

SHEET INDEX

Village Safe Water
JAN 27 2012
RECEIVED

Too'gha Inc.
Tanana Water & Sewer Extension

PROJECT # 13806
JULY 2006

ISSUED FOR CONSTRUCTION

In Cooperation with the State of Alaska
Department of Environmental Conservation
Village Safe Water Program



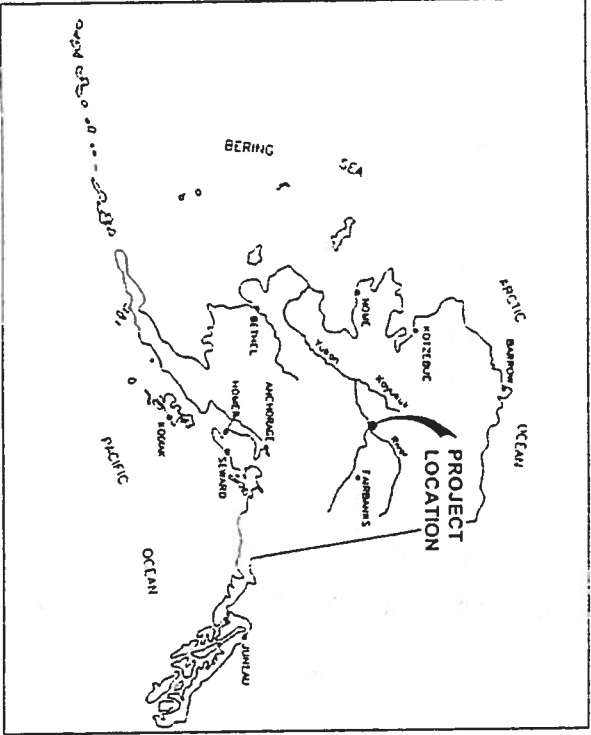
RECORD DRAWING

RECORD DRAWING CERTIFICATE

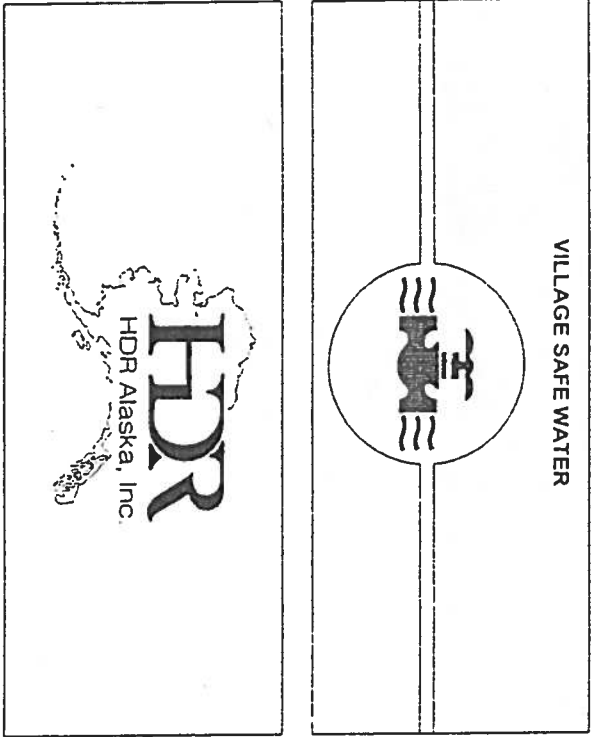
THESE DRAWINGS REFLECT RECORDED
INFORMATION OBTAINED DURING
CONSTRUCTION.
INFORMATION PROVIDED HEREIN IS
ACCURATE TO THE BEST OF MY
KNOWLEDGE.

NAME David A. Jones DATE 12/27/12

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Location Map



Consultant

Project Number (Consultant) (VSW) _____
VSW Project Engineer S. RAVERT
Construction Foreman M. FOREMAN
Final Design (Date) _____
ADDC Approval (Date) _____
Construction Period (From) _____ (To) _____
As-Built (Date) _____

SUMMARY OF WORK

[illegible]

GENERAL NOTES:

SYSTEMS FOR THE TOWN OF DOWNTOWN AREA. THE WATER DISTRIBUTION SYSTEM CONSISTS OF 5,365 FEET OF CIRCULATING WATER MAINS, 1,272 FEET OF FIRE MAINS, AND 10 FIRE HYDRANTS. THE WASTEWATER COLLECTION SYSTEM CONSISTS OF 3,272 FEET OF GRANITE SEWER, INCLUDING 1 MARCH, CONNECTING TO THE EXISTING SYSTEM. THE NUMBER OF NEW SEWER CONNECTIONS IS 17 WORK PRIOR TO THIS PHASE INCLUDED THE DESIGN AND CONSTRUCTION OF A NEW WATER TREATMENT PLANT AND LAUNDRY FACILITY. BECAME OPERATIONAL IN 2002. WATER DISTRIBUTION PIPING AND WASTEWATER COLLECTION PIPING WERE INSTALLED IN THE 2002-2005 CONSTRUCTION SEASONS TO PROVIDE SERVICE TO APPROXIMATELY THREE FOURTHS OF THE HOMES IN THE DOWNTOWN AREA.

INFORMATION PRESENTED ON THIS DRAWING SHALL APPLY TO THE ENTIRE PROJECT EXCEPT WHERE STATED OTHERWISE ON SPECIFIC DRAWINGS OR IN THE SPECIFICATIONS.

2. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL NOTIFY THE ENGINEER OF DISCREPANCIES BETWEEN THE ACTUAL CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS BEFORE PROCEEDING WITH THE WORK.
3. THE CONTRACTOR SHALL REFER TO THE BID SPECIFICATIONS FOR ANY INFORMATION REGARDING PIPES OR MANHOLES NOT COVERED BY THESE GENERAL NOTES OR THE DRAWINGS.
4. THE CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR TEMPORARY ERECTION BRACING AND SHORING FOR ALL STRUCTURAL MEMBERS AS REQUIRED FOR STRUCTURAL STABILITY OF THE STRUCTURES DURING CONSTRUCTION.
5. THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED PROJECT. THE CONTRACTOR SHALL INDICATE THE METHOD OF CONSTRUCTION, PRODUCTION SHALL ENGAGE QUALIFIED PERSONS TO DETERMINE THAT ALL COMPLETED WORK IS IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL COMPLY WITH THE EROSION AND SEDIMENT CONTROL REQUIREMENTS FOR THIS PROJECT DURING ALL PHASES OF CONSTRUCTION.
7. THE CONTRACTOR SHALL STORE ALL FUELS, OILS, SOLVENTS AND HAZARDOUS MATERIALS (OHA) IN ENGINEER-APPROVED STORAGE LOCATIONS AT STAGING AREAS. APPROVED AREAS SHALL BE EXCAVATED AND LINED WITH AN IMPERMEABLE LINER TO CREATE A DEPRESSION OF HAVING A VOLUME LARGE ENOUGH TO CONTAIN THE TOTAL VOLUME OF OHA BEING STORED. THE CONTRACTOR SHALL KEEP CLEAN-UP CONTINUOUSLY KITS AT EACH STORAGE SITE.
8. ALL CONSTRUCTION SHALL BE DONE IN A WORKMANLIKE MANNER AND IN COMPLIANCE WITH APPLICABLE CODES, ADEC REGULATIONS, AND PERMIT CONDITIONS.
9. THE SUPPLY FOR THIS PROJECT WAS PREPARED BY MANLEY LAND SURVEYORS, INC. DATED OCTOBER 2005. THE BASIS OF HORIZONTAL CONTROL IS THE BLUE IRON PIPE MONUMENT, LOCATED AT COR. N 1 U S SURVEY NO. 397, ON THE NORTH RIGHT OF WAY LINE OF THIRD AVENUE AND THE CENTRELINE OF MILL STREET, ASSIGNED A COORDINATE OF 5,000.00 NORTH AND 5,000.00 EAST BASIS OF VERTICAL CONTROL IS AN ELEVATION OF 93.02 FEET FOR THE ALUMINUM PIPE MONUMENT AT THE SOUTHEAST CORNER OF BLOCK 3 (POINT NO. 20) AS PROVIDED BY A 100-GA. REPRESENTATION ON AUGUST 19, 2005. HORIZONTAL AND VERTICAL CONTROL SHALL BE REESTABLISHED PRIOR TO START OF CONSTRUCTION.
10. RECORD DRAWINGS - THE PROJECT FOREMAN SHALL BE RESPONSIBLE FOR MAINTAINING A CLEAN SET OF DRAWINGS OF THE PROJECT FOR RECORD. RECORD INFORMATION SHALL BE PROVIDED TO THE PROJECT FOREMAN BY THE CONTRACTOR. RECORD DRAWINGS SHALL BE RECORDED, REPRODUCED, AND LOANED TO THE PROJECT FOREMAN BY THE PROJECT FOREMAN. RECORDS OF ADEC VAS SAMPLING FACILITIES CONSTRUCTION PROJECT SUPERINTENDENT'S MANUAL, DATED JULY 1998, ALL ELEVATIONS SHALL BE PLAIN SHALL BE MARKED & RECORDED OR F.C. (FIELD CLAUDE) WITH THE CORRECT VALUE INSERTED. ALL SURVEY NOTES SHALL BE KEPT IN GOOD QUALITY FIELD BOOKS, SUBMITTED TO THE OWNER WITH THE RECORD DRAWINGS AT THE END OF THE PROJECT.
11. UTILITY EASEMENTS - ALL WATER AND SEWER MAIN LINES SHALL BE INSTALLED WITHIN PUBLIC RIGHT-OF-WAY OR DEDICATED UTILITY EASEMENTS. ALL TEMPORARY CONSTRUCTION EASEMENTS NOTED SHALL BE THE RESPONSIBILITY OF THE OWNER.
12. HISTORICAL PRESERVATION - SHOULD ANY ARCHAEOLOGICAL, CULTURAL, OR PALEONTOLOGICAL RESOURCES BE DISCOVERED AS A RESULT OF CONSTRUCTION ACTIVITY, WORK THAT WOULD DISTURB SUCH RESOURCES WILL BE STOPPED AND THE STATE HISTORIC PRESERVATION OFFICE AND THE TAMPA TRIAL COUNCIL SHALL BE CONTACTED IMMEDIATELY.
13. CTRIAL RESTORATION - THE AREAS IMPACTED BY CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITION OR BETTER. DISTURBED AREAS SHALL BE REVEGETATED. THE REVEGETATION SHALL BE GROUNDED AND SEEDS TO MATCH SURROUNDING TERPAIN. DISTURBED AREAS WITHIN THE TRACTED VAY SHALL BE RESURFACED PER THE DRAWINGS. CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE AREA AND DISPOSED AS DIRECTED BY THE OWNER. DUE CARE AND CAUTION SHALL BE TAKEN TO AVOID DISTURBING PERSONAL PROPERTY.
14. BARRICADES AND WARNING SIGNS SHALL BE PROVIDED TO ADVISE RESIDENTS OF ROAD CLOSURES, DETOURS, AND HAZARDOUS OPEN TRAFFIC CONDITIONS.

15 SEEDING: ALL DISTURBED AREAS OUTSIDE TRAVELED WAYS SHALL BE FERTILIZED AND SEEDED UPON COMPLETION OF FINAL GRADING. AN 8-32-16 (NITROGEN-PHOSPHORUS-POTASSIUM) FERTILIZER MIX SHALL BE APPLIED AT A RATE OF 15 POUNDS PER 1,000 SQUARE FEET AND WORKED INTO SURFACE. SOUS SEED SHALL BE 95 PERCENT PURE WITH A MINIMUM GERMINATION RATE OF 85 PERCENT AND SHALL CONFORM TO THE FOLLOWING:

NAME	APPLICATION RATE (LB/1,000 SQ. FT.)
ARCTICARD RED FESCUE	1 1/2
MUGGET BLUEGRASS	1 1/2

SEED SHALL BE UNIFORMLY MIXED AND MECHANICALLY SPREAD. SEEDING SHALL BE PERFORMED NO EARLIER THAN MAY 15TH AND NO LATER THAN AUGUST 15TH. SEEDING SHALL NOT BE PERFORMED DURING WINDY CONDITIONS OR WHEN CLIMATIC OR GROUND CONDITIONS WOULD HINDER PLACEMENT OR PROPER EARTH WORK.

10. FUSION JOINTS WILL BE VISUALLY INSPECTED BEFORE AND AFTER FUSION TO ENSURE THAT JOINTS ARE FUSED IN ACCORDANCE WITH THE VISUAL QUALITY CONTROL CRITERIA.

i. THE DOUBLE BEAD SHALL BE ROLLED OVER TO THE SURFACE AND BE UNIFORMALLY ROUNDED AND CONSISTENT IN SIZE THROUGHOUT THE ENTIRE CIRCUMFERENCE OF THE JOINT.

ii. THE BEAD SHALL BE SMOOTH AND THE BEADS MUST NOT BE JOINED TO THE THIRD SURFACE THROUGHOUT THE ENTIRE CIRCUMFERENCE OF THE JOINT.

iii. THE DISPLACEMENT (PERPENDICULAR TO THE PIPE CENTER BETWEEN THE FUSED ENDS MUST NOT EXCEED 10% OF THE PIPE MINIMUM WALL THICKNESS.

iv. THE WIDTH OF THE COMBINED BEAD FOR SDR 11 PIPE SHALL BE AS FOLLOWS:

PIPE DIA.	MINIMUM BEAD WIDTH	MAXIMUM BEAD WIDTH
4" PIPE	5/16-INCH	7/16-INCH
6" PIPE	1/2-INCH	11/16-INCH

1. WORK PRIOR TO EXCAVATION - CLEANING AND GRUBBING OF CERTAIN AREAS PRIOR TO EXCAVATION MAY BE NECESSARY. DISPOSE OF VEGETATION AND ORGANIC MATERIAL AS DIRECTED BY THE OWNER.
2. SAFETY CONSIDERATIONS - SIDEWALLS OF TRENCHES OR EXCAVATIONS SHALL BE SLOPED OR SUFFICIENTLY BRACED IN CONFORMANCE WITH THE OSHA REQUIREMENTS OF LABOR STANDARDS FOR SAFE WORKING ENVIRONMENT. ALL EXCAVATIONS SHALL BE BACKFILLED OR COVERED OR A GUARD SHALL BE POSTED. BEFORE THE TRENCH SHALL BE STOPPED FOR THE DAY, THE TRENCH SHALL BE GUARDED. WHEN WORK BEGINS THE FOLLOWING DAY, OPEN EXCAVATIONS SHALL BE ACCURATELY SIGNED AND BARRICADED TO WARN RESIDENTS OF THE HAZARD AND TAKE ALL RESPONSIBLE AND PRACTICAL MEASURES TO PROTECT PUBLIC HEALTH AND SAFETY AND PRIVATE PROPERTY.

11. DESTRUCTIVE TESTING OF THE BUTT FUSED JOINT QUALITY WILL BE CONDUCTED BY PERFORMING THE BEINI STRAP TEST. FREQUENCY OF TESTING WILL BE A MINIMUM OF ONE TEST EVERY CALENDAR WEEK THAT THE FUSING PROCESS OCCURS. APPROXIMATELY 2/3 OF THE BEINI STRAP TESTS WILL BE CONDUCTED ON THE WATER LINE AND APPROXIMATELY 1/3 OF THE TESTS WILL BE ON THE SEWER LINE.

- 3 SURFACE WATER/GROUNDWATER CONTROL - TRENCH BOTTOM SHALL BE MAINTAINED IN RELATIVELY DRY CONDITION DURING THE PIPE LAYING OPERATION SURFACE DRAINAGE SHALL BE DIRECTED AWAY FROM THE TRENCH THROUGH USE OF OVERSIZED BERMS OR OTHER APPROPRIATE MEASURES USE OF PUMPING EQUIPMENT MAY BE REQUIRED IN SOFT AREAS FOR FRESH DEWATERING DISCHARGE FROM DEWATERING OPERATIONS SHALL BE THROUGH APPROPRIATE DRAINAGE ROUTES SETTLING TANKS SHALL BE PROVIDED TO PREVENT OILY WATERS FROM ENTERING EXISTING DRAINS, STREAMS, OR WETLANDS
- 4 EXCAVATED UNSABLE MATERIAL - DISPOSAL OF UNSABLE EXCAVATED MATERIAL SHALL BE AS DIRECTED BY OWNER
- 5 OVER EXCAVATION - OVER EXCAVATION SHALL BE UNDERTAKEN IN ACCORDANCE WITH THE DRAWINGS WHENEVER ICE RICH FROZEN SOILS, SATURATED TUMED SOILS OR ORGANIC RICH SOILS ARE ENCOUNTERED WITHIN THE LIMITS OF EXCAVATION

- 12 MANHOLES WILL BE LEAK TESTED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:
- i. PLUG THE INLETS AND OUTLETS OF THE MANHOLE.
- ii. ABOVE THE TOP OF THE SEWER LINE OR TWO FEET ABOVE THE EXISTING GROUNDWATER - WHICHEVER IS GREATER.
- iii. ALLOW THE WATER TO STABILIZE FOR ONE-HALF HOUR AND REFILL THE MANHOLE TO THE ORIGINAL LEVEL.
- iv. MARK INITIAL DEPTH OF THE WATER.
- v. ALLOW THE MANHOLE TO SIT FOR ONE HOUR.
- vi. RECORD THE DROP OF THE WATER LEVEL IN THE MANHOLE.
- vii. MAKE THE MAXIMUM ALLOWABLE DROP (WITH WATER HEAVY IN THE LINE) SHALL BE PROPORTION TO THE MANHOLE DIAMETER SIZES.
- viii. IF THE WATER LEVEL IN THE MANHOLE DROPS BELOW THE ALLOWABLE DROP, REPAIR THE LEAK AND RE-TEST.

PIPE, FRENCH MATERIAL SPECIFICATION

LEVELING COURSE SHALL MEET THE FOLLOWING SPECIFIC GRADED FRACTION REQUIREMENTS

SIEVE DESIGNATION	% PASSING BY WEIGHT
1 - 1/2"	100
3/4"	70-100
3/8"	60-90
1/4"	50-80
1/8"	30-55
40	20-45
20	10-30
2000	4-10

PIPE BEDDING MATERIAL: WELL GRADED GRAVEL AND COARSE SAND WITH 1" MAXIMUM PARTICLE SIZE AND 6% MAXIMUM PASSING THE NO. 200 SIEVE

SELECT MATERIAL: WELL GRADED GRAVEL AND COARSE SAND WITH 3" MAXIMUM PARTICLE SIZE AND 6% MAXIMUM PASSING THE NO. 200 SIEVE

NON-CLASSIFIED MATERIAL MAY CONSIST OF EXCAVATED MINE MATERIAL, CRUSHED CONCRETE, CRUSHED ASPHALT, CONSIDERATION DEBRIS, Boulders OR COBBLES, OR OTHER AND FROZEN MATERIALS

EXTERIOR PIPING

1. GRADE AND ADEQUATE SLOPING COULDN'T BE DETERMINED IN THE FIELD. THE FIELD SUPERVISOR SHALL BE RESPONSIBLE FOR THE PROTECTIVE COATING OF THE PIPE. THE FIELD SUPERVISOR SHALL MAINTAIN SURVEY NOTES TO BE SUBMITTED TO THE OWNER WITH THE RECORD DRAWINGS AT THE END OF THE PROJECT.
2. PIPE SHALL BE LIFTED AND PLACED USING PIPE SLINGS LOCATED TO PREVENT DAMAGE TO THE PIPE. THE PIPE SLINGS SHALL BE USED TO LIFT THE PIPE TO THE PROTECTIVE COATING. THE PIPE SHALL NOT COME IN CONTACT WITH THE PROTECTIVE COATING OF THE PIPE AS IT IS DAMAGED OR INSTALLED CHAINS, CHOKERS OR SIMILAR LIFTING DEVICES SHALL NOT BE USED.
3. ONCE THE PIPE IS LOWERED INTO THE TRENCH IT SHALL BE INSPECTED FOR DAMAGE TO THE OUTER JACKET OR PROTECTIVE COATING. ANY DAMAGE TO THE OUTER JACKET SHALL BE REPAIRED USING HEAT SHANK WELD AIR DAMAGE TO THE PROTECTIVE COATING SHALL BE REPAIRED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS.
4. PIPE LAYING - ALL PIPE SHALL BE LAID IN REASONABLY CLOSE CONFORMANCE WITH THE GRADES SHOWN ON THE DRAWINGS. A TIE PIPE SHALL BE LAID TO THE GRADES SHOWN ON THE DRAWINGS. THE TIE PIPE SHALL BE LIFTED AND FITTINGS SHALL BE PLUGGED AT ALL TIES WHEN WORK IS NOT IN PROGRESS.
5. THE FIELD SUPERVISOR HAS THE AUTHORITY TO FIELD LOCATE DRENDS. THE FIELD SUPERVISOR SHALL MAINTAIN SURVEY NOTES TO BE SUBMITTED TO THE OWNER WITH THE RECORD DRAWINGS AT THE END OF THE PROJECT.
6. FLUSHING - ALL UTILITY LINES SHALL BE FLUSHED PRIOR TO PRESSURE CONDITIONS.

The seal of the State of Alaska is partially visible on the left edge of the page. It features a circular design with a star in the center, surrounded by the words "STATE OF ALASKA" and a decorative border.

UTILITIES SHALL BE CONTACTED PRIOR TO CONSTRUCTION TO IDENTIFY CONFLICTS BETWEEN THE PIPES AND THEIR RESPECTIVE FACILITIES.

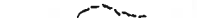
UTILITY CONTACTS

- CITY OF TAMPA _____ (907)366-7159
- TAMPA POWER CO. INC. _____
- YUKON TELEPHONE CO. INC. _____ (907)366-7190
- LOCAL RUTH ELLER _____ (907)373-6007
- WASSILA DON ELLER _____ (907)366-7113
- TAMPA NAIVE COUNCIL _____ (907)366-7209
- TOO CHA INC. _____ (907)366-7209



RECORD DRAWING

ISSUED FOR CONSTRUCTION

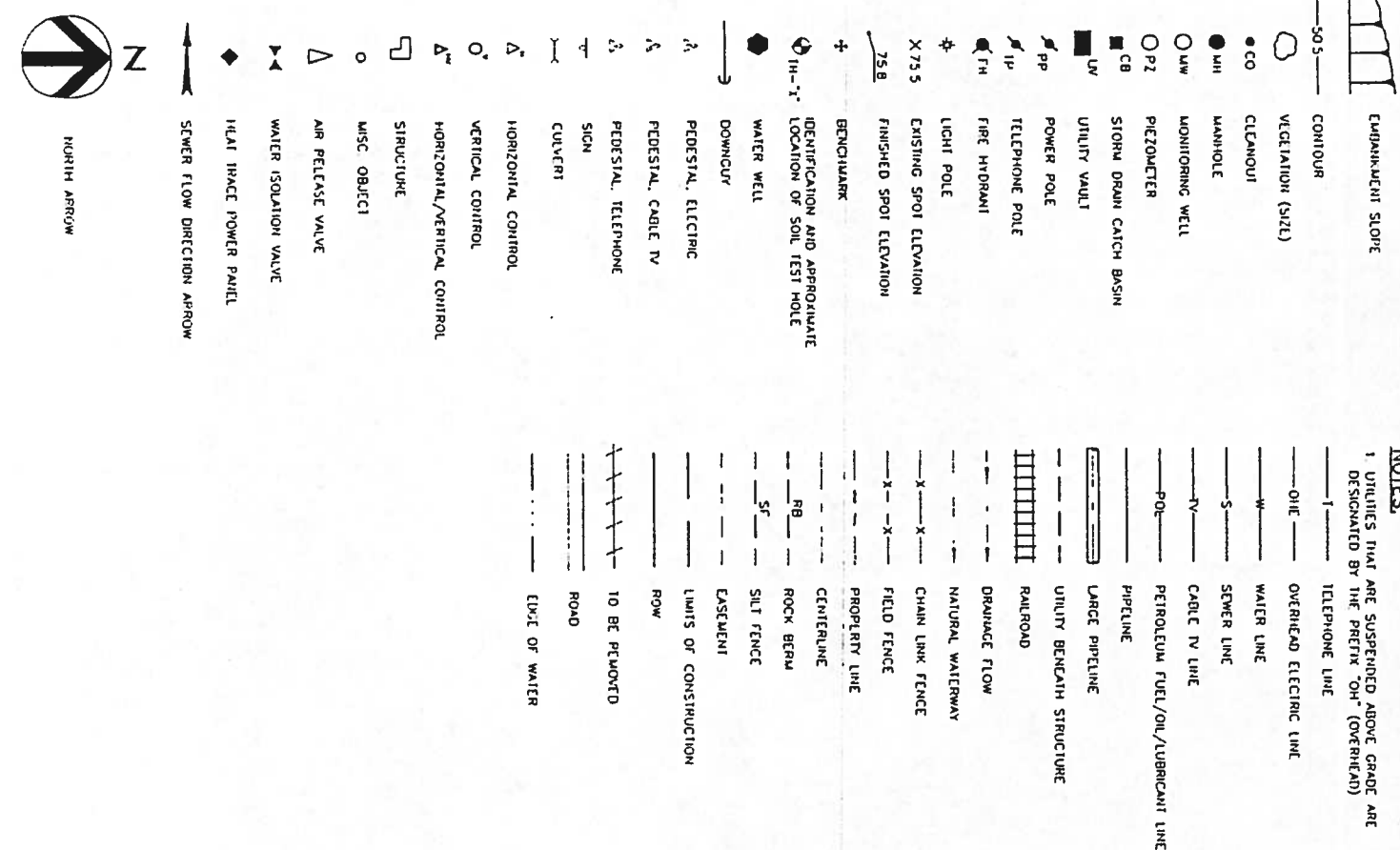
SHEET 2 OF 29	Sheet No. G2.0	Project No. 13806 Date AUG 2005 Designed JG Drawn JJ Approved TE	REVISION BY DATE	Too'gha Inc. Tanana Water and Sewer Extension GENERAL NOTES AND ABBREVIATIONS			VILLAGE SAFE WATER 	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.  NAME 1/27/12 DATE
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GENERAL LEGEND

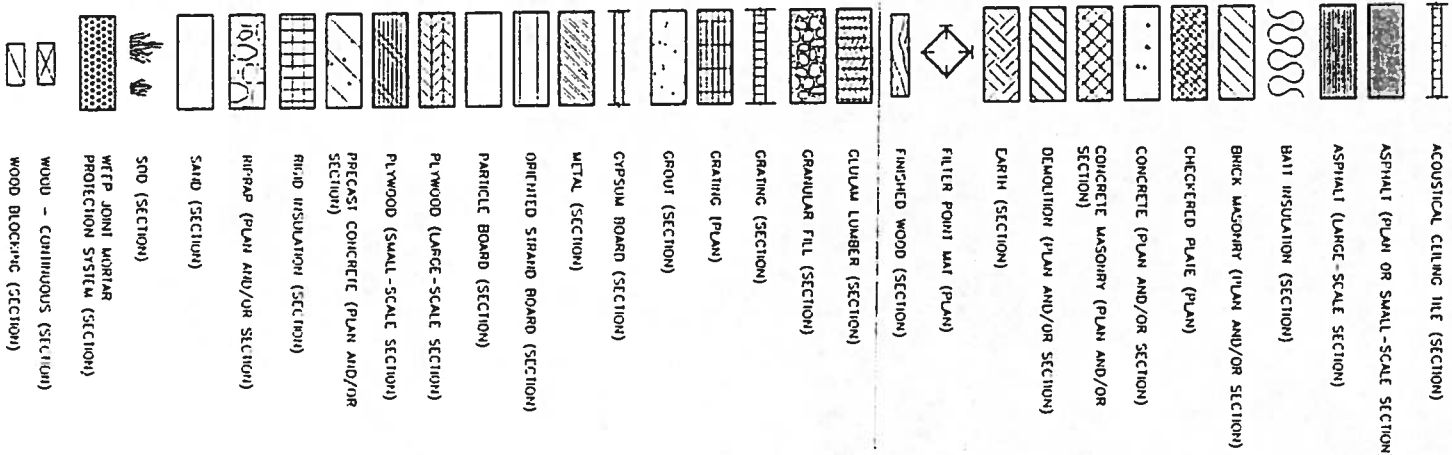
DETAIL AND SECTION CALLOUTS

GENERAL LEGEND

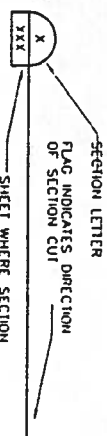
MATERIALS IN PLAN/SECTION



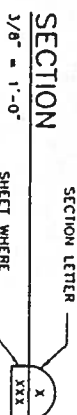
MATERIALS IN PLAN/SECTION



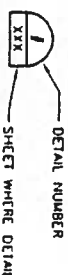
PLAN	1/4" = 1'-0"	PLAN TITLE
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SECTION CUT MARKER



SECTION TITLE



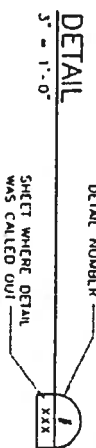
DETAIL MARKER

FOR REFERENCE DETAILS INCLUDED IN DRAWING SET

DETAIL MARKER

FOR REFERENCING DETAILS BOUND IN
SPECIFICATIONS OR SEPARATE VOLUME

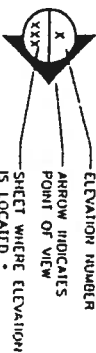
DETAIL



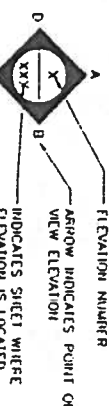
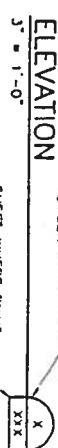
DETAIL TITLE

* FOR COMMON DETAILS AND SECTIONS OR DETAILS THAT ARE CUT OR CALLED OUT ON MULTIPLE SHEETS, THE SHEET NUMBER IS REPLACED BY A DASH (-)

SINGLE ELEVATION OR PHOTO MARKER



MULTIPLE ELEVATION OR PHOTO MARKERS

ELEVATION

ELEVATION TITLE

GENERAL NOTES:

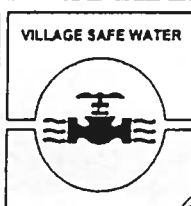
1. THIS IS A STANDARD SHEET SHOWING COMMON SYNOLOGY. ALL SYMBOLS ARE NOT NECESSARY USED ON THIS PROJECT.
2. SCREENING OR SAMING OF WORK IS USED TO MINIMIZE EXISTING COMPONENTS OR TO DE-ELEMENTIZE PROPOSED IMPROVEMENTS TO HIGHLY SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.

ISSUED FOR CONSTRUCTION

RECORD DRAWING CERTIFICATE

THESE DRAWINGS REFLECT
RECORDED INFORMATION OBTAINED
DURING CONSTRUCTION.
INFORMATION PROVIDED HEREIN
IS ACCURATE TO THE BEST OF
MY KNOWLEDGE

NAME _____ DATE _____



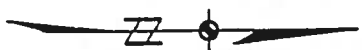
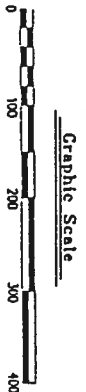
Too'gha Inc.
Tanana Water and Sewer Extension

**CIVIL AND GENERAL
LEGENDS**

[illegible]

Project No. 13906
Date AUG 2006
Designed JG
Drawn JJ
Approved TB

Sheet no **G3.0**
3 of 25
SHEET



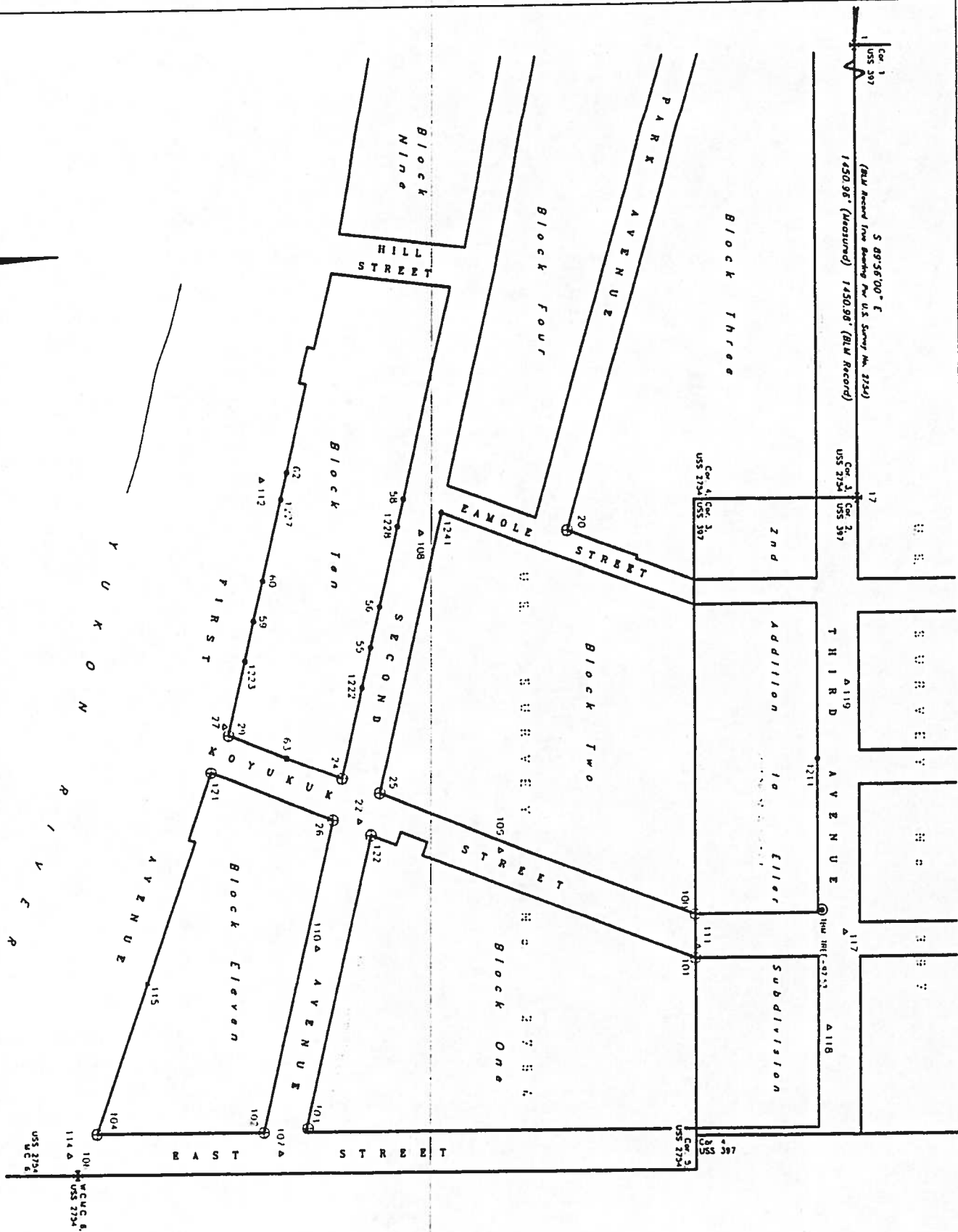
- Legend**
- RLW Brass Capped Iron Post, Recovered
 - Primary Monument by Others, Recovered
 - Rebur With Aluminum Cap, 5032-S, Recovered
 - Control Spike
 - TBM Tree

Surveyor's Certificate

I hereby certify that I am registered and licensed to practice land surveying in the State of Alaska, that this plot represents a survey made by me or under my direct supervision, that the monuments shown hereon actually exist as described, and that all dimensions and other details are correct.

