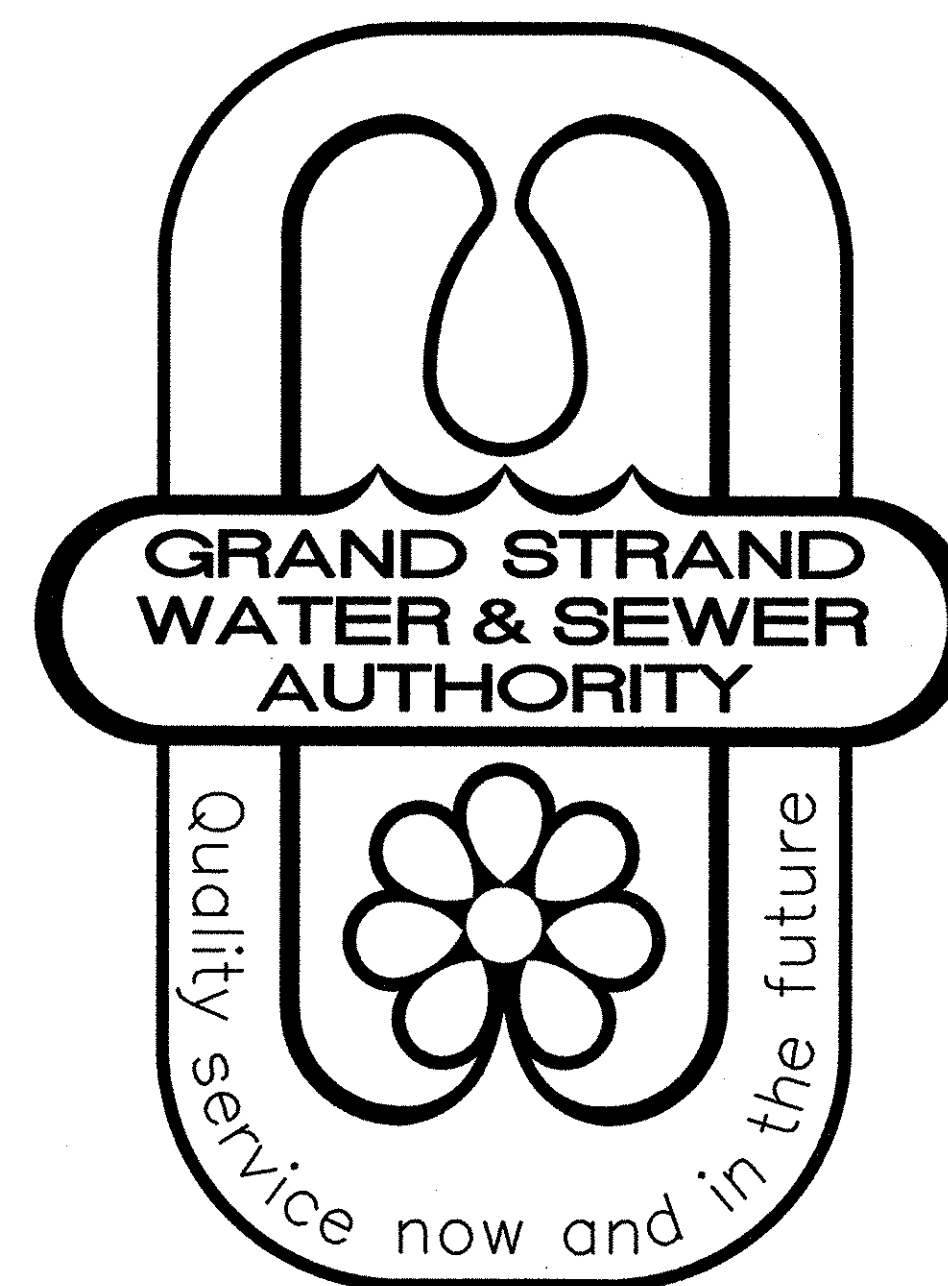


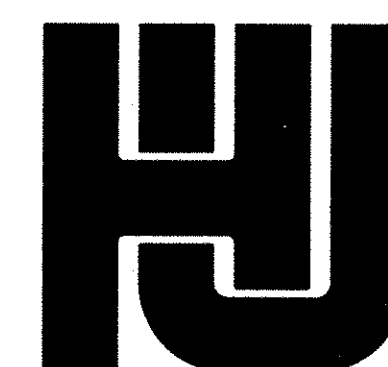
HWY 707 TO FREEWOOD RD SEWER FORCE MAIN

PROJECT NO. 805-01



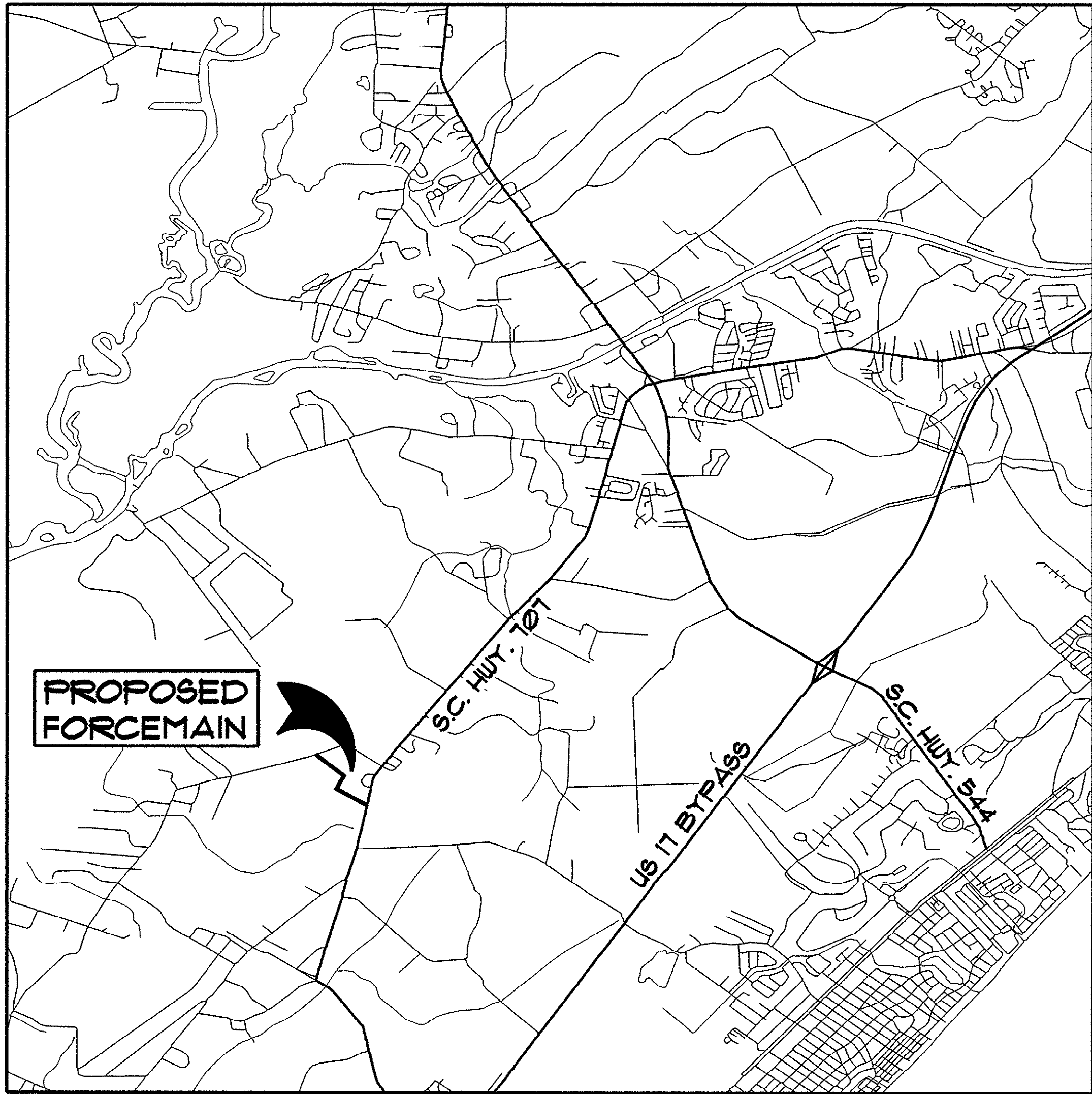
THESE DRAWINGS REFLECT AS-BUILT CONDITIONS	
REVIEWED BY: <i>For Ground</i>	7/11/02 DATE
INSPECTIONS (PRESSURE TEST ONLY)	
REVIEWED BY: <i>JWH</i>	7/12/02 DATE
ENGINEERING	
GRAND STRAND WATER AND SEWER AUTHORITY	

