BULL CREEK SURFACE WATER TREATMENT PLANT UPGRADE

21 MGD TO 31.5 MGD

GRAND STRAND WATER & SEWER AUTHORITY

Quality service now and in the future

GRAND STRAND WATER & SEWER AUTHORITY

CONWAY, SOUTH CAROLINA

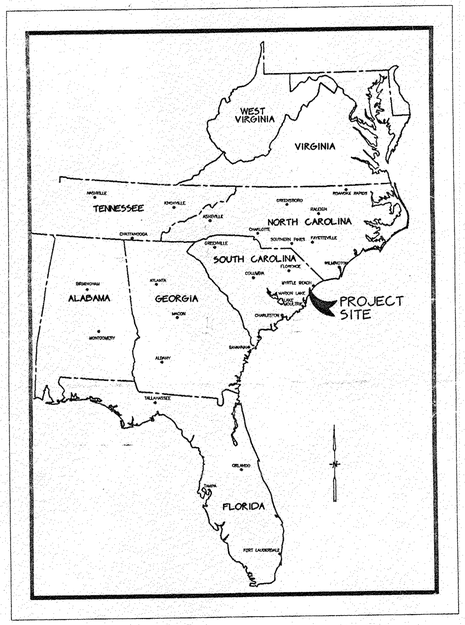
MTR CTL #1 MODULE MD-2-13
115-0445

BID SET

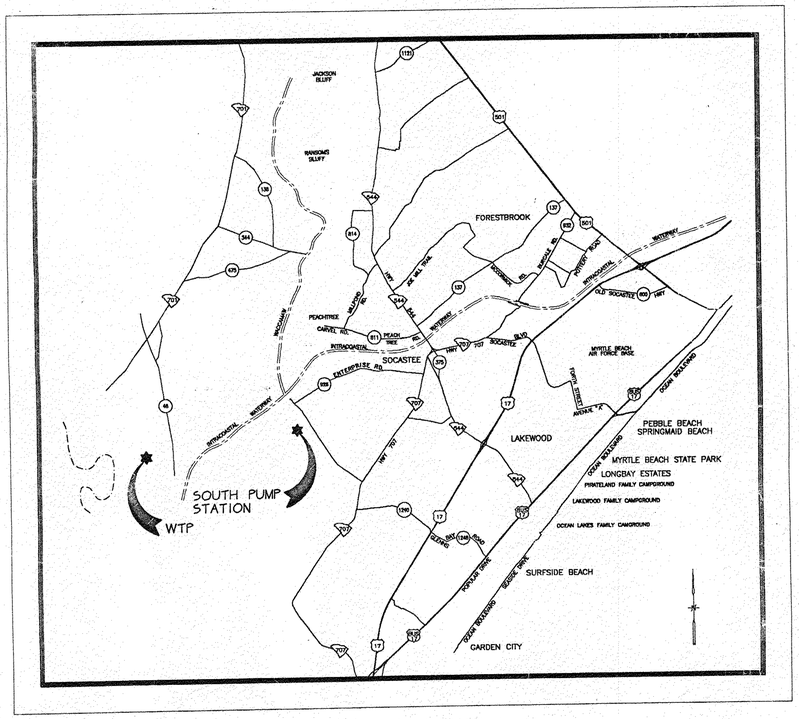
RECEIVED
MAY 15 1996

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

REVISED 10 MAY 1996



PROJECT LOCATION
NTS



VICINITY MAP
N.T.S.

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BID SET

SYM.	DESCRIPTION	DATE	BY

REVISIONS

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

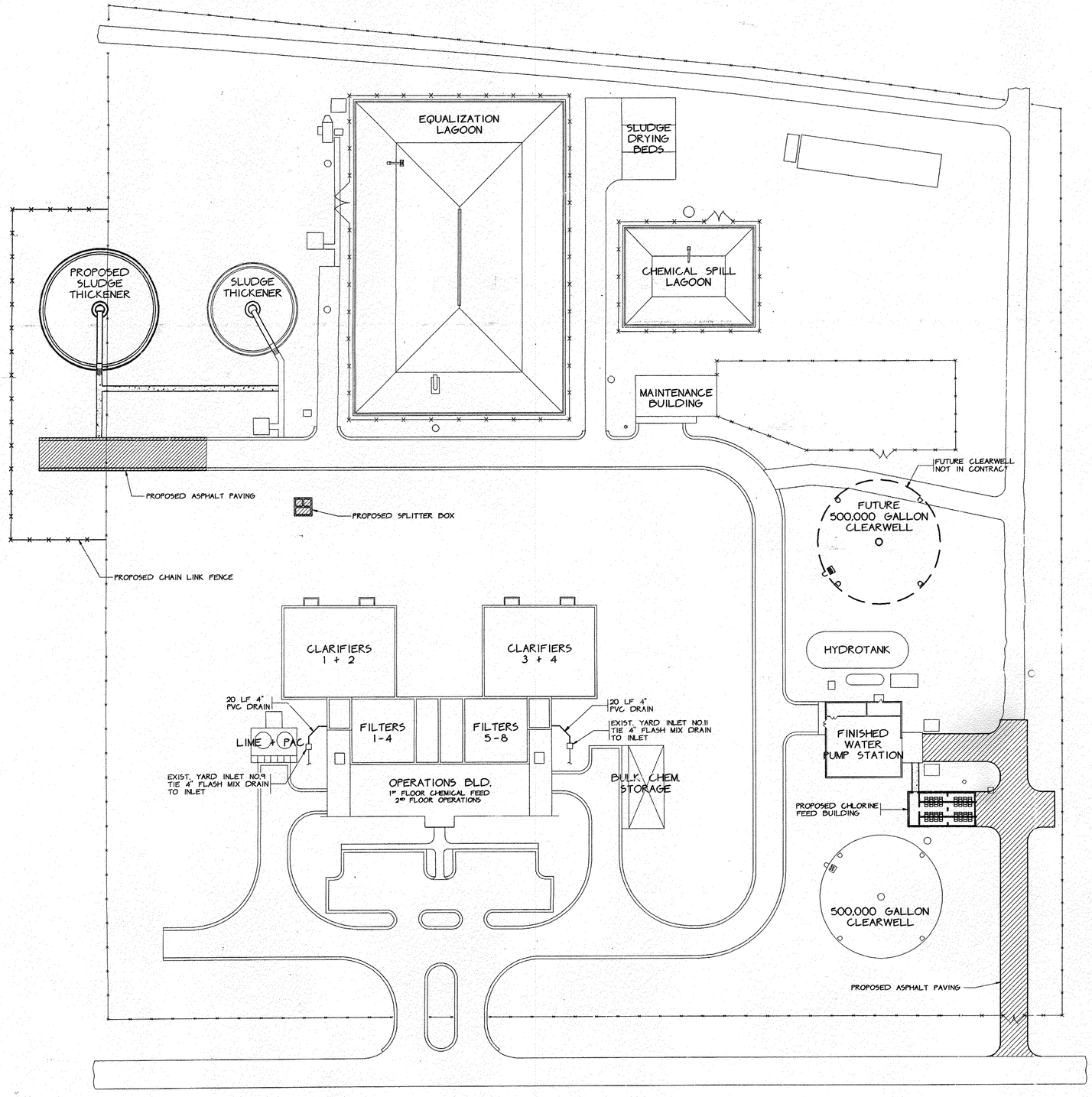
VICINITY MAP AND INDEX

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN

SHEET NO.
G-2
OF 26

HOBBS UPCHURCH & ASSOC. C:\BEACH\GS9503\DGN\G503-G02.DWG EDITED BY: DC DATE: 05/13/96 TIME: 18:56 SCALE: 1"=4000.000'



BULL CREEK WATER TREATMENT PLANT
N.T.S.

GENERAL CONSTRUCTION NOTES:

1. ALL WORK ASSOCIATED WITH PLANT SYSTEMS SHALL BE COORDINATED WITH THE WTP ADMINISTRATION STAFF. A DETAILED SCHEDULE SHALL BE PREPARED FOR EACH ACTIVITY, COORDINATED WITH THE OWNER AND THE ENGINEER.
2. CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR A SUITABLE STAGING AREA FOR EQUIPMENT AND MATERIALS.

BID SET

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

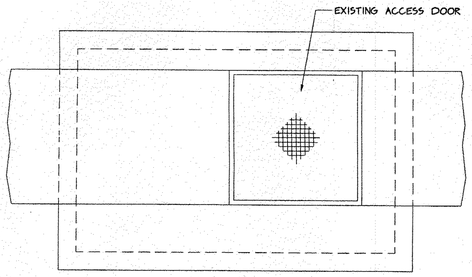
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

PLANT LAYOUT

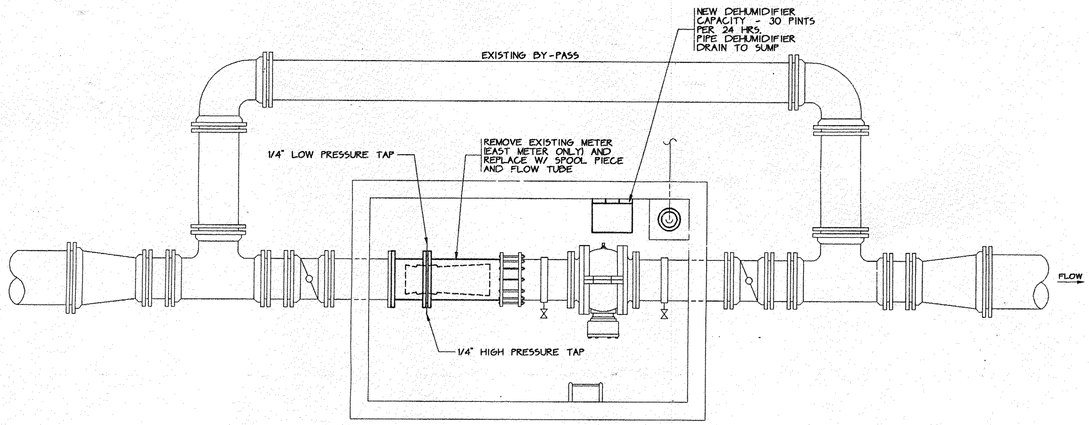
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1998
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	1" = 30'
SHEET NO.	G-4
OF:	26

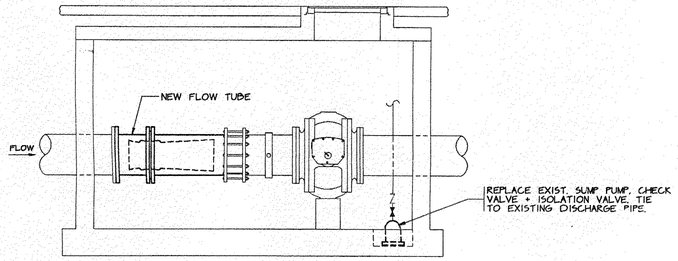
HOBBS UPCHURCH & ASSOC. H:\BEACH\DC\BEACH\G3503\500\G003-G04.DWG EDITED BY: DC DATE: 05/13/98 TIME: 09:40 SCALE: 1"=30.000'



EXISTING RAW WATER METER VAULT
TOP VIEW
SCALE: 1/2" = 1'-0"



EXISTING RAW WATER METER VAULT
LOWER PLAN VIEW
SCALE: 1/2" = 1'-0"



SECTION VIEW
SCALE: 1/2" = 1'-0"

RAW WATER METER VAULT MODIFICATION NOTES: (FOR BOTH PITS)

1. THE CONTRACTOR SHALL CLEAN THE METER PITS OF ALL SAND AND DEBRIS INCLUDING CLEANING OUT THE SUMPS. (THE NEW SUMP PUMP WILL NOT BE UTILIZED TO REMOVE SAND FROM THE PIT.)
2. THE CONTRACTOR SHALL REMOVE THE EXISTING SUMP PUMP AND INSTALL A NEW 1/2 HP SUMP PUMP IN EXISTING SUMP PIT. THE CHECK VALVE AND ISOLATION VALVE WILL ALSO BE REPLACED.
3. THE CONTRACTOR SHALL INSTALL NEW DEHUMIDIFIER SUITABLE FOR CONTROLLING MOISTURE IN THE PIT.
4. THE CONTRACTOR SHALL SEAL/WATERPROOF METER VAULTS.

RAW WATER METER VAULT MODIFICATION NOTES: (EAST METER ONLY)

1. THE CONTRACTOR SHALL REMOVE THE EXISTING METER AND REPLACE THE UNIT WITH A VENTURI METER INSERT AS MANUFACTURED BY PRIMARY FLOW SIGNAL. THE METER SHALL BE AN 18"X9" METER WITH 125# FLANGE DRILLING. THE THROAT AND SLEEVES SHALL BE STAINLESS STEEL. THE FLANGE SHALL BE EPOXY COATED STAINLESS STEEL. A DIFFERENTIAL PRESSURE TRANSDUCER SUITABLE FOR CALCULATING THE FLOW THROUGH THE METER SHALL BE PROVIDED. THE TRANSMITTER SHALL BE CAPABLE OF A 4-20 MA OUTPUT. THE CONTRACTOR SHALL PROVIDE ALL ELECTRICAL AND CONTROL WIRING CONNECTIONS AS WELL AS PRESSURE PIPING FROM METER TO THE TRANSDUCER. THE TRANSDUCER SHALL BE MOUNTED IN THE VALVE PIT. BELDEN CABLE SHALL BE INSTALLED IN THE EXISTING CONDUIT TO THE LOCATION OF THE FLOW INDICATOR.

BID SET

SECTION NO. 1

SYM.	REVISIONS DESCRIPTION	DATE	BY

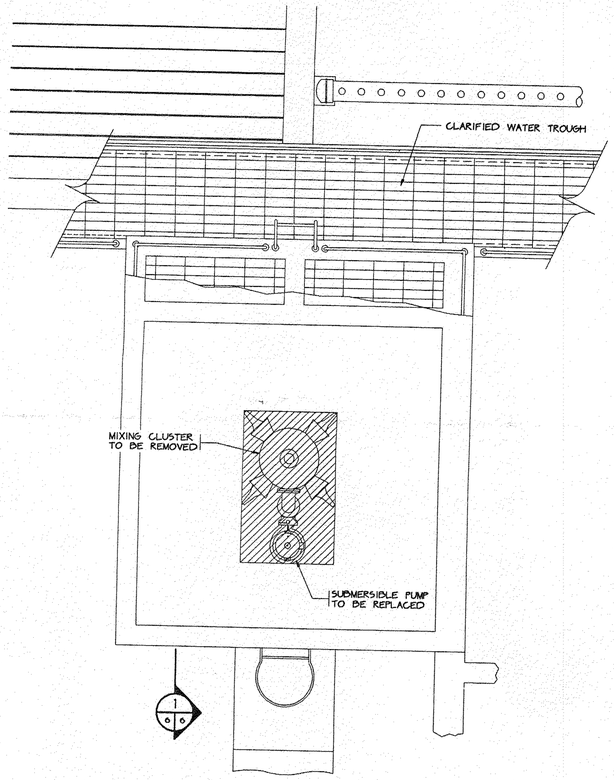
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

RAW WATER METER VAULT
PLAN AND SECTION

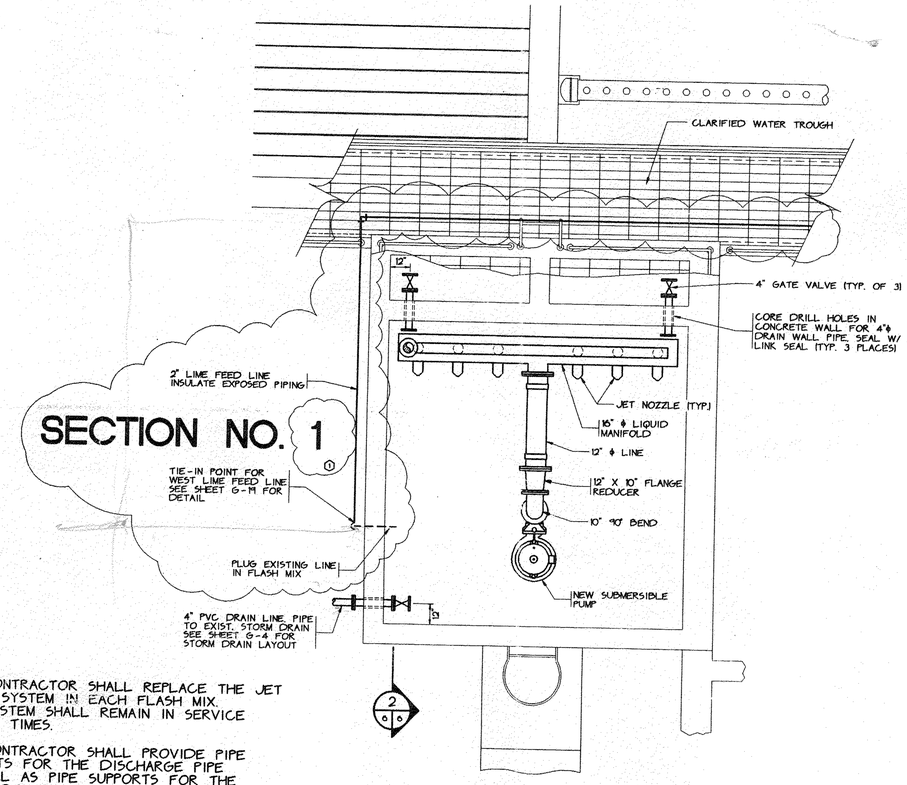
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	1/2"=1'0"
SHEET NO:	G-5
OF:	26

HOBBS UPCHURCH & ASSOC. C:\BEACH\059503\SOG\G503-026.DWG EDITED BY: DC DATE: 04/08/96 TIME: 15:05 SCALE: 1/2"=1'-0"



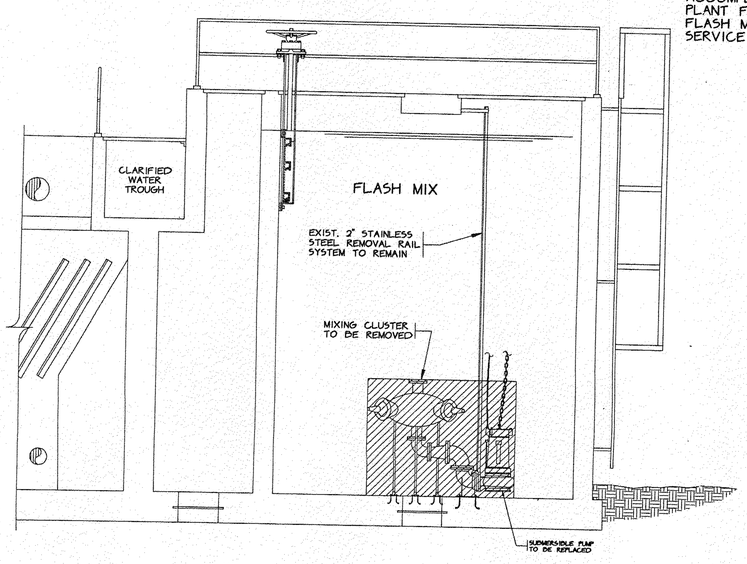
FLASH MIX - DEMOLITION PLAN
SCALE: 3/8" = 1'-0"



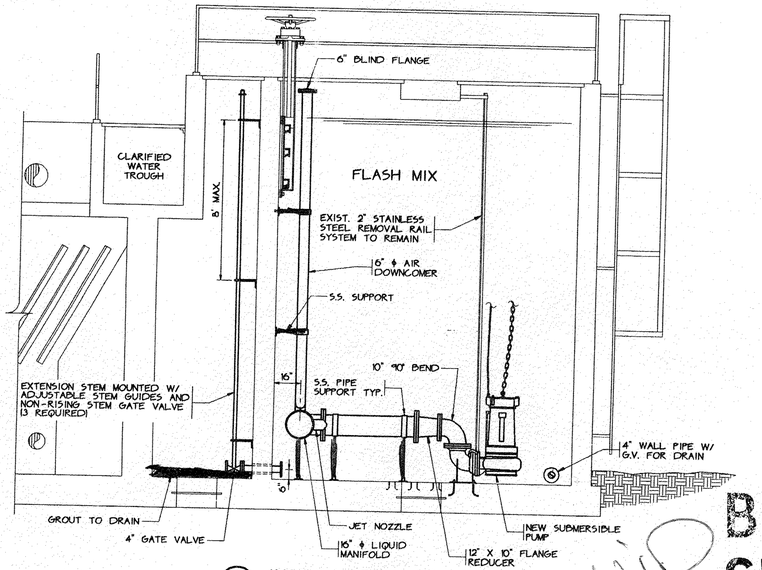
NOTES:

1. THE CONTRACTOR SHALL REPLACE THE JET MIXING SYSTEM IN EACH FLASH MIX. ONE SYSTEM SHALL REMAIN IN SERVICE AT ALL TIMES.
2. THE CONTRACTOR SHALL PROVIDE PIPE SUPPORTS FOR THE DISCHARGE PIPE AS WELL AS PIPE SUPPORTS FOR THE 6" AIR DOWNCOMER. ALL SUPPORTS SHALL BE STAINLESS STEEL.
3. WORK FOR THIS SECTION CAN ONLY BE ACCOMPLISHED DURING PERIODS WHEN THE PLANT FLOW IS LESS THAN 15 MGD. THE FLASH MIX BASINS CAN ONLY BE OUT OF SERVICE FOR 5 DAYS MAX.