Date _____ Registration No. 5032-S

Richard B. Gray, Registered Land Surveyor



Vertical Control Table

POINT NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
20	4571.88	6492.11	93.02	ALUM MON 2238-S
25	4291.12	6873.09	97.34	ALUM MON 2238-S
29	4066.30	6766.20	98.09	ALUM MON 2238-S
104	3867.91	7362.41	98.22	ALUM MON 2238-S

TBM - Elevation 97.52
A spike set on the northeast side of a 12" diameter birch tree located at the southwest corner of Koyukuk Street and Third Avenue

Monument Coordinate Table

POINT NO.	NORTHING	EASTING	DESCRIPTION
1	5000.00	5000.00	BLM BC IP
17	4998.31	6450.96	ALUM MON 2238-S
20	4571.88	6492.11	ALUM MON 2238-S
24	4234.80	6851.34	ALUM MON 2238-S
25	4291.12	6873.09	ALUM MON 2238-S
26	4221.08	6910.33	ALUM MON 2238-S
29	4066.30	6766.20	ALUM MON 2238-S
55	4278.74	6660.77	BLM/CAP 5032-S
56	4292.35	6600.85	BLM/CAP 5032-S
58	4328.50	6444.95	BLM/CAP 5032-S
59	4105.04	6620.15	BLM/CAP 5032-S
60	4119.01	6560.29	BLM/CAP 5032-S
62	4159.35	6404.56	BLM/CAP 5032-S
63	4153.43	6819.88	BLM/CAP 5032-S
100	4257.45	7053.32	ALUM MON 2238-S
101	4257.36	7117.25	ALUM MON 2238-S
102	4116.43	7362.97	ALUM MON 2238-S
103	4181.59	7357.58	ALUM MON 2238-S
104	3867.91	7362.41	ALUM MON 2238-S
106	3839.34	7422.35	BLM BC IP
121	4040.14	6840.51	ALUM MON 2238-S
122	4277.77	6932.21	BLM/CAP 5032-S
1211	4937.71	6928.79	BLM/CAP 5032-S
1222	4265.26	6719.23	BLM/CAP 5032-S
1223	4091.41	6678.59	BLM/CAP 5032-S
1227	4146.27	6443.47	BLM/CAP 5032-S
1228	4319.51	6493.93	BLM/CAP 5032-S
1241	4285.18	6485.15	BLM/CAP 5032-S

Control Spike Coordinate Table

POINT NO.	NORTHING	EASTING	DESCRIPTION
22	4260.37	6912.49	SPIKE
27	4060.29	6772.97	SPIKE
107	4140.91	7393.29	SPIKE
108	4354.11	6493.76	SPIKE
109	4410.27	6935.63	SPIKE
110	4196.36	7096.53	SPIKE
111	4760.24	7100.43	SPIKE
112	4117.18	6414.73	SPIKE
114	3826.56	7392.91	SPIKE
115	3943.19	7146.12	SPIKE
117	4977.33	7081.61	SPIKE
118	4052.42	7221.03	SPIKE
119	4581.32	6719.92	SPIKE



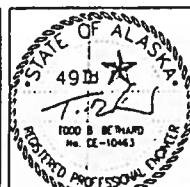
Notes

- The Basis of Elevations for this survey is an elevation of 93.02 feet for the aluminum pipe monument at the southeast corner of Block 3 (Point No. 20) as provided by a too gha representative on August 19, 2005. Only elevations provided on the Vertical Control Table on this drawing should be utilized as vertical control to relate to the design topographic survey completed during August 2005 by Monty Land Surveyors, Inc.
- The Basis of Coordinates for this survey is the BLM pipe monument at Cor No. 1 of U.S. Survey No. 197, on the north right of way line of Third Avenue and the centerline of Hill Street, assigned a coordinate of 5000.00 North and 5000.00 East.
- The Basis of Bearings for this survey is the BLM record true bearing of S 89°56'00" E, from Cor No. 1, U.S. Survey No. 397 to Cor No. 3, U.S. Survey No. 2754.
- The control spikes listed in the Control Spike Coordinate Table on this drawing should be utilized as horizontal control to relate to the design topographic survey completed during August 2005 by Monty Land Surveyors, Inc.
- Monument coordinates provided on the Monument Coordinate Table on this drawing are for the purpose of assisting too gha in avoiding them during further construction activities and should not be utilized for horizontal construction control.

RECORD DRAWING CERTIFICATE

THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.

NAME _____ DATE _____



Too'gha Inc.
Tanana Water and Sewer Extension

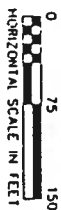
SURVEY CONTROL DIAGRAM

REVISION	BY	DATE

Project 13806
Date AUG 2006
Designed JU
Drawn JJ
Approved IB

ISSUED FOR CONSTRUCTION

Sheet No. **G4.0**
4 OF 29



UNIFIED SOILS CLASSIFICATION SYSTEM

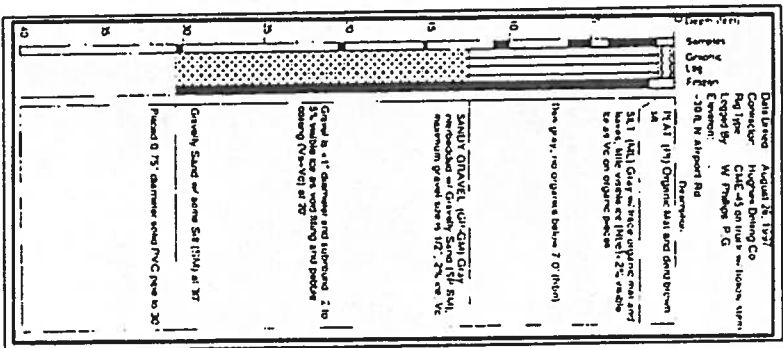
FINE GRAINED SOILS >50% finer than #200 sieve, 0.075 mm		COARSE GRAINED SOILS More than 50% larger than #200 sieve, >0.075 mm	
Plasticity Chart		Plasticity Chart	
MAJOR DIVISIONS		MAJOR DIVISIONS	
GRAVELS More than half of the coarse fraction is larger than #4 sieve size, > 4.75 mm		GRAVELS More than half of the coarse fraction is larger than #4 sieve size, > 4.75 mm	
Clean gravels with little or no fines		Clean gravels with little or no fines	
Gravels with more than 12% fines		Gravels with more than 12% fines	
SANDS More than half of the coarse fraction is smaller than #4 sieve size		SANDS More than half of the coarse fraction is smaller than #4 sieve size	
Clean sands with little or no fines		Clean sands with little or no fines	
Sands with more than 12% fines		Sands with more than 12% fines	
SILTS and CLAYS Liquid limit less than 50		SILTS and CLAYS Liquid limit less than 50	
SILTS and CLAYS Liquid limit greater than 50		SILTS and CLAYS Liquid limit greater than 50	
HIGHLY ORGANIC SOILS		HIGHLY ORGANIC SOILS	
SYMBOL	TYPICAL NAMES	SYMBOL	TYPICAL NAMES
GW	Well graded gravels, sandy gravel	GW	Well graded gravels, sandy gravel
GP	Poorly graded gravels, sandy gravel	GP	Poorly graded gravels, sandy gravel
GM	Silty gravels, silt sand gravel mixtures	GM	Silty gravels, silt sand gravel mixtures
GC	Clayey gravels, clay sand gravel mixtures	GC	Clayey gravels, clay sand gravel mixtures
SW	Well graded sand, gravelly sand	SW	Well graded sand, gravelly sand
SP	Poorly graded sands, gravelly sand	SP	Poorly graded sands, gravelly sand
SM	Silty sand, silt gravel sand mixtures	SM	Silty sand, silt gravel sand mixtures
SC	Clayey sand, clay gravel sand mixtures	SC	Clayey sand, clay gravel sand mixtures
ML	Inorganic silt and very fine sand, rock flour	ML	Inorganic silt and very fine sand, rock flour
CL	Inorganic clay, gravelly and sandy clay, silty clay	CL	Inorganic clay, gravelly and sandy clay, silty clay
OL	Organic silts and clay of low plasticity	OL	Organic silts and clay of low plasticity
MH	Inorganic silt	MH	Inorganic silt
CH	Inorganic clay, fat clay	CH	Inorganic clay, fat clay
OH	Organic silt and clay of high plasticity	OH	Organic silt and clay of high plasticity
PT	Peat and other highly organic soil	PT	Peat and other highly organic soil

ICE CLASSIFICATION SYSTEM

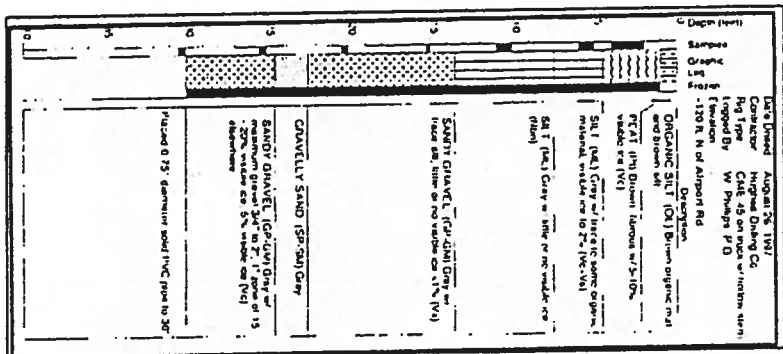
GROUP	ICE VISIBILITY	DESCRIPTION		SYMBOL	
		Poorly bonded or friable	Well bonded	NI	Nb
N	Segregated ice not visible by eye	No excess ice	Excess microscopic ice	Nbn	Nbe
V	Segregated ice is visible by eye and is one inch or less in thickness	Individual ice crystals or inclusions	Ice coatings on particles	Vx	Vc
		Random or irregularly oriented ice	Stratified or distinctly oriented ice	Vr	Vs
ICE	Ice greater than one inch in thickness	Ice with soil inclusions	Ice without soil inclusions	ICE + soil type	ICE

source:
TESTHOLE LOCATION AND CLASSIFICATION INFORMATION IN EN
FROM ANHW 100 CHA, INC. - TANANA, ALASKA WATER
DISTRIBUTION & WASTEWATER COLLECTION SYSTEM ISSUED FOR
CONSTRUCTION PLAN SET. TYPICAL FOR G6.1, G6.2.

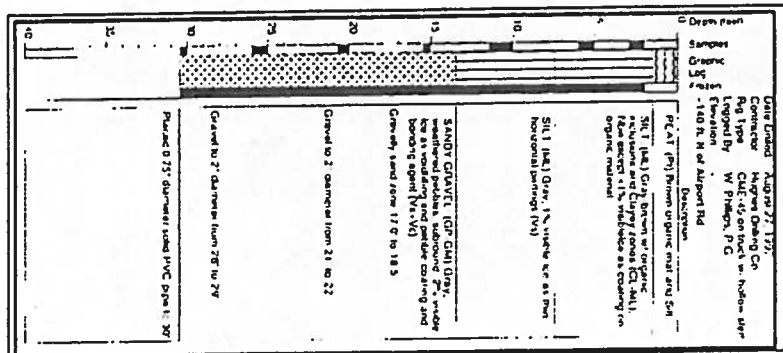
ISSUED FOR CONSTRUCTION



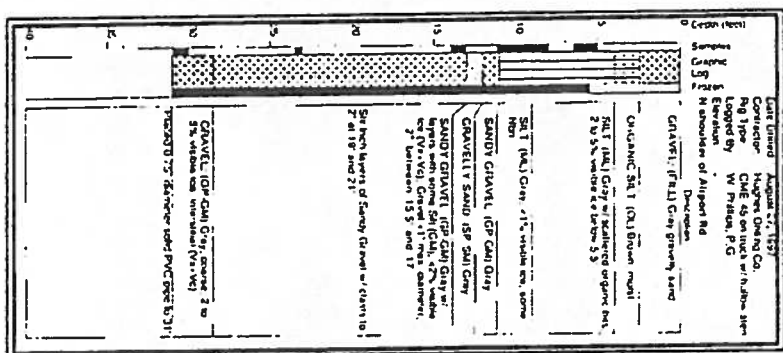
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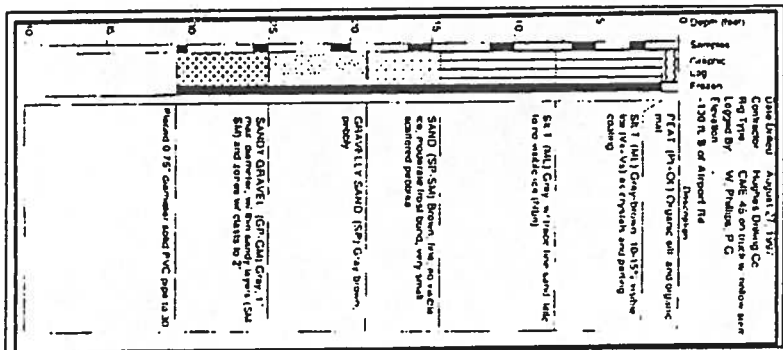
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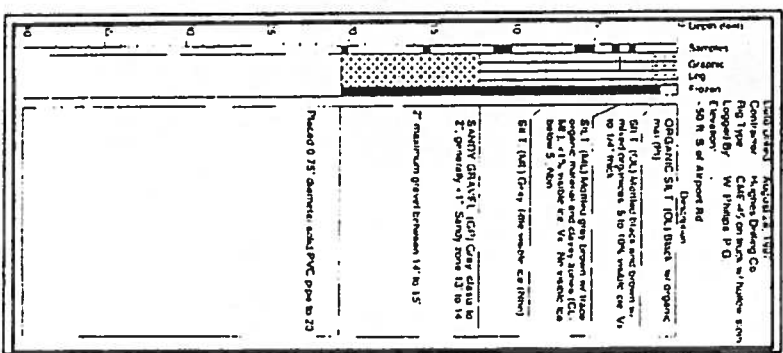
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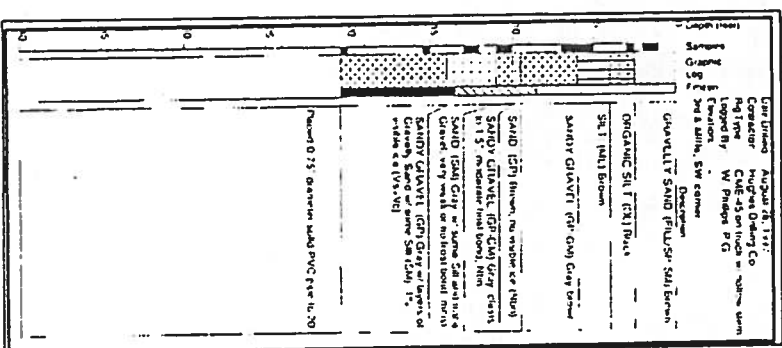
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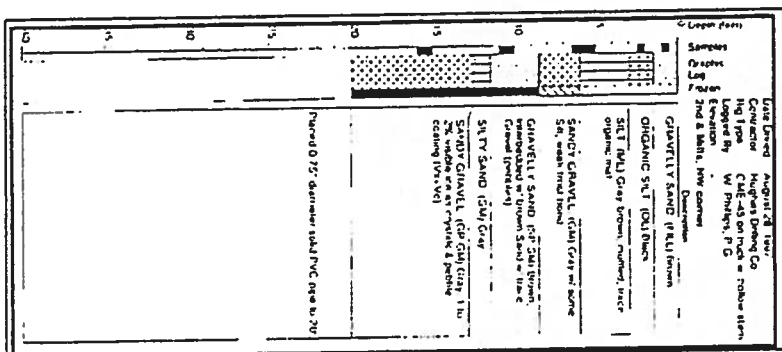
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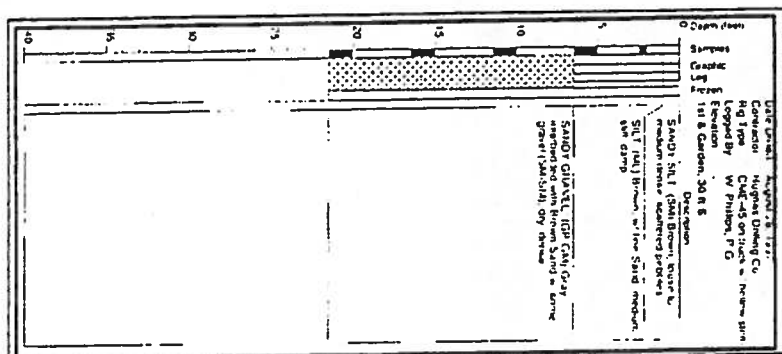
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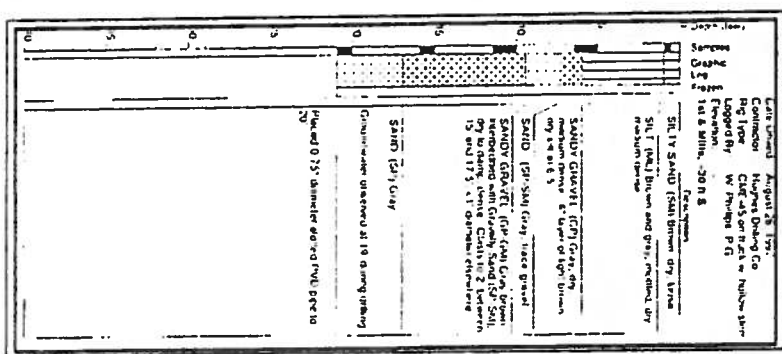
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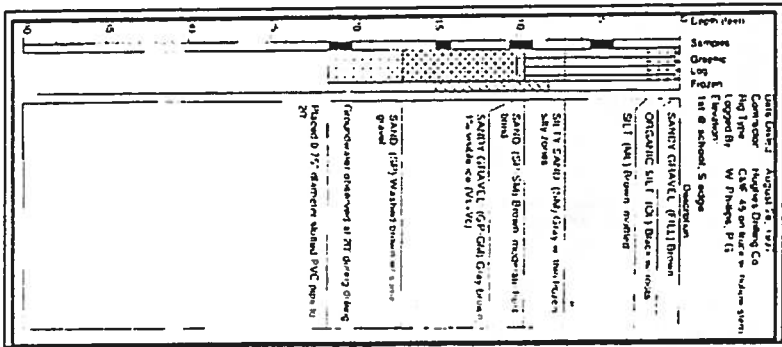
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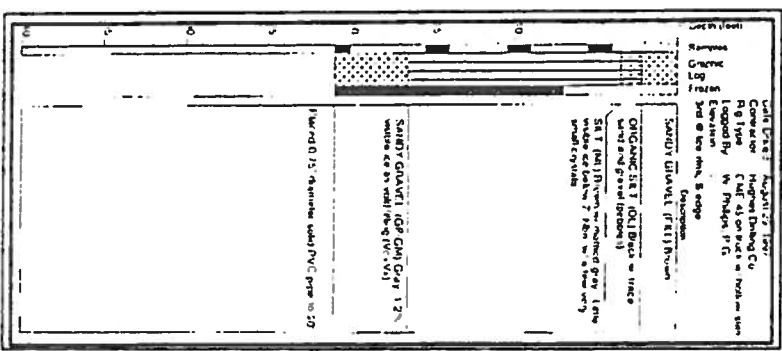
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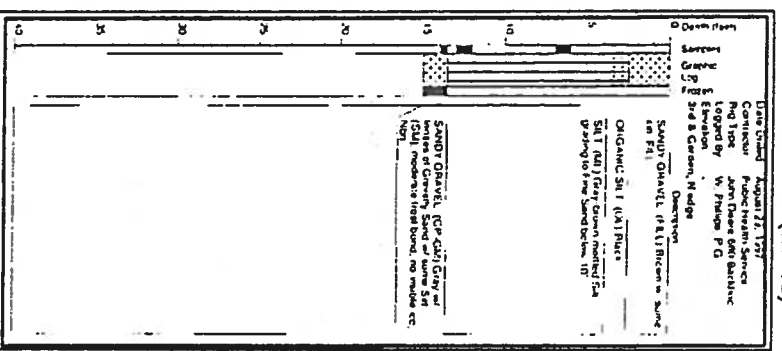
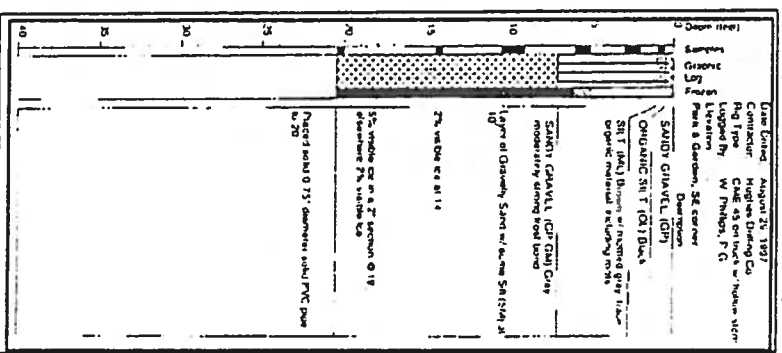
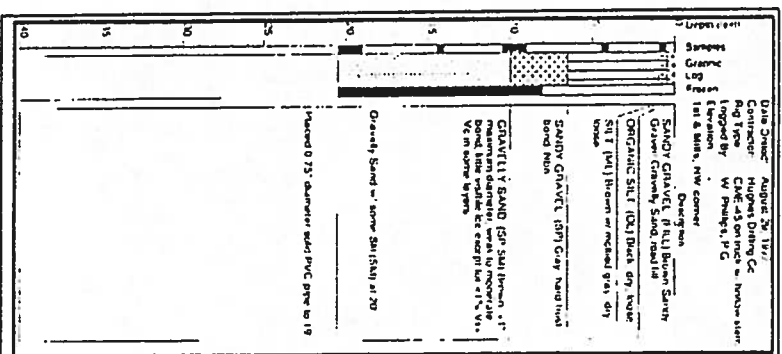
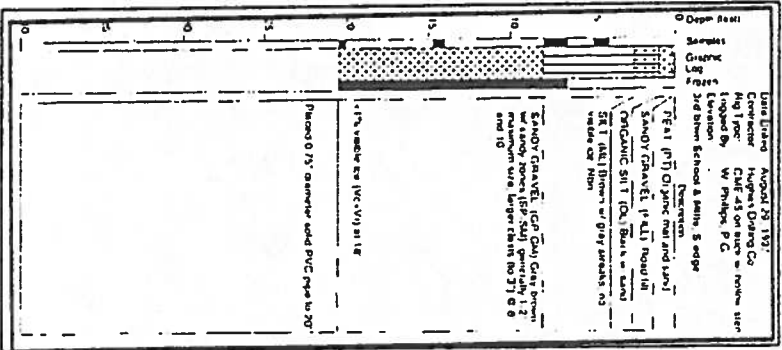
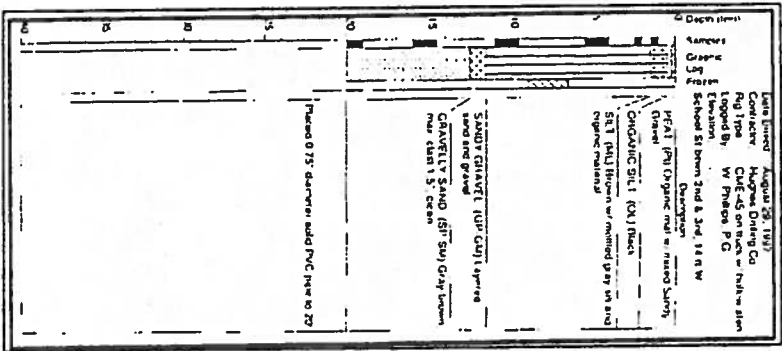
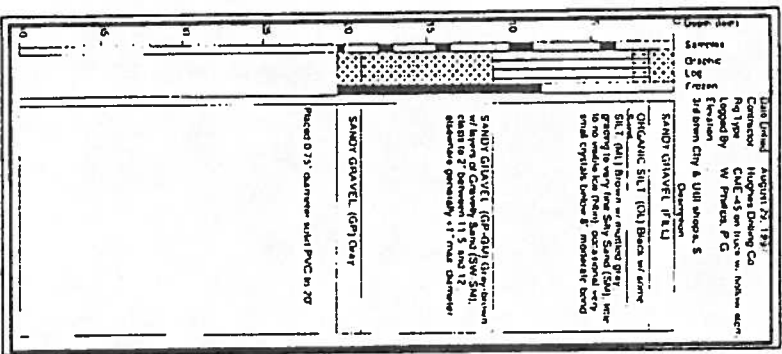
TEST HOLE 10 (TH-10)



TEST HOLE 11 (TH-11)



TEST HOLE 12 (TH-12)



ISSUED FOR CONSTRUCTION

Project No. 13806 Date AUG 2006 Designed JC Drawn JJ Approved TB	REVISION BY DATE	Too'gha Inc. Tanana Water and Sewer Extension SOIL TEST HOLE LOGS (TH13 - TH18)	HDR HDR Alaska, Inc.	STATE OF ALASKA 49th 1000 B. BEYOND REGISTERED PROFESSIONAL ENGINEER	VILLAGE SAFE WATER	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME DATE
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HOUSE NO.	OWNER/RESIDENT	PROPOSED SCOPE OF WORK
1	J. CLIFTON ELLER	PLUMBING/SERVICES COMPLETED IN 2007
2	PATRICIA & DAVID BOWEN	PLUMBING/SERVICES COMPLETED IN 2007
3	MARTY SCHARF	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
4	PATRICK MOORE	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
5	CHRISTIAN RICHTA	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
6	ARLAND & ZELMA DICK	NOT OCCUPIED - NO PLUMBING/SERVICE CONSTRUCTION PROPOSED
7	AMERON-NEIGHA-AR-	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
8	TANANA TRIBAL COUNCIL (TEEN CENTER)	HOME NOT IN CONDITION TO PLUMB
9	TANANA TRIBAL COUNCIL (COMMUNITY HALL)	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
10	JOSEPHINE ROBERTS	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
11	NOT SERVED	NOT OCCUPIED - NO PLUMBING/SERVICE CONSTRUCTION PROPOSED
12	ARVIN KANGAS	NOT OCCUPIED - NO PLUMBING/SERVICE CONSTRUCTION PROPOSED
13	BUILDING TO BE TORN DOWN	NOT OCCUPIED - NO PLUMBING/SERVICE CONSTRUCTION PROPOSED
14	BUILDING TO BE TORN DOWN	NOT OCCUPIED - NO PLUMBING/SERVICE CONSTRUCTION PROPOSED
15	REHAB-GRANT-AR-	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
16	REGINA GRANT	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
17	THOMAS ROBERTS	PLUMBING/SERVICE CONSTRUCTION PROPOSED IN 2008
18	GEORGEANNA WALLACE	NOT OCCUPIED - NO PLUMBING/SERVICE CONSTRUCTION PROPOSED
19	CHARLES CAMPBELL	NO PLUMBING/SERVICE CONSTRUCTION PROPOSED
20	TOM HUSLOP	NOT OCCUPIED - NO PLUMBING/SERVICE CONSTRUCTION PROPOSED

④ - HOME SERVED, # - HOME NOT SERVED

2008 PROPOSED SCOPE OF WORK

- 9 EACH WATER AND SEWER SERVICE LINE AND HOUSE PLUMBING
- 2,350 LF 4" ARCTIC WATERMAIN
- 1,850 LF 8" ARCTIC SEWER MAIN

PROPOSED 2008 WATER AND SEWER CONSTRUCTION WITH ACTIVATION AT A LATTER DATE
NOT CONSTRUCTED

PROPOSED WATER AND SEWER SERVICE LINE ROUTING

PROPOSED W/S SERVICE IN 2008
PROPOSED W/S SERVICE IN 2008

LEGEND
- - - WATER PIPE
- - - SEWER PIPE
- - - SEWER FLOW DIRECTION
NOTE: WATER FLOWS IN COUNTER-CLOCKWISE DIRECTION



RECORD DRAWING

Too'gha Inc.
Tanana Water and Sewer Extension
2008 UTILITY CONSTRUCTION

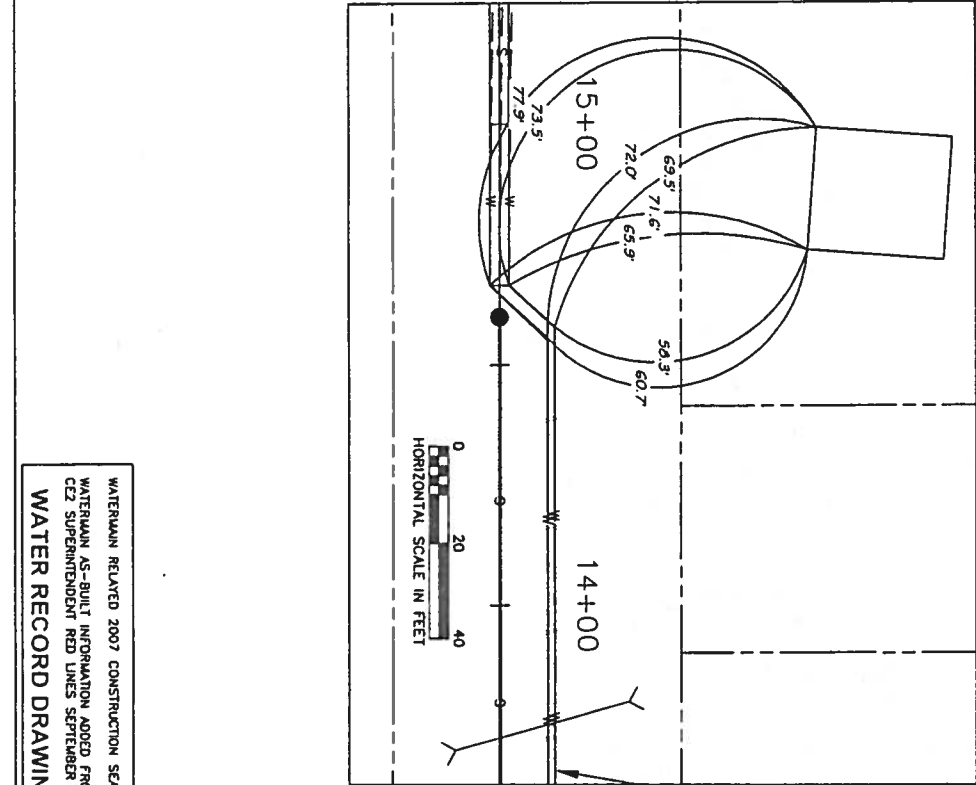
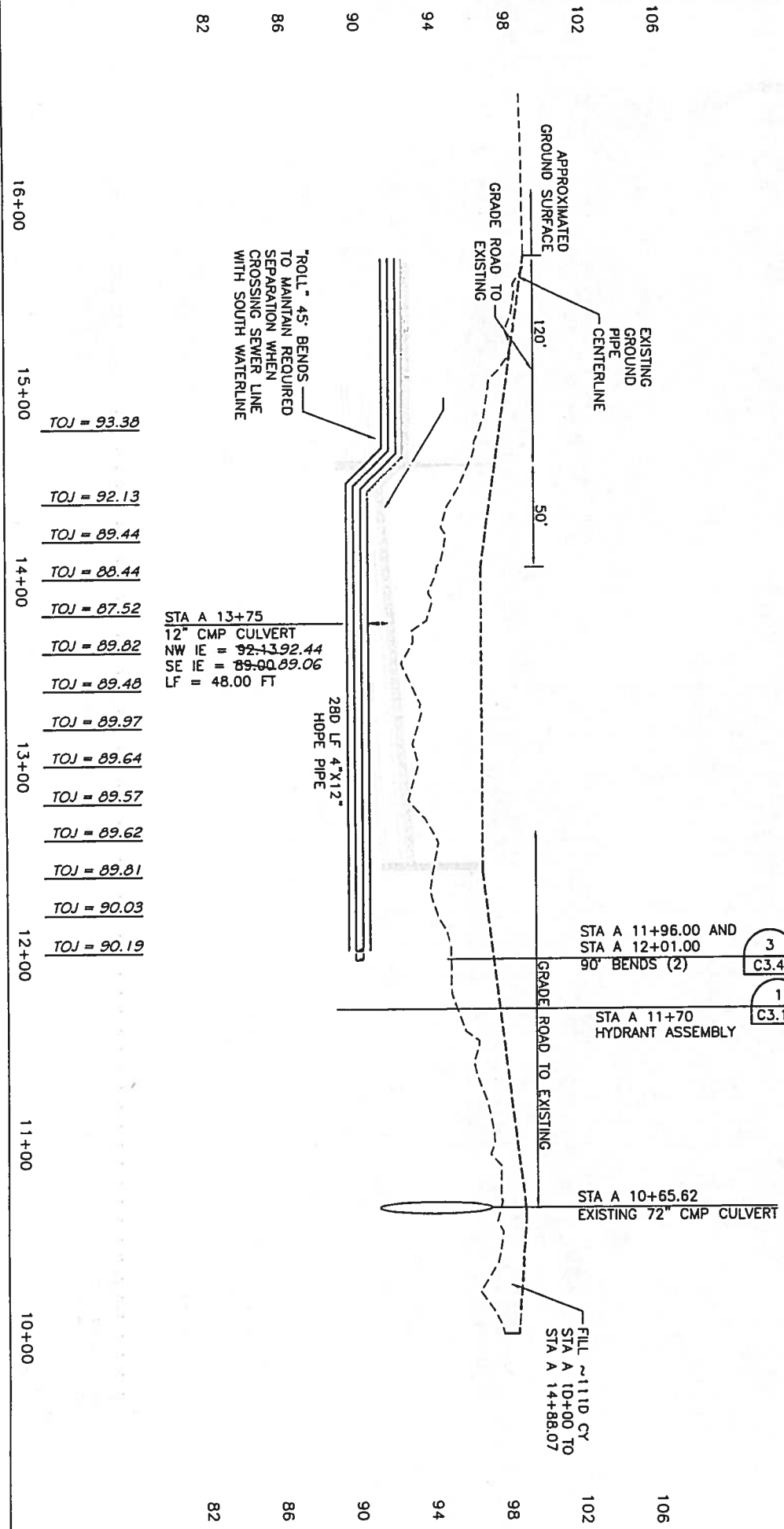
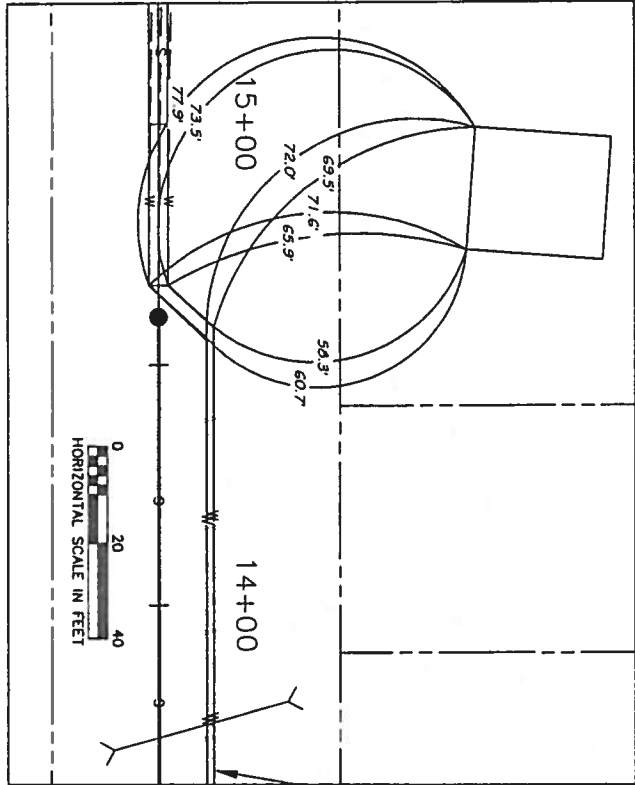
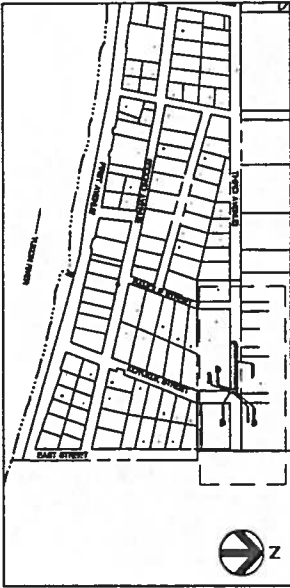
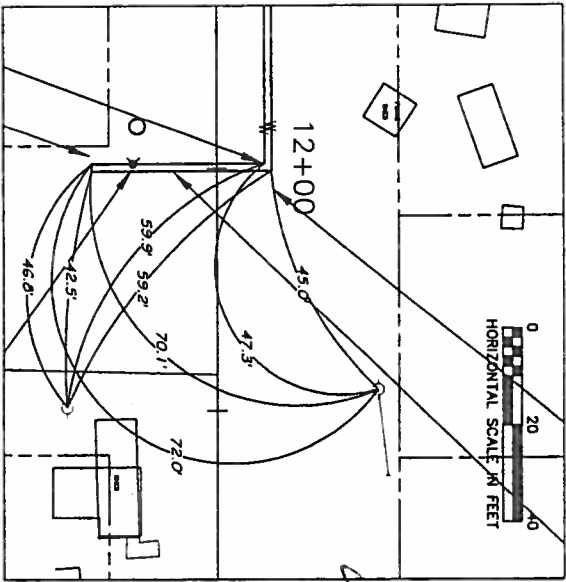
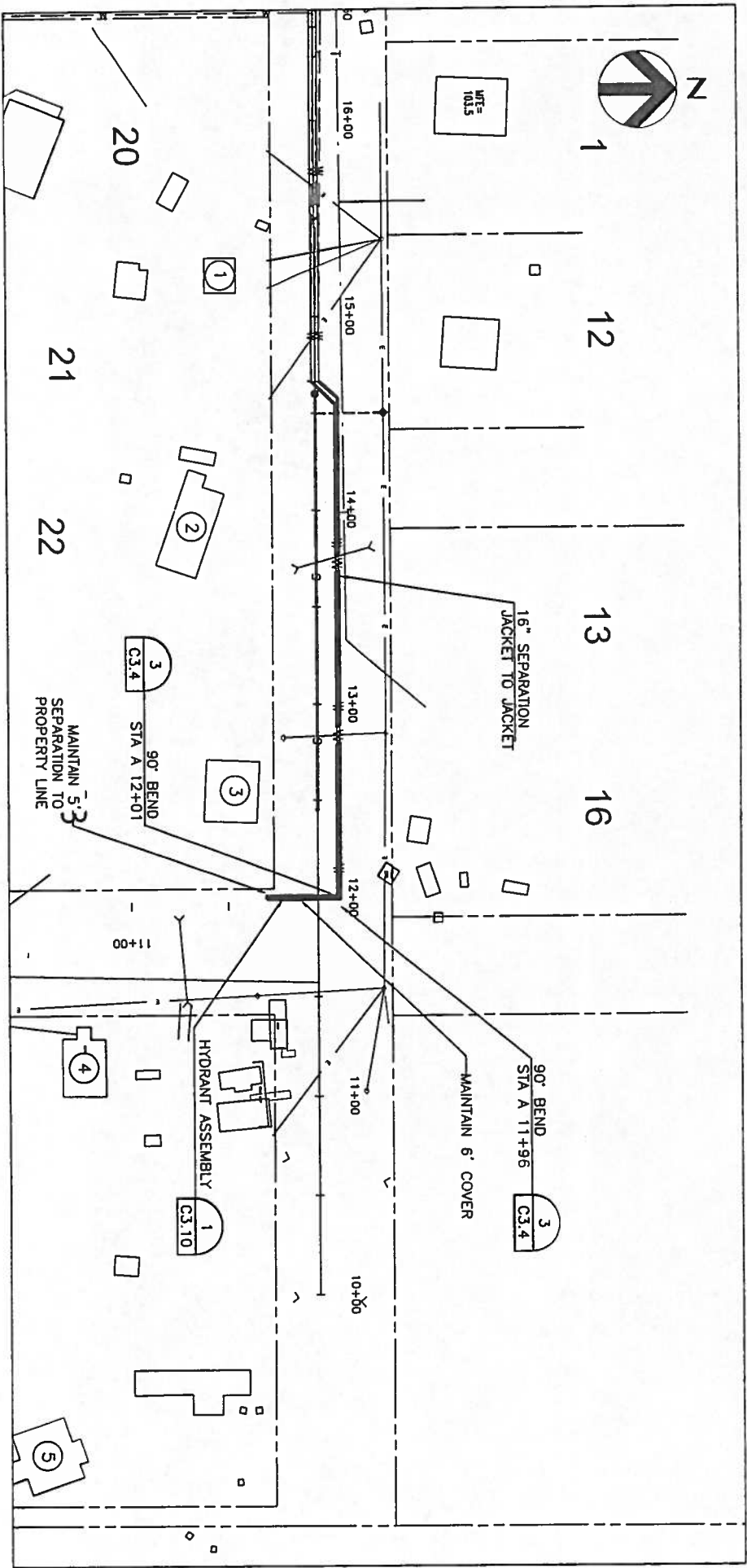


