

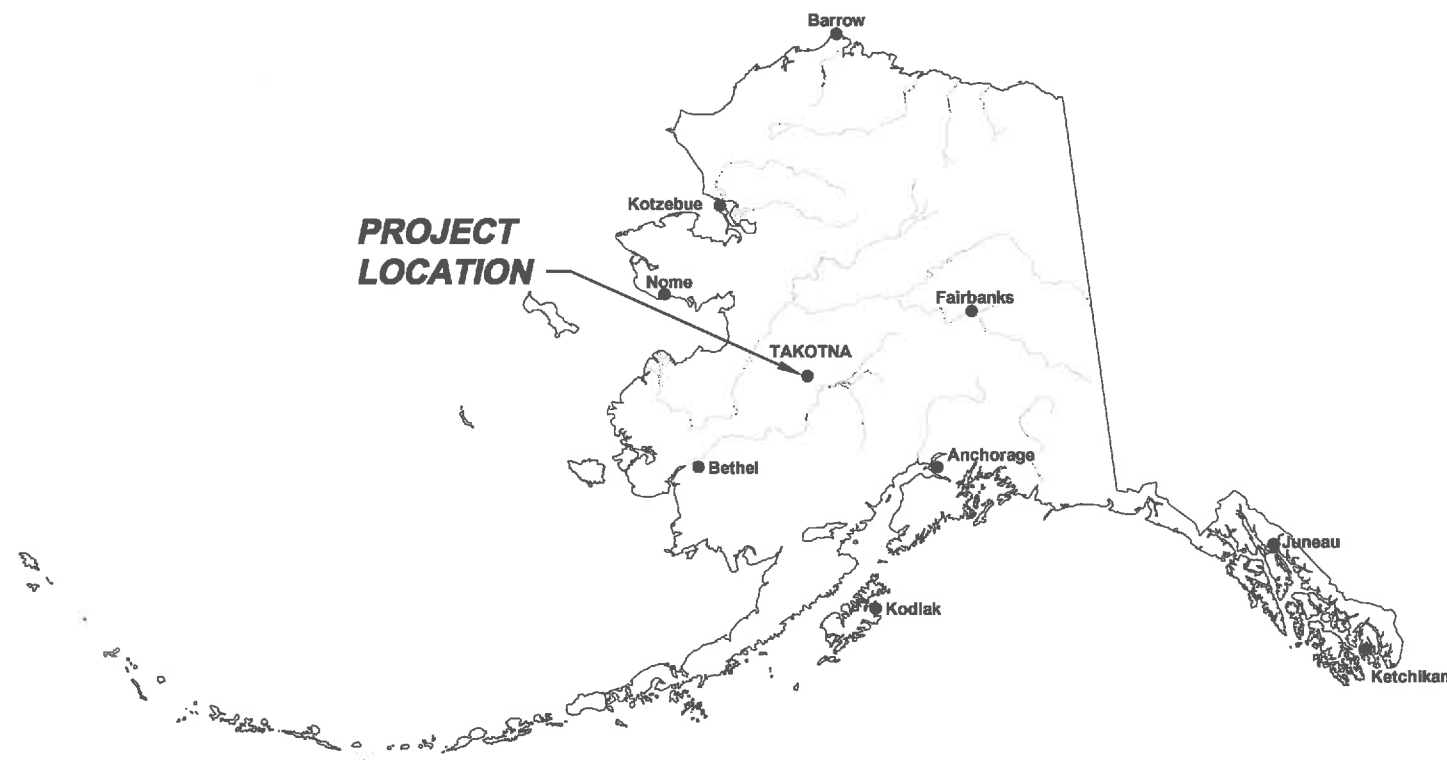
TAKOTNA TRIBAL COUNCIL

TAKOTNA WATER TREATMENT PLANT

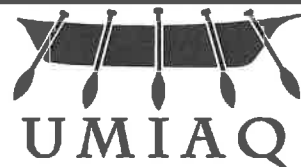
CRYPTOSPORIDIUM TREATMENT UPGRADE

TAKOTNA, ALASKA

PERMIT DRAWINGS
JUNE 17, 2014
NOT FOR CONSTRUCTION



CONSULTANTS



6700 Arctic Spur Road • Anchorage, AK 99518 • (907) 677-8220

INDEX TO DRAWINGS

COVER SHEET

G-1 PROJECT NOTES, LEGEND, ARIATIONS, AND PROCESS FLOW DIAGRAM

CIVIL

C-1 WASHETERIA DEMOLITION PLAN

C-2 WASHETERIA PIPING PLAN AND PIPING SCHEMATIC

FILE: M:\Design\Engineering\PROJECTS\70108.13 Takotna Washeteria Filter and Septic\DESIGN\Drawings\Civil\70108.13 General Notes.dwg
PRINTED: 06/17/2014 14:12 David Hardy LAYOUT: G-1

