ALASKA LEGISLATURE COMMITTEE FILES 1999-2000 8672
9932 HOUSE LABOR & COMMERCE

TONY KNOWLES, GOVERNOR

1016 WEST SIXTH AVENUE, SUITE 400
ANCHORAGE, ALASKA 99501-1963
PHONE: (907) 276-6222
FAX: (907) 276-0160
TTY: (907) 276-4533

DEPARTMENT OF COMMERCE AND ECONOMIC DEVELOPMENT

ALASKA PUBLIC UTILITIES COMMISSION

March 4, 1999

Pat Davidson, Legislative Auditor
Division of Legislative Audit
Legislative Budget and Audit Committee
Alaska State Legislature
P.O. Box 113300
Juneau, Alaska 99811-3300

Ref: 08-1459-99, Legislative Audit of APUC

Dear Ms. Davidson:

On behalf of the Alaska Public Utilities Commission the Commission is pleased to respond to your request for a written and electronic response to the legislative sunset audit, and specifically to the recommendations.

You have confirmed and described the reality that we face every day: the tremendous increase in the Commission's workload. The number of new formal cases increased 174% between FY95 and FY98, resulting in more than 559 open cases on June 30, 1998. The Legislature has responded to this substantially increased workload with additional funding, appropriating a total of $4,912.6 for FY99. This level would support 51 positions as requested in the governor's FY00 budget request for the Commission.

It has always been a priority for the Commission to make timely decisions in response to utility and pipeline carrier filings, and they are even more important as the level of competition in a market increases. Utilities expect - and deserve - timely regulatory decisions. By using roll-forward funds last year the Commission was able to hire additional staff. Last year we increased the number of substantive orders produced by the Commission by 36% to 432.

The telecommunications workload of the Commission has skyrocketed with the advent of local competition under the Federal Telecommunications Act of 1996. The legislature is considering electric and other utility restructuring this session, which has already increased the size and complexity of the Commission's electric caseload. We do not see an end in sight.

We recommend that Alaska Statute 44.66.010(a)(4) be amended to extend the life of the Alaska Public Utilities Commission to June 30, 2003. (Audit, p. 5)

The Commission concurs. Four years ago the Commission was allowed to slip into its wind-down year by legislative inaction, producing substantial uncertainty for the regulated utilities as

well as the Commission. Continuity in utilities regulation is extremely important.

Recommendation No. 1: The commission should develop an integrated management information system. (p. 7)

The Commission concurs. We have earmarked Contractual funds to retain a professional services consultant to work with the Commission to develop a management information system (MIS). We expect to have the consultant on board this month. Based on the Commission's review of the recommendations developed by the consultant, an RFP will be issued by mid-October, with purchase and roll-out by then end of the year.

The potential benefits of an integrated database you described would be extremely useful to the Commission. The ability to track documents and docket assignments would be especially helpful. The Commission agrees that in designing the system the Commission should consider past Legislative Audit recommendations on cost allocation and employee timekeeping.

The 1994 audit suggested that the Regulatory Cost Charge (RCC) should be more reasonably allocated to cost causers. In 1995 the Legislature, in response to electric utilities assertions that they were paying too much RCC, changed the statutes by adding AS 42.05.254(c)(3):

> an electric utility shall reduce its gross revenue by subtracting the cost of power; in this paragraph, "cost of power means the costs of generation and purchased power reported to the commission.

Exclusion of the cost of power has reduced electric utility customers' RCC payments by more than 43%.

The Commission agrees that the Commission should consider the cost-effectiveness of a timekeeping component within its management information system. The experience of some other agencies suggests that the "minimal cost of such a system varies, especially when the cost of implementation is factored in. In addition, of concern is the time required to document work would take away from the already too limited time spent doing regulatory analysis. Those dockets requiring documentation of actual cost charges, such as power cost equalization, are computed in accordance with a Commission regulation that developed rates using a sampling methodology. Timesheets are not required for this purpose.

Recommendation No. 2: The commission should fully explore the findings and recommendations it received from the National Regulatory Research Institute (NRRI). (p. 9)

Once again the Commission concurs with this recommendation. The Commission initiated this study because we believed that it would assist us to focus on the positive change that is needed for an agency simultaneously facing a significantly increased workload as well as proposals for regulatory reform.

The Commission has repeatedly considered agenda items related to the NRRI study on the

public meeting calendar and expects to continue to do so on a regular basis.

For example, recently we directed staff to analyze the backlog by utility type and case type and expect a report back next week. Recently the Commission analyzed the NRRI recommendation to increase its use of hearing officers. This is consistent with successful efforts we have employed to resolve interconnection arbitration disputes under the federal telecommunications legislation. The Commission is developing an RFP to contract for Hearing Officers with increased authority to hear cases on their own and bring back recommended decisions to the Commission for its review. This will help materially in addressing the backlog of pending cases.

The Commission recognizes the overload in consumer complaints faced by the Consumer Protection Section. We have created a new Consumer Protection position utilizing a vacant slot. Recruitment for this position is scheduled to occur next week.

At a recent[1] informal "bench and bar" session of practitioners sponsored by the Commission, participants told Commissioners that they appreciated the faster case processing that resulted from the Commission's occasional use of Civil Rule 77 and would like to see it used more often. The Commission opened a rulemaking docket to make the use of this rule standard Commission practice.

The audit quoted some of NRRI's anecdotal notes from interviews they conducted. We recognize the large workload that we face and therefore the importance of pulling together to minimize the impact of internal divisions.

Sincerely,

Sam Cotten
Chairman

[1] These meetings occur every other month, rather than annually.

(Intentionally Left Blank)

ALASKA STATE LEGISLATURE

LEGISLATIVE BUDGET AND AUDIT COMMITTEE
Division of Legislative Audit

P.O. Box 113300
Juneau, AK 99811-3300
(907) 465-3830
FAX (907) 465-2347
Internet e-mail address:
legaudit@legis.state.ak.us

March 12, 1999

Members of the Legislative Budget
and Audit Committee

We have reviewed the Alaska Public Utilities Commission's (APUC) response to our preliminary audit report. APUC generally concurs with our findings and recommendations.

However, in its response to Recommendation No. 1, while the commission agreed that an integrated management information system was needed, it also indicated that it believed a timekeeping component was not necessary for computing the charges to be billed to various dockets. The commission states that:

> *[t]hose dockets requiring documentation of actual cost charges, such as power cost equalization, are computed in accordance with a commission regulation that developed rates using a sampling methodology. Timesheets are not required for this purpose.*

We offer the following additional observations.

- A timekeeping system that is only used occasionally may not be as effective and efficient as a permanent system that is familiar to all employees.

- Our review of power cost equalization (PCE) billings indicates that APUC is not recouping actual costs. The commission only billed $24,480 and $15,240 in FY 97 and FY 98, respectively. We understand that actual personal service costs were approximately $100,000 in each of these years for the PCE effort.

We continue to believe that a timekeeping system is needed to comply with AS 42.05.254(a), which requires the commission to bill utilities exempt from regulation for the actual cost of services provided. The above PCE example shows that current procedures are ineffective.

In summary, we reaffirm the report findings.

Pat Davidson

Pat Davidson, CPA
Legislative Auditor

HB 185

(7)

HOUSE COMMITTEE REPORT

Date Referred to Committee: May 6, 1999 **FURTHER REFERRALS:**

Date of Committee Action: May 12, 1999

The LABOR AND COMMERCE Committee considered: **HB 185**

HOUSE BILL NO. 185 **SMALL WATER UTILITIES EXEMPT FROM APUC**

"An Act exempting certain small water utilities from regulation by the Alaska Public Utilities Commission."

recommends it be replaced with the following committee substitute CS HB 185 (L+C) [ ] the same title [✓] a new title

[ ] additional referral to _____ Committee
[ ] attached amendment(s)

ADOPTS: _____ Letter of Intent

ATTACHES NEW FISCAL NOTE(s): (Dept)

[ ] fiscal note(s) _____

_____

[ ] zero fiscal note(s) --

_____

APPROVES PREVIOUS: (Dept/Date)

[ ] fiscal note(s) _____

_____

[✓] zero fiscal note(s) DCED

_____

SIGNING WITH RECOMMENDATIONS	DP	DNP	NR	AM
	✓			
			✓	
			✓	
			✓	

CHAIR'S SIGNATURE _____ 5-12-99

REPRESENTATIVE SCOTT OGAN Alaska State Legislature

House District 27 • Palmer • Greater Palmer • Sutton • Chickaloon • Sheep Mountain

SPONSOR STATEMENT

HB 185

Representative Ogan

This bill will make the same statutory exemptions that apply to "small electric" and "small telephone" utilities also apply to "small water utilities".

In my area, a group of homeowners who financed and built a water system are asking that they not be included under APUC oversight.

In researching the issue, I discovered there is a precedent in statute for exempting small electric and telephone utilities. I am asking colleagues to extend the same exemption to small water utilities as well.

Presently telephone and electric utilities that take in under $50.000.00 in revenues per year are exempt from APUC.

Interim: 600 E. Railroad Ave. #1, Wasilla, AK 99654 • Session: State Capitol, Juneau, AK 99801 465-3878
(907) 376-4866 Fax (907) 373-4724 1 (800) 862-3878 Fax (907) 465-3265

FISCAL NOTE

STATE OF ALASKA
1999 LEGISLATIVE SESSION

BILL NO. HB 185

Revision Date/Time (Note if correction) _____
Dept. Affected Commerce
Title Small Water Utilities Exempt from APUC
BRU _____
Component Alaska Public Utilities Commission
Sponsor Rep. Ogan
Requester Spec. Committee on Utility Restructuring
Component Serial No. 364

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )	0.0	0.0	0.0	0.0	0.0	0.0

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY99) cost: 0.0

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*
New funds are not required to implement this bill.

Prepared by Robert A. Lohr
Phone 276-6222
Division APUC
Date/Time 4/21/99 12:54 PM
Approved by Commissioner
Date 4/21/99
Agency

PREPARER TO PROVIDE ALL DISTRIBUTION COPIES TO GOVERNOR'S LEGISLATIVE OFFICE
For further distribution information, call the Governor's Legislative Office

(Rev 10/98) 99fnform.xls/OMB

Representative Bill Hudson
Chairman Utility Restructuring Committee
State Capital
Juneau, Alaska

RE: HB185 An act exempting certain small water utilities from regulation by APUC

CRIMSONVIEW OWNER'S ASSOCIATION TESTIMONY IN SUPPORT OF HB185
WEDNSDAY, 21 APRIL, 1999

This homeowner's association, as are most others in Alaska, is set up following the HUD model for a Community water system. These systems require Articles of Incorporation, Covenants and By-Laws and determine how the systems are owned and operated. These systems are self-regulating and HUD approval of them is required to obtain mortgages under federal programs (i.e. VA or FHA). (See encl 1)

The Articles, Covenants and By-Laws are the documents under which the current homeowners purchased their homes. This is how the property was represented to them. Clearly no one purchased their home with the understanding that they were going to have to operate a "public" utility that would have to be expanded upon a request for service by other than the 46 units that the system was approved for. Operating a public utility is not a normal part of home ownership.

APUC's current informal policy is that it does not regulate homeowner's associations. When the current complaint was filed against CVOA, our directors contacted APUC staff and were informed by five different staff members that APUC does not regulate homeowner associations. One informed a director that they do not issue certificates to homeowners association. A second staff member would not believe that the commission had decided to hear this complaint until given the case number and then called it up on her computer. Only if a complaint is filed will APUC evaluate if the case has merit and rule whether or not to regulate.

It would appear from the APUC Staff Advocacy Group filing in the CVOA case that no regulations or procedures are in place to regulate homeowner's associations. Their filing, through their Attorney General legal counsel, recommends that the commission convene a rule-making docket to establish guidelines/regulations for homeowner associations.

Current APUC policy prevents owner operated water systems from complying with statutes. They cannot get a certificate of convenience and necessity without which they cannot file a tariff or rate schedule nor can they apply for an exemption from regulation. There are no guidelines or regulations to follow that would provide reasonable assurance of protection from even frivolous complaints.

If APUC now holds that they have the power to regulate homeowners associations, do they then have a statutory responsibility to regulate all homeowner associations without discrimination? What statutory authority do they have to nullify Articles of Incorporation, Covenants and By-Laws under which consumers purchase their property?

ADEC indicates that there are approximately 700 Class A Water Systems in Alaska. How many does APUC regulate? Do they have the staff and budget resources to support regulation of all of them? Again, if systems fall under their regulatory authority, do they not have a statutory responsibility to regulate or establish clear rules for exemption? Under current statute, how can APUC claim power to regulate utilities that they don't certificate?

APUC staff indicate that current caseloads can exceed two years. Delays of this magnitude can jeopardize homeowner's property value and cause delays to developers as well. After nearly 8 months, the case against CVOA is unresolved and there is no indication of when a hearing will be scheduled.

Given that annual and special assessments are the only source of revenue for homeowners associations, if APUC regulates them, associations will have no way of raising funds to meet emergency situations if their reserve funds are insufficient to cover the costs. They would have to file for relief through the tariff and rate process prior to being able to collect any monies. Financial flexibility would be lost.

HB185 proposes the same exemption for water systems as that of electric and telephone utilities. A utility grossing less that $50,000 annually has a limited subscriber base. The cost of regulation by APUC would dramatically increase per customer costs. In CVOA's case we would no longer be able to manage the water system ourselves. We would have to contract with a management firm having utility tariff and rate making experience. This, coupled with APUC's fees for regulation, could easily double the cost of operation.

The current APUC policy of "regulation by complaint" is even more expensive. When a complaint is filed the utility has little choice but to respond. Failure to do so would be construed as an admission of the facts as presented by the complainant and a judgement entered against the utility. The legal counsel costs associated with this process are high. This homeowner association is two years old. Time to accumulate reserves has been limited and legal costs associated with the APUC complaint have eroded most of those.

The issues in dispute between CVOA and a developer have little relevance to the merits of this proposed legislation.

HB185 will provide uniform standards of regulation for all small water systems, prevent unnecessary costs associated with regulation, and leave current Articles of Incorporation, Covenants and By-Laws intact while still providing the protection of AS 42.05.712(h) to subscribers.

We believe it is in the best public interest to support passage of HB185.

ADDITIONAL COMMENTS

The following are comments by CVOA members subsequent to the Wednesday, 21 April hearing.

APUC staff has indicated that current caseloads can exceed two (2) years. Regulation of homeowner associations and other small water utilities would only increase that caseload and delays in the decision process. In addition to increasing legal counsel costs, delays of this magnitude will unfavorably affect property values and cause delays in sale/loan closures. Costs to developers, builders and consumers will go up.

To illustrate. To date, this association has spent between 15 and 20 thousand dollars defending itself against a developer's complaint. Using that as a basis we estimate that the developer has now spent as much or more on legal counsel than he would have spent had he accepted our proposal for adding his proposed lots to the water system.

Within the APUC complaint process there is no mechanism for financial aid to parties if they are unable to pay the costs for adequate defense. If there is inability to contest or support expert defense of a complaint, dispute resolution due to no-contest or non-representation may occur. The APUC Staff Advocacy role does not represent those consumers residing within association against which a complaint has been filed.

Developers can and do have options to access water systems through communications and negotiations with owners of existing systems. They also have the additional choices of drilling individual wells or developing other community systems to support their development projects. Issues related to protection of developer profit margins in these decisions, or unresolved disputes amongst parties can and should be resolved in the courts.

Although the state constitution and statutes may provide for the sharing of utility assets there has been no planning of water utilities to accomplish this. Neither the state nor the Mat-Su borough has any standards or codes relating to the development of water systems. ADEC provides only **suggested practices** for small water systems. It is the design engineer who decides what is appropriate. As a result developers have been allowed to design water systems using a "least-cost" method and with little regard to adjacent properties and future development. These water systems are typically designed with 4-inch water mains, which allow for domestic use only. No consideration is given to yard irrigation or even fire protection. Ability to expand these systems beyond the original approved development without incurring significant costs or degrading system performance is very limited. Until such time as the useful life of these distribution systems is exhausted, it is cost prohibitive to both developers and consumers to replace them with larger mains so that these small systems can be joined together. Until then there are systems existing in close proximity to one another and more are being planned. Coincidentally, another community water system is being planned for an 83-acre tract adjacent to Crimnsonview. It is currently in the borough platting process.

(As a matter of Record) This homeowners association is comprised of 46 owners and one well lot. It has been forced into a complaint with APUC by a developer who asserts right to the community well and distribution system. The association has 3 legal opinions, which state that the water system is owned by and operated for the existing association. Automatic membership to this association for the developer or any future buyers of his property is in dispute. It is not the intent of this homeowners association to try the existing complaint in this forum. Per the APUC Staff Advocacy Group, there are many issues that warrant further investigation in this case.

Should questions or concerns arise over this case as it has been addressed by the developers attorney or lobbyist CVOA would be happy to furnish any information or material requested. Additional information can be obtained through Nelson Elliott, CVOA Director at (907) 746-0775.)

DONALD L. MELLISH
2200 CLIFF COURT
ANCHORAGE, ALASKA 99517

April 24, 1999

Chairman Bill Hudson
Utility Restructuring Committee
State Capitol, Room 108
Juneau, Alaska 99801-1182

Re: House Bill 185

Dear Chairman Hudson;

I am writing to express my opposition to House Bill 185. This legislation would eliminate the APUC's authority to resolve a complaint against the Crimsonview Home Owners Assn which has been pending since last fall and which has been fully briefed and is awaiting the APUC's decision.

My son and I have been trying to develop the property located in the Crimsonview Subdivision and have been thwarted at every turn by the Crimsonview Owners Association. My son purchased this property located within, platted within as part of the Crimsonview Subdivision. However, the Crimsonview Owners Assn has refused to provide our property with water and has been using its control of the Crimsonview Subdivision's water distribution system to prevent our development of the remaining lots in the subdivision. They have ignored the Mat-Su Boro approval of the plat, they have ignored the approval of the Alaska Department of Environmental & Conservation's approval of the plan for upgrades to the system which I agreed to pay for and finally they ignored the opinion of their own engineer which they employed to review the plan submitted to ADEC. I negotiated in good faith with the Assn for some months and then it became apparent, after agreeing to futher demands that the objective really was to stop developement of Phase II of the subdivision.

