTHER DEFINED IN 30-A M.R.S.A. SECTION 4401. THE TERM SUBDIVISION SHALL ALSO INCLUDE THE DIVISION OF A NEW STRUCTURE OF STRUCTURES ON A TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD. THE AREA INCLUDED IN THE EXPANSION OF AN EXISTING STRUCTURE IS DEEMED TO BE A NEW STRUCTURE FOR THE PURPOSES OF THIS PARAGRAPH. A DWELLING UNIT SHALL INCLUDE PART OF A STRUCTURE WHICH, THROUGH SALE OR LEASE, IS INTENDED FOR HUMAN HABITATION, INCLUDING SINGLE-FAMILY AND MULTI-FAMILY HOUSING CONDOMINIUMS, TIME-SHARE UNITS AND APARTMENTS.

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8. "PLAN OF LAND ON FOREST AVENUE, PORTLAND, MAINE MADE FOR MINOT CORPORATION" DATED NOV. 20, 2001 BY OWEN HASKELL, INC.

CERTIFICATION

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

SEE PLAN REFERENCES 7 AND 8 FOR ORIGINAL PROPERTY SURVEYS.

7/15/03
DATE

JOHN W. SWAN, PLS #1038

STATE OF MAINE
JOHN W. SWAN
No. 1038
PROFESSIONAL LAND SURVEYOR

APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

_____ _____

_____ _____

_____ _____

_____ _____

DATE: _____ _____

THIS PLAN IS A FOURTH AMENDED PLAN REFLECTING A NEW EASEMENT NORTH OF BUILDING #6 TO ALLOW FOR ADDITION OF SEWER LINES TO CONNECT TWO ADJACENT PROPERTIES TO THE WELLESLEY ESTATES SEWER

THIS PLAN IS A REVISION OF THE SUBDIVISION PLAN SIGNED BY THE PLANNING BOARD ON OCTOBER 22, 2002

THE SECOND AMENDED PLAN WAS RECORDED IN PLAN BOOK 202 PAGE 744

THE THIRD AMENDED PLAN WAS RECORDED IN PLAN BOOK 203 PAGE 216

REV. 4	07-15-03	SEWER EASEMENT NORTH OF BUILDING 6
REV. 3	03-24-03	WETLANDS NORTH OF BLDG 7; PARKING REV.
REV. 2	12-18-02	REVISED SETBACK LINE
REV. 1	11-15-02	INCREASE REMAINING LAND OF LINK

AMENDED SUBDIVISION PLAN

ON

FOREST AVENUE, PORTLAND, MAINE

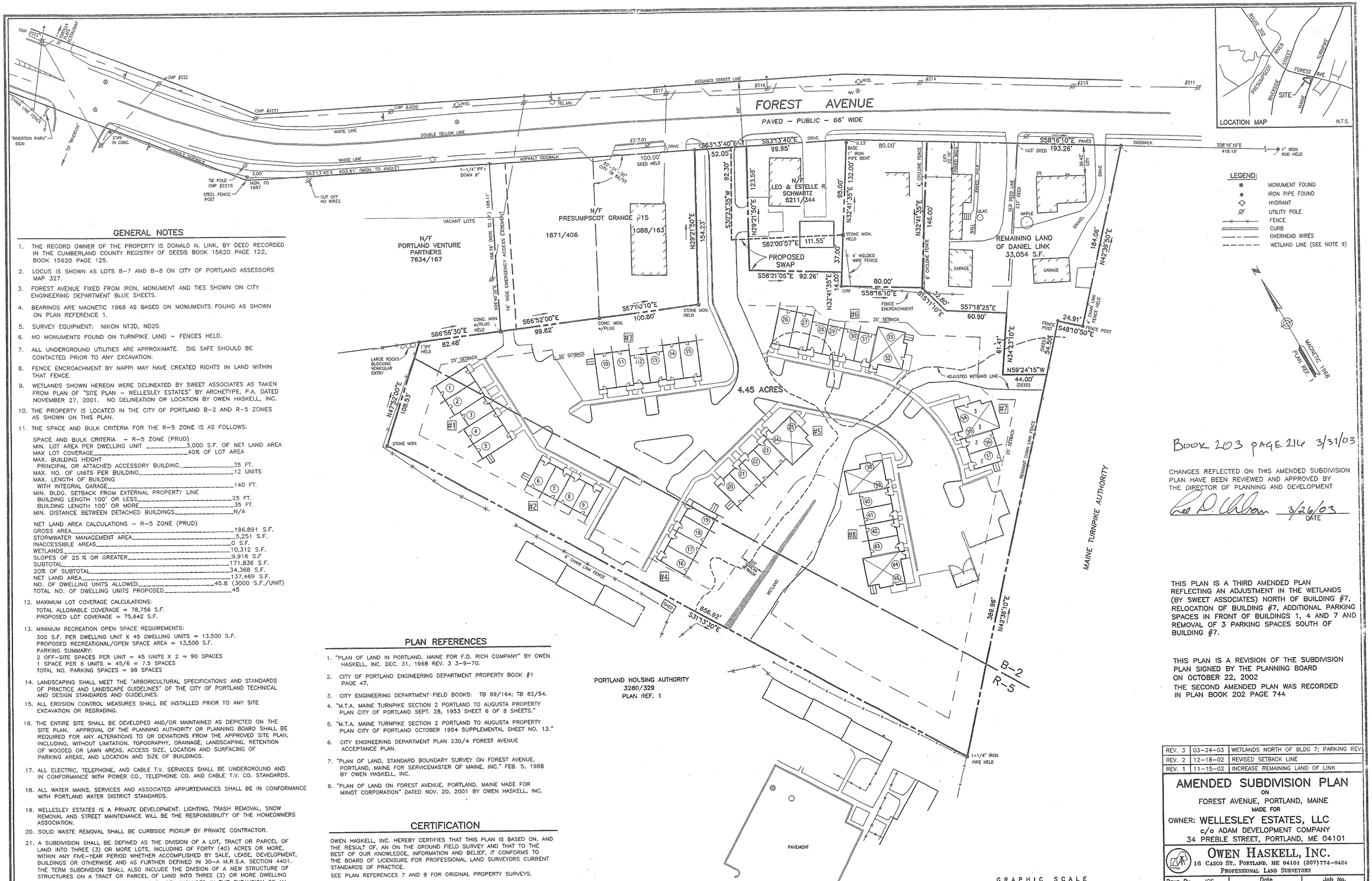
MADE FOR

OWNER: WELLESLEY ESTATES, LLC
c/o ADAM DEVELOPMENT COMPANY
34 PREBLE STREET, PORTLAND, ME 04101

OWEN HASKELL, INC.
16 CASCO ST., PORTLAND, ME 04101 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	JCS	Date	Job No.
Trace By	JLW	OCT. 8, 2002	2001-242P
Check By	JWS	Scale	Drwg. No.
Book No.	414	1" = 40'	1A

GRAPHIC SCALE
0 20' 40' 80' 160'



GENERAL NOTES

1. THE RECORD OWNER OF THE PROPERTY IS DONALD N. LINK, BY DEED RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 15620 PAGE 122, BOOK 15620 PAGE 125.
2. LOCUS IS SHOWN AS LOTS B-7 AND B-8 ON CITY OF PORTLAND ASSESSORS MAP 327.
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6. NO MONUMENTS FOUND ON TURNPIKE LAND – FENCES HELD.
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10. THE PROPERTY IS LOCATED IN THE CITY OF PORTLAND B-2 AND R-5 ZONES AS SHOWN ON THIS PLAN.
11. THE SPACE AND BULK CRITERIA FOR THE R-5 ZONE IS AS FOLLOWS:

SPACE AND BULK CRITERIA – R-5 ZONE (PRUD)
MIN. LOT AREA PER DWELLING UNIT _____ 3,000 S.F. OF NET LAND AREA
MAX LOT COVERAGE _____ 40% OF LOT AREA
MAX. BUILDING HEIGHT
PRINCIPAL OR ATTACHED ACCESSORY BUILDING _____ 35 FT.
MAX. NO. OF UNITS PER BUILDING _____ 12 UNITS
MAX. LENGTH OF BUILDING
WITH INTEGRAL GARAGE _____ 140 FT.
MIN. BLDG. SETBACK FROM EXTERNAL PROPERTY LINE
BUILDING LENGTH 100' OR LESS _____ 25 FT.
BUILDING LENGTH 100' OR MORE _____ 35 FT.
MIN. DISTANCE BETWEEN DETACHED BUILDINGS _____ N/A

NET LAND AREA CALCULATIONS – R-5 ZONE (PRUD)
GROSS AREA _____ 196,891 S.F.
STORMWATER MANAGEMENT AREA _____ 5,251 S.F.
INACCESSIBLE AREAS _____ 0 S.F.
WETLANDS _____ 10,312 S.F.
SLOPES OF 25 % OR GREATER _____ 9,916 S.F
SUBTOTAL _____ 171,836 S.F.
20% OF SUBTOTAL _____ 34,368 S.F.
NET LAND AREA _____ 137,469 S.F.
NO. OF DWELLING UNITS ALLOWED _____ 45.8 (3000 S.F./UNIT)
TOTAL NO. OF DWELLING UNITS PROPOSED _____ 45

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CERTIFICATION

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SEE PLAN REFERENCES 7 AND 8 FOR ORIGINAL PROPERTY SURVEYS.

02-24-03
DATE

JOHN W. SWAN, PLS #1038

BOOK 203 PAGE 214 3/31/03

CHANGES REFLECTED ON THIS AMENDED SUBDIVISION PLAN HAVE BEEN REVIEWED AND APPROVED BY THE DIRECTOR OF PLANNING AND DEVELOPMENT

3/26/03
DATE

THIS PLAN IS A THIRD AMENDED PLAN REFLECTING AN ADJUSTMENT IN THE WETLANDS (BY SWEET ASSOCIATES) NORTH OF BUILDING #7, RELOCATION OF BUILDING #7, ADDITIONAL PARKING SPACES IN FRONT OF BUILDINGS 1, 4 AND 7 AND REMOVAL OF 3 PARKING SPACES SOUTH OF BUILDING #7.

THIS PLAN IS A REVISION OF THE SUBDIVISION PLAN SIGNED BY THE PLANNING BOARD ON OCTOBER 22, 2002
THE SECOND AMENDED PLAN WAS RECORDED IN PLAN BOOK 202 PAGE 744

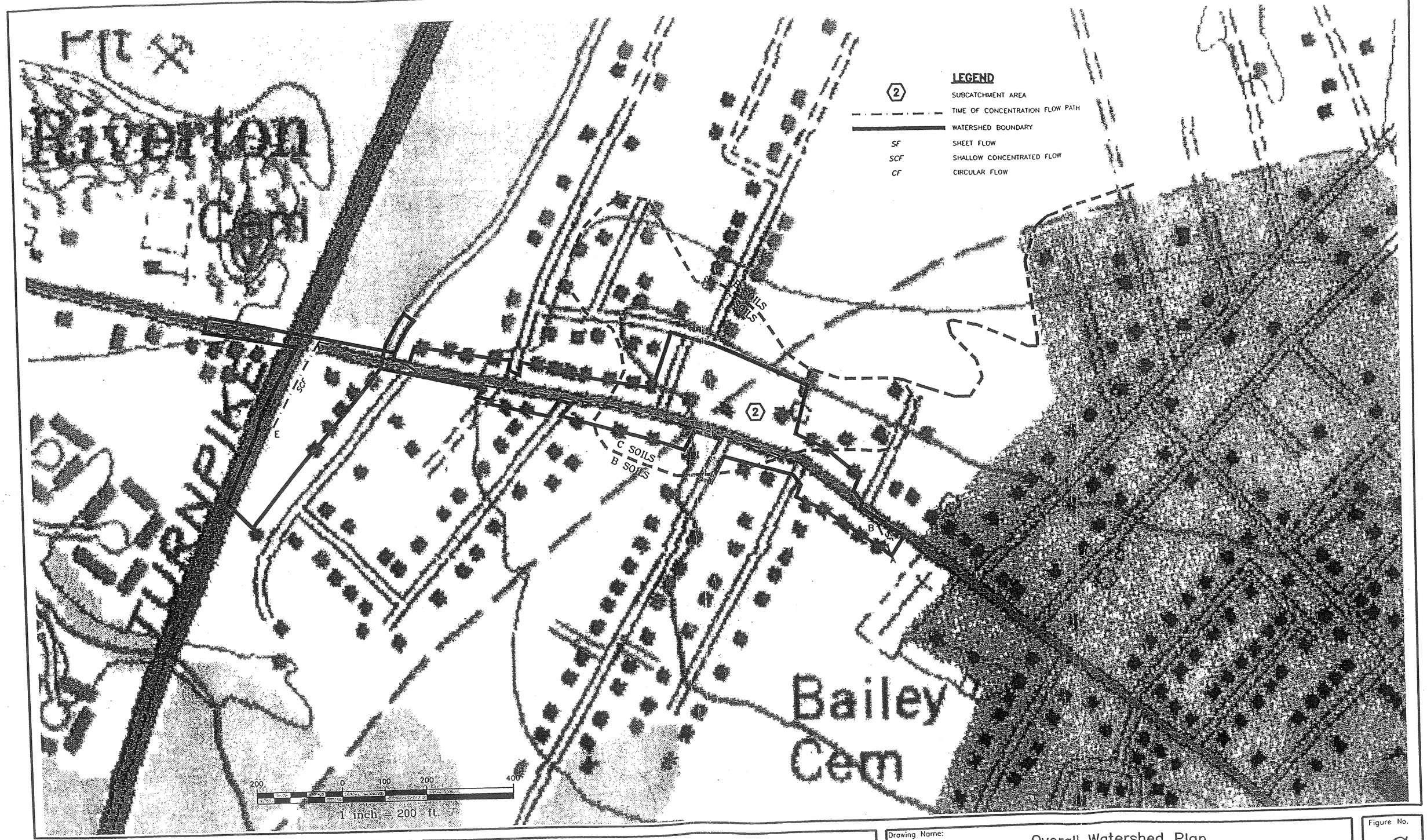
REV. 3	03-24-03	WETLANDS NORTH OF BLDG 7; PARKING REV.
REV. 2	12-18-02	REVISED SETBACK LINE
REV. 1	11-15-02	INCREASE REMAINING LAND OF LINK

AMENDED SUBDIVISION PLAN
ON
FOREST AVENUE, PORTLAND, MAINE
MADE FOR
OWNER: WELLESLEY ESTATES, LLC
c/o ADAM DEVELOPMENT COMPANY
34 PREBLE STREET, PORTLAND, ME 04101

OWEN HASKELL, INC.
16 CASCO ST., PORTLAND, ME 04101 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	JCS	Date	Job No.
Trace By	JLW	OCT. 8, 2002	2001-242P
Check By	JWS	Scale	Drwg. No.
Book No.	414	1" = 40'	1A

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Rev.	Date	Revision
-	-	-

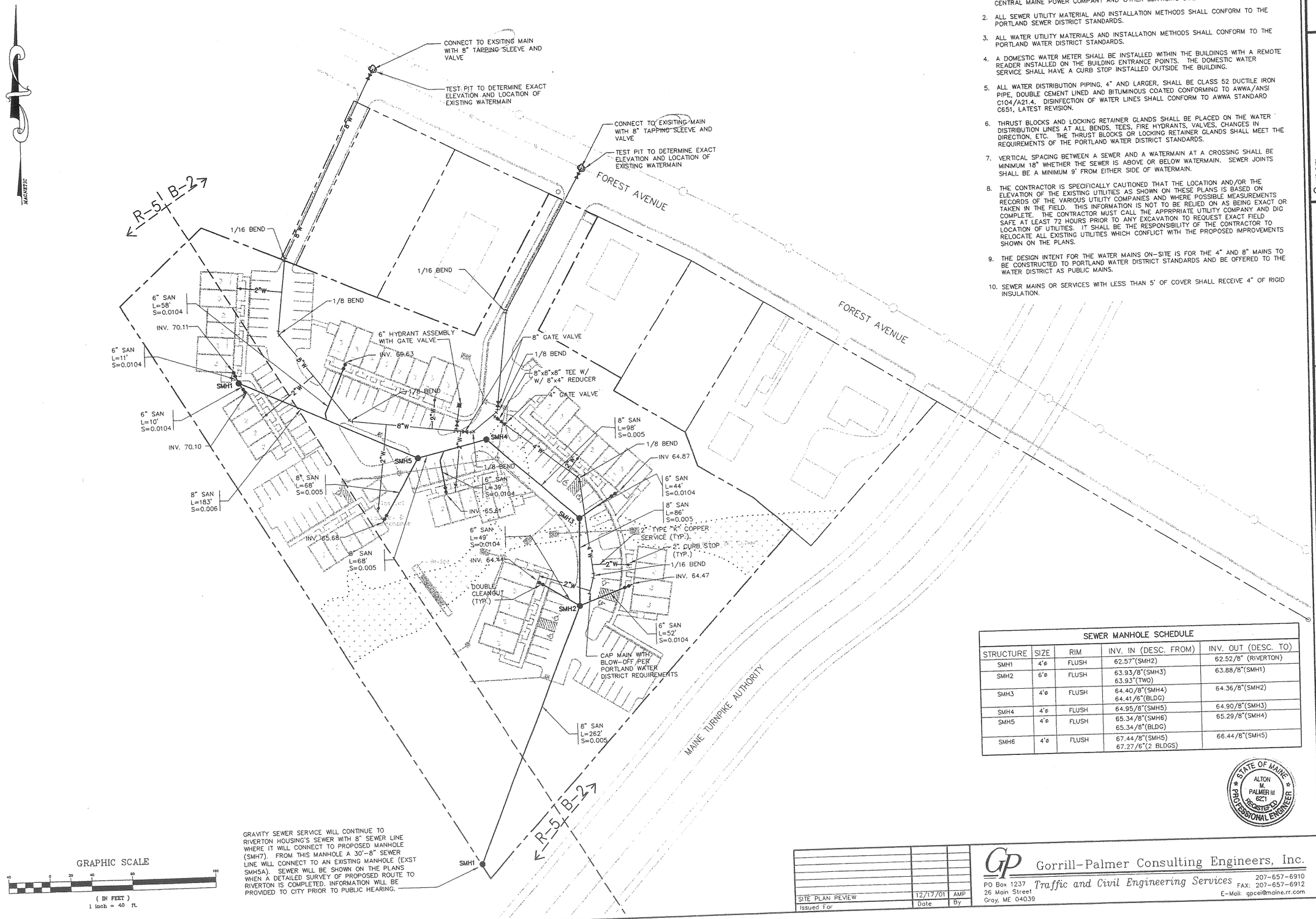
Design: JML	Date: DEC 2001
Draft: CAH	Job No.: 442
Checked: DER	Scale: 1"=200'
File Name: 442-WATSHD2	

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237
26 Main Street
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: gpcei@maine.rr.com

Drawing Name: Overall Watershed Plan

Project: WELLESLEY ESTATES

Figure No. C



GRAVITY SEWER SERVICE WILL CONTINUE TO RIVERTON HOUSING'S SEWER WITH 8" SEWER LINE WHERE IT WILL CONNECT TO PROPOSED MANHOLE (SMH7). FROM THIS MANHOLE A 30'-8" SEWER LINE WILL CONNECT TO AN EXISTING MANHOLE (EXST SMH5A). SEWER WILL BE SHOWN ON THE PLANS WHEN A DETAILED SURVEY OF PROPOSED ROUTE TO RIVERTON IS COMPLETED. INFORMATION WILL BE PROVIDED TO CITY PRIOR TO PUBLIC HEARING.