GRAND STRAND WATER AND SEWER AUTHORITY



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

14-164-001/9-5



VICINITY MAP

INDEX OF SHEETS	
SHEET NO.	SHEET TITLE
1	COVER SHEET
2	VICINITY MAP AND INDEX
3	LAYOUT MAP
4 THRU 6	FORCE MAIN PLAN AND PROFILE SHEETS
7	30" INFLUENT MAIN 30" Influent MAIN Freewood to Schwartz
8	30" MAIN 30" MAIN Freewood to Schwartz
9	30" MAIN 30" Main Details

NOTES:

1. WORK WITHIN PUBLIC RIGHT OF WAYS OR PRIVATE EASEMENTS SHALL BE ACCOMPLISHED BY THE CONTRACTOR ACCORDING TO THE REQUIREMENTS OR CONDITIONS OF THE ENCROACHMENT PERMIT OR OTHER LEGAL DOCUMENTS AS THOUGH THE DOCUMENTS WERE ISSUED IN THE CONTRACTORS NAME. THE CONTRACTOR SHALL MAINTAIN COPIES OF THESE DOCUMENTS ON THE SITE AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF PUBLIC RIGHT-OF-WAYS DURING CONSTRUCTION OF THE PROJECT AND UNTIL THE CONTRACTOR OBTAINS AND DELIVERS TO THE OWNER A WRITTEN SIGN-OFF FROM Horry COUNTY AND/OR THE S.C.D.O.T. THAT THE PUBLIC AGENCY HAS ACCEPTED THE RIGHT-OF-WAY BACK FOR MAINTENANCE. FINAL PAYMENT AND RELEASE OF RETAINAGE WILL NOT BE MADE TO THE CONTRACTOR UNTIL WRITTEN SIGN-OFF HAS BEEN OBTAINED FROM THE APPROPRIATE PUBLIC AGENCY AND PROVIDED TO THE OWNER.
2. PROVISIONS SHALL BE MADE TO PREVENT EROSION AND SILTRATION CAUSED BY CONSTRUCTION. TEMPORARY GRASSING, HAY BALES, SILT FENCES OR OTHER METHODS CALLED FOR ON THE PLANS OR AS MAY BE REQUIRED, SHALL BE USED.
3. THE CONTRACTOR WILL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND EXISTENCE OF ALL UNDERGROUND UTILITIES. LOCATION OF UTILITIES ON THE PLANS, WHETHER FULLY AND CORRECTLY LOCATED OR OMITTED, WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OR LIABILITY FOR DAMAGE TO UTILITIES. THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING LOCAL UTILITIES FOR ASSISTANCE IN LOCATING UTILITIES. THE CONTRACTOR MUST FULLY COMPLY WITH THE SOUTH CAROLINA UNDERGROUND UTILITIES DAMAGE PREVENTION ACT, GENERAL STATUTES 58-35, SECTIONS 20 THROUGH 120.
4. WHEN THE CONTRACTOR IS UNABLE TO COMPLETE HIS WORK AS SHOWN ON THE PLANS BECAUSE OF AN EXISTING UTILITY, THE CONTRACTOR SHALL STAKE THE LOCATION OF THE UTILITY PRIOR TO PROCEEDING AND CONTACT THE ENGINEER.
5. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC AGENCIES, THE OWNER, THE ENGINEER AND ALL OTHER CONCERNED PARTIES WHEN CONSTRUCTION IS TO COMMENCE SO THAT INSPECTIONS AND OTHER SITE VISITS MAY BE SCHEDULED.
6. DATA REQUIRED FOR PREPARATION OF ASBUILT DRAWINGS SHALL BE OBTAINED BY THE CONTRACTOR AT THE TIME OF INSTALLATION. THIS DATA SHALL BE ACCUMULATED BY THE CONTRACTOR AND COORDINATED WITH THE PROJECT INSPECTOR ON A DAILY BASIS DURING THE CONSTRUCTION PERIOD AND BE SUBMITTED TO THE PROJECT INSPECTOR IN A NEAT AND LEGIBLE MANNER AFTER COMPLETION OF THE PROJECT.
7. ALL WORK SHALL BE IN ACCORDANCE WITH THE APPLICABLE FEDERAL, STATE AND LOCAL ORDINANCES, REGULATIONS, SPECIFICATIONS, AND PERMITS.
8. SPECIAL NOTE: PRIOR TO ANY EXCAVATION THE CONTRACTOR IS REQUIRED TO CONTACT Horry TELEPHONE COOPERATIVE FOR CABLE LOCATIONS AT 365-2151. THIS PROJECT INVOLVES SEVERAL CABLE LINES LOCATED ADJACENT TO THE ROADWAY THAT THE CONTRACTOR WILL BE REQUIRED TO LOCATE AND EXPOSE PRIOR TO THE INSTALLATION OF ANY MATERIALS.
9. REPLACE IN KIND ALL AREAS WHERE THE PROPERTY OWNER HAS DEVELOPED SPECIAL GRASS, TURF, OR LANDSCAPING. ALL DISTURBED AREAS ARE TO BE RAKED AND SEEDED.
10. PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 12 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, AND 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET FROM WATER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.
11. ALL REQUESTS FOR CHANGES AND/OR MODIFICATIONS SHALL BE SUBMITTED THROUGH THE INSPECTOR TO THE ENGINEER AND OWNER FOR APPROVAL PRIOR TO PROCEEDING WITH ANY MODIFICATIONS OR ADDITIONS.
12. MECHANICAL RESTRAINTS SHALL BE USED ON FITTINGS AND JOINTS PER GSW#54 STANDARDS.
13. ALL DISTURBED DRIVES SHALL BE RECONSTRUCTED ACCORDING TO SCDOT SPECIFICATIONS.