As a result, we filed a complaint against the Crimsonview Owners Association with the APUC and requested a ruling as to whether or not the Crimsonview Owners Assn operating a Public Water System can refuse service. This decision to deny service is to pass up an increase in their income of 47% at no capital cost to the Assn ! This complaint has been pending since early last fall, we have already expended significant time and dollars before the APUC, and now we are only awaiting for the APUC to issue a decision. In view of this investment of public and private resources, it would not be fair for the Alaska Legislature to completely eliminate the APUC's authority to resolve this pending complaint. Moreover, based on our experience with the Crimsonview Owners Assn, I believe

that the APUC should retain its authority to resolve similar disputes in the future. We have complied with all of the laws and regulations of the State of Alaska and the Mat-Su Boro. The Crimsonview Owners Assn. have the opinion that they are not bound by any laws or regulation. Without the regulation of the APUC then someone in our predicament would have to file a lawsuit in the courts. It would appear to me that to have a regulatory body who is already established to deal with utility matters would be the proper place for settling such disputes.

Thank you for the oportunity to provide you with my comments. Please contact me if you have any question or need any additional information

Sincerely,

Donald Mellish

Attached:
Anal photo of the subdivision when purchased by Robert Mellish
Overlaid with a transparency of Phase I lots
Overlaid bordered in yellow Phase II

THE FOLLOWING PAGES MAY
NOT FILM LEGIBLY BECAUSE OF
THE POOR QUALITY OF THE ORIGINAL

NOTES

CERTIFICATE OF APPROVAL BY THE ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION

THIS SUBDIVISION HAS BEEN REVIEWED IN ACCORDANCE WITH 18AAC80 AND IS APPROVED, SUBJECT TO ANY NOTED RESTRICTIONS.

Steven A. Siebe
for David P. Reed
Division Director

Regional Supervisor
TITLE

DATE October 6, 1995

CERTIFICATE OF PAYMENT OF TAXES

I CERTIFY THAT ALL CURRENT BOROUGH TAXES AND SPECIAL ASSESSMENTS THROUGH [illegible] ON LOT [illegible] ADJACENT THE PROPERTY INCLUDED ON THIS SUBDIVISION OR RESUBDIVISION, HAVE BEEN PAID.

[illegible]
BOROUGH TAX COLLECTION OFFICIAL

[illegible]
DATE

BIRCH, HORTON, BITTNER and CHEROT
1127 West 7th Avenue
Anchorage, Alaska 99501-3563
(907) 263-7229, Fax (907) 276-2822

TELECOPY TRANSMITTAL COVER SHEET

TO: Representative Bill Hudson

FROM: Rebecca C. Paull

DATE/TIME: April 20, 1999

OUR FILE NO.: 505,640.1

SEND TO FAX NUMBER: (907) 465-2273

NUMBER OF PAGES (INCLUDING THIS COVER SHEET): 9

COMMENTS: See attached 4/20/99 letter regarding HB 185.

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE CALL (907) 263-7229 AS SOON AS POSSIBLE.

Arlie Dehut
Secretary

LAW OFFICES
BIRCH, HORTON, BITTNER AND CHEROT A PROFESSIONAL CORPORATION
1127 WEST SEVENTH AVENUE • ANCHORAGE, ALASKA 99501-3399 • TELEPHONE (907) 276-1550 • (800) 478-1550 • FACSIMILE (907) 276-3680

HAL R. HORTON (1944-1998)

THOMAS L. ALBERT*‡2
RONALD G. BIRCH**
WILLIAM H. BITTNER
KATHRYN A. BLACK
DOUGLAS S. BURDIN*
SUZANNE CHEROT
MAX D. GARNER
TINA M. GROVIER
WILLIAM P. HORN*
STEPHEN M. HUTCHINGS
ROY S. JONES, JR.*
THOMAS F. KLINKNER
HARVEY A. LEVIN*‡
STANLEY T. LEWIS
JAMES H. LISTER*‡3
GREGORY A. MILLER
MICHAEL J. PARISE
REBECCA C. PAULI
TIMOTHY J. PETUMENOS
ELISABETH H. ROSS**
EMILY VARTANIAN*‡

* D.C. BAR
** D.C. AND ALASKA BAR
‡ MARYLAND BAR
‡ VIRGINIA BAR
ALL OTHERS ALASKA BAR

1155 CONNECTICUT AVE., N.W.
SUITE 1200
WASHINGTON, D.C. 20036
(202) 659-5800
FACSIMILE (202) 659-1027

WRITER'S DIRECT DIAL 263-7229 • WRITER'S DIRECT FAX 276-2822 • WRITER'S EMAIL rpauli@bhb.com

April 20, 1999

Representative Bill Hudson
Chairman, Utility Restructuring Committee
State Capital, Room 108
Juneau, AK 99801-1182

VIA FACSIMILE
(907) 465-2273

Re: House Bill 185, An Act Exempting Certain Small Water Utilities From Regulation by the Alaska Public Utilities Commission

Dear Chairman Hudson:

Our firm represents Robert Mellish in his Complaint against The Crimsonview Owners Association ("Association") before the Alaska Public Utilities Commission ("APUC"). The purpose of this letter is to present Mr. Mellish's position regarding HB 185, "An Act Exempting Certain Small Water Utilities From Regulation by the Alaska Public Utilities Commission," sponsored by Representative Ogan.

Over the past two years Mr. Mellish has attempted to work with the Association regarding his development of Phase II of the Crimsonview Subdivision. The Association has been both unreasonable and unfair in its demands of Mr. Mellish. The Association is located in the Matanuska-Susitna Borough. If HB 185 passes, Mr. Mellish's frustrating and time-consuming experiences will become routine for other developers. As discussed below, we believe HB 185 is both anti-consumer and anti-development.

The Crimsonview Subdivision was designed and platted to be developed in two phases. The community well and the integrated looped water distribution system were originally designed and installed to serve both Phase I and Phase II. Phase I was successfully developed in the mid-'80s. Robert Mellish owns and desires to develop Phase II. However, the Association is preventing him from developing Phase II. As owner of the community well, the Association must sign an "Owner's Statement" form authorizing the Alaska Department of Environmental Conservation to review Mr. Mellish's plans to provide drinking water to Phase II through the existing looped water distribution system. Once the plans are approved, all that is necessary to actually provide water service to Phase II is the installation of a 2 horse power booster pump and "the turning of a valve." The Association has used its control of the system to prevent further development in its neighborhood and to unjustly extract payments and facilities from Mr. Mellish.

The Association's unreasonable actions forced Mr. Mellish to file a complaint with the APUC. Mr. Mellish is entitled to service from the Association because he is a member of the Association and because the Association is a public utility.[1] Mr. Mellish is awaiting an APUC decision on whether the Association is a public utility with an obligation to serve Mr. Mellish under the same terms and conditions as it provides service to the other members in the subdivision.

HB 185 amends AS 42.05.711(e) to read:

> (e) not withstanding any other provisions of this chapter, any electric, **water,** or telephone utility that does not gross $50,000 annually is exempt from regulation under this chapter unless the subscriber petition the commission fro regulation under AS 42.05.712(h).

When I contacted Representative Ogan's office and inquired into the impetus for the legislation, I was informed that Representative Ogan saw no difference between a small electric or telephone utility and a small water utility. On the surface they appear to be the same. However, water is essential to a person's survival while electricity and telephone service are not.

It is our position that HB 185 is unnecessary, reactive legislation. Historically, the APUC has not sought out small water utilities such as homeowners associations for regulation. The APUC only becomes involved in the "regulation" of these water utilities when asked to do so by a consumer or a lending institution.[2] Wisely, the APUC retains jurisdiction to resolve disputes in these situations but grants the association a public interest exemption under AS 42.05.711(d)[3] from certification and

---

[1] AS 42.05.990 defines public utility as:

> every corporation, public, cooperative or otherwise, company, individual, or association of individuals, their lessees, trustees, or receivors appointed by a court, that owns, operates, manages, or controls any plant, pipeline, or system for furnishing water to the public (10 or more persons) for compensation.

Under established Commission precedent, the Association is a public utility.

[2] *See, e.g., Re Country Lane Estate Subdivision Property Owners Association, Inc.*, 11 APUC 238 (1991) (case enclosed).

[3] AS 42.05.711(d) provides "the commission may exempt a utility, class of utilities, or a utility service from all or a portion of this chapter if the commission finds that the exemption is in the public interest."

BIRCH, HORTON, BITTNER AND CHEROT
A PROFESSIONAL CORPORATION

rate regulation. By providing for the public interest exemption, prior legislatures and the APUC wisely recognize that consumers must have an easily accessible and friendly forum for disputes. Perhaps the most important function of the APUC is to provide a forum where an aggrieved or potential consumer may be heard. If HB 185 became law, the only recourse for an aggrieved or potential consumer would be the court system. The APUC is a much friendlier and accessible forum than the legal system.

The impact of HB 185 on potential developments such as Mr. Mellish's must be considered. Here, we have a case where all engineers (including the Association's) agree there is an adequate water supply and an adequate water distribution system ready to provide water service with the turn of a valve. However, a few individuals who control the Association do not want further development in their neighborhood and are effectively blocking responsible development by refusing to provide water via the existing facilities. If HB 185 passes, it is possible that Mr. Mellish will have to dedicate several lots to a well to draw from the same aquifer as the existing well and install his own distribution system, thereby increasing the cost of the development. This is contrary to the public interest and this is why the APUC regularly amends water utilities service areas to accommodate new developments when it makes economical and engineering sense to do so. House Bill 185 appears to be a piece of reactionary legislation, which is both anti-consumer and anti-development. Accordingly, it should not pass.

Thank you for your prompt attention to this matter. If you have any questions or would like to discuss this matter in further detail, please do not hesitate to contact me.

Very Truly Yours,

BIRCH, HORTON, BITTNER and CHEROT

Rebecca C. Pauli

Rebecca Cohen Pauli

RCP:and
Enclosures: *Re Country Lane Estate Subdivision*
cc: Robert Mellish (w/o encls.)
Don Mellish (w/o encls.)

ODMA\WORLDOX\P:\505640\1\AND6745.WPD

Millrath
Crimson View

approved as modified herein.

2. No later than August 15, 1991, Alascom, Inc., shall submit revised tariff sheets incorporating the tariff modifications approved herein.

DATED AND EFFECTIVE at Anchorage, Alaska, this 26th day of July, 1991.

FOOTNOTES

[1]The Commission understands that no charge for BCF will be applied to those customers already receiving the service. The Commission is in agreement that no charge should be applied in those cases.

Re Country Lane Estates Subdivision Property Owners' Association, Inc.

U-90-65
Order No. 1

Alaska Public Utilities Commission
July 30, 1991

ORDER declaring a small residential subdivision's sewer operations to be a public utility, but exempting the utility from regulation by the commission.

1. PUBLIC UTILITIES, § 112 — Regulatory status — Sewer service — Provided by a homeowners' association — Factors.

[ALASKA] Where a homeowners' association was providing sewer service to more than 10 customers, and owned, operated, and managed associated sewer plant, the association was found to fall within the definition of a public utility subject to commission regulation.
p. 239.

2. CERTIFICATES, § 26 — When required — Sewer service — Public utility status as a factor.

[ALASKA] Any entity providing sewer service that has been declared a public utility is subject to the commission's certification requirements.
p. 239.

3. PUBLIC UTILITIES, § 51 — Regulatory status — Sewer service — Provided by a homeowners' association — Exemptions — Factors.

[ALASKA] Although a homeowners' association providing sewer service had been declared a public utility, it was exempted from regulation by the commission where (1) its operations were small and limited to the 44 lots in the subdivision; (2) by virtue of association membership, homeowners had significant control over operations; and (3) the costs of regulation would be disproportionate to the utility's size and revenues.
p. 240.

4. PUBLIC UTILITIES, § 51 — Regulatory status — Sewer service — Provided by a homeowners' association — Exemptions — Conditions.

[ALASKA] The exemption from commission regulation granted a homeowners' association providing sewer service was conditioned on the association never serving more than 44 customers; also, the exemption could be rescinded should a petition requesting such and signed by at least 25% of the association's customers be filed with the commission.
p. 240.

Before Commissioners:

Don Schroer, Chairman
Susan M. Knowles
Daniel Patrick O'Tierney
Mark A. Foster
Donald F. May

BY THE COMMISSION:

ORDER DECLARING ASSOCIATION A UTILITY AND GRANTING EXEMPTION FROM REGULATION

s been declared a public utility is
he commission's certification

ITILITIES, § 51 — Regulatory sta-
service — Provided by a home-
iation — Exemptions — Factors.
A] Although a homeowners'
oviding sewer service had been
blic utility, it was exempted from
the commission where (1) its
re small and limited to the 44 lots
sion; (2) by virtue of association
homeowners had significant con-
ations; and (3) the costs of regula-
e disproportionate to the utility's
ues.

TILITIES, § 51 — Regulatory sta-
service — Provided by a home-
ciation — Exemptions — Condi-

(A) The exemption from commis-
n granted a homeowners' associa-
g sewer service was conditioned
ation never serving more than 44
also, the exemption could be
uld a petition requesting such and
least 25% of the association's cus-
d with the commission.

---

ussioners:

uroer, Chairman
l. Knowles
'atrick O'Tierney
Foster
F. May

: COMMISSION:

)RDER DECLARING
CIATION A UTILITY AND
TING EXEMPTION FROM
REGULATION

Introduction

Security Pacific Bank, Alaska (the Bank), on July 2, 1990, requested the Commission's declaration concerning the regulatory status of Country Lane Estates Subdivision Property Owners' Association, Inc. (the Association). The Bank's Request for Declaration, as confirmed by the Commission Staff's (Staff) subsequent inquiry and the May 8, 1991, letter from the Association, which is attached hereto as an Appendix, indicates that the Bank is currently the beneficial owner of at least one lot in Country Lane Estates and a member of the Association. Prior to filing its Request for Declaration on July 2, 1990, the Bank was beneficial owner of the majority of lots in Country Lane Estates and in effect controlled the Association.

The Association is a non-profit corporation whose members are comprised of the beneficial owners of 44 lots in Country Lane Estates. Each member of the Association is entitled to one vote for each lot held as beneficial owner. As set forth by its Articles of Incorporation and Bylaws, the purpose of the Association is, among other things, "to own and provide for maintenance and operation of a sewer drain field." The Association provides a common sewage drain system and leach field for the use of all of its members. There are 42 residences receiving sewage disposal services at this time. If sewer service is extended to Country Lane Estates by the Municipality of Anchorage d/b/a Anchorage Water and Wastewater Utility (AWWU), the Association may abandon the leach field and connect its system to the AWWU sewer system. The Association's board of directors determines the monthly charge and that portion of the charge collected for the sewer system is to be disbursed only in payment for expenses of the sewer system. Currently, the entire monthly charge is $35, including all costs relating to the Association's operation.

The Bank's Request for Declaration further states that Alaska Housing Finance Corporation has refused to provide financing for lots within Country Lane Estates because the Association may constitute a public utility through its provision of sewer service. The Request for Declaration asks that the Commission determine that the Association is not a public utility or, alternatively, that the Commission exempt the Association from regulation pursuant to AS 42.05.711(d). The Association did not oppose the Bank's Request for Declaration; however, neither did the Association desire to join in that petition or participate in proceedings before the Commission. (Association Letter, May 8, 1991.)[1]

Discussion

Pursuant to AS 42.05.990(4) a "public utility" or "utility" is specifically defined to include "*every corporation* whether public, cooperative, or otherwise, . . . *that owns, operates, manages, or controls any plant*, pipeline, *or system for* . . . *furnishing* water, steam, or *sewer service to the public for compensation* . . .." The term "public" is further defined under AS 42.05.990(3)(A) to mean "any group of 10 or more customers that purchase the service or commodity furnished by a public utility . . .."

[1, 2] It is apparent to the Commission, under the facts presented by this case, that the Association is a public utility. The Association is a corporation that owns, operates, manages, and controls a system for furnishing sewer service to 10 or more customers for compensation. As a public utility, the Association is subject to the Commission's full regulatory authority set forth in AS 42.05.141.[2] In the absence of an exemption, a public utility which provides sewer service is subject to the Commission's certification requirements (AS 42.05.221 — 281) and to the Commission's economic regulation. Presently, the Association has not obtained or otherwise qualified for any such regulatory exemption.

Upon determining that the Association is a public utility subject to the Commission's full regulatory authority, the Commission has proceeded to evaluate the Bank's alternative request that the Association be granted an exemption from regulation.[3] Pursuant to AS 42.05.711(d), "[t]he Commission may exempt a

utility, a class of utilities, or a utility service from all or part of this chapter if the Commission finds that the exemption is in the public interest."

[3] The Commission has considered the facts and circumstances of the sewer public utility service being provided by the Association and has determined that it would be in the public interest to grant the Association a complete exemption from regulation, subject to certain conditions. In this case the Commission is persuaded that the customers are provided significant protections by virtue of their right to control management and operation of utility services through Association membership. As set forth in the Association's Articles of Incorporation and Bylaws, each customer/member has the right to vote for election of the Association's board of directors and officers, who are selected from among the customers/members. Further, given the relatively small size of this utility, limited to 44 customers, even a small number of customers/members may have a significant voice in the utility's operations. The Commission also notes that the ownership of the properties which qualify individuals for customer/member status are now sufficiently dispersed that no one owner controls the Association.[4]

In addition to the ownership and governance of the Association supporting an exemption, the cost of regulation for this utility would be significant in relation to its size, operating budget, and the benefits to be achieved from regulation. Here, the utility's sewer service is limited to 44 customers/members, and the total monthly charge, including other Association expenses as well, is only $35. The cost burden on the Association just for the certification process could well exceed several months of its gross revenues.

At the same time, the benefits to be conferred upon the customers by extensive regulation are speculative, at best. In the case of small homeowner associations such as this Association, where membership runs appurtenant to the customer/member's ownership in a parcel of land, there is but one source for payment of expenses, whether they be utility-related or not. In such cases it appears to the Commission that its exercise of rate regulation for utility services would likely result in little more than a change in allocation of total charges between "utility" and "other" categories, with little or no overall real savings accruing to the customers/members. The Commission also notes that the Association has been essentially self-regulated since its inception and appears to be providing satisfactory sewer service at a reasonable cost to its customers/members.