FLASH MIX - INSTALLATION PLAN
SCALE: 3/8" = 1'-0"



1 DEMOLITION SECTION VIEW
SCALE: 3/8" = 1'-0"



2 INSTALLATION SECTION VIEW
SCALE: 3/8" = 1'-0"

BID SET

SECTION NO. 2

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
0	REVISED SECTION NUMBERS	5/12/98	JWM

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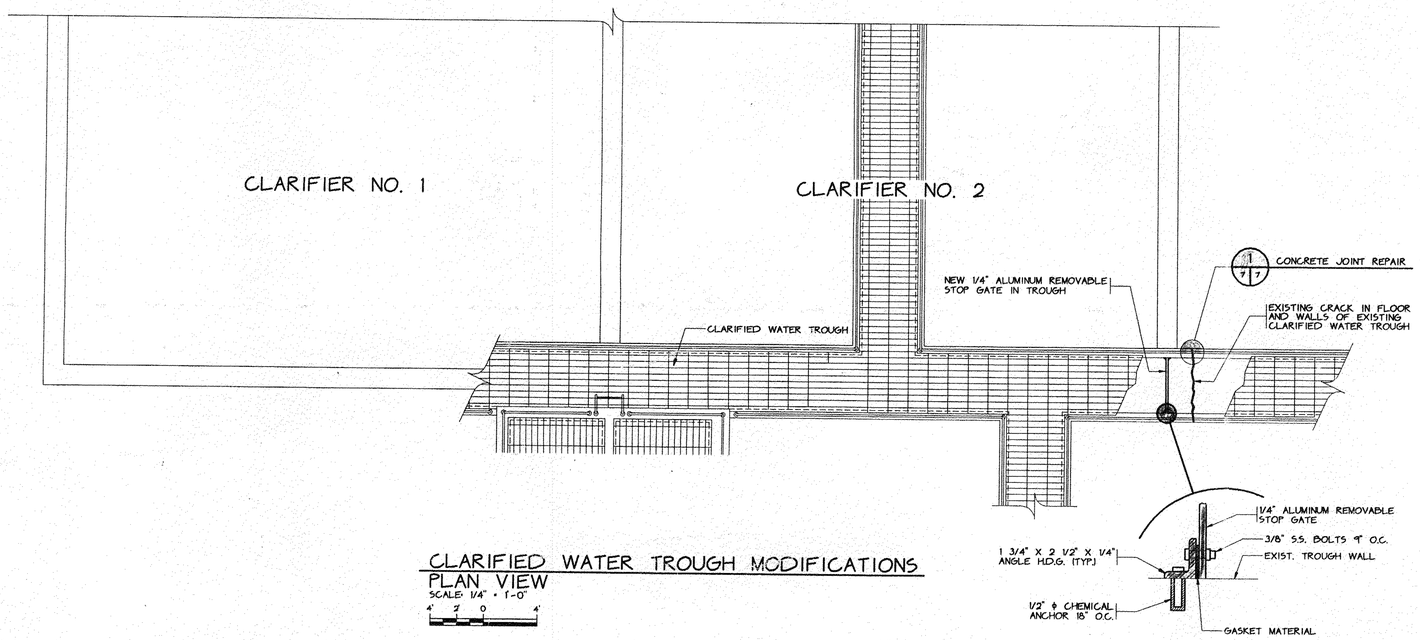
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

FLASH MIX CHAMBER PLAN AND SECTION

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

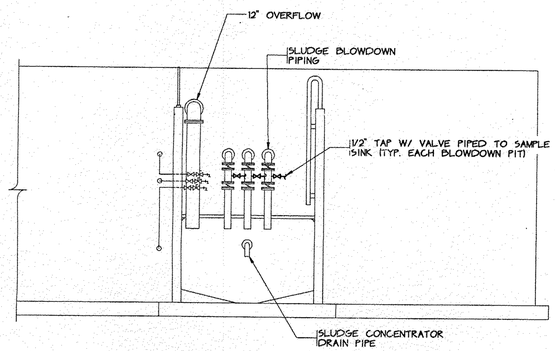
DATE:	MARCH 1998
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-6
OF:	26

HOBBS UPCHURCH & ASSOC. H:\BEACH\DC\BEACH\G5\G5\SAV\G013-006.DWG EDITED BY: DC DATE: 05/13/98 TIME: 15:44 SCALE: 3/8"=1'-0"



CLARIFIED WATER TROUGH MODIFICATIONS
PLAN VIEW
SCALE: 1/4" = 1'-0"

4' 2' 0 4'



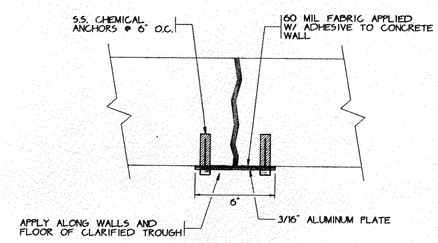
SLUDGE BLOWDOWN PIT
SECTION VIEW
SCALE: 1/4" = 1'-0"

4' 2' 0 4'

MODIFICATION NOTES:

1. THE CONTRACTOR SHALL INSTALL 1/2" SAMPLE TAPS W/ TRUE UNION BALL VALVES ON EACH EXISTING 6" SLUDGE BLOWDOWN LINES. ALL PIPING SHALL BE SCH 80 PVC. (3 TAPS PER PIT X 4 PITS)

NOTE: TO BE INSTALLED IN TWO LOCATIONS.



CONCRETE JOINT REPAIR
N.T.S.

BID SET

SECTION NO. 3

REVISIONS			
STM. NO.	DESCRIPTION	DATE	BY
0	REVISED SECTION NUMBERS	5/13/96	JWM

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

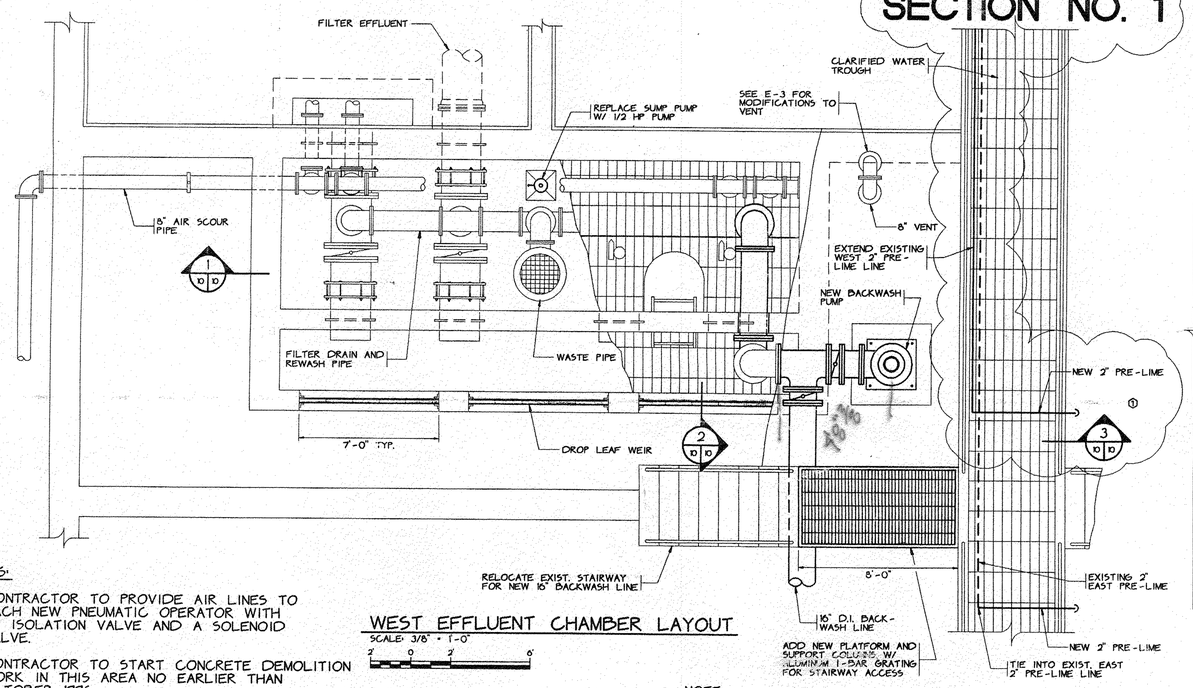
CLARIFIER MODIFICATIONS

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-7
OF:	26

HOBBS UPCHURCH & ASSOC. C:\BEACH\G3503\300\G503-007.DWG EDITED BY: DC DATE: 05/13/96 TIME: 20:02 SCALE: 1/4"=1'-0"

SECTION NO. 1



NOTES:

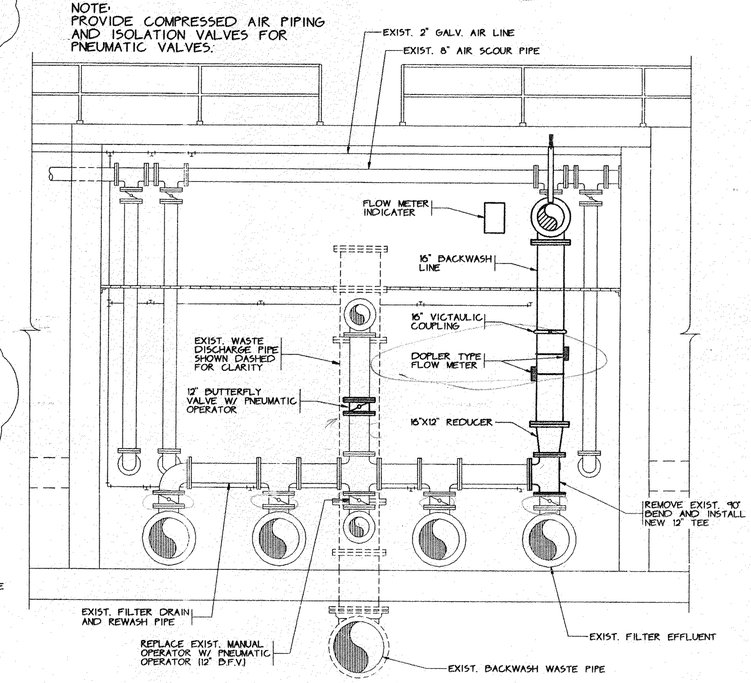
1. CONTRACTOR TO PROVIDE AIR LINES TO EACH NEW PNEUMATIC OPERATOR WITH AN ISOLATION VALVE AND A SOLENOID VALVE.
2. CONTRACTOR TO START CONCRETE DEMOLITION WORK IN THIS AREA NO EARLIER THAN OCTOBER 1996.
3. THE CONTRACTOR SHALL SEAL THE CHEMICAL PIPE TROUGH LOCATED IN FILTER BAYS 3, 4, 7, AND 8. THE TROUGH SHALL BE SEALED AT THE POINTS WHERE IT ENTERS THE OPERATION BUILDING (2 LOCATIONS) AND AT THE POINTS BETWEEN FILTER CELLS.

WEST EFFLUENT CHAMBER LAYOUT

SCALE: 3/8" = 1'-0"

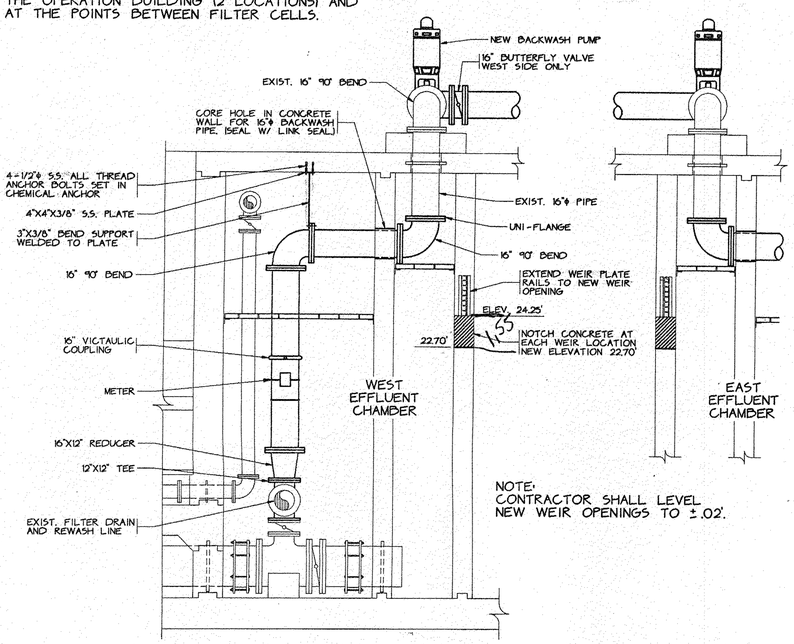
NOTE:
EAST EFFLUENT CHAMBER WILL BE A MIRROR IMAGE OF WEST EFFLUENT SHOWN.

NOTE:
PROVIDE COMPRESSED AIR PIPING AND ISOLATION VALVES FOR PNEUMATIC VALVES.



1 SECTION VIEW

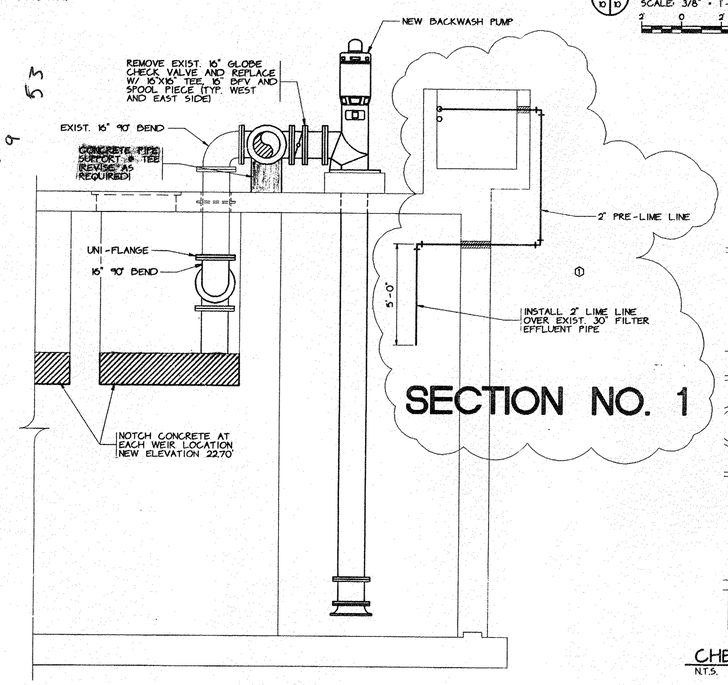
SCALE: 3/8" = 1'-0"



NOTE:
CONTRACTOR SHALL LEVEL NEW WEIR OPENINGS TO ± .02'.

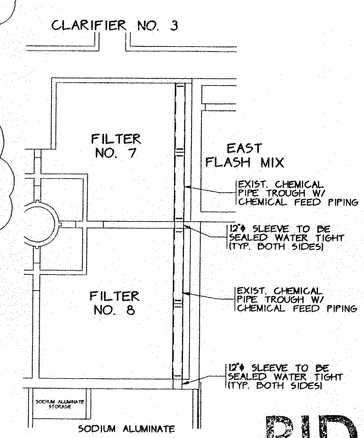
2 SECTION VIEW

SCALE: 3/8" = 1'-0"



3 BACKWASH PUMP DETAIL

SCALE: 3/8" = 1'-0"



CHEMICAL PIPE TROUGH

N.T.S.

BID SET

SECTION NO. 3

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
0	REVISED SECTION NUMBERS	5/13/96	JR

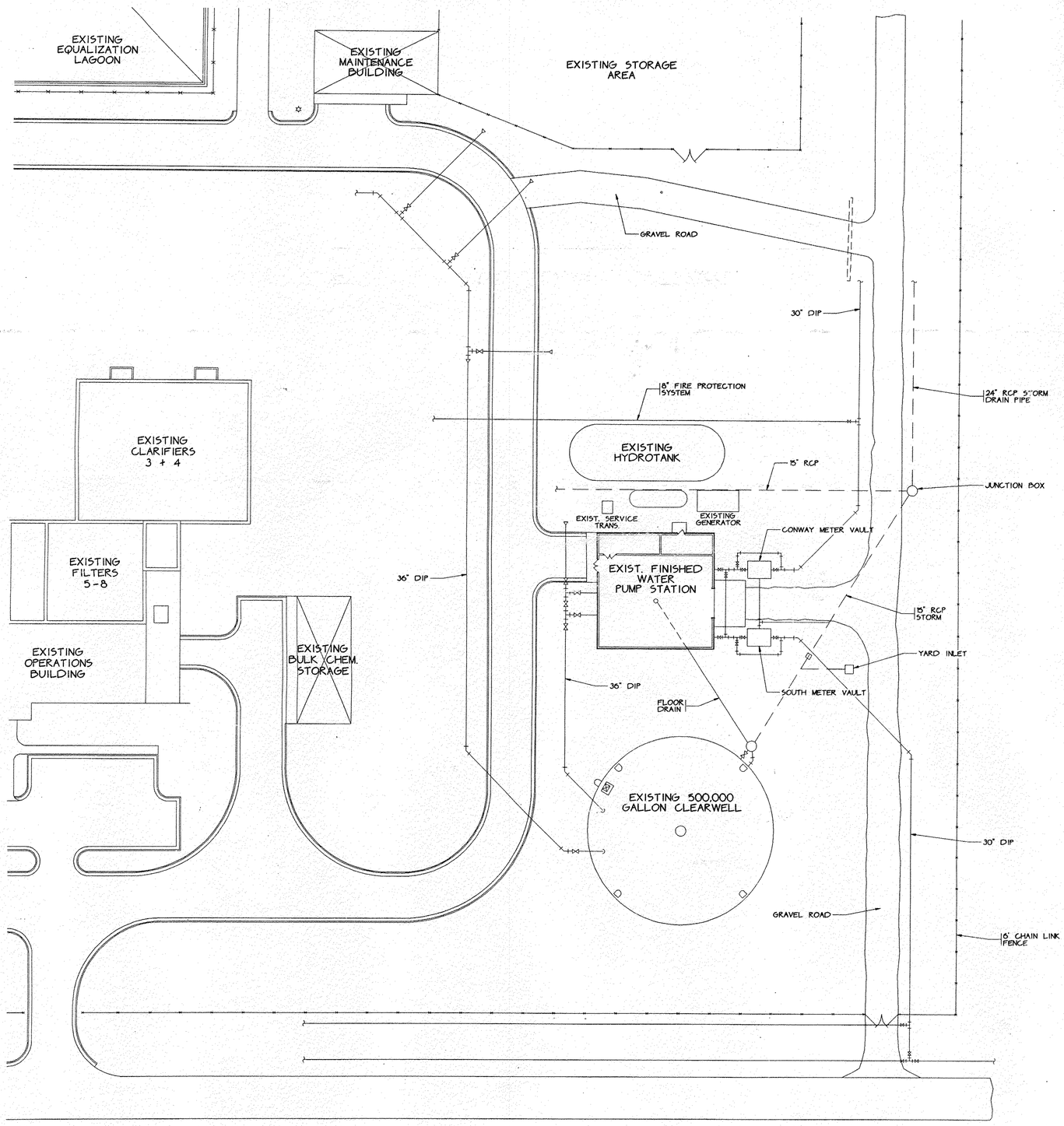
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

EFFLUENT CHAMBER PLAN AND DETAILS

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-10
OF	26

HOBBS UPCHURCH & ASSOC. C:\BEACH\G5950\G5950\G503-010.DWG EDITED BY: DC DATE: 05/13/96 TIME: 20:35 SCALED: 3/8"=1'-0"



EXISTING PUMP STATION AND CLEARWELL AREA LAYOUT

SCALE: 1" = 20'

20' 0 10' 20' 40'

NOTES:

1. INFORMATION SHOWN ON THIS PLAN WAS COMPILED FROM AS-BUILT DRAWINGS AND AN ON-SITE SURVEY. HOWEVER, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES INCLUDING POWER, INSTRUMENTATION, PHONE, WATER, SEWER, STORM DRAIN AS WELL AS ANY ADDITIONAL UNDER GROUND UTILITY SYSTEM.

2. CONTRACTOR SHALL COORDINATE ALL ACTIVITIES IN THE VICINITY OF PUMP STATION WITH WATER TREATMENT PLANT PERSONEL.

BID SET

SYM.	REVISIONS DESCRIPTION	DATE	BY

SOUTH CAROLINA PROFESSIONAL ENGINEER

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

FINISHED WATER PUMP STATION AND CLEARWELL LAYOUT

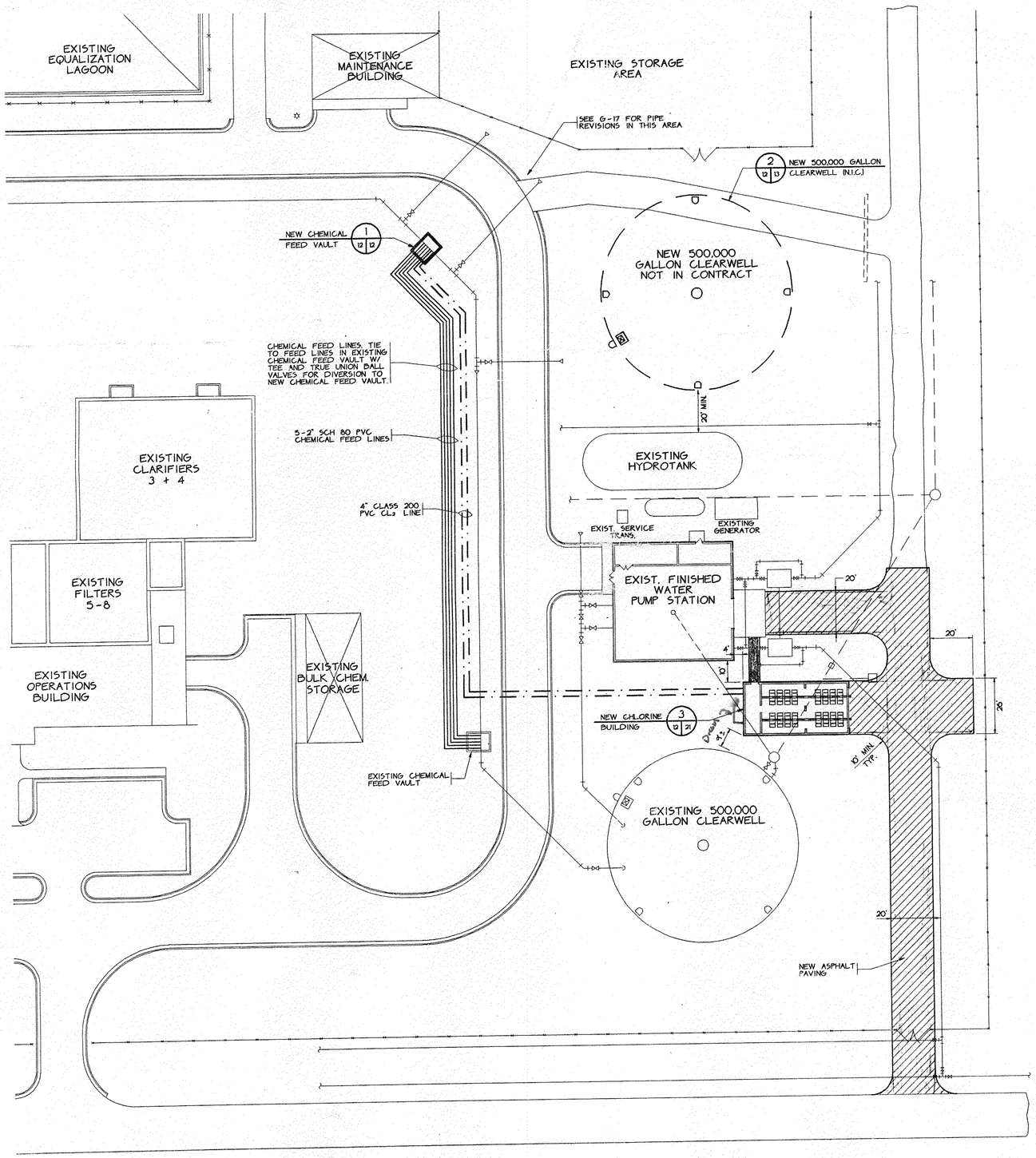
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	1" = 20'

SHEET NO. G-11

OF 26

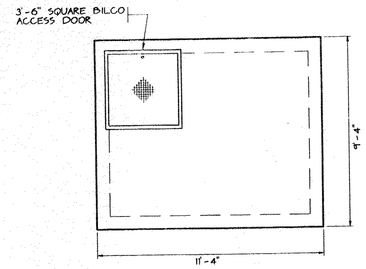
HOBBS UPCHURCH & ASSOC. H:\BEACH\DC\BEACH\C59503\500\C5203-G11.DWG EDITED BY: DC DATE: 05/13/96 TIME: 09:53 SCALE: 1"=20.0000'



NEW CLEARWELL AND CHLORINE BUILDING LAYOUT
SCALE: 1" = 20'
20' 0 10' 20' 40'

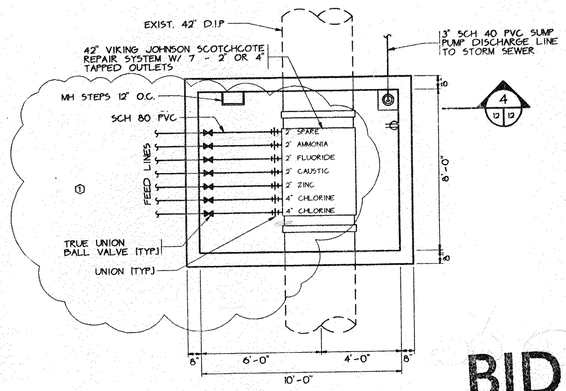
NOTES:

1. THE CONTRACTOR SHALL PROVIDE A LAYOUT FOR ALL FACILITIES SHOWN ON THIS PLAN PRIOR TO PROCEEDING WITH CONSTRUCTION. THE LAYOUT SHALL BE APPROVED BY THE OWNER AND THE ENGINEER.
2. THE CONTRACTOR SHALL RELOCATE EXIST. UTILITIES AS REQUIRED TO AVOID CONFLICTS WITH THE OPERATION OF THE FACILITY.
3. THE CONTRACTOR SHALL COORDINATE ALL TIE-IN ACTIVITIES WITH THE WATER SYSTEM DIRECTOR. A DETAILED SCHEDULE WILL BE PREPARED FOR ALL ACTIVITIES THAT WILL INTERRUPT PLANT OPERATIONS. A 72 HOUR NOTICE WILL BE PROVIDED BY THE CONTRACTOR FOR EACH ACTIVITY. SEE SPECIAL PROVISIONS FOR TIME CONSTRAINTS.