UTILITY NOTES:

1. THE LOCATION OF THE PROPOSED OVERHEAD AND UNDERGROUND ELECTRICAL SERVICE IS APPROXIMATE AND THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION WITH CENTRAL MAINE POWER COMPANY AND OTHER SERVICING UTILITY COMPANIES.
2. ALL SEWER UTILITY MATERIAL AND INSTALLATION METHODS SHALL CONFORM TO THE PORTLAND SEWER DISTRICT STANDARDS.
3. ALL WATER UTILITY MATERIALS AND INSTALLATION METHODS SHALL CONFORM TO THE PORTLAND WATER DISTRICT STANDARDS.
4. A DOMESTIC WATER METER SHALL BE INSTALLED WITHIN THE BUILDINGS WITH A REMOTE READER INSTALLED ON THE BUILDING ENTRANCE POINTS. THE DOMESTIC WATER SERVICE SHALL HAVE A CURB STOP INSTALLED OUTSIDE THE BUILDING.
5. ALL WATER DISTRIBUTION PIPING, 4" AND LARGER, SHALL BE CLASS 52 DUCTILE IRON PIPE, DOUBLE CEMENT LINED AND BITUMINOUS COATED CONFORMING TO AWWA/ANSI C104/A21.4. DISINFECTION OF WATER LINES SHALL CONFORM TO AWWA STANDARD C651, LATEST REVISION.
6. THRUST BLOCKS AND LOCKING RETAINER GLANDS SHALL BE PLACED ON THE WATER DISTRIBUTION LINES AT ALL BENDS, TEES, FIRE HYDRANTS, VALVES, CHANGES IN DIRECTION, ETC. THE THRUST BLOCKS OR LOCKING RETAINER GLANDS SHALL MEET THE REQUIREMENTS OF THE PORTLAND WATER DISTRICT STANDARDS.
7. VERTICAL SPACING BETWEEN A SEWER AND A WATERMAIN AT A CROSSING SHALL BE MINIMUM 18" WHETHER THE SEWER IS ABOVE OR BELOW WATERMAIN. SEWER JOINTS SHALL BE A MINIMUM 9' FROM EITHER SIDE OF WATERMAIN.
8. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPRPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
9. THE DESIGN INTENT FOR THE WATER MAINS ON-SITE IS FOR THE 4" AND 8" MAINS TO BE CONSTRUCTED TO PORTLAND WATER DISTRICT STANDARDS AND BE OFFERED TO THE WATER DISTRICT AS PUBLIC MAINS.
10. SEWER MAINS OR SERVICES WITH LESS THAN 5' OF COVER SHALL RECEIVE 4" OF RIGID INSULATION.

SEWER MANHOLE SCHEDULE

STRUCTURE	SIZE	RIM	INV. IN (DESC. FROM)	INV. OUT (DESC. TO)
SMH1	4'ø	FLUSH	62.57"(SMH2)	62.52/8" (RIVERTON)
SMH2	6'ø	FLUSH	63.93/8"(SMH3) 63.93"(TWO)	63.88/8"(SMH1)
SMH3	4'ø	FLUSH	64.40/8"(SMH4) 64.41/6"(BLDG)	64.36/8"(SMH2)
SMH4	4'ø	FLUSH	64.95/8"(SMH5)	64.90/8"(SMH3)
SMH5	4'ø	FLUSH	65.34/8"(SMH6) 65.34/8"(BLDG)	65.29/8"(SMH4)
SMH6	4'ø	FLUSH	67.44/8"(SMH5) 67.27/6"(2 BLDGS)	66.44/8"(SMH5)

STATE OF MAINE * ALTON M. PALMER III 6271 REGISTERED PROFESSIONAL ENGINEER *

SITE PLAN REVIEW	12/17/01	AMP
Issued For	Date	By

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Traffic and Civil Engineering Services
PO Box 1237
26 Main Street
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: gpcei@maine.rr.com

Owner:

Contractor:

ARCHETYPE, P.A.
ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Date: 07 December, 2001 | Scale: 1" = 40'
Drawn By: CAH | Checked By: AMP
Revisions:

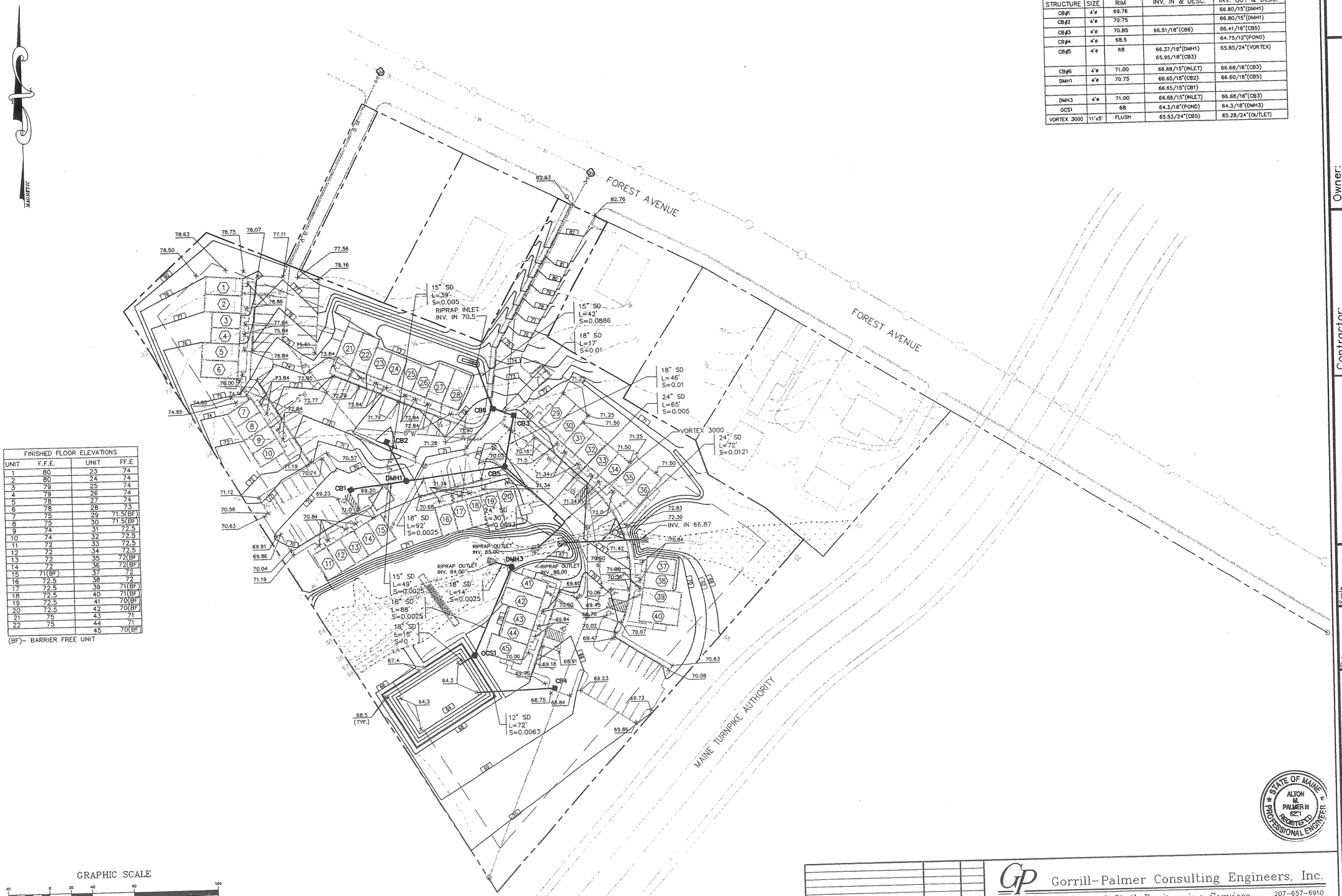
UTILITY PLAN

Project:
WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

SD-2

AH 15

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STORM DRAIN STRUCTURE SCHEDULE				
STRUCTURE	SIZE	RIM	INV. IN & DESC.	INV. OUT & DESC.
CB#1	4'ø	69.76		66.80/15"(DMH1)
CB#2	4'ø	70.75		66.80/15"(DMH1)
CB#3	4'ø	70.85	66.51/18"(CB6)	66.41/18"(CB5)
CB#4	4'ø	68.5		64.75/12"(POND)
CB#5	4'ø	68	66.37/18"(DMH1) 65.95/18"(CB3)	65.85/24"(VORTEX)
CB#6	4'ø	71.00	66.68/15"(INLET)	66.68/18"(CB3)
DMH1	4'ø	70.75	66.65/15"(CB2)	66.60/18"(CB5)
			66.65/15"(CB1)	
DMH3	4'ø	71.00	66.68/15"(INLET)	66.68/18"(CB3)
OCS1		68	64.3/18"(POND)	64.3/18"(DMH3)
VORTEX 3000	11'x5'	FLUSH	65.53/24"(CB5)	65.28/24"(OUTLET)

FINISHED FLOOR ELEVATIONS			
UNIT	F.F.E.	UNIT	FF.E
1	80	23	74
2	80	24	74
3	79	25	74
4	79	26	74
5	78	27	74
6	78	28	73
7	75	29	71.5(BF)
8	75	30	71.5(BF)
9	74	31	72.5
10	74	32	72.5
11	72	33	72.5
12	72	34	72.5
13	72	35	72(BF)
14	72	36	72(BF)
15	71(BF)	37	72
16	72.5	38	72
17	72.5	39	71(BF)
18	72.5	40	71(BF)
19	72.5	41	70(BF)
20	72.5	42	70(BF)
21	75	43	71
22	75	44	71
		45	70(BF)

(BF)– BARRIER FREE UNIT

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

SITE PLAN REVIEW	12/17/01	AMP
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STATE OF MAINE * ALTON M. PALMER III 8671 REGISTERED PROFESSIONAL ENGINEER *

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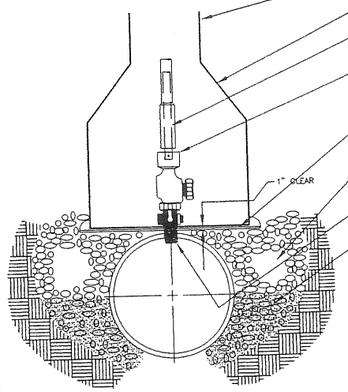
GRADING & DRAINAGE PLAN

Project:
WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

SD-3A

AH. 16

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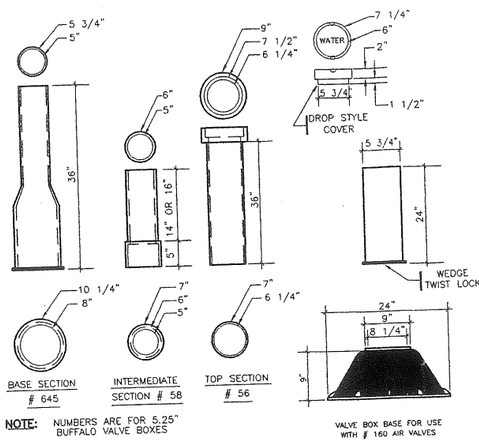
TORQUE SCHEDULE			
PIPE SIZE IN.	BOLT SIZE IN.	RANGE OF TORQUE FT-LB.	LENGTH OF WRENCH IN *
2 - 3	5/8	45 - 60	8
4 - 24	3/4	75 - 90	10
30 - 36	1	85 - 100	12
42 - 48	1 1/4	105 - 120	14

* THE TORQUE LOADS MAY BE APPLIED WITH TORQUE MEASURING OR TORQUE INDICATING WRENCHES, WHICH MAY ALSO BE USED TO CHECK THE APPLICATION OF APPROXIMATE TORQUE LOADS APPLIED BY A PERSON TRAINED TO GIVE AN AVERAGE PULL ON A DEFINITE LENGTH OF REGULAR SOCKET WRENCH.

SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL

TYPICAL AIR VALVE SECTION (1")

N.T.S.

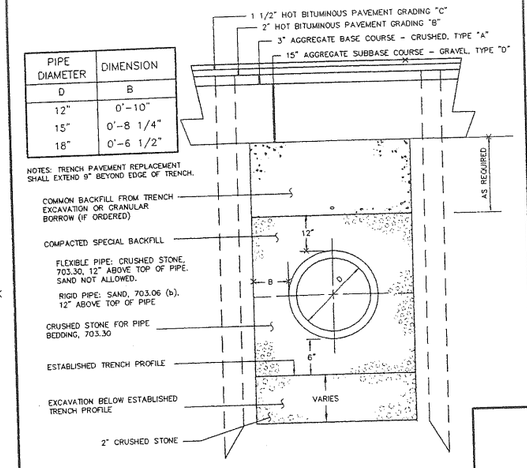


NOTE: NUMBERS ARE FOR 5.25" BUFFALO VALVE BOXES

SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL

TYPICAL VALVE BOXES

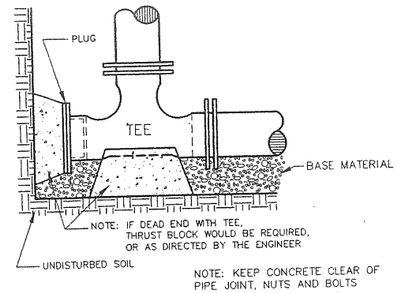
N.T.S.



PIPE DIAMETER	DIMENSION
D	B
12"	0'-10"
15"	0'-8 1/4"
18"	0'-6 1/2"

TYPICAL PIPE INSTALLATION DETAIL

N.T.S.

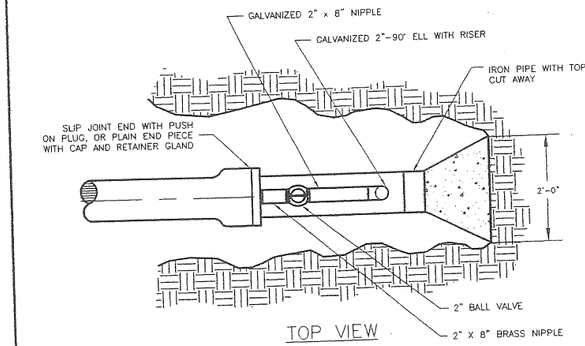


NOTE: KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS

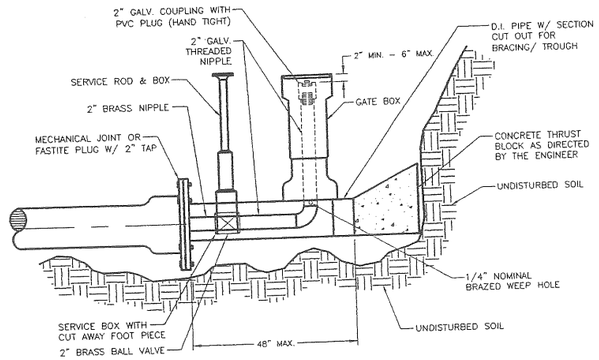
SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL

STANDARD TEE BLOCKING

N.T.S.



TOP VIEW



ELEVATION VIEW

STANDARD 2" BLOW OFF

N.T.S.

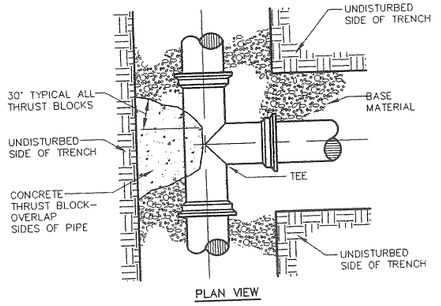
THRUST BLOCK NOTES

1. INSTALL POLY BARRIER BETWEEN PIPE AND ALL THRUST BLOCKS.
2. ANY MODIFICATION TO THRUST BLOCK SIZING OR PIPE RESTRAINT REVISIONS SHALL BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO IMPLEMENTATION IN THE FIELD
3. ANY WORK RELATING TO WATER PIPING OR DETAILS SHALL BE IN ACCORDANCE WITH THE PORTLAND WATER DISTRICT SPECIFICATIONS

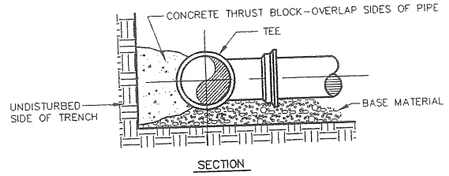
PIPE SIZE	1/32 BEND	1/16 BEND	1/8 BEND	1/4 BEND	TEES/CAPS
8"	2.0	3	5	10	8

BEARING SURFACE REQUIRED IN SQUARE FEET

NOTE: KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS



PLAN VIEW



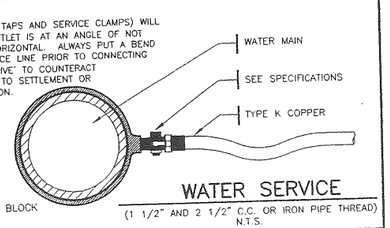
SECTION

TYPICAL THRUST BLOCK PLACEMENT ON TEES

N.T.S.