The only concern raised by the exemption of the Association is the current status of the septic plant facilities. As the Association noted in its letter of May 8, 1991, there have been a number of problems with the sewer system primarily associated with a failure to construct or repair the system according to plans and specifications. Correspondence indicates, however, that the Bank has agreed to assume, at least in part, financial responsibility for making the repairs necessary to bring the facilities into conformance with operational and regulatory standards. The problems described by the Association would generally lead the Commission to decide against an exemption, at least until it could be demonstrated that they had been resolved. In this case, however, there is documentary evidence that the Association has been aware of the situation and has been, and is, working diligently and competently to bring the matter to resolution. Further, it is the Commission's understanding that the required corrections will be completed by the end of the 1991 construction season. For these reasons the Commission is not persuaded that its intervention would assure a better, more timely, or less costly result. Therefore, under the unique circumstances of this case the plant problem does not present a necessary or sufficient basis for denying the exemption request.

Conclusion

[4] Based on the foregoing, the Commission has determined that the Association is a sewer public utility under AS 42.05 but that it is in the public interest to exempt the Association from regulation pursuant to AS 42.05.711(d), subject, however, to two conditions. First, and

ppears to the Commission that
: regulation for utility services
lt in little more than a change
)tal charges between "utility"
ories, with little or no overall
accruing to the
rs. The Commission also
sociation has been essentially
e its inception and appears to
factory sewer service at a rea-
customers/members.
icern raised by the exemption
n is the current status of the
ies. As the Association noted
y 8, 1991, there have been a
ns with the sewer system pri-
with a failure to construct or
n according to plans and
rrespondence indicates, how-
nk has agreed to assume, at
cial responsibility for making
ary to bring the facilities into
l operational and regulatory
)blems described by the Asso-
erally lead the Commission to
exemption, at least until it
strated that they had been
case, however, there is docu-
that the Association has been
ation and has been, and is,
and competently to bring the
ution. Further, it is the
lerstanding that the required
: completed by the end of the
season. For these reasons the
t persuaded that its interven-
a better, more timely, or less
efore, under the unique cir-
case the plant problem does
ssary or sufficient basis for
)don request.

Conclusion

the foregoing, the Commis-
ed that the Association is a
/ under AS 42.05 but that it is
st to exempt the Association
ursuant to AS 42.05.711(d),
to two conditions. First, and implicit in the Commission's rationale for exemption, the utility is limited to providing service to the 44 lots which are entitled to membership in the Association. Second, this public interest determination will be reevaluated if the Commission receives a petition for regulation signed by at least 25 percent of the customers/members of the Association. This condition utilizes a mechanism recognized by the Legislature in other exemptions to provide the customers/members of the Association access to Commission oversight if self-regulation becomes ineffective.

ORDER

THE COMMISSION FURTHER ORDERS:

1. Country Lane Estates Subdivision Property Owners' Association, Inc., is a public utility which furnishes sewer service pursuant to AS 42.05 and is subject to the regulatory authority of the Commission.

2. Country Lane Estates Subdivision Property Owners' Association, Inc., is granted an exemption from AS 42.05 by the Commission pursuant to AS 42.05.711(d), subject to two conditions:

a. Country Lane Estates Subdivision Property Owners' Association, Inc., is limited to serving the 44 lots which are entitled to membership in the Association.

b. The exemption shall be reevaluated if a petition for regulation under AS 42.05 is submitted by at least 25 percent of the customers/members of the Country Lane Estates Subdivision Property Owners' Association, Inc.

DATED AND EFFECTIVE at Anchorage, Alaska, this 30th day of July, 1991.

FOOTNOTES

[1]At the Association's meeting on December 5, 1990, the members passed a motion agreeing "that our septic system is a private system but that we, the Homeowners, were not the originators of suggesting that we are a Private System."

[2]Legal authorities advanced by the Bank in support of a finding that the Association is not a public utility are found by the Commission to be not persuasive. In fact, the case primarily relied upon by the Bank, *Re Utility Status of Certain Water Supply Associations*, 91 PUR3d 126 (Iowa State Com. Comm'n, October 7, 1971) held that rural cooperative-type water systems constitute public utilities. In that case the Iowa commission noted that the subject associations were formed by the rural residents who comprised the association's membership. 91 PUR3d at 127. Customers were required to be association members in order to receive water service. *Id.* The association rules also provided that following completion of the system, requests for service from potential customers may be denied by the association's board of directors. *Id.* The Iowa commission reinforced this limited access concept somewhat in stating that those rural cooperative-type water associations would not necessarily be required to accept all future requests for new service, even though they were public utilities subject to commission jurisdiction. 91 PUR3d at 132.

Other courts likewise have supported a finding of public utility status in this case. In *State v. Mackie*, 338 S.E.2d 888 (N.C. App. 1986), the court reviewed the North Carolina Utilities Commission's order that a small water and sewer system constituted a "public utility" even where the utility had not offered to extend services to residences other than those already connected to the system. 338 S.E.2d at 893. The *Mackie* court noted that "although a service may be offered to only a definable class . . . it still may be considered an offering of service to the 'public' within the meaning of the regulatory statutes." 338 S.E.2d at 893-94. Like the present case, the utility in *Mackie* "willingly provided service to new customers who moved into homes already connected to facilities." 338 S.E.2d at 894.

The Florida Supreme Court in *Fletcher Properties, Inc. v. Florida Public Service Commission*, 356 So.2d 289 (Fla. 1978), held an entity to be a public utility where it provided water and sewer service through a master meter system from another public utility, owned the lines and lift stations from the master meter to end-user, and merely recouped the cost of water and sewer service from various end-users. 356 So.2d at 290 — 1.

Moreover, the Uniform Common Interest Ownership Act (UCIOA) (AS 34.08) contains no explicit reference to the provision of "utility" service for the benefit of common owners. It thus appears that the Alaska Legislature did not intend by this more recent enactment to displace the Commission's regulatory authority over sewer systems such as presented by this case. Further, as reported to Staff by the Connecticut Assistant Attorney General, the Connecticut

Public Utility Control Department (CPUC) found itself in the same quandary regarding this matter. In response to an apparent belief that owner associations under Connecticut's UCIOA were subject to the CPUC's authority, the Connecticut legislature in 1987 amended the CPUC definition of "water company" to state that "(a) water company does not include homeowners, condominium associations providing water only to their members and homeowners associations providing water to customers at least eighty percent of whom are members of such associations." Conn. Gen. Stat. § 16-1(a)(10).

[3]As a preliminary matter, while the Bank has standing to request a declaration as to the Association's status as a public utility, the Commission notes that the Bank may not have standing per se to request that the Association be exempt from regulation. However, in the instant case, the latter request has effectively been endorsed by the Association in its vote to be designated as a "private" rather than "public" utility and its explicit decision not to assume responsibility to be the moving party for acquiring such a designation. Under these circumstances to require the Association to file essentially duplicative legal pleadings would not be constructive. Additionally, and alternatively, the Commission has the option to grant exemptions on its own motion.

[4]The Bank no longer owns the majority of the lots and, thus, does not have a dominant position in the Association relative to other lot owners.

Re Providing and Charging for Statewide Directory Assistance

R-89-2
Order No. 9

Re Alascom, Inc.
U-91-30
Order No. 2

Re Interior Telephone Company
U-91-65
Order No. 1

Re GTE Alaska Inc.
U-91-66
Order No. 1

Re Telephone Utilities of Alaska, Inc.
U-91-67
Order No. 1

Re Telephone Utilities of the Northland, Inc.
U-91-68
Order No. 1

Alaska Public Utilities Commission
August 1, 1991

ORDER setting an interim per-message rate of 40 cents for local directory assistance (DA) calls, to be assessed only after a subscriber has surpassed a free call allowance of four local DA calls per month. Also, the charge is held not to be applicable to disabled or pay telephone customers.

---

1. RATES, § 553 — Telephone rate design — Information service — Directory assistance — Local information — Cost components — Billing and collection.

[ALASKA] Per-message charges for local telephone directory assistance calls should not include any component for billing and collection services, since such costs are already recovered through basic local rates.
p. 244.

2. RATES, § 553 — Telephone rate design — Information service — Directory assistance — Local information — Monthly allowances — Exemptions.

[ALASKA] Per-message charges for local telephone directory assistance (DA) calls should be assessed only after a subscriber has surpassed a free call allowance of four local DA calls per month, while disabled and pay telephone users should be exempted from the charges entirely.
p. 244.

3. RATES, § 553 — Telephone rate design — Information service — Directory assistance

LAW OFFICES
BIRCH, HORTON, BITTNER AND CHEROT A PROFESSIONAL CORPORATION
1127 WEST SEVENTH AVENUE • ANCHORAGE, ALASKA 99501-3399 • TELEPHONE (907) 276-1550 • (800) 478-1550 • FACSIMILE (907) 276-3680

HAL R. HORTON (1944-1998)

THOMAS L. ALBERT*†‡
RONALD G. BIRCH**
WILLIAM H. BITTNER
KATHRYN A. BLACK
DOUGLAS S. BURDIN*
SUZANNE CHEROT
MAX D. GARNER
TINA M. GROVIER
WILLIAM P. HORN*
STEPHEN H. HUTCHINGS
ROY S. JONES, JR.*
THOMAS F. KLINKNER
HARVEY A. LEVIN*†
STANLEY T. LEWIS
JAMES H. LISTER*†‡
GREGORY A. MILLER
MICHAEL J. PARISE
REBECCA C. PAULI
TIMOTHY J. PETUMENOS
ELISABETH H. ROSS**
EMILY VARTANIAN*†

* D.C. BAR
** D.C. AND ALASKA BAR
† MARYLAND BAR
‡ VIRGINIA BAR
ALL OTHERS ALASKA BAR

1155 CONNECTICUT AVE., N.W.
SUITE 1200
WASHINGTON, D.C. 20036
(202) 659-6800
FACSIMILE (202) 659-1027

WRITER'S DIRECT DIAL (907) 263-7229 • WRITER'S DIRECT FAX (907) 276-2822 • rpauli@bhb.com

April 26, 1999

Representative Bill Hudson
Chairman
Utility Restructuring Committee
State Capitol, Room 108
Juneau, Alaska 99811-1182

Re: House Bill 185

Dear Chairman Hudson:

This is to follow up on my testimony during the recent hearing on H.B. 185, to respond to requests for information from you and members of the Utility Restructuring Committee and to provide you with a written copy of my testimony.

As requested by members of your Committee, enclosed please find the engineering reports and the Alaska Department of Environmental Conservation's (ADEC) review of the system upgrades. The ADEC's comments and conditions were imposed *after* the ADEC met with the Crimsonview Owners Association and were imposed upon Mr. Mellish to resolve the Association's concerns. However, the Association still refuses to provide water service to Mr. Mellish. If HB 185 passes, Mr. Mellish's frustrating and time-consuming experiences will become routine for other developers and consumers.

During the hearing on the Electric Consumer Bill of Rights immediately prior to the hearing on H.B. 185, a member of your Committee commented that competition would protect consumers if the provision of electrical service is deregulated. However, there is no competition to protect consumers if the provision of water service is deregulated. This is why it is so important for the APUC to retain jurisdiction to resolve service disputes. The APUC is less expensive and consumer friendly.

Mr. Mellish proposes either one of two alternatives. First, the Alaska Legislature should not pass this H.B. 185 to exempt certain small water utilities from regulation. As I explained during my testimony, the APUC does not require homeowners associations to obtain certificates of public convenience and necessity and does not subject homeowners associations to rate regulation. Rather, the APUC only retains jurisdiction to resolve disputes, such as the one between Mr. Mellish and the Association.

Second, and in the alternative, Mr. Mellish proposes that the new section added by H.B. 185 not become effective until January 1, 2000 to clarify that the APUC will have the authority and opportunity to resolve any pending complaints or other matters relating to small water utilities including the complaint filed by the Mellishes. This complaint has been pending since early last fall, the Mellishes have already expended a significant amount of time and resources before the APUC, and they are now only waiting for the APUC to issue a decision. In view of this investment of public and private resources, it would not be fair for the Alaska Legislature to completely and immediately eliminate the APUC's authority to resolve this and other pending complaints. Moreover, this would be more consistent with Art. I, Section 15 of the Alaska Constitution which prohibits the passage of ex post facto laws.

Thank you for considering my comments and please do not hesitate to contact me if you have any questions or need any additional information.

Sincerely,

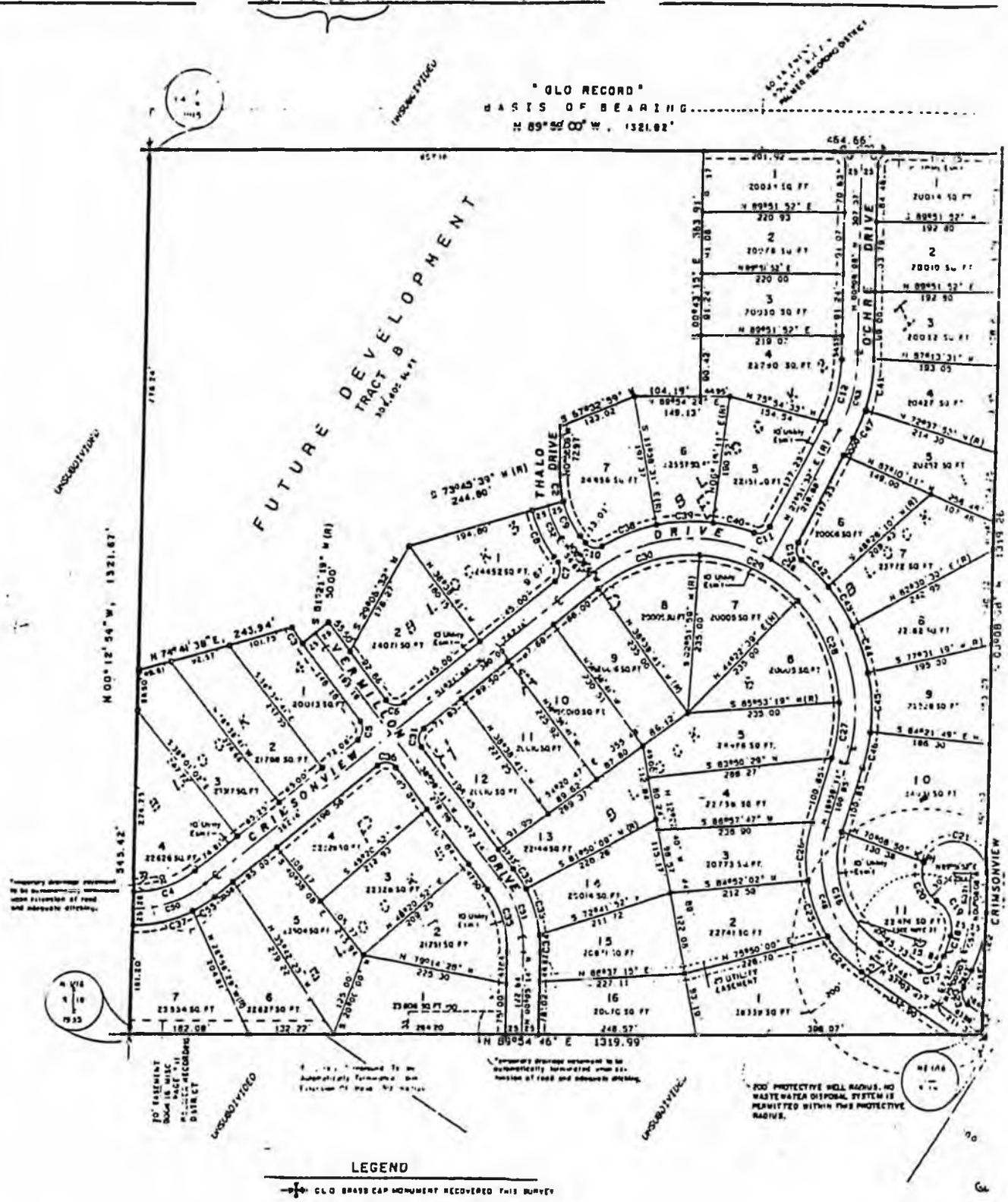
Michelle Bittner

Rebecca C. Pauli

Enclosures

cc: Chairman Sam Cotten (w/o enc)
Commissioner Tim Cook, Manager of Docket U-98-151 (w/o enc)
Bob Lohr, Executive Director (w/o enc)
Bob Mahoney, Counsel for Crimsonview
Owners Association (w/o enc)

NW¼ NE¼ Sec. 18, T17N, R2E, S.M.



LEGEND

- GLO BRASS CAP MONUMENT RECOVERED THIS SURVEY
- BRASS CAP MONUMENT RECOVERED THIS SURVEY
- 5/8" x 30" REBAR SET THIS SURVEY
- COMMUNITY WELL POINT

Appendix 4
Page 1

NOTES

1) THERE MAY BE FEDERAL, STATE AND LOCAL REQUIREMENTS GOVERNING LAND USE. IT IS THE RESPONSIBILITY OF THE INDIVIDUAL PARCEL OWNER TO OBTAIN A DETERMINATION WHETHER SUCH REQUIREMENTS APPLY TO THE DEVELOPMENT OF PARCELS SHOWN HEREON.

2) LOT 11 BLOCK 1 PHASE 2 OF THIS PLAT IS THE SITE OF THE COMMUNITY WELL SYSTEM; AND, WILL BE EXCLUSIVELY USED AS SUCH UNTIL THE TIME OF A CONNECTION OF THIS SUBDIVISION'S DESIGNED WATER SYSTEM TO A POSSIBLE FUTURE CITY WATER SYSTEM AT WHICH TIME THE COMMUNITY WELL WILL BE ABANDONED.

3) TRACT B IS RESTRICTED FROM DEVELOPMENT UNTIL IT CAN BE BROUGHT INTO COMPLIANCE WITH [illegible] SUBDIVISION ORDINANCE.