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

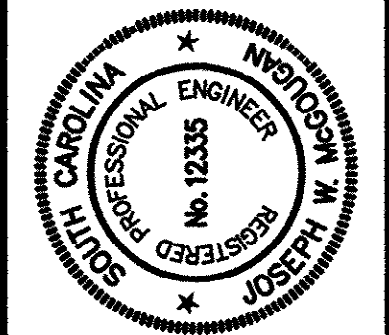
REVIEWED BY: For Review 7/14/02 DATE

INSPECTIONS

REVIEWED BY: gwh 7/12/02 DATE

ENGINEERING

GRAND STRAND WATER AND SEWER AUTHORITY



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

VICINITY MAP
INDEX

HWY 707 TO FREEWOOD RD
SEWER FORCE MAIN
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE: JUNE 1998

DESIGNED: WDL

DRAWN: BEB

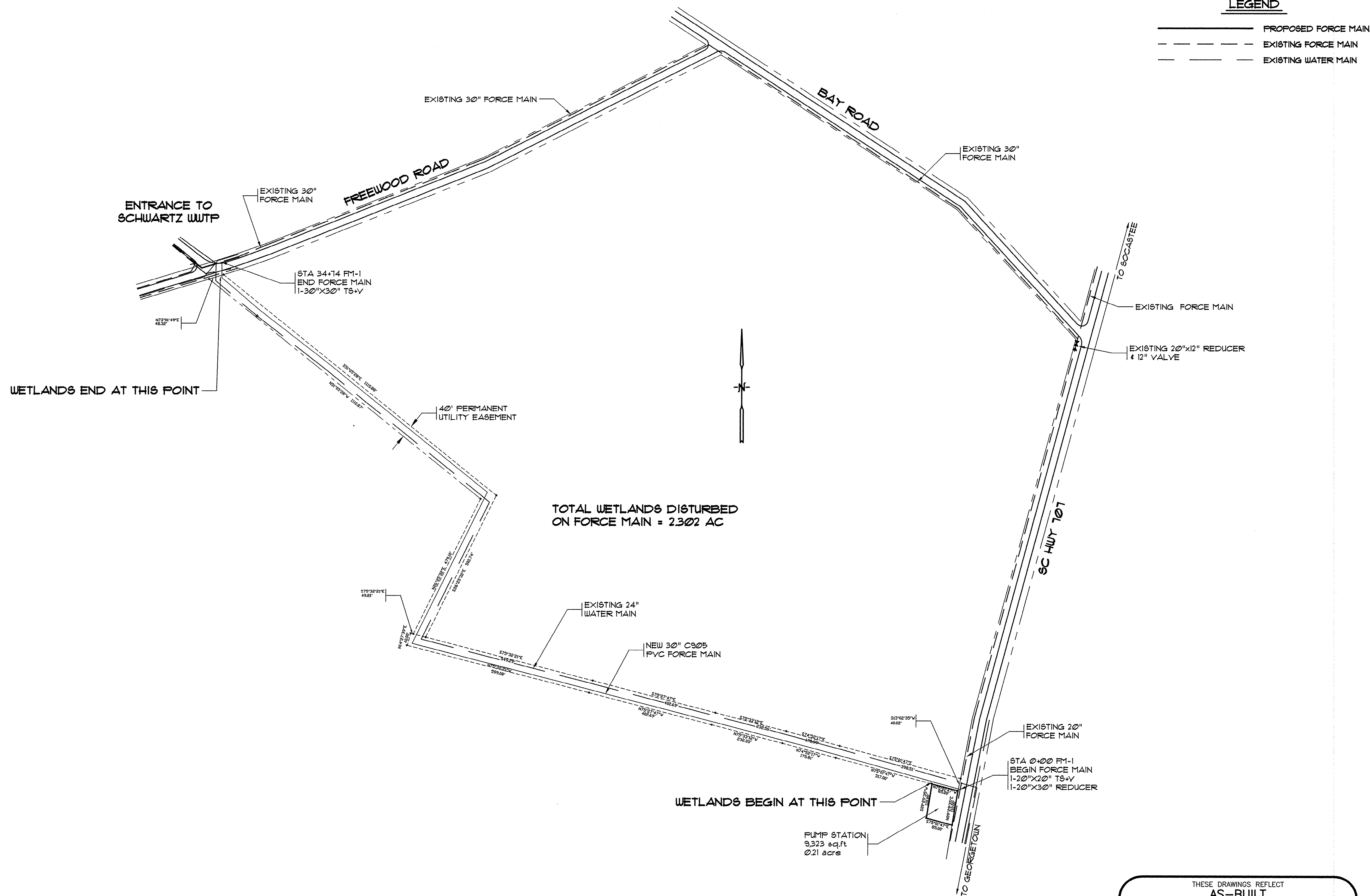
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SCALE: AS SHOWN

SHEET NO. 2

OF: 9

HOBBS, UPCHURCH & ASSOC. ME H:\1100-Users\WOL\Zip Disk\GS9702\820\LAYOUT-EDIT.dwg EDITED BY: ARAGON DATE: 07/08/02 TIME: 08:52 Layout: Model



HWY 707 TO FREEWOOD RD
SEWER FORCE MAIN
PROJECT NO.

LAYOUT MAP
NTS

THESE DRAWINGS REFLECT AS-BUILT CONDITIONS	
REVIEWED BY: <u>For How</u>	DATE: <u>7/11/02</u>
INSPECTIONS	
REVIEWED BY: <u>Jeff</u>	DATE: <u>7/12/02</u>
ENGINEERING	
GRAND STRAND WATER AND SEWER AUTHORITY	

14-164-003/9-S

REVISIONS	DATE	BY	
	6/5/02	MT	
DESCRIPTION	AS-BUILT		
SYMBOL	1		

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 12335	HOBBS, UPCHURCH & ASSOCIATES, P.A. CONSULTING ENGINEERS MYRTLE BEACH, SOUTH CAROLINA 29577