4900
988
1160
3.84

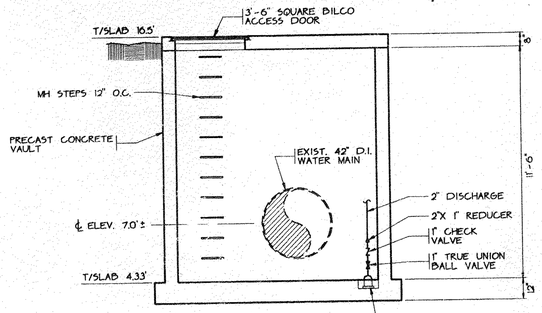
1 12 12 CHEMICAL FEED VAULT TOP PLAN VIEW
SCALE: 3/8" = 1'-0"
2' 0 2' 6'



4 12 12

CHLORINE FEED VAULT LOWER PLAN VIEW
SCALE: 3/8" = 1'-0"
2' 0 2' 4'

BID SET



4 12 12 SECTION
SCALE: 3/8" = 1'-0"
2' 0 2' 4'

SECTION NO. 4

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
0	CHEMICAL FEED LINES	5/13/98	JR

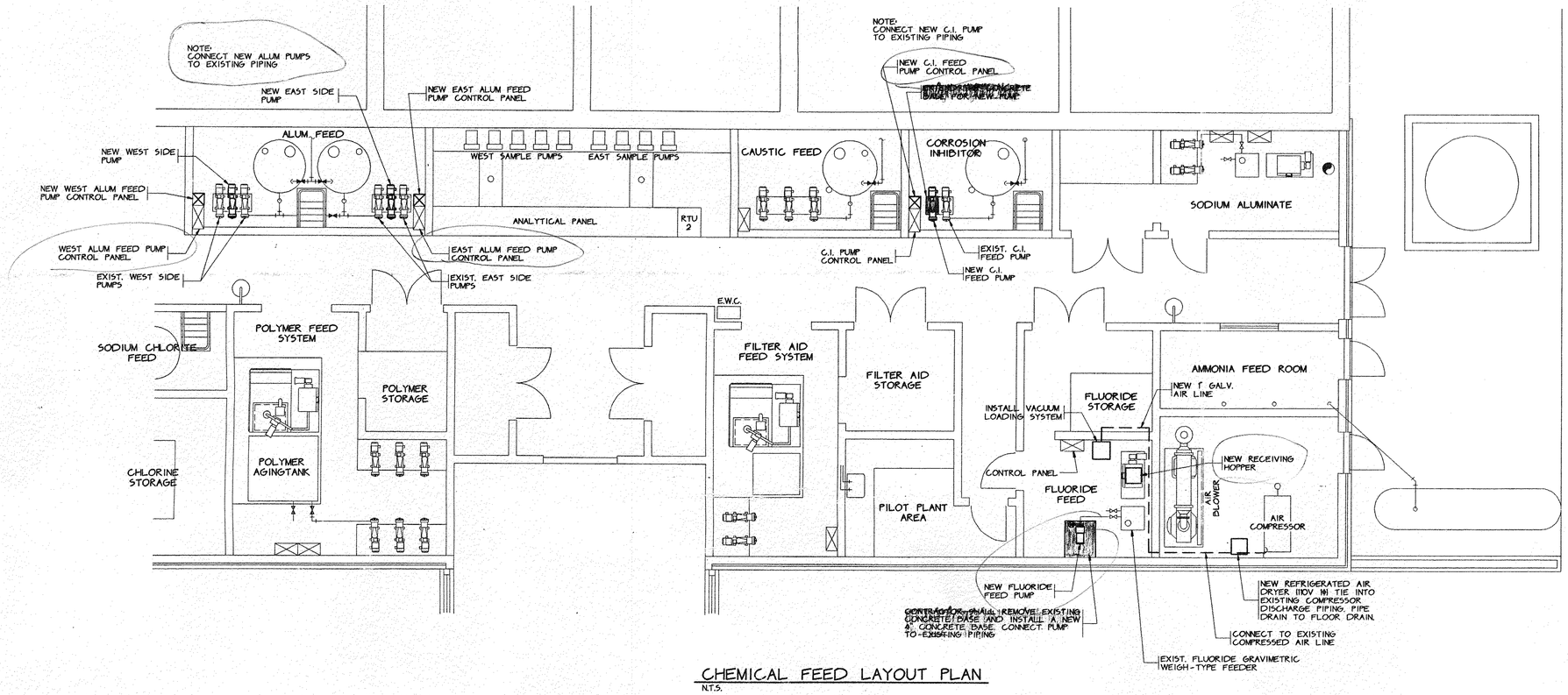
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

NEW CLEARWELL AND CHLORINE BUILDING LAYOUT

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1998
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	1" = 20'
SHEET NO.	G-12
OF:	26

HOBBS UPCHURCH & ASSOC. C:\SEACH\G59503\500\C503-012.DWG EDITED BY: DC DATE: 05/13/98 TIME: 20:06 SCALE: 1"=20.0000'



CHEMICAL FEED LAYOUT PLAN

N.T.S.

GENERAL CHEMICAL FEED NOTES:

1. THE CONTRACTOR SHALL COORDINATE WITH THE WATER SYSTEM DIRECTOR PRIOR TO MAKING ANY MODIFICATIONS TO ANY CHEMICAL FEED SYSTEM.
2. THE CONTRACTOR SHALL HAVE ALL NECESSARY LABOR, TOOLS, AND EQUIPMENT AVAILABLE PRIOR TO TAKING THE SYSTEMS OUT OF SERVICE.

FLUORIDE NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING FLUORIDE FEED PUMP (AND PAD) AND REPLACE WITH NEW CENTRIFUGAL FEED PUMP PROVIDED BY CONTRACTOR. PUMP SHALL TIE TO EXISTING PIPING. CONTRACTOR SHALL PROVIDE ISOLATION VALVES AND UNIONS AS REQUIRED FOR INSTALLATION.
2. CONTRACTOR SHALL REMOVE THE EXISTING BAG LOADING HOPPER FROM THE FLUORIDE BATCH SYSTEM AND INSTALL A VACUUM LOADING SYSTEM AS SPECIFIED. CONTRACTOR SHALL ALSO PROVIDE ELECTRICAL CONNECTIONS AND A 1" AIR LINE FROM EXIST. MECHANICAL ROOM TO THE VACUUM LOADING SYSTEM.
3. CONTRACTOR SHALL PROVIDE A NEW REFRIGERATED AIR DRYER FOR THE EXISTING COMPRESSOR SYSTEM. INSTALLATION SHALL INCLUDE ALL PIPING AND DRAIN LINES FOR SYSTEM.

CORROSION INHIBITOR NOTES:

1. CONTRACTOR SHALL INSTALL A NEW CHEMICAL FEED PUMP (OWNER TO PROVIDE PUMP) WITH CONCRETE PUMP SUPPORT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND CONNECTING SUCTION AND DISCHARGE PIPING. THE CONTRACTOR SHALL ALSO PROVIDE A NEW PUMP CONTROL PANEL, AND MAKE ALL ELECTRICAL CONNECTIONS.

ALUM NOTES:

1. CONTRACTOR SHALL INSTALL TWO ADDITIONAL ALUM FEED PUMPS WITH PUMPS TO BE PROVIDED BY THE OWNER. THE NEW PUMPS SHALL BE INSTALLED BETWEEN THE EXISTING PUMPS ON THE EXISTING CONCRETE SUPPORTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND CONNECTING SUCTION AND DISCHARGE PIPING. THE CONTRACTOR SHALL ALSO PROVIDE A NEW CONTROL PANEL FOR EACH SIDE (EAST + WEST) AND SHALL MAKE ALL ELECTRICAL CONNECTIONS.

BID SET

SECTION NO. 1

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

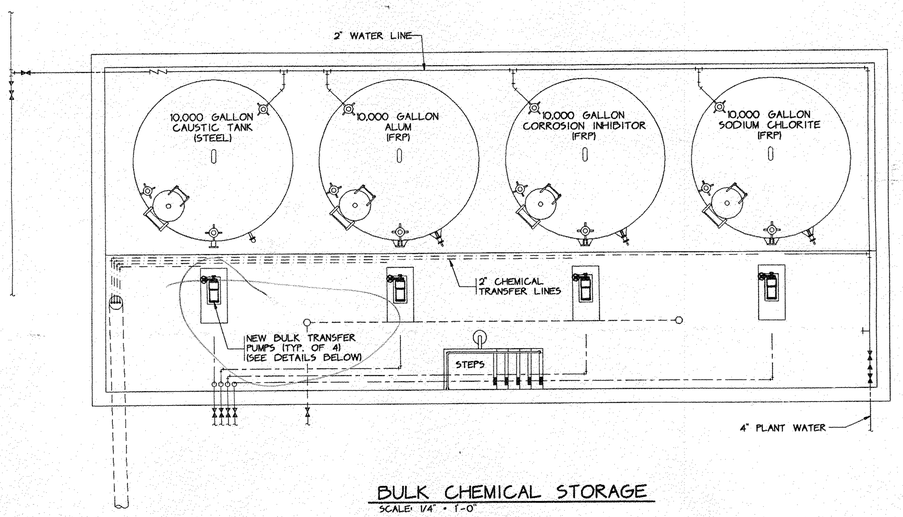
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

CHEMICAL FEED LAYOUT PLAN

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

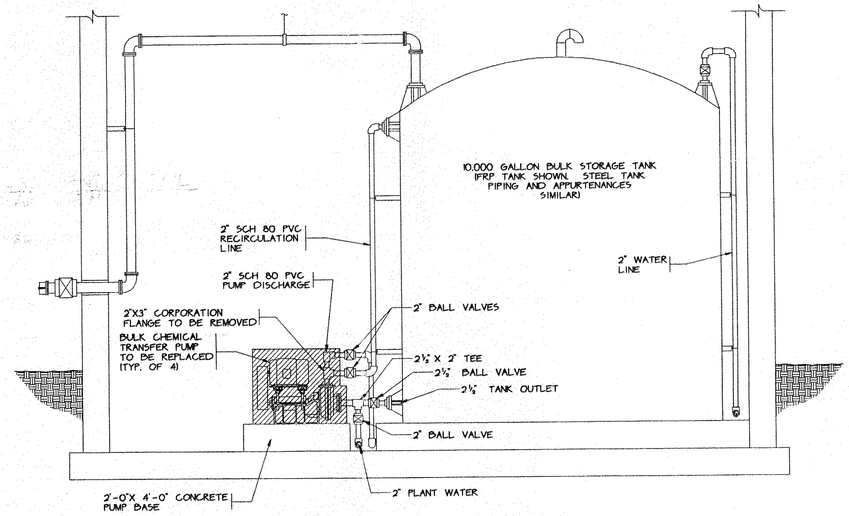
DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO	G-15
OF:	26

HOBBS UPCHURCH & ASSOC. C:\BRACH\G5903\500\G503-G15.DWG EDITED BY: DC DATE: 04/09/96 TIME: 19:49 SCALE: 1/4"=1'-0"



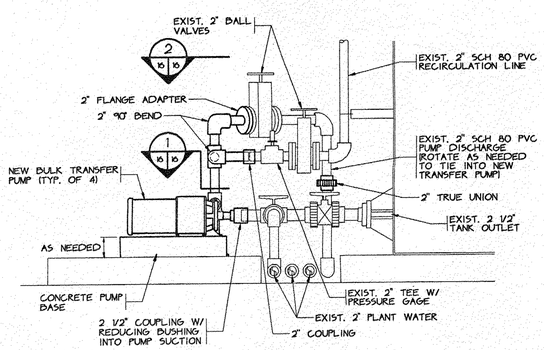
BULK CHEMICAL STORAGE

SCALE: 1/4" = 1'-0"



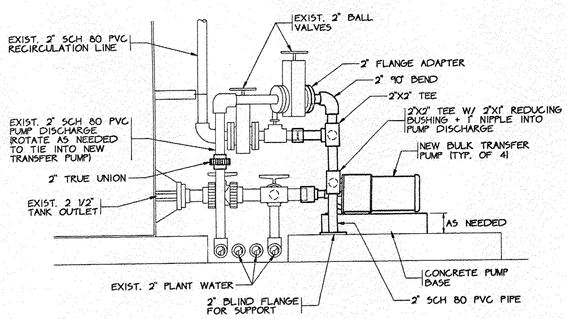
EXISTING PIPING ELEVATION (TYP.)

SCALE: 1/2" = 1'-0"



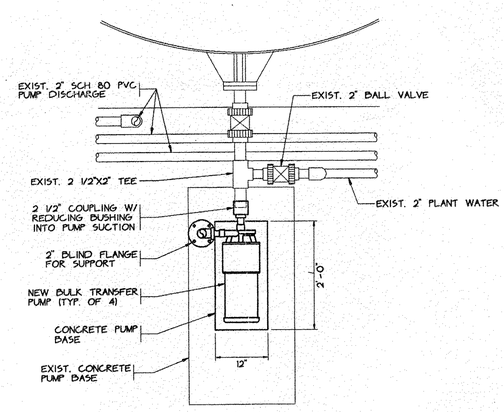
3 PUMP REPLACEMENT DETAIL ELEVATION

SCALE: 1" = 1'-0"



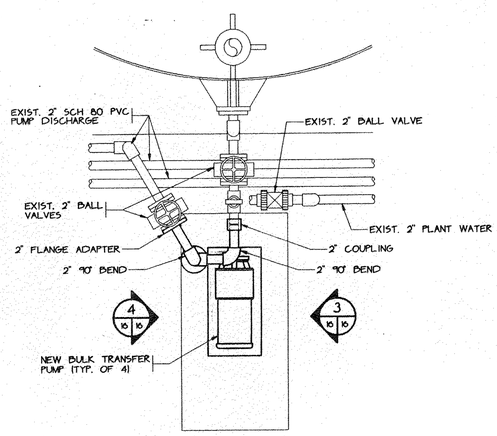
4 PUMP REPLACEMENT DETAIL ELEVATION

SCALE: 1" = 1'-0"



1 PUMP REPLACEMENT DETAIL LOWER PLAN VIEW

SCALE: 1" = 1'-0"



2 PUMP REPLACEMENT DETAIL UPPER PLAN VIEW

SCALE: 1" = 1'-0"

VOID

BID SET

SECTION NO. 1

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

BULK CHEMICAL STORAGE LAYOUT PLAN AND SECTIONS

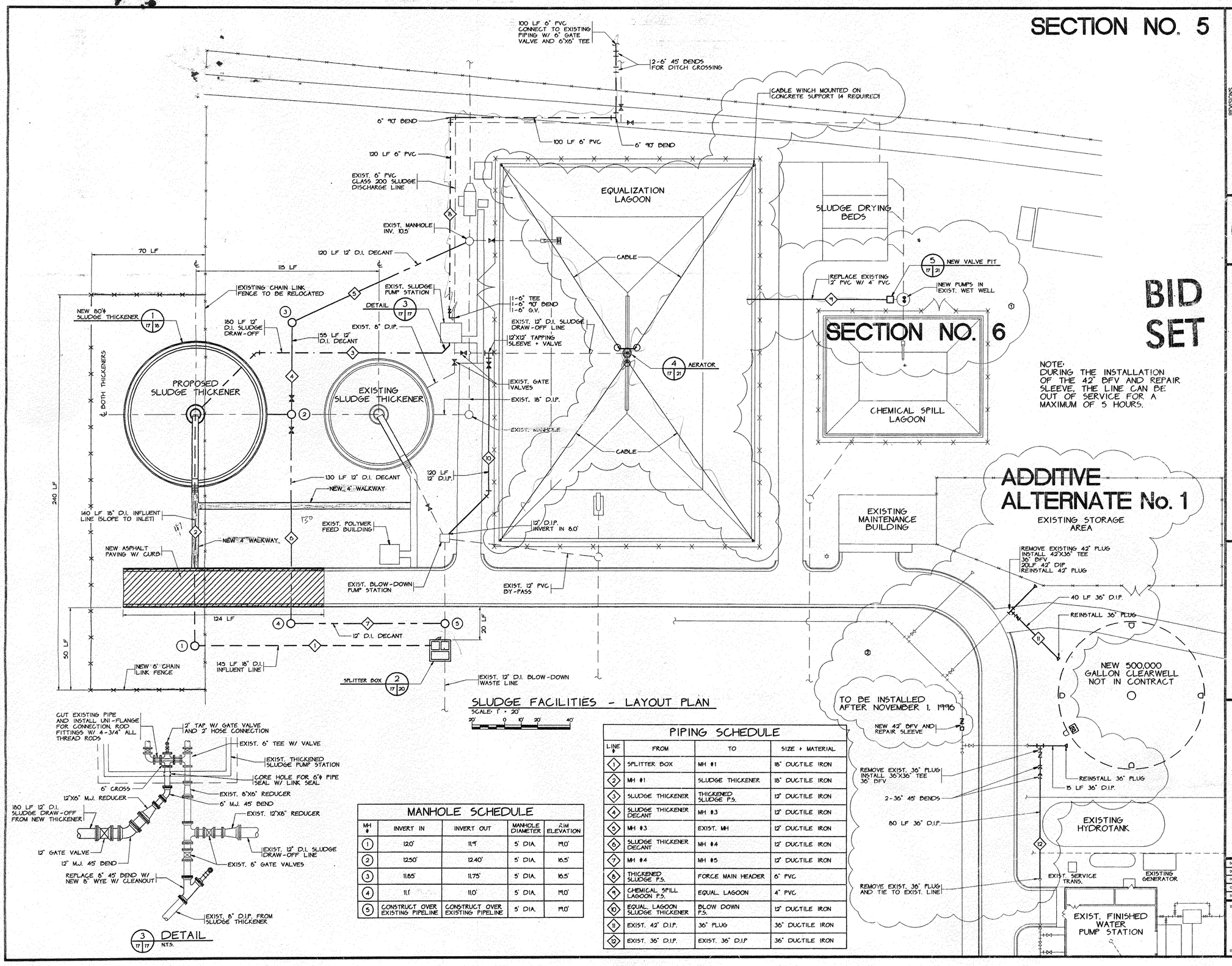
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN

SHEET NO. G-16

OF: 26

HOBBS UPCHURCH & ASSOC. H:\BEACH\DC\BEACH\G93031\S001\G931-016.DWG EDITED BY: DC DATE: 05/13/96 TIME: 10:18 SCALE: 1/4"=1'-0"



MANHOLE SCHEDULE

MH #	INVERT IN	INVERT OUT	MANHOLE DIAMETER	RIM ELEVATION
1	12.0'	11.9'	5' DIA.	19.0'
2	12.50'	12.40'	5' DIA.	16.5'
3	11.85'	11.75'	5' DIA.	16.5'
4	11.1'	11.0'	5' DIA.	19.0'
5	CONSTRUCT OVER EXISTING PIPELINE	CONSTRUCT OVER EXISTING PIPELINE	5' DIA.	19.0'

PIPING SCHEDULE

LINE #	FROM	TO	SIZE + MATERIAL
1	SPLITTER BOX	MH #1	18" DUCTILE IRON
2	MH #1	SLUDGE THICKENER	18" DUCTILE IRON
3	SLUDGE THICKENER	THICKENED SLUDGE P.S.	12" DUCTILE IRON
4	SLUDGE THICKENER DECANT	MH #3	12" DUCTILE IRON
5	MH #3	EXIST. MH	12" DUCTILE IRON
6	SLUDGE THICKENER DECANT	MH #4	12" DUCTILE IRON
7	MH #4	MH #5	12" DUCTILE IRON
8	THICKENED SLUDGE P.S.	FORCE MAIN HEADER	6" PVC
9	CHEMICAL SPILL LAGOON P.S.	EQUAL. LAGOON	4" PVC
10	EQUAL. LAGOON SLUDGE THICKENER	BLOW DOWN P.S.	12" DUCTILE IRON
11	EXIST. 42" D.I.P.	36" PLUG	36" DUCTILE IRON
12	EXIST. 36" D.I.P.	EXIST. 36" D.I.P	36" DUCTILE IRON

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	REVISED SECTION NUMBERS	5/13/98	JR
2	ADDITIVE ALTERNATE	5/13/98	JR

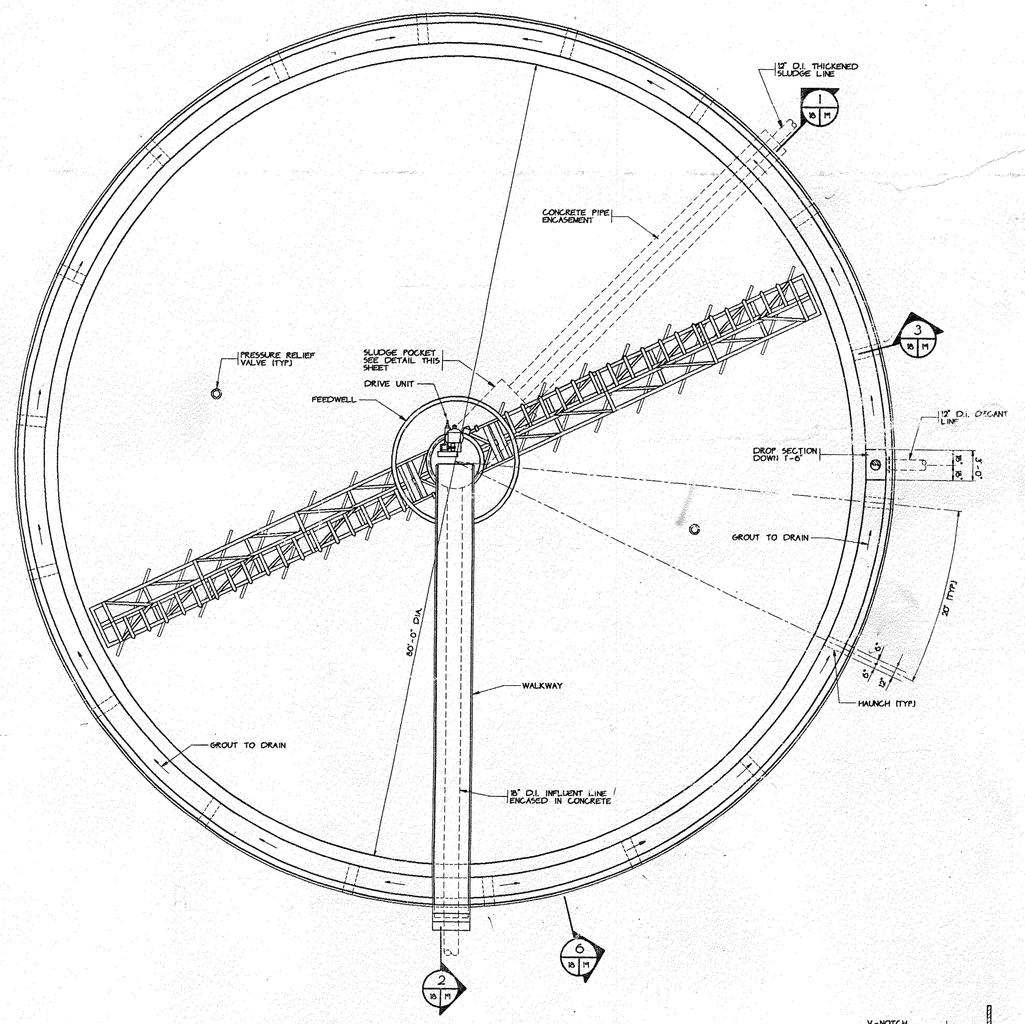
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

ALUM SLUDGE FACILITIES LAYOUT PLAN

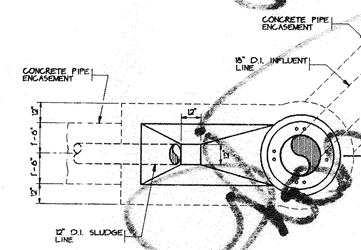
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1998
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO:	G-17
OF:	26

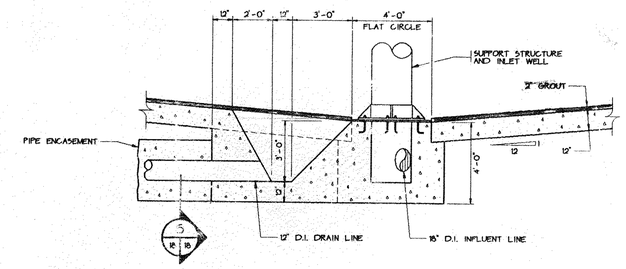
HOBBS, UPCHURCH & ASSOC. C:\BEACH\0598G03\SGG\G03-G17.DWG EDITED BY: DC DATE: 05/13/98 TIME: 20:27 SCALE: 1"=20.0000'



1 / 17 | 18 PLAN - SLUDGE THICKENER
SCALE: 3/16" = 1'-0"



SLUDGE POCKET - PLAN
SCALE: 3/8" = 1'-0"



4 / 18 | 18 SECTION
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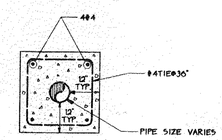
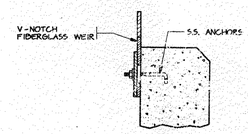


5 / 18 | 18 PIPE ENCASEMENT DETAIL
N.T.S.