4) ALL LOTS HAVE 100% USABLE AREA UNLESS OTHERWISE NOTED

CERTIFICATE OF APPROVAL BY THE ALASKA DEPT. OF ENVIRONMENTAL CONSERVATION

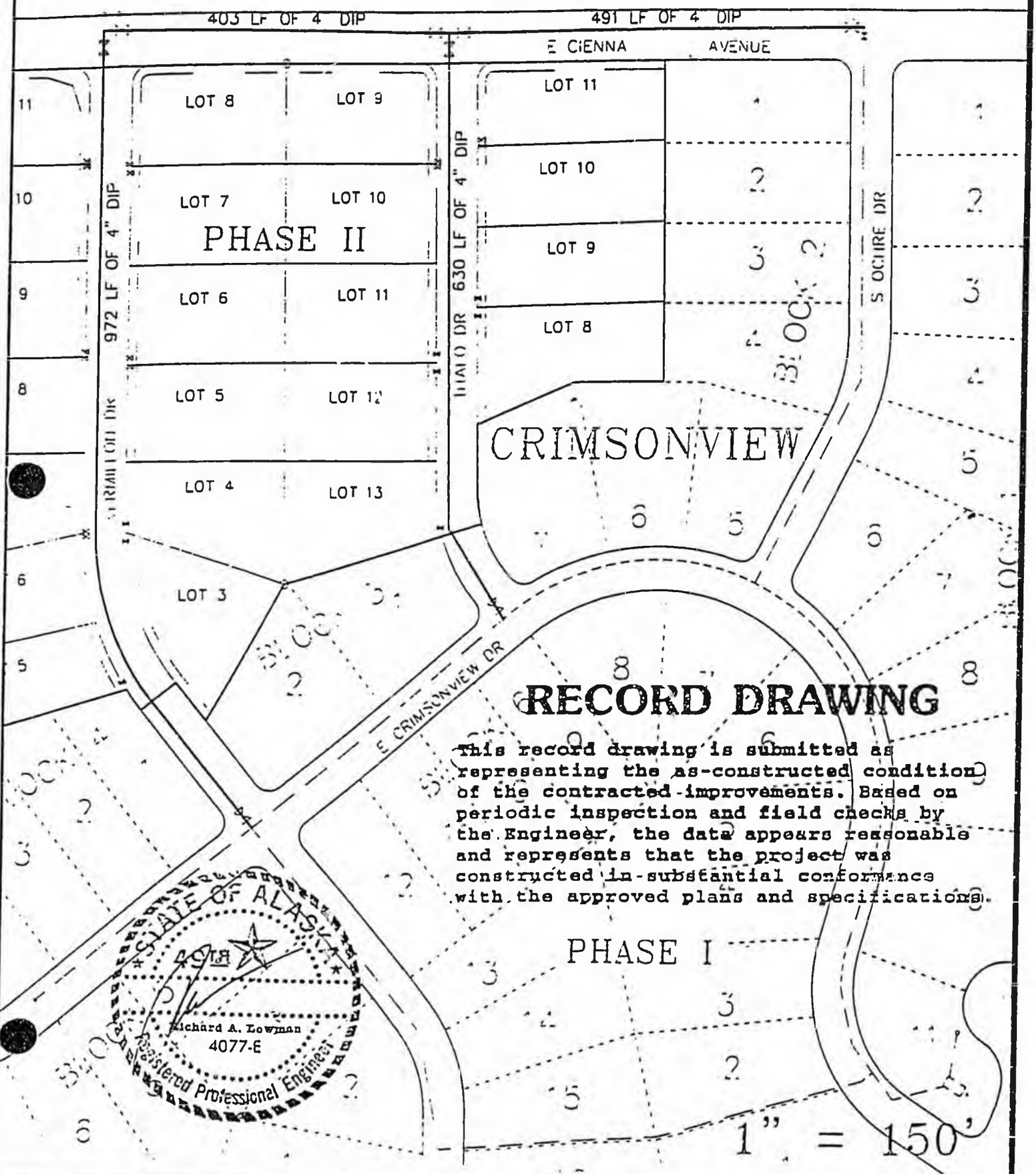
THIS SUBDIVISION HAS BEEN REVIEWED IN ACCORDANCE WITH 18AAC72.005 AND IS APPROVED, SUBJECT TO ANY NOTED RESTRICTIONS.

Sharon E. Stetson
for Paul Picard — SIGNATURE
District Supervisor — TITLE
DATE October 10, 1985

CERTIFICATE OF PAYMENT OF TAXES

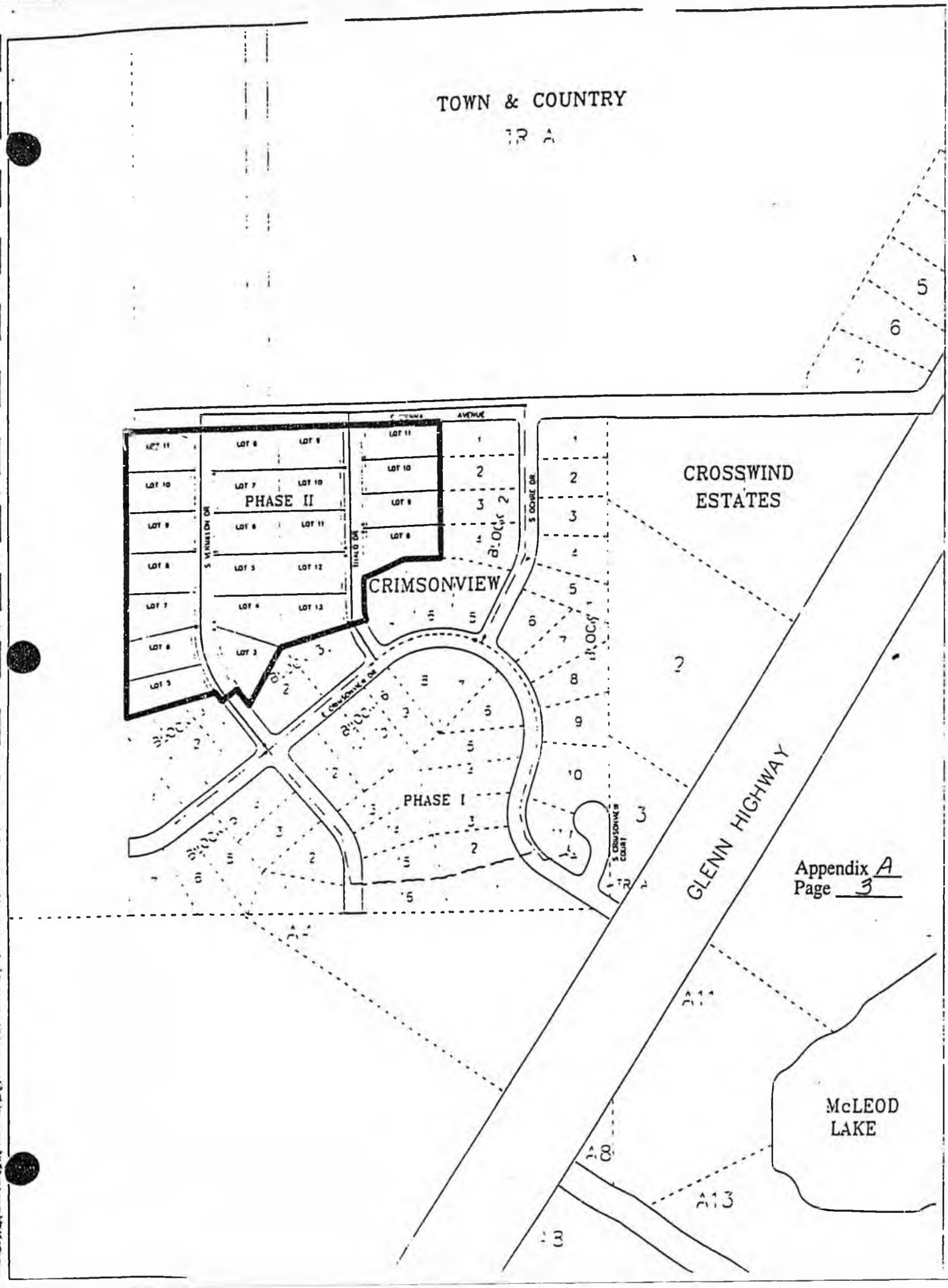
I CERTIFY THAT ALL CURRENT BOROUGH TAXES AND SPECIAL ASSESSMENTS THROUGH ____ 19__ AGAINST THE PROPERTY INCLUDED IN THE SUBDIVISION OR RESUBDIVISION HEREON HAVE BEEN PAID.

BOROUGH TAX COLLECTION OFFICIAL — DATE



RECORD DRAWING

This record drawing is submitted as representing the as-constructed condition of the contracted improvements. Based on periodic inspection and field checks by the Engineer, the data appears reasonable and represents that the project was constructed in substantial conformance with the approved plans and specifications.



Appendix A
Page 3

Gilfilian Engineering & Environmental Services

Bob Gilfilian, P.E. P.O. Box 871868, Wasilla, Alaska 99687 (907) 376-3005

ENGINEER REPORT

FOR

CRIMSONVIEW SUBDIVISION

WATER SUPPLY SYSTEM

PREPARED FOR

MSSRS. HUGH ADAMS & PAUL HARTIG
SRA BOX 6168
PALMER, ALASKA 99645
907-745-5937

PROJECT NUMBER 184261

September 10, 1984

PURPOSE

The purpose of this report is to request plan approval from the Alaska Department of Environmental Conservation (ADEC) for a proposed community water supply system described herein. The proposed water system will serve drinking water for domestic purposes to the individual lots located in Crimsonview Subdivision.

This report was prepared in accordance with the requirements given under 18 AAC 80.100 concerning Plan Review. Attached and a part of this report are the following:

1. ATTACHMENT A - "Project Location Map"
2. ATTACHMENT B - "Driller's Well Log dated 7/30/84"
3. ATTACHMENT C - "Well Test Pump Report dated 8/22/84"
4. ATTACHMENT D - "Plan and Profile Sheets" (8 parts)
5. ATTACHMENT E - "Water Quality Test Results" (2 parts)

PROJECT DESCRIPTION

Mssrs. Hugh Adams and Paul Hartig propose to provide water supply to 68 lots in Crimsonview Subdivision. All lots will be served by a single community well and water supply distribution system. The entire water distribution will system consist of four (4) inch diameter ductile iron pipe (DIP), Class 52.

The community water supply and distribution system will be maintained and operated by a lot owners association. It is important to note the water system will be used for domestic purposes only and is not intended to provide fire protection.

It is proposed to develop the lots with individual on-site sewage disposal systems. Lot owners will be responsible for the proper design, installation and maintenance of their individual on-site septic tank/soil absorption system.

As shown on ATTACHMENT A "Project Location Map," the project site is located near Mile 40 Glenn Highway, approximately 2 miles south of the City of Palmer. The project site is located within the NW1/4 NE1/4, Section 18, Township 17 North, Range 2 East, S.M., Alaska.

DESCRIPTION OF WATER SUPPLY SYSTEM

I. SUPPLY SOURCE: The source of water supply will consist of a six (6) inch diameter, steel cased, deep well equipped with a submersible pump, sanitary well cover, and pitless adapter unit A minimum ten (10) foot section of stainless steel screen was installed on the intake end of the well casing.

It should be noted for plan review purposes, the water supply well is classified as a Class A Public Water Supply source with minimum 200 foot restrictive/protective radius as in accordance with Table A of 18 AAC 80. The well location as shown on ATTACHMENT D, "Plan and Profile Sheets" will provide the minimum separation distances given in Table A.

On July 24 1984 ADEC approval to construct the well. On July 30, 1984, the well was drilled by Wheaton Water Wells, Inc., as described on ATTACHMENT B, "Driller's Well Log."

The well was pump tested on August 12, 1984, by Anchorage Well/Pump Service. As shown on ATTACHMENT C, the yield of the well was measured at 305 gallons per minutes (gpm) with a pumping level of approximately 50.5 feet below the ground surface. Total maximum well yield was calculated at 649 gpm.

II. WATER QUALITY: Included under ATTACHMENT E are the lab results of testing for inorganic, bacteriological and physical contaminants required under 18 AAC 80.100 (c)(1) for a Class A Public Water System. The water sample was collected by Anchorage Well and Pump Service. As indicated the water supply meets all of the standards except for turbidity (which will be retested).

III. PROJECTED WATER FLOW DEMAND:

A. Average Daily Demand
1. Residential users - 68 lots @ 450 gpd/lot
= 30,600 gpd

TOTAL DAILY FLOW = 30,600 gpd

B. Instantaneous Peak Demand
1. Residential users - 68 individual units

TOTAL CONNECTIONS = 68

Based on Figure 3-3 in "Small Water Systems Serving The Public", published by the Conference of State Sanitary Engineers, 1979, the instantaneous peak demand was determined to be 119 gallons per minute (gpm). Allowing for a safety factor of 1.15, it is recommened a peak demand of 133 gpm be used for design purposes.

IV. **DESCRIPTION OF DISTRIBUTION SYSTEM:** The subject development will be served by a multi-looped main line distribution system consisting of Class 52 ductile iron pipe as shown on ATTACHMENTS D, "Plan and Profile Sheets", (8 parts).

The length of the distribution line will be approximately 5956 feet. In order to provide the maximum water demand and allow for a reasonable line head loss, the water main was designed to have a minimum diameter of four (4) inches. The minimum depth of burial for the water main and services connections will be ten (10) feet.

The entire water distribution system will be installed with continuity straps for thermal protection.

The individual lot water service connection will consist of 0.75 inch diameter,Type K copper service pipe. Connection to the main line will be via Mueller Corporation stop or equivalent and will terminate at the property line with a curb stop.

V. **SIZING OF STORAGE TANK:** Storage requirements are based on the average daily demand and peak instantaneous demand for the development. For the purpose of this report, the calculated storage requirements are based on full development of the subdivision. As shown above, the peak demand is 133 gpm and the total daily demand is 30,600 gpd.

Review of the attached well log and well pump test shows a well supply yield of 305 gpm which is 177 gpm greater than the estimated peak demand. Since the water supply flow rate exceeds the peak instantaneous demand, pump cycle times becomes the critical design factor.

Pump cycles per hour are most frequent when the system demand averages or equals 50% of the pump capacity. Under this condition, the time in minutes for complete draw-down of tank withdrawal capacity, "off" time, is equal to the time needed to replenish the withdrawal capacity, the "on" time. "Off" time plus "on" time equals the time for one cycle. Cycle time divided into 60 minutes equals the number of cycles per hour.

According to pump manufacturer criteria, the recommended minimum pump starts per hour is 15. The sizing of the hydropneumatic storage tanks is dependent on the number of pump cycles to be maintained. Determination of the effective withdrawal volume is based on the following equation:

Maximum Pump Cycle = 1 hour / (((2 x ((V/(Q/2)))

Where:
V = Effective withdrawal volume = 135 gallons
Q = Pump capacity = 135 gpm

Thus -
Maximum pump cycle = 60 min/ (((2 x ((135/(135 gpm/2)))
Maximum pump cycle = 15.0 cycles per hour

The maximum pump cycle is equal to 15 cycles per hour indicating that the 135 gallons of effective storage is adequate for the system. A minimum effective withdrawal volume of 135 gallons must be provided by the high pressure hydropneumatic storage tank to satisfy the maximum pump cycle rate.

However,it is our understanding the ADEC Mat-Su District Office requires the minimum effective withdrawal volume to equate to two (2) times the pump capacity. In this regard, the hydropneumatic storage tanks will need to provide a withdrawal volume of 270 gallons.

The high pressure storage requirements would be provided by fourteen (14) prepressurized hydropneumatic storage tanks having a total withdrawal volume of 270 gallons. The high pressure tanks would be operated over a range of 40 to 60 psi. It is proposed to install 14 Well-X-Trol Model No. 252 (or equivalent type) in the proposed water storage building. These high pressure storage tanks would provide sufficient storage to limit the pump cycle rate to 7.5 per hour.

VI. SIZING OF PUMPING SYSTEM

A deep well submersible pump will be used to pump the well and supply the high pressure hydropneumatic storage tanks located in the well house as shown on the attached plans. The operation of the pump will be controlled by a pressure switch and motor starter located in the well house and operated over a pressure range of 40 to 60 psi.

The total dynamic head (TDH) experienced by the well pump is equal to the sum of the following individual heads:

Pressure head = 40 psi at 2.31 ft./psi =	92.4 ft
Elevation head = well pumping head	50.0 ft
Velocity head = negligible	0 ft
Friction head = 5956 LF of looped 4"dia. pipe and 70 LF of 2.5" dia. pump supply line.	24.6 ft
TDH	167.0 FT

In order to meet the above head requirement on the water system, the theoretical horsepower for the well pump is computed as follows:

Theoretical Horsepower = (flow x TDH) / 3960
Theoretical Horsepower = (133 gpm x 167.0 ft)/3960 =5.6HP

Assuming an overall efficiency of 75% for a submersible well pump, the size of the actual horsepower is computed as follows:

Actual Horsepower = Flow x TDH x Eff. factor
Actual Horsepower = 133 gpm x 167.0 ft. x (0.000335)
Actual Horsepower = 7.4 Hp

Based on the above computations, it is recommended the minimum size of well pump be 7.4 horsepower.

VII. CONSTRUCTION STANDARDS

All construction and quality control testing shall be done in accordance with the 1984 Municipality of Anchorage STANDARD CONSTRUCTION SPECIFICATIONS FOR WATER SYSTEMS, Division 60.00.

CLOSURE

The preparation of this report was based on our understanding of the intended use of the subject public water supply system. Deviation from this use could alter the recommendations and design given herein. We would appreciate the opportunity to review and evaluate any design changes.

If you have any questions or require additional information on the subject matter, please do not hesitate to call upon us.