NOTE:

SERVICE CONNECTIONS (DIRECT TAPS AND SERVICE CLAMPS) WILL BE INSTALLED SO THAT THE OUTLET IS AT AN ANGLE OF NOT MORE THAN 45° ABOVE THE HORIZONTAL. ALWAYS PUT A BEND OR "GOOSENECK" IN THE SERVICE LINE PRIOR TO CONNECTING TO PROVIDE FLEXIBILITY AND "GIVE" TO COUNTERACT THE EFFECTS OF A LOAD DUE TO SETTLEMENT OR EXPANSION AND/OR CONTRACTION.

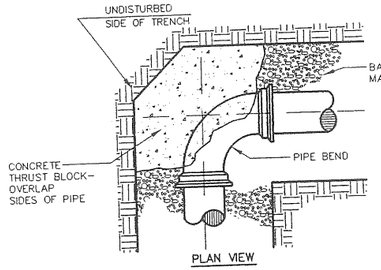


SEE NOTE 3 IN THRUST BLOCK BLOCK NOTES DETAIL

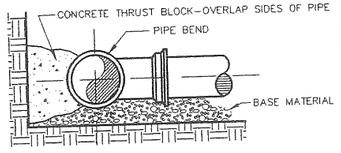
WATER SERVICE

(1 1/2" AND 2 1/2" C.C. OR IRON PIPE THREAD)

N.T.S.



PLAN VIEW



NOTE: KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS

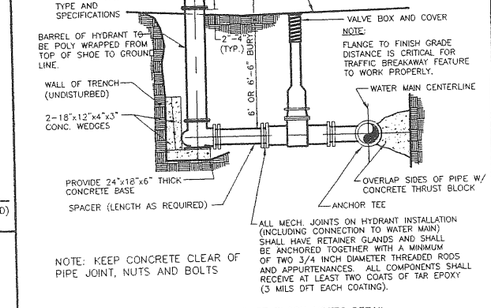
SECTION

THRUST/RETAINER GLAND SCHEDULE		
1/4 BEND	(90°)	USE POURED-IN-PLACE THRUST BLOCK w/RETAINERS
1/8 BEND	(45°)	THRUST BLOCK w/RETAINERS
1/16 BEND	(22 1/2°)	THRUST BLOCK
1/32 BEND	(11 1/4°)	THRUST BLOCK

THE ABOVE SCHEDULE IS SUBJECT TO THE APPROVAL OF THE ON-SITE INSPECTOR DUE TO SOILS AND WORKING PRESSURES IN THE AREA.

SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL

TYPICAL THRUST BLOCK PLACEMENT ON BENDS

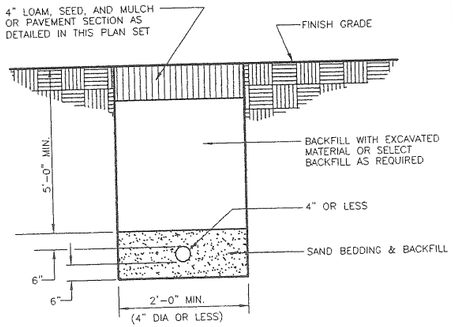


NOTE: KEEP CONCRETE CLEAR OF PIPE JOINT, NUTS AND BOLTS

SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL

FIRE HYDRANT INSTALLATION DETAIL

N.T.S.



SEE NOTE 3 IN THRUST BLOCK NOTES DETAIL

WATER SERVICE TRENCH SECTION

STATE OF MAINE
CLINTON M. PALMER III
6271
REGISTERED PROFESSIONAL ENGINEER

SITE PLAN REVIEW		12/17/01	AMP
Issued For		Date	By

Gorrill-Palmer Consulting Engineers, Inc.
PO Box 1237 26 Main Street Gray, ME 04039
Traffic and Civil Engineering Services
207-657-6910 FAX: 207-657-6912
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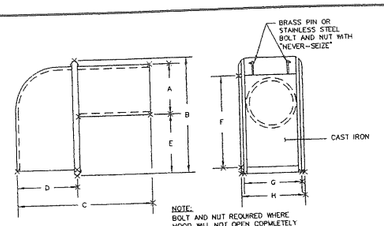
Project: WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

UTILITY DETAILS

SD-4

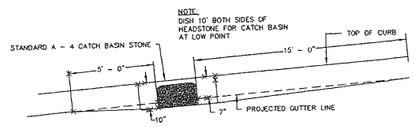
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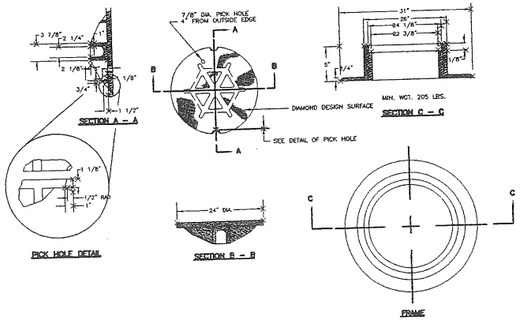


SIZE	A	B	C	D	E	F	G	H
6 in.	5 1/2"	13 3/8"	13 3/4"	5 3/8"	5 7/8"	11 5/8"	6 1/2"	7 1/4"
8 in.	7 1/2"	15"	15 3/8"	5 1/2"	5 3/8"	13 3/4"	8 3/4"	9 3/8"
10 in.	9 1/2"	16"	16 1/4"	6"	4 1/2"	14 1/8"	11 1/2"	12 3/8"
12 in.	11 1/2"	17"	22"	8"	3 1/2"	17"	12 1/2"	13 3/8"

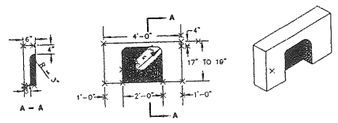
CASCO TRAP DETAIL
N.T.S.



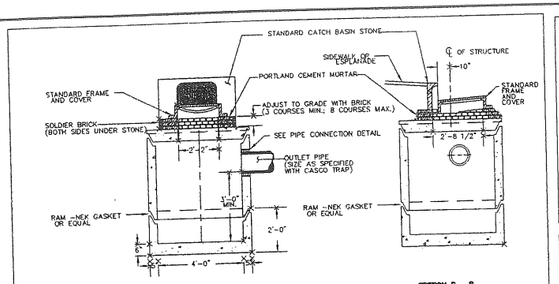
TYPICAL PAVEMENT GRADING ON SLOPES FOR CATCH BASIN AND INLET
N.T.S.

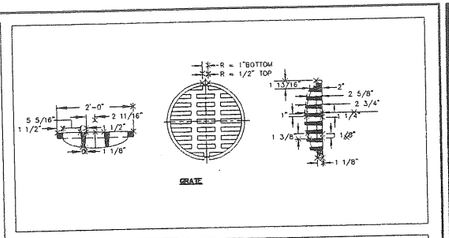


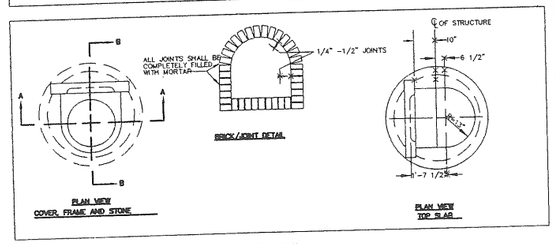
TYPE "A" MANHOLE COVER AND FRAME
N.T.S.

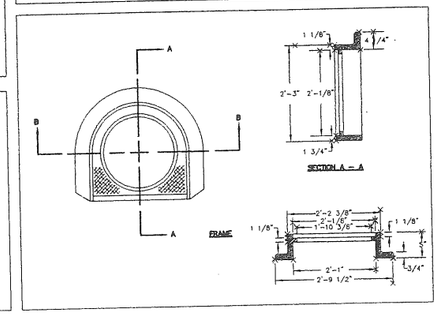


TYPICAL A-4 CATCH BASIN STONE DETAIL
N.T.S.



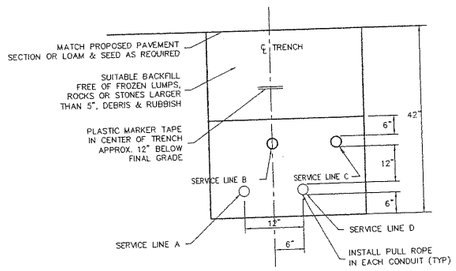






GENERAL NOTES
1. ALL CONCRETE SHALL BE A CLASS "A" AND HAVE A MINIMUM ULTIMATE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. PRECAST REINFORCED CONE BARREL MANUFACTURE PER ASTM SPEC. C-478-67
3. SEWER BRICK TO CONFORM TO ASTM SPEC. DESIGNATE ON C-32-63, GRADE MA AND SA.
4. ALL MANHOLES SHALL HAVE A BITUMINOUS WATERPROOFING APPLIED TO THE EXTERIOR SURFACE. IF CONSTRUCTION OF BRICK MASONRY, THE SMOOTH MORTAR SURFACE SHALL BE PLASTERED WITH A SMOOTH MORTAR FINISH 3/8" THICK. AFTER THE MORTAR HAS SET, THE SURFACE SHALL BE WATERPROOFED AS REQUIRED BY SUPPLEMENTAL SPECIFICATIONS SECTION 604.
5. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35. ALL PARTS OF CASTINGS, EXCEPT FINISHED SURFACE, SHALL RECEIVE A COAT OF COAL TAR PITCH VARNISH OR ASPHALTUM PAINT WHICH SHALL BE SMOOTH AND TOUGH BUT NOT BRITTLE.
6. MANHOLES MAY BE CONSTRUCTED OF MASONRY, PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
7. ALL PRECAST CATCH BASINS SHALL BE IDENTIFIED BY THE SCHEDULE ON THE GRADING SHEET BY THE MANUFACTURER.
8. STORM AND SEWER MANHOLES SHALL HAVE SOLID COVERS WITH ONE DRILLED HOLE.
9. EXISTING MANHOLE AND CATCH BASIN FRAMES AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND REMAIN THE PROPERTY OF THE CITY OF PORTLAND.

PRECAST CONCRETE CATCH BASIN TYPE "E"
N.T.S.



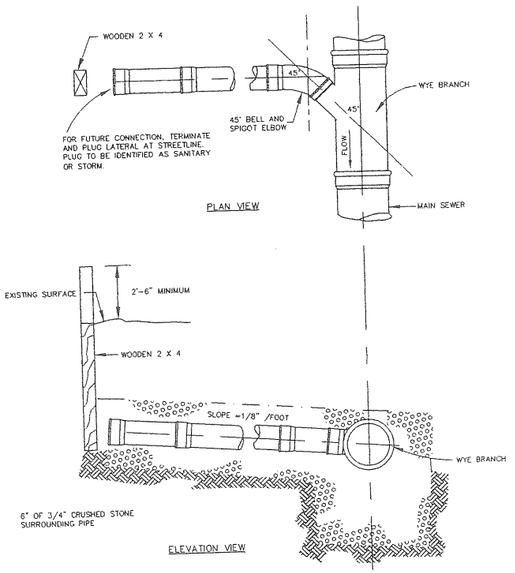
CONDUIT TYPE

SERVICE	CONDUIT SIZE	GRASS AND PAVED AREAS	UTILITY	REMARKS
A	5"	SCHEDULE 40 PVC ELECTRICAL GRADE	PRIMARY POWER	SEE NOTE 1
B	4"	SCHEDULE 40 PVC	TELEPHONE	SEE NOTE 1
C	2"	SCHEDULE 40 PVC	CABLE	SEE NOTE 1
D	2"	SCHEDULE 40 PVC ELECTRICAL GRADE	SECONDARY POWER	SEE NOTE 1

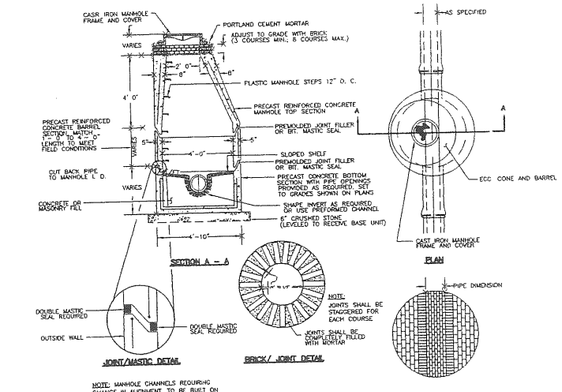
NOTE:
1.) PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10' ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS
2.) ALL DIMENSIONS, SIZES, NUMBER OF CONDUITS AND MATERIALS TO BE VERIFIED WITH SERVING UTILITIES.

UTILITY TRENCH - PRIMARY AND SECONDARY POWER, TELEPHONE, AND CABLE
N.T.S.

NOTE: LOCATION/WARNING TAPE SHALL BE INSTALLED OVER CENTERLINE OF PIPE AT A MAXIMUM OF 24 INCHES BELOW FINISH GRADE.



TYPICAL HOUSE LATERAL WYE CONNECTION DETAIL
N.T.S.



GENERAL NOTES
1. ULTIMATE STRENGTH OF 4000 lbs. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. ASTM SPEC. C-478-67
3. C-32-63, GRADE MA AND SA.
4. APPLIED TO THE EXTERIOR SURFACE. IF CONSTRUCTION OF BRICK MASONRY, THE SMOOTH MORTAR SURFACE SHALL BE PLASTERED WITH A SMOOTH MORTAR FINISH 3/8" THICK. AFTER THE MORTAR HAS SET, THE SURFACE SHALL BE WATERPROOFED AS REQUIRED BY SUPPLEMENTAL SPECIFICATIONS SECTION 604.
5. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48-CLASS 35. ALL PARTS OF CASTINGS, EXCEPT FINISHED SURFACE, SHALL RECEIVE A COAT OF COAL TAR PITCH VARNISH OR ASPHALTUM PAINT WHICH SHALL BE SMOOTH AND TOUGH BUT NOT BRITTLE.
6. MANHOLES MAY BE CONSTRUCTED OF MASONRY, PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
7. ALL PRECAST MANHOLES AND CATCH BASINS SHALL BE IDENTIFIED BY CATCH BASIN AND MANHOLE SCHEDULES ON GRADING AND UTILITY PLANS BY THE MANUFACTURER.
8. STORM AND SEWER MANHOLES SHALL HAVE SOLID COVERS WITH ONE DRILLED HOLE.
9. EXISTING MANHOLE AND CATCH BASIN FRAMES AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND REMAIN THE PROPERTY OF THE CITY OF PORTLAND.

NOTE: MANHOLE CHANNELS REQUIRING CHANGE IN ALIGNMENT, TO BE BUILT ON SMOOTH RADIUS. IF SEC. PIPES ENTER CHANNEL TO BE SHAPED TO RECEIVE ADDED SOC FLOW.

PRECAST CONCRETE MANHOLE TYPE "A"
N.T.S.

STATE OF MAINE * ALTON M. PALMER III 8821 REGISTERED PROFESSIONAL ENGINEER

SITE PLAN REVIEW	12/17/01	AMP
Issued For	Date	By

GP Gorrill-Palmer Consulting Engineers, Inc.
PO Box 1237 Traffic and Civil Engineering Services 207-657-6910
26 Main Street FAX: 207-657-6912
Gray, ME 04039 E-Mail: gpcei@maine.rr.com

Owner:

Contractor:

ARCHETYPE, P.A.
ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Scale: 1" = 40'
Date: 07 December, 2001
Drawn By: CAH | Checked By: AMP
Revisions:

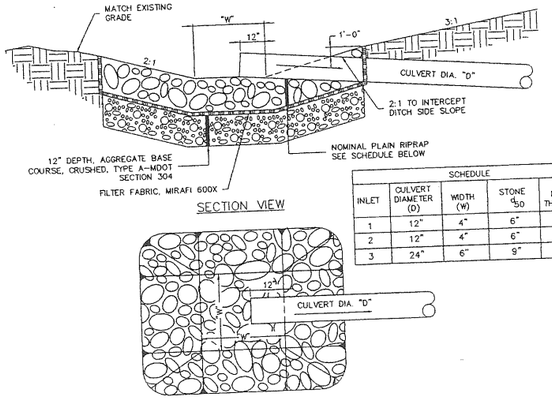
Project:
WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

UTILITY DETAILS

SD-5

AH. 19

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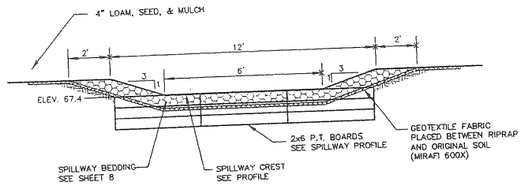


SECTION VIEW

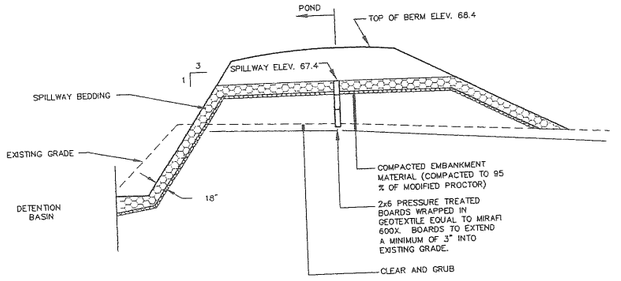
SCHEDULE				
INLET	CULVERT DIAMETER (D)	WIDTH (W)	STONE d_{50}	RIPRAP THICKNESS
1	12"	4"	6"	14"
2	12"	4"	6"	14"
3	24"	6"	9"	22"

PLAN VIEW

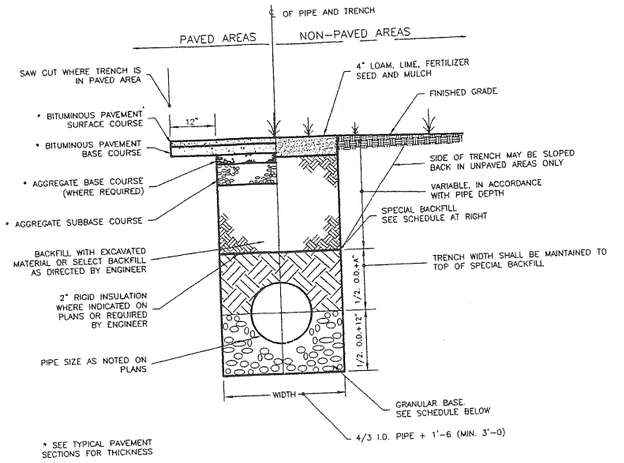
CULVERT INLET APRON DETAIL
N.T.S.