6 / 21 | 21 WEIR SECTION
N.T.S.

BID SET

SECTION NO. 5

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

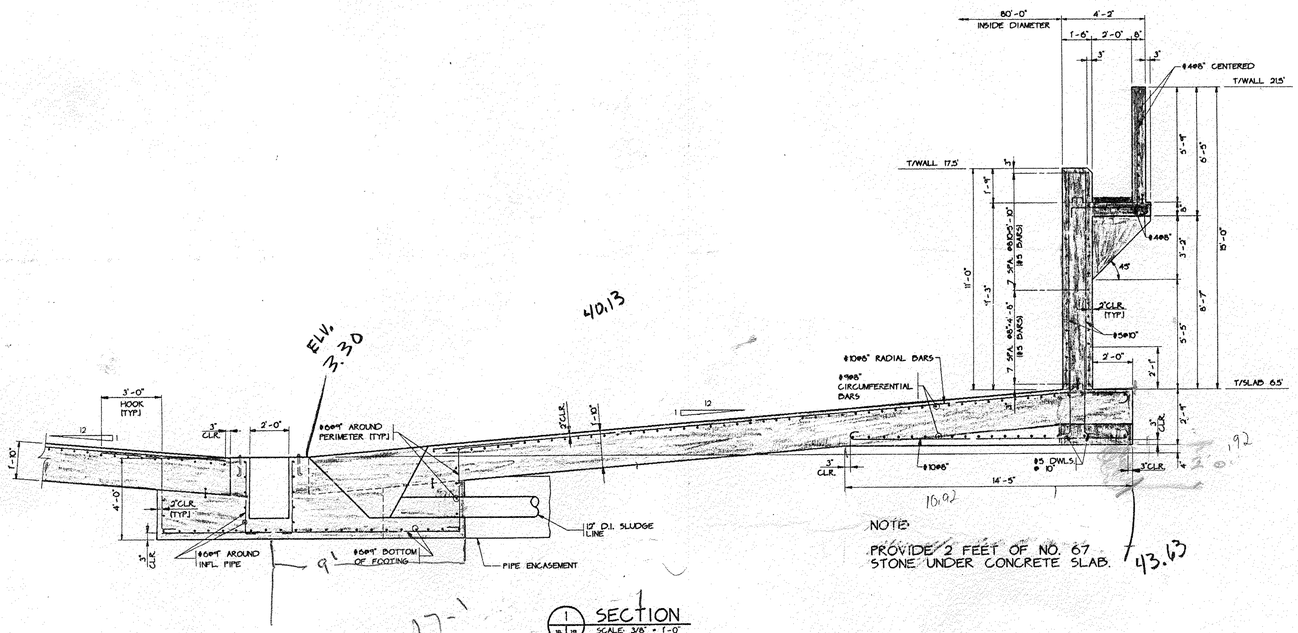
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

NEW SLUDGE THICKENER PLAN AND DETAILS

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

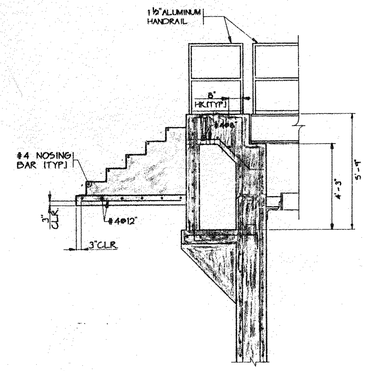
DATE:	MARCH 1998
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-18
OF:	26

HOBBS UPCHURCH & ASSOC. H:\BEACH\DCL\BEACH\G3933\3\G3933-G18.DWG EDITED BY: DC DATE: 05/13/98 TIME: 10:21 SCALE: 3/16"=1'-0"



NOTE:
PROVIDE 2 FEET OF NO. 67 STONE UNDER CONCRETE SLAB.

1 SECTION
SCALE: 3/8" = 1'-0"



2 SECTION AT PLATFORM
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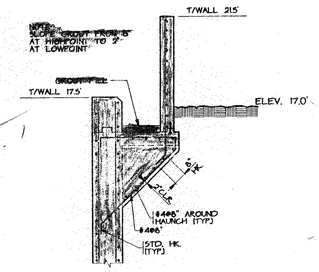
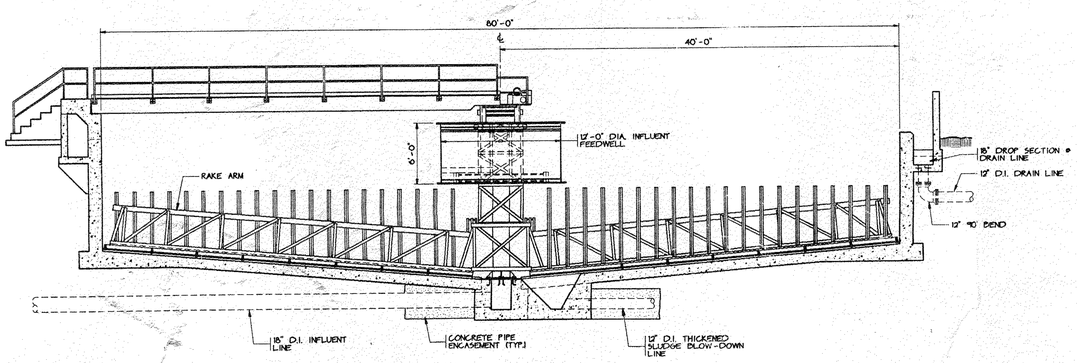


3 SECTION THRU HAUNCH
SCALE: 3/8" = 1'-0"



ILLUSTRATIVE SECTION
N.T.S.

BID SET

SECTION NO. 5

REVISIONS			
STA.	DESCRIPTION	DATE	BY

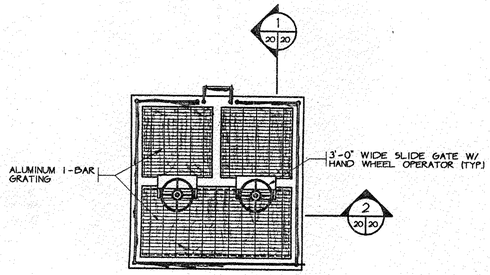
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

NEW SLUDGE THICKENER SECTIONS AND DETAILS

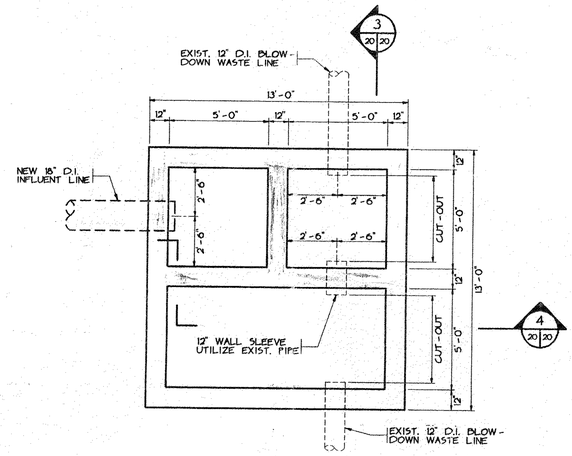
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-19
OF	26

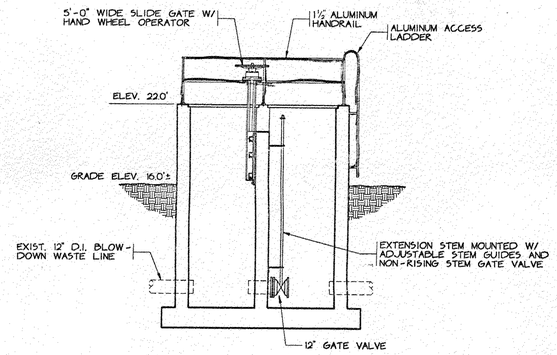
HOBBS UPCHURCH & ASSOC. — I:\BEACH\DC\BEACH\G5950\DWG\G033-019.DWG — EDITED BY: DC — DATE: 05/13/96 — TIME: 10:22 — SCALE: 3/8"=1'-0"



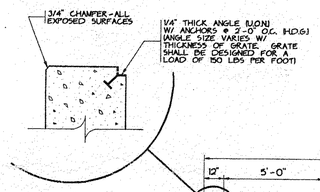
2 / 17 20 SPLITTER BOX PLAN VIEW
SCALE: 1/4" = 1'-0"

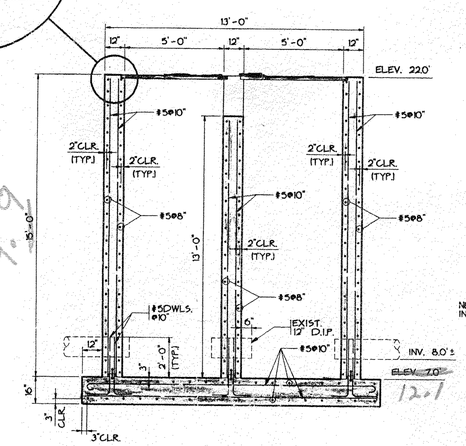


STRUCTURAL DETAILS
LOWER PLAN VIEW
SCALE: 3/8" = 1'-0"



1 / 20 20 SECTION
SCALE: 1/4" = 1'-0"





3 / 20 20 SECTION
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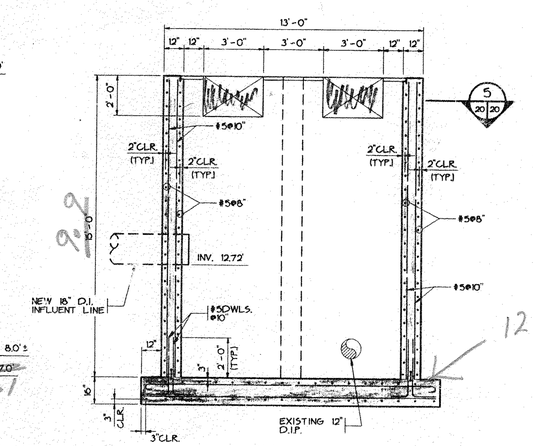

4 / 20 20 SECTION
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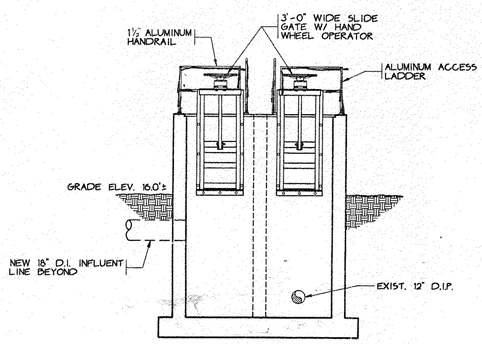
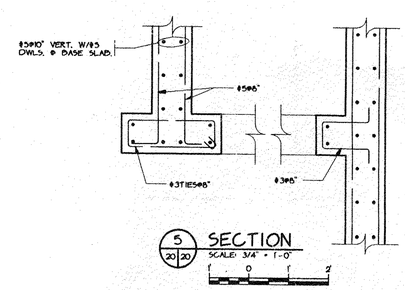


2 / 20 20 SECTION
SCALE: 1/4" = 1'-0"

10.66



5 / 20 20 SECTION
SCALE: 3/4" = 1'-0"

BID SET

SECTION NO. 5

REVISIONS			
SYM.	DESCRIPTION	DATE	BY

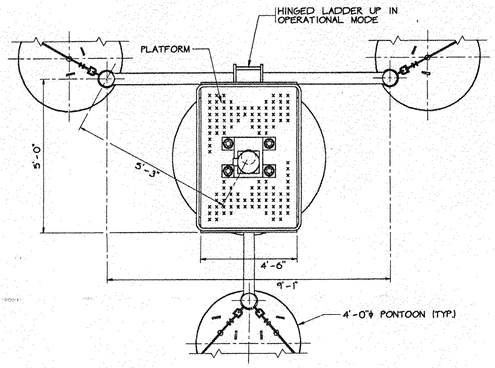
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

SPLITTER BOX PLAN AND SECTIONS

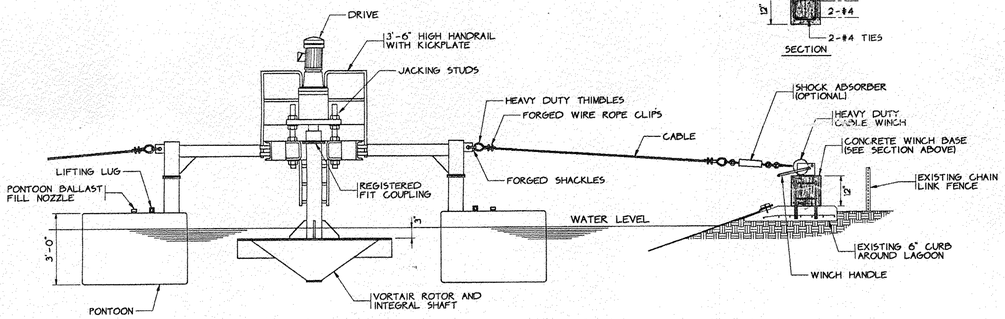
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1998
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-20
OF:	26

HOBBS UPCHURCH & ASSOC. C:\BEACH\GS9503\SGA\GS03-020.DWG EDITED BY: DC DATE: 04/08/98 TIME: 22:09 SCALE: 1/4"=1'-0"

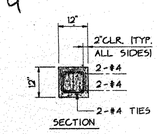


PLAN VIEW



ELEVATION VIEW

4 EA

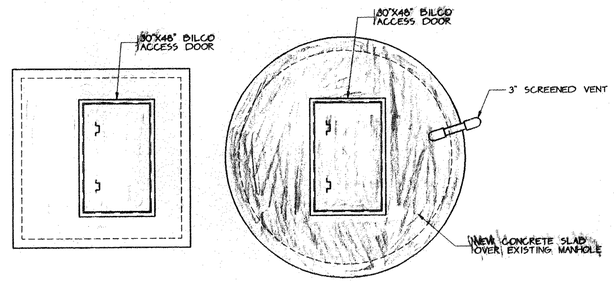


SECTION

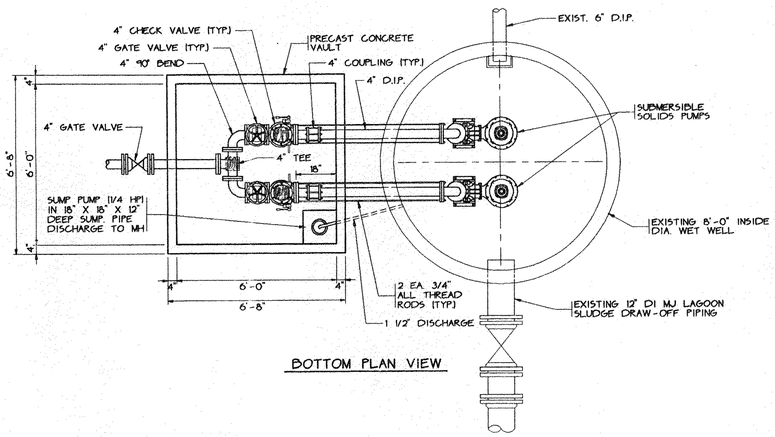
4 / 17 / 21 RAFT MOUNTED CABLE MOORING AERATOR

N.T.S.

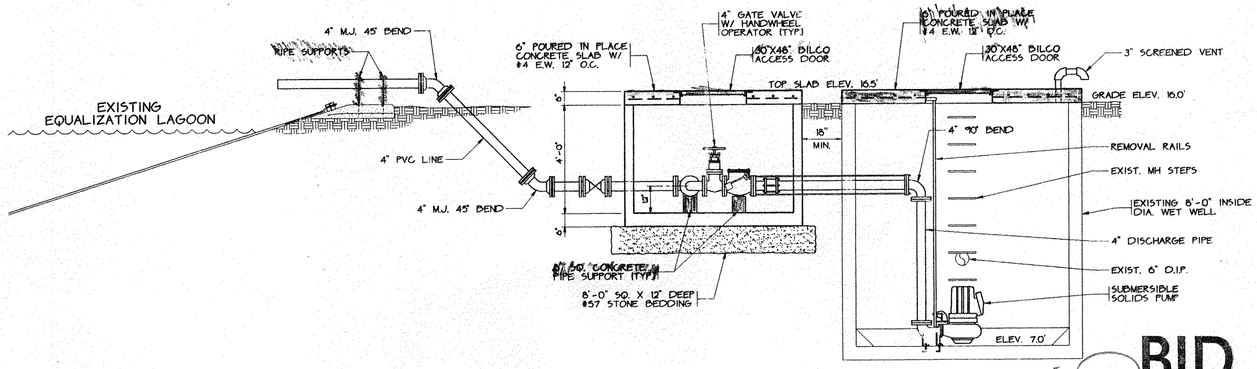
2.5 x 4.5



TOP PLAN VIEW



BOTTOM PLAN VIEW



ELEVATION VIEW

5 / 17 / 21 CHEMICAL SPILL LAGOON DRAW-OFF PUMP STATION

N.T.S.

VOID

BID SET

SECTION NO. 6

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
0	REVISED SECTION NUMBERS	5/13/96	JR

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

CHEMICAL SPILL LAGOON DRAW-OFF PUMP STATION LAGOON AERATOR AND FABRIC CURTAIN

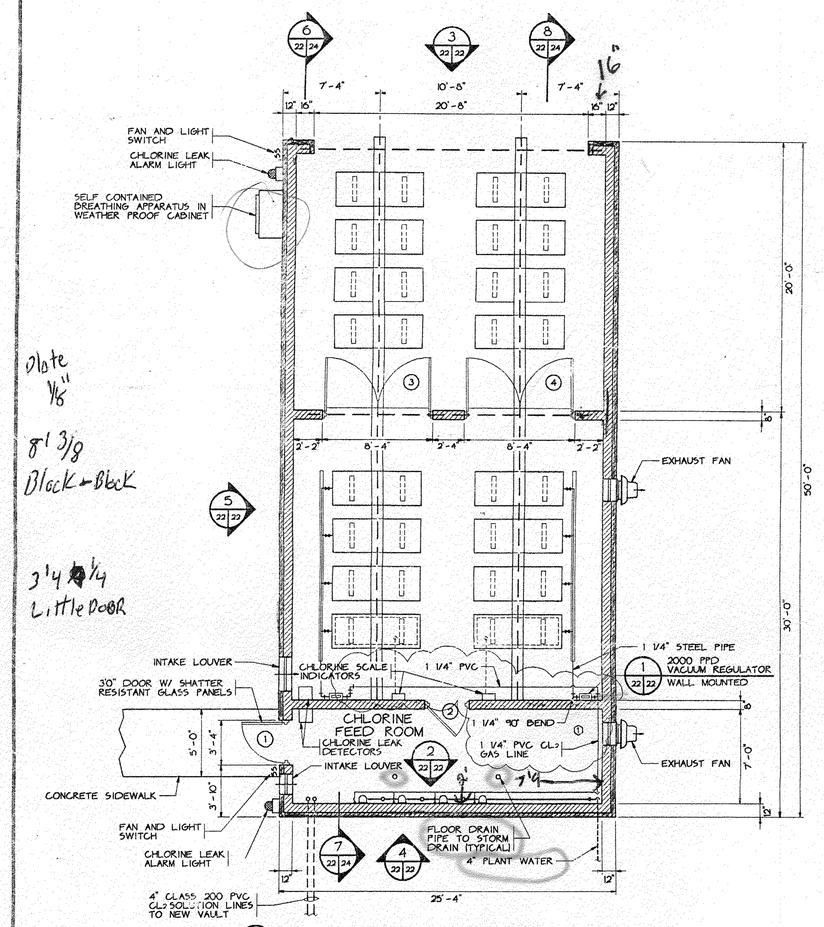
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-21
OF	26

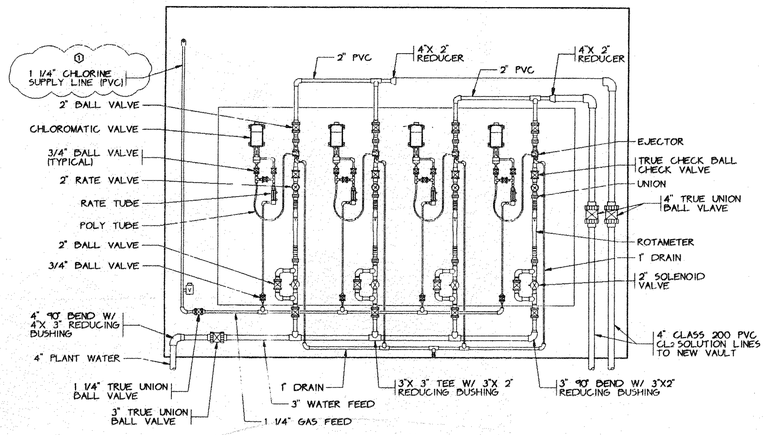
HOBBS UPCHURCH & ASSOC. H:\BEACH\DG\BEACH\G3503\500\G03-021.DWG EDITED BY: DC DATE: 05/13/96 TIME: 15:13 SCALE: 3/8"=1'-0"

NOTE:

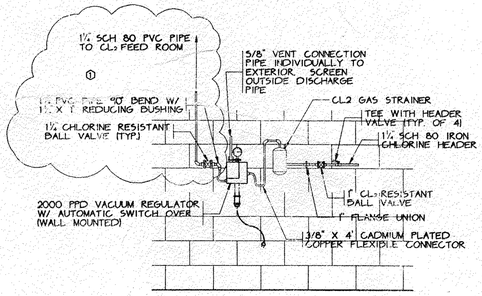
ALL CHLOROMATIC VALVES, EJECTORS, SOLUTION METERS, AND RATE TUBES SHALL BE RATED FOR 500PPD.