GENERAL NOTES

- OWNER: VILLAGE OF TAKOTNA
TRADITIONAL COUNCIL
P.O. BOX 7529
TAKOTNA, AK 99675
CONTACT: 907-298-2212
- ELECTRIC UTILITY: TAKOTNA COMMUNITY ASSOCIATION INCORPORATED
CONTACT: 888-856-6186
- ALL ADDITIVES AND MATERIALS USED FOR THE POTABLE WATER SYSTEM SHALL BE APPROVED FOR USE BY THE NATIONAL SANITATION FOUNDATION (NSF) STANDARDS, NSF 61, NSF 53, AS APPLICABLE..
- ALL MATERIALS FOR THE POTABLE WATER SYSTEM SHALL BE LEAD-FREE. ONLY LEAD FREE PIPE, FLUX, AND SOLDER SHALL BE USED.
- DESIGN DRAWNGS ARE SCHEMATIC IN NATURE, THEY ARE NOT INTENDED TO BE DETAILED DRAWINGS.
- PROVIDE BACKFLOW AND CROSS CONNECTION CONTROL PER 18AAC80.
- ALL PIPING MATERIALS TO BE SCHEDULE 40 PVC.

SCOPE OF WORK

- DEMOLISH EXISTING GIARDIA FILTER AND CARBON FILTERS AS SHOWN ON SHEET C-1.
- INSTALL STAGE ONE AND STAGE TWO FILTERS AND ASSOCIATED VALVES AND PIPING.
- DISINFECT SYSTEMS AND DISPOSE OF NEUTRALIZED WATER PER THE REQUIREMENTS OF ANSI/AWWA C651, C652, C653. PRESSURE TESTING MAY BE CONDUCTED AT THE SAME TIME AS DISINFECTION PER ASNI/AWWA C605.
- UPON COMPLETION OF WORK, PERFORM TOTAL COLIFORM TESTING PER ADEC REQUIREMENTS PRIOR TO ESTABLISHMENT OF SERVICE TO WATER SYSTEM.

DESIGN CRITERIA

WATER SOURCE: SURFACE

POPULATION*:
CURRENT: 51
DESIGN: 51

PER CAPITA WATER USE*:
WATERING POINT: 19 GPCPD (RECENT)
WATER DISTRIBUTION: 25 GPCPD (RECOMMENDED)

AVERAGE DAILY DEMAND*:
CURRENT:
WASHETERIA: 950 GPD
SCHOOL: 627 GPD
TOTAL: 1,577 GPD

MAXIMUM DAILY DEMAND*:
CURRENT: 3,154 GPD

PEAK HOURLY DEMAND*:
CURRENT: 5.9 GPM (CURRENT MAXIMUM FILTRATION RATE: 7 GPM)

PEAK WATER DEMAND:**
CURRENT: 41.5 GPM

SOURCE PUMPING RATE*: 37 GPM

CT TREATMENT:
THE SYSTEM CAN MEET THE CT REQUIREMENTS FOR NORMAL AVERAGE AND PEAK FLOW RATES (12 GPM AND 45 GPM RESPECTIVELY). ASSUMING A WATER TEMPERATURE OF 5 DEGREES CELSIUS, BAFFLE FACTOR OF 10%, 0.5 LOG TREATMENT, pH OF 8.5, AND A MINIMUM WATER STORAGE CAPACITY OF 7,800 GALLONS, THE SYSTEM CAN ADJUST FREE CHLORINE RESIDUAL LEVELS TO MEET CT REQUIREMENTS. AT 5.5 GPM FLOW RATE, THE SYSTEM WOULD HAVE TO MAINTAIN 0.3 MG/L FREE CHLORINE RESIDUAL. AT 41.5 GPM FLOW RATES, THE SYSTEM WOULD HAVE TO MAINTAIN 1.2 MG/L FREE CHLORINE.