SPILLWAY CROSS-SECTION
N.T.S.



SPILLWAY PROFILE
N.T.S.

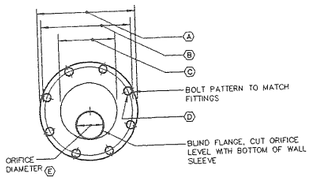


* SEE TYPICAL PAVEMENT SECTIONS FOR THICKNESS

NOTE:
BRACING AND SHEETING OR OTHER TRENCH PROTECTION TO BE PROVIDED TO MEET APPLICABLE STATE AND O.S.H.A. SAFETY STANDARDS. ALL SUCH TRENCH PROTECTION TO BE THE RESPONSIBILITY OF THE CONTRACTOR

TYPICAL TRENCH SECTION
N.T.S.

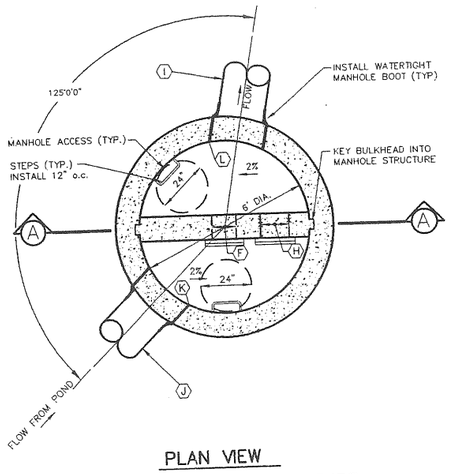
SCHEDULE OF BASE BACKFILL				
TYPE OF PIPE	BEDDING MATERIAL	SPECIAL BACKFILL	SPECIAL BACKFILL COVER "A" (IN)	SELECT BACKFILL
CONCRETE	GRANULAR AASHTO M145-49 A-3 OR BETTER	GRANULAR AASHTO M145-49 A-3 OR BETTER	12	GRANULAR AASHTO M145-49 A-3 OR BETTER
PVC	3/4" CRUSHED STONE	GRANULAR AASHTO M145-49 A-3 OR BETTER	6	GRANULAR AASHTO M145-49 A-3 OR BETTER
CMP	3/4" CRUSHED STONE	GRANULAR AASHTO M145-49 A-3 OR BETTER	6	GRANULAR AASHTO M145-49 A-3 OR BETTER
D.I.	GRANULAR AASHTO M145-49 A-3 OR BETTER	GRANULAR AASHTO M145-49 A-3 OR BETTER	6	GRANULAR AASHTO M145-49 A-3 OR BETTER



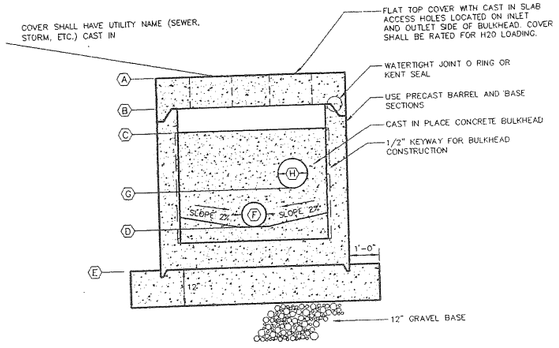
ORIFICE DETAIL
NOT TO SCALE
SEE SCHEDULE C

SCHEDULE C ORIFICE		
DESCRIPTION	2" ORIFICE	10" ORIFICE
(A) FLANGE O.D.	13.50"	23.50"
(B) BOLT CIRCLE	11.75"	21.25"
(C) NOMINAL PIPE DIA.	8"	16"
(D) BOLT HOLE DIA.	7/8"	1-1/8"
(E) ECCENTRIC ORIFICE DIAMETER	2"	10"

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.



PLAN VIEW
OUTLET CONTROL STRUCTURE
NOT TO SCALE
SEE SCHEDULE A



SECTION A-A
OUTLET CONTROL STRUCTURE DMH2
NOT TO SCALE
SEE SCHEDULE A

SCHEDULE A OUTLET CONTROL STRUCTURE		
ITEM	DESCRIPTION	DIMENSION/ELEVATION POND 1
(A)	TOP OF STRUCTURE	68.40
(B)	UNDERSIDE TOP SLAB	67.73
(C)	TOP CONCRETE BULKHEAD	67.06
(D)	ORIFICE INVERT	64.30
(E)	BOTTOM OF STRUCTURE	62.43
(F)	ORIFICE DIAMETER	2"
	WALL SLEEVE I.D.	8"
(G)	ORIFICE INVERT	66.30
(H)	ORIFICE DIAMETER	10"
	WALL SLEEVE I.D.	16"
(I)	OUTLET PIPE DIAMETER	12"
(J)	INLET PIPE DIAMETER	12"
(K)	INVERT IN	64.30
(L)	INVERT OUT	64.30

STATE OF MAINE
ALTON M. PALMER III
6271
REGISTERED PROFESSIONAL ENGINEER
12-17-01

SITE PLAN REVIEW	12/17/01	AMP
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GP Gorrill-Palmer Consulting Engineers, Inc.
PO Box 1237 Traffic and Civil Engineering Services 207-657-6910
26 Main Street FAX: 207-657-6912
Gray, ME 04039 E-Mail: gpcei@maine.rr.com

Owner:

Contractor:

ARCHETYPE, P.A.
ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Scale: 1" = 40'
Date: 07 December, 2001
Drawn By: CAH Checked By: AMP
Revisions:

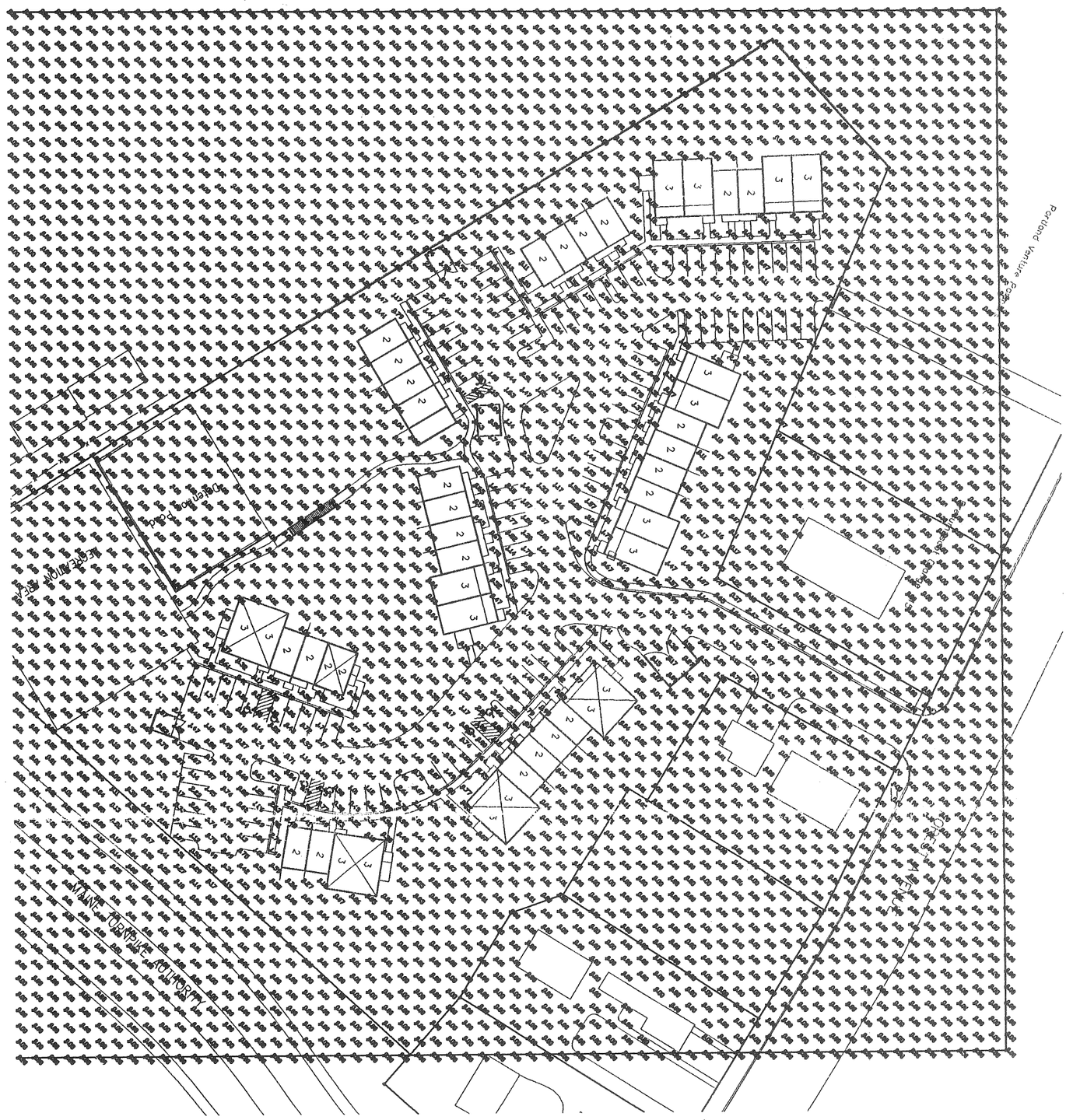
Project: WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

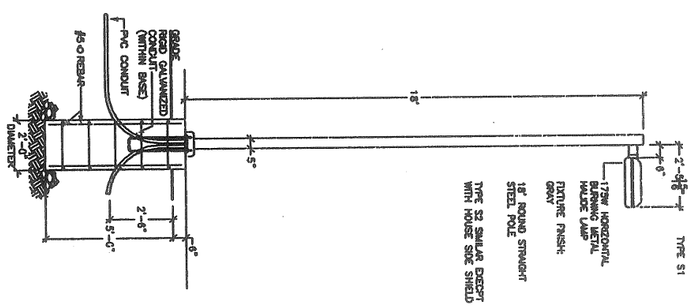
POND & MISC DETAILS

SD-6

AH. 20

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PRELIMINARY - FOR PLANNING BOARD REVIEW 2 - 22 - 02 NOT FOR CONSTRUCTION

LC1

SITE PLAN - ELECTRICAL

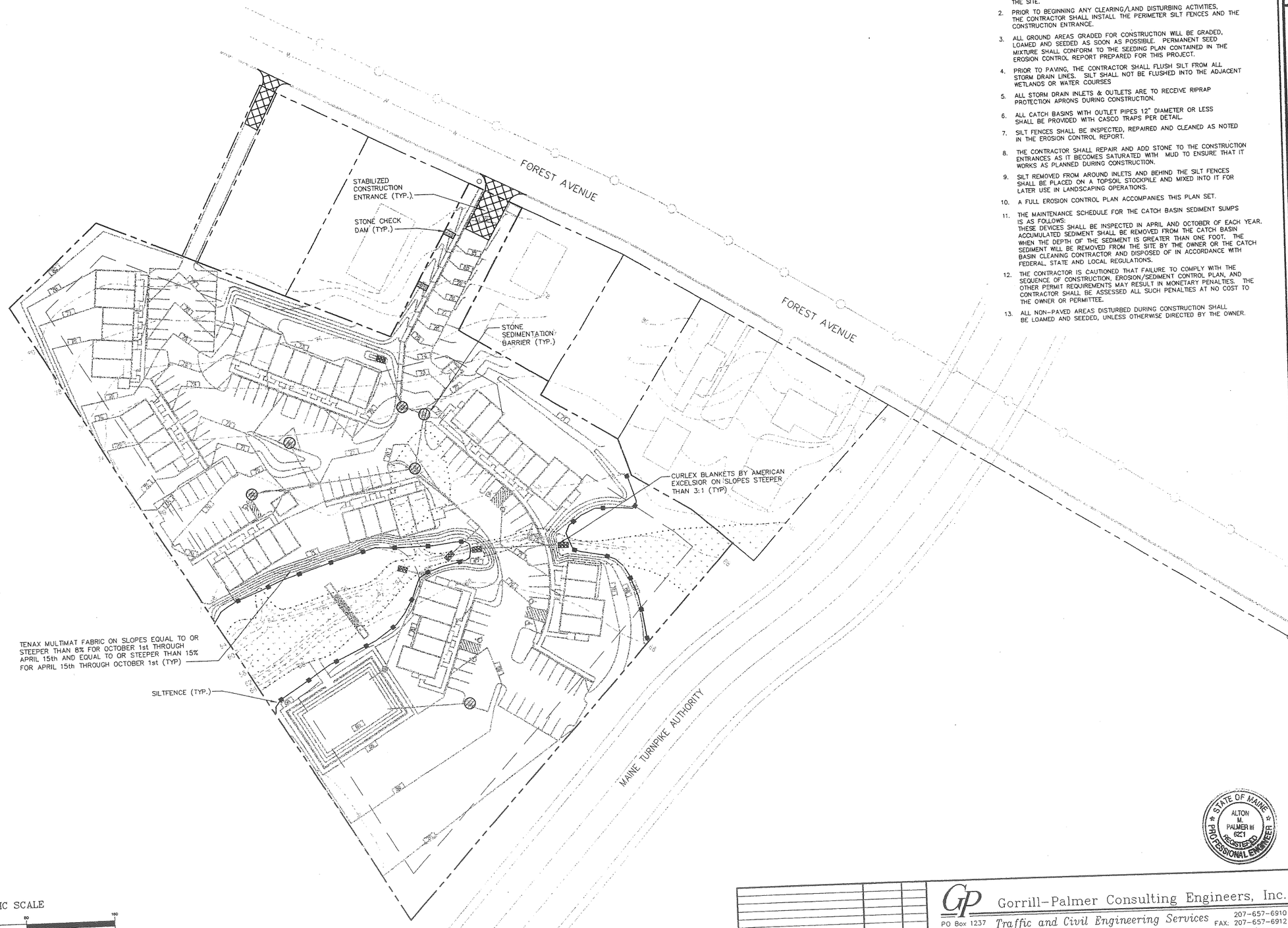
Project:
WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

Date: 22 February, 2002 | Scale: 1" = 40'
Design By: REM | Checked By:
Revisions:

ARCHETYPE, P.A.
ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
942 WASHINGTON STREET, BATH, ME 04530
TEL (207) 443-5447 FAX (207) 443-5560

Owner:



EROSION CONTROL NOTES

1. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE SITE.
2. PRIOR TO BEGINNING ANY CLEARING/LAND DISTURBING ACTIVITIES, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES AND THE CONSTRUCTION ENTRANCE.
3. ALL GROUND AREAS GRADED FOR CONSTRUCTION WILL BE GRADED, LOAMED AND SEEDED AS SOON AS POSSIBLE. PERMANENT SEED MIXTURE SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL REPORT PREPARED FOR THIS PROJECT.
4. PRIOR TO PAVING, THE CONTRACTOR SHALL FLUSH SILT FROM ALL STORM DRAIN LINES. SILT SHALL NOT BE FLUSHED INTO THE ADJACENT WETLANDS OR WATER COURSES
5. ALL STORM DRAIN INLETS & OUTLETS ARE TO RECEIVE RIPRAP PROTECTION APRONS DURING CONSTRUCTION.
6. ALL CATCH BASINS WITH OUTLET PIPES 12" DIAMETER OR LESS SHALL BE PROVIDED WITH CASCO TRAPS PER DETAIL.
7. SILT FENCES SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL REPORT.
8. THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCES AS IT BECOMES SATURATED WITH MUD TO ENSURE THAT IT WORKS AS PLANNED DURING CONSTRUCTION.
9. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED ON A TOPSOIL STOCKPILE AND MIXED INTO IT FOR LATER USE IN LANDSCAPING OPERATIONS.
10. A FULL EROSION CONTROL PLAN ACCOMPANIES THIS PLAN SET.
11. THE MAINTENANCE SCHEDULE FOR THE CATCH BASIN SEDIMENT SUMPS IS AS FOLLOWS:
    THESE DEVICES SHALL BE INSPECTED IN APRIL AND OCTOBER OF EACH YEAR. ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE CATCH BASIN WHEN THE DEPTH OF THE SEDIMENT IS GREATER THAN ONE FOOT. THE SEDIMENT WILL BE REMOVED FROM THE SITE BY THE OWNER OR THE CATCH BASIN CLEANING CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS.
12. THE CONTRACTOR IS CAUTIONED THAT FAILURE TO COMPLY WITH THE SEQUENCE OF CONSTRUCTION, EROSION/SEDIMENT CONTROL PLAN, AND OTHER PERMIT REQUIREMENTS MAY RESULT IN MONETARY PENALTIES. THE CONTRACTOR SHALL BE ASSESSED ALL SUCH PENALTIES AT NO COST TO THE OWNER OR PERMITTEE.
13. ALL NON-PAVED AREAS DISTURBED DURING CONSTRUCTION SHALL BE LOAMED AND SEEDED, UNLESS OTHERWISE DIRECTED BY THE OWNER.

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)

1 inch = 40 ft.

STATE OF MAINE
ALTON M. PALMER III
8221
REGISTERED PROFESSIONAL ENGINEER

Issued For	Date	By
SITE PLAN REVIEW	12/17/01	AMP

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PO Box 1237
26 Main Street
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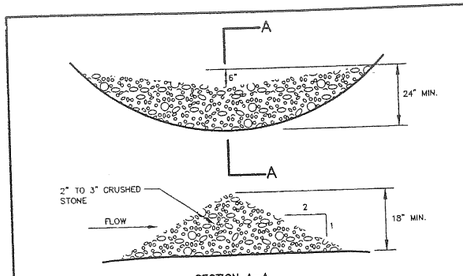
EROSION AND SEDIMENT CONTROL PLAN

Project:
WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

SD-3B

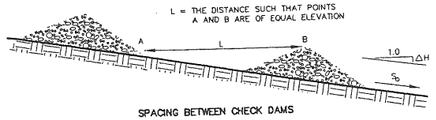
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SECTION A–A

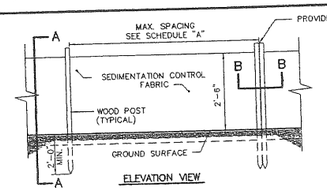
L = THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION



SPACING BETWEEN CHECK DAMS

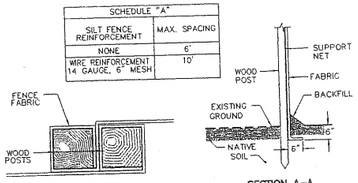
S_o (FT./FT.)	L (FT.)
0.020	75
0.030	50
0.040	40
0.050	30
0.080	20
0.100	15'

STONE CHECK DAM
N.T.S.