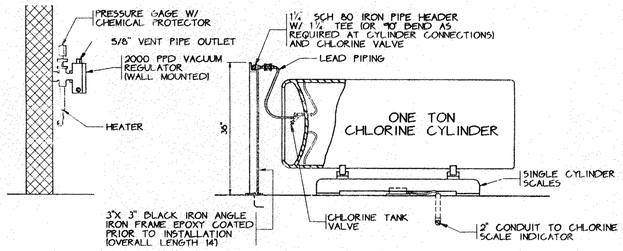
3 CHLORINE FEED BUILDING LAYOUT
SCALE: 1/4" = 1'-0"



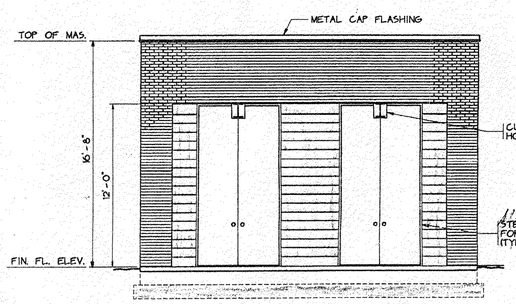
2 CHLORINE FEED PIPING
N.T.S.



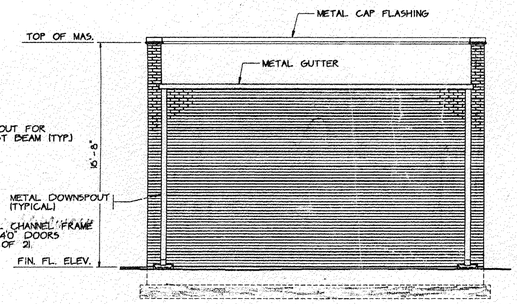
1 VACUUM REGULATORS ELEVATION VIEW
N.T.S.



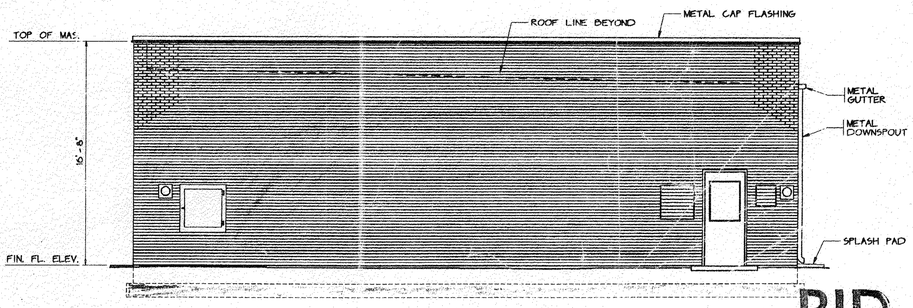
VACUUM REGULATORS ILLUSTRATIVE SECTION
N.T.S.



3 FRONT ELEVATION
SCALE: 1/4" = 1'-0"



4 REAR ELEVATION
SCALE: 1/4" = 1'-0"



5 SIDE ELEVATION
SCALE: 1/4" = 1'-0"

BID SET

SECTION NO. 4

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
0	CHLORINE FEED LINE REVISIONS	5/13/96	JR

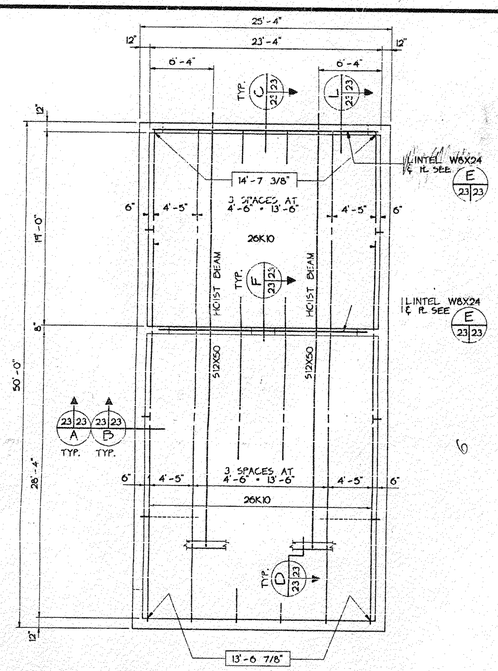
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

NEW CHLORINE FEED BUILDING - LAYOUT, DETAILS AND ELEVATIONS

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1995
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-22
OF:	26

HOBBS UPCHURCH & ASSOC. H:\MYBEACH\DC\BEACH\G2352\1\900\G352-G22.DWG EDITED BY: DC DATE: 05/13/96 TIME: 17:01 SCALE: 1/4"=1'-0"

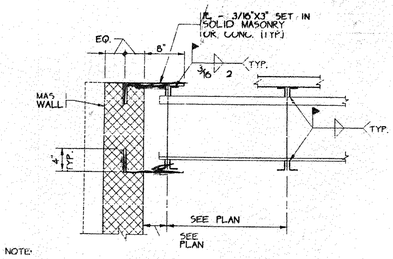


ROOF FRAMING PLAN - CHLORINE FEED BUILDING

3/16" = 1'-0"

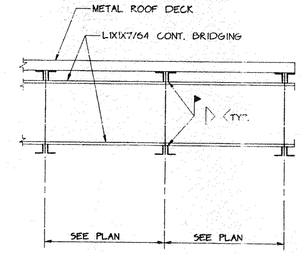
NOTES:

1. XX'-X" DENOTES "REF. STEEL ELEV." A.F.F. LOCATIONS BETWEEN ARROWS U.O.N. THUS: (± X'-X").
2. ------- DENOTES LOCATION OF ROWS OF CONT. HORIZ. BRIDGING.
3. SEE BUILDING DWGS. FOR LOCATION AND ELEVATION OF LINTELS.
4. SEE BUILDING AND MECH. DWGS. FOR LOCATION OF ROOF OPNGS.

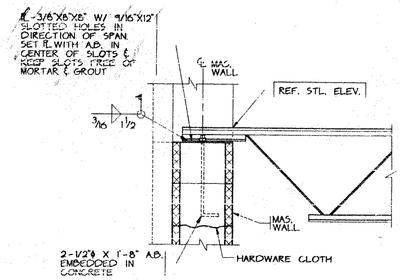


NOTE:
BRIDGING ANCHORS SHALL BE ACCURATELY LOCATED AND EMBEDDED IN WALLS DURING CONST. OF MAS. WORK.

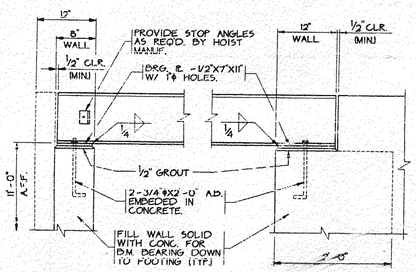
A 23/23 TYP. JOIST BRIDGING DETAIL — NO SCALE



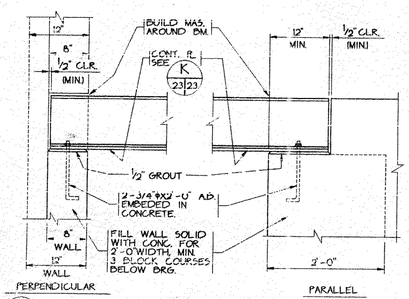
B 23/23 TYP. HORIZONTAL BRIDGING DETAIL — NO SCALE



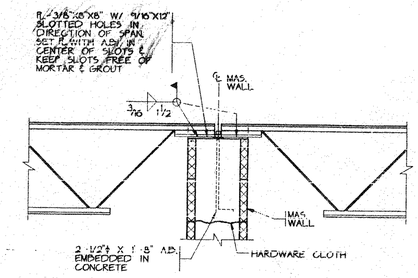
C 23/23 TYP. JOIST BEARING DETAIL AT MASONRY WALL — NO SCALE



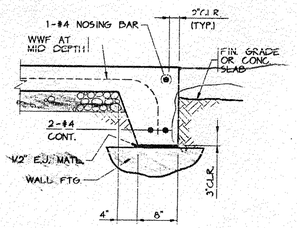
D 23/23 TYP. BEAM BEARING DETAILS AT WALLS — NO SCALE



E 23/23 TYP. LINTEL BEARING DETAIL — NO SCALE

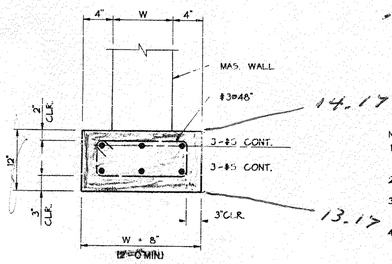


F 23/23 JOIST BEARING DETAIL AT MASONRY WALL — NO SCALE

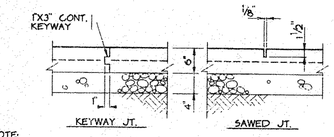


NOTE:
SEE BUILDING DWGS. FOR EXACT LOCATION.

G 23/23 TYP. SLAB EDGE AT WALL FOOTING — 3/4"=1'-0"



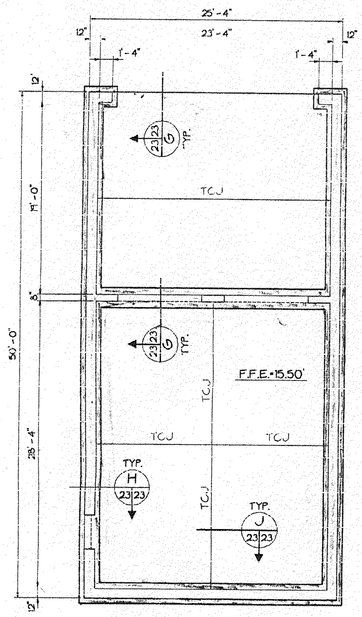
H 23/23 TYP. WALL FOOTING REINF. — NO SCALE



NOTE:

1. TYPE OF JOINT IS OPTIONAL WITH CONTRACTOR. SAWED JOINT SHALL BE MADE WITHIN 24 HOURS AFTER PLACING CONCRETE.
2. WHEN KEYWAY JOINT IS ELECTED, THE SLABS SHALL BE PLACED IN A CHECKERBOARD PATTERN.
3. AT THE CONTRACTOR'S OPTION, A METAL PRE-FORMED JOINT OF APPROVED DESIGN WILL BE ACCEPTABLE AT EACH TCJ IN LIEU OF THE ABOVE JOINT TYPES.
4. WHERE SAWED JOINT WILL BE LEFT PERMANENTLY EXPOSED TO VIEW, FILL THE JOINT FLUSH WITH "GARDOX" FLEXIBLE JOINT SEALING COMPOUND MANUFACTURED BY W.R. MEADOWS, INC., OR EQUIVALENT.

J 23/23 TYP. CONTROL JOINT (TCJ) AT SLAB-ON-GRADE — NO SCALE



FOUNDATION PLAN - CHLORINE FEED BUILDING

3/16" = 1'-0"

SECTION NO. 4

NOTES:

1. TOP OF WALL FTG. ELEV. = 14.17'
2. SEE BUILDING DWGS. FOR LOCATIONS OF WALLS NOT DIMENSIONED.
3. ALL SLABS SHALL BE 6" THICKNESS, U.O.N.
4. ALL SLABS SHALL BE OVER VAPOR BARRIER AND 4" COMPACTED STONE AND REINFORCED WITH 6X6-W2.9XW2.9 WWF, U.O.N.
5. FIN. FLR. ELEV. = 15.50', U.O.N.
6. ALL WALL DIMENSIONS SHOWN ARE NOMINAL DIMENSIONS. SEE BUILDING DRAWINGS FOR ACTUAL DIMENSIONS.

LINTEL SCHEDULE

OPENING	LINTEL		BEARING
0'-0" TO 1'-4"	1 ℄ - 3/8" X 3 1/2"	*	8"
1'-4" TO 4'-0"	1 L - 3 1/2" X 3 1/2" X 5/16"	*	8"
4'-0" TO 6'-8"	1 L - 4" X 3 1/2" X 5/16"	*	8"
6'-8" TO 8'-0"	1 L - 5" X 3 1/2" X 5/16"	*	8"

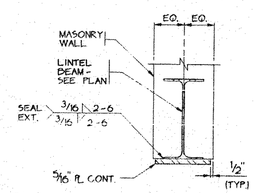
* PER 4" OF WALL THICKNESS

NOTE:
ALL UNSCHEDULED OPENINGS INCLUDING OPENINGS FOR MECHANICAL WORK SHALL BE PROVIDED WITH LINTELS IN ACCORDANCE WITH THIS SCHEDULE.

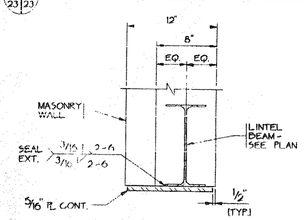
OPENING	6" OR 8" WALL	12" WALL	BEARING
2'-0" TO 4'-0"	7 9/16, 2-#3, 2-#3	2-#3, 2-#3	8"
4'-0" TO 5'-4"	7 9/16, 2-#4, 2-#5	2-#4, 3-#4	8"
5'-4" TO 8'-0"	7 9/16, 2-#5, 2-#6	2-#5, 3-#5	16"

REQUIRED LINTELS NOT OTHERWISE INDICATED ON THE DRAWINGS SHALL BE AS SHOWN IN THE ABOVE SCHEDULE.

CONCRETE MASONRY LINTELS SHALL BE FILLED WITH 3000 PSI CONCRETE.



K 23/23 TYP. LINTEL DETAIL (8" WALL) — NO SCALE



L 23/23 TYP. LINTEL DETAIL @ OPENING — NO SCALE

BID SET

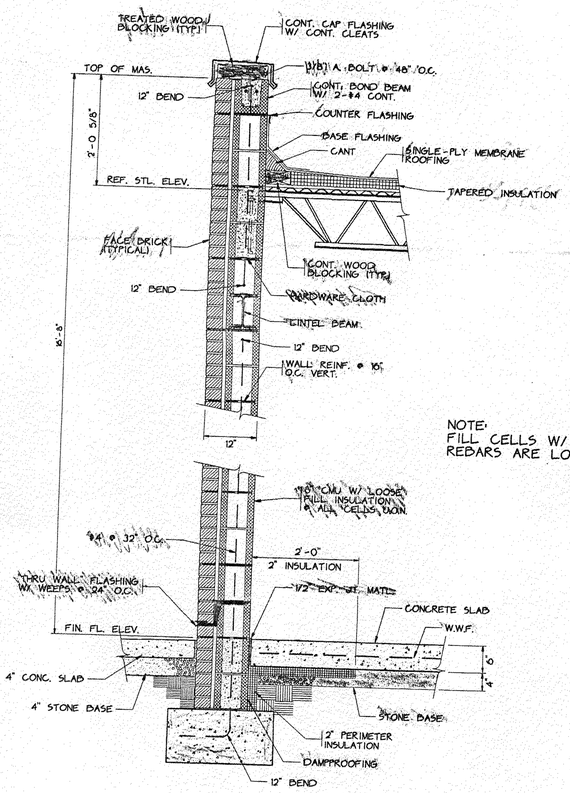
REVISIONS			
DESCRIPTION	DATE	BY	

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

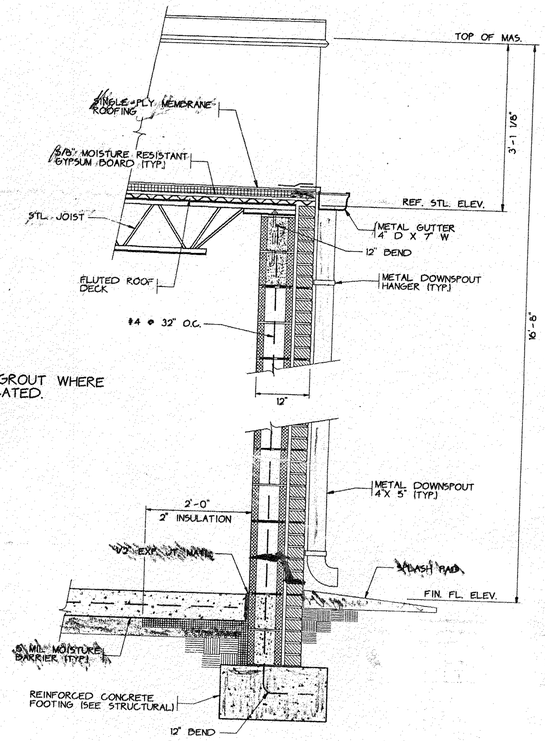
NEW CHLORINE FEED BUILDING - ROOF FRAMING PLAN, FOUNDATION PLAN AND DETAILS

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

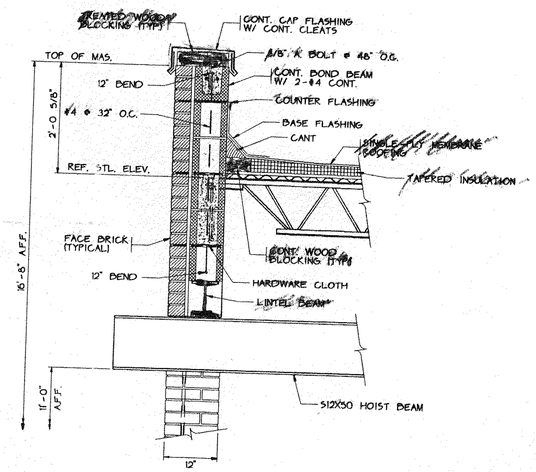
DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-23
OF:	26



6 / 22 24 WALL SECTION
SCALE: 1" = 1'-0"



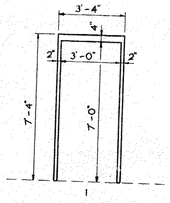
7 / 22 24 WALL SECTION
SCALE: 1" = 1'-0"



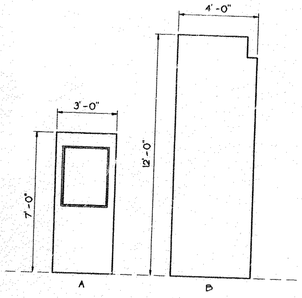
8 / 22 24 WALL SECTION
SCALE: 1" = 1'-0"

DOOR SCHEDULE

NO.	DOOR						FRAME			REMARKS
	SIZE	TYPE	MTL.	GLASS	LOUVER	LABEL	TYPE	MTL.	GLASS	
1	3'X7'X1.75"	A	INSUL. H.M.	1/4" TEMP.	NONE	NONE	1	H.M.	NONE	PAINT DOOR + FRAME
2	3'X7'X1.75"	A	INSUL. H.M.	1/4" TEMP.	NONE	NONE	1	H.M.	NONE	PAINT DOOR + FRAME
3	PR. 4'X12'X1.75"	B	INSUL. H.M.	NONE	NONE	NONE	SPECIAL	STEEL	NONE	PAINT DOOR + FRAME
4	PR. 4'X12'X1.75"	B	INSUL. H.M.	NONE	NONE	NONE	SPECIAL	STEEL	NONE	PAINT DOOR + FRAME



FRAME ELEVATION



DOOR ELEVATIONS

NOTE:
HINGE DOORS PER MANUFACTURES RECOMMENDATIONS.

NOTE:
FILL CELLS W/ GROUT WHERE REBARS ARE LOCATED.

BID SET

SECTION NO. 4

REVISIONS

SYM.	DESCRIPTION	DATE	BY

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

NEW CHLORINE FEED BUILDING - WALL SECTIONS AND DOOR SCHEDULE

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

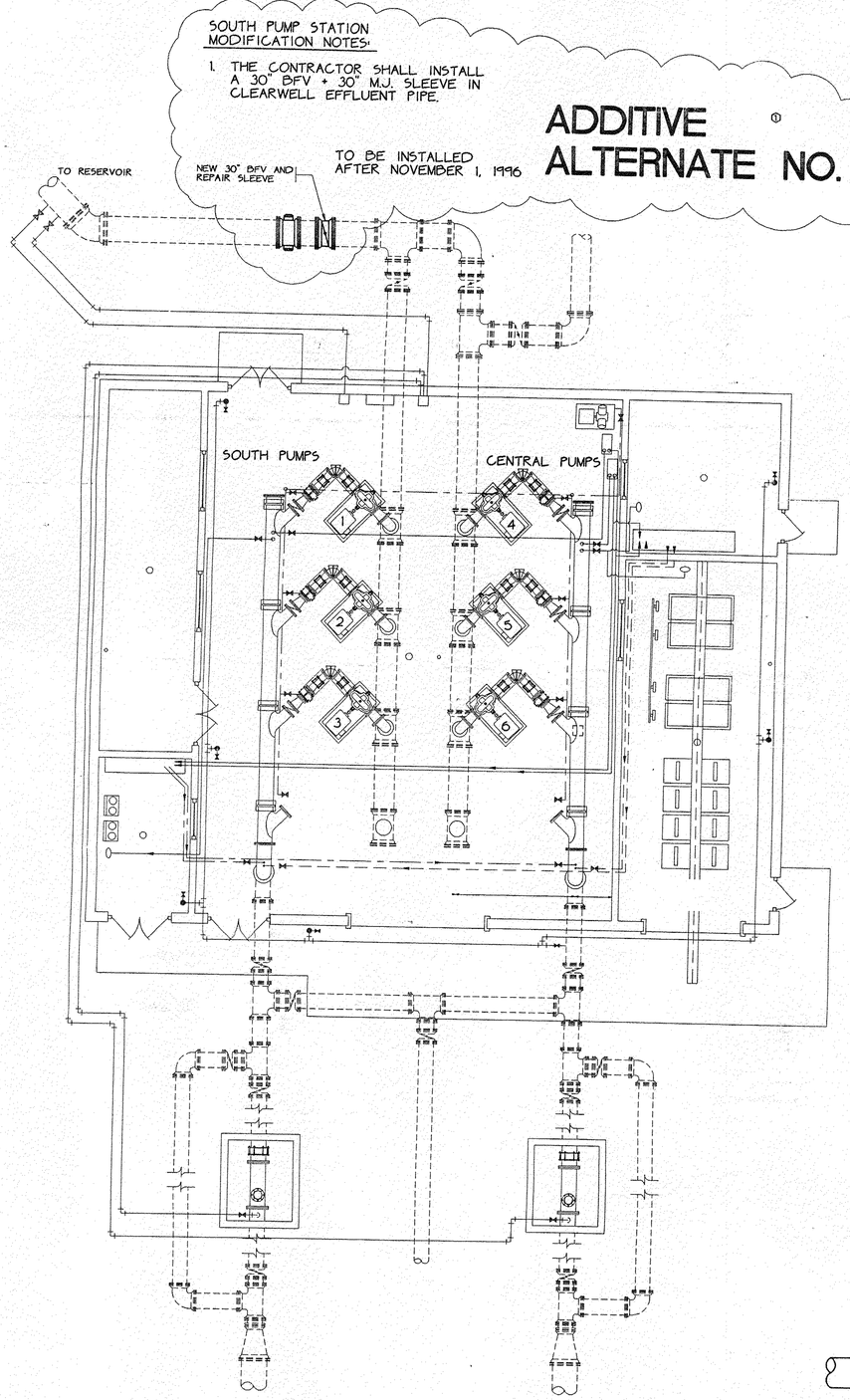
DATE:	MARCH 1998
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-24
OF:	26

HOBBS, UPCHURCH & ASSOC. C:\BUCH\G59503\300\G503-024.DWG EDITED BY: DC DATE: 04/09/98 TIME: 03:07 SCALE: 1"=1'-0"