PRE-FILTERS:
SAND FILTERS ARE INSTALLED BEFORE THE PROPOSED STAGE 1 FILTERS TO REMOVE SILT AND LARGE PARTICLES PRIOR TO THE TREATMENT UNITS.

PROPOSED FILTERS:
STAGE 1:
TWO (2) MUNI-1-2FL-304 MUNICIPAL HURRICANE FILTRATION SYSTEM CARTRIDGES WITH HC/170-5 HURRICANE HIGH PERFORMANCE FILTERS MANUFACTURED BY HARMSCO MUNICIPAL, OR APPROVED EQUAL.

STAGE 2:
TWO (2) MUNI-1-2FL-304 MUNICIPAL HURRICANE FILTRATION SYSTEM CARTRIDGES WITH HC/170-LT2 HURRICANE ABSOLUTE RATED FILTERS MANUFACTURED BY HARMSCO MUNICIPAL OR APPROVED EQUAL.

* DATA FROM G.V. JONES WATER PLANT UPGRADE DESIGN - 1/6/2004
** DATA FROM FIXTURE COUNT CONDUCTED IN DECEMBER, 2013

TARGET PATHOGEN	SYSTEM AS DESIGNED				REQUIRED
	PRE-FILTERS (SAND FILTERS)	STAGE 1 & 2 FILTRATION	INACTIVATION (CHLORINATION)	TOTAL	
GIARDIA LAMBLIA	0.0-LOG	2.5-LOG	0.5-LOG	3.0-LOG	3.0-LOG
CRYPTOSPORIDIUM	0.0-LOG	2.0-LOG	0.0-LOG	2.0-LOG	2.0-LOG
VIRUSES	0.0-LOG	0.0-LOG	4.0-LOG	4.0-LOG	4.0-LOG

LEGEND

EXISTING

↓

○

×

(M)

◇

CH/E

UG/T

W

S

+

420

418

PROPOSED

↓

○

×

(M)