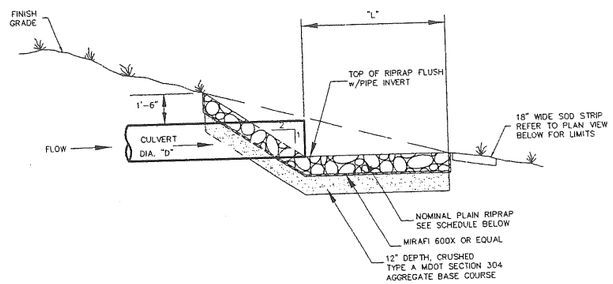


ELEVATION VIEW

SCHEDULE "A"	
SILT FENCE REINFORCEMENT	MAX. SPACING
NONE	6'
WIRE REINFORCEMENT 14 GAUGE, 6" MESH	10'



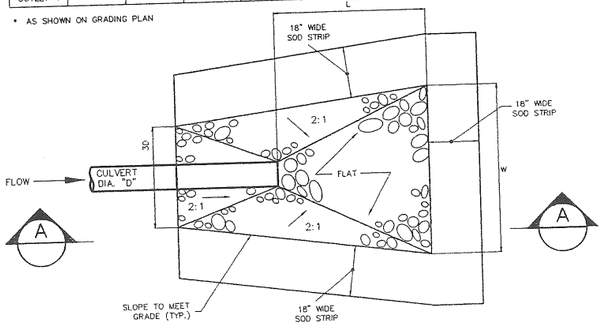
SILTATION FENCE DETAIL
N.T.S



SECTION A

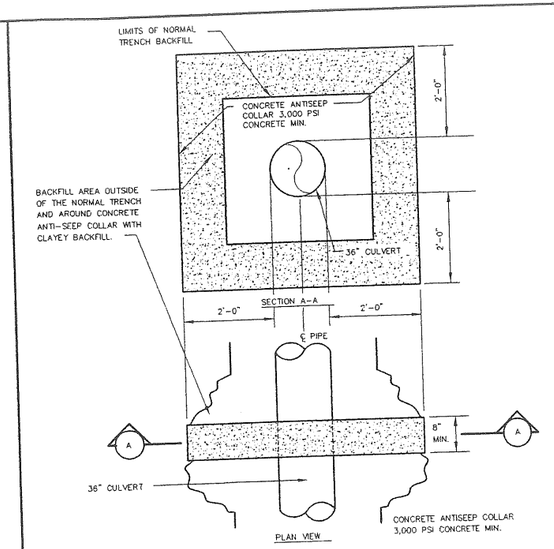
SCHEDULE					
OUTLET	CULVERT DIAMETER (D)	LENGTH (L)	WIDTH (W)	STONE d_{50}	RIPRAP THICKNESS
OUTLET 2	12"	7'	8'	6"	14"
OUTLET 3	24"	12'	13'	9"	22"
OUTLET 4	12"	7'	8'	6"	14"

* AS SHOWN ON GRADING PLAN

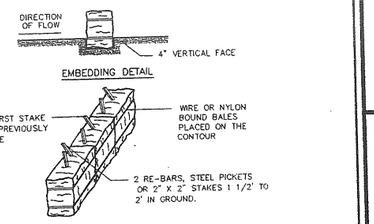


PLAN VIEW

CULVERT OUTLET APRON
N.T.S.



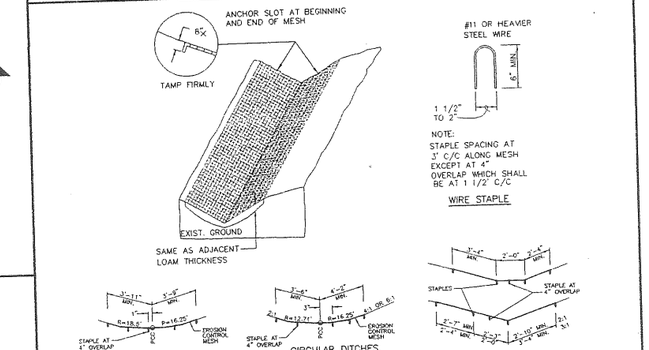
CONCRETE ANTISEEP COLLAR DETAIL
N.T.S.



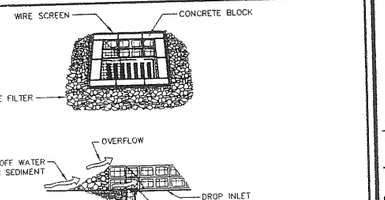
CONSTRUCTION SPECIFICATIONS

1. Bales shall be placed in a row with ends tightly abutting the adjacent bales.
2. Each bale shall be embedded in the soil a minimum of 4".
3. Bales shall be securely anchored in place by stakes or re-bars driven through the bales. The first stake in each bale was angled toward previously laid bale to force bales together.
4. Inspection will be frequent and repair or replacement shall be made promptly as needed.
5. Bales shall be removed when they have served their usefulness so as not to block or impede storm flow or drainage.

STRAW OR HAY BALE BARRIER
N.T.S.



EROSION CONTROL MESH
N.T.S.



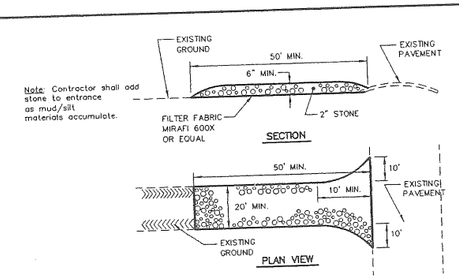
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY FLOWS ARE EXPECTED AND WHERE AN OVERFLOW CAPACITY IS NECESSARY TO PREVENT EXCESSIVE PONDING AROUND THE STRUCTURE.

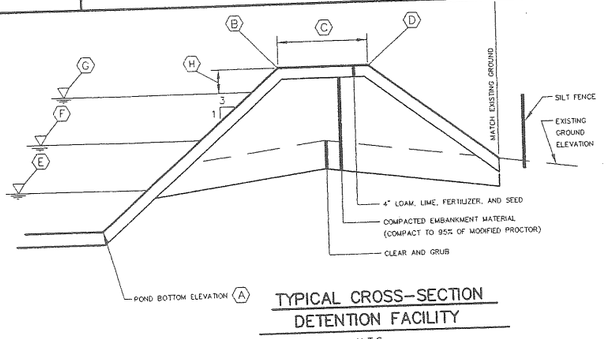
NOTES:

1. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4", 8" AND 12" WIDE BLOCKS. THE BARRIER OF BLOCKS SHALL BE AT LEAST 12 INCHES HIGH, AND NO GREATER THAN 24" HIGH.
2. WIRE MESH SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS. HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2" OPENINGS SHALL BE USED.
3. STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK BARRIER, AS SHOWN IN DETAIL. THE STONE FILTER SHALL BE 3/4" CRUSHED STONE.
4. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT, SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE BLOCKS, CLEANED AND REPLACED.

STONE SEDIMENT BARRIER
N.T.S.

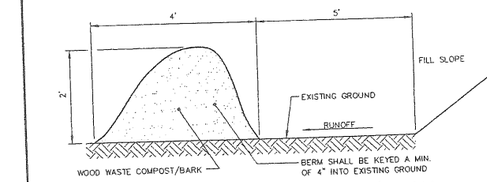


STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



TYPICAL CROSS–SECTION DETENTION FACILITY
N.T.S

EMBANKMENT SCHEDULE	
ITEM DESCRIPTION	DIMENSION/ELEVATION
(A) POND BASE ELEVATION	64.3'
(B) TOP OF DETENTION BASIN AT INSIDE OF BERM	68.4'
(C) WIDTH OF BERM	2.2'
(D) TOP OF DETENTION BASIN AT OUTSIDE OF BERM	68.4'
(E) 2 YEAR STAGE 2 YEAR STORAGE (CF)	65.8' 4,334
(F) 10 YEAR STAGE 10 YEAR STORAGE (CF)	66.8' 8,508
(G) 25 YEAR STAGE 25 YEAR STORAGE (CF)	67.1' 9,838
(H) FREEBOARD (25 YR. STORM)	1.3'



WOOD WASTE COMPOST/BARK FILTER BERM DETAIL
NOT TO SCALE

NOTES:

1. THE WOOD WASTE COMPOST/BARK MIX SHALL CONFORM TO THE FOLLOWING STANDARDS:
   - A. MOISTURE CONTENT – 30–60%
   - B. pH – 5.0 – 8.0.
   - C. SCREEN SIZE – 100% LESS THAN 3", MAX. 70% LESS THAN 1".
   - D. NO LESS THAN 40% ORGANIC MATERIAL (DRY WEIGHT) BY LOSS OF IGNITION.
   - E. NO STONES LARGER THAN 2" IN DIAMETER.
   - F. SILTS, CLAYS OR SUGAR SANDS ARE NOT ACCEPTABLE IN THE MIX.
2. THE COMPOST BERM SHALL BE PLACED, UNCOMPACTED, ALONG A RELATIVELY LEVEL CONTOUR.
3. THE WOOD WASTE COMPOST/BARK FILTER BERM MAY BE USED IN LIEU OF SILTATION FENCE, AT THE TOE OF SHALLOW SLOPES, ON FROZEN GROUND, LEDGE OUT CROPS, VERY ROOTED FORESTED AREA OR AT THE EDGE OF GRAVEL PARKING AREAS.
4. BERMS SHALL REMAIN IN PLACE UNTIL UPSTREAM AREA IS COMPLETED OR 70% CATCH OF VEGETATION IS ATTAINED. BERMS SHALL BE REMOVED BY SPREADING SUCH THAT NATIVE EARTH CAN BE SEEN BELOW.

STATE OF MAINE
ALTON A. PALMER III
6621
REGISTERED PROFESSIONAL ENGINEER

SITE PLAN REVIEW	12/17/01	AMP	
Issued For	Date	By	

Gorrill–Palmer Consulting Engineers, Inc.
PO Box 1237 *Traffic and Civil Engineering Services* 207–657–6910
26 Main Street FAX: 207–657–6912
Gray, ME 04039 E–Mail: gpcei@maine.rr.com

Owner:

Contractor:

ARCHETYPE, P.A.
ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772–6022 Fax (207) 772–4056

Date: 07 December, 2001 | Scale: 1" = 40'
Drawn By: CAH | Checked By: AMP
Revisions:

Project: WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

EROSION CONT DETAILS

SD-7

PA 21

S:\Land Projects\1412\dwg\L412-sd-1.dwg Mon Dec 17 20:10:02 2001 CAH



LEGEND

- (2) SUBCATCHMENT AREA
- C TIME OF CONCENTRATION FLOW PATH
- WATERSHED BOUNDARY
- SF SHEET FLOW
- SCF SHALLOW CONCENTRATED FLOW
- POI POINT OF INTEREST
- PF PIPE FLOW

100 0 50 100 200

1 inch = 100 ft.

Rev.	Date	Revision
AMP	2-12-02	CHANGED WATERSHED #1

Design: JML	Date: DEC 2001
Draft: CAH	Job No.: 442
Checked: DER	Scale: 1"=100'
File Name: 442-WATSHD	

Gorrill-Palmer Consulting Engineers, Inc.
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PO Box 1237
26 Main Street
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: gpcei@maine.rr.com

Drawing Name: Predevelopment Watershed Plan

Project: WELLESLEY ESTATES

Figure No. A

AH. 22

PLANT LIST:

No.	Botanical Name	Common Name	Quant.	Size	Remarks
1	ACER GINNALA	AMUR MAPLE	1	5' - 6' HGT	B&B
2	A. PLATANOIDES "SUPERFORM"	SUPERFORM NORWAY MAPLE	6	2½" - 3" CAL	B&B
3	A. RUB RUM	RED MAPLE	4	2½" - 3" CAL	B&B
4	BETULA NIGRA "HERITAGE"	HERITAGE BIRCH	1	2½" - 3" CAL	B&B SPECIMEN
5	CERCIDIPHYLLUM JAPONICUM	KATSURA TREE	4	2½" - 3" CAL	B&B
6	CLETHRA ALNIFOLIA	SUMMERSWEET CLETHRA	3	2' - 3' HGT	CONTAINER
7	CORNUS ALBA "ARGENTEO MARGINATUS"	VARIEGATED DOGWOOD	6	2' - 3' HGT	CONTAINER
8	EUONYMUS ALATA COMPACTA	DWARF WINGED EUONYMUS	6	2' - 3' HGT	CONTAINER
9	FORSYTHIA SUSPENSA	WEEPING FORSYTHIA	6	2' - 3' HGT	CONTAINER
10	JUNIPERUS CHINENSIS "SEA GREEN"	SEA GREEN JUNIPER	11	24" - 36" SPR.	CONTAINER
11	J. HORIZONTALIS FUJIFOSA	ANDORRA JUNIPER	8	18" - 24" SPR.	CONTAINER
12	LIGUSTRUM OBTUSIFOLIUM REGELIANUM	REGEL PRIVET	4	2' - 3' HGT	CONTAINER
13	MALUS FLORIBUNDA	JAP. FLOWERING CRAB	3	1½" - 2" CAL	B&B SPECIMEN
14	M. VANEESLTINE	YANEESLTINE CRAB	2	1½" - 2" CAL	B&B SPECIMEN
15	M. ZUMICALDOCARPA	ZUMI CRAB	2	1½" - 2" CAL	B&B SPECIMEN
16	PICEA PUNGENS GLAUCA	COL. BLUE SPRUCE	9	5' - 6' HGT	B&B SPECIMEN
17	PINUS MUGO MUGHUS	MUGO PINE	11	24" - 36" SPR.	CONTAINER
18	PINUS STROBUS	WHITE PINE	5	5' - 6' HGT	B&B
19	POTENTILLA FRUTICOSA "KLONDIKE"	KLONDIKE CINQUEFOIL	6	2' - 3' HGT	CONTAINER
20	QUERCUS BOREALIS	RED OAK	2	1½" - 2" CAL	B&B
21	RHODODENDRON PJM	PJM RHODODENDRON	10	2' - 3' HGT	CONTAINER
22	SPIRAEA BUMALDA "ANTHONY WATERER"	ANTHONY WATERER SPIREA	9	2' - 3' HGT	CONTAINER
23	SYMPHORICARPOS ALBA LAEVIGATUS	COMMON SNOWBERRY	8	2' - 3' HGT	CONTAINER
24	TAXUS CUSPIDATA NIGRA	DARK YEW	6	24" - 36" SPR.	B&B
25	TILIA CORDATA "GREENSPIRE"	GREENSPIRE LINDEN	4	1½" - 2" CAL	B&B
26	VIBURNUM TRILOBUM	CRANBERRY BUSH VIBURNUM	10	2' - 3' HGT	CONTAINER



Owner:

Contractor:

ARCHETYPE, P.A.
ARCHITECTS
48 Union Wharf Portland, Maine 04101
(207) 772-6022 Fax (207) 772-4056

Project:
LANDSCAPE PLAN
WELLESLEY ESTATES
FOREST AVENUE
PORTLAND, MAINE

Date: 18 December, 2001
Drawn By: Jung
Checked By:
Revisions:
Issued for Planning Board

Scale: 1" = 40'

L1



LEGEND

(2)	SUBCATCHMENT AREA
C	TIME OF CONCENTRATION FLOW PATH
	WATERSHED BOUNDARY
SF	SHEET FLOW
SCF	SHALLOW CONCENTRATED FLOW
POI	POINT OF INTEREST
PF	PIPE FLOW

100 0 50 100 200

1 inch = 100 ft.