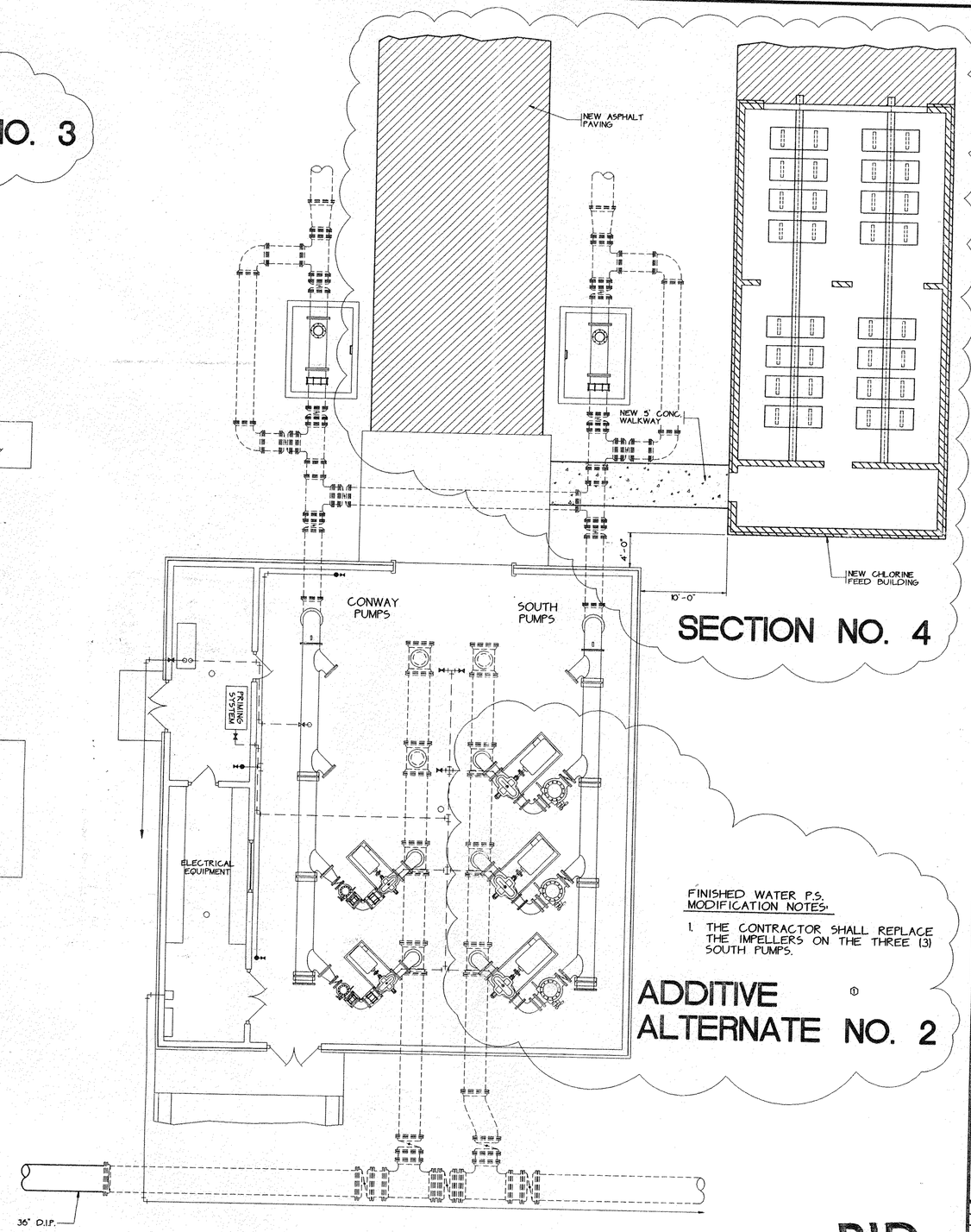
SOUTH PUMP STATION
MODIFICATION NOTES:

1. THE CONTRACTOR SHALL INSTALL A 30" BFV + 30" M.J. SLEEVE IN CLEARWELL EFFLUENT PIPE.

ADDITIVE ALTERNATE NO. 3 ①



SOUTH PUMP STATION - LAYOUT
SCALE: 3/16" = 1'-0"



SECTION NO. 4

FINISHED WATER P.S.
MODIFICATION NOTES:

1. THE CONTRACTOR SHALL REPLACE THE IMPELLERS ON THE THREE (3) SOUTH PUMPS.

ADDITIVE ALTERNATE NO. 2 ①

FINISHED WATER PUMP STATION
SCALE: 3/16" = 1'-0"

BID SET

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
①	ADDITIVE ALTERNATE	5/13/96	JR

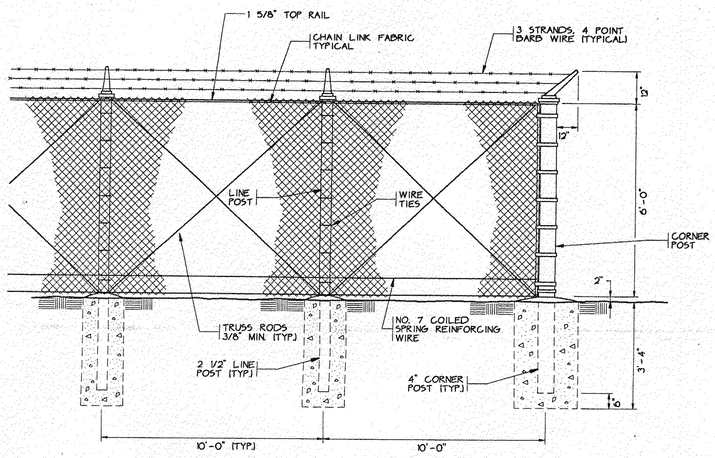
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

FINISHED AND SOUTH WATER PUMP STATION LAYOUT

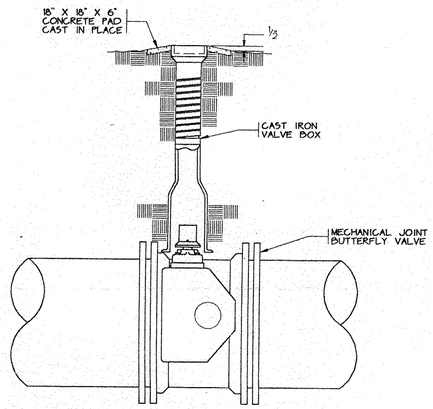
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1996
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN
SHEET NO.	G-25
OF:	26

HOBBS UPCHURCH & ASSOC. H:\BEACH\DCS\BEACH\G9503\SOU\G503-025.DWG EDITED BY: DC DATE: 05/13/96 TIME: 15:23 SCALE: 3/16"=1'-0"



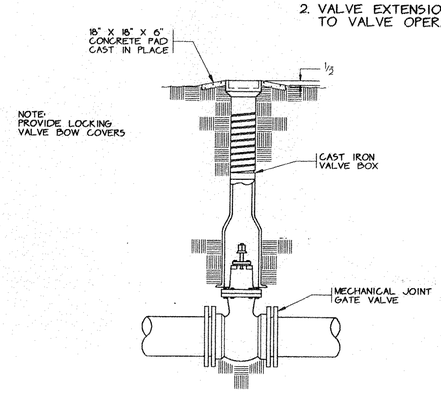
6' CHAIN LINK FENCE DETAIL
N.T.S.



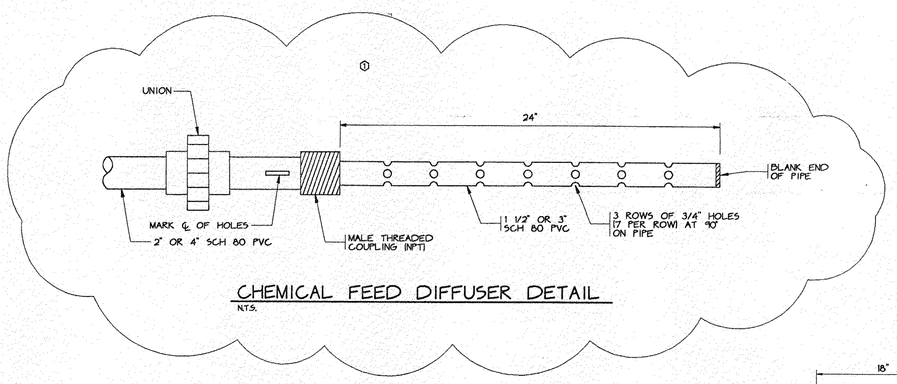
BUTTERFLY VALVE ASSEMBLY
N.T.S.

NOTES:

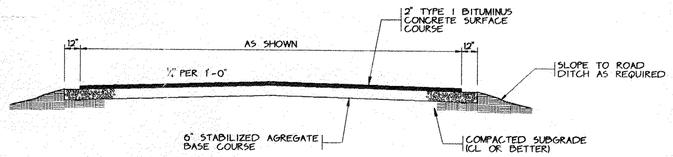
1. DUCTILE IRON VALVE BOX EXTENSIONS SHALL BE USED ON ALL VALVES WITH BURY DEPTHS OVER 8 FEET.
2. VALVE EXTENSION STEMS SHALL BE BOLTED TO VALVE OPERATOR NUT.

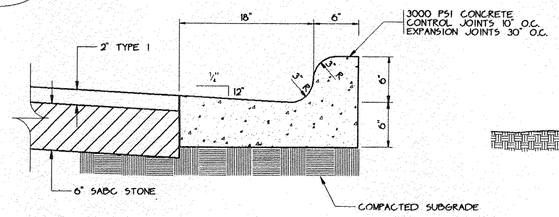


GATE VALVE ASSEMBLY
N.T.S.

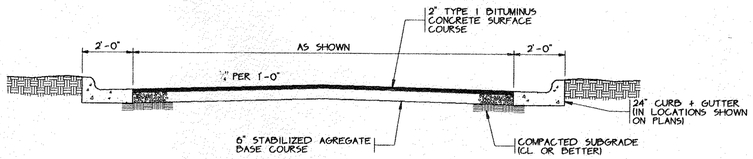


CHEMICAL FEED DIFFUSER DETAIL
N.T.S.



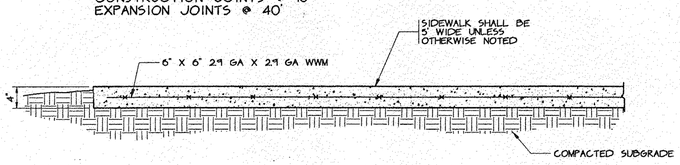


PAVEMENT, CURB + GUTTER
N.T.S.



TYPICAL ROADWAY SECTIONS
N.T.S.

NOTE:
CONSTRUCTION JOINTS @ 10'
EXPANSION JOINTS @ 40'



SIDEWALK DETAIL
N.T.S.

BID SET

SYM.	DESCRIPTION	DATE	BY
0	CHEMICAL FEED DIFFUSER	5/13/98	JR

REVISIONS

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

MISCELLANEOUS DETAILS

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	MARCH 1998
DESIGNED:	JWM
DRAWN:	DC
CHECKED:	JWM
SCALE:	AS SHOWN

SHEET NO.
G-26
OF: 26

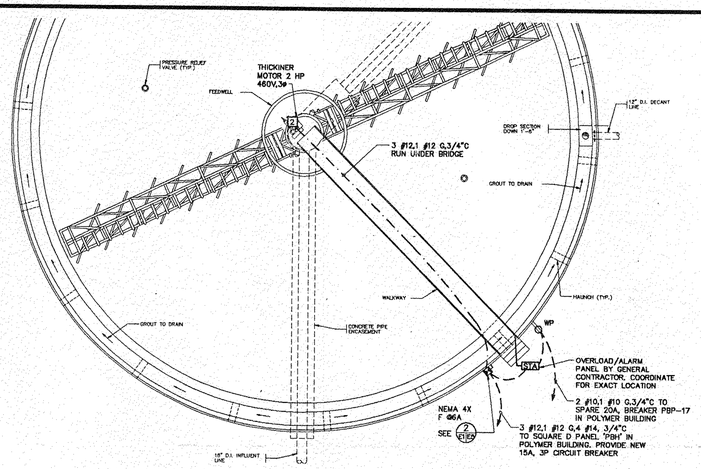
HOBBS UPCHURCH & ASSOC. H:\BEACH\DC\BEACH\G5903\500\G503-026.DWG EDITED BY: DC DATE: 05/13/98 TIME: 15:46 SCALE: 1/2"=1'-0"

LIGHTING FIXTURE SCHEDULE

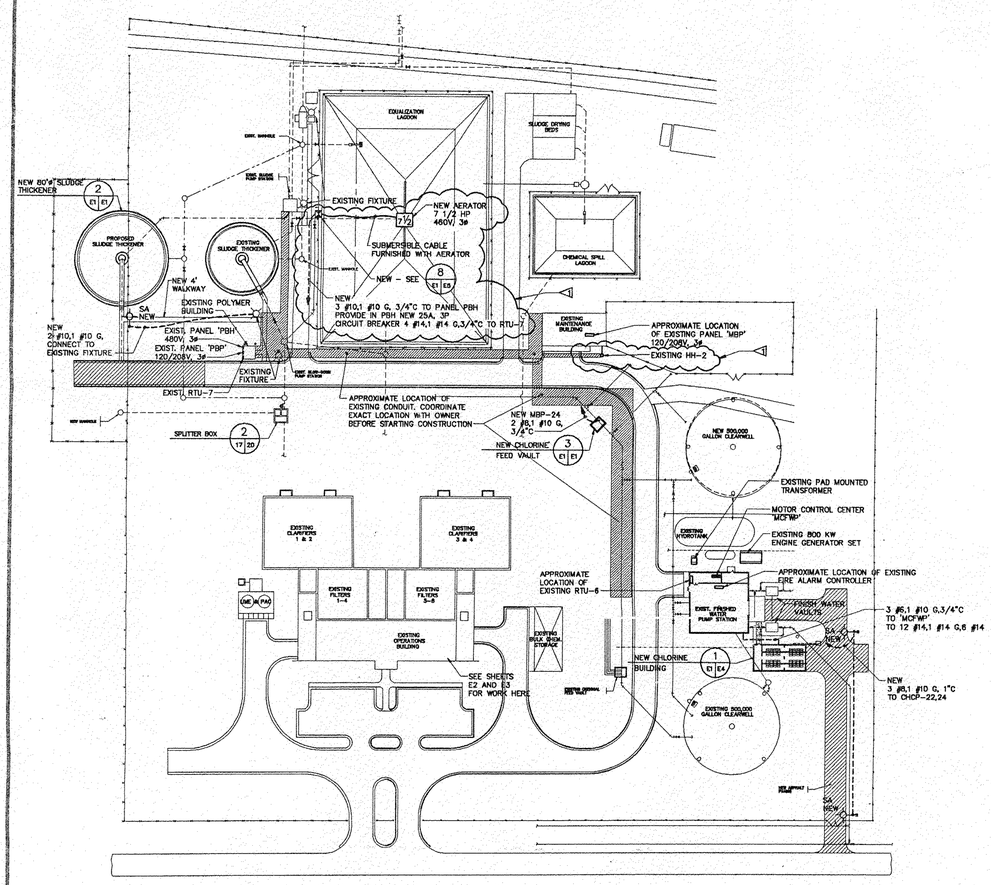
TYPE	DESCRIPTION
A	FLUORESCENT FIXTURE 52" LONG WITH ABS PLASTIC HOUSING, HIGH IMPACT ACRYLIC DIFFUSER AND TWO F40/SPEC41/RS LAMPS. UNIT SHALL BE CORROSIVE RESISTANT AND SHALL HAVE PLASTIC CAPTIVE DIFFUSER LATCHES. WILLIAMS NO. 8622A
B	SAME AS 'A', EXCEPT WITH LOW TEMPERATURE BALLASTS.
H	WALL MOUNTED HID LUMINAIRE WITH P.E. CELL CONTROL, PRISMATIC GLASS, DIE-CAST ALUMINUM HOUSING, CAST ALUMINUM GRID GUARD AND ONE 70 WATT HPS LAMP. MOUNT 12' ABOVE DOOR OR AS INDICATED. LITHONIA NO. TWH-70S-PE-WG G.E. WM7M075QH1SN40B/PEK-120/WG-WM7
L	OUTER BOX MOUNTED, WEATHERPROOF INCANDESCENT FIXTURE WITH GASKET, GLOBE, GUARD AND 150 WATT, A-21 125V LAMP. APPLETON VPX1050G, OR EQUAL
SA	AS SPECIFIED ON DETAIL 1/E1EV

GENERAL NOTES

1. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION, EXACT CONFIGURATION AND REQUIREMENTS OF INSTRUMENTS AND EQUIPMENT BEING FURNISHED BY #2 CONTRACTOR PRIOR TO RUNNING ANY WIRING.
2. ALL CIRCUITS RATED 115 VOLTS OR HIGHER SHALL BE PROVIDED WITH SEPARATE EQUIPMENT GROUNDING CONDUCTORS BONDED TO ALL METAL ENCLOSURES AND BOXES ASSOCIATED WITH THE CIRCUIT.
3. MINIMUM SIZE CONDUCTOR, OTHER THAN INSTRUMENTATION OR CONTROL CONDUCTORS, SHALL BE #12.
4. PVC CONDUIT IS NOT PERMITTED FOR SIGNAL (INSTRUMENTATION) CIRCUITS RUN OUTSIDE OF BUILDINGS. USE PVC COATED RIGID STEEL CONDUIT.
5. BIDDERS SHALL VISIT SITE TO VERIFY EXACT FIELD CONDITIONS PRIOR TO SUBMITTING BIDS. NO EXTRAS FOR ADDITIONAL WORK DUE TO VERIFIABLE FIELD CONDITIONS WILL BE PROCESSED DURING CONSTRUCTION PHASE.
6. COORDINATE WITH #1 CONTRACTOR AND OWNER TO MINIMIZE RISK OF CUTTING INTO EXISTING UNDERGROUND POWER AND CONTROL LINES.
7. SEAL OFF AGAINST WATER AND MOISTURE PENETRATION ANY NEW OPENING ON EXTERIOR OF NEW AND EXISTING BUILDING.



NEW SLUDGE THICKENER PLAN
2/E1EV SCALE: 1/8" = 1'-0"

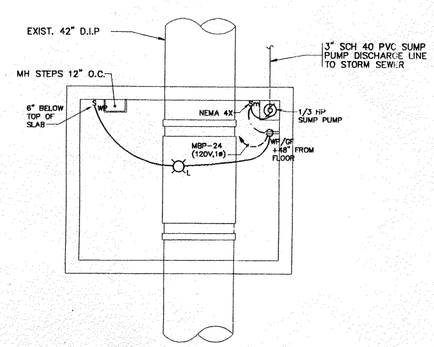


1/E1EV PARTIAL ELECTRICAL SITE PLAN
SCALE: 1" = 30'-0"

ELECTRICAL SYMBOL SCHEDULE

SYMBOL	DESCRIPTION
	CONDUIT CONCEALED IN OR ABOVE CEILING: IN OVERHEAD SLAB: OR IN WALL
	CONDUIT CONCEALED IN OR BELOW FLOOR: BELOW GRADE: OR IN WALL.
	CONDUIT RUN EXPOSED
#/	IF SHOWN, CROSS LINES INDICATE NUMBER OF CURRENT CARRYING CONDUCTORS. EQUIPMENT GROUNDING CONDUCTORS ARE GENERALLY NOT INCLUDED IN THE QUANTITY INDICATED.
	HOME RUN TO PANEL – WITH PANEL AND CIRCUIT DESIGNATION.
	CONDUIT STUB-IN WITH CONNECTION TO EQUIPMENT
J OR J	JUNCTION BOX SIZED PER N.E.C.
J	JUNCTION BOX AND CONNECTION TO EQUIPMENT.
	LIGHTING, POWER OR DISTRIBUTION PANELBOARD.
	CONTROL PANEL
	FLUORESCENT FIXTURE – DRAWN APPROXIMATELY TO SCALE.
	INCANDESCENT LIGHTING FIXTURE
	WALL OUTLET – INCANDESCENT OR HID FIXTURES AS SCHEDULED.
SA	STREET LIGHTING FIXTURE – SEE DETAIL 1/E1EV
	STANDARD CONVENIENCE RECEPTACLE – MOUNT 18" UP. NEMA 5-20R DUPLEX. P&S 5362 SERIES.
WP	INDICATES DEVICE TO HAVE WEATHERPROOF COVER.
XR	CORROSION RESISTANT
SA	SURGE ARRESTER
S	SINGLE POLE SWITCH – P & S 15AC1. MOUNT 48" UP FROM TOP OF DEVICE TO FLOOR.
S_3	THREE WAY SWITCH – P & S 15AC3. MOUNT 48" UP FROM TOP OF DEVICE TO FLOOR.
S_P	SWITCH WITH PILOT LIGHT.
Sm	MANUAL STARTER
	NONFUSIBLE DISCONNECT SWITCH. NEMA 12, UNLESS OTHERWISE NOTED. PROVIDE AUXILIARY N.O. CONTACT.
	FUSIBLE DISCONNECT SWITCH. NEMA 12, UNLESS OTHERWISE NOTED.
S_{wp}	SWITCH WITH CAST WEATHERPROOF COVER. COVER: BRYANT 7420, HUBBELL 7420, CROUSE-HINDS DS1020G. SWITCH BOX ADAPTER: HUBBELL 7349, CROUSE-HINDS ARB3.
	TELEPHONE OUTLET – COUNTER HEIGHT, CLEAR BACKSPLASH AND WALL CABINETS. IF NO CABINET, MOUNT WITHIN 5'-0" OF FLOOR. PROVIDE 3/4"C WITH PULL CORD OUTSIDE BUILDING, BELOW GRADE AND CAP.
CLA	CHLORINE DETECTOR ALARM LIGHT – EDWARDS #52R-NS ROTATING BEACON, U.L. LISTED, 120 VOLT WITH 25 WATT LAMP. SUITABLE FOR OUTDOOR INSTALLATION AND FOR MOUNTING IN A 4" OCTAGON BOX. MOUNT 8'-0" UP.
CLD	CHLORINE DETECTOR FURNISHED BY #1 CONTRACTOR.
LOWR	LOSS OF WEIGHT RECORDER/ INDICATOR
H	RATE OF RISE/ FIXED TEMPERATURE FIRE DETECTOR.
F/A	FIRE DETECTOR CONTROL PANEL.
F	FIRE DETECTOR ALARM HORN. MOUNT 9'-0" UP, OR 12" BELOW CEILING.
EOL	END OF LINE DEVICE.
MS	DOOR SECURITY MAGNETIC SWITCH. SEE DETAIL 5/E2EV
SA	SURGE ARRESTER. JOSLYN CAT. NO.1456-05, OR APPROVED EQUAL.
UH	ELECTRIC UNIT HEATER
	115 OR 230 VOLT, 1 PHASE MOTOR.
	208 OR 230 VOLT, 3 PHASE MOTOR – NUMERAL INDICATES HORSEPOWER.
	480 VOLT, 3 PHASE MOTOR – NUMERAL INDICATES HORSEPOWER.
DC	90V DC CHEMICAL FEED PUMP MOTOR.
	COMBINATION MAGNETIC STARTER WITH NONFUSIBLE DISCONNECT.
	COMBINATION MAGNETIC STARTER WITH FUSIBLE DISCONNECT. NUMERAL INDICATES AMPACITY OF FUSETRONS TO BE INSTALLED. PROVIDE H-O-A AND BUILT-IN CONTROL TRANSFORMER. NEMA 12 ENCLOSURE, UNLESS OTHERWISE NOTED.
S_m	MANUAL MOTOR STARTER.
T	THERMOSTAT
H-O-A	HAND-OFF-AUTOMATIC SWITCH
GF	GROUND FAULT