→

SAMPLE TAP

PRESSURE GAGE

VALVE

METER

STATIC MIXER

FLOW DIRECTION

OVERHEAD ELECTRIC

UNDERGROUND TELEPHONE

UNDERGROUND POWER & TELEPHONE

WATER

BACKWASH LINE

SEPTIC LINE

FENCE

EDGE OF GRAVEL

PROPERTY LINE

EASEMENT

CONTOUR MAJOR

CONTOUR MINOR

BUILDING

ABBREVIATIONS

ADEC ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION

ANSI AMERICAN NATIONAL STANDARDS INSTITUTE

AWWA AMERICAN WATER WORKS ASSOCIATION

DEMO DEMOLISH / DEMOLITION

GPM GALLONS PER MINUTE

GPD GALLONS PER DAY

GPCPD GALLONS PER CAPITA PER DAY

HDPE HIGH-DENSITY POLYETHYLENE

MIN/IN MINUTES PER INCH

MG/L MILLIGRAMS PER LITER

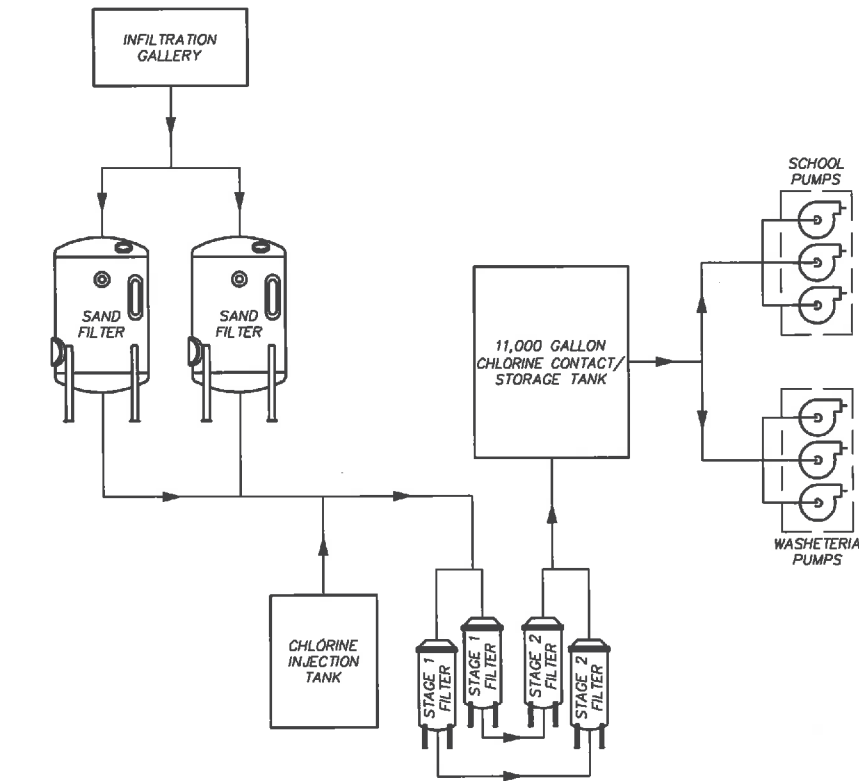
N.C. NORMALLY CLOSED

N.O. NORMALLY OPEN

NSF NATIONAL SANITATION FOUNDATION

PVC POLYVINYL CHLORIDE

TYP TYPICAL



1
G-1
PROCESS FLOW DIAGRAM
SCALE: N.T.S.

TAKOTNA TRIBAL COUNCIL

WATER TREATMENT PLANT
CRYPTOSPORIDIUM TREATMENT UPGRADE
TAKOTNA, ALASKA



PERMIT
DRAWINGS

REVISIONS:



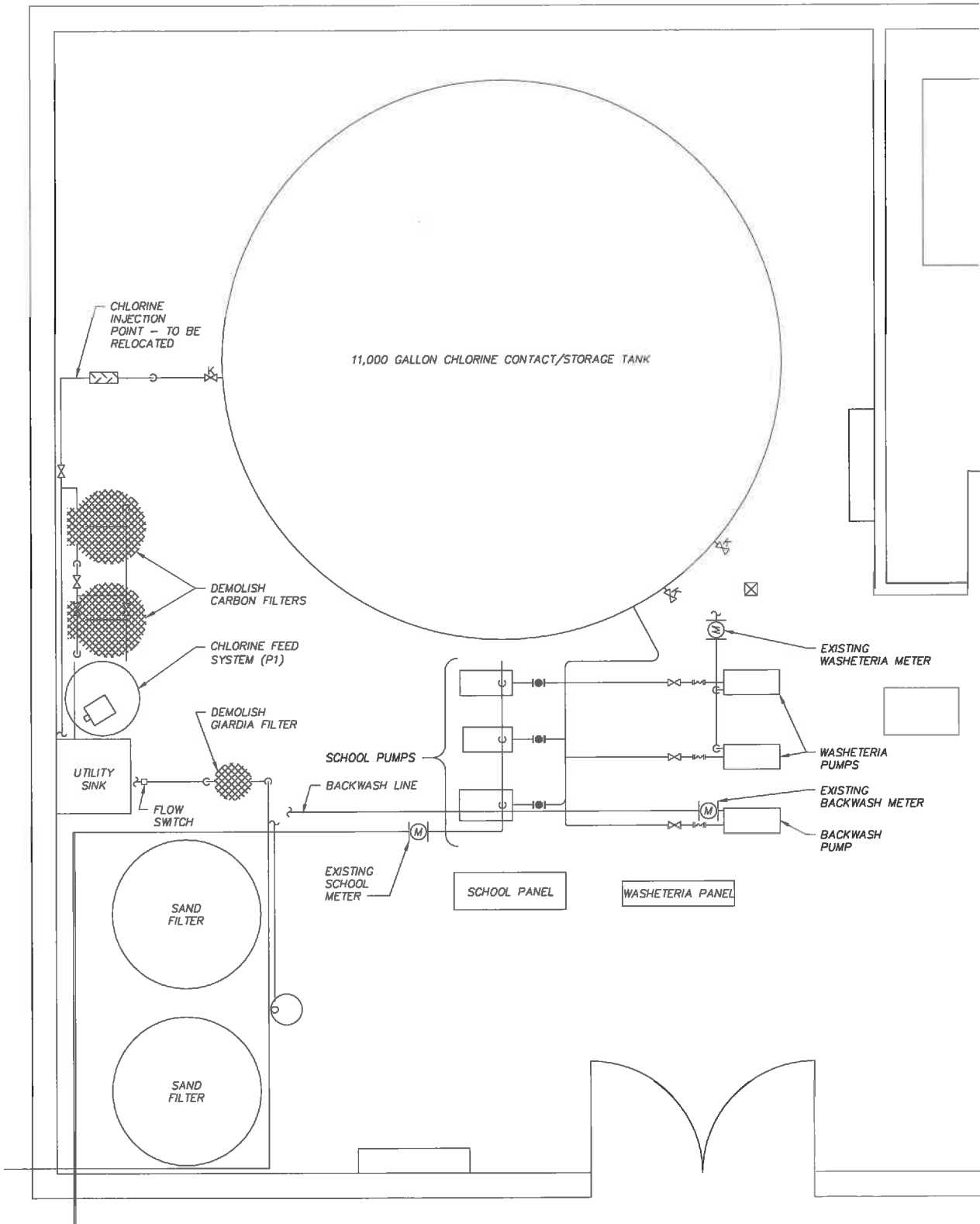
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CHECKED BY: MEW
DATE: 06/17/2014
JOB NUMBER: 70108.13
SCALE: AS SHOWN