Rev.	Date	Revision
AMP	2-12-02	CHANGED WATERSHED #11

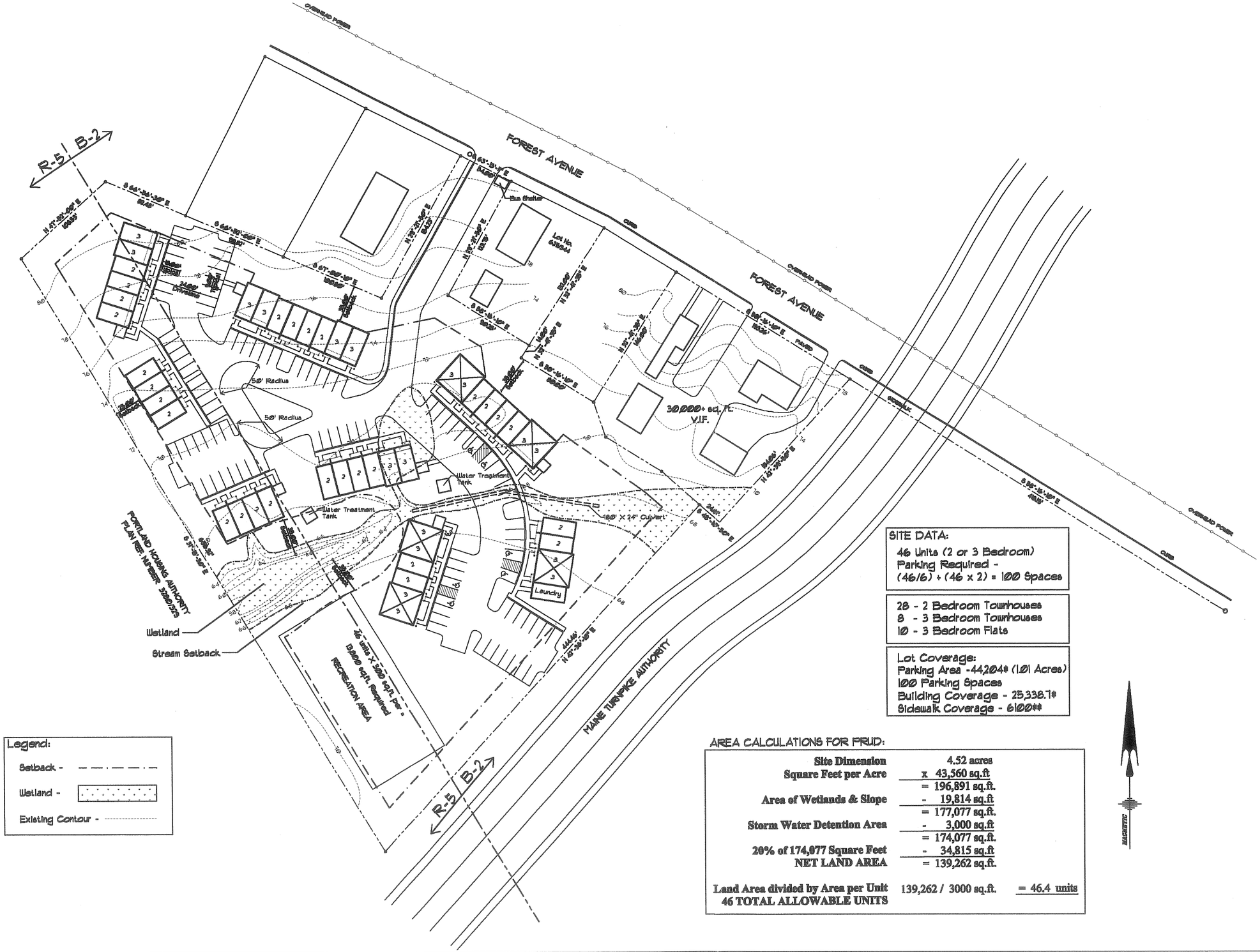
Design: JML	Date: DEC 2001
Draft: CAH	Job No.: 442
Checked: DER	Scale: 1"=100'
File Name: 442-WATSHD	

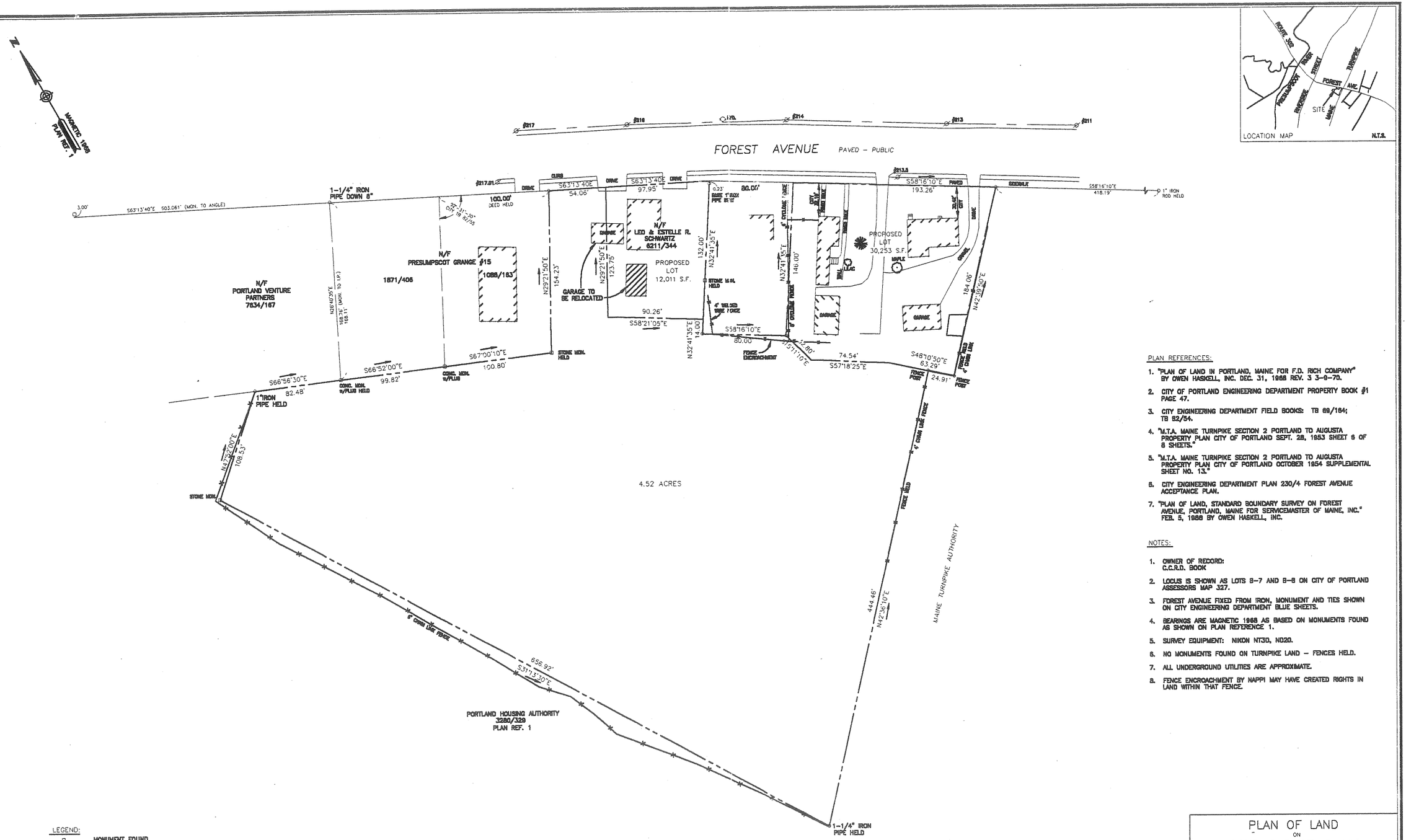
GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237
26 Main Street
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: gpcei@maine.rr.com

Drawing Name: Post-Development Watershed Plan

Project: WELLESLEY ESTATES

Figure No. B


FOREST AVENUE
FOREST AVENUE
R-5 / B-2
R-5 / B-2
Bus Shelter
Lot No. 6
Lot No. 5
Lot No. 4
Lot No. 3
Lot No. 2
Lot No. 1
50' Radius
50' Radius
30,000± sq. ft. V.I.F.
Water Treatment Tank
Water Treatment Tank
160' X 24" Culvert
Laundry
Wetland
Stream Setback
PORTLAND HOUSING AUTHORITY PLAN REF. NUMBER 32000/002
76 units X 3000 sq.ft. Per = 13,000 sq.ft. Required RECREATION AREA
MAINE TURNPIKE AUTHORITY
Overhead Power
Curb
Sidewalk
Paved
Driveway
24.00'
444.66'
N 45°-30'-30" E
S 65°-30'-30" E
S 57°-30'-30" E
S 55°-15'-30" E
N 45°-30'-30" E
N 35°-21'-30" E
N 35°-21'-30" E
N 45°-30'-30" E
S 65



PLAN REFERENCES:

1. "PLAN OF LAND IN PORTLAND, MAINE FOR F.D. RICH COMPANY" BY OWEN HASKELL, INC. DEC. 31, 1968 REV. 3 3-6-70.
2. CITY OF PORTLAND ENGINEERING DEPARTMENT PROPERTY BOOK #1 PAGE 47.
3. CITY ENGINEERING DEPARTMENT FIELD BOOKS: TB 69/184; TB 82/54.
4. "M.T.A. MAINE TURNPIKE SECTION 2 PORTLAND TO AUGUSTA PROPERTY PLAN CITY OF PORTLAND SEPT. 28, 1953 SHEET 6 OF 8 SHEETS."
5. "M.T.A. MAINE TURNPIKE SECTION 2 PORTLAND TO AUGUSTA PROPERTY PLAN CITY OF PORTLAND OCTOBER 1954 SUPPLEMENTAL SHEET NO. 13."
6. CITY ENGINEERING DEPARTMENT PLAN 230/4 FOREST AVENUE ACCEPTANCE PLAN.
7. "PLAN OF LAND, STANDARD BOUNDARY SURVEY ON FOREST AVENUE, PORTLAND, MAINE FOR SERVICEMASTER OF MAINE, INC." FEB. 5, 1988 BY OWEN HASKELL, INC.

NOTES:

1. OWNER OF RECORD: C.C.R.D. BOOK
2. LOCUS IS SHOWN AS LOTS B-7 AND B-8 ON CITY OF PORTLAND ASSESSORS MAP 327.
3. FOREST AVENUE FIXED FROM IRON, MONUMENT AND TIES SHOWN ON CITY ENGINEERING DEPARTMENT BLUE SHEETS.
4. BEARINGS ARE MAGNETIC 1968 AS BASED ON MONUMENTS FOUND AS SHOWN ON PLAN REFERENCE 1.
5. SURVEY EQUIPMENT: NIKON NT30, ND20.
6. NO MONUMENTS FOUND ON TURNPIKE LAND – FENCES HELD.
7. ALL UNDERGROUND UTILITIES ARE APPROXIMATE.
8. FENCE ENCROACHMENT BY NAPPI MAY HAVE CREATED RIGHTS IN LAND WITHIN THAT FENCE.

LEGEND:

- MONUMENT FOUND
- IRON PIPE FOUND
- HYDRANT
- UTILITY POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- FENCE
- CURB
- OVERHEAD WIRES

GRAPHIC SCALE

0 20' 40' 80' 160'

PLAN OF LAND

ON

FOREST AVENUE, PORTLAND, MAINE

MADE FOR

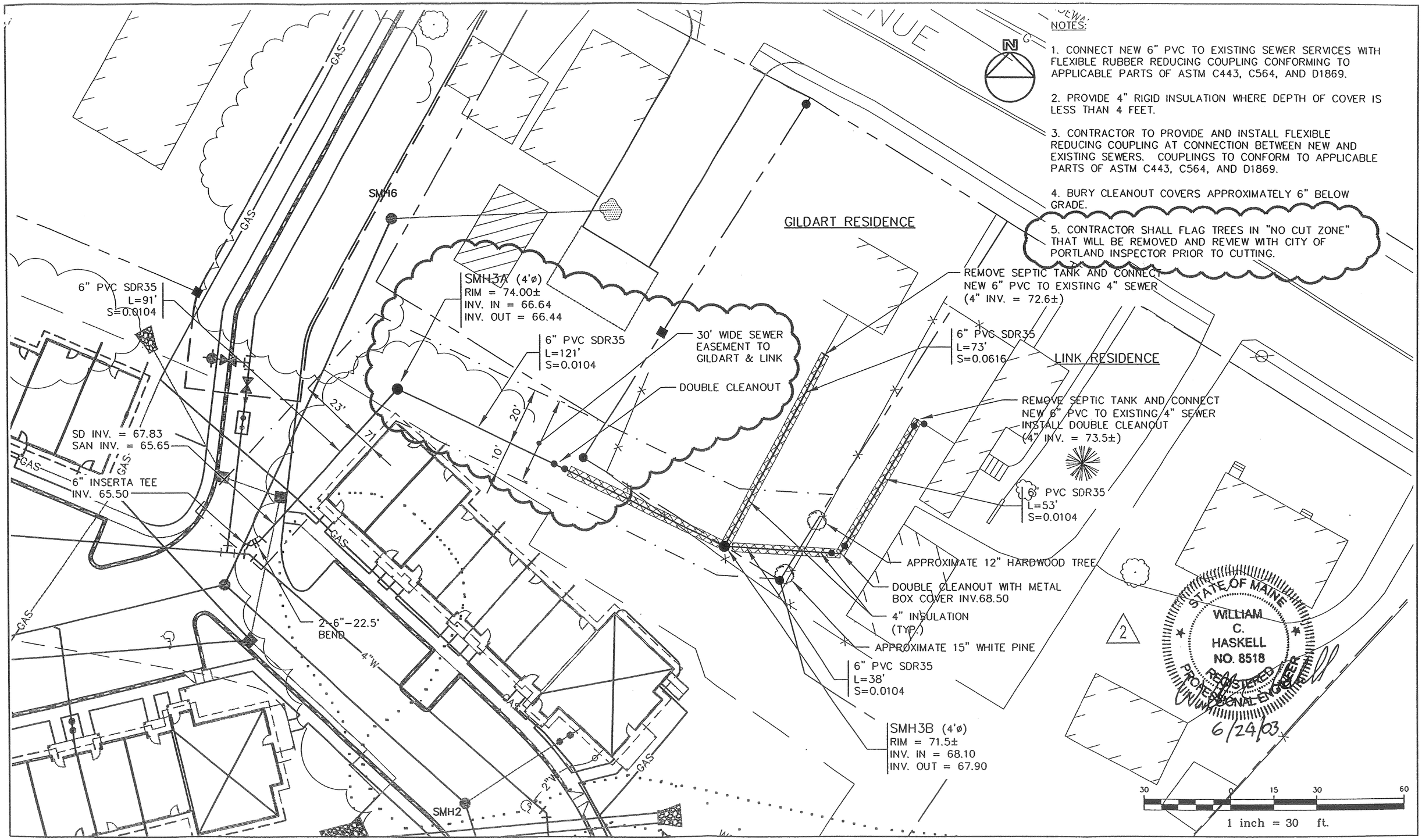
MINOT CORPORATION

34 PREBLE STREET, PORTLAND, MAINE

OWEN HASKELL, INC.
19 CAMDEN ST., PORTLAND, ME 04101 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drawn By	JCS	Date	Job No.
Trace By	JJW	NOV. 20, 2001	2001-242P
Check By	JWS	Scale	Drwg. No.
Book No.	414	1" = 40'	1

N.T.S.



Rev.	Date	Revision
3	6/20/03	REVISED SEWER PER CITY STAFF COMMENTS
2	6/12/03	ADDED SEWER EASEMENT
1	5/16/03	ISSUED FOR PRICING

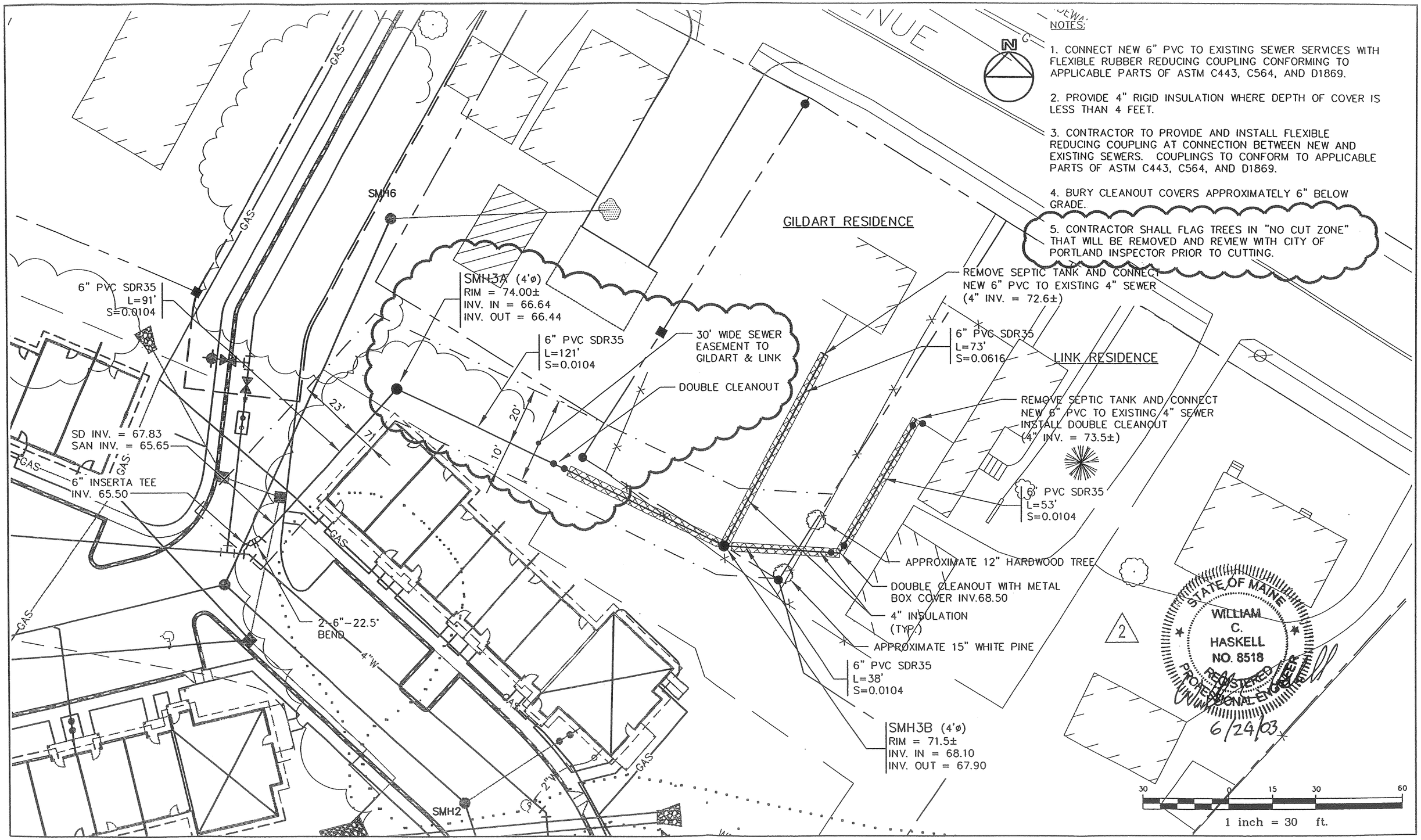
Design: WCH	Date: 5/03		
Draft: CAH	Job No.: 442		
Checked: WCH	Scale: 1"=30'		
File Name: 442-SP			

GP Gorrill-Palmer Consulting Engineers, Inc.
Traffic and Civil Engineering Services
PO Box 1237
15 Shaker Road
Gray, ME 04039
207-657-6910
FAX: 207-657-6912
E-Mail: mailbox@gorrillpalmer.com