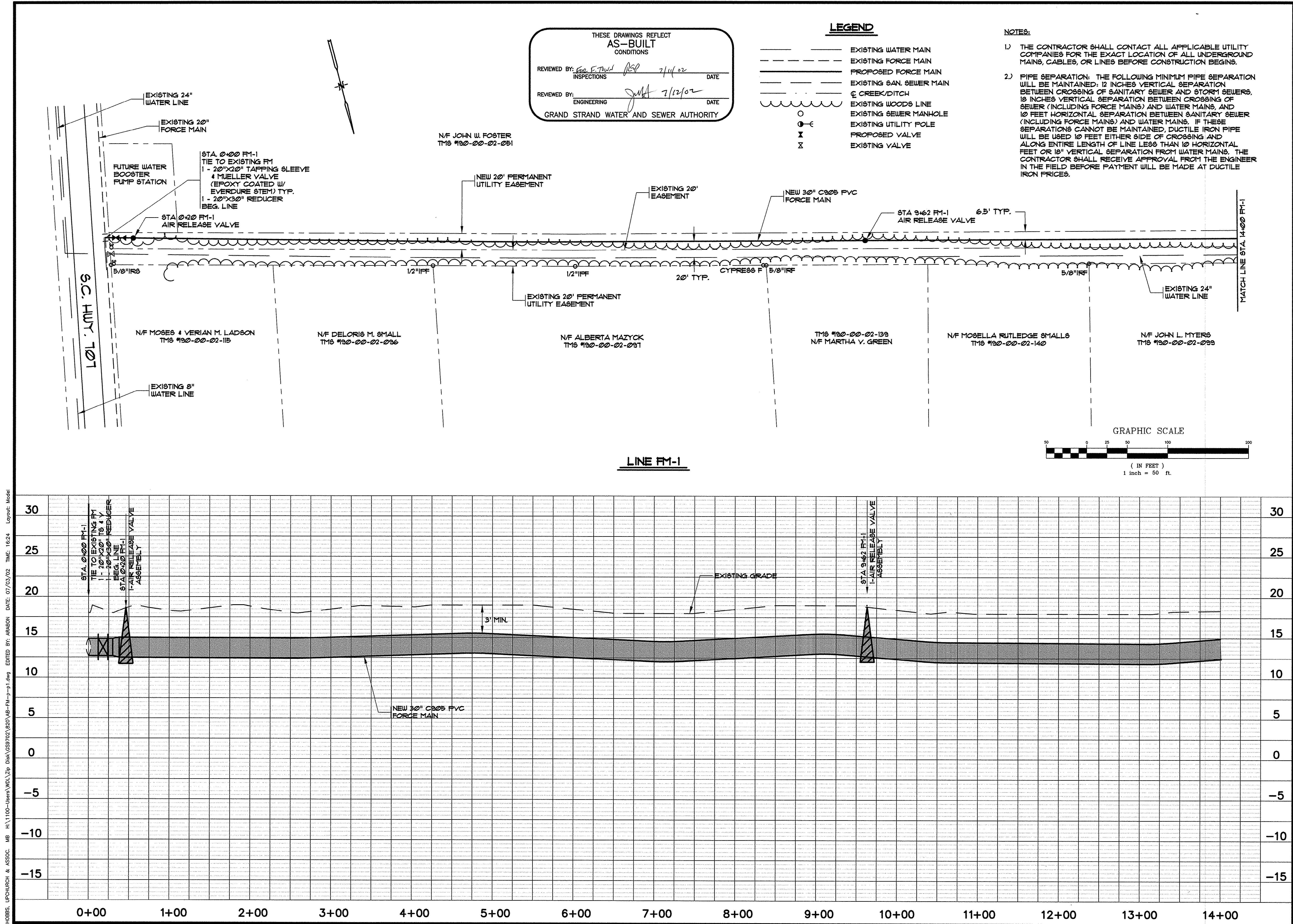
LAYOUT MAP	
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HWY 707 TO FREEWOOD RD SEWER FORCE MAIN GRAND STRAND WATER AND SEWER AUTHORITY	
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DATE:	JUNE 1998
DESIGNED:	WDL
DRAWN:	HUA
CHECKED:	JWM
SCALE:	AS SHOWN

SHEET NO.	3
OF	9

HOBBS, UPCHURCH & ASSOC. MB H:\1100-Users\WOL\Zip Disk\GS9702\B20\VB-FM-p-1.dwg EDITED BY: ARABON DATE: 07/03/02 TIME: 16:24 Layout: Model