DRAWING TITLE:
PROJECT NOTES, LEGEND,
ABBREVIATIONS AND
FLOW DIAGRAM

SHEET: 2 OF 4

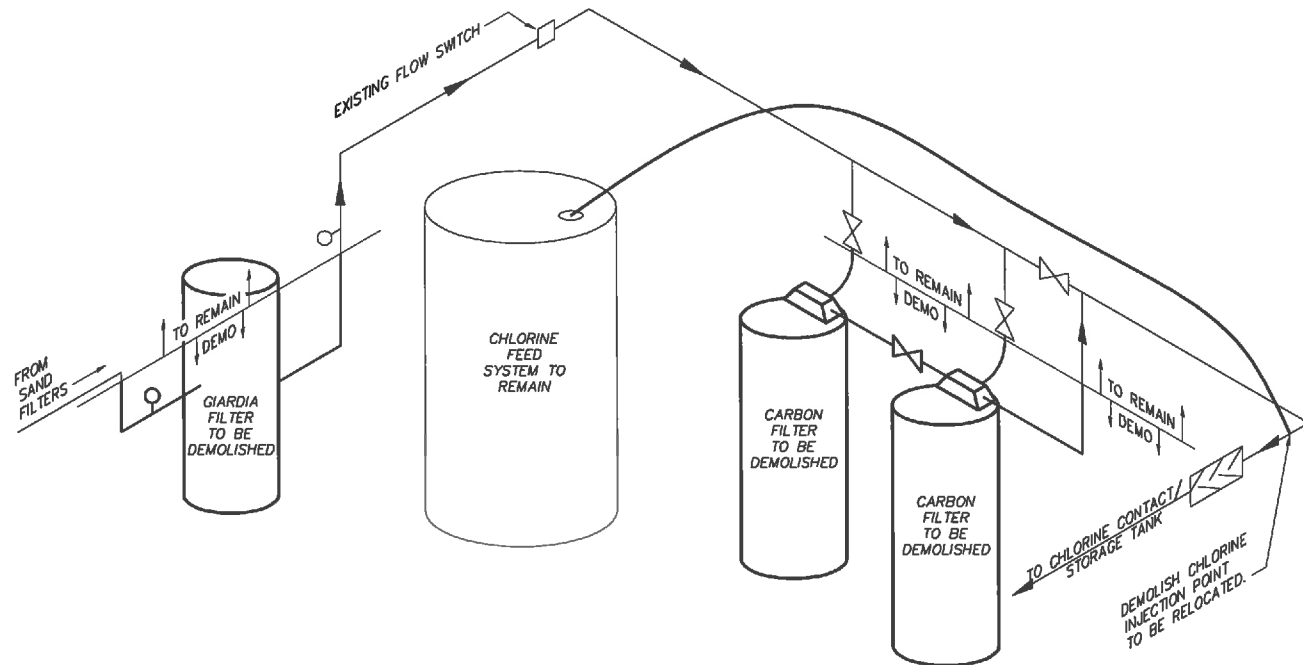
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1 **DEMOLITION PLAN**
C-1 SCALE: N.T.S.

NOTES



2 **DEMOLITION SCHEMATIC**
C-1 SCALE: N.T.S.