Drawing Name: Abutter Sanitary Sewer Services

Project: WELLESLEY ESTATES

Figure No. SK47



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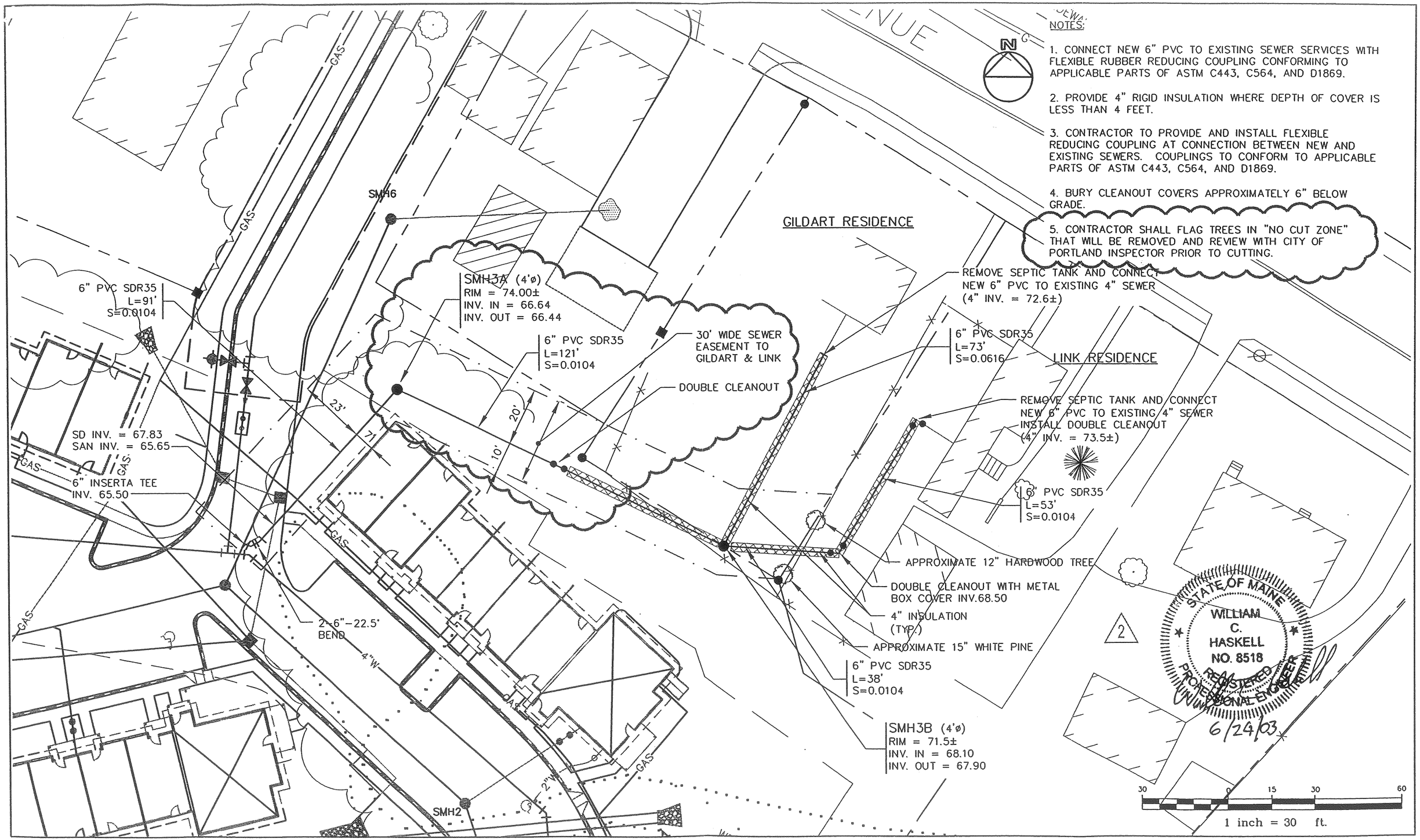
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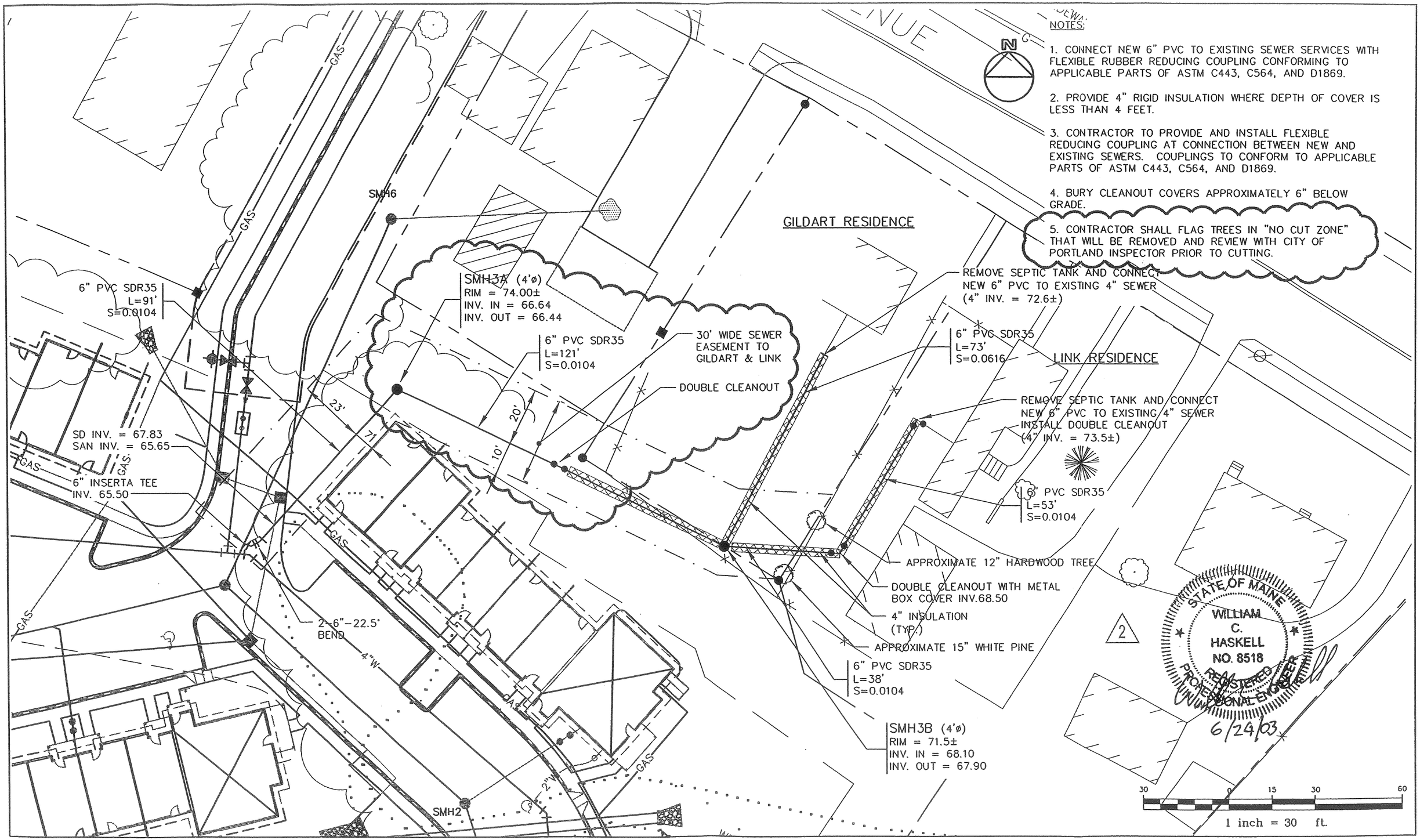
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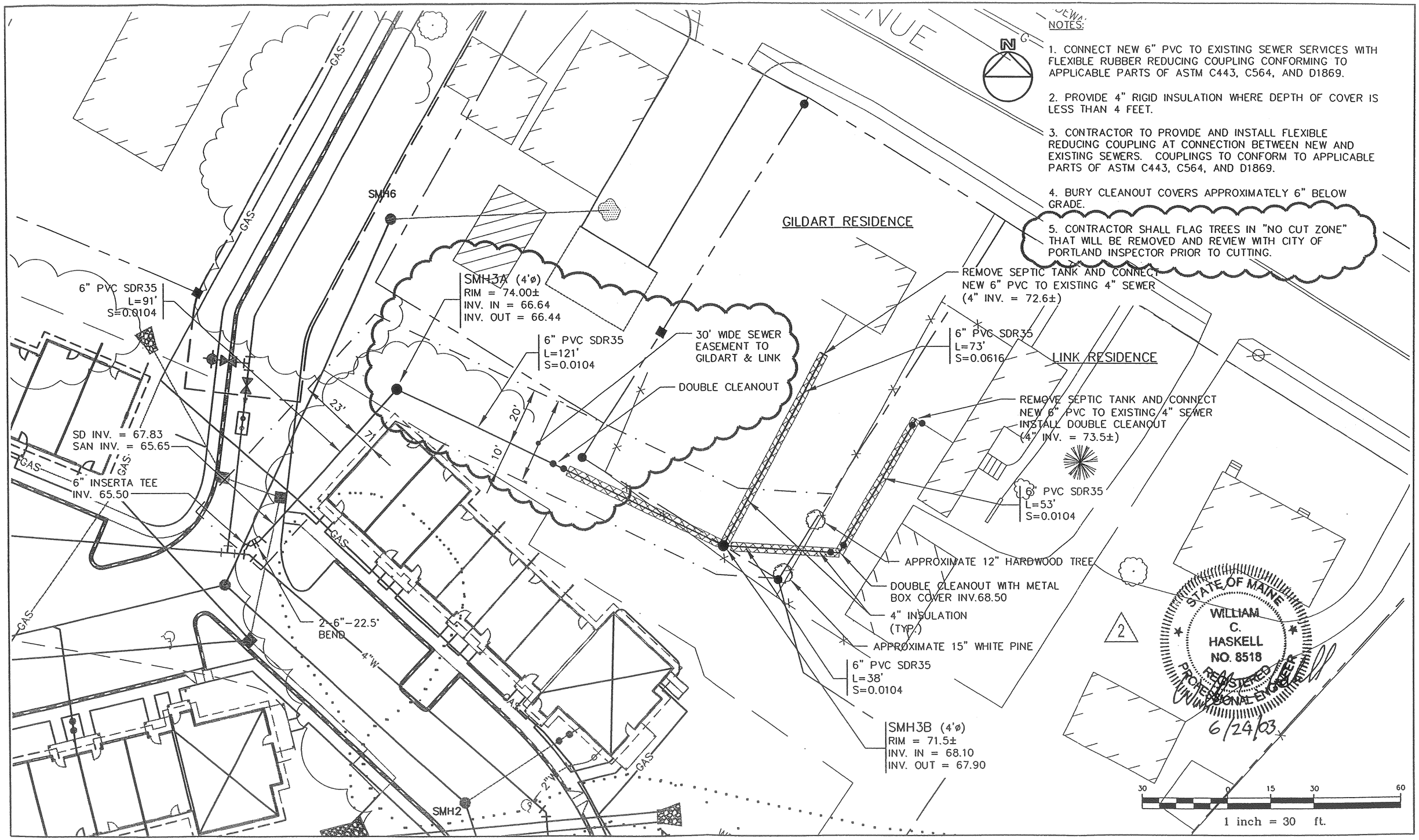
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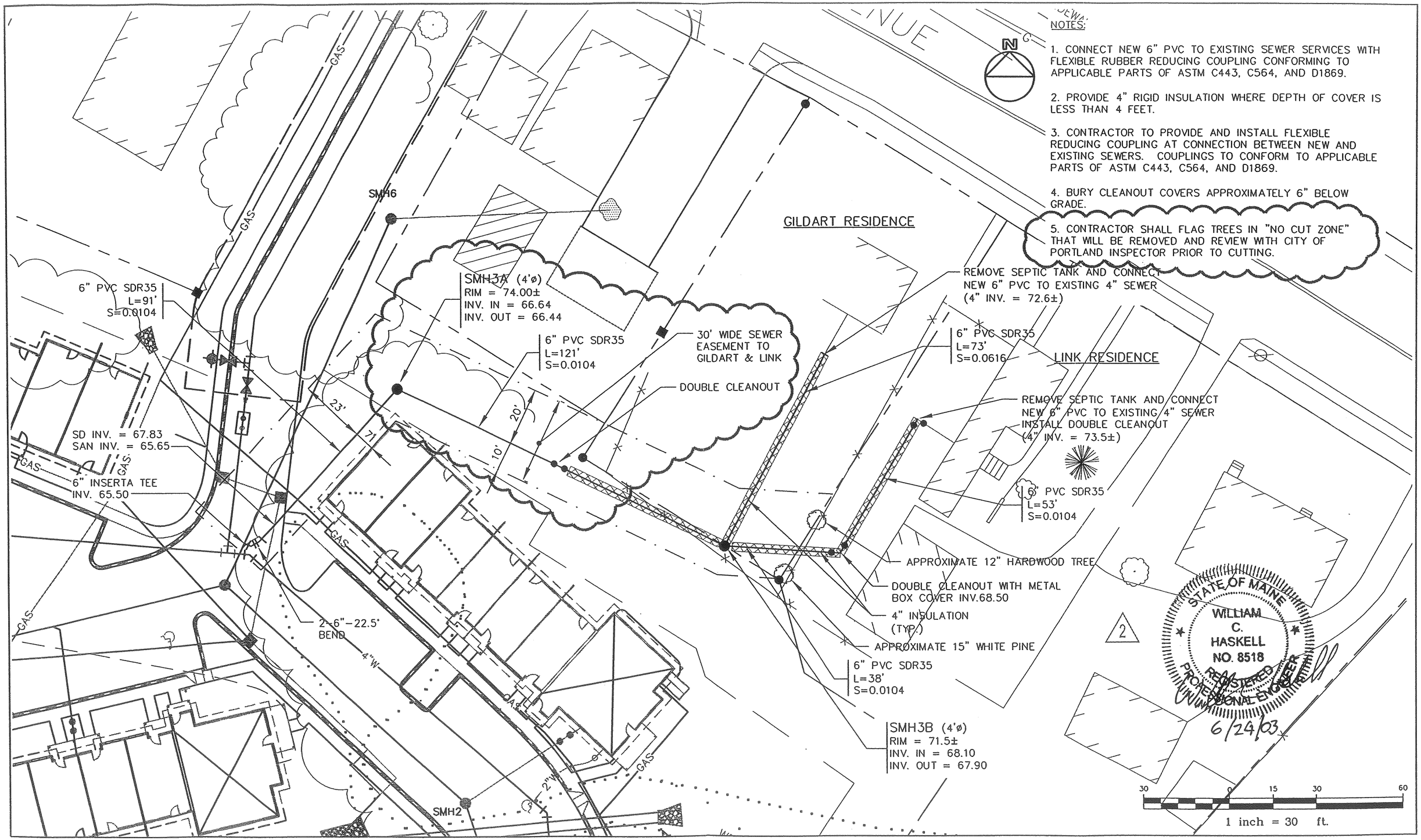
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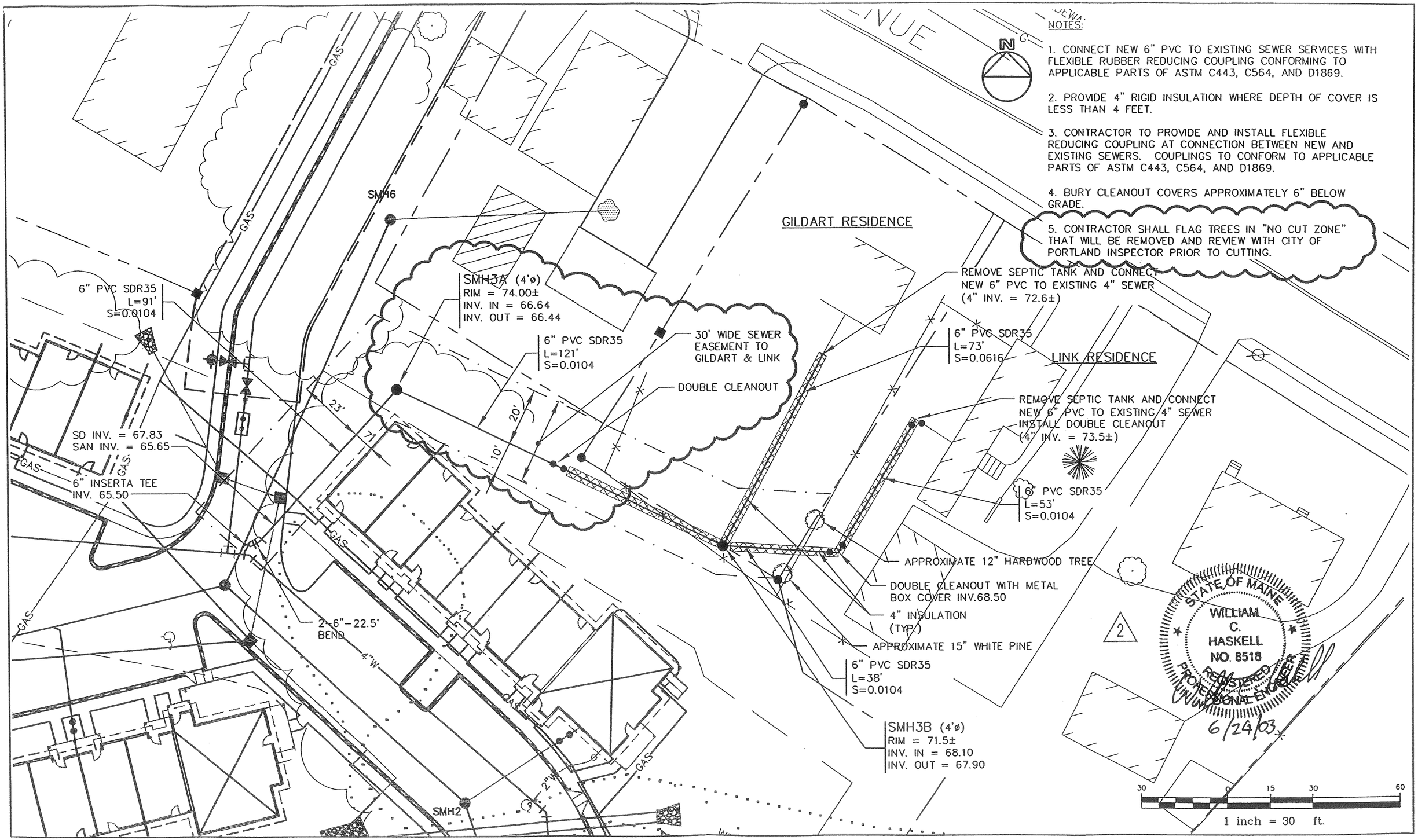
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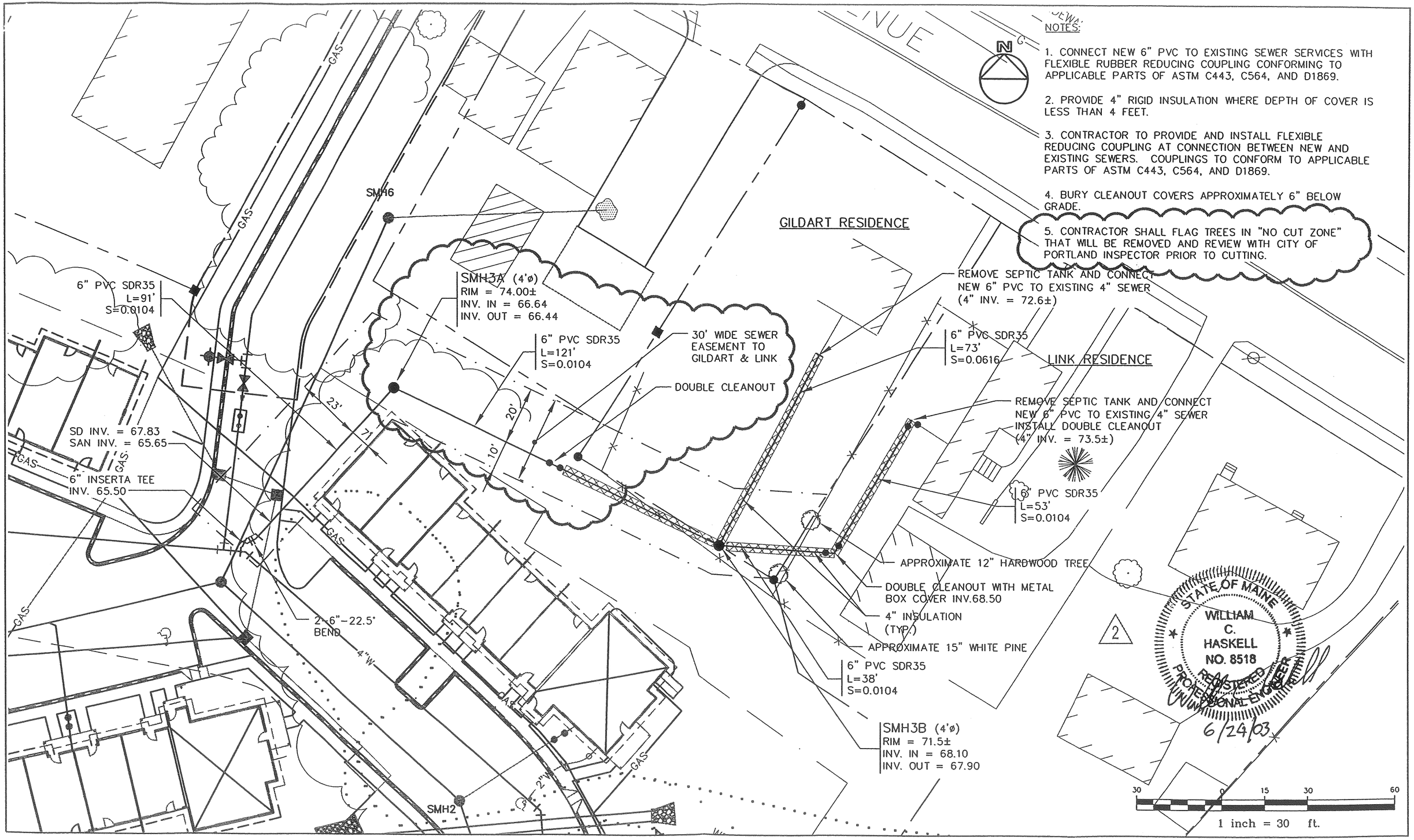
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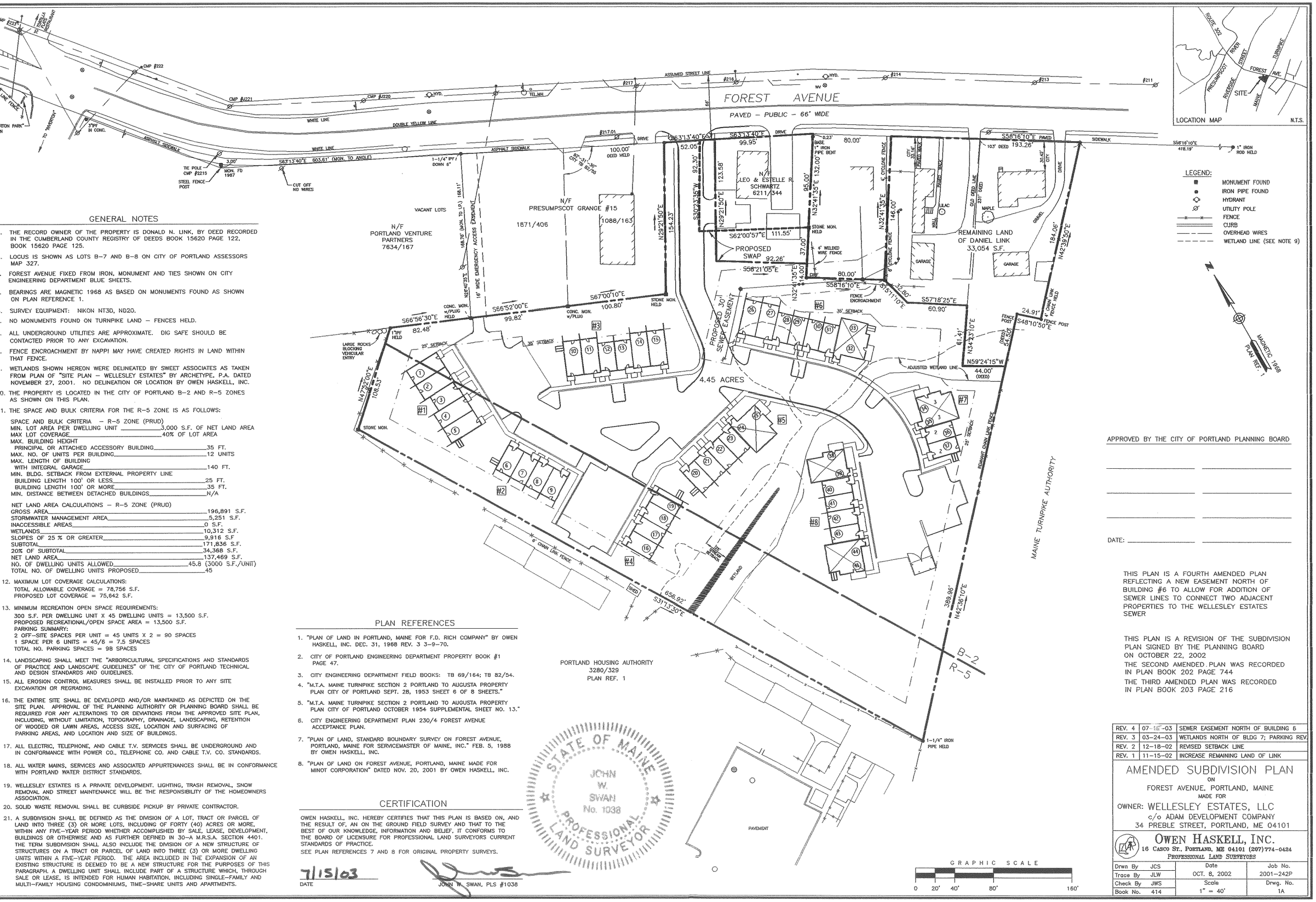
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Drawing Name: Abutter Sanitary Sewer Services