SYL.	DESCRIPTION	DATE	BY
1	PER GSUSA COMMENTS	8/10/08	BBB
2	AS-BUILT	6/15/02	MT
	AS-BUILT A/R LOCATIONS	7/03/02	CAR

REVISIONS

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

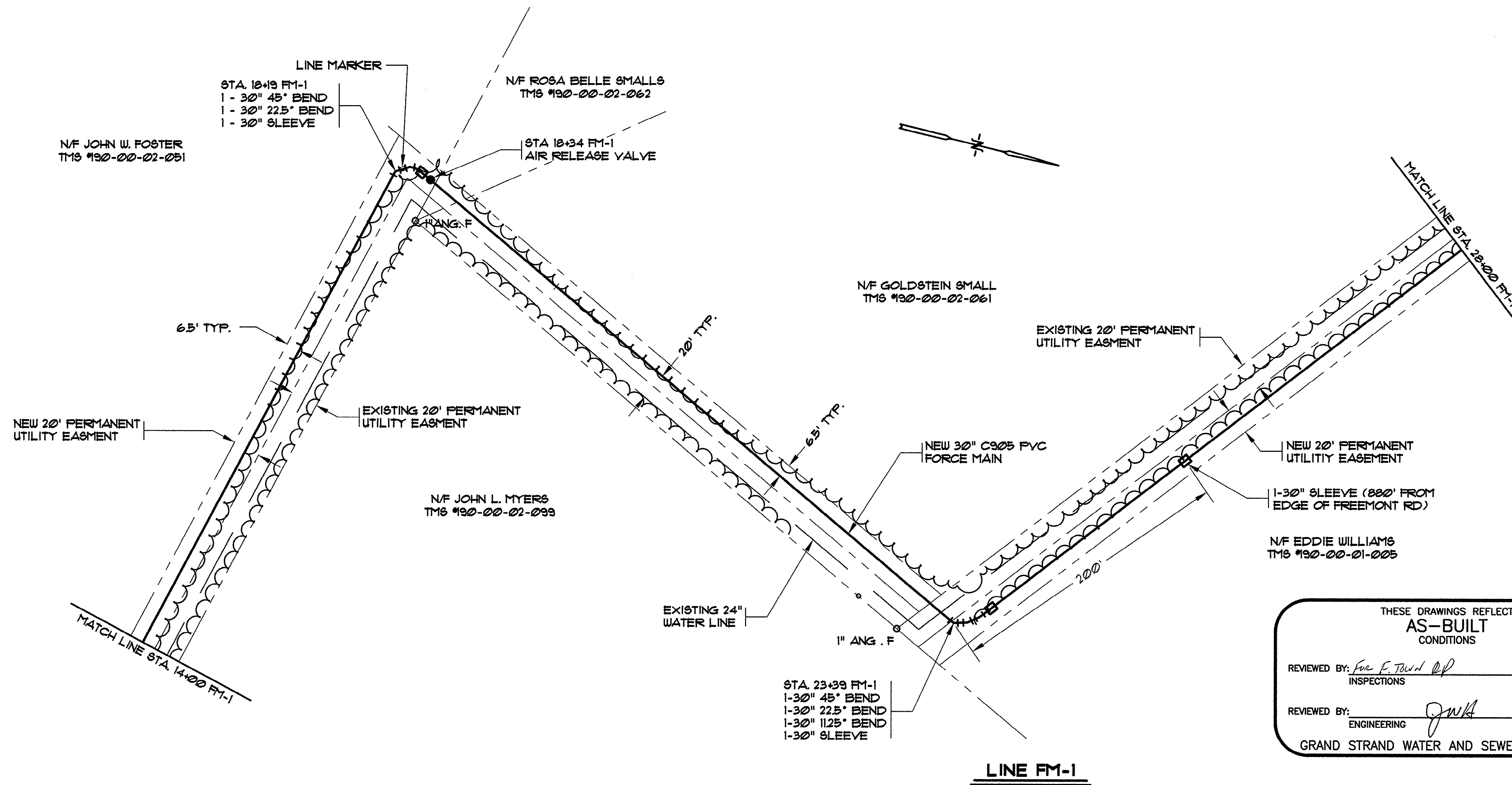
**FORCE MAIN
PLAN AND PROFILE**

HWY 707 TO FREEWOOD RD
SEWER FORCE MAIN
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE: JUNE 1998
DESIGNED: WDL
DRAWN: PED
CHECKED: JWM
SCALE: 1" = 50'
SHEET NO. 4
OF 9