RECORD DRAWING CERTIFICATE
THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.
NAME: [Signature] DATE: 1/29/12

REVISION	BY	DATE
REV 1	JJ	8/21/06
PARTIAL AS-BUILT	JJ	6/07
2008 AS-BUILT	LAW	5/09

Project No. 13806	Date OCT 2006	Designed JG	Drawn JJ	Approved TB
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Sheet No. C1.0	OF SHEET
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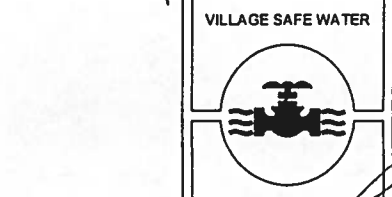


WATERMAIN AS-BUILT INFORMATION ADDED FROM
CE2 SUPERINTENDENT RED LINES SEPTEMBER 2007.
WATER RECORD DRAWING

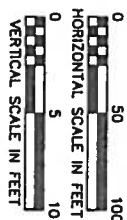
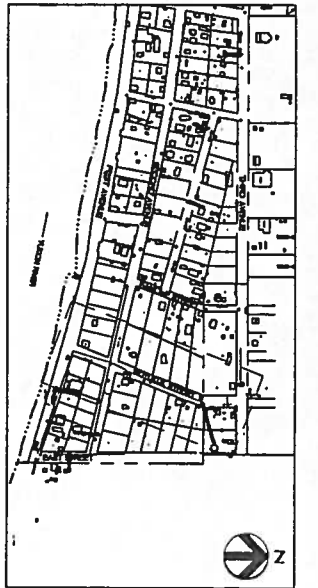
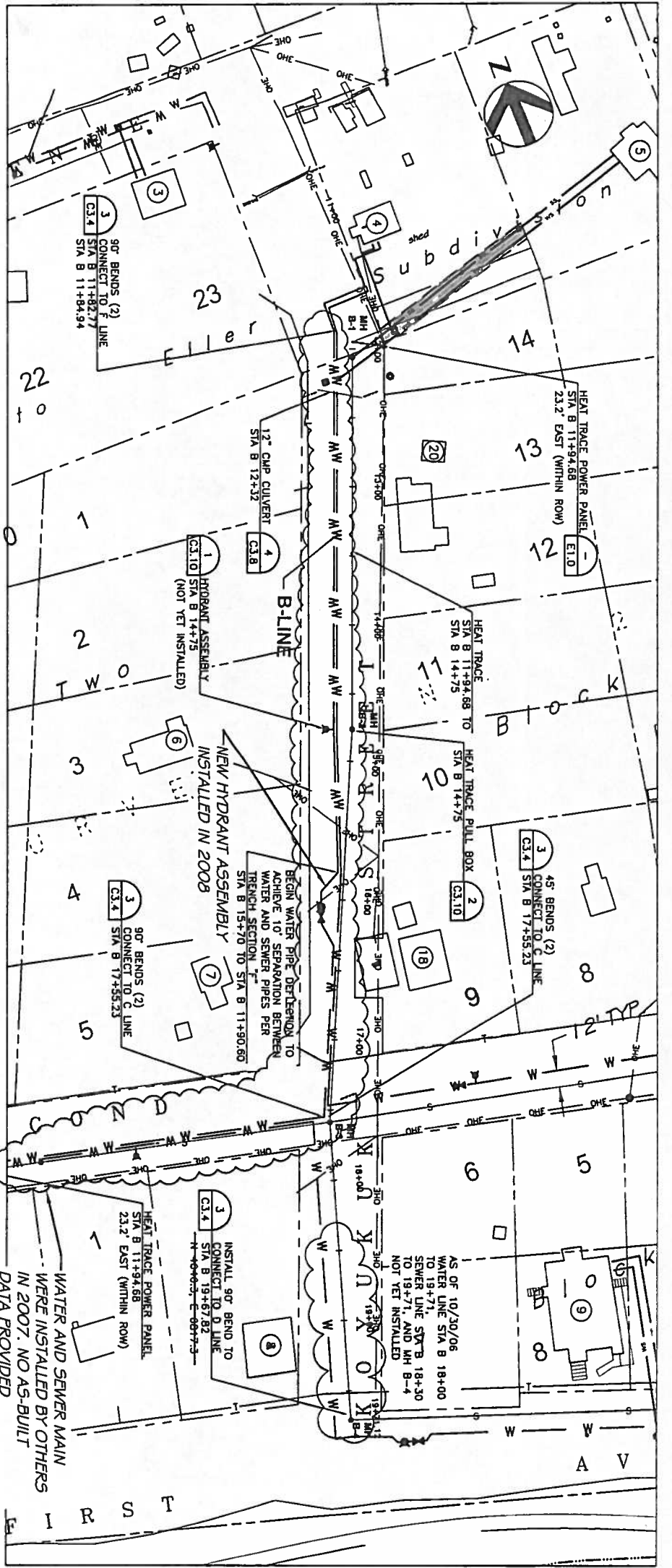
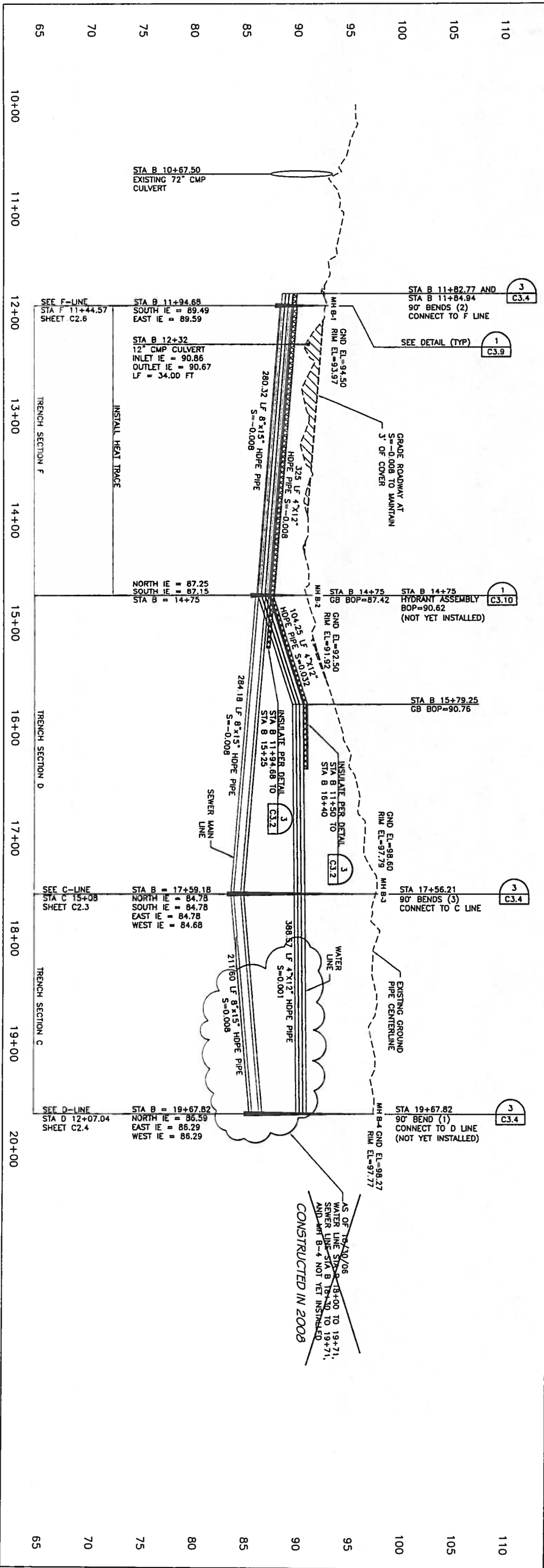
Project No.	13806
Date	JUNE 2008
Designed	JG
Drawn	JJ
Approved	TB
Sheet No.	C2.1w
Sheet	9 of

REVISION	BY	DATE
REV 1	JJ	8/21/06
PARTIAL AS-BUILT	JJ	6/07
ADDITIONAL AS-BUILT	CE2	9/07

Too'gha Inc.
Tanana Water and Sewer Extension
A-LINE
WATER AND SEWER
PLAN AND PROFILE



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THESE DRAWINGS REFLECT
RECORDED INFORMATION OBTAINED
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INFORMATION PROVIDED HEREIN
IS ACCURATE TO THE BEST OF
MY KNOWLEDGE.
NAME: *[Signature]* DATE: 1/27/12

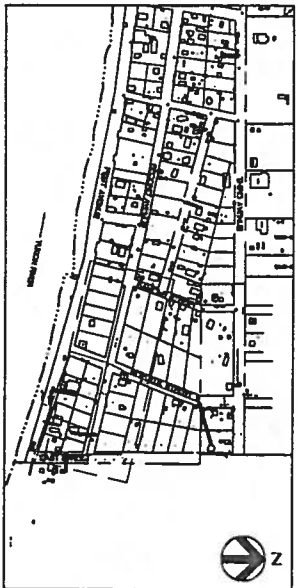
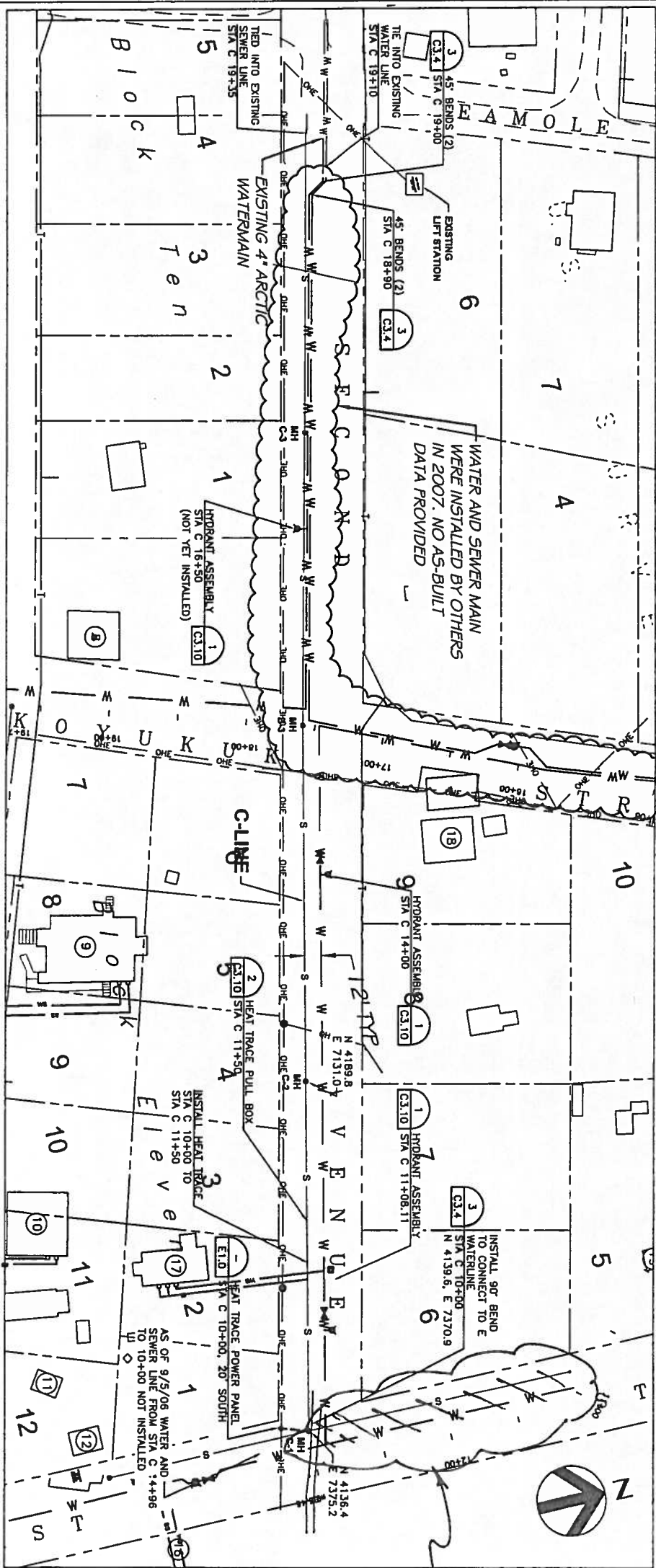


REVISION			
REV	BY	DATE	
REV 1	JJ	8/21/06	
PARTIAL AS-BUILT	JJ	6/07	
2008 AS-BUILT	LAW	5/09	

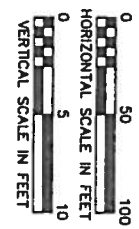
Project No.	13806
Date	JUNE 2008
Designed	JG
Drawn	JJ
Approved	TB

Too'gha Inc.	
Tanana Water and Sewer Extension	
B-LINE	
WATER AND SEWER	
PLAN AND PROFILE	

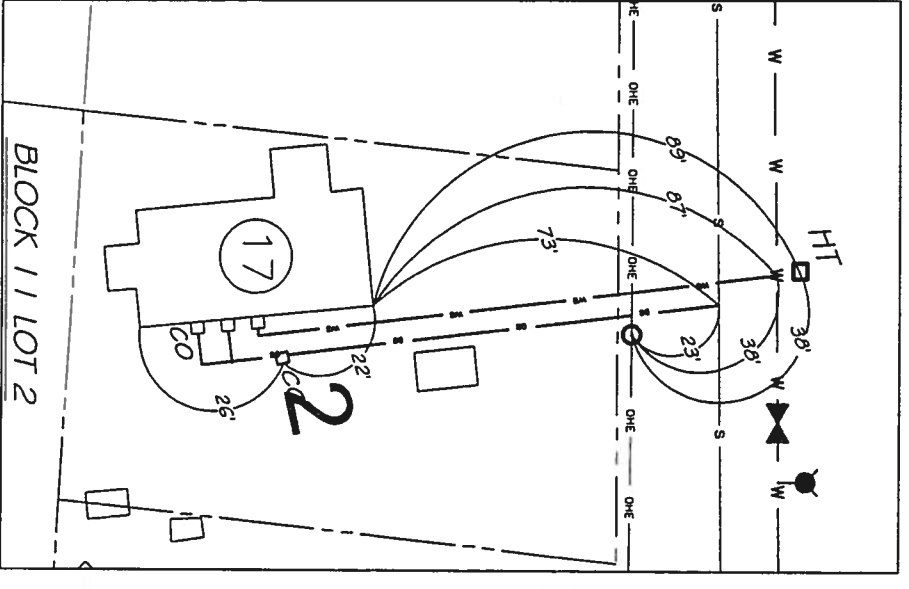
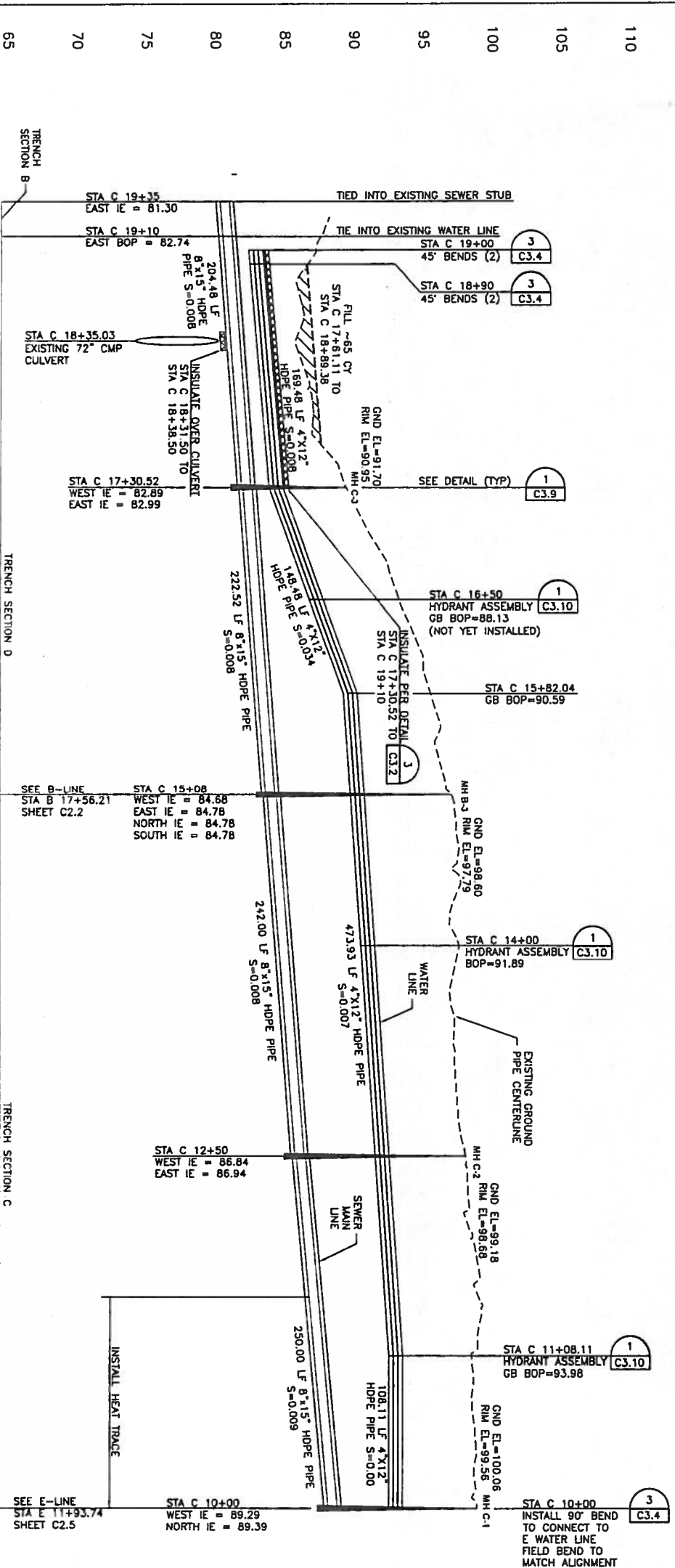
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THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.	
NAME	12712
DATE	



WATER AND SEWER
NOT INSTALLED IN
THIS AREA



RECORD DRAWING



110
105
100
95
90
85
80
75
70
65

110
105
100
95
90
85
80
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70
65

REVISION			BY	DATE
PARTIAL AS-BUILT	JJ	6/07		
2008 AS-BUILT	LAW	5/09		

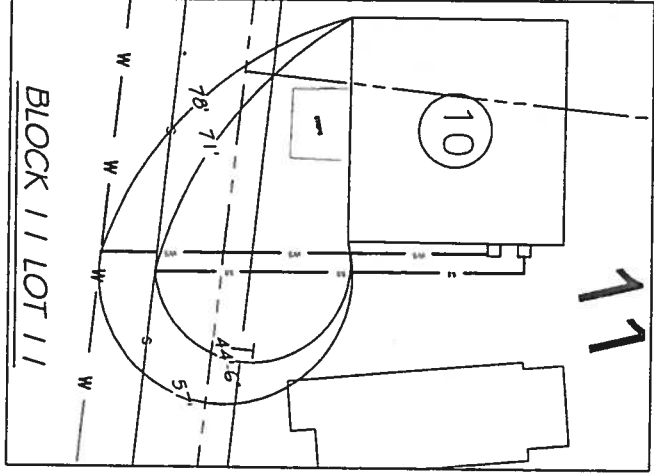
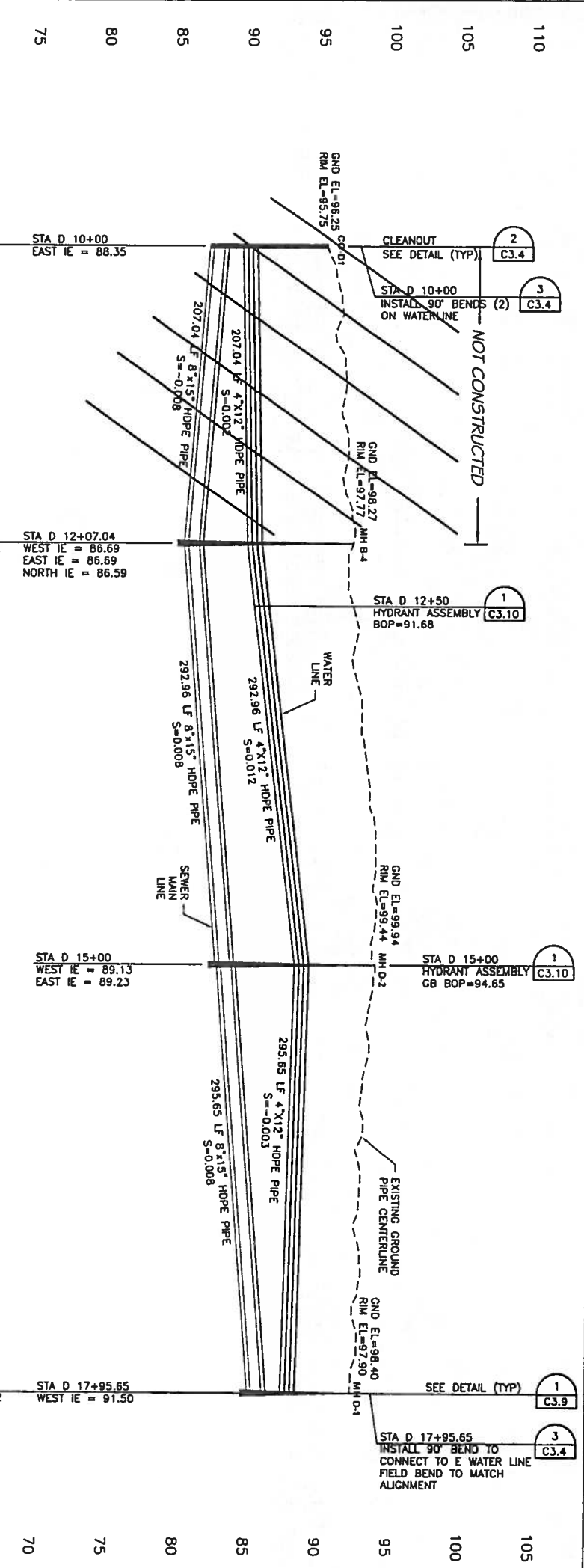
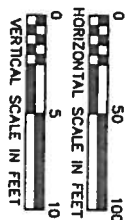
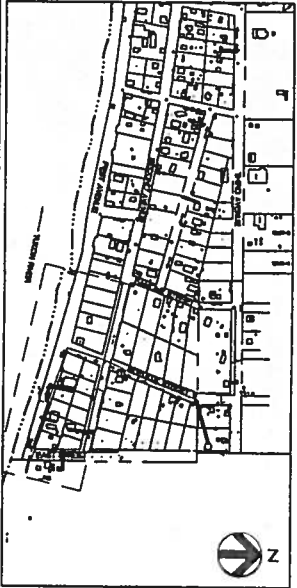
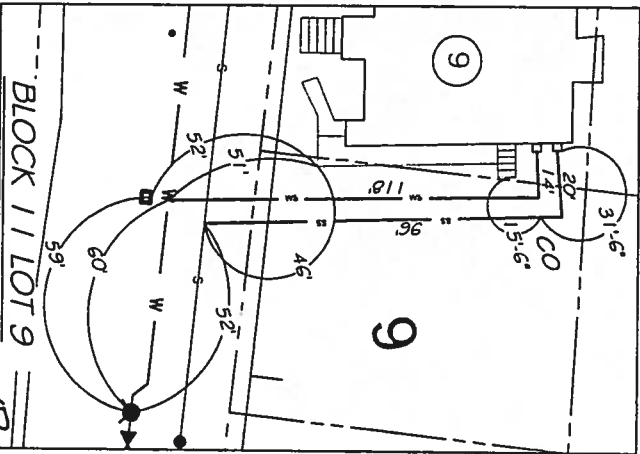
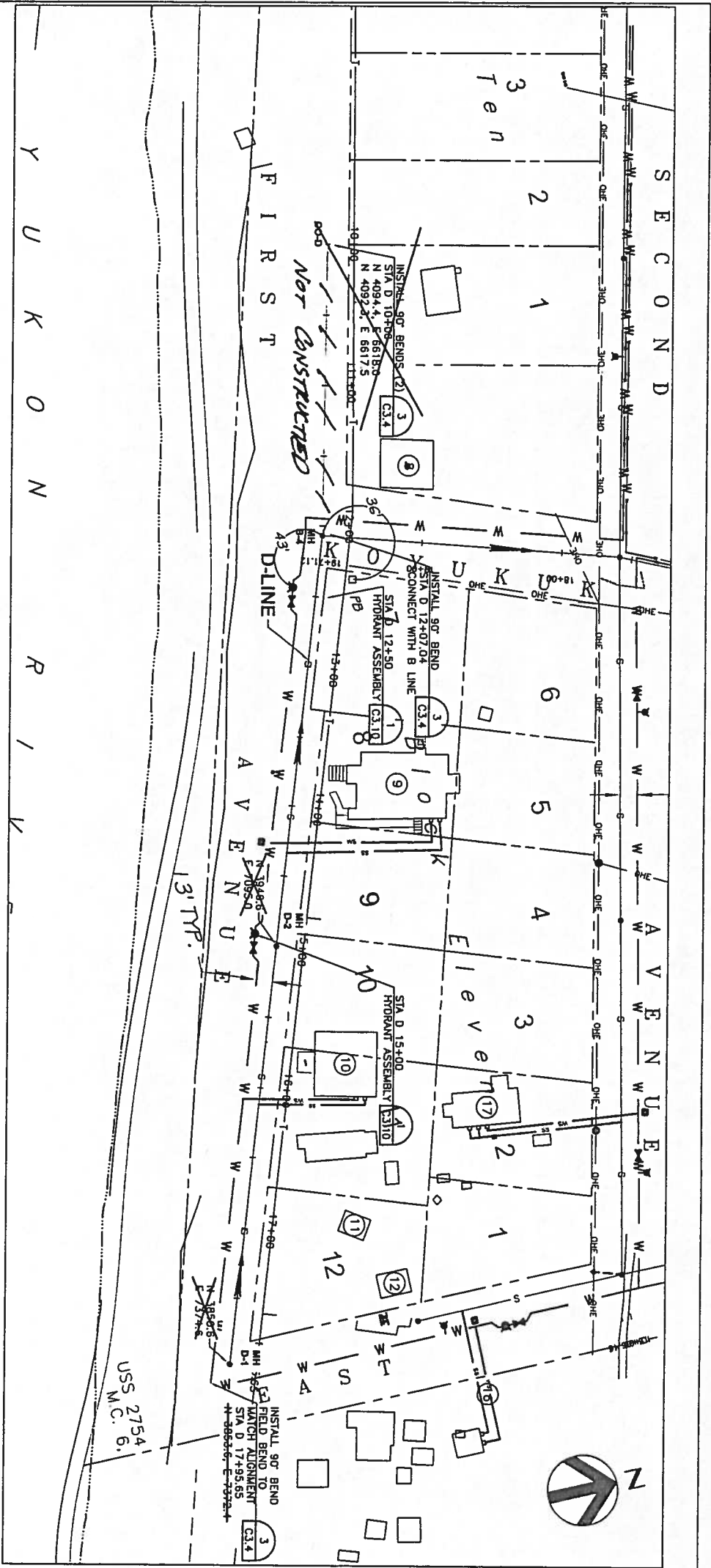
Project No.	13806
Date	JUNE 2008
Designed	JG
Drawn	JJ
Approved	TB

Too'gha Inc.	
Tanana Water and Sewer Extension	
C-LINE	
WATER AND SEWER	
PLAN AND PROFILE	

HDR	
HDR Alaska, Inc.	