Project: WELLESLEY ESTATES

Figure No. SK47



LEGEND:

- MONUMENT FOUND
- IRON PIPE FOUND
- HYDRANT
- UTILITY POLE
- FENCE
- CURB
- OVERHEAD WIRES
- WETLAND LINE (SEE NOTE 9)

GENERAL NOTES

1. THE RECORD OWNER OF THE PROPERTY IS DONALD N. LINK, BY DEED RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS BOOK 15620 PAGE 122, BOOK 15620 PAGE 125.
2. LOCUS IS SHOWN AS LOTS B-7 AND B-8 ON CITY OF PORTLAND ASSESSORS MAP 327.
3. FOREST AVENUE FIXED FROM IRON, MONUMENT AND TIES SHOWN ON CITY ENGINEERING DEPARTMENT BLUE SHEETS.
4. BEARINGS ARE MAGNETIC 1968 AS BASED ON MONUMENTS FOUND AS SHOWN ON PLAN REFERENCE 1.
5. SURVEY EQUIPMENT: NIKON NT3D, ND20.
6. NO MONUMENTS FOUND ON TURNPIKE LAND – FENCES HELD.
7. ALL UNDERGROUND UTILITIES ARE APPROXIMATE. DIG SAFE SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION.
8. FENCE ENCROACHMENT BY NAPPI MAY HAVE CREATED RIGHTS IN LAND WITHIN THAT FENCE.
9. WETLANDS SHOWN HEREON WERE DELINEATED BY SWEET ASSOCIATES AS TAKEN FROM PLAN OF "SITE PLAN – WELLESLEY ESTATES" BY ARCHETYPE, P.A. DATED NOVEMBER 27, 2001. NO DELINEATION OR LOCATION BY OWEN HASKELL, INC.
10. THE PROPERTY IS LOCATED IN THE CITY OF PORTLAND B-2 AND R-5 ZONES AS SHOWN ON THIS PLAN.
11. THE SPACE AND BULK CRITERIA FOR THE R-5 ZONE IS AS FOLLOWS:

SPACE AND BULK CRITERIA – R-5 ZONE (PRUD)
MIN. LOT AREA PER DWELLING UNIT _____ 3,000 S.F. OF NET LAND AREA
MAX LOT COVERAGE _____ 40% OF LOT AREA
MAX. BUILDING HEIGHT
PRINCIPAL OR ATTACHED ACCESSORY BUILDING _____ 35 FT.
MAX. NO. OF UNITS PER BUILDING _____ 12 UNITS
MAX. LENGTH OF BUILDING
WITH INTEGRAL GARAGE _____ 140 FT.
MIN. BLDG. SETBACK FROM EXTERNAL PROPERTY LINE
BUILDING LENGTH 100' OR LESS _____ 25 FT.
BUILDING LENGTH 100' OR MORE _____ 35 FT.
MIN. DISTANCE BETWEEN DETACHED BUILDINGS _____ N/A

NET LAND AREA CALCULATIONS – R-5 ZONE (PRUD)
GROSS AREA _____ 196,891 S.F.
STORMWATER MANAGEMENT AREA _____ 5,251 S.F.
INACCESSIBLE AREAS _____ 0 S.F.
WETLANDS _____ 10,312 S.F.
SLOPES OF 25 % OR GREATER _____ 9,916 S.F
SUBTOTAL _____ 171,836 S.F.
20% OF SUBTOTAL _____ 34,368 S.F.
NET LAND AREA _____ 137,469 S.F.
NO. OF DWELLING UNITS ALLOWED _____ 45.8 (3000 S.F./UNIT)
TOTAL NO. OF DWELLING UNITS PROPOSED _____ 45

12. MAXIMUM LOT COVERAGE CALCULATIONS:
TOTAL ALLOWABLE COVERAGE = 78,756 S.F.
PROPOSED LOT COVERAGE = 75,642 S.F.
13. MINIMUM RECREATION OPEN SPACE REQUIREMENTS:
300 S.F. PER DWELLING UNIT X 45 DWELLING UNITS = 13,500 S.F.
PROPOSED RECREATIONAL/OPEN SPACE AREA = 13,500 S.F.
PARKING SUMMARY:
2 OFF-SITE SPACES PER UNIT = 45 UNITS X 2 = 90 SPACES
1 SPACE PER 6 UNITS = 45/6 = 7.5 SPACES
TOTAL NO. PARKING SPACES = 98 SPACES
14. LANDSCAPING SHALL MEET THE "ARBORICULTURAL SPECIFICATIONS AND STANDARDS OF PRACTICE AND LANDSCAPE GUIDELINES" OF THE CITY OF PORTLAND TECHNICAL AND DESIGN STANDARDS AND GUIDELINES.
15. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO ANY SITE EXCAVATION OR REGRADING.
16. THE ENTIRE SITE SHALL BE DEVELOPED AND/OR MAINTAINED AS DEPICTED ON THE SITE PLAN. APPROVAL OF THE PLANNING AUTHORITY OR PLANNING BOARD SHALL BE REQUIRED FOR ANY ALTERATIONS TO OR DEVIATIONS FROM THE APPROVED SITE PLAN, INCLUDING, WITHOUT LIMITATION, TOPOGRAPHY, DRAINAGE, LANDSCAPING, RETENTION OF WOODED OR LAWN AREAS, ACCESS SIZE, LOCATION AND SURFACING OF PARKING AREAS, AND LOCATION AND SIZE OF BUILDINGS.
17. ALL ELECTRIC, TELEPHONE, AND CABLE T.V. SERVICES SHALL BE UNDERGROUND AND IN CONFORMANCE WITH POWER CO., TELEPHONE CO. AND CABLE T.V. CO. STANDARDS.
18. ALL WATER MAINS, SERVICES AND ASSOCIATED APPURTENANCES SHALL BE IN CONFORMANCE WITH PORTLAND WATER DISTRICT STANDARDS.
19. WELLESLEY ESTATES IS A PRIVATE DEVELOPMENT. LIGHTING, TRASH REMOVAL, SNOW REMOVAL AND STREET MAINTENANCE WILL BE THE RESPONSIBILITY OF THE HOMEOWNERS ASSOCIATION.
20. SOLID WASTE REMOVAL SHALL BE CURBSIDE PICKUP BY PRIVATE CONTRACTOR.
21. A SUBDIVISION SHALL BE DEFINED AS THE DIVISION OF A LOT, TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE LOTS, INCLUDING OF FORTY (40) ACRES OR MORE, WITHIN ANY FIVE-YEAR PERIOD, WHETHER ACCOMPLISHED BY SALE, LEASE, DEVELOPMENT, BUILDINGS OR OTHERWISE AND AS FURTHER DEFINED IN 30-A M.R.S.A. SECTION 4401. THE TERM SUBDIVISION SHALL ALSO INCLUDE THE DIVISION OF A NEW STRUCTURE OF STRUCTURES ON A TRACT OR PARCEL OF LAND INTO THREE (3) OR MORE DWELLING UNITS WITHIN A FIVE-YEAR PERIOD. THE AREA INCLUDED IN THE EXPANSION OF AN EXISTING STRUCTURE IS DEEMED TO BE A NEW STRUCTURE FOR THE PURPOSES OF THIS PARAGRAPH. A DWELLING UNIT SHALL INCLUDE PART OF A STRUCTURE WHICH, THROUGH SALE OR LEASE, IS INTENDED FOR HUMAN HABITATION, INCLUDING SINGLE-FAMILY AND MULTI-FAMILY HOUSING CONDOMINIUMS, TIME-SHARE UNITS AND APARTMENTS.

PLAN REFERENCES

1. "PLAN OF LAND IN PORTLAND, MAINE FOR F.D. RICH COMPANY" BY OWEN HASKELL, INC. DEC. 31, 1968 REV. 3 3-9-70.
2. CITY OF PORTLAND ENGINEERING DEPARTMENT PROPERTY BOOK #1 PAGE 47.
3. CITY ENGINEERING DEPARTMENT FIELD BOOKS: TB 69/164; TB 82/54.
4. "M.T.A. MAINE TURNPIKE SECTION 2 PORTLAND TO AUGUSTA PROPERTY PLAN CITY OF PORTLAND SEPT. 28, 1953 SHEET 6 OF 8 SHEETS."
5. "M.T.A. MAINE TURNPIKE SECTION 2 PORTLAND TO AUGUSTA PROPERTY PLAN CITY OF PORTLAND OCTOBER 1954 SUPPLEMENTAL SHEET NO. 13."
6. CITY ENGINEERING DEPARTMENT PLAN 230/4 FOREST AVENUE ACCEPTANCE PLAN.
7. "PLAN OF LAND, STANDARD BOUNDARY SURVEY ON FOREST AVENUE, PORTLAND, MAINE FOR SERVICEMASTER OF MAINE, INC." FEB. 5, 1988 BY OWEN HASKELL, INC.
8. "PLAN OF LAND ON FOREST AVENUE, PORTLAND, MAINE MADE FOR MINOT CORPORATION" DATED NOV. 20, 2001 BY OWEN HASKELL, INC.

CERTIFICATION

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CURRENT STANDARDS OF PRACTICE.

SEE PLAN REFERENCES 7 AND 8 FOR ORIGINAL PROPERTY SURVEYS.

7/15/03
DATE

JOHN W. SWAN, PLS #1038

STATE OF MAINE
JOHN W. SWAN
No. 1038
PROFESSIONAL LAND SURVEYOR

APPROVED BY THE CITY OF PORTLAND PLANNING BOARD

_____ _____

_____ _____

_____ _____

DATE: _____ _____

THIS PLAN IS A FOURTH AMENDED PLAN REFLECTING A NEW EASEMENT NORTH OF BUILDING #6 TO ALLOW FOR ADDITION OF SEWER LINES TO CONNECT TWO ADJACENT PROPERTIES TO THE WELLESLEY ESTATES SEWER

THIS PLAN IS A REVISION OF THE SUBDIVISION PLAN SIGNED BY THE PLANNING BOARD ON OCTOBER 22, 2002
THE SECOND AMENDED PLAN WAS RECORDED IN PLAN BOOK 202 PAGE 744
THE THIRD AMENDED PLAN WAS RECORDED IN PLAN BOOK 203 PAGE 216

REV. 4	07-15-03	SEWER EASEMENT NORTH OF BUILDING 6
REV. 3	03-24-03	WETLANDS NORTH OF BLDG 7; PARKING REV.
REV. 2	12-18-02	REVISED SETBACK LINE
REV. 1	11-15-02	INCREASE REMAINING LAND OF LINK

AMENDED SUBDIVISION PLAN

ON

FOREST AVENUE, PORTLAND, MAINE

MADE FOR

OWNER: WELLESLEY ESTATES, LLC
c/o ADAM DEVELOPMENT COMPANY
34 PREBLE STREET, PORTLAND, ME 04101

OWEN HASKELL, INC.
16 CASCO ST., PORTLAND, ME 04101 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	JCS	Date	Job No.
Trace By	JLW	OCT. 8, 2002	2001-242P
Check By	JWS	Scale	Drwg. No.
Book No.	414	1" = 40'	1A