Notes

1. OWNER: VILLAGE OF TAKOTNA
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CONTACT: 907-298-2212
2. ELECTRIC UTILITY: TAKOTNA COMMUNITY ASSOCIATION INCORPORATED
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3. REMOVE EXISTING GIARDIA FILTER AND PRESSURE GAUGE.
4. REMOVE TWO EXISTING CARBON FILTER AND ASSOCIATED HARDWARE. VALVES FROM RAW WATER LINE TO REMAIN.
5. DO NOT REMOVE OR DAMAGE BACKWASH LINES OR VALVES.

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PERMIT
DRAWINGS

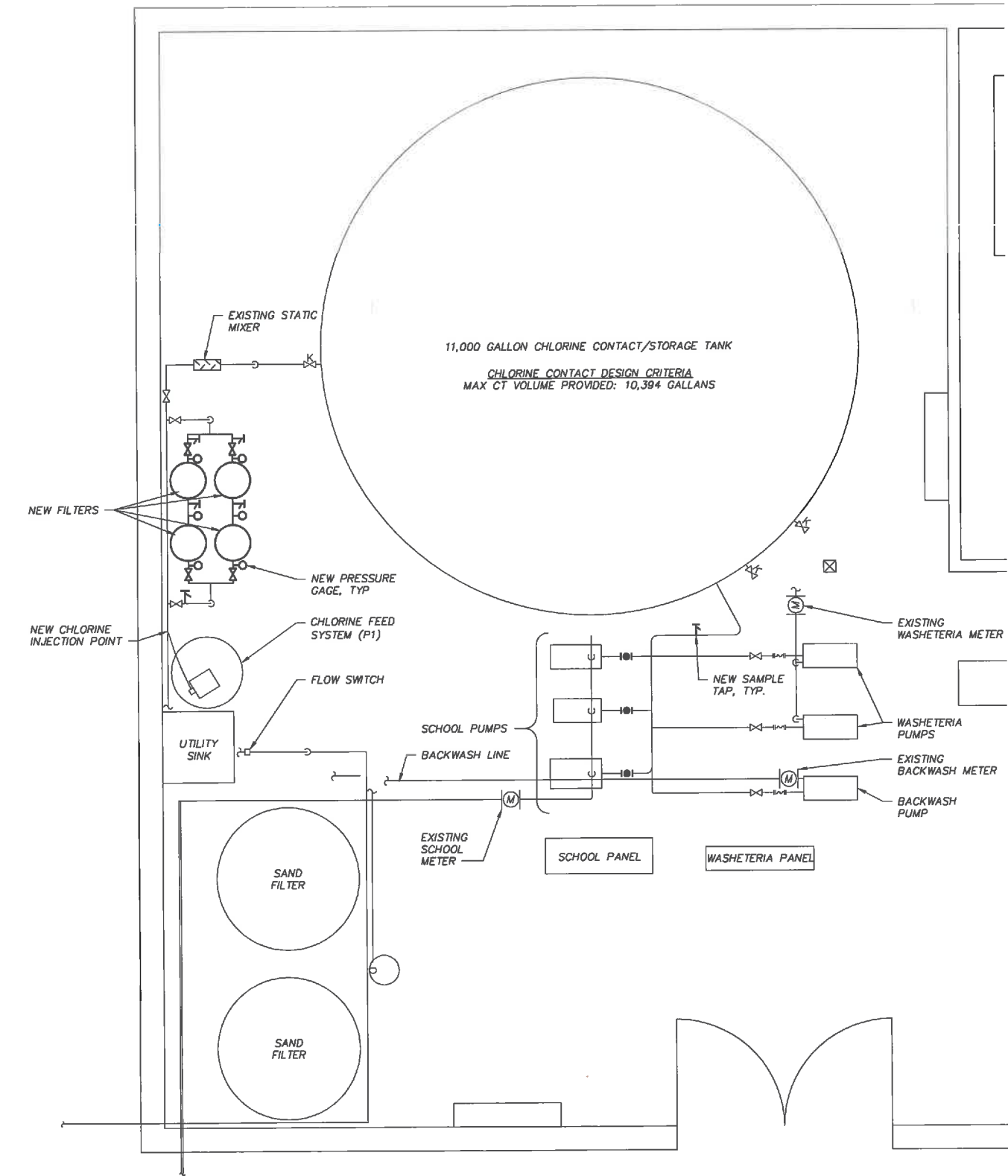


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SCALE: AS SHOWN