VILLAGE SAFE WATER	
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RECORD DRAWING CERTIFICATE	
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NAME	DATE



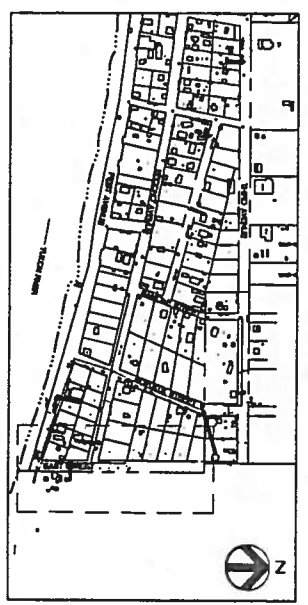
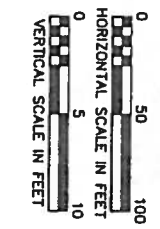
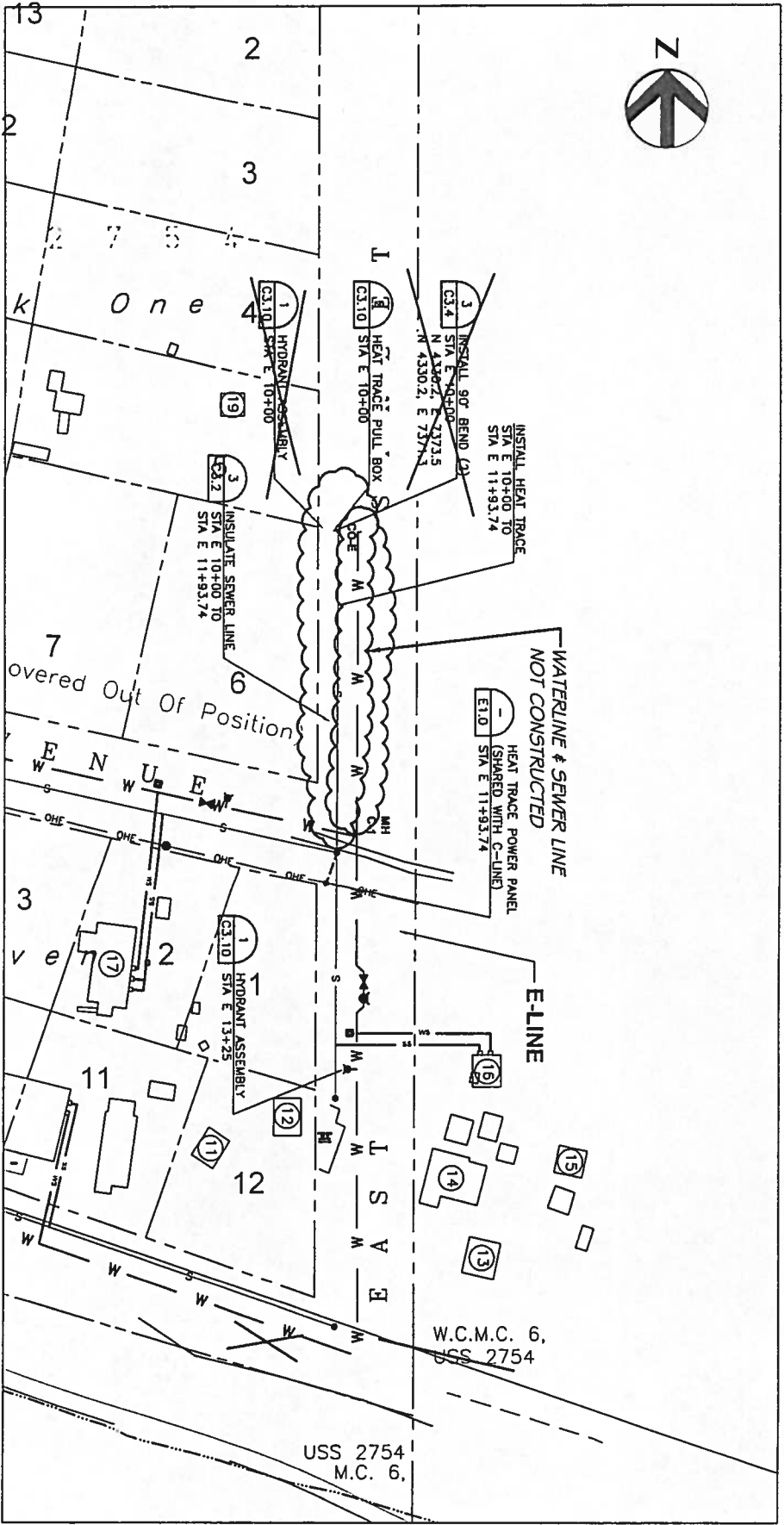
Project No. 13806	REVISION	BY	DATE
Date OCT 2006	2008 AS-BUILT	LAW	5/09
Designed JC			
Drawn JU			
Approved TB			

Sheet No. C2.4	Sheet OF
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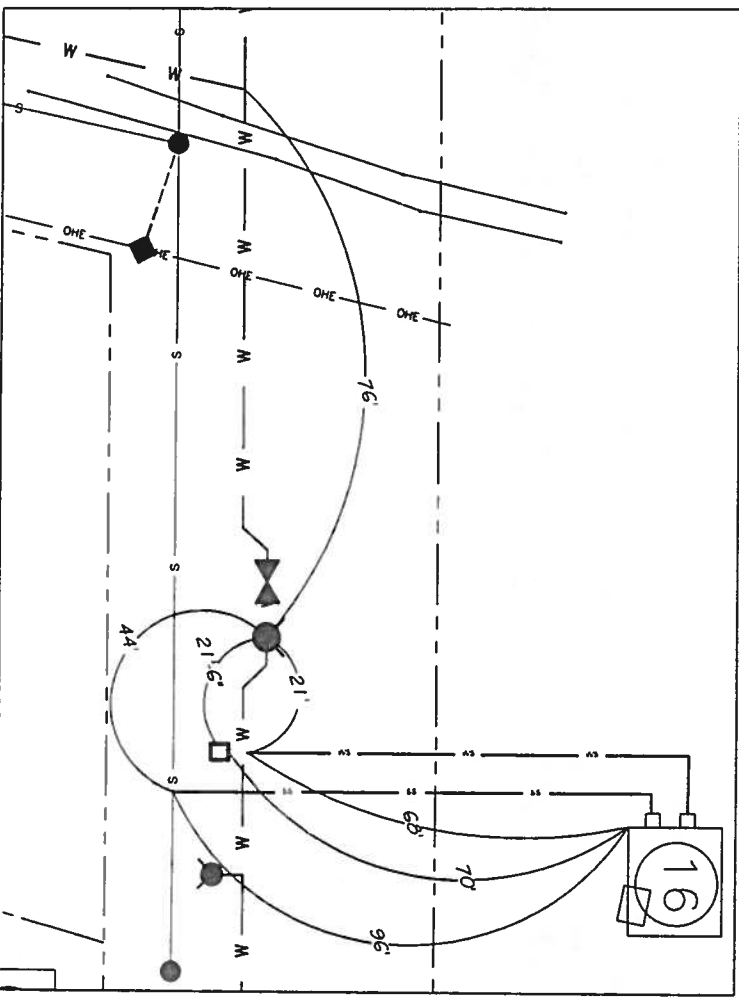
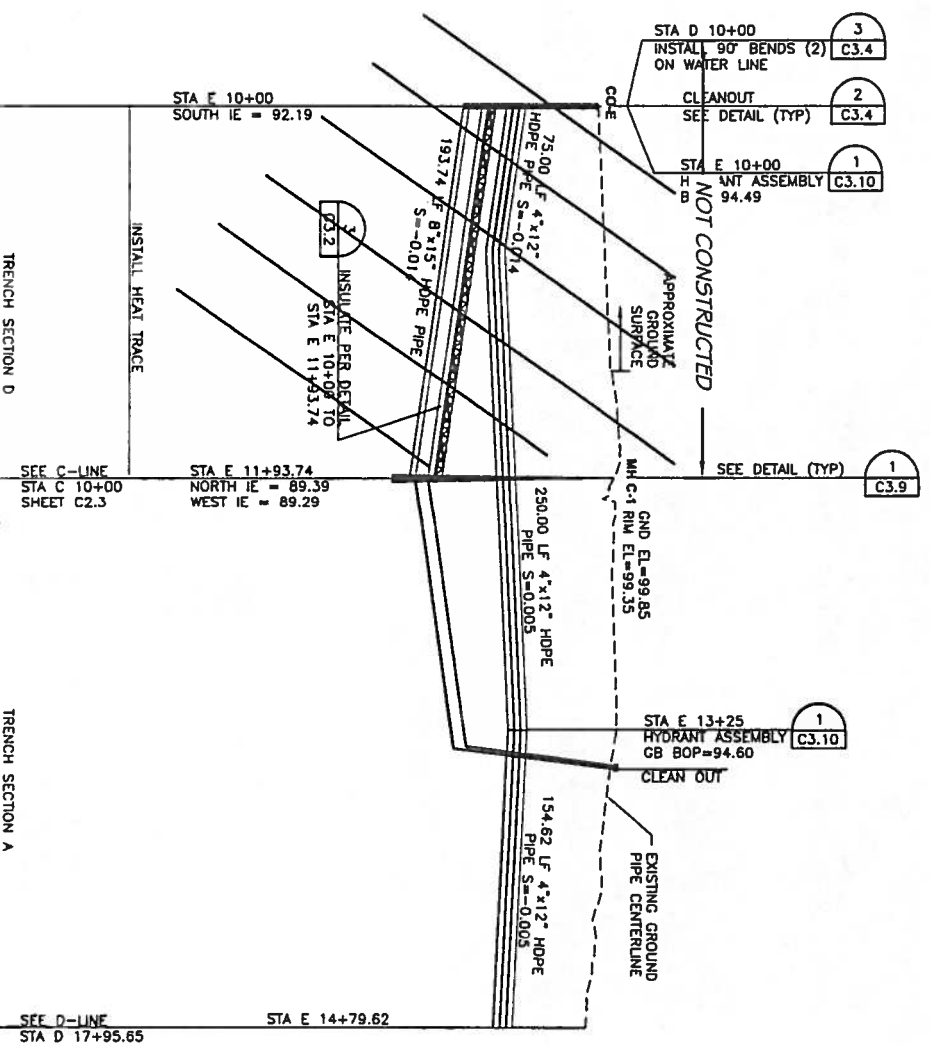
Too'gha Inc.	Tanana Water and Sewer Extension
D-LINE	WATER AND SEWER
PLAN AND PROFILE	

HDR	HDR Alaska, Inc.
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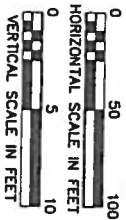
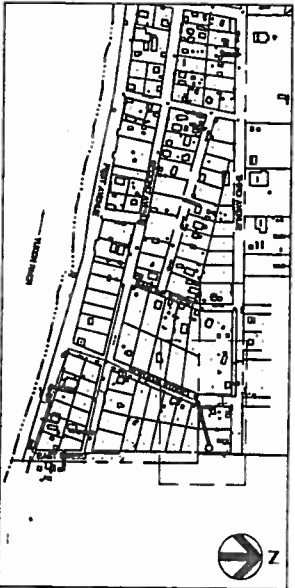
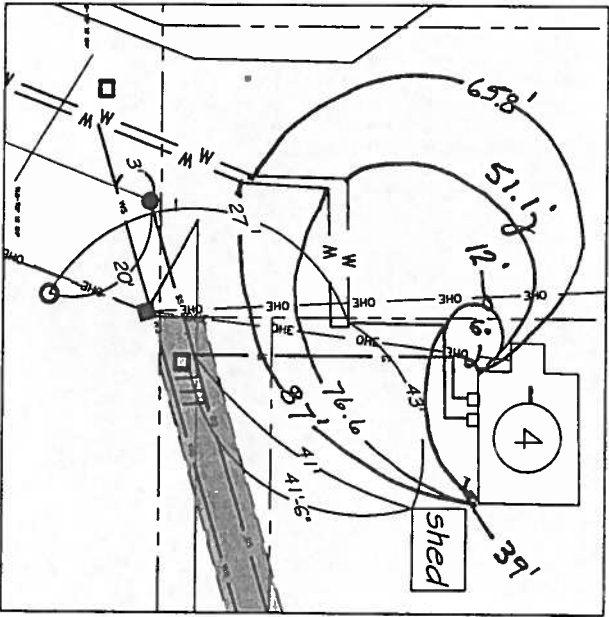
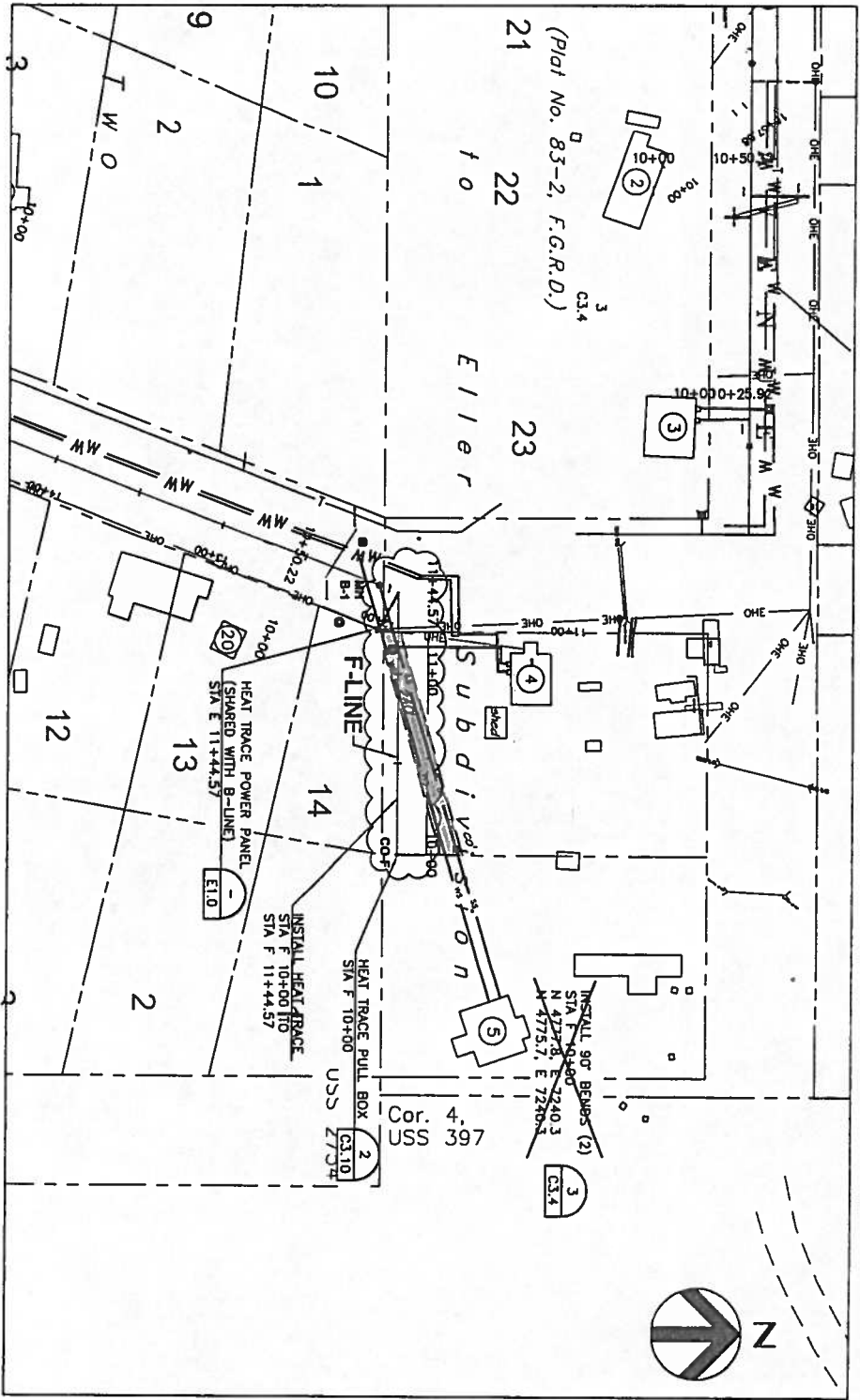
VILLAGE SAFE WATER	RECORD DRAWING CERTIFICATE
	THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.
	NAME DATE



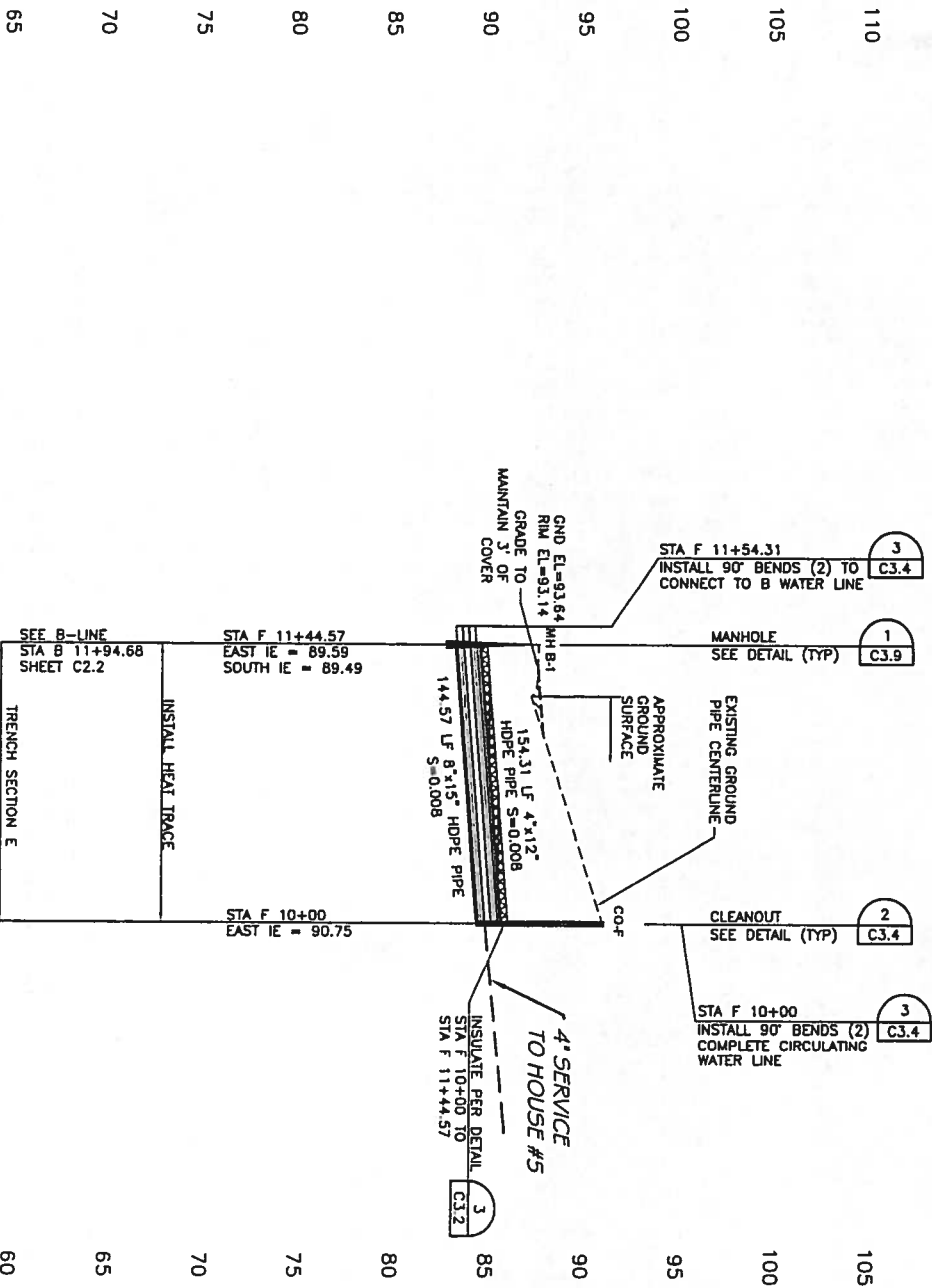
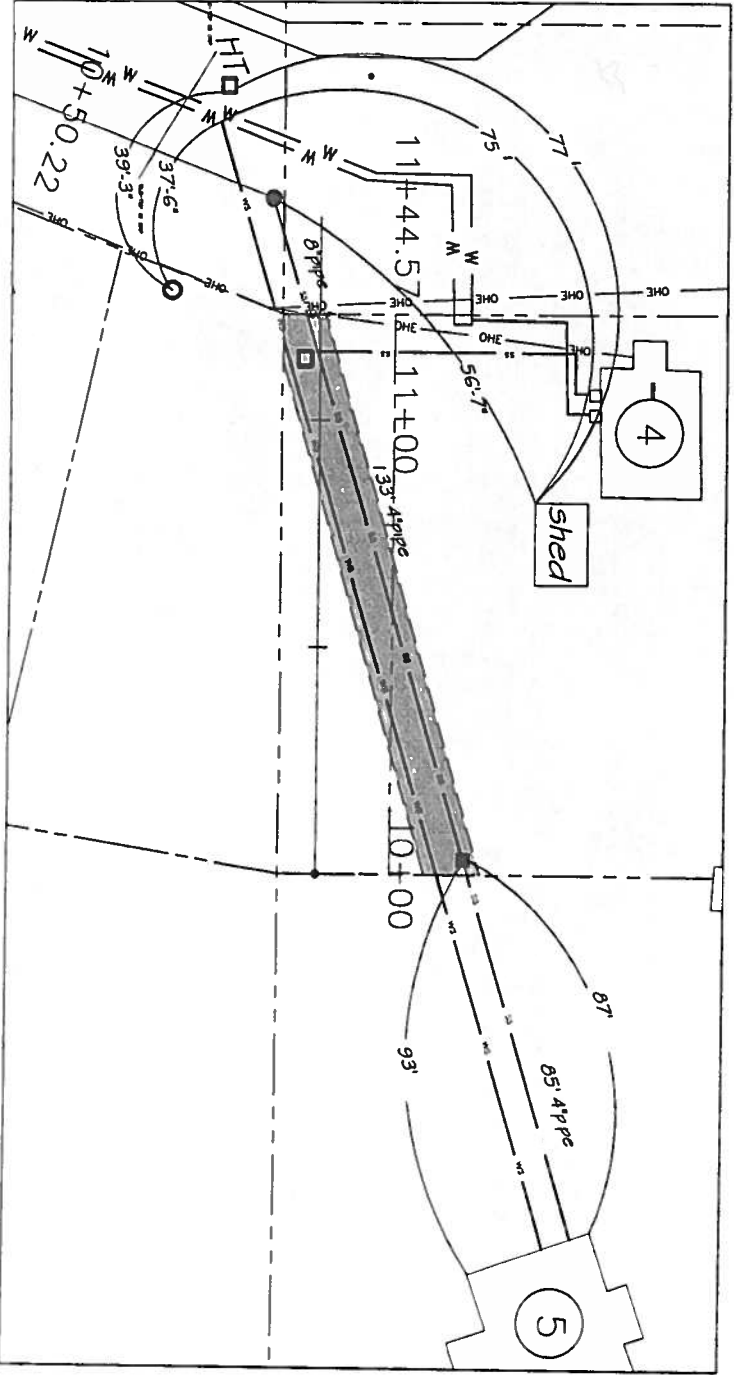
- NOTES
1. CONTRACTOR TO FIELD LOCATE SERVICE CONNECTIONS
 2. WATER LINE JOINTS WILL BE A MINIMUM OF 9' FROM SEWER LINE JOINTS.



Project No. 13806 Date OCT 2006 Designed JC Drawn JJ Approved TB	REVISION	BY	DATE
	2008 AS-BUILT	LAW	5/09
Too'gha Inc. Tanana Water and Sewer Extension			
E-LINE WATER AND SEWER PLAN AND PROFILE			
VILLAGE SAFE WATER			
RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME DATE 1/24/12			



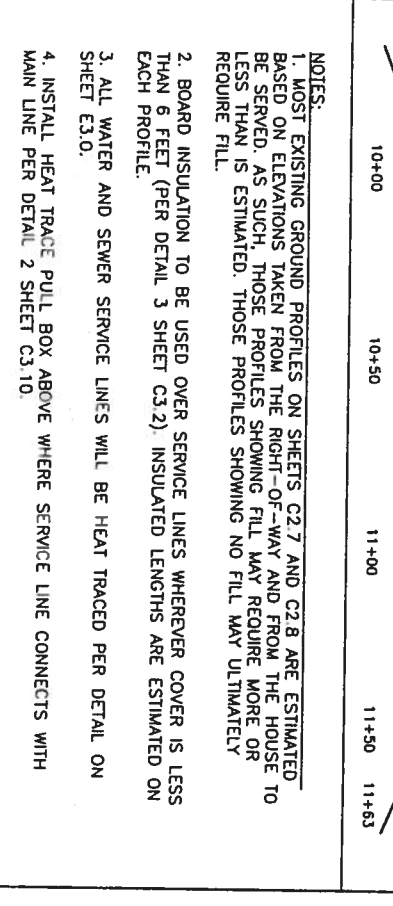
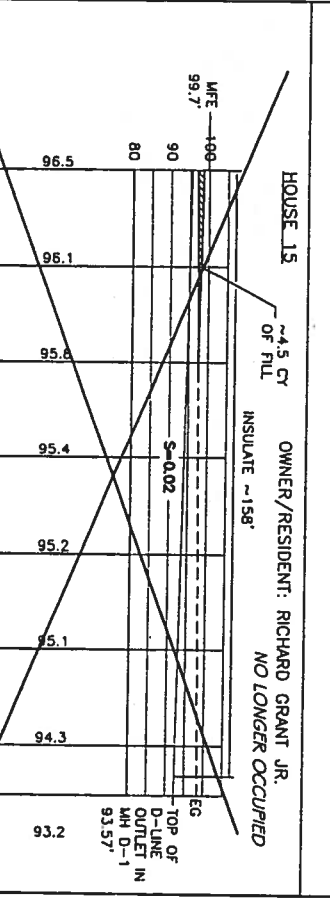
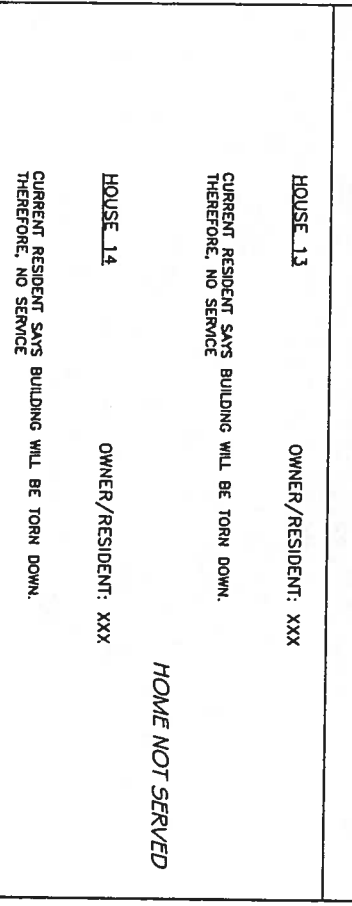
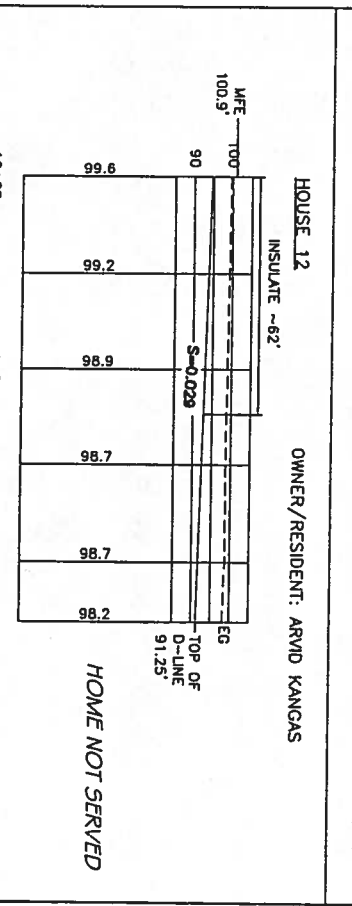
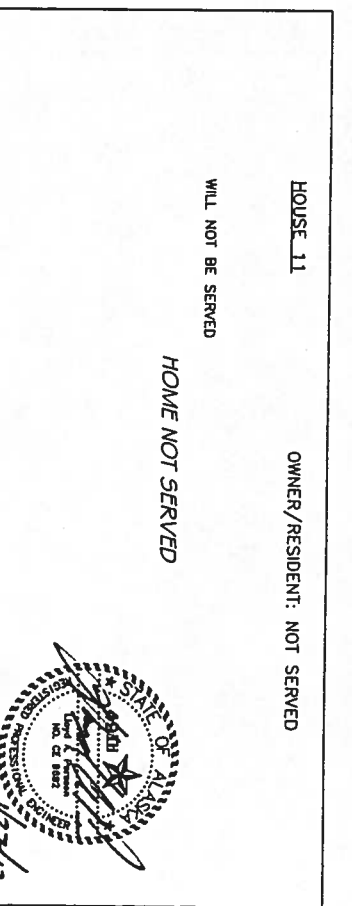
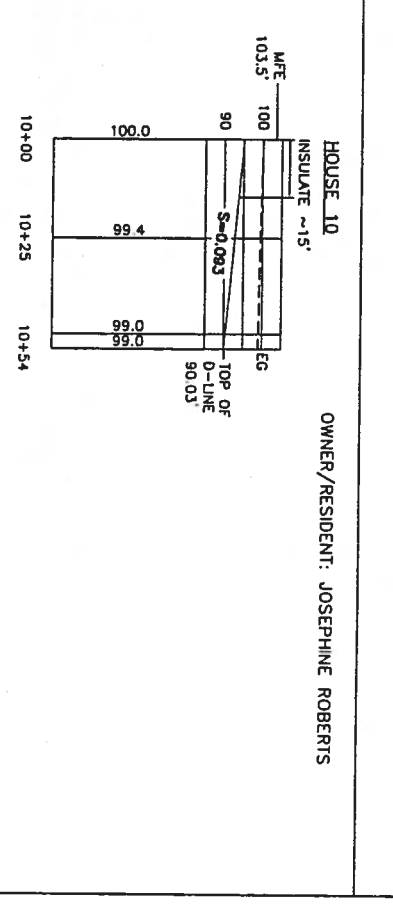
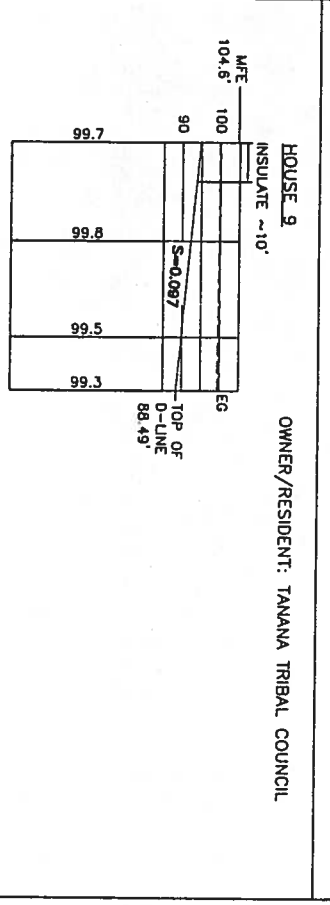
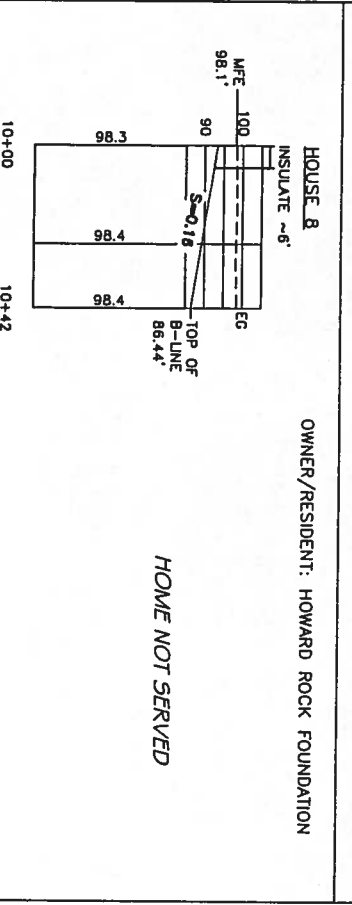
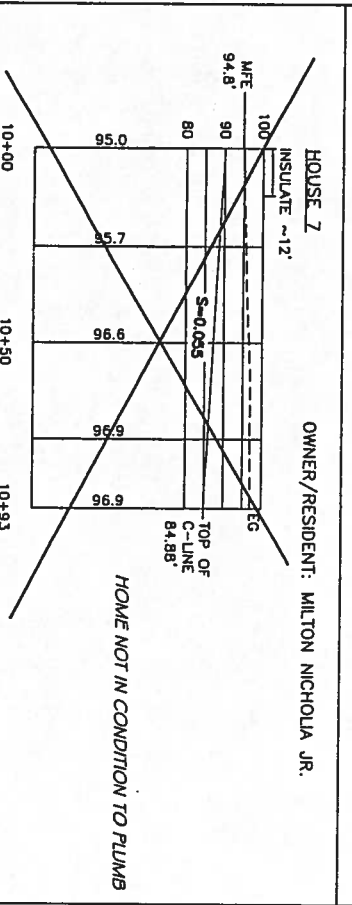
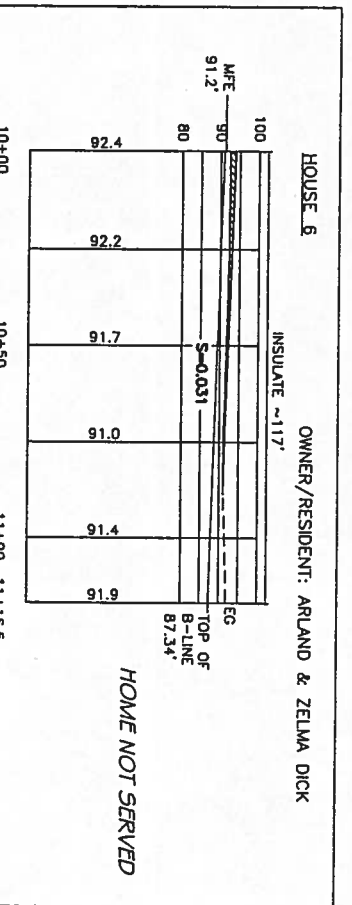
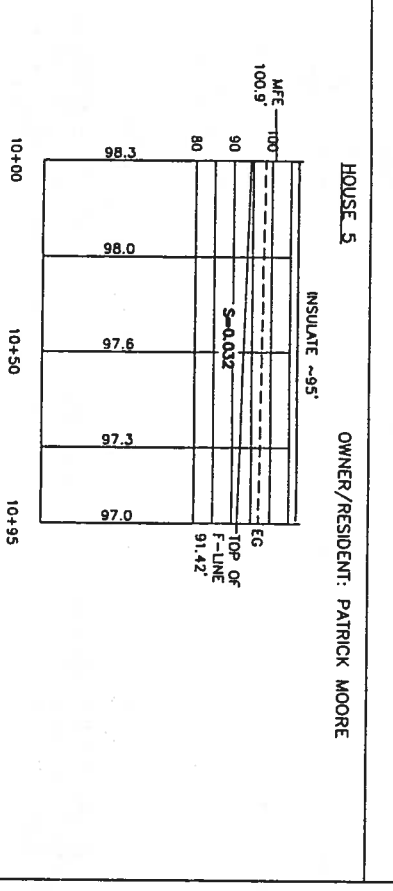
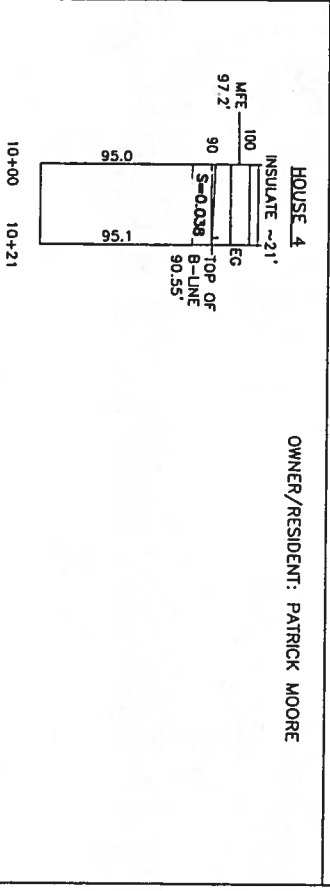
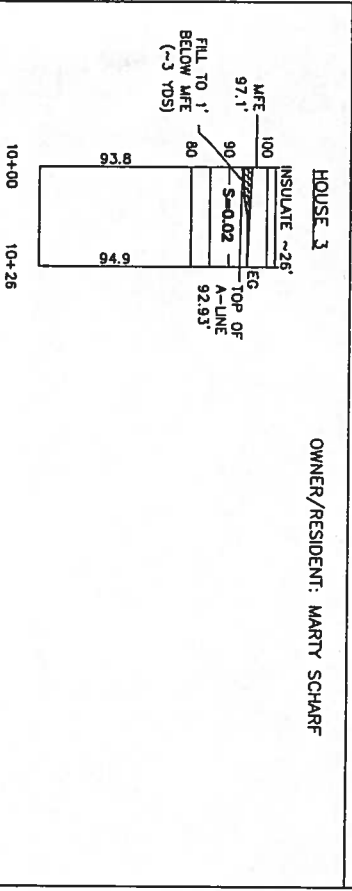
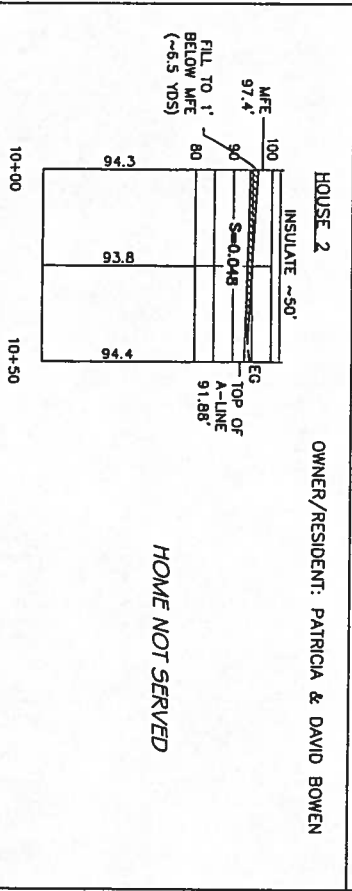
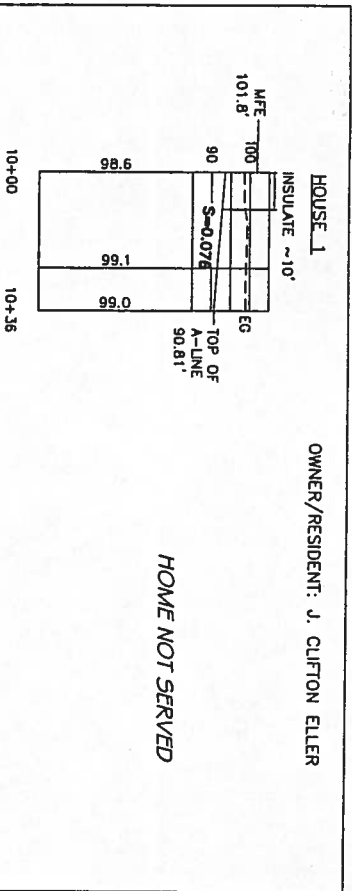
- NOTES
- CONTRACTOR TO FIELD LOCATE SERVICE CONNECTIONS
 - WATER LINE JOINTS WILL BE A MINIMUM OF 9' FROM SEWER LINE JOINTS.