Sincerely,

GILFILIAN ENGINEERING

Steve Rowland
Project Engineer

Attachments

SRR:br/184261:25

Bob Gilfilian, P.E.
Principal

ATTACHMENTS

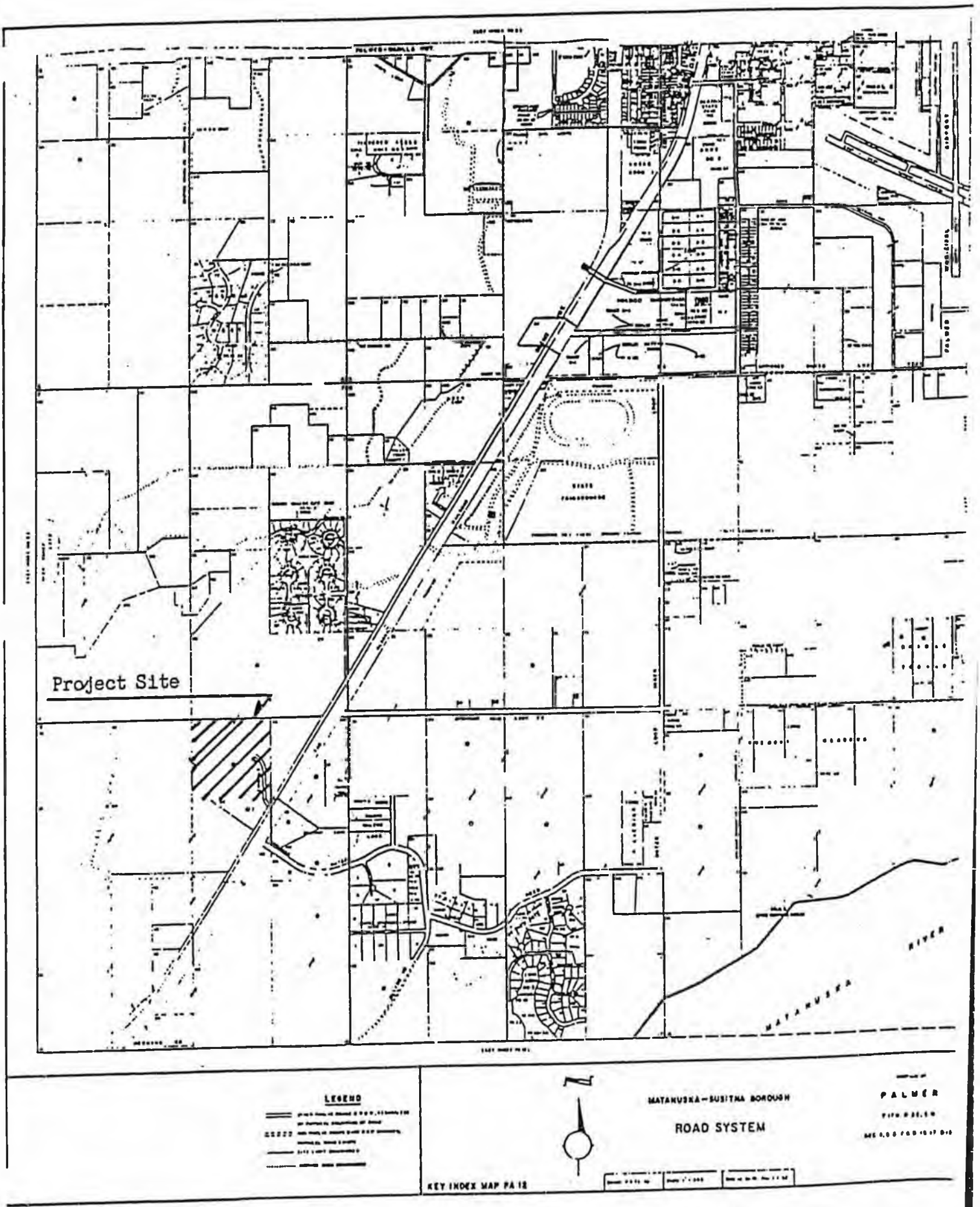
FOR

CRIMSONVIEW SUBDIVISION

WATER SUPPLY SYSTEM

PROJECT NUMBER 184261

September 10, 1984



ATTACHMENT A
Project Location Map

Appendix B
Page 4

CRIMSONVIEW SUBDIVISION
Project Number 184261
May 23, 1984

ATTACHMENT B

"DRILLER'S WELL LOG"

CRIMSONVIEW SUBDIVISION

PROJECT NUMBER 184261

SEPTEMBER 10, 1984

WELL LOG

Wheaton Water Wells, Inc.

Box 871218 · Wasilla, Alaska 99687 · 376-2041

Appendix B
Page 11

OWNER Hugh Adams
ADDRESS SRA, Box 6168, Palmer, Ak. 99645
WELL – SITE Crimson View
LOT Tract A
BLOCK
DATE 7-30-84

DEPTH OF WELL 100
STATIC LEVEL 40
GALS. PER MIN. APROX. 100
SCREENED 20'-100 slot
PERFORATED 60'-80'
SIZE OF CASING 6" ED

KIND OF FORMATION:

FROM	0 Ft.	to	2 Ft.	Top Soil	FROM	Ft.	to Ft.
FROM	2 Ft.	to	45 Ft.	Sand/Gravel	FROM	Ft.	to Ft.
FROM	45 Ft.	to	60 Ft.	moist sand Gravel	FROM	Ft.	to Ft.
FROM	60 Ft.	to	100 Ft.	Gravel/water	FROM	Ft.	to Ft.
FROM	Ft.	to	Ft.		FROM	Ft.	to Ft.
FROM	Ft.	to	Ft.		FROM	Ft.	to Ft.
FROM	Ft.	to	Ft.		FROM	Ft.	to Ft.

DRILLER

ATTACHMENT C

"WELL TEST PUMP REPORT"

CRIMSONVIEW SUBDIVISION

PROJECT NUMBER 184261

SEPTEMBER 10, 1984

Well / Pump Service

Anchorage

Hugh Adams + Paul Harlig
Wheaton Water Wells
Crimson View Subdivision
Palmer, Alaska 99645

August 22, 1984

Well / Pump Service

Anchorage

WATERWELL - TEST PUMP REPORT

OWNER Hugh Adams ADDRESS

ENGINEER

WELL LOCATION Crimson View Subdivision

TOTAL DEPTH 101 DEPTH OF CASING 81 SCREEN FROM 81 TO 10

CASING SIZE 6" SCREEN DIA 6" SCREEN SLOT 20

REMARKS Perforated 60-80

PUMP INTAKE DEPTH 74 PUMP SIZE 20 hp AIRLINE DEPTH 68

STATIC WATER LEVEL 47 AVG DISCHARGE GMP MAX DRAW DOW

PUMP ON: 10:00 (am) TIME 8-12 DATE PUMP OFF: 4:00 (pm) TIME 8-12 DATE

DATE	TIME	PIEZO TUBE	FLOW RATE	WATER LEVEL	COMMENTS
8-12-84				47	
	10:00	18	178	49	Brown cast, 60 PSI
	10:05	18	178	49	Clearing
	10:10	18	178	49	
	10:15	26	214	49	OTV 55PSI
	10:20	35	250	49.5	OTV
	10:25	45	280	50	OTV
	10:30	50	300	50	OTV
	10:35	50	300	50	
	10:40	50	300	50	
	10:45	50	300	50	
	10:50	50	300	50	
	10:55	50	300	50	
	11:00	50	300	50	
	11:05	50	300	50	
	11:10	50	300	50	
	11:15	50	300	50.5	OTV - Open Discharge
	11:20	52	305	50.5	Crystal Clear
	11:25	52	305	50.5	
	11:30	52	305	50.5	
	11:35	52	305	50.5	
	11:40	52	305	50.5	
	11:45	52	305	50.5	
	11:50	52	305	50.	
	12:00	52	305	50.5	
	12:05	52	305	50.5	
	12:10	52	305	50.5	
	12:15	52	305	50.5	
	12:20	52	305	50.5	TDS -220 PPM
	12:25	52	305	50.5	Pulled Samples
	12:30	52	305	50.5	
	12:35	52	305	50.5	
	12:40	52	305	50.5	
	12:45	52	305	50.5	
	12:50	52	305	50.5	
	12:55	52	305	50.5	
	1:00	52	305	50.5	
	1:05	52	305	50.5	
	1:10	52	305	50.5	

Well / Pump Service "ATERWELL - TEST PUMP REPORT

Anchorage

OWNER Hugh Adams ADDRESS

ENGINEER

WELL LOCATION Crimson View Subdivision

TOTAL DEPTH 101 DEPTH OF CASING 81 SCREEN FROM 81 TO 10

CASING SIZE 6" SCREEN DIA 6" SCREEN SLOT 20

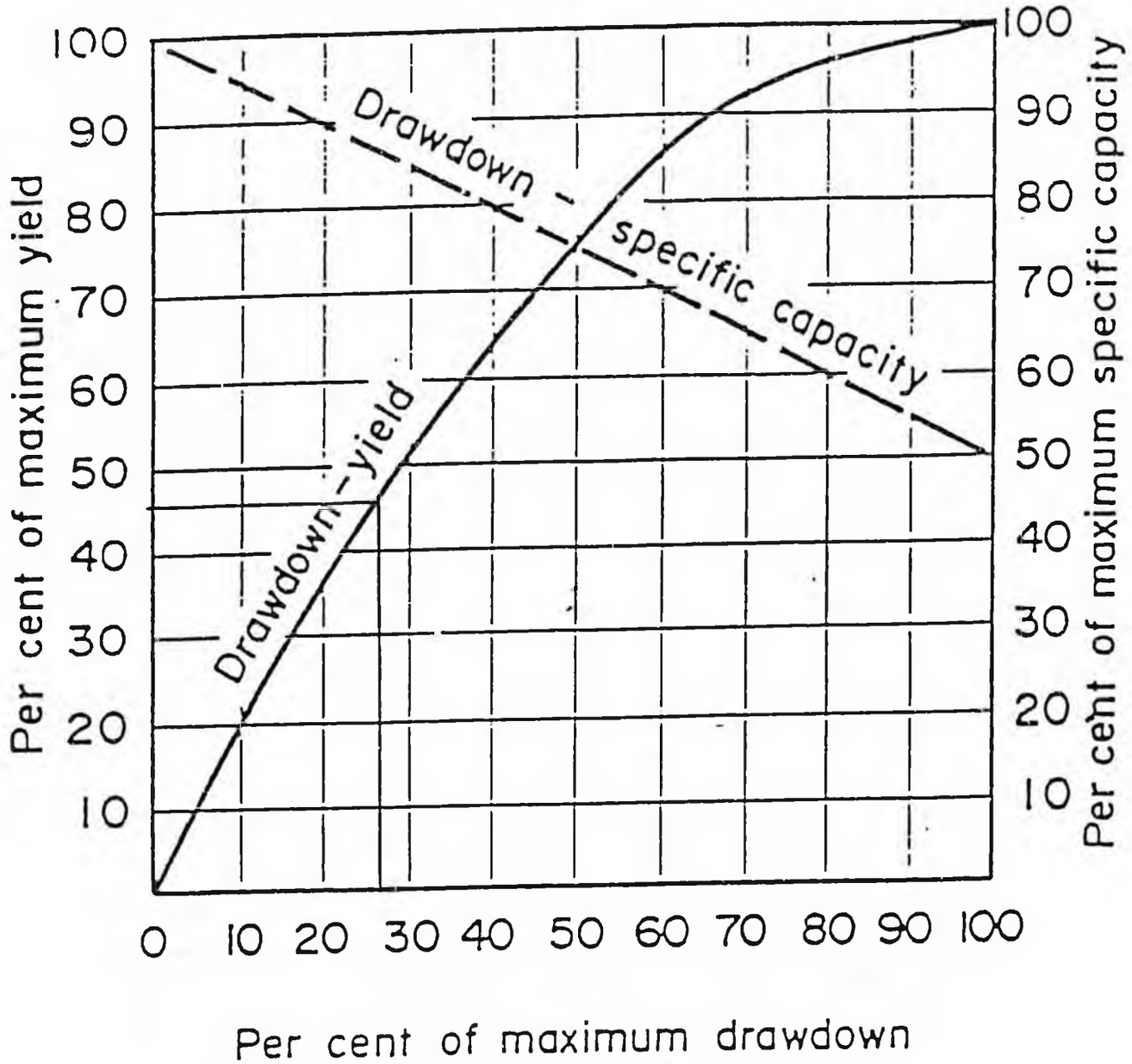
REMARKS Perforated 60 - 80

PUMP INTAKE DEPTH 74 PUMP SIZE 20 hp AIRLINE DEPTH 68

STATIC WATER LEVEL 47 AVG DISCHARGE GMP MAX DRAW DOW

PUMP ON: 10:00 TIME 8-12 DATE PUMP OFF: 4:00 TIME 8-12 DATE

DATE	TIME	PIEZO TUBE	FLOW RATE	WATER LEVEL	COMMENTS
8-1 -84	1:20	52	305	50.5	
	1:30	52	305	50.5	
	1:35	52	305	50.5	
	1:40	52	305	50.5	
	1:45	52	305	50.5	
	1:50	52	305	50.5	
	1:55	52	305	50.5	
	2:00	52	305	50.5	Shut down
				47	15 sec.
				47	30 sec.
				47	45 sec.
				47	End Test
	2:01				
	2:02				
	2:03				
	2:04				
	2:05				
	2:10				
	2:15				
	2:20				
	2:25				
	2:30				
	2:40				
	2:50				
	3:00				
	3:10				
	3:20				
	3:30				
	3:40				
	3:50				
	4:00				



Maximum Drawdown = Perforated Zone 60'
Static Level 47'
13'

Percent of Maximum Drawdown
at 305 GPM = 3.5' (50.5)
= 27% Maximum Drawdown

27% Maximum Drawdown = 47% Maximum Yield

$\frac{305}{.47}$ = 649 GPM Maximum Yield

ATTACHMENT E

"WATER QUALITY TEST RESULTS"

CRIMSONVIEW SUBDIVISION

PROJECT NUMBER 184261

SEPTEMBER 10, 1984

CHEMICAL & BIOLOGICAL LABORATORIES OF ALASKA, INC.

TELEPHONE (907) 562-2343 ANCHORAGE INDUSTRIAL CENTER
5633 B Street

Drinking Water Analysis Report for Total Coliform Bacteria

TO BE COMPLETED BY WATER SUPPLIER

WATER SYSTEM: [ ][ ][ ][ ][ ][ ] (*) See h on back
I.D. NO.

ANCHORAGE WELL & PUMP 243-0700
Water System Name Phone No.

6401 TANAINA DR
Mailing Address

ANCHORAGE, AK 99502
City State Zip Code

SAMPLE DATE: 08 (Mo.) 12 (Day) - 84 (Year)

SAMPLE TYPE:

- ☐ Routine
- ☐ Check Sample (for routine sample with lab ref. no. _____)
- ☐ Special Purpose
- ☐ Treated Water
- ☐ Untreated Water

SAMPLE NO.	LOCATION	Time Collected	Collected By
1	CRIMSON VIEW SUBD.	12:30 PM	
2	GLENN HWY		
3	PALMER		
4			
5			

TO BE COMPLETED BY LABORATORY

Analysis shows this Water SAMPLE to b-

- ☒ Satisfactory
- ☐ Unsatisfactory
- ☐ Sample too long in transit; sample shou not be over 30 hours old at examination: Indicate reliable results. Please send n sample via special delivery mail.

Date Received 8/13/84

Time Received 0800

Analytical Method:

- ☐ Fermentation Tube
- ☒ Membrane Filter

Lab Ref. No.	Result*	Analyst
6209	0	S.H.

*No. of colonies/100 ml. or No. of Positive portions

06-1220 (b) Rev. 1983

BACTERIOLOGICAL WATER ANALYSIS RECORD

READ INSTRUCTIONS

BEFORE

COLLECTING SAMPLE

Membrane Filter: Direct Count _____ Coliform/100ml

Verification: LTB _____ BGB _____

Final Membrane Filter Results 0 Coliform/100ml

Reported By S. Hartman Date 8-14-84

Time: 1500 a.m. p.m.

TNTC = Too Numerous To Count

CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, INC.
TELEPHONE (907) 562-2343
ANCHORAGE INDUSTRIAL CENTER
5633 B Street

Drinking Water Analysis Report for Inorganic, Organic, and Radiochemical Contaminants

TO BE COMPLETED BY PUBLIC WATER SUPPLIER

PUBLIC WATER SYSTEM:

I.D. NO. [ ][ ][ ][ ][ ][ ]

Anchorage Well & Pump
Public Water System Name

6901 Tanaina Drive
Address

Anchorage, Alaska 99502
City State Zip Code

Note: Check box to left of contaminants listed below for the analyses desired.

SAMPLE DESCRIPTION:

Collected By J. Ridgway

Crimson View Subdivision
Sample Location

Source Type ☐ Surface Water ☐ Ground Water

Sample Date 0 8 (Mo.) 1 2 (Day), 8 4 (Year)

☐ Routine Sample ☐ Untreated Water
☐ Special Purpose Sample ☐ Treated Water

TO BE COMPLETED BY CERTIFIED LABORATORY

CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, INC.
Laboratory Name

5633 "B" STREET
Address

ANCHORAGE, ALASKA 99502
City State Zip Code

Sample No. Station No.

6209
Laboratory Analysis No.

DB August 13, 198
Received by Date

INORGANICS

	Limit	Mg/l
☐ Arsenic	(0.05)	< 0.001
☐ Barium	(1.)	0.05
☐ Cadmium	(0.010)	< 0.002
☐ Chromium	(0.05)	< 0.01
☐ Fluoride	(2.4)	< 0.10
☐ Lead	(0.05)	< 0.01
☐ Mercury	(0.002)	0.0003
☐ Nitrate - Nitrogen	(10.)	0.52
☐ Selenium	(0.01)	< 0.001
☐ Silver	(0.05)	< 0.01
☐ Turbidity	(1 NTU)	1.2
☐		
☐		
☐		
☐		
☐		

ND Indicates Not Detected

8-21-84
Date Analysis Completed

Appendix B
Page 19

ORGANICS

	Limit	Mg/l
☐ Endrin	(0.0002)	
☐ Lindane	(0.004)	
☐ Methoxychlor	(0.1)	
☐ Toxaphene	(0.005)	
☐ 2, 4-D	(0.1)	
☐ 2,4,5 - TP Silvex	(0.01)	
☐		
☐		

RADIOACTIVITY

	Limit	pCi/l
☐ Gross Alpha	(15)	
☐ Radium 226 & 228	(5)	
☐ Gross Beta	(50)	
☐ Strontium - 90	(8)	
☐ Tritium	(20,000)	
☐		
☐		

Stephen C. Cole
Signature of Laboratory Supervisor

8-21-84
Date reported

Alaska
Rim
Engineering

Phone (907) 745-0222
Fax (907) 746-0222

P.O. Box 2749
Palmer, Alaska 99645

26 November, 1997

Archie Giddings, P.E.
ADEC
Box 871064
Wasilla, AK 99687

RE: Crimsonview Class A Public Water System, Phase II
PWSID 224329

Dear Mr. Giddings

Enclosed is a design submittal relating to proposed improvements to subject water system. Phase I of this system was developed in 1984. The initial development included a well, a hydropneumatic system, a 4-inch DIP distribution system, and services for 46 single family residential lots. Phase I is now owned by the Crimsonview Owner's Association (CVOA). The Phase II distribution system was installed at that same time, but was not approved to operate by ADEC. Phase II was designed to serve an additional 21 single family residential lots. Phase II is now owned by Robert Mellish.