SYMBOL	DESCRIPTION
F	FUSE
C	CONDUIT
A	AMPERE
P	POLE
G	GROUND
FPN	FUSE PER EQUIPMENT NAMEPLATE REQUIREMENTS.
FPM	FUSE PER MANUFACTURERS RECOMMENDATIONS
REC	RECEPTACLE
LTG	LIGHTING
S.O.	SPACE WITH BUS PROVISION FOR FUTURE BREAKER.
AFF	ABOVE FINISHED FLOOR
GF	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
ON-OFF	START-STOP SWITCH STATION. MOMENTARY CONTACT TYPE WIT HRED 'RUN' LIGHT. WIRE BACK TO STARTER WITH 5 #14,1 #14 G,1/2"C
FVNR	FULL VOLTAGE NON-REVERSIBLE MAGNETIC STARTER.
C-FVNR	COMBINATION FUSED DISCONNECT SWITCH, OR CIRCUIT BREAKER AS SHOWN AND FVNR.
RVNR	REDUCED VOLTAGE NO-REVERSIBLE MAGNETIC STARTER. AUTOTRANSFORMER TYPE – CLOSED TRANSITION.
C-RVNR	COMBINATION FUSED DISCONNECT SWITCH, OR CIRCUIT BREAKER, AS SHOWN AND RVNR.
B	BELDEN NO. 83702, 18 AWG SHIELDED TWO-CONDUCTOR CABLE. TEFLON JACKETED.
XR	CORROSION RESISTANT RECEPTACLE. NEMA 5-20R. MOUNT 18" AFF. HUBBELL NO. 53CM62 IN NON-METALLIC BOX WITH 93101 COVER PLATE OR EQUIVALENT FROM CROUSE-HINDS (5739CR).
S_{XR}	CORROSION RESISTANT SWITCH AND PLATE. HUBBELL 17CM51 IN NON-METALLIC BOX. MOUNT 48" AFF.
S_3P_{WP}	3-WAY 20A, 1-POLE SWITCH AND 120 VOLT RED PILOT LIGHT, ALL IN WEATHER-PROOF ENCLOSURES. SEE DIAGRAM 7/E4EV
S_4P_{WP}	SIMILAR TO 'S_3P_{WP}', EXCEPT 4-WAY SWITCH.
S_3P_{XR}	SIMILAR TO 'S_4P_{WP}', EXCEPT ALL CORROSION RESISTANT INSTEAD OF WEATHERPROOF.
GR	GROUND ROD, 15'-0" LONG, 3/4" DIAMETER COPPER CLAD STEEL. BURY VERTICALLY IN GROUND 24" BELOW GRADE. CADWELD CONNECT TO GROUND WIRE CONDUCTOR.
G	#1/0 THW OR THWN TINNED COPPER CONDUCTOR. INSTALL APPROXIMATELY 24" BELOW GRADE AND CONNECT TO GROUND RODS.
	INDICATES CONNECTION TO GROUNDING LOOP. ALL CONNECTIONS TO BE CADWELD TYPE. INSULATE CONNECTION WITH RUBBER TAPE.
HO	ON-OFF MAINTAINED CONTACT WEATHERPROOF PUSHBUTTON FOR EMERGENCY POWER, CUTOFF TO PUMP MOTOR.
FJ	WATERTIGHT JUNCTION BOX WITH 3-AMP 'J' TYPE FUSE AND FUSEHOLDER FOR PROTECTION OF INSTRUMENTATION. ONE FUSE PER INSTRUMENT.
WT	WATER-TIGHT BOX.
HO	ON-OFF SWITCH STATION – MAINTAINED CONTACT TYPE – WIRE WITH 2 #14, 1 #14 G,1/2"C BACK TO MOTOR STARTER. PROVIDE PHENOLIC NAMEPLATE IDENTIFYING MOTOR.
AD	MOTOR OPERATED DAMPER – PROVIDED BY CONTRACTOR NO. 2
N.O.	NORMALLY OPEN CONTACT
N.C.	NORMALLY CLOSED CONTACT
FCP-A	FILTER CONTROL PANEL "A" – SECTION (FILTERS 1-4)
FCP-B	FILTER CONTROL PANEL "B" – SECTION (FILTERS 5-8)
FCP	FILTER CONTROL PANEL
	EXISTING ITEM – REMAIN
	EXISTING ITEM – RELOCATE
	EXISTING ITEM – REMOVE
DFM	DOPPLER TYPE FLOW METER – PROVIDED BY #1 CONTRACTOR WIRED BY ELECTRICAL CONTRACTOR.
SV	SOLENOID VALVE – PROVIDED BY #1 CONTRACTOR, WIRED BY ELECTRICAL CONTRACTOR.



3/E1EV NEW CHLORINE FEED VAULT PLAN - ELECTRICAL
SCALE: 3/8" = 1'-0"

CONTROL WIRING DIAGRAM SYSTEM SYMBOLS

M	MAGNETIC STARTER COIL
OL	OVERLOAD PROTECTION
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	ON-OFF SWITCH
	RED PILOT LIGHT
H O A	HAND-OFF-AUTOMATIC SWITCH

LIST OF ELECTRICAL DRAWINGS

SHEET NO.	SHEET TITLE
E-1	SITE PLAN – SYMBOLS AND SCHEDULES
E-2	FILTER AND OPERATION BUILDING PLANS AND DETAILS
E-3	EXISTING FILTER PLAN – DEMOLITION AND NEW FLORIDE FEED LAYOUT PLAN
E-4	NEW CHLORINE FEED BUILDING PLANS
E-5	MISCELLANEOUS DETAILS

BID SET

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	ADDED AERATOR MOTOR	5-1-96	DL

SOUTH CAROLINA PROFESSIONAL ENGINEER DAVID L. LAWRENCE No. 13783 — DRAWING 95009

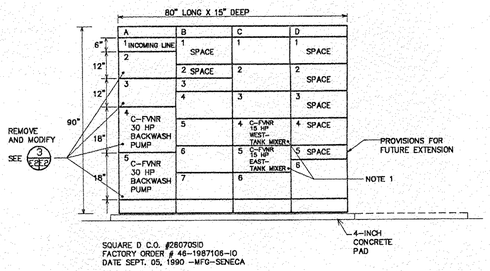
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

SITE PLAN - SYMBOLS AND SCHEDULES

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	APRIL 1, 1996
DESIGNED:	DL
DRAWN:	DBM
CHECKED:	DL
SCALE:	AS SHOWN
SHEET NO.	E-1
OF:	5

HOBBS UPCHURCH & ASSOC. H:\BEACH\DCL\BEACH\G95930\ELEC\E1.DWG EDITED BY: DC DATE: 05/13/96 TIME: 19:25 SCALE: 1"=30.0000'

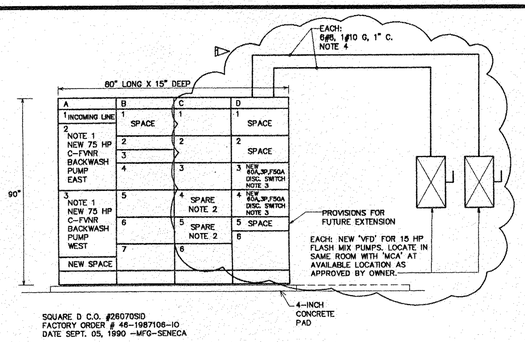


SQUARE D C.O. #26070SIO
FACTORY ORDER # 46-1987106-10
DATE SEPT. 05, 1990 -MFG-SENECA

EXISTING MOTOR CONTROL CENTER 'MCA' ELEVATION

2 E-2 NOT TO SCALE

NOTES:
1. EXISTING TANK MIXERS MOTOR STARTERS ARE RATED FOR 15 HP IN SPITE OF THAT EXISTING MOTORS ARE ONLY 10 HP.

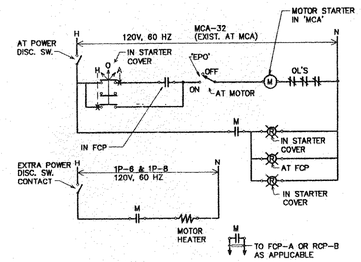


SQUARE D C.O. #26070SIO
FACTORY ORDER # 46-1987106-10
DATE SEPT. 05, 1990 -MFG-SENECA

EXISTING MOTOR CONTROL CENTER 'MCA' ELEVATION - NEW MODIFICATIONS

3 E-2 NOT TO SCALE

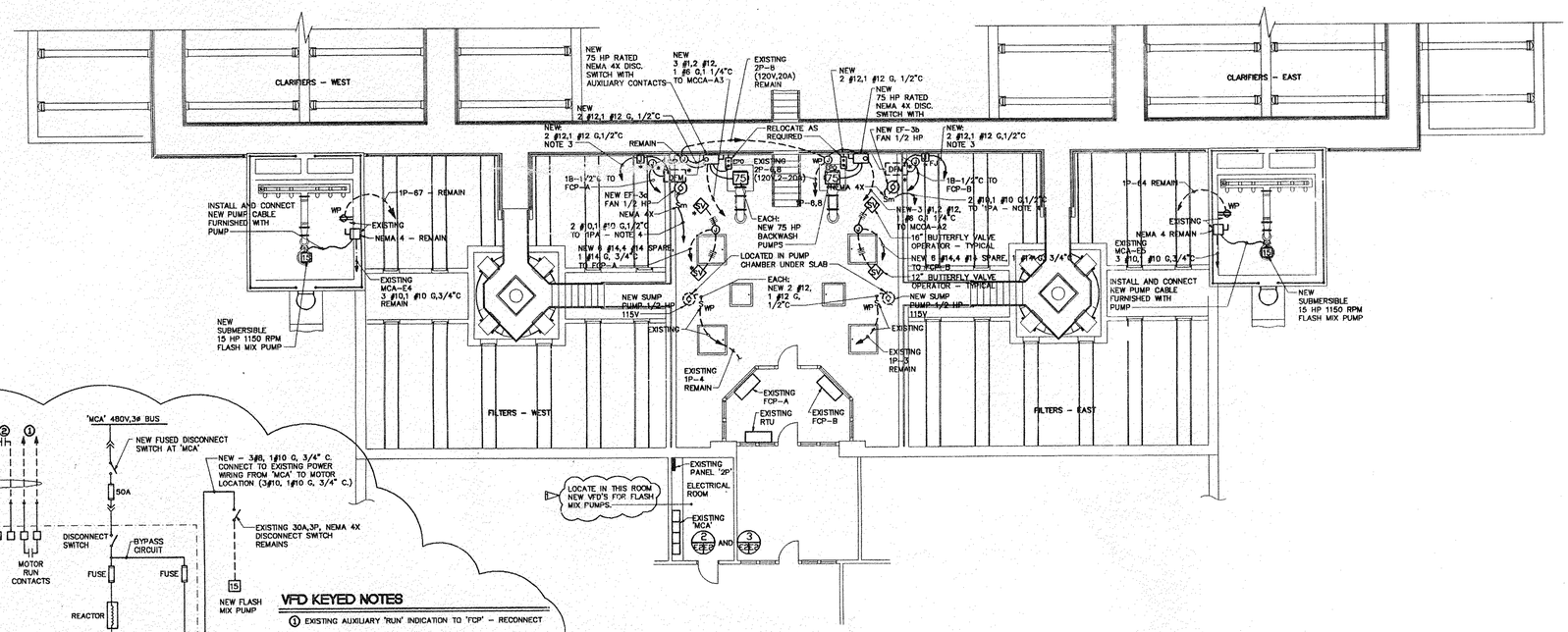
NOTES:
1. PROVIDE TWO NEW 75 HP, 460V, 3-PH, C-FVNR STARTERS IN SECTION A, AS SHOWN. EACH STARTER SHALL HAVE: H-O-A SWITCH, RED PILOT LIGHT AND 2 EXTRA N.O. AUXILIARY CONTACTS. O.L. PROTECTION ON EACH PHASE AND SINGLE PHASE PROTECTION.
2. DISCONNECT EXISTING 15 HP STARTERS FOR TANK FLASH MIXERS AND LEAVE THEM SPARE. PROVIDE NEW NAMEPLATES.
3. PROVIDE TWO NEW 60A,3P FUSED DISCONNECT SWITCHES IN EXISTING SPACES FOR NEW VARIABLE FREQUENCY DRIVES ('VFD') FOR 15 HP FLASH MIX PUMPS. PROVIDE IDENTIFYING NAMEPLATES: "60A, F50A - FLASH MIX PUMP VFD-__")
4. CONNECT EACH SET OF OUTPUT WIRES FROM VFD'S (3#6, 1#10 G.) TO EXISTING 3#10, 1#10 G. CONDUCTORS GOING FROM 'MCA' TO FLASH MIX PUMPS.



NEW FILTER BACKWASH PUMPS CONTROL WIRING DIAGRAM (TWO REQUIRED)

4 E-2 NOT TO SCALE

NOTES:
1. EXISTING BACKWASH PUMP CONTROL WIRING DIAGRAM IS SAME AS ABOVE. CONTRACTOR MAY REWIRE EXISTING CONTROL WIRING TO MAXIMUM EXTEND FEASIBLE.

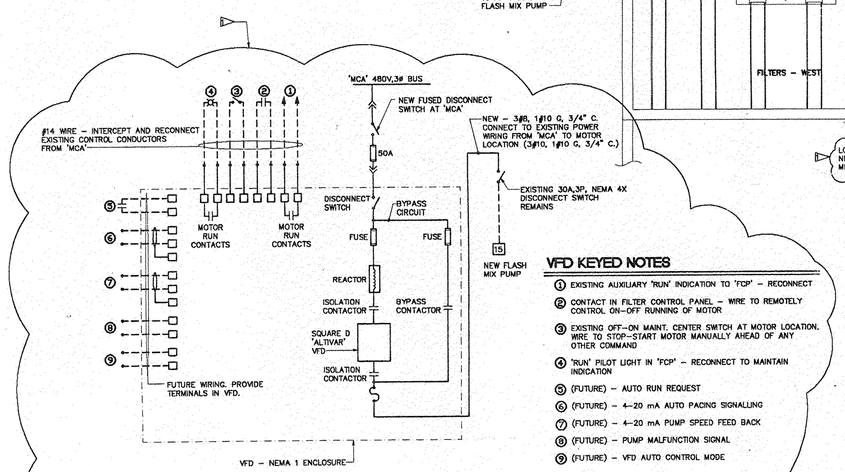


* - INDICATES ITEM IS IN PIPE CHAMBER BELOW

PARTIAL PLAN - FILTERS - OPERATIONS BUILDING - SECOND FLOOR

1 E-2 SCALE: 1/8" = 1'-0"

NOTES:
1. REFER TO 1 E-2 FOR DEMOLITION PLAN.
2. NEW CONDUIT MUST BE RUN IN PIPE CHAMBER AND AS HIGH AS POSSIBLE IN FIRST FLOOR TO MAXIMUM EXTENT FEASIBLE.
3. PROVIDE NEW 15A, 1P CIRCUIT BREAKER IN SQ. D. PANEL '1PA' FOR "NEW DUPLEX METERS" AND USE IT TO PROVIDE POWER TO BOTH NEW METERS.
4. PROVIDE TWO NEW 20A, 1P CIRCUIT BREAKERS IN PANEL '1PA' FOR FANS EF-3a AND EF-3b.



VFD KEYED NOTES

1. EXISTING AUXILIARY 'RUN' INDICATION TO 'FCP' - RECONNECT
2. CONTACT IN FILTER CONTROL PANEL - WIRE TO REMOTELY CONTROL ON-OFF RUNNING OF MOTOR
3. EXISTING OFF-ON MAINT. CENTER SWITCH AT MOTOR LOCATION. WIRE TO STOP-START MOTOR MANUALLY AHEAD OF ANY OTHER COMMAND
4. 'RUN' PILOT LIGHT IN 'FCP' - RECONNECT TO MAINTAIN INDICATION
5. (FUTURE) - AUTO RUN REQUEST
6. (FUTURE) - 4-20 mA AUTO PACING SIGNALLING
7. (FUTURE) - 4-20 mA PUMP SPEED FEED BACK
8. (FUTURE) - PUMP MALFUNCTION SIGNAL
9. (FUTURE) - VFD AUTO CONTROL MODE

TYPICAL NEW FLASH MIX 'VFD' ONE-LINE DIAGRAM AND CONTROL PROVISIONS

5 E-2 NOT TO SCALE

NOTES:
1. REFER TO VFD SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

BID SET

SYM.	DESCRIPTION	DATE	BY
1	ADDED VFD	5-1-96	DL

REVISIONS

STATE OF SOUTH CAROLINA — REGISTERED PROFESSIONAL ENGINEER — DAVID LEE HOBBS — 22477

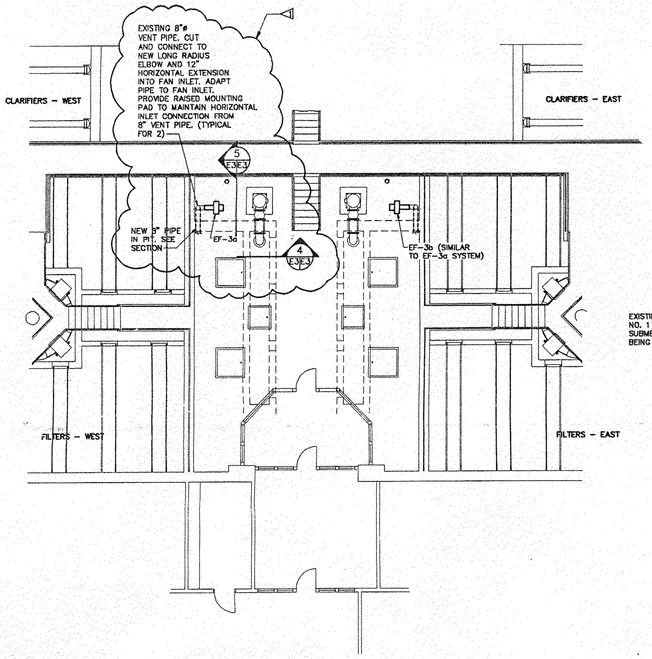
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

FILTER AND OPERATION BUILDING PLANS AND DETAILS

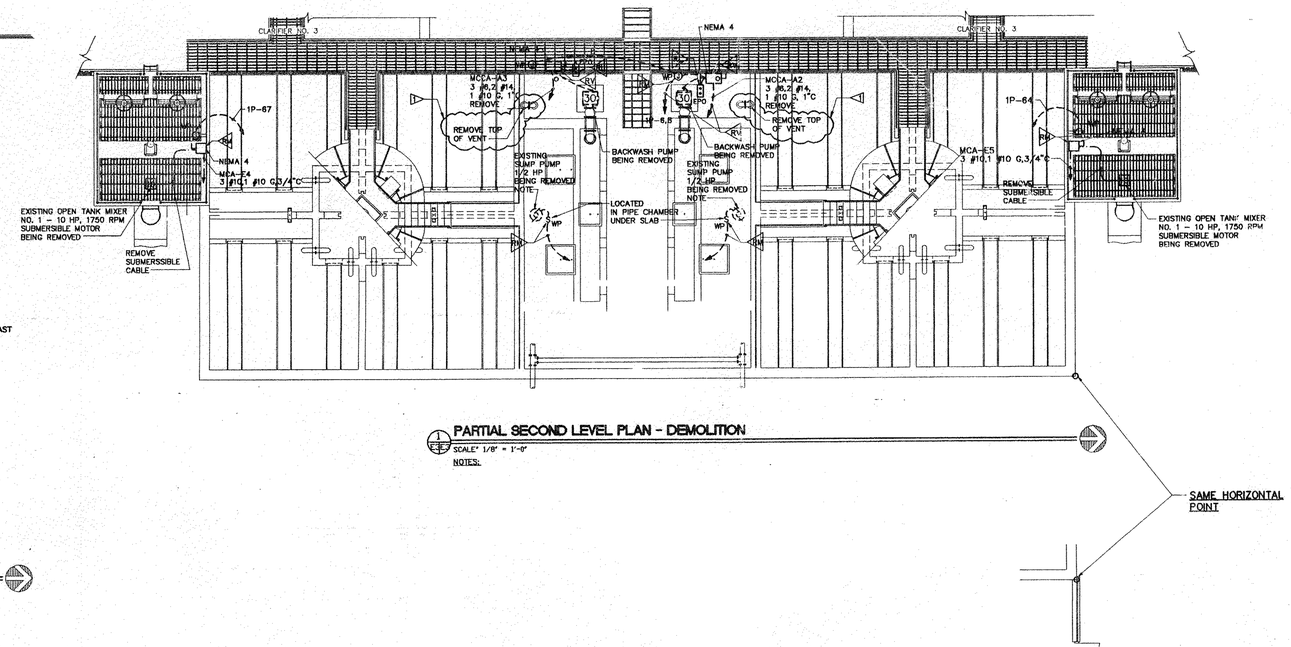
BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	APRIL 1, 1996
DESIGNED:	DL
DRAWN:	DBM
CHECKED:	DL
SCALE:	AS SHOWN
SHEET NO.	E-2
OF:	5

H:\BEACH\DC\BEACH\S5952\ELECT\E2.DWG EDITED BY: DC DATE: 05/13/96 TIME: 17:54 SCALE: 1/8"=1'-0" HOBBS UPCHURCH & ASSOC.