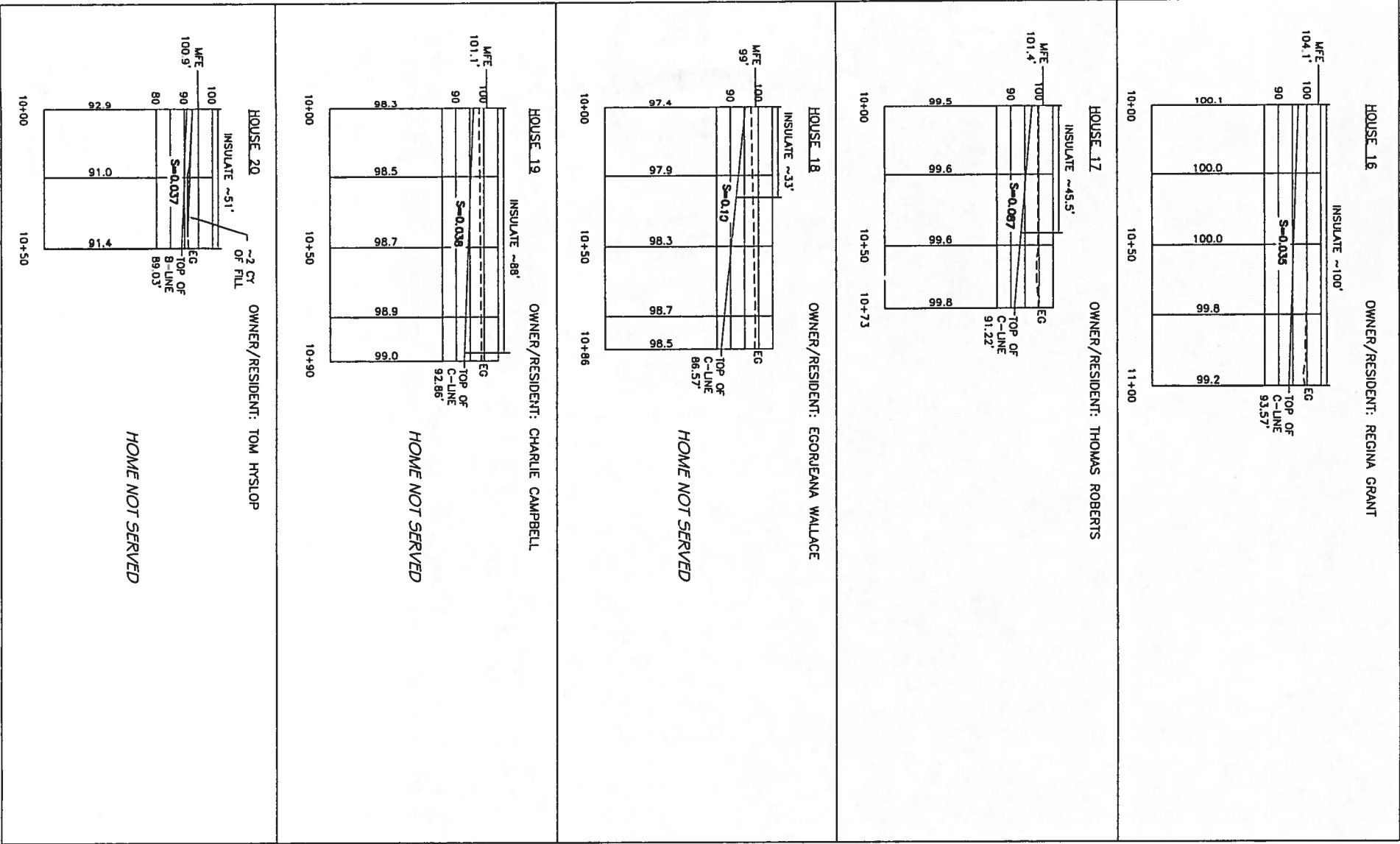


Project No. 13806	REVISION	BY	DATE	Too'gha Inc. Tanana Water and Sewer Extension	HDR HDR Alaska, Inc.	VILLAGE SAFE WATER	RECORD DRAWING CERTIFICATE
Date OCT 2006	REV 1	JJ	8/21/06				
Designed JC	2008 AS-BUILT	LAW	5/09	F-LINE WATER AND SEWER PLAN AND PROFILE			THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.
Drawn JJ							NAME
Approved TB							DATE

Sheet No. C2.6

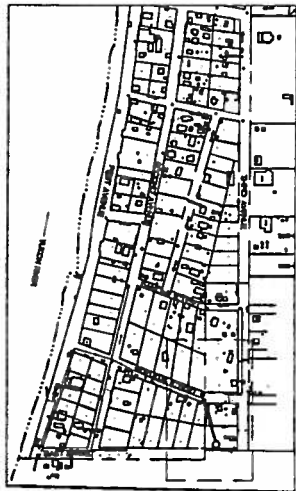
SHEET OF





RECORD DRAWING

Project No. 13806 Date OCT 2006 Designed JC Drawn JJ Approved TB	REVISION	BY	DATE	Too'gha Inc. Tanana Water and Sewer Extension SERVICE CONNECTION PROFILES		VILLAGE SAFE WATER	RECORD DRAWING CERTIFICATE
							THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME DATE 1/27/12



VILLAGE SAFE WATER



RECORD DRAWING CERTIFICATE

THESE DRAWINGS REFLECT
RECORDED INFORMATION OBTAINED
DURING CONSTRUCTION.
INFORMATION PROVIDED HEREIN
IS ACCURATE TO THE BEST OF
MY KNOWLEDGE.

IS ACCURATE TO THE BEST OF
MY KNOWLEDGE. 1/27/12

Too'gha Inc.
Tanana Water and Sewer Extension

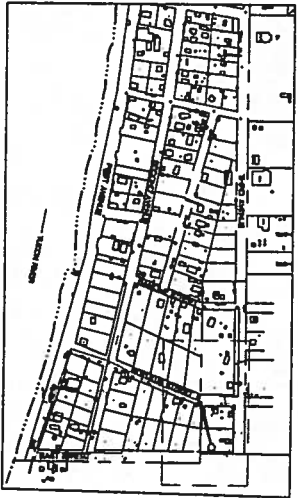
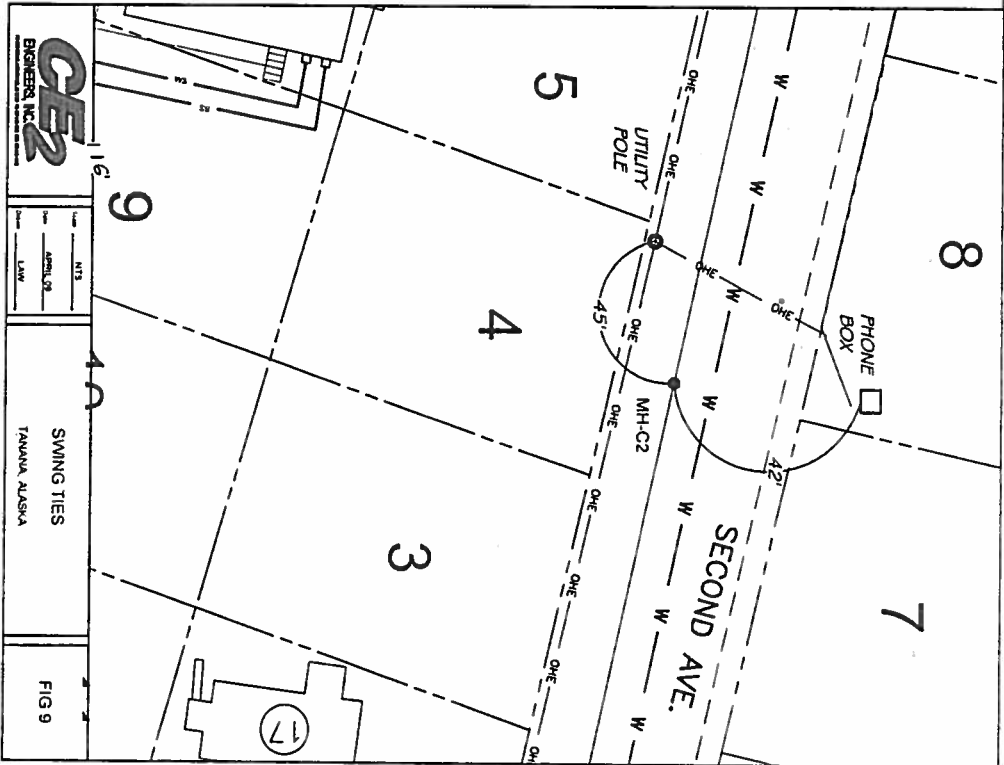
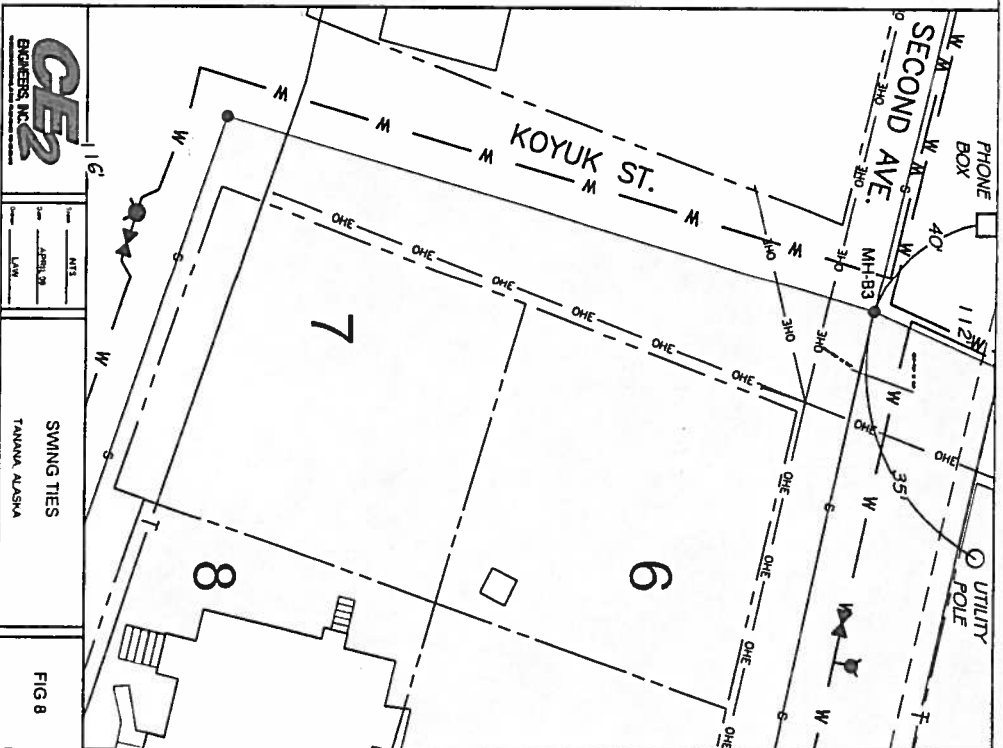
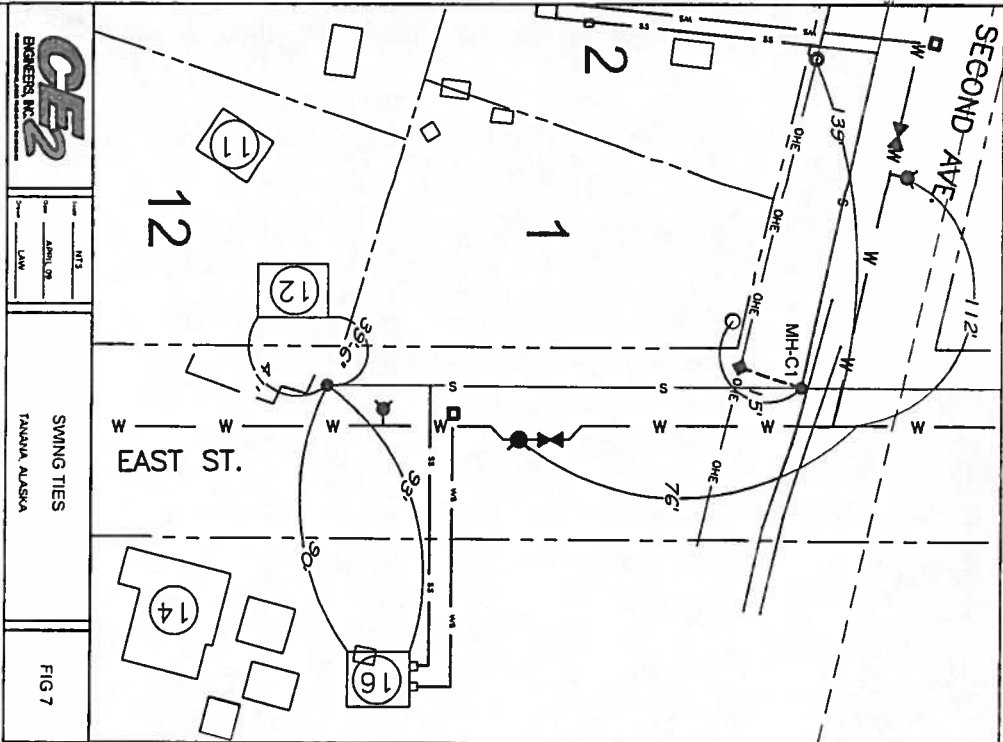
**F-LINE
WATER AND SEWER
PLAN AND PROFILE**



REVISION	BY	DATE
REV 1	JJ	8/21/06
2008 AS-BUILT	LAW	5/09

Project No. 13806
Date OCT 2005
Designed JG
Drawn JJ
Approved TB

Sheet No. **C2.9**
SHEET _____ OF _____



RECORD DRAWING

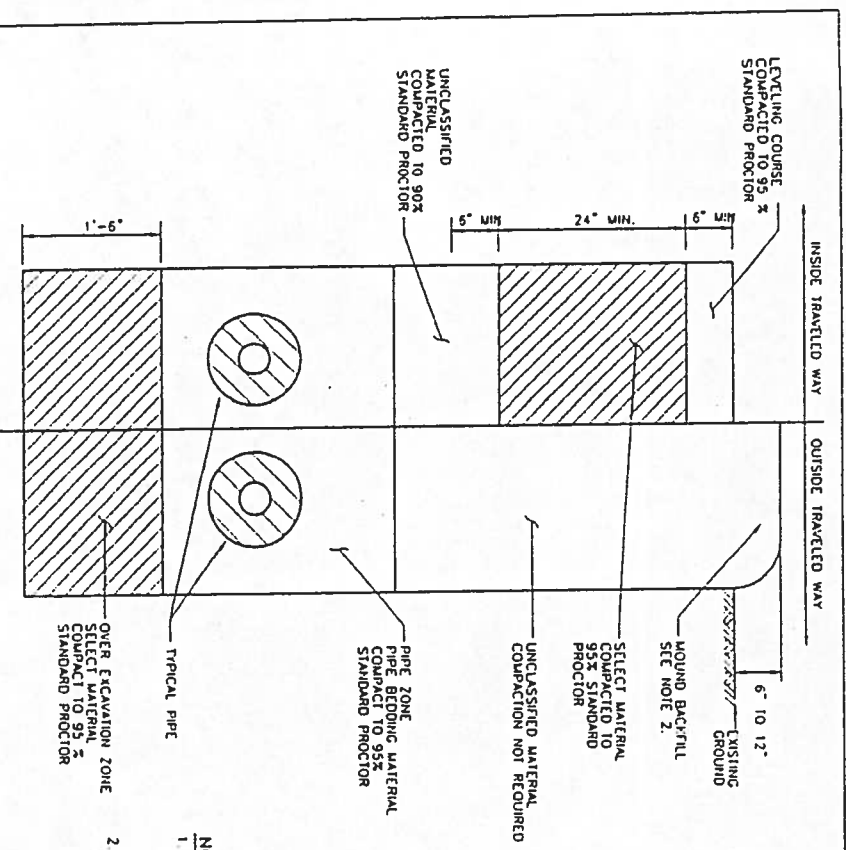
Project No. 13806 Date OCT 2006 Designed JG Drawn JJ Approved TB	REVISION	BY	DATE
	REV 1	JJ	8/21/06
	2008 AS-BUILT	LAW	5/09

Too'gha Inc.
Tanana Water and Sewer Extension

F-LINE
WATER AND SEWER
PLAN AND PROFILE



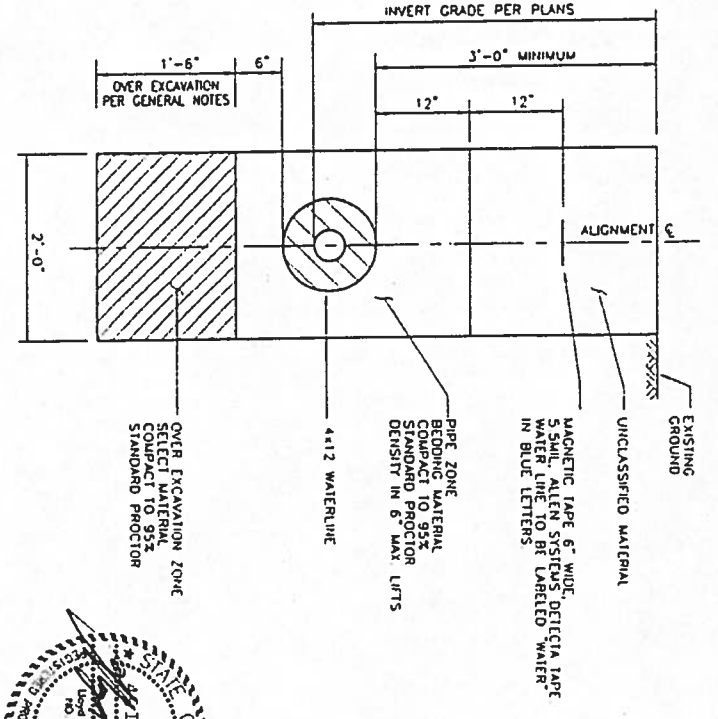
RECORD DRAWING CERTIFICATE	
THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.	
NAME	DATE
<i>[Signature]</i>	10/24/12



NOTES:
1. TRAVELED WAYS INCLUDE PARKING LOTS, DRIVEWAYS, AND SIDEWALKS. TRENCHES SHALL BE RECONSTRUCTED TO ORIGINAL CONDITION WHERE DISTURBED BY TRENCH EXCAVATION.
2. UNCLASSIFIED MATERIAL MAY BE USED ABOVE THE PIPE ZONE FOR REINFORCEMENT EXCESS MATERIAL ABOVE TRENCH TO COMPENSATE EXPECTED SETTLEMENT TO FUTURE GRADING OR FILLING MAY BE REQUIRED TO PRODUCE A LEVEL SURFACE.

INSIDE / OUTSIDE TRAVELED WAY TYPICAL TRENCH DETAIL

SCALE: 1" = 1'-0"

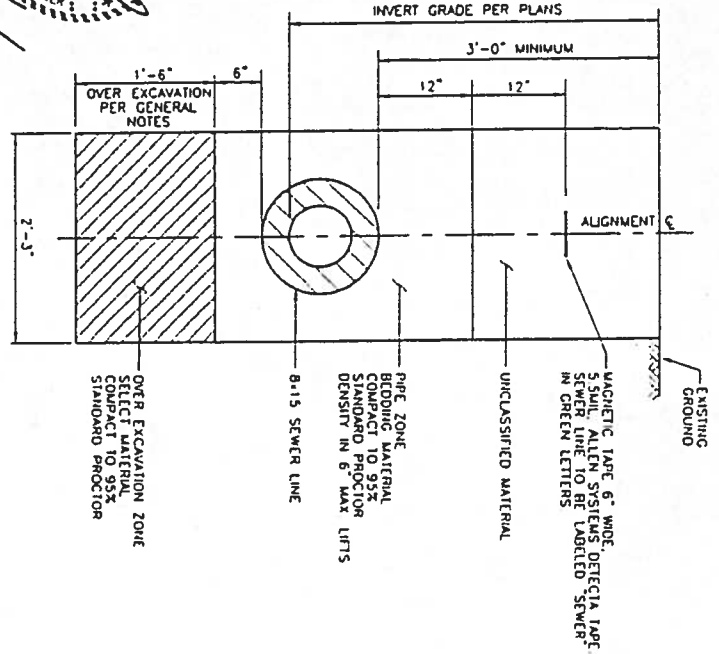


SINGLE WATERLINE TRENCH SECTION

SCALE: 1" = 1'-0"

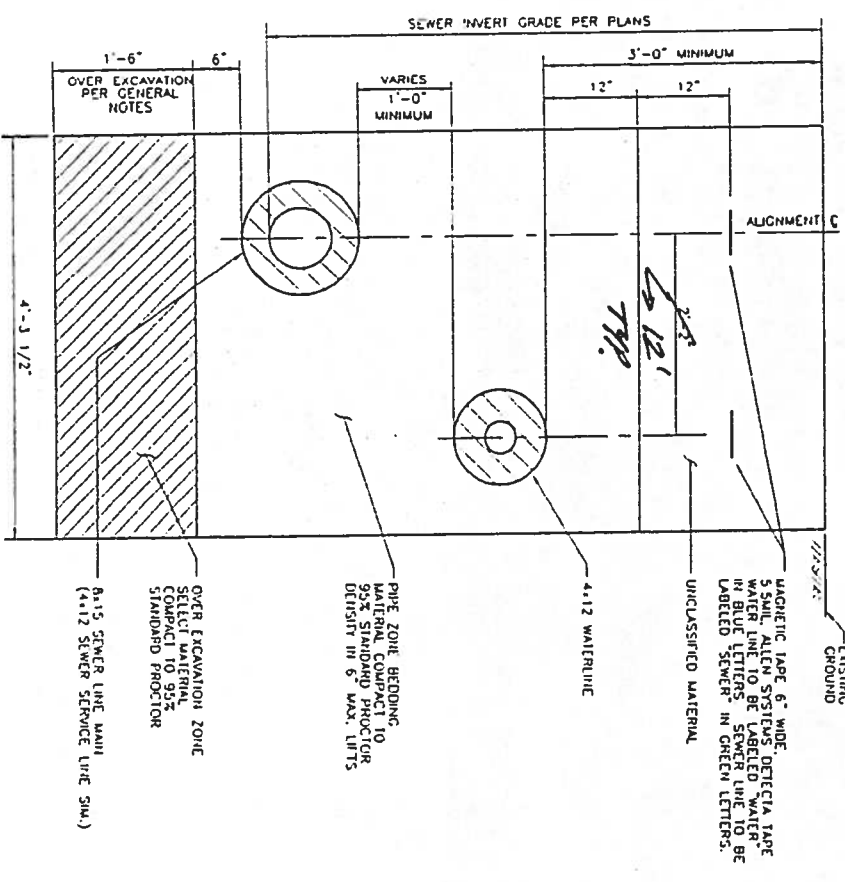


RECORD DRAWING



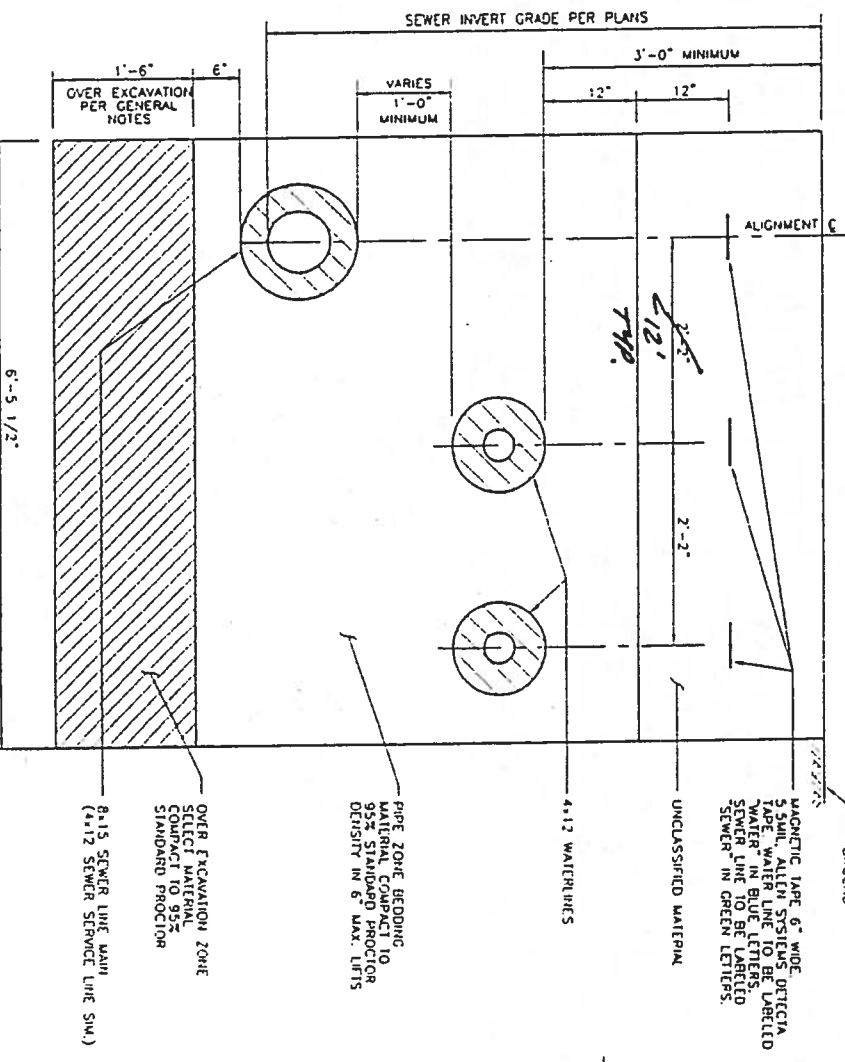
SEWER ONLY TRENCH SECTION

SCALE: 1" = 1'-0"



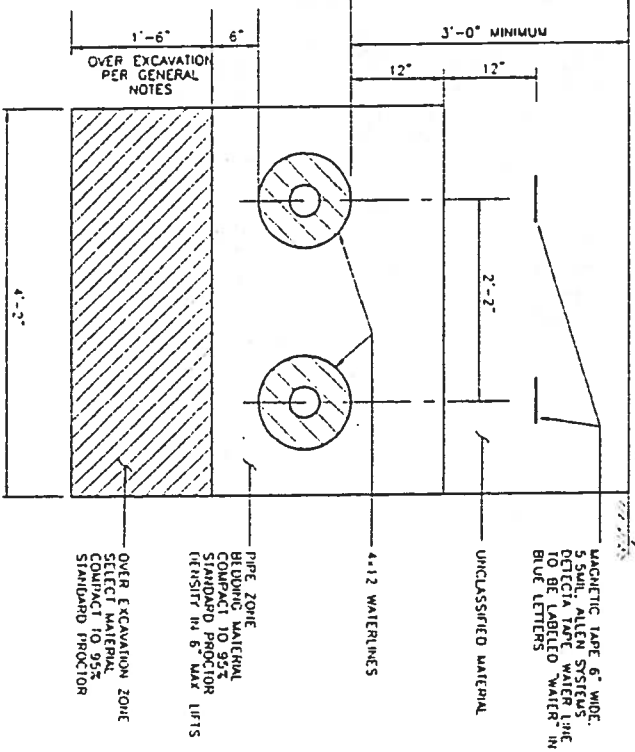
ONE SEWER LINE AND ONE WATERLINE TRENCH SECTION

SCALE: 1" = 1'-0"



ONE SEWER LINE AND TWO WATERLINES TRENCH SECTION

SCALE: 1" = 1'-0"



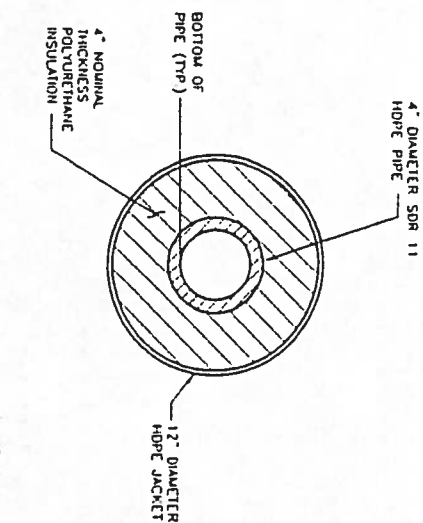
TWO WATERLINES TRENCH SECTION

SCALE: 1" = 1'-0"

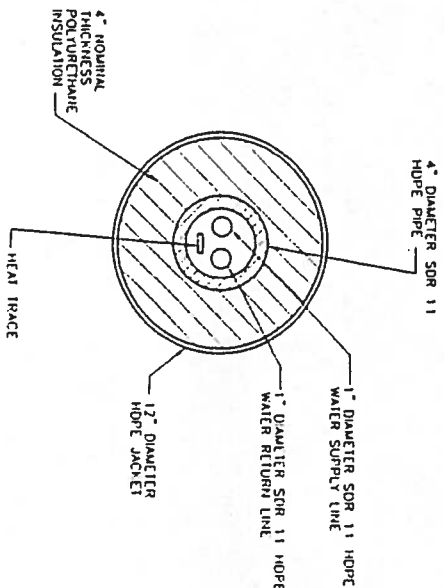
- TRENCH SECTION SHEET NOTES
1. REFER TO DETAIL 1/23.1 FOR TRENCH CONSTRUCTION REQUIREMENTS INSIDE OR OUTSIDE OF TRAVELED WAY. THIS INFORMATION IS NOT SHOWN ON TRENCH SECTIONS "A" THROUGH "I" FOR CLARITY.
 2. SEE GENERAL NOTES ON C3.0 FOR TRENCH REQUIREMENTS AND PIPE TRENCH MATERIAL SPECIFICATIONS.
 3. PLAN AND PROFILE REFERENCE ALIGNMENT IS BASED ON CENTER OF SEWER LINE ALIGNMENT AS INDICATED IN SECTION DETAILS.

ISSUED FOR CONSTRUCTION

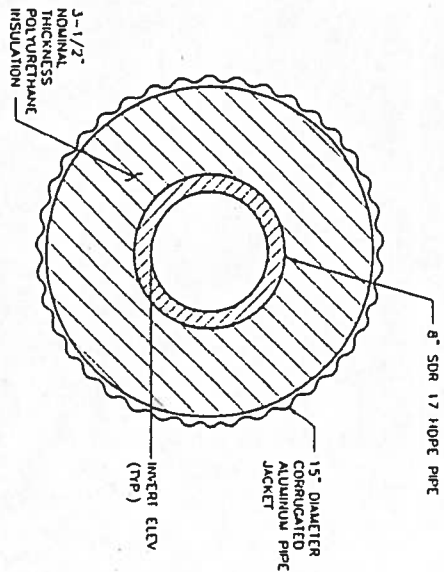
Project No. 13806 Date AUG 2006 Designed JG Drawn JJ Approved TB	REVISION BY DATE	Too'gha Inc. Tanana Water and Sewer Extension TRENCH SECTIONS	HDR HDR Alaska, Inc.	STATE OF ALASKA 49th 12/27/12 REGISTERED PROFESSIONAL ENGINEER 1000 & B. BEAUMONT NO. 02-10641	VILLAGE SAFE WATER	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME DATE 1/27/12
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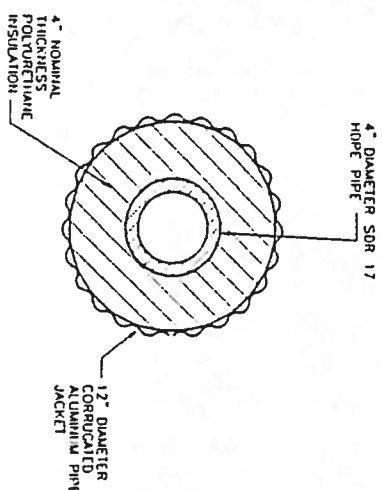
WATER MAIN PIPE SECTION



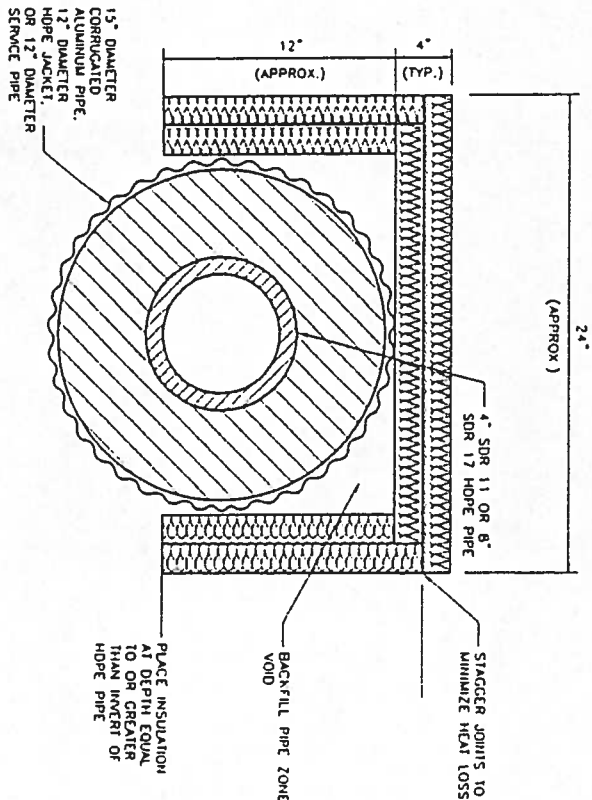
WATER SERVICE CARRIER PIPE SECTION



SEWER MAIN PIPE SECTION
NOT TO SCALE



SEWER SERVICE PIPE SECTION



- NOTE:
1. APPLY THIS DETAIL WHEREVER LESS THAN 6 FEET OF COVER IS AVAILABLE FOR SEWER LINES AND 4 FEET OF COVER FOR WATER LINES
 2. INSULATION SHOULD HAVE A R VALUE OF 10

PIPE INSULATION DETAIL

NOT TO SCALE

3
-

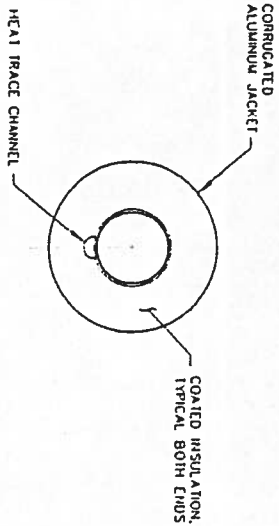
PIPE MATERIAL SPECIFICATIONS	
CORE PIPE:	HIGH-DENSITY POLYETHYLENE (HDPE), CELL CLASSIFICATION PE3454+44 COMPOSITION CLASS C PER ASTM D3350
INSULATION:	RIGID CLOSED-CELL POLYETHYLENE FOAM, WITH DENSITY 3.0-4.0 POUNDS PER CUBIC FEET.
HDPE JACKET:	HDPE, CELL CLASSIFICATION PE3454+44 COMPOSITION CLASS C PER ASTM D3350, 175 MIL THICKNESS.
ALUMINUM JACKET:	16 GAGE INTERNAL HELICAL LOCK SEAM ALUMINUM PIPE, ALUMINUM ALLOY MATERIAL, 3004-H14 WITH A 7072 COATING ON THE OUTSIDE JACKET OR 5052-H132.
HEAT TRACE CHANNEL:	FULLY ENCLOSED CHANNEL, POLYETHYLENE (PE) OR ACRYLONITRILE BUTADIENE STYRENE (ABS).
HEAT SHRINK WRAP:	36-INCH WIDE WRAP AND CLOSING STRIP, CAUSIMWRAP WTC-B 900-BL OR APPROXIMATELY EQUIVALENT. WRAP DIRECTION SHALL BE THE ACTUAL PIPE DIRECTION PLUS A 4-INCH OVERLAP.
POLYMER COATING:	TWO COMPONENT, 100 MIL MINIMUM THICKNESS, 100% SOLIDS POLYURETH ELASTOMER, POLYSHIELD SS-100 HI-E, OR APPROVED EQUAL.