Mr. Mellish is presently negotiating with CVOA for expansion of the system to serve the entire development. If I have correctly interpreted the wishes of CVOA, they are not opposed to adding Phase II, but they want to be assured that they will not be damaged by the proposed expansion. I have been given explicit instructions by Mr. Mellish to design improvements which simultaneously meet ADEC criteria, and which do not damage CVOA.

I am offering this submittal for the record to give both ADEC and CVOA a proposal to review. Due to the fact that we are trying to satisfy the concerns of both ADEC and CVOA at the same time, we have little choice but to offer this to you without CVOA prior approval, and we are by copy of this offering it to CVOA without ADEC prior approval.

We are requesting nothing more than a good faith review. We are prepared to make reasonable and prudent improvements as would be done in any other similar system, but we do not have and are not offering an unlimited budget. I encourage both ADEC and CVOA to contact our firm with questions and/or concerns.

Very truly yours,

Dick Lowman, p.e.
Principal Engineer

cc: Crimsonview Owner's Association

Appendix J
Page 1

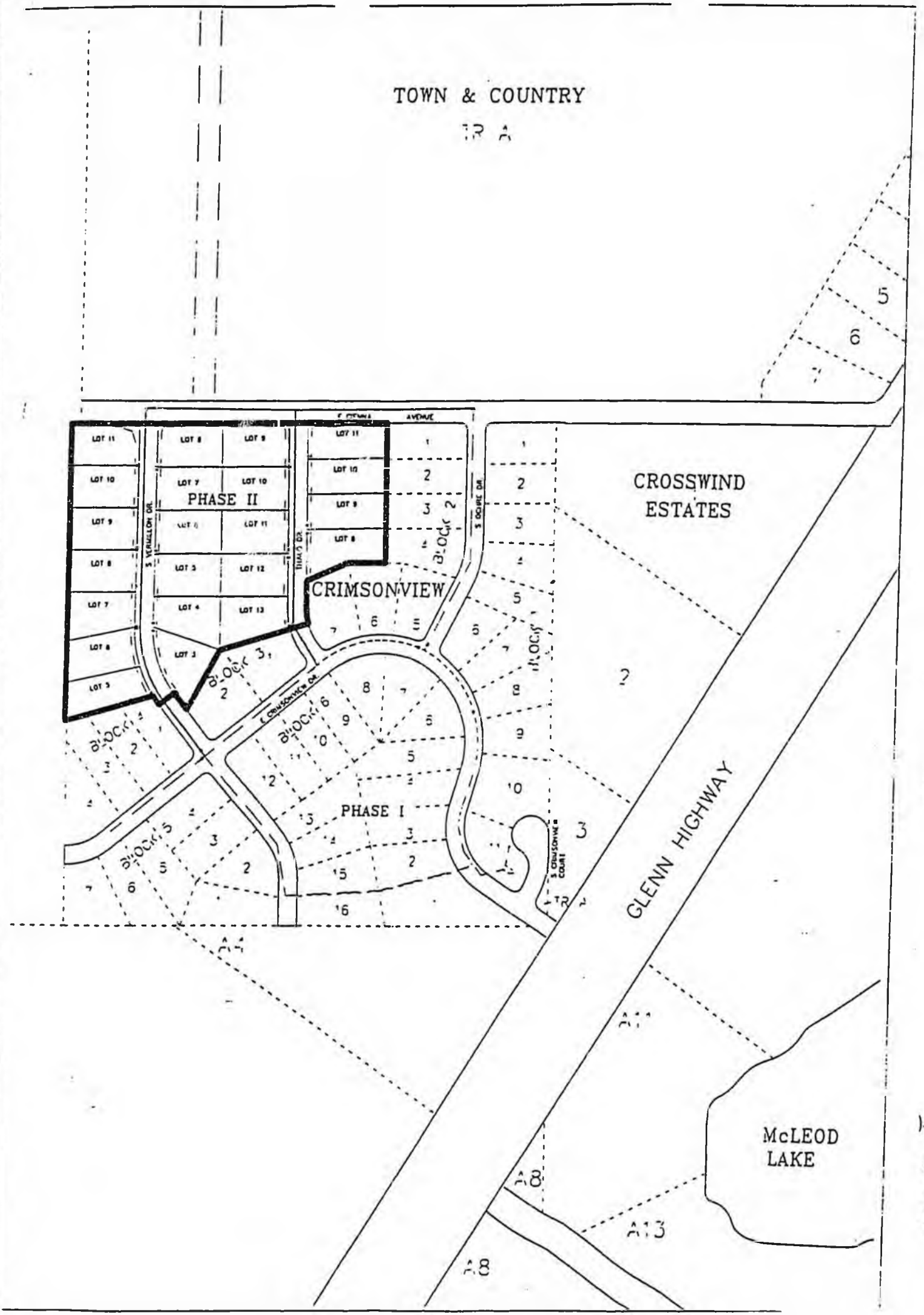
NOTE:

A signed Owner's Statement is being submitted under separate cover along with the plan review fee.

The letter from Ray Morgan referred to on page 6 of the water system design narrative is being submitted under separate cover.

CONTENTS

Item	# of pages
1. Tax parcel map	1
2. Water System Design Narrative	7
3. Owner's Statement	1
4. Plan Review Fee Calculations	1
5. Plan Approval Checklist	6
6. Design Calculations	9
7. 7/7/97 flow test results	1
8. Water System Plan	1
9. Water Main Profiles	3
10. 9/6/85 letter from ADEC	2
11. Original pump info, 12/17/85	2
12. Original Well Log, 7/30/84	1
13. Original Flow Test, 8/12/84	2
14. Proposed 10 HP pump curve	1
15. Proposed 2 HP pump information	2
16. Letter from Ray Morgan, MEA	1



Appendix J
Page 4

WATER SYSTEM DESIGN

Crimsonview Subdivision, Phase II
within NW¼ NE¼ Sec 18, T17N, R2E, S.M.

Background

Crimsonview Subdivision consists of a 40-acre parcel being developed in two phases. The first phase was developed in 1984. Phase I included 47 lots, including one which was reserved for the public water supply well. (46 of the lots are suitable for single family construction.) Phase II is presently under development. It consists of 22 additional lots. The total for both phases is 68 lots suitable for building.

Lots are approximately 1/2 acre each. Each lot will be served by a community water system. Wastewater disposal will be on-site septic systems. The public water system is designated by ADEC as **PWSID # 224329.**

The basic water system was developed in 1984. It consists of a single Class A public water supply well, and a looped distribution network of 4-inch ductile iron pipe. Each of the lots in Phase I were supplied with a copper water service line extending from the main to the lot line. Most of the lots in Phase II were likewise served. There are eight lots in Phase II which did not have copper service lines installed in 1984. (Those service lines have since been installed.)

The water supply well was tested after installation and development. In 1984, the well specific capacity was in excess of 80 gpm per foot of drawdown. Available drawdown was 27 feet. At developed pumping rates, the drawdown was only 2 feet. The well was therefore capable of producing far in excess of the flow needed.

The water system Phase I received final Approval to Operate on 12/19/85 (copy attached.) Phase II was excluded from the Approval to Operate. Per letter from ADEC dated 9/6/85 (Copy Attached) Phase II was required to be upgraded and documented prior to receiving approval.

ADEC Requirements

To expand the system to include Phase II, state regulations require that the following be demonstrated to the satisfaction of ADEC:

1. the source water quality meets current regulations
2. the well yield is satisfactory to serve the total development
3. the pump production is satisfactory to serve the total development
4. the pump is provided with adequate hydropneumatic protection
5. the distribution lines are sized to provide satisfactory service pressures

6. 24-hour backup storage or equal is provided
7. as-built drawings are submitted to the satisfaction of ADEC

It is proposed to utilize the existing well and distribution system, with appropriate improvements. The status of the existing system, plus the proposed upgrades are discussed below.

1. Source Water Quality

Monitoring is current. Quality is in compliance with Class A system standards. The ADEC computer has not yet registered the 1997 nitrate testing, but those results were submitted to ADEC in July by Mat-Su Test Lab. Full series inorganics are due by the end of 1998, but can be done anytime between now and then.

There has been one incident in recent years (approximately three years ago) of coliform contamination. Chlorination and flushing resolved the immediate problem. No cause was ever determined. The contamination has not returned.

2. Well Yield

A water system must be capable of producing sufficient flow to satisfy peak instantaneous demand, as well as peak daily demand. Under the regulations, peak instantaneous demand needs to be provided only for a 20 minute period. Peak daily demand needs to be provided continuously over a 24 hour period. The well yield should not be less than the peak daily demand. It is desirable for the well to be capable of also meeting the peak instantaneous demand. In this system, the well meets both criteria.

Calculations for peak instantaneous water demand are based on the ADEC publication "*Suggested Practice for Small Water Systems*," April 1995. The formula used, as shown on Figure 2 of that publication, is as follows:

$$Q = 125 + 1.2(n-50)$$

where

Q = required peak flow in gpm

n = number of residential units (>50)

Crimsonview is entirely single family residential. The number of residential units equals the number of buildable lots. The required peak demand for full system development (including Phase II) is 146.6 gpm.

As a comparison, ADEC criteria for the existing 48 lots is computed at 120 gpm. Conversations with CVOA have indicated that the present 140 gpm pumping setup is believed to be taxed to the limit with seasonal peak demands, specifically lawn watering. This is a fairly common occurrence in the higher value subdivisions in the valley where individual water services are not metered. In those situations where people do not pay for the amount of water consumed, there is no incentive to conserve. The water system operator is then placed in a position of trying to accommodate those who wish to use a greater than normal flow while he is also trying to keep overall system operating costs to a minimum. Usually a compromise is necessary. The water system should be capable of servicing all domestic needs, plus reasonable landscaping desires. Homeowners ultimately need to be made aware that the water supply is not limitless, and some controls (lawn watering on odd/even days during peak periods, etc.,) are often needed.

The ADEC criteria used herein is intended to provide an adequate flow, but it is not unreasonable in this case to provide an extra margin of comfort. As seen below, the 146.6 peak flow can be provided with a 10 HP submersible pump. To provide significantly above that, a 15 HP pump would be needed. That would require continuous operation and maintenance on the larger unit in order to achieve a peak flow which would only be demanded a few times during a year. As an alternative, it is possible to place a small booster pump on the well discharge pipe and activate the booster only during those rare periods when the demand is excessive. That is herein our recommendation. Analyzing the pump curves on both the installed 7.5 horsepower unit, and the proposed 10 horsepower unit, both can be operated at a 30-foot lower head while still within the optimum efficiency envelope. Thus a booster pump which provides a 20 to 30 foot lift only during extreme demand periods will allow the system to function efficiently within all of the recommended performance envelopes, and will impose only a minimal power surcharge when the pump is activated. That setup would produce a peak flow of up to 160 gpm with the existing 7.5 horsepower well pump, and up to 185 gpm with the proposed new 10 horsepower well pump.

ADEC policy is to use 450 gallons per household per day as a reasonable average daily demand. Peak daily demand for a system of this size is 3 times the average. Computed peak daily demand for 68 households at 1350 gpd per household is 64 gpm.

A flow test was conducted by Anchorage Well and Pump Service on 7/7/97. The well yields in excess of the required demands with a drawdown of only two feet. The specific capacity has not changed by any measurable amount since the original well yield test conducted on 8/12/84. The well has a yield capability far in excess of the computed minimums.

3. Pump Production.

The installed pump is a Standard Model 6N 130-4, 4 stage. The motor is a Franklin, 7.5 horsepower, single phase. Following is a tabular reproduction of a relevant portion of the pump curve.

GPM	TDH
100	210
110	200
120	190
130	180
140	168
150	152
160	136
170	120

The pump as installed exceeds the ADEC computed minimums for the entire Phase I subdivision. It yields about 7 gpm shy of the computed minimums for the entire proposed 68 lot development.

The present pump has no known maintenance problems or deficiencies. Remaining life is unknown. It is not uncommon for pumps to last for 20 years or more. It is reasonable to assume the the present pump has some significant value in remaining life. If it is removed and replaced, the unit removed will have little or no resale value.

In order to maximize the benefit to CVOA we are herein proposing (subject to their concurrence) to modify the system as follows:

1) Leave the present 7.5-horsepower submersible turbine in place. Continue to operate the system as it is being operated.
2) Install a Peerless 2-horsepower booster pump inside the well control building on the pump discharge line. The booster pump would be bypassed and non-operational during normal periods of demand. During periods of extreme demand, the booster would automatically activate providing approximately 20 to 30 feet of lift, thereby increasing system capacity by approximately 20 gpm to a total of 160 gpm. Info relating to proposed pump is attached.
3) Establish an escrow account to be provided by the developer of Phase II which would cover the cost of a new Red Jacket 10-horsepower 4HB pump and motor, including controls. The escrow would be under the sole control of CVOA. If and when the 10 horsepower unit is installed, the system total production capacity will then be 185 gpm.

By this submittal we are requesting ADEC approval to operate the full Phase II system, including all 68 lots, using only the 7.5 horsepower pump and 2 horsepower booster. Calculations above confirm that this combination meets ADEC criteria. It is quite possible that the entire subdivision will be substantially developed prior to the existing pump failing. Assuming that happens, then CVOA will under the approval granted by ADEC be within their rights to use the escrow funds to replace the pump with another 7.5 horsepower unit if they find that the system production is satisfactory.

By this submittal we are also requesting ADEC to approve the installation of the 10 horsepower pump, as described above. Thus, if CVOA determines that additional capacity is needed at any time in the future, they will have the authority to install the new pump at their sole option. It will exceed all ADEC criteria.

For the record, it has been our company's experience that pumps should not be oversized beyond system needs. It is our belief that a 7.5 horsepower primary pump (in conjunction with a booster for extreme periods only) is the optimum combination for this system. We advise against upsizing to a 10 horsepower primary pump unless there is strong feeling in the subdivision that the additional flow capability is really necessary.

No lead-based solder will be used for any of the improvements.

4. Hydropneumatic capacity.

The existing system is constructed with a total of 14 Con-Aire 85 gallon hydropneumatic tanks. Per ADEC's "***Suggested Practice for Small Water Systems***," the hydropneumatic capacity should be sized to provide a number of pump starts per hour of 15 or less. Calculations (attached) show that under the most extreme conditions this system will operate with a total of 8.5 starts per hour at peak demand. During all other periods, the number of starts per hour will be less than 8.5. The existing hydropneumatic capacity is more than adequate, as constructed.

Bladders in this model hydropneumatic tank are replaceable. Two were replaced in August of 1997. We propose to verify bladder integrity and pressure settings while the system is being upgraded. Any defective bladders would be replaced at that time.

Appendix J
Page 8

5. Distribution lines.

The entire distribution system is 4-inch DIP. A computer analysis of that distribution system was performed by Gilfilian Engineering earlier this year, and a copy of that analysis is attached. I have reviewed the report and concur that the analysis was done in a proper manner. I have independenly performed hydraulic calculations on individual line segments and those results are consistent with that of the computer model. Both the computer model and my calculations indicate that the headlosses in this system will be very low.

One member of the Crimsonview Owner's Association has questioned the pipe roughness value used in the hydraulic analysis. The Gilfilian report used a roughness value of 130, which is proper for a distribution system of this age and material. That is not to imply that all pipes will exhibit exactly that roughness for the life of the system. To investigate the effect of different roughness assumptions, a simplified analysis was conducted on a single pipe. In the analysis, a "worst case" scenario was predicated. It was assumed that there was a simultaneous peak demand of 20 homes at the opposite end of the subdivision from the well. It further assumes that all of the pipe branches were valved off, forcing all of the water to flow through a single pipe, that pipe being 1000 feet long. Using the ADEC "*Suggested Practice*", peak flow for 20 homes is 74 gpm. Attached calculation sheet entitled "Headloss in Distribution Systems" shows that the 1000-foot length of pipe would have a headloss of 3.4 feet with a pipe roughness of 130, and a headloss of 5.4 feet (less than 2 psi) at a pipe roughness of 100.

This distribution system is adequately sized to serve the entire proposed development.

Phase I distribution system was approved in 1984. Phase II was constructed in 1984, and the construction was coordinated through ADEC. Formal as-constructed records were not prepared. ADEC approval to operate was not obtained.

In 1997, the valve boxes were surveyed and the watermain was excavated in several locations. The missing service lines were installed at that time. The survey and the excavation confirms that the unofficial notes found in ADEC's files of the 1984 construction are correct. Those notes and our field measurements have been plotted against actual ground surface elevations. They indicate that a portion of the watermain on Thalo Drive was constructed less than 10-feet deep. The shallow portion was exposed and insulated with 2-inches of high density styrofoam at the time the other work was done in 1997.

Also at the time the 1997 work was being done the lines were flushed and an attemp was made to pressure test the system. During that attempt the 4-inch gate valve on Thalo at Crimsonview was found to be broken and leaking. Rust in the broken valve casting indicated that the valve has been broken and leaking for a long time. Activation of the valve during the 1997 work caused the leak to worsen. That valve has been replaced.

Cold weather prevented subsequent testing and chlorination of the 4-inch DIP pipe in Phase II. Those two activities are proposed to be completed in the spring.

Stamped as-constructed drawings of the Phase II water distribution system are included in this submittal.

6. Storage and reliability.

ADEC regulations embodied in 18AAC80 do not speak directly to the issue of storage and reliability. Instead, a design report is required to be prepared by an engineer. That report is required to be in general conformance with criteria contained in one or more of 14 reference manuals identified under 18AAC80.340. ADEC regulations do not specify which of those references is(are) to be used by the engineer. Where those references differ, ADEC regulations do not stipulate that one reference should hold precedence over another. Under the regulations it is the design engineer (and ***only*** the design engineer) who makes the determination as to which portion of which reference should apply to any specific situation. Under the regulations, ADEC is charged with reviewing the submittal offered by the engineer under the criteria stipulated within the reference that the engineer has chosen.

Evidence of the above paragraph is seen in the wide variation of design standards applied to the various water systems throughout southcentral Alaska. Different standards have been applied to different system, generally with the concurrence of ADEC. In an apparent attempt to standardize the system designs, ADEC has developed a guidance manual, "***Suggested Practice for Small Water Systems***," which gives the engineer a more consistent set of rules on which to base the design. That manual has not been formally adopted by the regulations, but has generally been accepted by that agency as complying with the intent of the regulations.

In "***Suggested Practice***," ADEC recommends that "....if power outages occur in excess of four (4) times a year and of one hour duration, an adequately sized standby power source should be considered." Although the power source is recommended, it is not required under the regulations. Crimsonview is an approved Class A water system. It does not now have emergency power generation facilities.