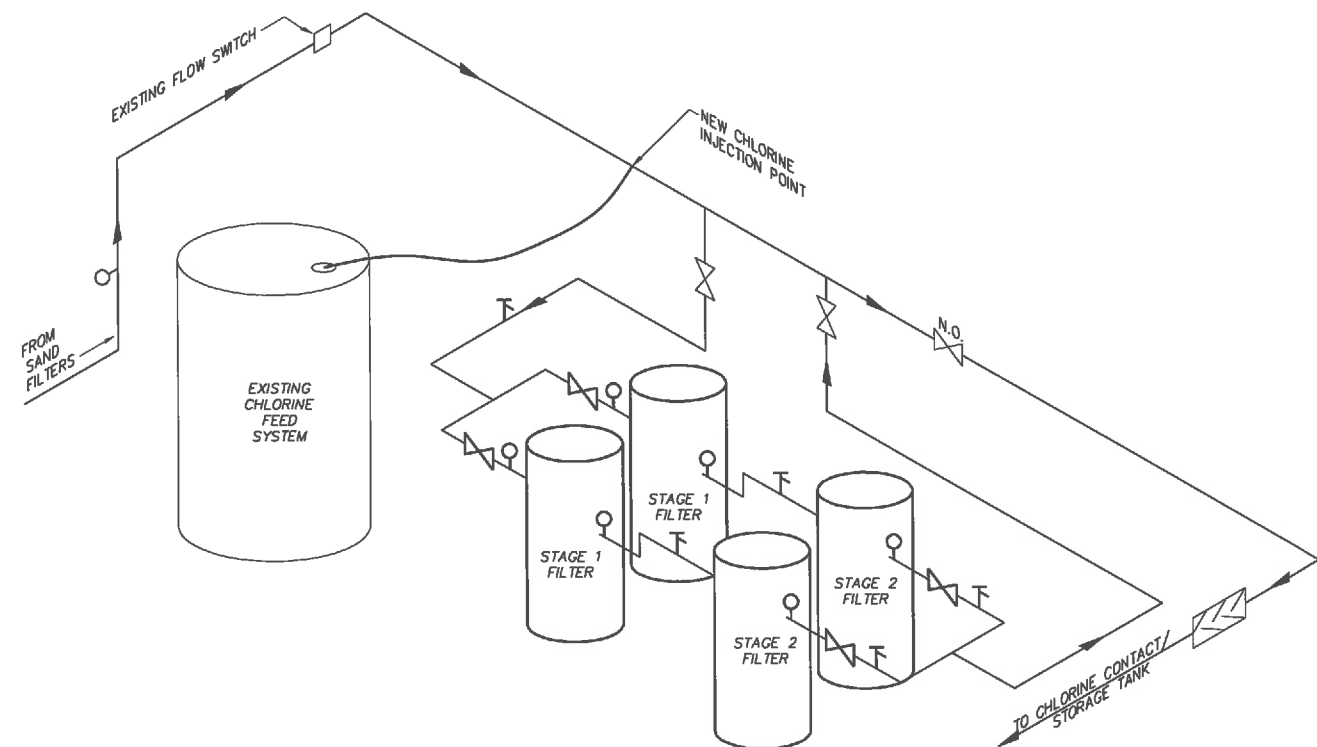
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WASHETERIA
DEMOLITION PLAN

SHEET: 3 OF 4
C-1

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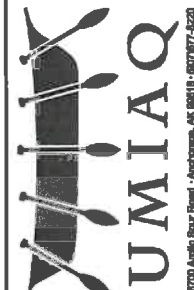
1 WASHETERIA PLAN
C-2 SCALE: N.T.S.



2 WASHETERIA PIPING SCHEMATIC
C-2 SCALE: N.T.S.

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WATER TREATMENT PLANT
CRYPTOSPORIDIUM TREATMENT UPGRADE
TAKOTNA, ALASKA



PERMIT
DRAWINGS

REVISIONS:



DRAWN BY: DBH
CHECKED BY: MEW
DATE: 06/17/2014
JOB NUMBER: 70108.13
SCALE: AS SHOWN

DRAWING TITLE:
WASHETERIA PIPING PLAN
AND PIPING SCHEMATIC

SHEET: 4 OF 4

C-2