RECORD DRAWING

ISSUED FOR CONSTRUCTION

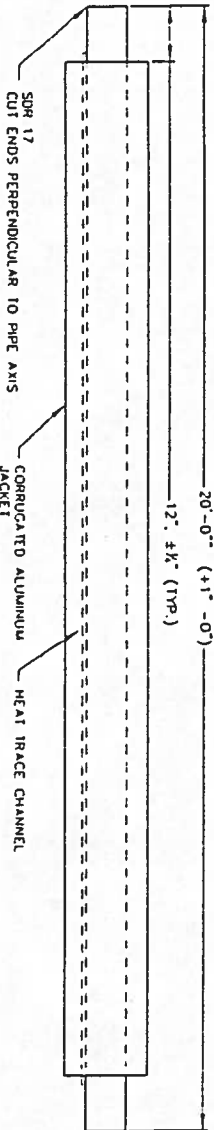
Sheet No. C3.2 of 29	Project No. 13806	REVISION	BY	DATE	Too'gha Inc. Tanana Water and Sewer Extension PIPE SECTIONS	 HDR HDR Alaska, Inc.	 STATE OF ALASKA 49th DISTRICT TONY B. BEHARD No. CE-10483 REGISTERED PROFESSIONAL ENGINEER	 VILLAGE SAFE WATER	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.  NAME _____ DATE 1/28/12
	Date AUG 2006								
	Designed JG								
	Drawn JJ								
	Approved TB								



NOMINAL INSULATED PIPE	INNER CORE PIPE O.D.	NOMINAL OUTER JACKET
4"	4.500"	12" +1/4" -0"
8"	8.625"	15" +1/4" -0"

- NOTES:
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

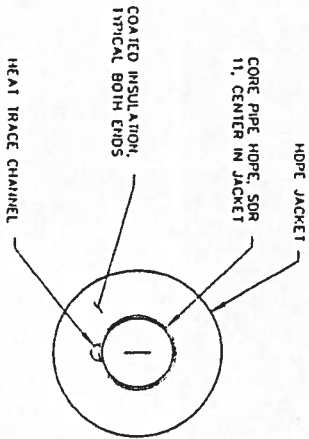
END VIEW



SIDE VIEW

INSULATED POLYETHYLENE GRAVITY SEWER PIPE WITH HEAT TRACE

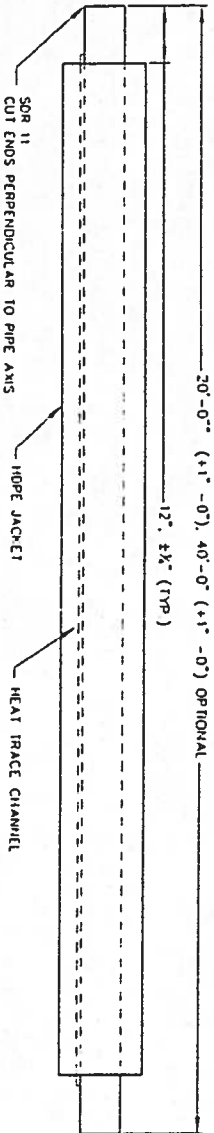
NOT TO SCALE



NOMINAL INSULATED PIPE	INNER CORE PIPE O.D.	NOMINAL OUTER ALUMINUM JACKET	OUTER HDPE JACKET
4"	4.500"	12"	12.60"

- NOTES:
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS
 - HEAT TRACE CHANNEL TO BE FOAMED INTO PLACE ON CARRIER PIPE.
 - COATED INSULATION RELIEF IS 1/2" ACROSS THE FACE AND 1/2" AT THE PIPE CENTER LINE.

END VIEW



SIDE VIEW

INSULATED POLYETHYLENE PRESSURE WATER PIPE WITH HEAT TRACE

NOT TO SCALE



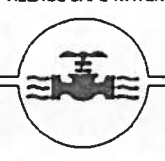
RECORD DRAWING CERTIFICATE

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NAME

DATE

VILLAGE SAFE WATER



Too'gha Inc.
Tanana Water and Sewer Extension
STRAIGHT LENGTH PIPE
DETAILS

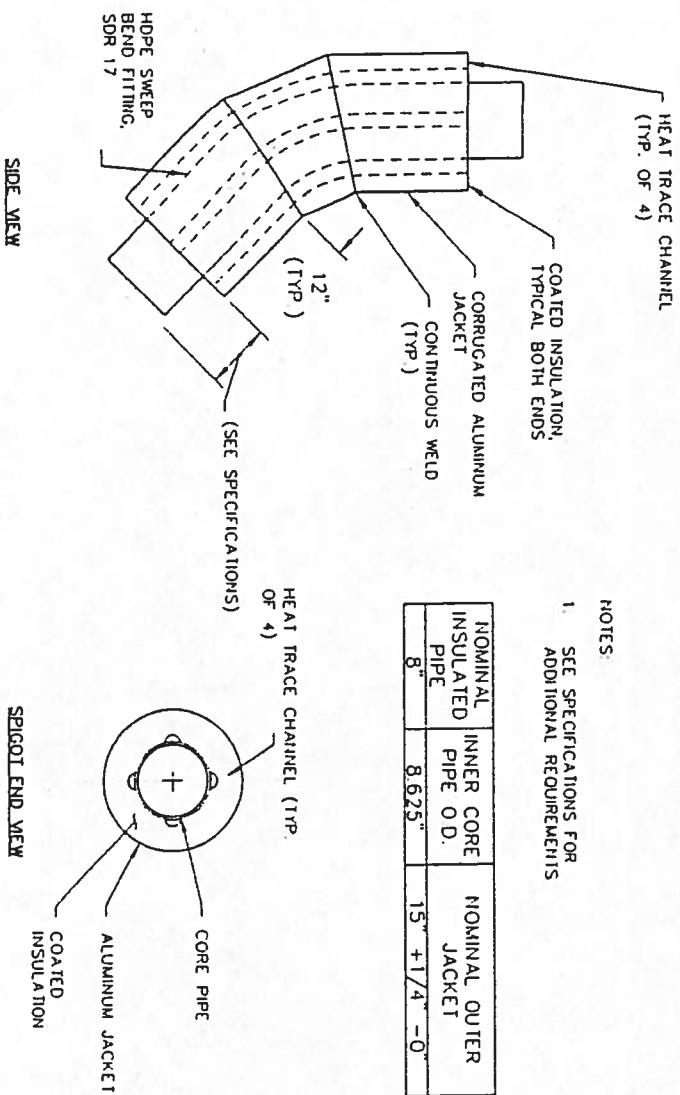
REVISION	BY	DATE

Project 13806
No. 13806
Date AUG 2006
Designee JC
Drawn JJ
Approved TB



ISSUED FOR CONSTRUCTION

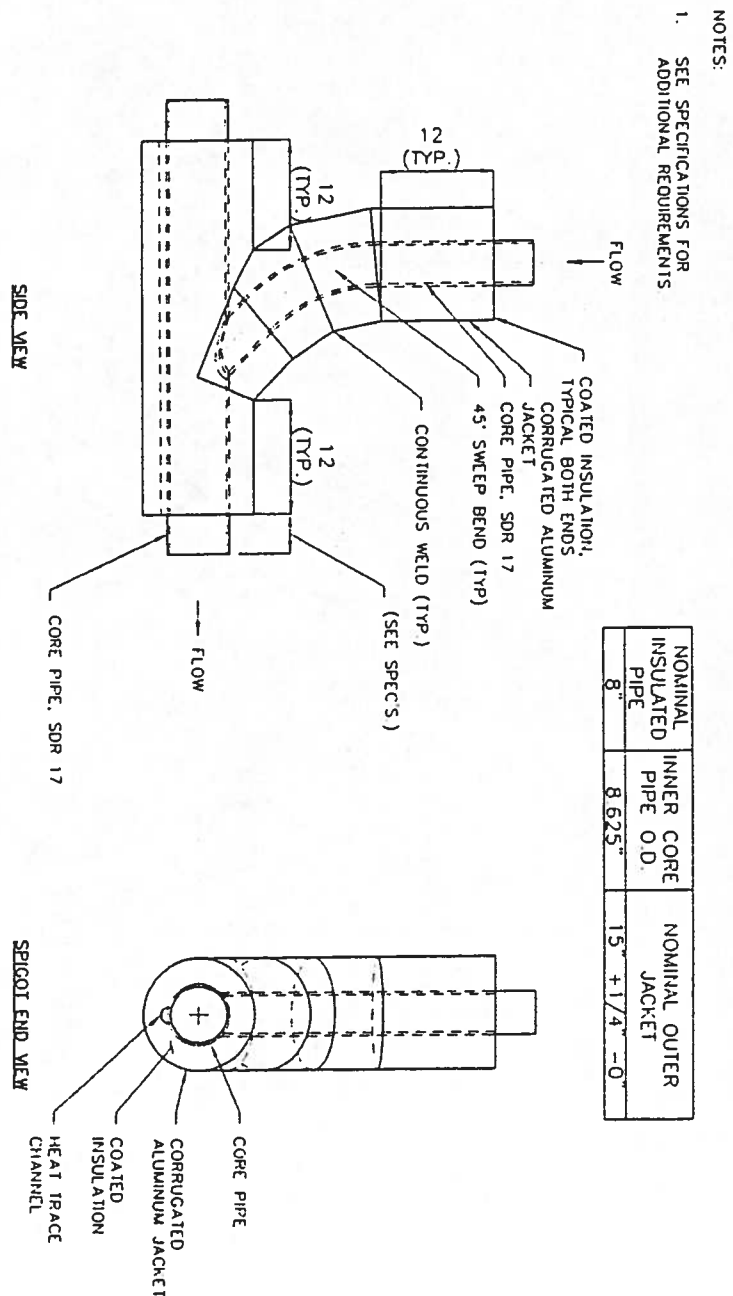
Sheet No. C3.3
SHEET 19 OF 29



GRAVITY SEWER MAIN 45° BEND DETAIL

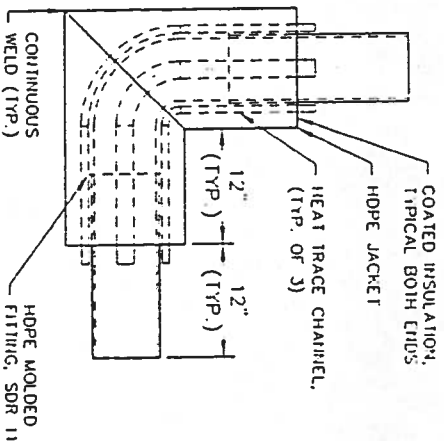


GRAVITY SEWER MAIN CLEANOUT DETAIL

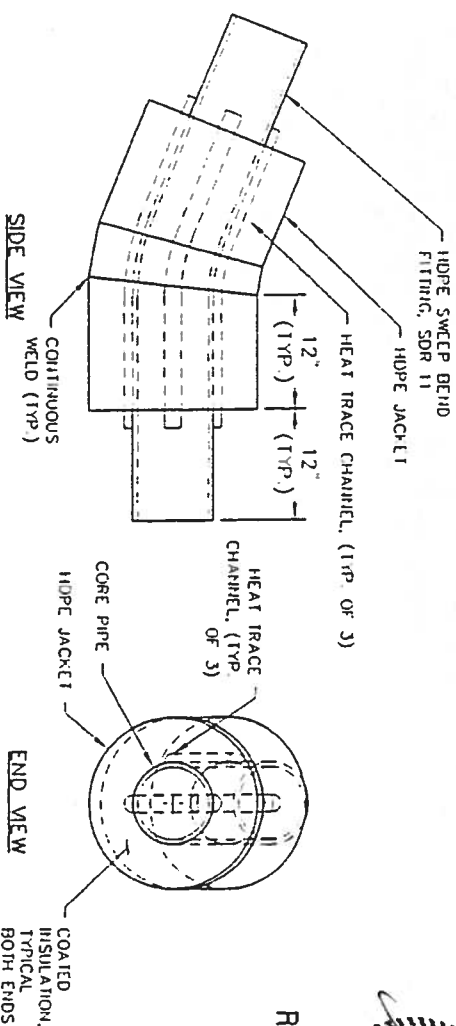


- NOTES:
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 2. HEAT TRACE CHANNEL TO BE FOAMED INTO PLACE ON CARRIER PIPE.
 3. HEAT TRACE CHANNEL ON INSIDE & OUTSIDE RADIUS AND ALONG ONE SIDE.
 4. DETAIL, SIMILAR FOR PREINSULATED 45° BENDS.

NOMINAL INSULATED PIPE	INNER CORE PIPE O.D.	INNER CORE PIPE O.D.	OUTER HOPE JACKET
4"	4.500"	12"	12.80"



WATER MAIN 90° BEND DETAIL



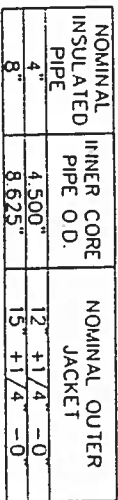
WATER MAIN 22.5° BEND DETAIL



RECORD DRAWING

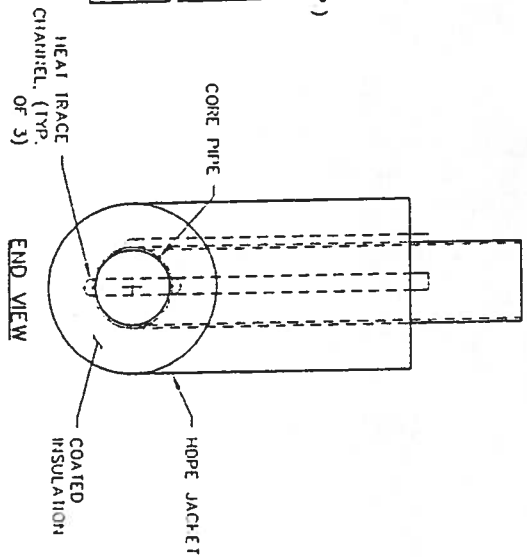


1. SEE SPECIFICATIONS FOR
ADDITIONAL REQUIREMENTS



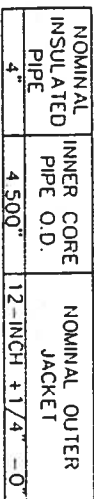
NOT TO SCALE

4"	4.500"	12"	12.80"
MINIPIPER INSULATED PIPE	INNER CORE PIPE O.D.	INNER CORE PIPE O.D.	OUTER HDPE JACKET



NOT TO SCALE

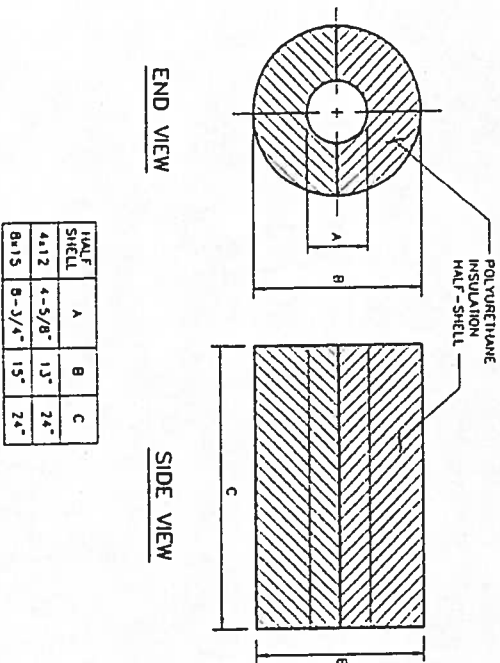
1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. DETAIL SIMILAR FOR PREINSULATED 22.5" BEND



NOT TO SCALE

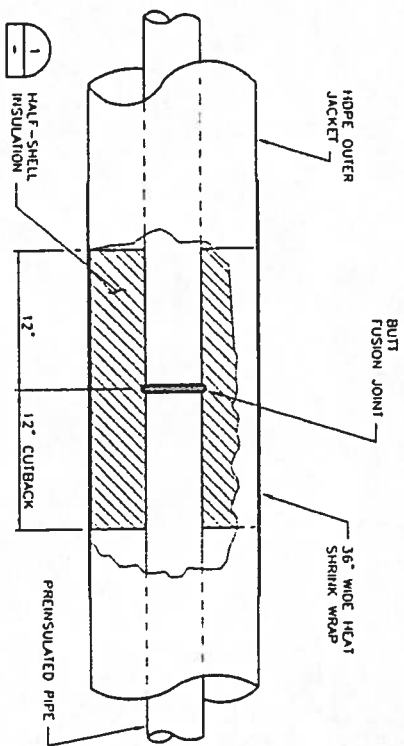
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Sheet No. C3.5 of 29	Project No. 13806	REVISION	BY DATE	Too'gha Inc. Tanana Water and Sewer Extension			VILLAGE SAFE WATER 	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.
	Date AUG 2006			SERVICE LINE PIPE FITTING DETAILS				 NAME _____ DATE 1/27/12
	Designed JG							
	Drawn JJ							
	Approved TB							

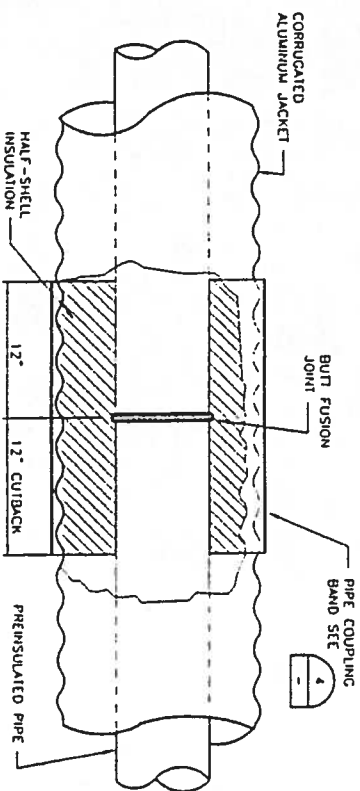


- NOTE:
1. SEE FORCE MAIN SEWER JOINT DETAIL FOR HEAT TRACE CONDUIT CUTOUT REQUIREMENTS
 2. MANUFACTURER SHALL SUPPLY HALF-SHELLS PRECUT TO DIMENSIONS SHOWN.

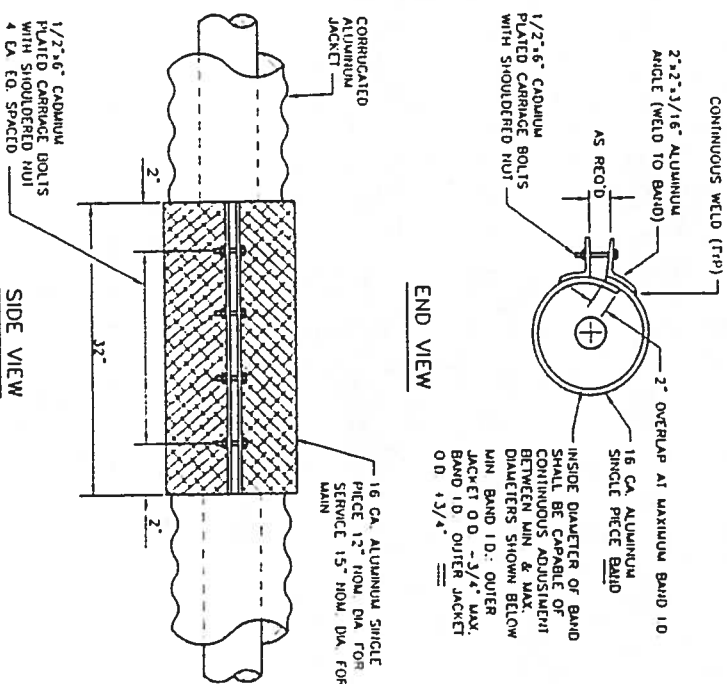
INSULATION HALF-SHELL DETAIL
NOT TO SCALE



WATER LINE JOINT DETAIL
NOT TO SCALE



GRAVITY SEWER LINE JOINT DETAIL
NOT TO SCALE



PIPE COUPLING BAND DETAIL
NOT TO SCALE



REVISION		BY	DATE

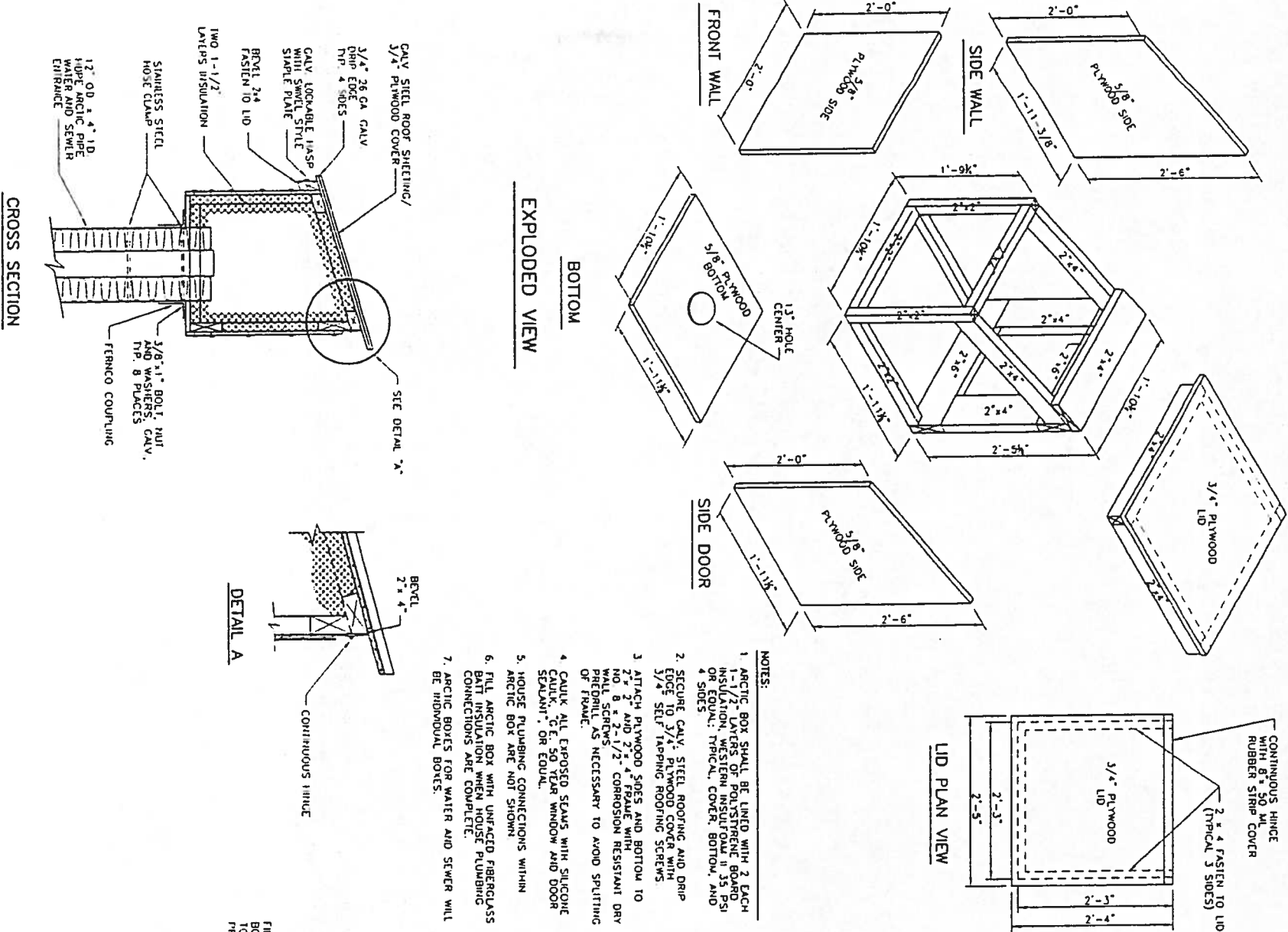
Project No. 11806	Date AUG 2006	Designed JG	Drawn JJ	Approved TB
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Too'gha Inc. Tanana Water and Sewer Extension		INSULATION AND PIPE JOINT DETAILS	
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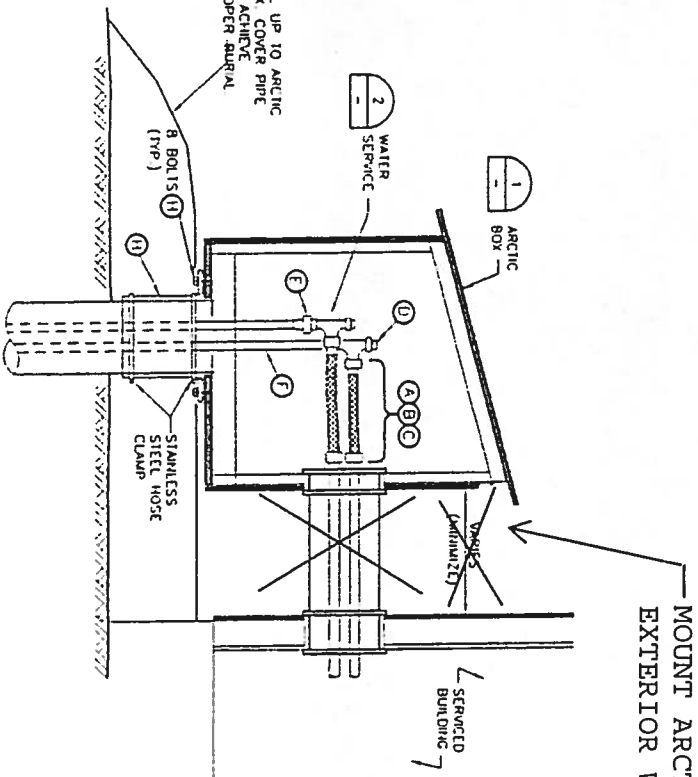
STATE OF ALASKA 49th DISTRICT T. J. BROWN REGISTERED PROFESSIONAL ENGINEER NO. CE-10443		VILLAGE SAFE WATER	
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RECORD DRAWING CERTIFICATE	
THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE.	
NAME	DATE 10/27/12

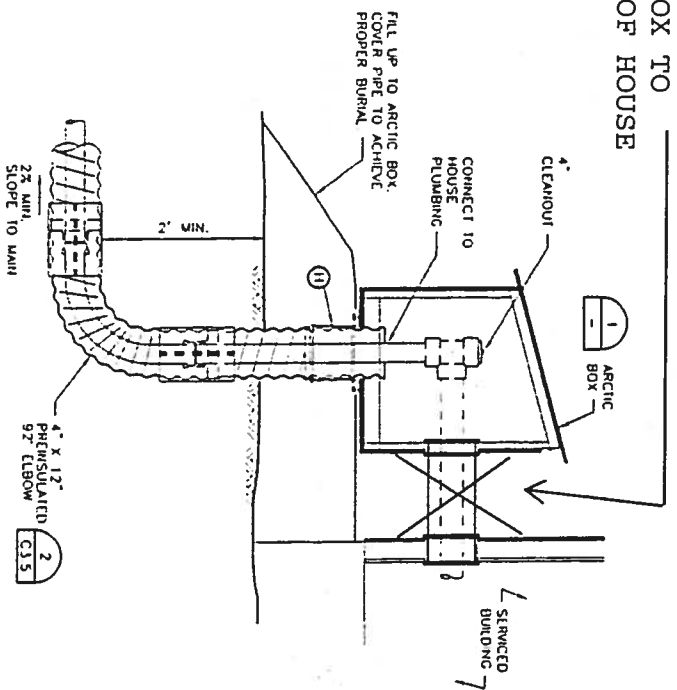
Sheet No. C3.6	SHEET 22 OF 29
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ARCTIC BOX DETAILS
NOT TO SCALE



WATER SERVICE BUILDING CONNECTION
NOT TO SCALE



SEWER SERVICE BUILDING CONNECTION
NOT TO SCALE

WATER SERVICE PIPING DETAIL
NOT TO SCALE

RECORD DRAWING
1/27/12

- MATERIALS REQUIRED**
1. HOUSE PIPING ADAPTER, 1" COPPER PIPE TYPICAL WITH BEST MALE COUPLING WITH BRASS BOOT AND CONE AND RING, FOR COPPER PIPE ADAPTER 800/700, 1" C x 1" MPT MAY BE SUBSTITUTED FOR THE BEST FITTING.
 2. CONNECTION HOSE, 3/4" ID, KURE TEC K6136 HIGH PURITY POLAR WATER HOSE OR EQUAL, MUST BE NSF-61 CERTIFIED CUT TO LENGTH IN FIELD.
 3. BOTH ENDS SHALL BE FITTED WITH BRASS LONG SHANK INSERTS WITH 1" RPT FEMALE SWELL NUT WITH CASSETS, DIXON #H520 OR EQUAL, EACH INSERT SHALL BE SECURED WITH 2 EA ADJUSTABLE STAINLESS STEEL CLAMPS, TYPE 201, 1-1/2" x 1/2" x 0.30.
 4. BRASS NUTS, 1" MPT x 1-1/2" MPT.
 5. ANGLE BALL SERVICE VALVE, FORD ANGLE BALL VALVE AN11-444W, 1" RPT x 1" FIP, 150 PSI WORKING PRESSURE, "W" INDICATES PADLOCK WINGS ONLY.
 6. PACK JOINT COUPLING, FORD PACK JOINT C66-44, 1" RPT x 1" MPT PROVIDE 1075 10.
 7. HOPE PIPE, DRISCOPE 8600 HOPE, 1" IPS, SDR 11, 160 PSI, 1075 10, NSF APPROVED.
 8. INSTALL CIRCULATING PUMP IF LINE IS GREATER THAN 90 FEET GRADIENTS UP/15, 250 OR EQUAL, ASSURE THAT PUMP IS INSTALLED SO THAT FLOW DIRECTION IS COMPATIBLE WITH MAIN LINE PITCH/PRICE CIRCULATION DIRECTION.
 9. ARCTIC DRAIN HOUSING - FERNCO OR PROCESS TECHNOLOGY MODEL 325, FIT INSIDE RUGATEX DOWNUS, 1" x 13", 4-1/2" ID, REQUIRES 2 STAINLESS STEEL HOSE CLAMPS AND 8 GALVANIZED 3/8" BOLTS WITH NUTS AND WASHERS.