The intent of the regulations is to provide water system reliability. The question to be addressed by ADEC, CVOA and the developer is "what is the highest and best use of funding to provide that reliability?"

Power to the subdivision is provided by MEA. We have contacted Ray Morgan of the engineering division at MEA to ascertain the power supply reliability. Mr. Morgan confirms (see attached letter) that the Crimsonview water system is on a highly reliable portion of the MEA facilities.

Reliability is a concern with all Class A water systems, including the present Phase I system which has already been approved by ADEC. ADEC's "***Suggested Practice***" makes a point of noting that as a water system increases in size the reliability issue becomes more critical. In other words, reliability is not a new issue being raised by Phase II, but the level of concern is being elevated.

It is fair and appropriate that the Phase II addition should improve the reliability. It would be unfair to place the full burden of all reliability features on the Phase II developer.

There are many ways to increase system reliability. In some other systems, reliability is provided through the use of a standby generator. The generator provides backup in the event of a power outage, but that addresses only one of the many problems which can beset a water system. In a system such as Crimsonview where power outages are not a major problem, it would be prudent to consider other reliability features in lieu of backup power.

We are herein proposing to provide reliability through the use of a multi-function automatic dialer to be installed in the well control building. The unit can be programmed to sense multiple conditions and to report immediately any deviation from the norm. Typical functions that these units report may include abnormal pump running conditions, unusual noises, temperature extremes, line voltage, running amps, and/or pressure abnormalities. It can also serve as a data logger. Over the long term, it is reasonable to state that this feature on the Crimsonview water system will likely prevent more down time than a generator. An additional benefit is that problems are likely to be detected before they become serious.

7. As-built drawings.

As noted above, record drawings of the distribution system are herein being submitted. All water main will be buried 10-feet deep, except as noted and insulated. No lead based solder was used.

State of Alaska
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

OWNER'S STATEMENT

☐ DOMESTIC WASTEWATER SYSTEM
☒ DRINKING WATER PLAN REVIEW

Information required by 18 AAC 15.030, 18 AAC 80.310(8) and 18 AAC 80.355.

Department Completion Only
Project No._____
Date Received:_____

Submitted at DEC Office:	Mat-Su
Public Water System Name:	Crimsonview Subdivision, Phase II
Public Water System Location:	Mile 40, Glenn Highway
Describe type of work proposed:	Expand water system to include Phase II
Project Name:	Crimsonview Subdivision, Phase II

These plans submitted by:
- ☐ Owner
- ☒ Representative of Owner

I submit the enclosed items concerning the above referenced proposed project for review. By my signature I certify that the project is (check one):
- ☐ Privately owned and that I am the owner.
- ☐ Owned by a sole proprietorship and that I am the proprietor.
- ☐ Owned by a partnership of which I am a general partner.
- ☐ Owned by a corporation of which I am a principal executive officer of at least the level of vice-president, or a duly authorized representative responsible for the overall management of this project.
- ☐ Owned by a municipal, state, federal, or other public agency, of which I am a principal executive officer, ranking elected official, or other duly authorized employee.

_____
Signature of Owner or Representative *Date*

_____
Name and Official Title

_____
Address of Owner

SIGNING OF APPLICATIONS: This form must be signed as follows:
1) in the case of corporations, by the principal executive officer of at least the level of vice-president or his duly authorized representative, if the representative is responsible for the overall management of the project or operation,
2) in the case of partnership, by a general partner,
3) in the case of a sole proprietorship, by the proprietor, and
4) in the case of municipal, state, federal, or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

PLAN REVIEW FEE CALCULATIONS

18 AAC 80.355

(a)	number of services on the original approved system was 46
	number of people served is estimated at 3 x 46 = 138
(a)(1)(B)	new system fee would be $250
(c)	this is a modification of a previously approved system
(c)(2)	the modification is an increase in system consumption of 48 percent
	fee is 0.48 x $250 = $120

additionally

(d)	distribution main is being extended
(d)(2)	amount added is 3000 LF
	fee is $100 + 2 x $75 = $250

TOTAL PLAN REVIEW FEE IS $120 + $250 = **$370.00**

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SOUTHCENTRAL REGION

PLAN APPROVAL CHECKLIST
FOR ENGINEERING PLANS
CLASS A OR B
PUBLIC WATER SYSTEM
18 AAC 80.300-310

This checklist based on Drinking Water
Regulations effective March 18, 1993
amended through November 10, 1994

District Offices	
Anchorage	349-7755
Kenai	262-5210
Mat-Su	376-5038
Western	349-7755

Field Offices	
Bethel	543-3215
Kodiak	486-6760
Valdez	835-4698
Unalaska	581-1822*

Regional Office
Anchorage 563-6529

*Not staffed full-time

PROJECT NAME: CRIMSON VIEW SUBDIVISION, PHASE II

I. CERTIFICATE TO CONSTRUCT:

Phase I, Approval to install source

Indicate status of each item:

(S) Indicates submitted
(NS) Indicated not submitted (please attach an explanation)

S 1. Appropriate plan approval fee submitted as required by 18 AAC 80.355.

S 2. Number of service connections

S 3. Population served

S 4. Engineering report - applicable portions of Section 1.1 of the "Recommended Standards for Water Works" should be followed. 18 AAC 80.340.

S 5. The name and phone number of the person responsible for compliance with this chapter; 18 AAC 80.310(8). (Owner's statement)

n/a 6. The location of each proposed or existing wastewater treatment and disposal system, sewage pump station, sewer line manhole and cleanout, petroleum storage tank and line, or any other potential or actual source of pollution or contamination, including the sources in Table A in 18 AAC 80.030(a), within 200 feet of a proposed water source, regardless of property lines or ownership, drawn on a site or vicinity map. 18 AAC 80.310(5).

II. CERTIFICATE TO CONSTRUCT/APPROVED CHANGE ORDER:

Phase II, Approval for the Distribution System

S 1. Detailed plans of the source, storage, distribution, and treatment and related structures, plan and profiles of water mains and standard details should be included.

S 2. Data showing the capability of the water system source to meet minimum water consumption needs, criteria of water demand calculations, and the production capability of the water plant. The following is an example of the information that should be submitted in sufficient detail to allow evaluation.

S a. Design according to Alaska Design Manual, Alaska Drinking Water Procedures Manual, and References adopted in 18. AAC 80.340.

S b. Minimum water consumption needs established.

S c. Design criteria for water demand and calculations for a minimum 20 psi service pressure at highest service elevation under design conditions.

S d. Design calculations and flow analysis computations, such as water demands, storage tank sizing, mains, hydraulic analysis, pump sizing. Worksheets should be attached to the submittal to allow evaluation.

S e. Production capability of plant

S f. Freeze protection of mains/services.

S 3. Specification that only lead-free pipe, flux, and solder will be used during the installation of the public water system, as required by 18 AAC 80.800; 18 AAC 80.310(9).

S 4. The location (longitude and latitude) of each well and surface water intake as available from existing sources (within one second is desirable).

S 5. Well log(s) and well yield test data.

n/a 6. The overall treatment scheme, including calculations for disinfection and how Giardia and viruses will be removed or inactivated, if applicable. 18 AAC 80.310(7)

n/a 7. Per 18 AAC 80.810 Chemical Additives: Direct additives for water treatment and materials in contact with potable water must be approved for that use by the National Sanitation Foundation (NSF) or by an equivalent organization. This includes equipment which has direct water contact.

NS 8. A copy of a submitted Water Rights Application to the Alaska Department of Natural Resources (this is information only and is not required for approval).

The following information is needed to allow the department to evaluate treatment effectiveness:

This section applies to all surface water and groundwater under the direct influence of surface water sources as specified in 18 AAC 80.500.

n/a a. A design report should address watershed source/characteristics for contaminants / Water Quality parameters; Giardia concentration potential, raw water analysis for turbidity and range of values for temperature and pH. 18 AAC 80.501 (a), 18 AAC 80.310(7).

n/a b. Giardia Reduction Target (3 or 4 or 5 log) overall for filtration/disinfection process.

n/a c. Identify filtration type/Identify credit for Giardia removal

n/a Conventional Filtration /

n/a Direct Filtration /

n/a Alternative Filtration: Cartridge Membranes /

n/a Diatomaceous Earth /

n/a Slow Sand Filtration /

n/a Natural Filtration /

n/a d. Design for Turbidity Performance of
1 NTU
0.5 NTU

n/a e. Waiver Requested /

n/a f. Identify disinfection process parameters

n/a g. CT Disinfection / log reduction

n/a h. Peak Hourly Flow GPM, during disinfection "CT"

n/a i. Disinfection Contact "T" minutes

n/a j. CT Time mg Cl/min

n/a k. Design Assumptions for CT: pH, temp, Cl residual, peak hourly flow of disinfection facility, hydraulic efficiency factor "T", attached.

Analysis of raw water is required to assess treatment characteristics and compliance with all contaminants regulated by a Maximum Contaminant Level or that may be of a health risk. Refer to sections 18 AAC 80.070 and 18 AAC 80.310 (1) for application. Refer to all footnotes within these sections.

9. The following list is an outline of analysis by source type that will be required, choose the appropriate class and type water system.

For Class A Public Water Systems. Surface Water Source

n/a	a. Inorganic
	b. Organic Chemicals
n/a	Pesticides
n/a	VOC's
n/a	THM's
n/a	Other Organics
n/a	c. Radiological Organic Chemicals
n/a	d. Coliform Bacteria
n/a	e. Turbidity - as needed for compliance with 18 AAC 80.500 for design criteria
n/a	f. Secondary Contaminants 18 AAC 80.070(b)

For Class A Public Water System. Ground Water Source

NS	a. Inorganic
	b. Organic Chemical
NS	Pesticide (Departmental discretion)
NS	VOC's
n/a	THM's if over 10,000
n/a	Other organics (Departmental discretion)
n/a	c. Radiological
n/a	d. Coliform Bacteria
n/a	e. Secondary Contaminants

For Class B Public Water Systems. Surface Water

n/a	a. Turbidity
n/a	b. Nitrate/Nitrite
n/a	c. Coliform Bacteria

For Class B Public Water Systems. Ground Water

n/a	a. Nitrate/Nitrite
n/a	b. Coliform Bacteria

n/a 10. For all public water systems, raw water analyses for any potential contaminant that the department, in its discretion, identifies.

n/a 11. Copies of the operations and maintenance manuals for all water treatment equipment specified.

n/a 12. Other information that the department, in its discretion, requires in order to assess compliance with this chapter.

Please note that the discharge of the water to pressure test and the disinfect the distribution system may need to be permitted through this department to minimize water quality concerns.

I verify that all of the above listed items have been addressed in my submittal, an explanation is attached for any that are not submitted.

Engineer's Name: **Dick Lowman, p.e**
Registration Number: **CE-4077**

Address: **Box 2749**
Palmer, AK 99645

Phone: **907-745-0222**

Signature: _____

Date: 11/20/97

ONSITE SYSTEMS DESIGN SUMMARY

Project name

Crimsonview Phase II, PWSID #224329

Client

Robert Mellish

Legal description

Crimsonview Subdivision, Phase II

Water Supply

Design daily flow	30600	gpd
Min. sustained well flow rate	63.9	gpm
Design peak flow	147	gpm
Design minimum pumping head	178	feet
Design maximum pumping head	224	feet
Pump manufacturer	Red Jacket	
Pump model	4HB	
Pump horsepower	10	
No. of bladder tanks	14	
Tank manufacturer	Con-Aire	
Tank model	220-E	
Total system pressure tank volume	1190	
Tank pressure at pump startup	45	psi
Tank pressure at pump stop	65	psi

Well Location

Key North	0.7
Key East	0.65
Section	18
Township North	17
Range East	2
Range West	
Latitude	61° 33' 50"
Longitude	149° 9' 31"

USAGE DATA

Number of residential service connections		68
Other service connections > 60 days / yr		
Individuals served	residents year round	
	same individuals > 6 mo / yr[1]	
	other persons >60 days / yr	
	< 60 days / yr	
Number of bedrooms		
PUBLIC WATER SYSTEM CLASS		Class A

(1) "same persons" include such persons as employees, as opposed to full time residents

Demand	No.	per each	total
Residential service connections	68	450	30600
Bedrooms			
Residents			
Same individuals (> 6 mo / yr)			
Other individuals (> 60 days / yr)			
Other individuals (< 60 days)			
Other demands routed to septic			
Other demands not routed to septic			

DESIGN DAILY FLOW, SEPTIC SYSTEM, GPD	30600
DESIGN DAILY FLOW, WATER SYSTEM, GPD	30600
computed average well flow (24 hr. avg.), gpm	21.3
sustained flow, peak day (average x 3), gpm	63.9
MIN. SUSTAINED WELL FLOW RATE, GPM	64

PEAK WATER DEMAND, AS COMPUTED BY EQUIVALENT RESIDENTIAL UNIT METHOD

	No.	range	gpd / person	total
Assembly hall (per seat)			2	
Bowling alley (per lane w/o food)			75	
Church (small)		1-4	2.5	
Church (w/ kitchen)		5-7	6	
Camps				
campground w/ comfort station			35	
construction			50	
day (no meals)			15	
resort (limited seating)			50	
luxury			100	
RV (tent sites) 1			50	
RV (self contained) 1			75	
RV (wet hookup) 1			100	
Dwellings				
single family	68		75	5100
multi-family			60	
luxury			150	
apartments			60	
boarding			40	
mobile home park (per space)			300	
motel (per unit)			100	
Food service				
restaurant (per seat)			35	
restaurant (per patron)		7-10	8.5	
24-hr restaurant (per seat)			50	
tavern (limited food service)			35	
tavern (per patron)			10.5	
drive-in (per car space)			50	
drive-in (per person)			2	
banquet rooms (per seat)			5	
Hospitals (per bed)			300	
Laundry (coin, per machine cycle)			50	
Office buildings		20-35	28	
Retail store (per employee)			20	
Retail store (per restroom)			400	
Schools (elementary)			15	
Schools (high and jr. high)			20	
Service stations (per bay)			1000	
Shopping centers (per sq. ft. of floor)		.16-.2	0.18	
Swimming pools		3-5	4	
Other				
Other demands not routed to septic irrigation use				

design daily flow, septic system, gpd 5100

design daily flow, water system, gpd 5100

EQUIVALENT RESIDENTIAL UNITS 68

ESTIMATED PEAK WATER DEMAND 146.6

Gallons per day based on ADEC's "Suggested Practice for Small Water Systems," April 1985, except (1) is based on "Design Standards for Large On-site Sewage Systems" by the Washington State Department of Health. Estimated peak is from Figure 2 of "Suggested Practice," average of cold regions and residential mean.

HEADLOSS BETWEEN PUMP AND PRESSURE TANK

based on the Hazen-Williams formula

$$\text{headloss} = 10.55 \times (q^{1.85} \times L) / (c^{1.85} \times d^{4.87})$$
$$\text{velocity} = 0.407 \times q / (d^2)$$

q = flow in gallons per minute
L = length in feet
c = friction coefficient
d = diameter in inches

pipe segment headlosses
pipes assumed in series

		pipe type	c	nom. dia. inches	d inches	q gpm	L feet	velocity ft./sec.	headloss feet
riser pipe in well		GIP (std)	120	2.50	2.47	147	60	9.8	11.2
supply pipe from well to house		GIP (std)	120	2.50	2.47	147	10	9.8	1.9

total pipe segments headloss	13.1	feet
20% factor for aged system	2.6	feet
estimated minor headloss	4.0	feet
Total system friction loss	19.7	feet

Appendix J
Page 24

COMPUTE PUMPING HEAD

elevation of ground at well	0	feet
elevation of pitless / outlet	-10	feet
elevation of static water level	-47	feet
elevation @ drawdown level	-49	feet
elevation of service	5	feet
design pressure range	20	psi
design peak flow	147	gpm
minimum tank pressure	45	psi
maximum tank pressure	65	psi
minimum tank head	104	feet
maximum tank head	150	feet
elevation @ top pump impellers	-70	feet
gravity lift	54	feet
minimum tank pressure lift	104	feet
total system friction loss	20	feet
Design Pumping Head	178	feet

note: enter distances below datum 0 as negative

SELECT PUMP

Design peak flow	147	
Design head at pump startup	178	feet
Design head at pump stop	224	feet
Shutoff head must be above	235	feet

Pump selected

Manufacturer	Red Jacket
Model	4HB
Horsepower	10
Voltage	230
Phase	1

Performance read from curve

Flow @ startup	160	gpm
Flow @ stop	120	gpm

insert pump curve

SEE ATTACHED

Appendix J
Page 26

SELECT PRESSURE TANKS

based on ADEC "Suggested Practice"

$E = 0.95 \times (1 - (P_b / P_a))$
$V_t = 15 \times Qp / (N \times E)$

P_a = upper pressure, psia
P_b = lower pressure, psia
E = tank efficiency
N = number of pump starts / hour
Q_p = max. pump output, gpm
V_t = tank volume, gallons

pump start pressure setting	45	psi
pump stop pressure setting	65	psi
pump start pressure, atmospheric	59.7	psia
pump shutoff pressure, atmospheric	79.7	psia
tank efficiency	0.24	
maximum pump output from curve	160	gpm
minimum pump output from curve	120	gpm
average pump output from curve	140	gpm
number of pump starts per hour	8.5	

Minimum bladder tank capacity	1184	gallons
Tank Manufacturer	Con-Aire	
Model	220-E	
Volume per tank	80	gallons
number of tanks	14	
Volume per this design	1130	gallons
Factory precharge pressure of tank		psi
Reset tank precharge to within 1 psi of	44	psi
Max. acceptance factor allowed		
Computed acceptance factor		
Net minimum effective volume	289	gallons
Run time at average flow from curve	2.1	minutes

HEADLOSS IN DISTRIBUTION PIPING

based on the Hazen-Williams formula

$$\text{headloss} = 10.55 \times (q^{1.85} \times L) / (c^{1.85} \times d^{4.87})$$

$$\text{velocity} = 0.407 \times q / (d^2)$$

q = flow in gallons per minute
L = length in feet
c = friction coefficient
d = diameter in inches

pipe segment headlosses; pipes assumed in series		pipe type	c	nom. dia. inches	d inches	q gpm	L feet	velocity ft / sec	headloss feet	
distribution pipe		DIP 52	130	4.00	4.22	74	1000	1.7	3.4	
distribution pipe		DIP 52	120	4.00	4.22	74	1000	1.7	3.9	
distribution pipe		DIP 52	110	4.00	4.22	74	1000	1.7	4.6	
distribution pipe		DIP 52	100	4.00	4.22	74	1000	1.7	5.4	