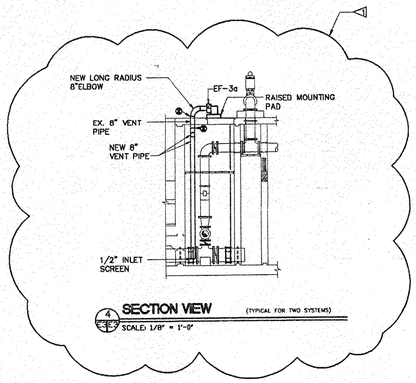


3 E-3 PARTIAL FILTER PLAN – NEW FORCED AIR VENTILATION
SCALE: 1/8" = 1'-0"

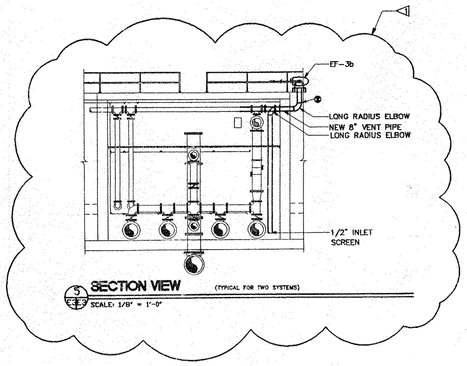


1 E-3 PARTIAL SECOND LEVEL PLAN – DEMOLITION
SCALE: 1/8" = 1'-0"

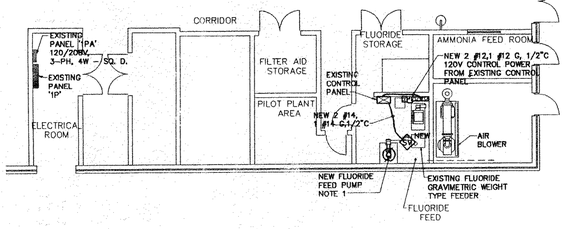
NOTES:



4 E-3 SECTION VIEW (TYPICAL FOR TWO SYSTEMS)
SCALE: 1/8" = 1'-0"



5 E-3 SECTION VIEW (TYPICAL FOR TWO SYSTEMS)
SCALE: 1/8" = 1'-0"



2 E-3 PARTIAL FIRST FLOOR PLAN – FLUORIDE FEED LAYOUT PLAN
SCALE: 1/8" = 1'-0"

NOTES:
1. REMOVE ELECTRICAL CONNECTIONS TO EXISTING FLUORIDE FEED PUMP AND CONNECT TO NRE PUMP (SAME SIZE, SINGLE PHASE 115V MOTOR)

BID SET

REVISIONS			
SYM.	DESCRIPTION	DATE	BY
1	EXHAUST FAN REVISIONS	5-1-96	DL

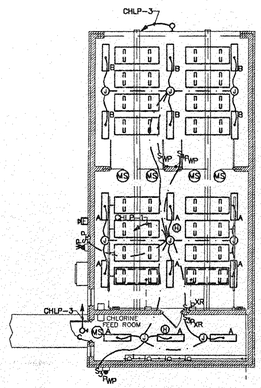
HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

EXISTING FILTER PLAN DEMOLITION AND PARTIAL FIRST FLOOR PLAN

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	APRIL 1, 1996
DESIGNED:	DL
DRAWN:	DBM
CHECKED:	DL
SCALE:	AS SHOWN
SHEET NO.	E-3
OF:	5

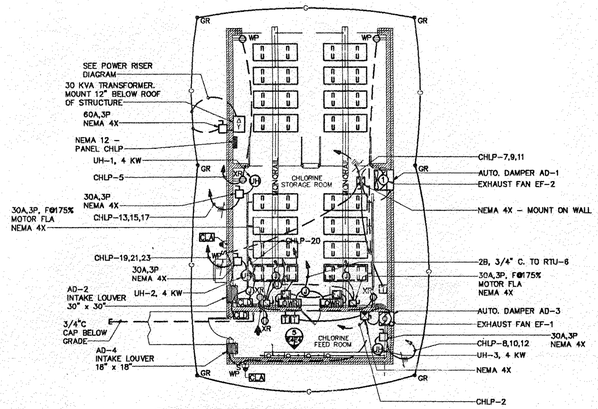
HOBBS UPCHURCH & ASSOC. H:\BEACH\GS\BEACH\GS3703\ELECTL\DWG EDITED BY: GC DATE: 05/13/96 TIME: 18:17 SCALE: 1/8"=1'-0"



CHLORINE FEED BUILDING - LIGHTING AND FIRE ALARM PLAN

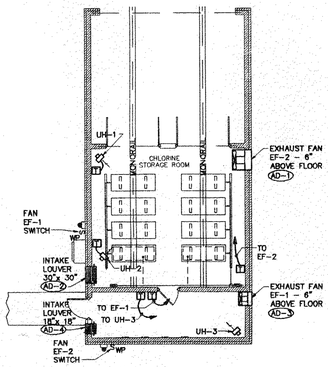
1 E4|C4 SCALE: 1/8" = 1'-0"

NOTES:
1. SEE 3 E4|C5 FOR FIRE ALARM SYSTEM RISER DIAGRAM.
2. SEE 4 E4|C5 FOR INTRUSION DETECTION SYSTEM RISER DIAGRAM.



CHLORINE FEED BUILDING - POWER PLAN

2 E4|C4 SCALE: 1/8" = 1'-0"



CHLORINE FEED BUILDING - HEATING AND VENTILATING PLAN

3 E4|C4 SCALE: 1/8" = 1'-0"

GENERAL NOTES

A. ALL WORK WITHIN FACILITY SHALL BE CORROSION RESISTANT. USE PVC CONDUIT (SCHEDULE 40) AND PLASTIC BOXES TO MAXIMUM EXTENT FEASIBLE. WHENEVER METALLIC CONDUITS IS NECESSARY, USE PVC COATED RIGID STEEL CONDUIT.

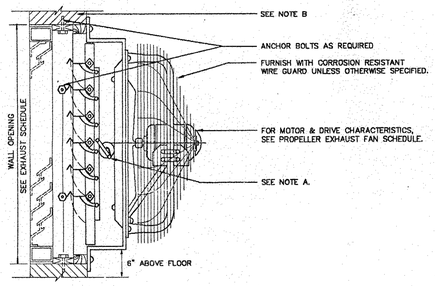
LOAD (KVA) A	B	C	DESCRIPTION	WIRE SIZE	BRKR RAT'D	CKT. NO.	A B C	CKT. NO.	BRKR RAT'D	WIRE SIZE	DESCRIPTION	LOAD (KVA) A	B	C
1.5			LIGHTING	12	20/1	1		2	20/1	12	EF-1, 1/2 HP	1.2		
	0.3		EXTERIOR LIGHTING	12	20/1	3		4	20/1	12	CL2 FEED SYSTEM		0.2	
		1.2	RECEPTACLE	12	20/1	5		6	20/1	12	INSTRUMENT			0.2
0.5			EF-2, 1 HP	12	15/2	7		8	20/3	12	UH-3, 4 KW	1.0		
	0.5			12	.	9		10	.	12	.		1.0	
		0.5		12	.	11		12	.	12	.			1.0
1.0			UH-1, 4 KW	12	20/3	13		14	15/3	.	SPARE	0.0		
	1.0			12	.	15		16	.	.	.		0.0	
		1.0		12	.	17		18	.	.	.			0.0
1.0			UH-2, 4 KW	12	20/3	19		20	20/1	12	CHLORINE ALARMS	0.2		
	1.0			12	.	21		22	20/1	.	SPARE		0.0	
		1.0		12	.	23		24	20/1	.	SPARE			0.0
0.0			SPARE	.	20/1	25		26	20/1	.	SPARE	0.0		
	0.0		SPARE	.	20/1	27		28	20/1	.	SPARE		0.0	
		0.0	SPARE	.	20/1	29		30	20/1	.	SPARE			0.0
0.0			S.O.	.	.	31		32	.	.	S.O.	0.0		
	0.0		S.O.	.	.	33		34	.	.	S.O.		0.0	
		0.0	S.O.	.	.	35		36	.	.	S.O.			0.0
0.0			S.O.	.	.	37		38	.	.	S.O.	0.0		
	0.0		S.O.	.	.	39		40	.	.	S.O.		0.0	
		0.0	S.O.	.	.	41		42	.	.	S.O.			0.0

TYPE: BRANCH CIRCUIT
MOUNTING: SURFACE
SUPPLY: 120/208V, 3-PHI, 4W
MAINS: 110A, 3P MAIN CIRCUIT BREAKER
SCIR: 10,000A
NOTES:
1. NEMA 4X ENCLOSURE
2. SUITABLE FOR SERVICE ENTRANCE.

GROSS PHASE TOTALS
A= 7.5 KVA
B= 5.1 KVA
C= 6.0 KVA

CONNECTED LOAD	
LIGHTING	1.8 KVA
HEATING	9.0 KVA
A/C MOTORS & HEAT PUMPS	0.0 KVA
AIR HANDLING & EXH FANS	2.7 KVA
RECEPTACLES	1.2 KVA
ELECTRIC WATER HEATING	0.0 KVA
ELEVATORS	0.0 KVA
FOOD PROCESSING	0.0 KVA
PROCESS	0.6 KVA
MISCELLANEOUS	0.0 KVA
TOTAL	18.6 KVA

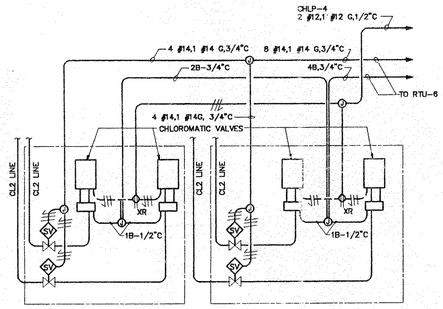
PANEL 'CHLP'



PROPELLER FAN DETAIL

4 E4|C4 NTS

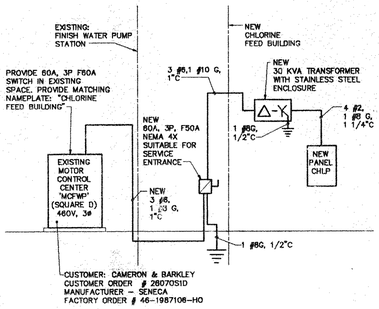
NOTES:
A. LOUVERS TO BE MOTOR OPERATED AND INTERLOCKED TO OPEN WHEN FAN IS ENERGIZED, UNLESS OTHERWISE NOTED.
B. LINTEL AS REQUIRED, BY GENERAL CONTRACTOR.



ELECTRIC RISER DIAGRAM - CL FEEDER SYSTEM

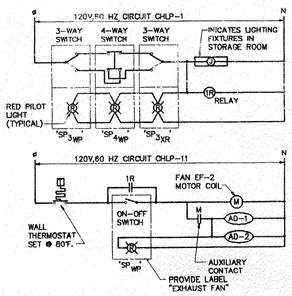
5 E4|C3 NOT TO SCALE

NOTES:
1. COORDINATE EXACT LOCATIONS IN ROOM WITH #1 CONTRACTOR
2. ALL ELECTRICAL PRODUCTS SHALL BE CORROSION RESISTANT.



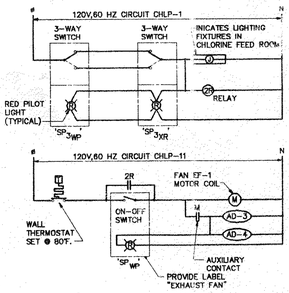
CHLORINE FEED BUILDING POWER RISER DIAGRAM

6 E4|C3 NOT TO SCALE



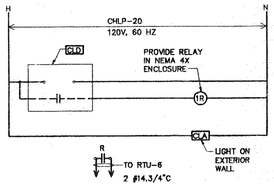
CONTROL WIRING DIAGRAMS FOR FAN EF-2 AND LIGHT FIXTURES IN CHLORINE STORAGE ROOM

7 E4|C4 NOT TO SCALE



CONTROL WIRING DIAGRAMS FOR FAN EF-1 AND LIGHT FIXTURES IN CHLORINE FEED ROOM

8 E4|C4 NOT TO SCALE



TYPICAL CHLORINE FEED AND STORAGE STORAGE ROOMS ALARM CONTROL WIRING DIAGRAM

9 E4|C4 NOT TO SCALE

GENERAL NOTES - HEATING AND VENTILATION

1. ALL OPENINGS FOR DUCTWORK PENETRATIONS ARE GENERALLY PROVIDED BY THE ELECTRICAL CONTRACTOR. EXCEPTIONS ARE COVERED BY NOTES AND DETAILS. THE LOCATION AND SIZE OF EACH OPENING SHALL BE DETERMINED BY THE ELECTRICAL CONTRACTOR.
2. ALL LINTELS REQUIRED IN MASONRY AND STUD WALLS FOR FAN PENETRATIONS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR, UNLESS OTHERWISE NOTED.
3. THERMOSTATS SHALL BE LOCATED AT 5'-0" AFF AND INSTALLED WITH THEIR CENTERLINE DIRECTLY ABOVE THE CENTERLINE OF THE NEAREST LIGHT SWITCH, OR INSTALL CENTERLINE OF DEVICE IN LINE WITH CENTERLINE OF LIGHT SWITCH.
4. PROVIDE EXPANDED METAL SCREEN AT EXHAUST AIR OPENINGS.
5. PAINT EXPANDED METAL SCREENS AND DUCTWORK OFF-WHITE.
6. REFER TO BUILDING ELEVATIONS FOR LOUVER LOCATIONS AND SIZES.
7. AUTOMATIC DAMPERS SHALL BE SAME SIZE AS LOUVERS.
8. ALL CONTROL WIRING AND CONDUIT FOR HEATING AND VENTILATING SYSTEMS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
9. PROVIDE DUAL-WALL SHEETMETAL PLENUM BLANK-OFF FOR UNUSED PORTION OF LOUVER.
10. DO NOT USE ALUMINUM PRODUCTS.

EQUIPMENT SCHEDULE - HEATING AND VENTILATION

EXHAUST FAN SCHEDULE

EF-1 SHALL BE GREENHECK MODEL SBE-1H20-5 OR APPROVED EQUIVALENT RATED AT A NOMINAL 1700 CFM, 0.375" STATIC PRESSURE, V-BELT DRIVE, FAN GUARD WITH MOTORIZED DAMPER. MOTOR SHALL BE 0.5 HORSEPOWER, 115 VOLT, 1 PHASE. FAN SHALL BE EISENHEISS COATED.

EF-2 SHALL BE GREENHECK MODEL SBE-2H30-10 OR APPROVED EQUIVALENT RATED AT A NOMINAL 8000 CFM, 0.375" STATIC PRESSURE, V-BELT DRIVE, FAN GUARD WITH MOTORIZED DAMPER. MOTOR SHALL BE 1.0 HORSEPOWER, 208 VOLT, 3 PHASE. FAN SHALL BE EISENHEISS COATED.

UNIT HEATER SCHEDULE

UH-1, UH-2 AND UH-3 SHALL BE CHROMALOX HDH SERIES OR APPROVED EQUIVALENT, OF CHLORINE CORROSION RESISTANT CONSTRUCTION FOR HORIZONTAL DISCHARGE RATED 4 KW, 208 VOLT, 3 PHASE WITH BUILT-IN CONTROLS, MOUNTING BRACKET AND REMOTE THERMOSTAT.

THERMOSTAT CONTROL SYSTEM

ON A RISE IN TEMPERATURE ABOVE A SET POINT, OR BY ACTIVATION OF THE OUTDOOR FAN SWITCH, OR ACTIVATION OF THE LIGHT SWITCHES FOR THE ROOM, EF-2 SHALL START AND AUTOMATIC DAMPERS AD-1 AND AD-2 SHALL OPEN. ON DROP IN TEMPERATURE BELOW THE PREDETERMINED SET POINT THE DAMPERS SHALL CLOSE AND THE FAN SHALL STOP AS LONG AS THE LIGHT SWITCHES ARE "OFF" AND/OR THE THE OUTDOOR FAN SWITCH IS "OFF".

ON A RISE IN TEMPERATURE ABOVE A SET POINT, OR BY ACTIVATION OF THE OUTDOOR FAN SWITCH, OR ACTIVATION OF THE LIGHT SWITCHES FOR THE ROOM, EF-1 SHALL START AND AUTOMATIC DAMPERS AD-3 AND AD-4 SHALL OPEN. ON DROP IN TEMPERATURE BELOW THE PREDETERMINED SET POINT THE DAMPERS SHALL CLOSE AND THE FAN SHALL STOP AS LONG AS THE LIGHT SWITCHES ARE "OFF" AND/OR THE THE OUTDOOR FAN SWITCH IS "OFF".

ON DROP IN TEMPERATURE BELOW SET POINT, THE ROOM THERMOSTAT SHALL ACTIVATE UNIT HEATER UH-1 AND KEEP UH-1 IN OPERATION UNTIL THERMOSTAT IS SATISFIED.

ON DROP IN TEMPERATURE BELOW SET POINT, THE ROOM THERMOSTAT SHALL ACTIVATE UNIT HEATER UH-2 AND KEEP UH-2 IN OPERATION UNTIL THERMOSTAT IS SATISFIED.

ON DROP IN TEMPERATURE BELOW SET POINT, THE ROOM THERMOSTAT SHALL ACTIVATE UNIT HEATER UH-3 AND KEEP UH-3 IN OPERATION UNTIL THERMOSTAT IS SATISFIED.

SYMBOL AND ABBEVIATION SCHEDULE

NTS	NOT TO SCALE	EF-	EXHAUST FAN
T	THERMOSTAT	AFF	ABOVE FINISHED FLOOR
AD-	AUTOMATIC DAMPER	GC	GENERAL CONTRACTOR
UH-	UNIT HEATER	S_{WP}	WEATHERPROOF ON-OFF SWITCH

SUPPLY FAN

EF-3a AND EF-3b SHALL BE GREENHECK MODEL SFD 7.5-5A OR APPROVED EQUIVALENT, RATED AT A NOMINAL 850 CFM, 0.75" STATIC PRESSURE, DIRECT DRIVE, WITH WEATHER HOOD OVER MOTOR AND DRIVE, DRAIN CONNECTION, TOP HORIZONTAL DISCHARGE, ALUMINUM FORWARD CURVED WHEEL, AND BAKED-ON ENAMEL PAINT OR THERMALLY FUSED POLYESTER COATING. INTERLOCK FAN WITH EFFLUENT CHAMBER 3-WAY FAN SWITCH.

SYM.	DESCRIPTION	DATE	BY
1	EXHAUST FAN REVISIONS	5-1-98	DL

REVISIONS

SOUTH CAROLINA PROFESSIONAL ENGINEER DAVID LEE HOBBS JR. REG. 17893 ENGINEERING

HOBBS, UPCHURCH & ASSOCIATES, P.A.
CONSULTING ENGINEERS
MYRTLE BEACH, SOUTH CAROLINA 29577

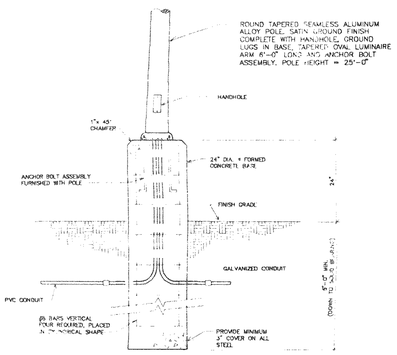
NEW CHLORINE FEED BUILDING PLANS

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE:	APRIL 1, 1998
DESIGNED:	DL
DRAWN:	DBM
CHECKED:	DL
SCALE:	AS SHOWN
SHEET NO:	E-4
OF:	5

BID SET

HOBBS UPCHURCH & ASSOC. H:\BEACH\DCL\BEACH\G3950\ELECT\E4.DWG EDITED BY: DC DATE: 05/13/96 TIME: 18:34 SCALE: 1/8"=1'-0"

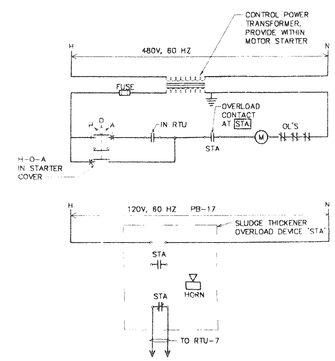


1 INSTALLATION DETAIL - FIXTURE TYPE 'SA'

NOT TO SCALE

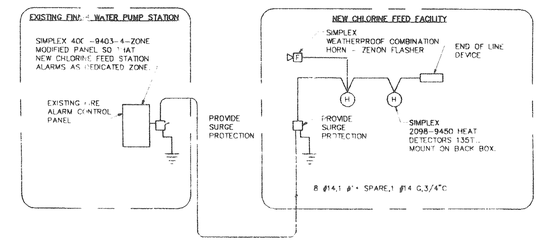
NOTES:

1. FIXTURE TYPE 'SA' SHALL INCLUDE G.E. NO. M2AC25SOAOCMC2, OR EQUAL, HIGH PRESSURE SODIUM LUMINAIRE WITH ONE 250 WATT HPS LAMP AND 6'-0" LONG ALUMINUM ARM. CONNECT AT 208 VOLTS.



2 SLUDGE THICKENER WIRING DIAGRAM

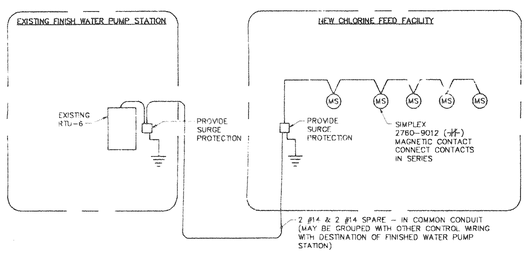
NOT TO SCALE



3 NEW CHLORINE FEED FACILITY FIRE ALARM SYSTEM

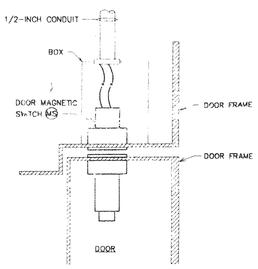
NOT TO SCALE

NOTE:
CONNECTIONS AND MODIFICATIONS TO EXISTING FIRE ALARM SYSTEM SHALL BE ACCOMPLISHED BY SIMPLEX REPRESENTATIVES WORKING BY ELECTRICAL CONTRACTOR.



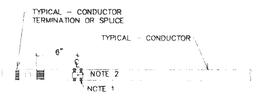
4 NEW CHLORINE FEED FACILITY POINT OF ENTRY PROTECTION SYSTEM

NOT TO SCALE



5 TYPICAL MOUNTING

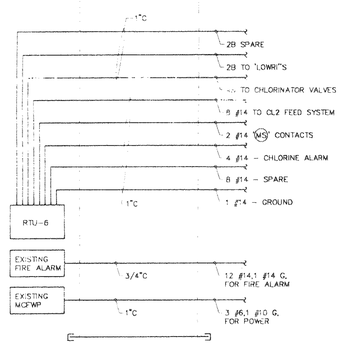
NOT TO SCALE



6 DETAIL OF IDENTIFICATION OF CONDUCTORS

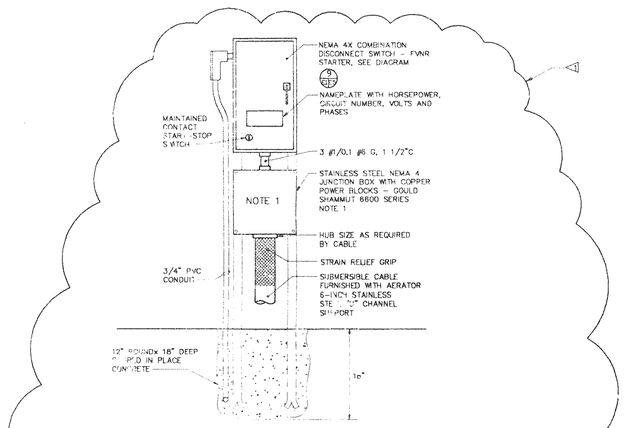
NOTES:

1. SELF LOCKING T & B MS50M TY-RAP TIE PLACED ON CONDUCTOR AT A LOCATION EQUAL FROM THE OPENING OF THE ENCLOSURE.
2. MARK IDENTIFICATION USING T & B #WT163M-3 RED PERMANENT MARKING PEN.



7 RISER DIAGRAM FOR NEW WIRING BETWEEN F.W.P.S. AND NEW CHLORINE FACILITY

NOT TO SCALE

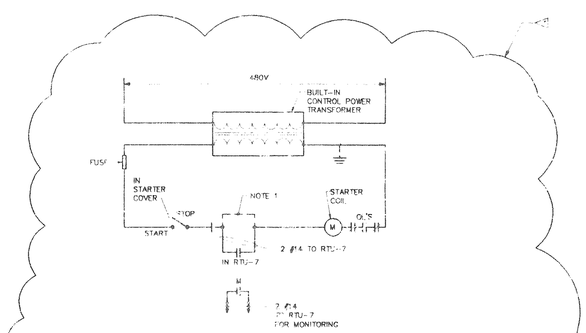


8 AERATOR STARTER/DISCONNECT

NOT TO SCALE

NOTES:

1. JUNCTION BOX MAY BE DELETED IF SUBMERSIBLE CABLE CAN BE FITTED DIR



9 NEW AERATOR CONTROL WIRING DIAGRAM

NOT TO SCALE

NOTES:

1. COORDINATE WITH OWNER TO SEE IF UNIT IS DESIRED TO BE CONTROLLED FROM RTU-7. PROVIDE JUMPER IF UNIT IS NOT TO HAVE CONTROL FROM RTU-7.

BID SET

SYM	REVISION	DATE	BY
1	ADDED "CRATOR CONTROL DETAIL"	3-11-98	DL

HOBBS, UPCHURCH & ASSOCIATES P.A.
CONSULTING ENGINEERS
MYRTLE BEACH SOUTH CAROLINA 29577

DETAILS

BULL CREEK WTP UPGRADE
GRAND STRAND WATER AND SEWER AUTHORITY

DATE	APRIL 1, 1996
DESIGNED	DL
DRAWN	DBM
CHECKED	DL
SCALE	AS SHOWN
SHEET NO.	E-5
OF	5