RECORD DRAWING CERTIFICATE

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[Signature] 1/27/12

NAME: DATE:

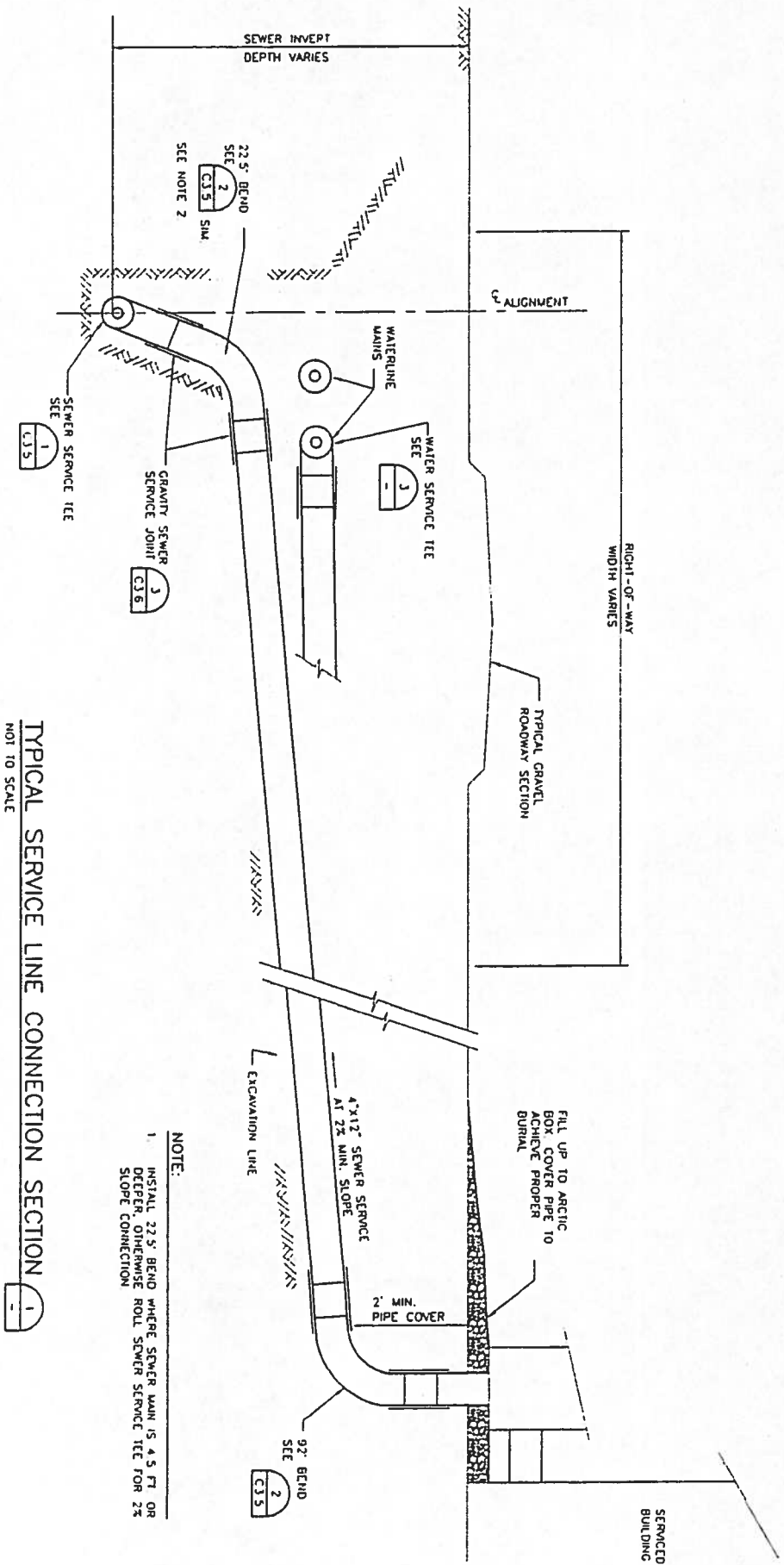


Too'gha Inc.
Tanana Water and Sewer Extension

SERVICE CONNECT DETAILS

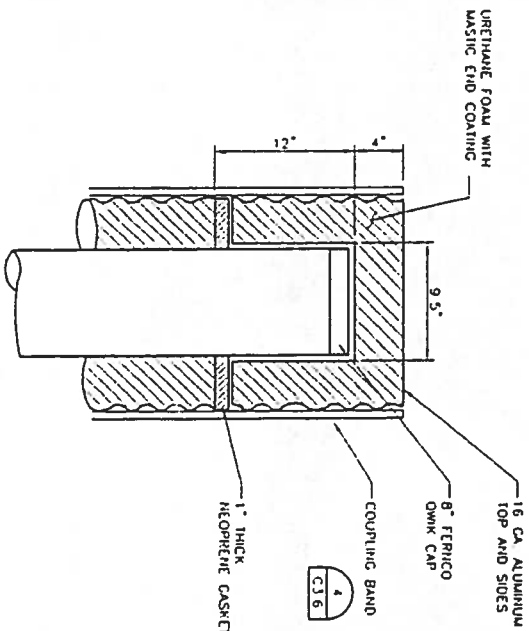
REVISION	BY	DATE

Project: 13806
Date: AUG 2006
Designed: JG
Drawn: JJ
Approved: TB

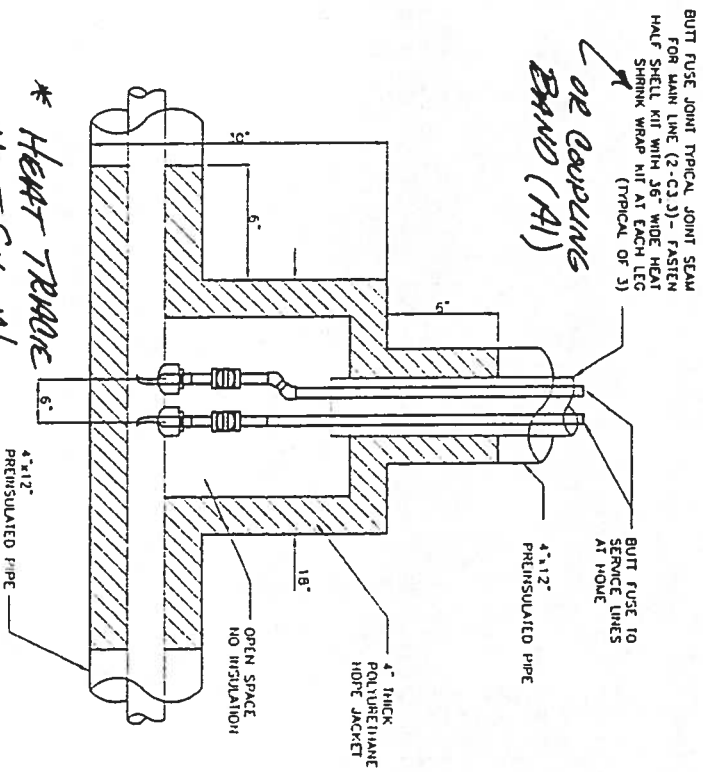


NOTE:
1. INSTALL 22.5' BEND WHERE SEWER MAIN IS 4.5 FT OR DEEPER. OTHERWISE ROLL SEWER SERVICE TEE FOR 2% SLOPE CONNECTION

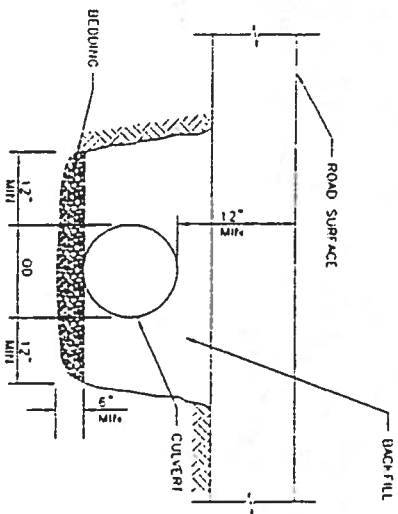
TYPICAL SERVICE LINE CONNECTION SECTION
NOT TO SCALE



SEWER MAIN CLEANOUT CAP DETAIL
NOT TO SCALE



WATER SERVICE TEE DETAIL
NOT TO SCALE

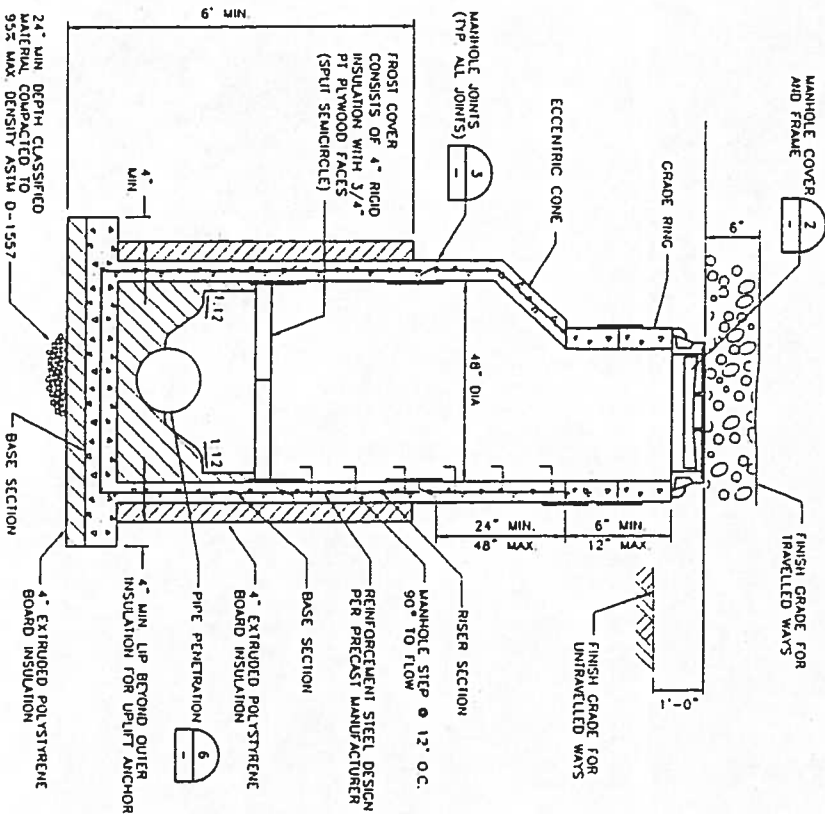


CULVERT CROSS SECTION DETAIL
NOT TO SCALE

NOTE:
1. PROVIDE INSULATION WHERE INDICATED ON PLAN AND PROFILE SHEETS

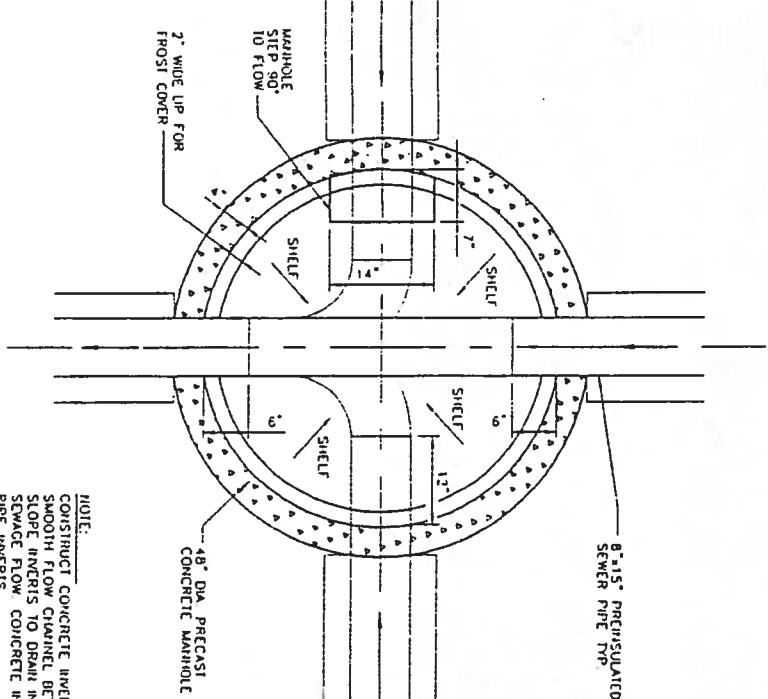


RECORD DRAWING



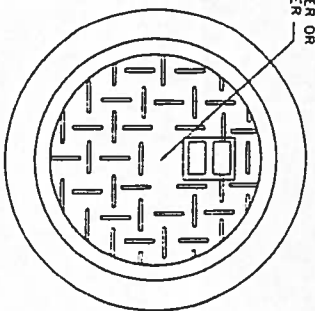
MANHOLE DETAIL

NOT TO SCALE



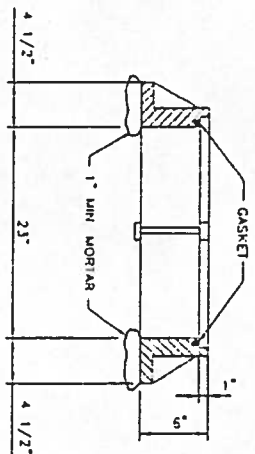
MANHOLE BASE PLAN

NOT TO SCALE



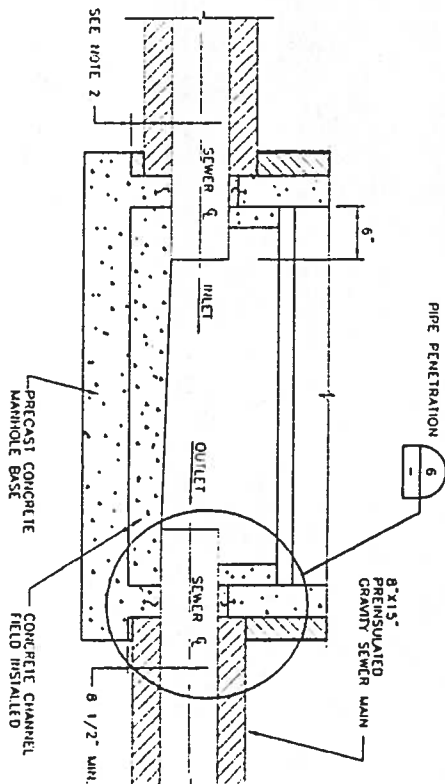
MANHOLE COVER AND FRAME

NOT TO SCALE



GASKET DETAIL

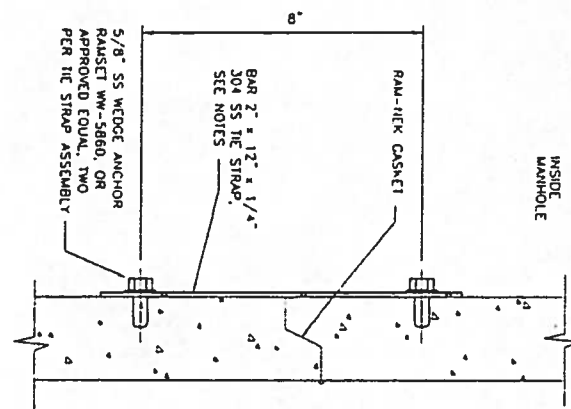
- NOTES:
1. INSTALL MANHOLE COVER AND FRAME ACCORDING TO FIN ELEVATIONS AS SHOWN ON PLANS
 2. PLACE A 1\"/>
 3. FRAME SHALL BE MACHINED TO FIT NEOPRENE GASKET
 4. FRAME AND COVER SHALL BE CAST IRON OR STEEL, CONSTRUCTED CASINGS NO. W/25WT, OR APPROVED EQUAL.
 5. COVER SHALL HAVE WORD "SEWER" CAST IN FOR MANHOLES.



- NOTES:
1. MANHOLE REINFORCEMENT NOT SHOWN, THIS DETAIL, FOR CLARITY.
 2. INLET INVERT ELEVATION(S) SHALL BE 1\"/>

MANHOLE CHANNEL

NOT TO SCALE



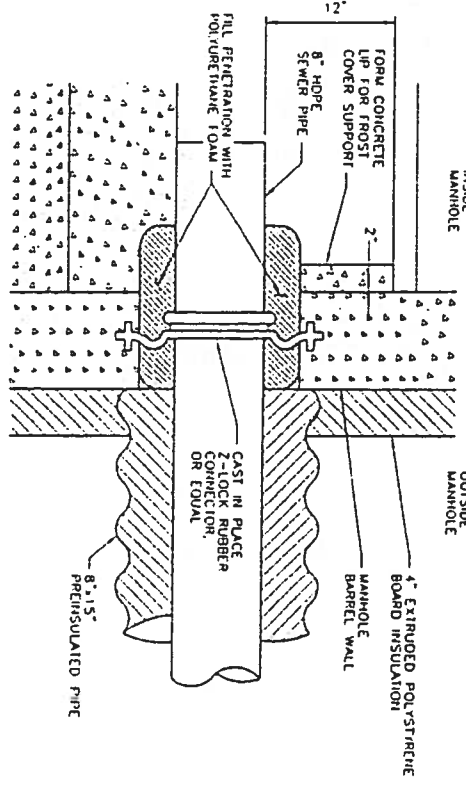
CROSS-SECTION

- NOTES:
1. THE STRAPS SHALL BE INSTALLED AT MANHOLES OR LIFT STATIONS THAT ARE LOCATED WITHIN AREAS WHICH HAVE THAW UNSTABLE SOIL CONDITIONS.
 2. EACH TIE STRAP SHALL HAVE ONE 3/4\"/>
 3. THREE EACH TIE STRAP ASSEMBLIES SHALL BE PROVIDED PER EACH JOINT IN 4\"/>
 4. FOUR EACH TIE STRAP ASSEMBLIES SHALL BE PROVIDED PER EACH JOINT IN 6\"/>

MANHOLE TIE STRAPS DETAIL

NOT TO SCALE

RECORD DRAWING



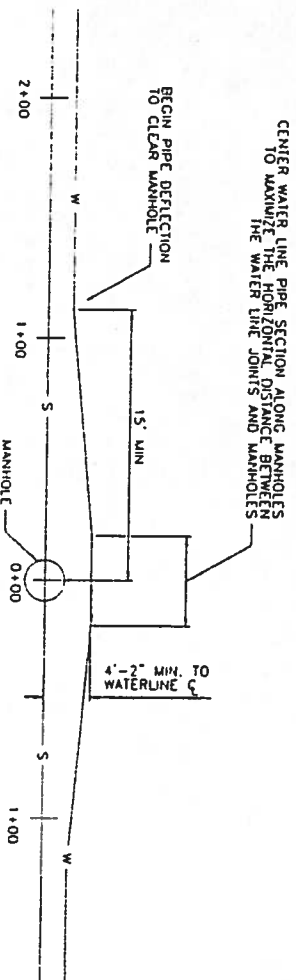
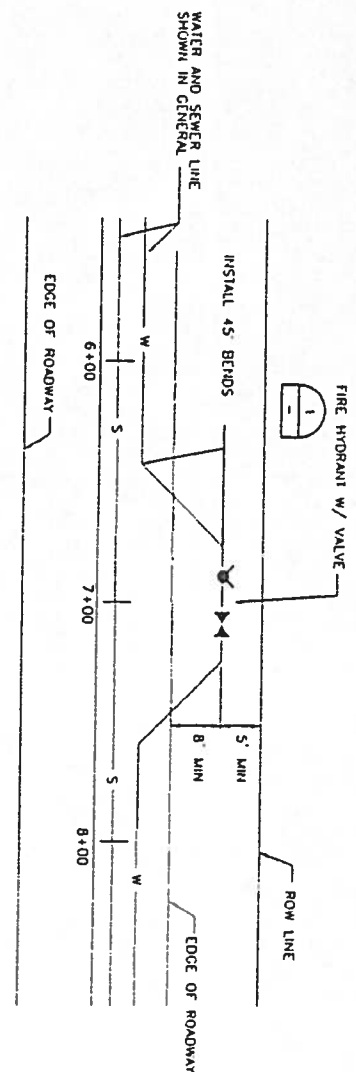
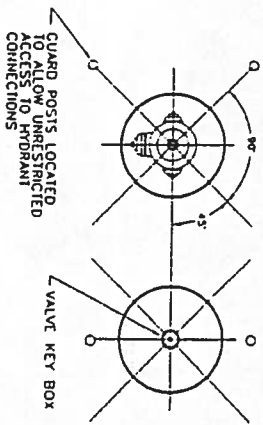
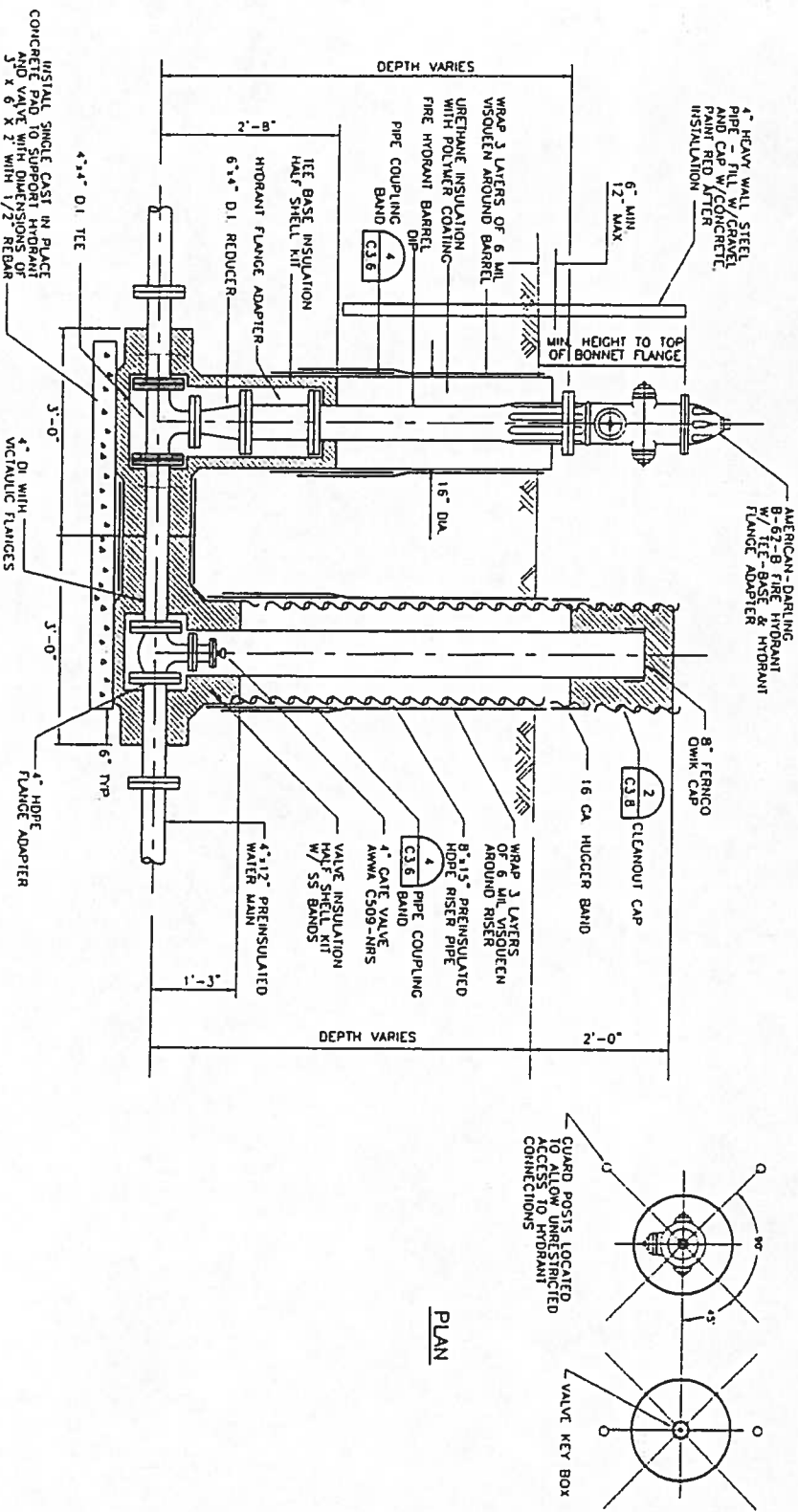
PIPE PENETRATION DETAIL

NOT TO SCALE

SANITARY MANHOLE NOTES:

1. PRECAST MANHOLE SECTIONS SHALL CONFORM TO ASTM C-478
2. PRECAST SECTIONS SHALL BE SELECTED TO PROVIDE THE CORRECT TOTAL HEIGHT WITH THE FEWEST JOINTS
3. RAM-MIX CASSET, OR APPROVED EQUAL, RUBBER GASKET SHALL BE INSTALLED AT ALL PRECAST JOINTS
4. MANHOLE STEPS SHALL BE 1/2\"/>
5. MANHOLE SHALL BE WRAPPED WITH 2 LAYERS OF 6 MIL PLASTIC SHEETING PRIOR TO BACKFILL
6. ALL BACKFILL SHALL BE PLACED IN 6\"/>

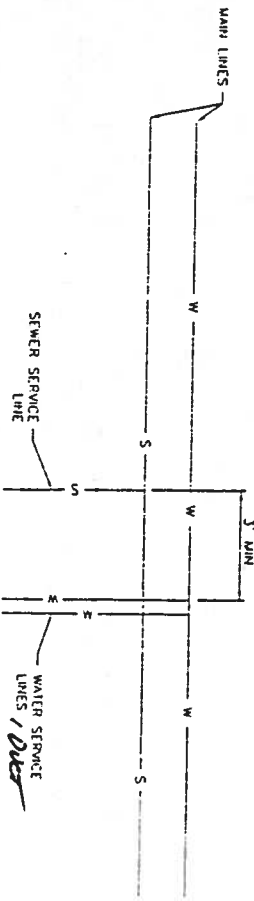
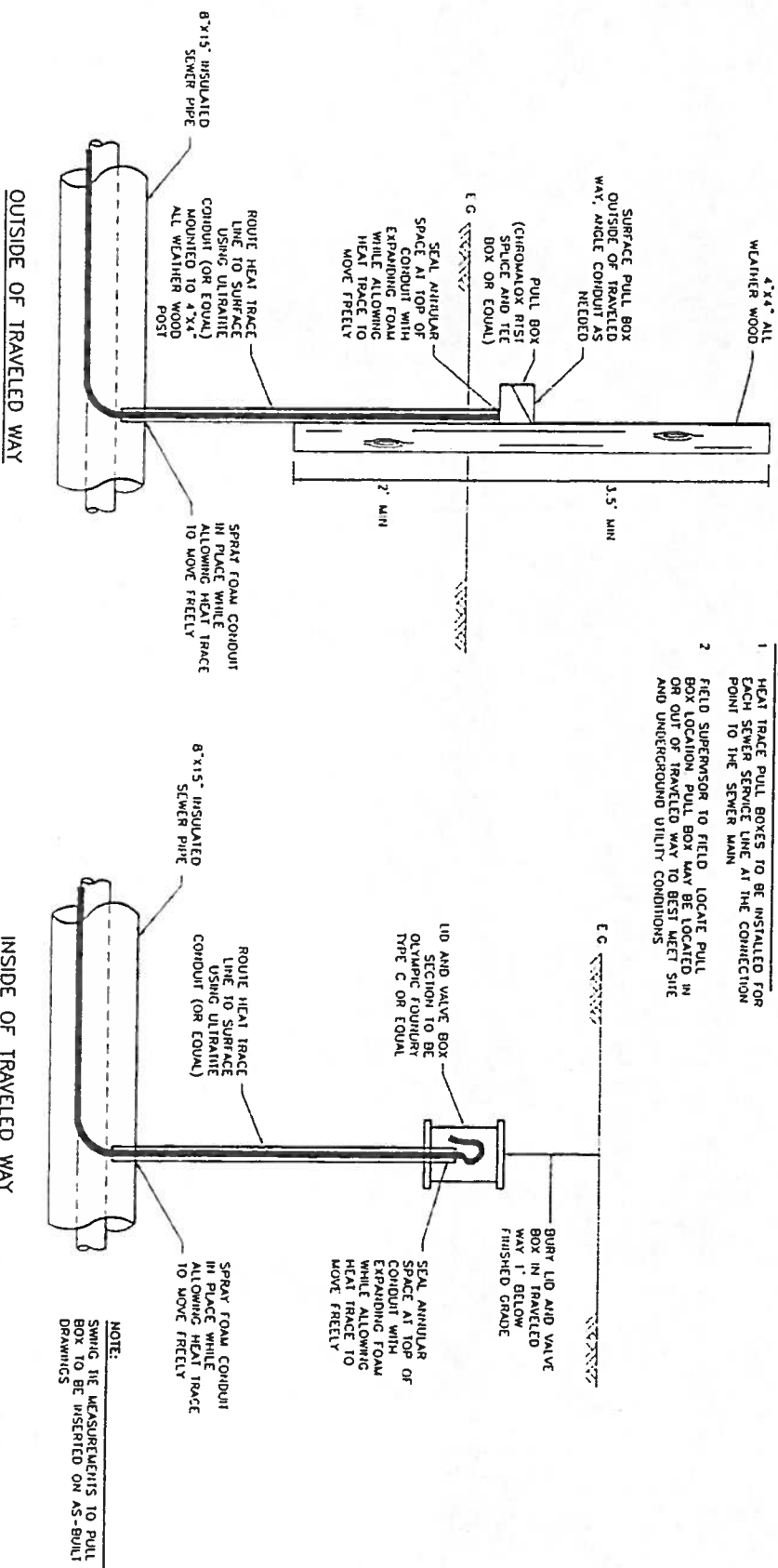
CROSS SECTION OF Z-LOCK AFTER INSTALLATION



FIRE HYDRANT WITH GATE VALVE DETAIL
NOT TO SCALE

NOTE:

1. HEAT TRACE PULL BOXES TO BE INSTALLED FOR EACH SEWER SERVICE LINE AT THE CONNECTION POINT TO THE SEWER MAIN
2. FIELD SUPERVISOR TO FIELD LOCATE PULL BOX LOCATION. PULL BOX MAY BE LOCATED IN OR OUT OF TRAVELED WAY TO BEST MEET SITE AND UNDERGROUND UTILITY CONDITIONS



WATER AND SEWER SERVICE PAN VIEW (TYP.)
NOT TO SCALE

NOTE:
SWING THE MEASUREMENTS TO PULL BOX TO BE INSERTED ON AS-BUILT DRAWINGS

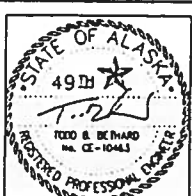
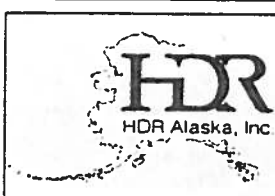


RECORD DRAWING
ISSUED FOR CONSTRUCTION

REVISION	BY	DATE

Too'gha Inc.
Tanana Water and Sewer Extension

FIRE HYDRANT AND WATER MAIN ALIGNMENT DETAILS

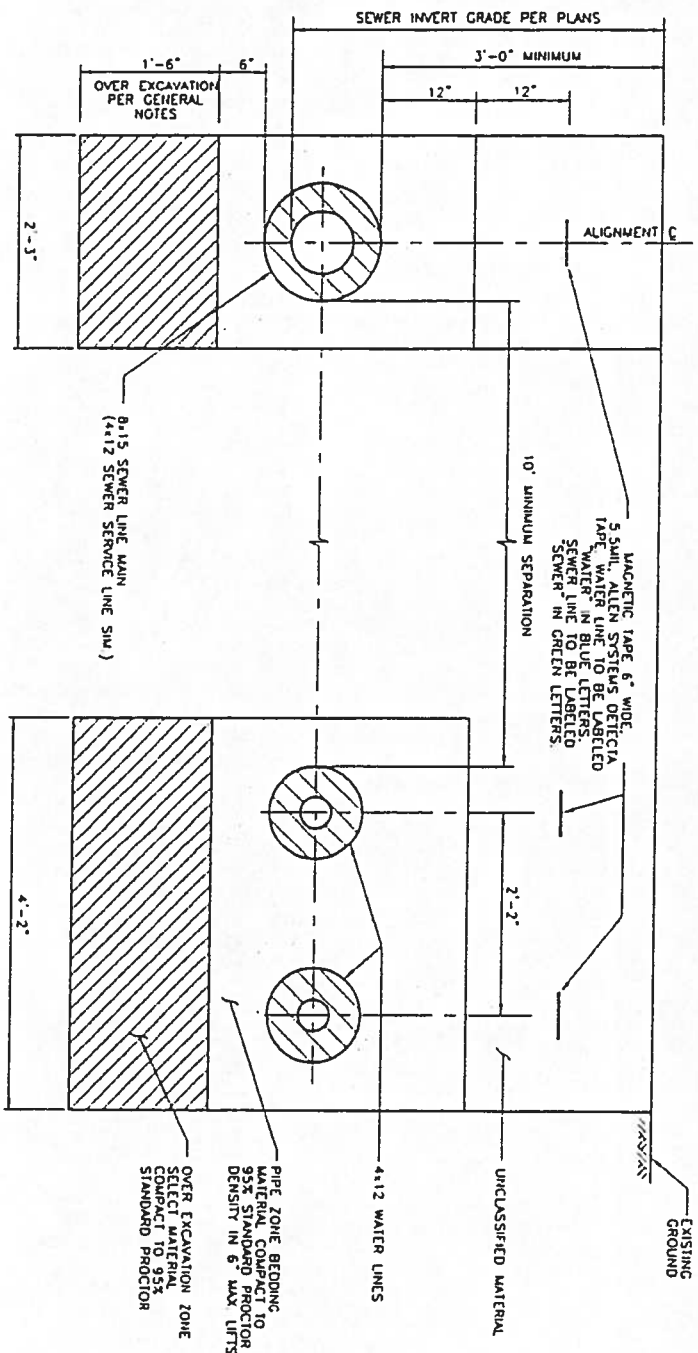


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1/27/12
DATE

ONE SEWER LINE AND TWO WATERLINES TRENCH SECTION — NO VERTICAL SEPARATION
 SCALE: 1" = 1'-0"



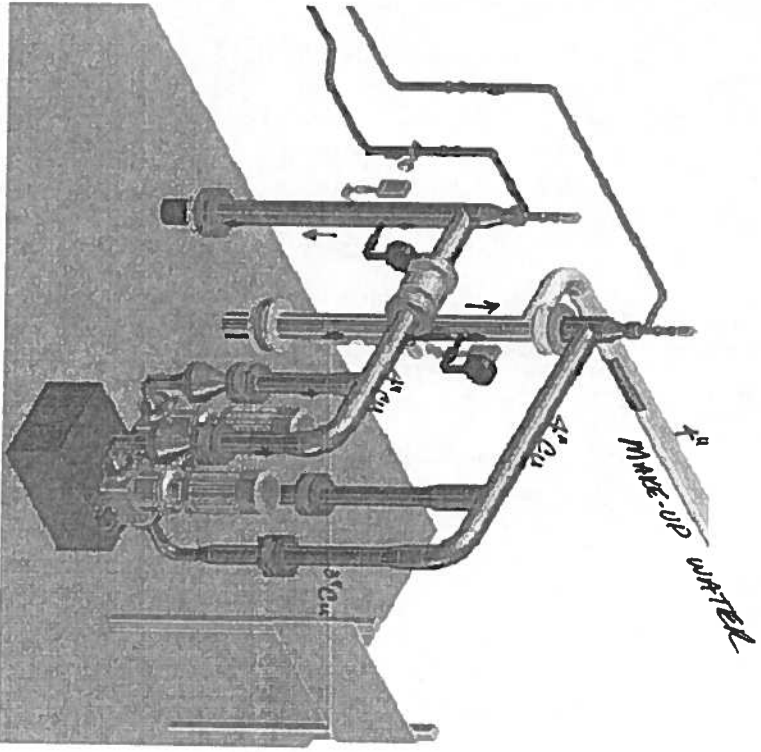
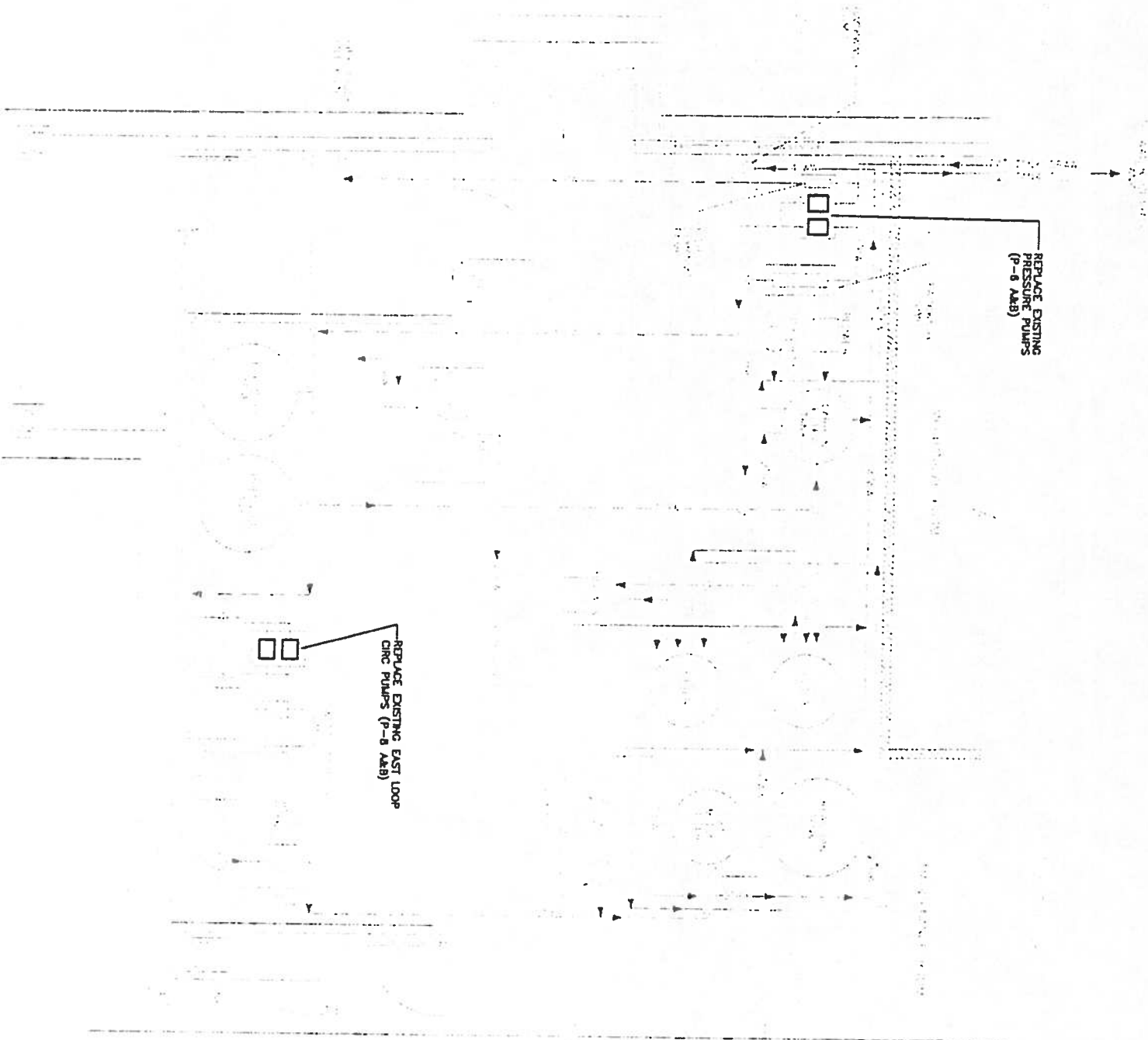
ISSUED FOR CONSTRUCTION