Well / Pump Service

Anchorage

OWNER [illegible] ADDRESS [illegible]

ENGINEER ALASKA RIM ENGINEERING

WELL LOCATION _____

TOTAL DEPTH 100 DEPTH OF CASING 80 SCREEN FROM 80 TO 100

CASING SIZE 6 SCREEN DIAMETER 5 3/5 SCREEN SLOT [illegible]

REMARKS FERF 60-50 25 CONNECTED SITES

PUMP INTAKE DEPTH 72 PUMP SIZE 7½ HP AIRLINE DEPTH _____

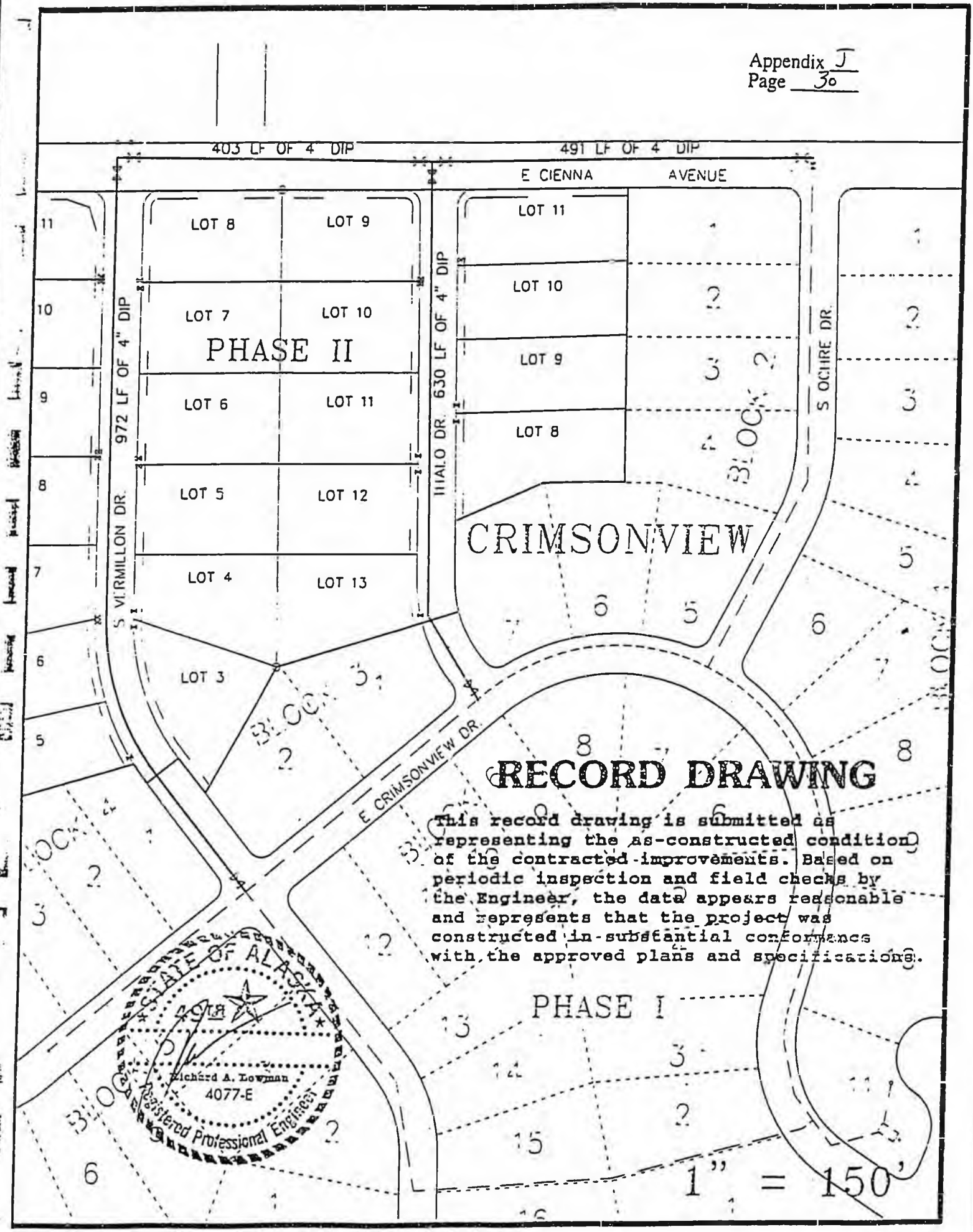
STATIC WATER LEVEL 47 AVG. DISCHARGE 165 GPM _____ MAX DRAWDOWN

PUMP ON: 23.30 TIME 7/7/97 DATE PUMP OFF: 01.30 A. TIME 7/8/97 DATE

DATE	TIME	PIEZO TUBE	FLOW RATE	WATER LEVEL	COMMENTS
7/7/97	23.30	—	Ø	47'	——
7/7/97	23.31	14.9	160	49'	CTV
7/7/97	23.32	—	153	—	20 PSI
7/7/97	23:35	14.8	165	49'	20 PSI
7/7/97	23:45	14.8	165	49'	20 PSI
7/8/97	24:00	14.8	165	49'	20 PSI
7/8/97	0015	14.8	165	49'	20 PSI
7/8/97	0030	14.9	165	49'	——
7/8/97	0045	14.9	165	49'	——
7/8/97	0100	14.9	165	49'	——
7/8/97	0115	14.9	166	49'	——
7/8/97	0130	14 9	166	49'	——
		14.4	15	—	RECOVERY
		14.9	30	—	——
		14.9	45	47'	——
7/8/97	0131	—	0	—	END TEST

Appendix J
Page 29

Appendix J
Page 30



RECORD DRAWING

This record drawing is submitted as representing the as-constructed condition of the contracted improvements. Based on periodic inspection and field checks by the Engineer, the data appears reasonable and represents that the project was constructed in substantial conformance with the approved plans and specifications.

RECORD DRAWING

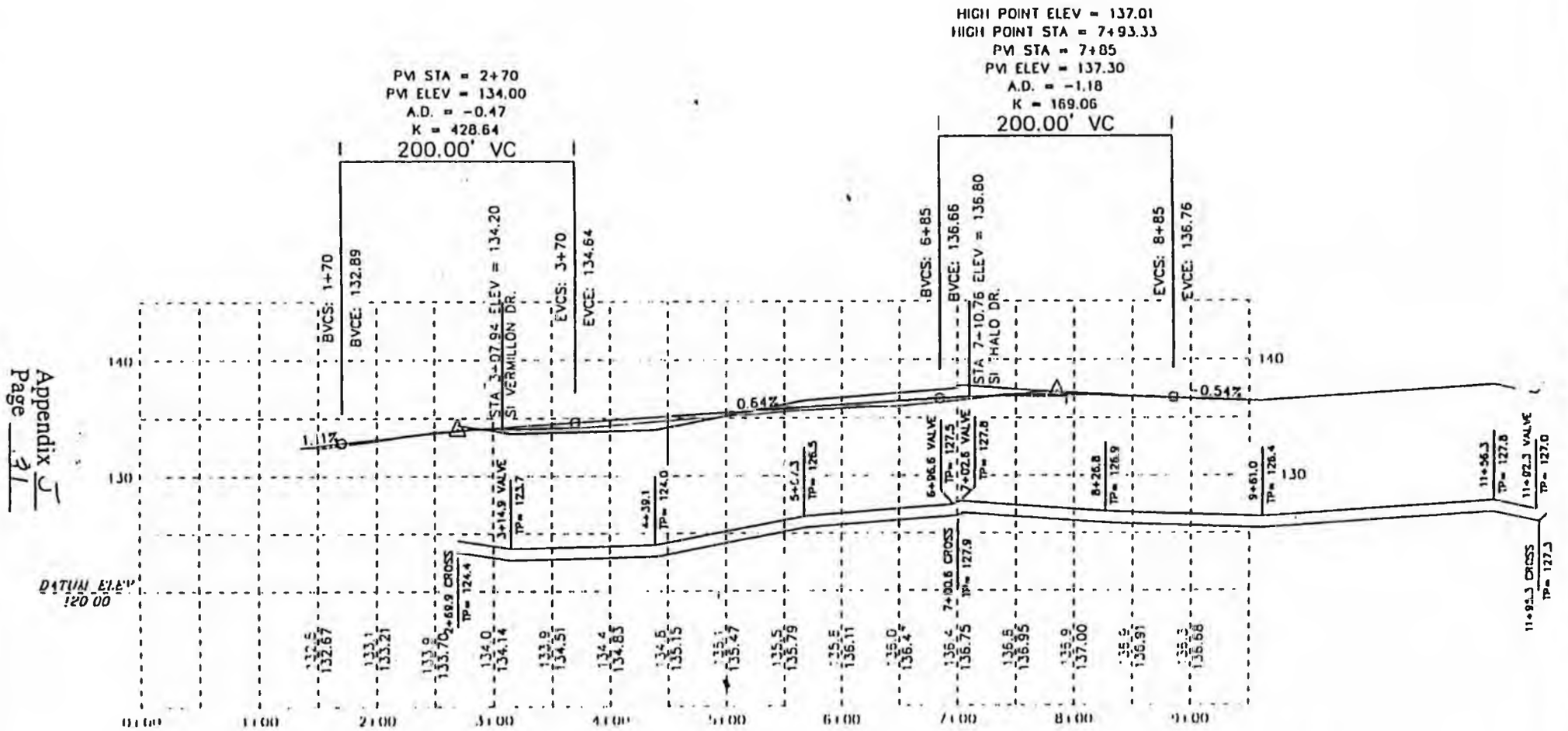
This record drawing is submitted as representing the as-constructed condition of the contracted improvements. Based on periodic inspection and field checks by the Engineer, the data appears reasonable and represents that the project was constructed in substantial conformance with the approved plans and specifications.

STATE OF ALASKA
10TH
Richard A. Lowman
4077-E
Registered Professional Engineer

1" = 100' HOR.
1" = 10' VERT.

DATUM

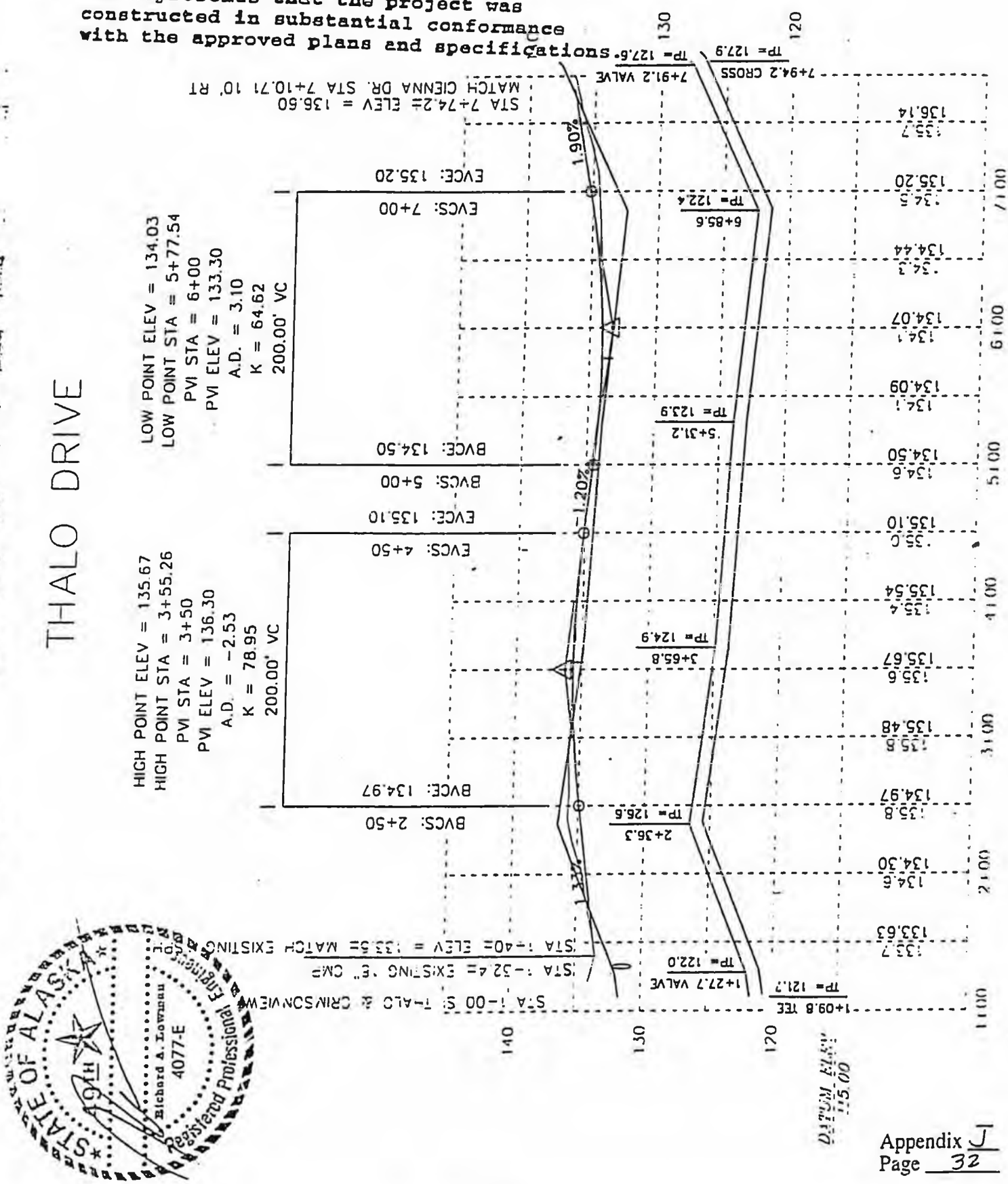
CIENNA AVE.



Appendix C
Page 21

RECORL DRAWING

This record drawing is submitted as representing the as-constructed condition of the contracted improvements. Based on periodic inspection and field checks by the Engineer, the data appears reasonable and represents that the project was constructed in substantial conformance with the approved plans and specifications.

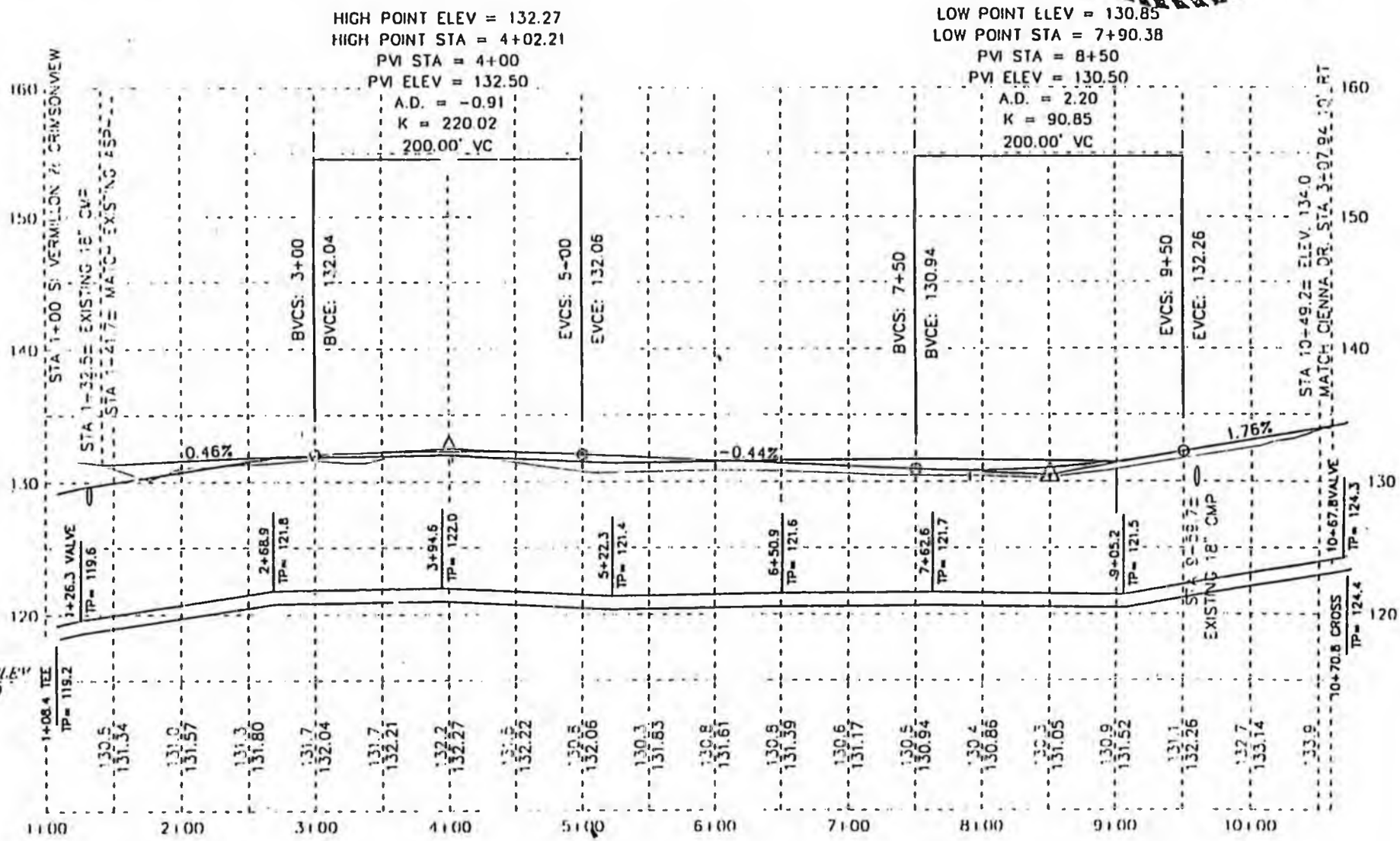


RECORD DRAWING

This record drawing is submitted as representing the as-constructed condition of the contracted improvements. Based on periodic inspection and field checks by the Engineer, the data appears reasonable and represents that the project was constructed in substantial conformance with the approved plans and specifications.

STATE OF ALASKA
49TH
Richard A. Lowman
4077-E
Registered Professional Engineer

VERMILLON DRIVE



Appendix J
Page 33