Project No. 13806 Date AUG 2008 Designed JC Drawn JJ Approved TB	<table> <tr> <th>REVISION</th> <th>BY</th> <th>DATE</th> </tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </table>	REVISION	BY	DATE																Too'gha Inc. Tanana Water and Sewer Extension TRENCH SECTIONS			VILLAGE SAFE WATER 	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME DATE 1/27/12
REVISION	BY	DATE																						

LEGEND	
FLOOR PIPING	
OVERHEAD PIPING	
ABBREVIATIONS	
BW	BACKWASH WATER
FW	FILTERED WATER
PW	POTABLE WATER
RW	RAW WATER
WW	WASTE WATER

WTP EQUIPMENT LAYOUT
NOT TO SCALE



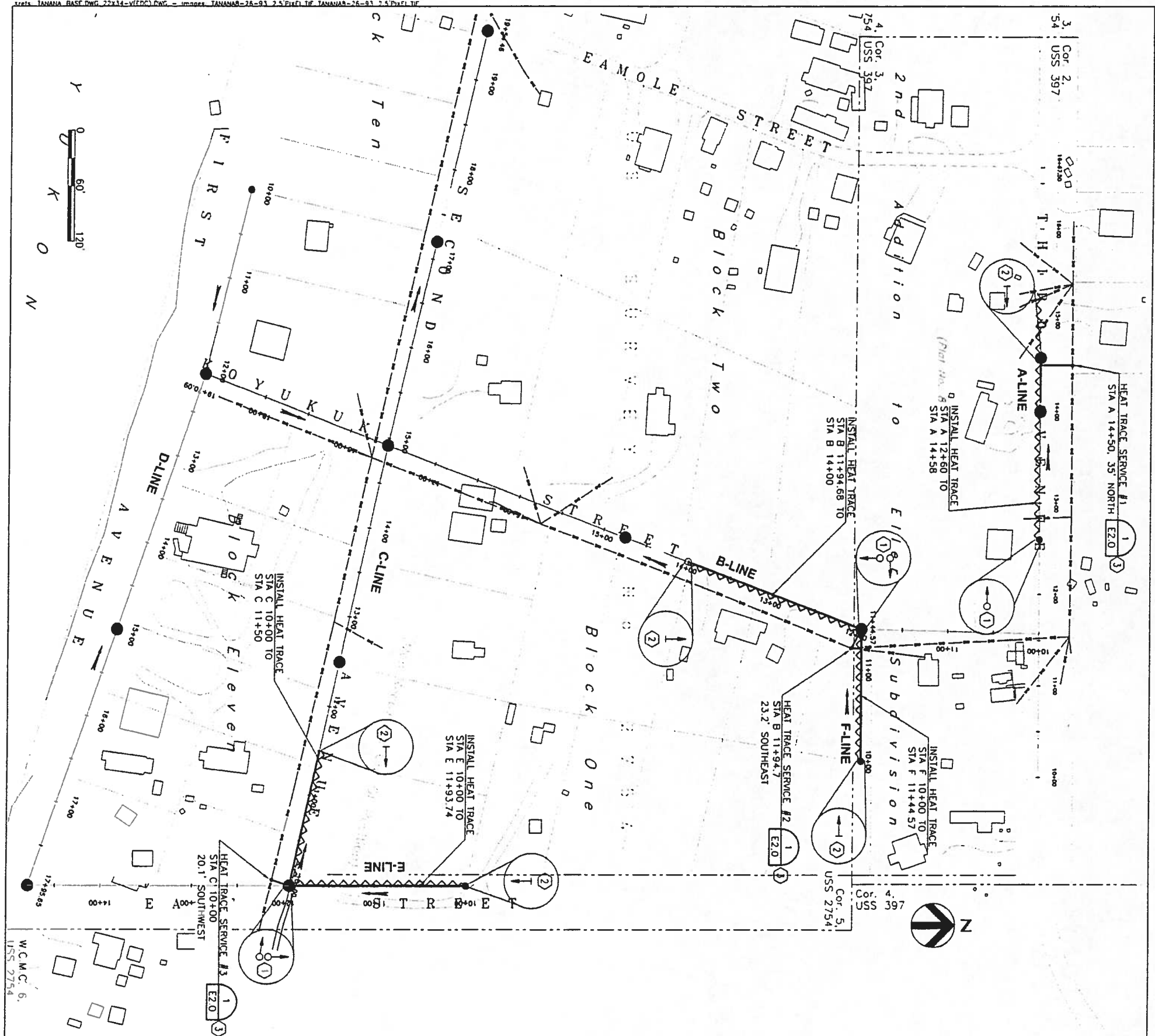
REPLACEMENT PUMPS			
PUMP	HORSEPOWER	DESIGN CAPACITY	PUMP SELECTION
P-6 A&B	5	54 GPM @ 185'	GRUNDFOS CR10 5 STAGE OR EQUAL
P-6 A&B	1.5	47 GPM @ 81'	GRUNDFOS CR10 2 STAGE OR EQUAL



RECORD DRAWING
1/24/12

ISSUED FOR CONSTRUCTION

Project No. 13805 Date AUG. 2006 Designed JG Drawn JJ Approved TB	REVISION	BY	DATE			
Too'gha Inc. Tanana Water and Sewer Extension WATER TREATMENT PLANT PUMP REPLACEMENT					VILLAGE SAFE WATER 	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME 1/24/12 DATE



- NOTES**
- ① SEE SHEET E2.0, DETAILS 1 & 2
 - ② SEE SHEET E2.0, DETAIL 3
 - ③ SERVICE LOCATION SHOWN IS APPROXIMATE COORDINATE. EXACT LOCATION WITH YUKON POWER & TELEPHONE, LOCATE SERVICE POLES & GUY WIRES WITHIN EXISTING EASEMENTS. DO NOT ENROACH UPON TRAVELED WAYS OR PRIVATE PROPERTY.

LEGEND

- | | |
|---|---|
|  | WIRDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES |
|  | GROUND |
|  | CONDUIT RUN - CHANGE IN ELEVATION |
|  | LIQUID-TIGHT FLEXIBLE CONDUIT |
|  | KILOWATT-HOUR METER |
|  | MAN HOLE |
|  | HEAT TRACE POWER POINT |
|  | HEAT TRACE END KIT. SEE DETAIL ON DWG E2 |
|  | HEAT TRACE, SELF-REGULATING, 240V, 10 WATTS/FOOT, NELSON MODEL # L71210-J OR EQUAL. |
|  | JUNCTION BOX OR FITTING |
|  | CONTROL OR LIGHTING PANELBOARD |

ABBREVIATIONS

- | | |
|-----|--|
| BCU | BARE COPPER |
| C | CONDUIT |
| G | GROUND CONDUCTOR |
| GRC | GALVANIZED RIGID (STEEL) CONDUIT |
| H | HOT CONDUCTOR |
| LFF | LIQUID TIGHT FLEXIBLE CONDUIT (METALLIC) |
| N | NEUTRAL CONDUCTOR |
| TPP | TYPICAL |
| V | VOLTS |

GENERAL
ALL WIRING SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE - NETA 70 (NEC) AND THE NATIONAL ELECTRICAL SAFETY CODE (NESC) BY OR UNDER THE SUPERVISION OF STATE OF ALASKA LICENSED JOURNEYMEN ELECTRICIANS AND/OR LINEMEN.

ALL WIRING SHALL BE IN GALVANIZED RIGID METAL CONDUIT OR LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT.

CONDUIT SUPPORT SHALL BE PROVIDED WITH 2-HOLE STRAPS.

CONDUCTORS FOR USE ON THIS PROJECT SHALL BE STRANDED COPPER WITH XHHW-2 INSULATION FOR EXTERIOR USE. COLOR CODE AS FOLLOWS: 120/240V WIRING- PHASE A=BLACK, PHASE B=RED, NEUTRAL=WHITE, GROUND=GREEN OR BARE COPPER.

UNLESS OTHERWISE NOTED, ALL WIRING SHOWN SHALL CONSIST OF 1/2" C. 3#12. ONE OF THE #12 IS A GREEN (OR BARE) GROUND.

NEC ARTICLE 250.122 SHALL BE PROVIDED IN ALL CONDUIT RUNS.

FITTINGS - ALL NON-HUB CONDUIT TERMINATIONS SHALL BE BUSHED EITHER WITH NON-METALLIC BUSHINGS ON THREADED CONDUITS OR INSULATED THROAT CONNECTORS ON FLEXIBLE CONDUITS.

ALL DEVICES SHALL BE SERVED FROM ABOVE
UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE
DRAWINGS

ALL COMPONENTS FURNISHED FOR THIS PROJECT SHALL BE USED OR LABELED BY AN AGENCY ACCEPTABLE TO THE STATE OF ALASKA DEPARTMENT OF LABOR MECHANICAL INSPECTIONS DIVISION. U/L (UNDERWRITERS LABORATORIES) ETL (EDISON TEST LAB) FM (FACTORY MUTUAL) ARE ACCEPTABLE. NOTE THAT NRTL APPROVAL IS REQUIRED FOR CSA LABELS.

TEST ALL CONDUCTORS PRIOR TO TERMINATION WITH A 500VDC MEGOHMMETER. REPLACE ALL CONDUCTORS EXHIBITING LESS THAN 10 MEGOHM IMPEDANCE. REPEAT TEST.

MATERIALS
GENERAL COMPONENTS SHALL BE AS CALLED OUT ON THE PLANS AND LEGEND. PROVIDE AS SPECIFIED AND SHOWN. MANUFACTURER AND PART NUMBER DESIGNATIONS INDICATE THE MINIMUM PERFORMANCE AND QUALITY REQUIRED ON THIS PROJECT.

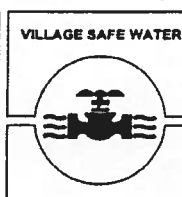
SUBMITTOR APPROVAL MANUFACTURER'S CATALOG DATA ON ALL ELECTRICAL MATERIAL INTENDED FOR USE ON THIS PROJECT. SUBMITTALS SHALL CLEARLY IDENTIFY THE MODEL, PROPERTIES, OPTIONAL ACCESSORIES, ETC. OF THE COMPONENT BEING PROVIDED.

HEAT TRACE
PERFORM CONTINUITY AND INSULATION RESISTANCE (MEGGER) TESTS ON ALL HEAT TRACE CABLES BEFORE AND AFTER INSTALLATION PER MANUFACTURER'S INSTRUCTIONS. RECORD AND SUBMIT RESULTS. ANY CABLE WITH A RESISTANCE OF LESS THAN 1,000 MEGOHMS SHALL BE REJECTED AND REPLACED. AFTER INSTALLATION, ENERGIZE EACH CABLE AND AFTER 10 MINUTES RECORD THE VOLTAGE, CURRENT AND TOTAL LENGTH OF CABLE. SUBMIT RESULTS.

[illegible]

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Tanana Water and Sewer Extension

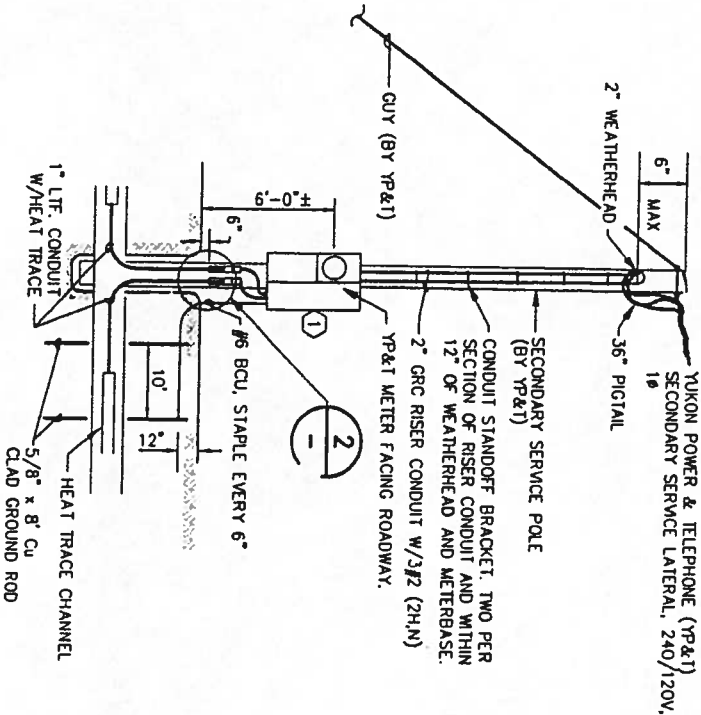
**ELECTRICAL SERVICE AND
HEAT TRACE PLAN**



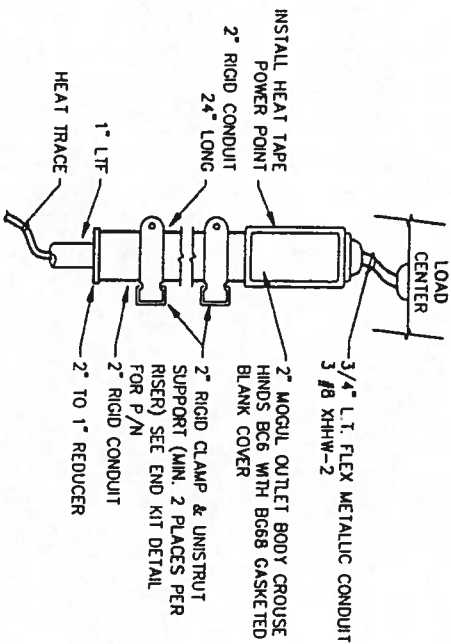
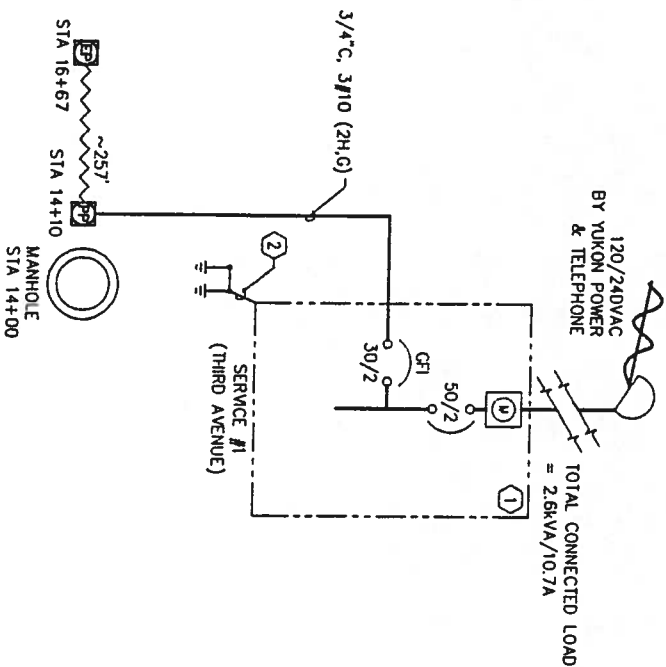
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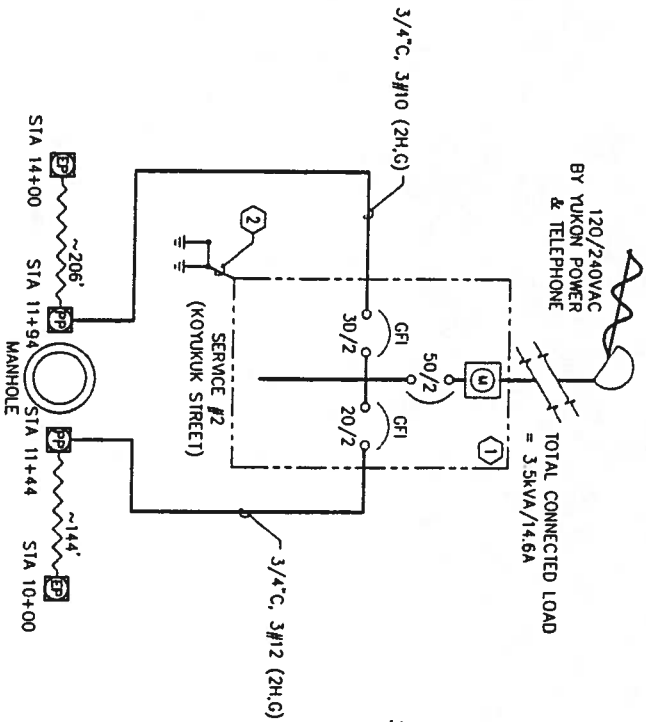
NAME _____ DATE _____



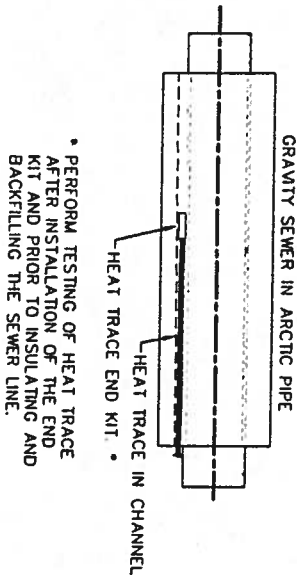
SERVICE RISER DETAIL 1
NOT TO SCALE



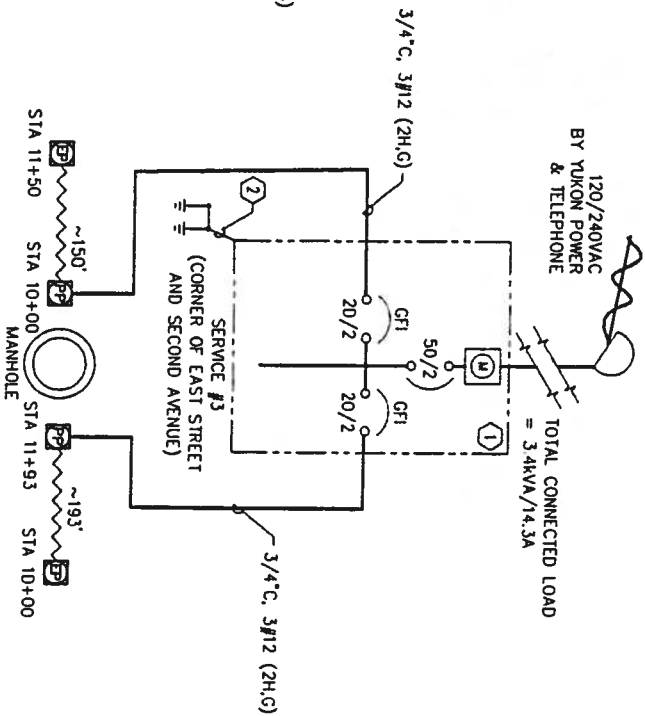
POWER POINT DETAIL 2
NOT TO SCALE



HEAT TRACE SERVICE POWER ONE-LINES



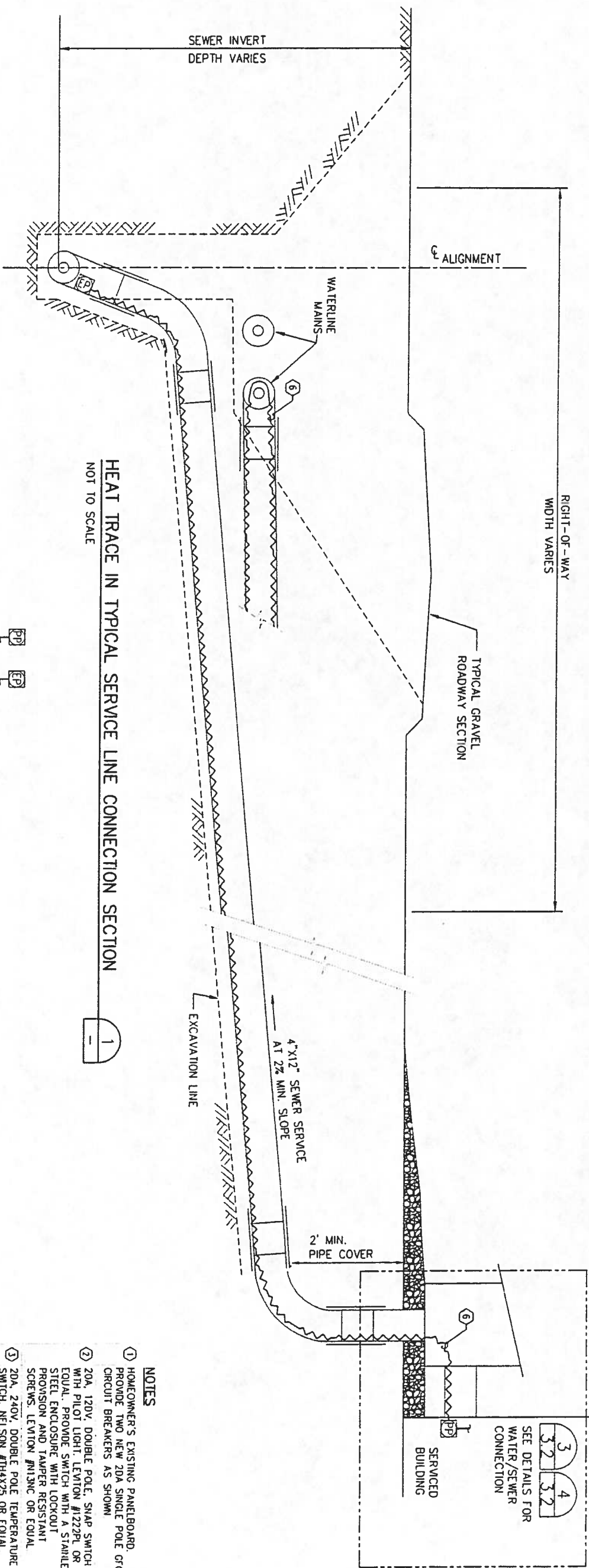
HEAT TRACE END KIT DETAIL 3
NOT TO SCALE



- NOTES
- 1 COMBINATION METER/MAIN LOAD CENTER 100A, 120/240V, 1P, 3-WIRE, NEMA 3R SQUARE D® SC1624M100S OR EQUAL.
 - 2 SEE DETAIL 1, THIS SHEET.

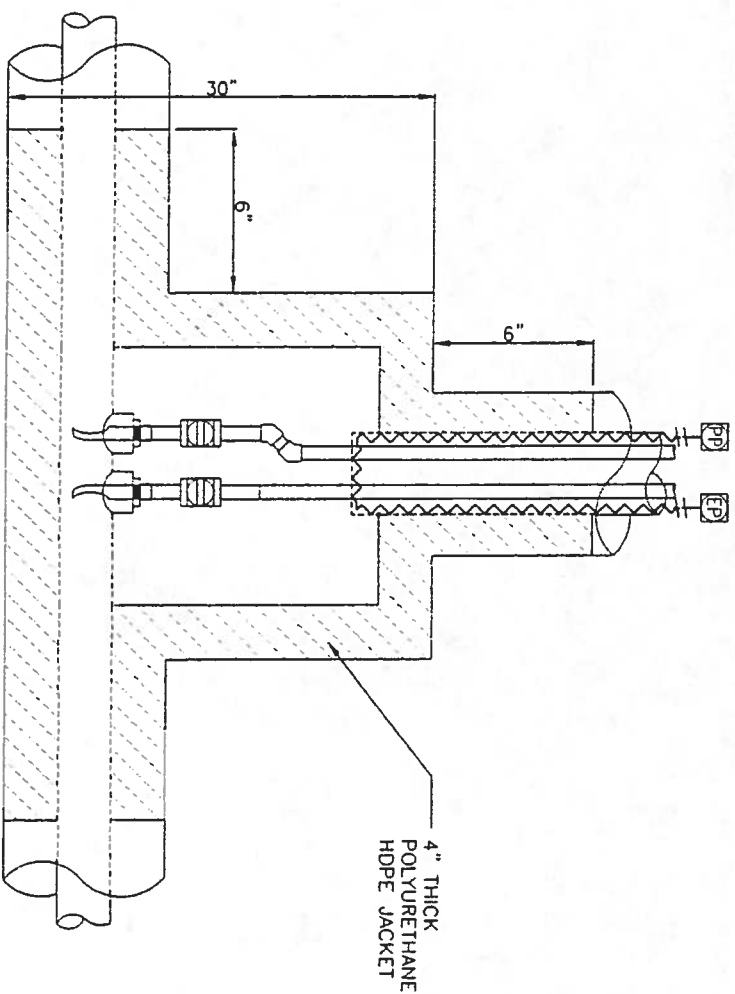
FOR AGENCY REVIEW ONLY

Project No. 13806 Date APR, 2006 Designed JHF Drawn AYN Approved TB	REVISION BY DATE	Too'gha Inc. Tanana Water and Sewer Extension HEAT TRACE ONE-LINES AND DETAILS	EDC, Inc. 213 W. Fremont St. Anchorage, AK 99503 HDR HDR Alaska, Inc.	STATE OF ALASKA 49th John H. Fendley Professional Engineer No. 1000 Exp. 2008	VILLAGE SAFE WATER	RECORD DRAWING CERTIFICATE THESE DRAWINGS REFLECT RECORDED INFORMATION OBTAINED DURING CONSTRUCTION. INFORMATION PROVIDED HEREIN IS ACCURATE TO THE BEST OF MY KNOWLEDGE. NAME DATE
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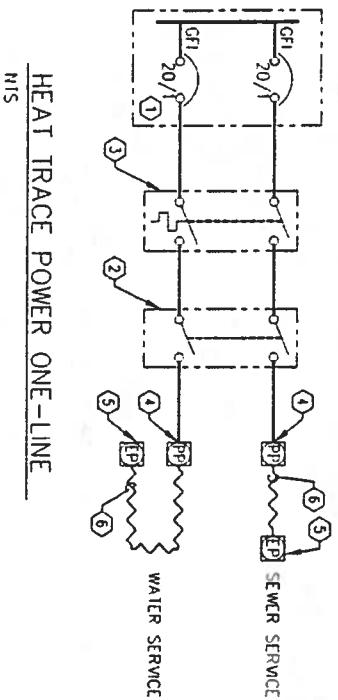
HEAT TRACE IN TYPICAL SERVICE LINE CONNECTION SECTION

1



WATER SERVICE TEE DETAIL WITH HEAT TRACE

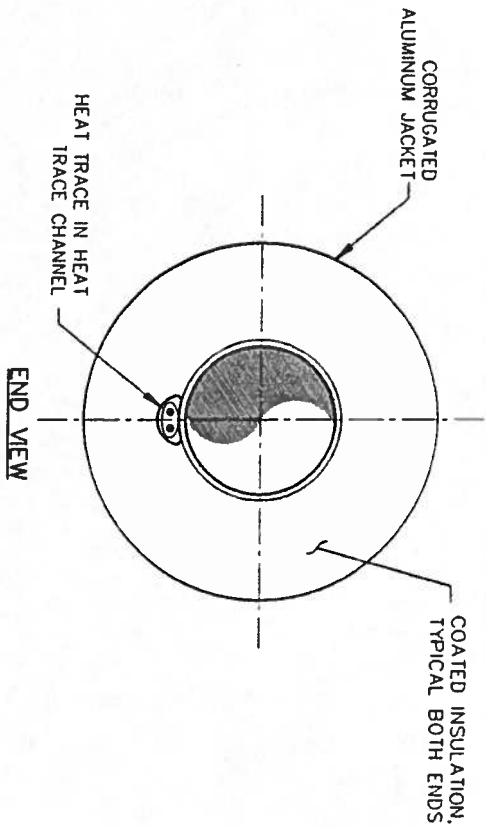
2



- NOTES**
1. HOMEOWNER'S EXISTING PANELBOARD, PROVIDE TWO NEW 20A SINGLE POLE GFCI CIRCUIT BREAKERS AS SHOWN
 2. 20A, 120V, DOUBLE POLE, SNAP SWITCH WITH PILOT LIGHT, LEVITON #1222PL OR EQUAL. PROVIDE SWITCH WITH A STAINLESS STEEL ENCLOSURE WITH LOCKOUT PROVISION AND TAMPER RESISTANT SCREWS. LEVITON #N13NC OR EQUAL
 3. 20A, 240V, DOUBLE POLE TEMPERATURE SWITCH, NELSON #TH4X25 OR EQUAL
 4. HEAT TRACE POWER POINT
 5. HEAT TRACE END KIT
 6. 3 WATTS/FOOT SELF-LIMITING HEAT TRACE, NELSON #LT13-J OR EQUAL

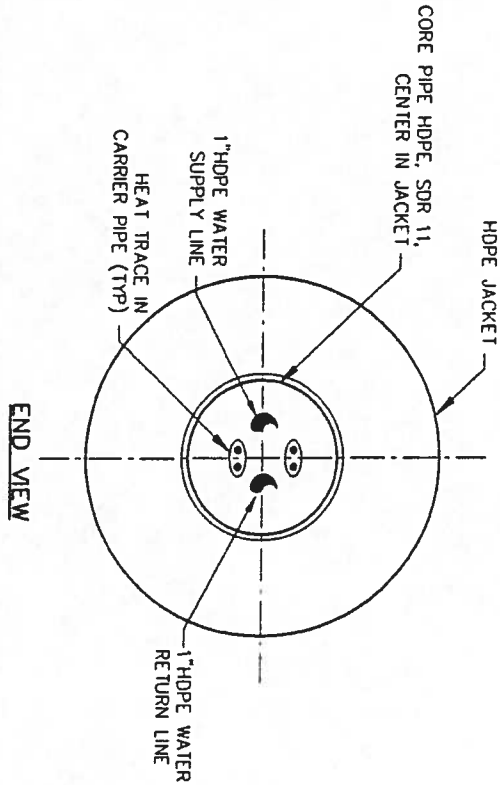
SEE DETAILS FOR WATER/SEWER CONNECTION

3 4
3.2 3.2



INSULATED POLYETHYLENE GRAVITY SEWER PIPE WITH HEAT TRACE

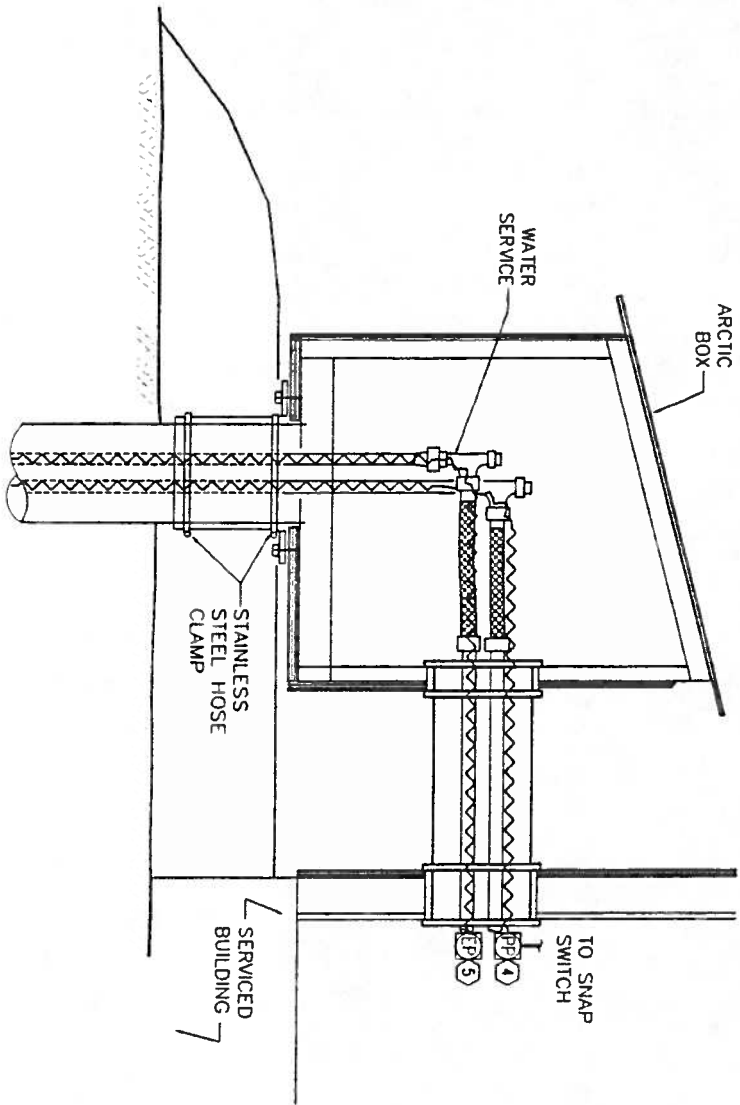
NOT TO SCALE



INSULATED POLYETHYLENE PRESSURE WATER PIPE WITH HEAT TRACE

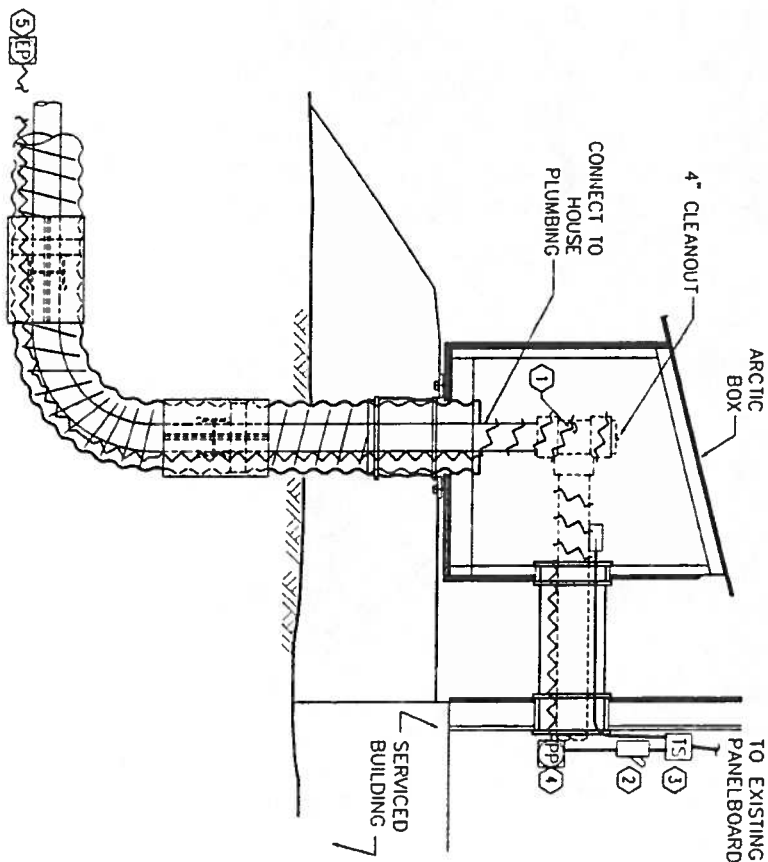
NOT TO SCALE

- NOTES**
- ① WRAP HEAT TRACE AROUND PIPING.
 - ② SNAP SWITCH. SEE SHEET EI.1, NOTE 2.
 - ③ TEMPERATURE SWITCH. SEE SHEET EI.1, NOTE 3.
 - ④ HEAT TRACE POWER POINT. SEE SHEET EI.1, NOTE 4.
 - ⑤ HEAT TRACE END KIT. SEE SHEET EI.1, NOTE 5.



WATER SERVICE BUILDING CONNECTION DETAIL

NOT TO SCALE



SEWER SERVICE BUILDING CONNECTION DETAIL

NOT TO SCALE

RECORD DRAWING CERTIFICATE

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IS ACCURATE TO THE BEST OF
MY KNOWLEDGE.

NAME

DATE

VILLAGE SAFE WATER



EDC, Inc.
213 W. Fireweed in
Anchorage, AK 99503



Too'gha Inc.
Tanana Water and Sewer Extension

ELECTRICAL
HEAT TRACE SERVICE
CONNECTION DETAILS

REVISION	BY	DATE

Project 13806
Date JULY 2006
Designed JHF
Drawn AYN
Approved TB

ISSUED FOR CONSTRUCTION

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