14-164-004/9-5

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NOTES:

- 1) THE CONTRACTOR SHALL CONTACT ALL APPLICABLE UTILITY COMPANIES FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.
- 2) PIPE SEPARATION: THE FOLLOWING MINIMUM PIPE SEPARATION WILL BE MAINTAINED: 12 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SANITARY SEWER AND STORM SEWERS, 18 INCHES VERTICAL SEPARATION BETWEEN CROSSING OF SEWER (INCLUDING FORCE MAINS) AND WATER MAINS, AND 10 FEET HORIZONTAL SEPARATION BETWEEN SANITARY SEWER (INCLUDING FORCE MAINS) AND WATER MAINS. IF THESE SEPARATIONS CANNOT BE MAINTAINED, DUCTILE IRON PIPE WILL BE USED 10 FEET EITHER SIDE OF CROSSING AND ALONG ENTIRE LENGTH OF LINE LESS THAN 10 HORIZONTAL FEET OR 18" VERTICAL SEPARATION FROM WATER MAINS. THE CONTRACTOR SHALL RECEIVE APPROVAL FROM THE ENGINEER IN THE FIELD BEFORE PAYMENT WILL BE MADE AT DUCTILE IRON PRICES.

LEGEND

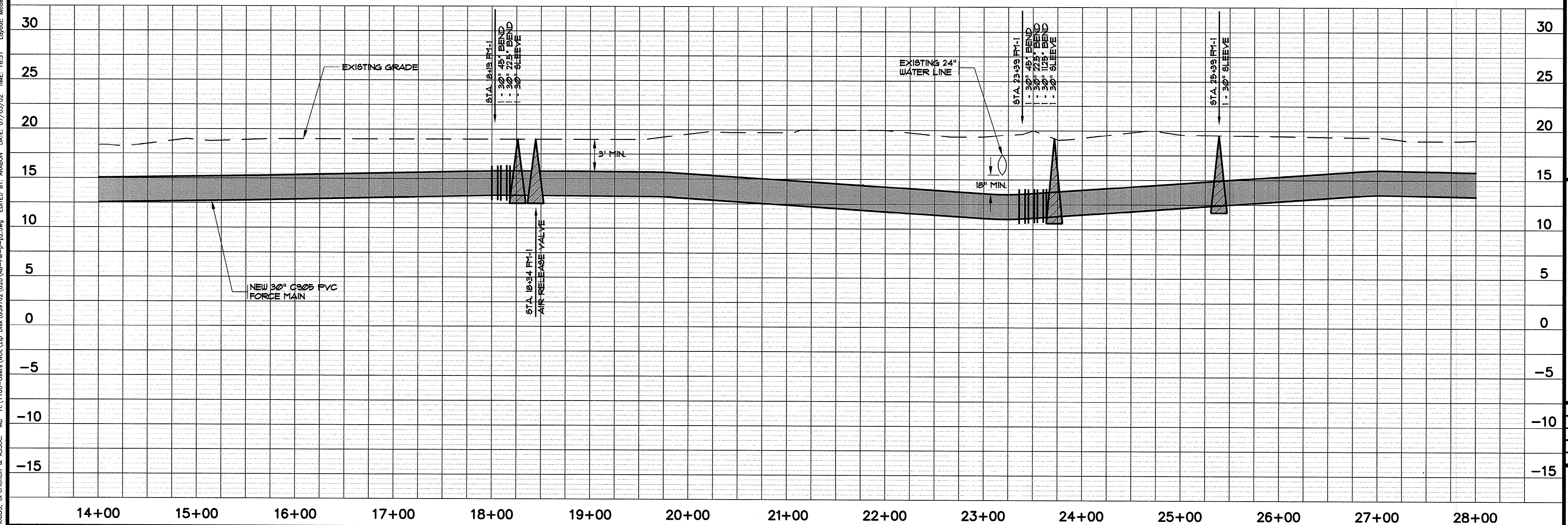
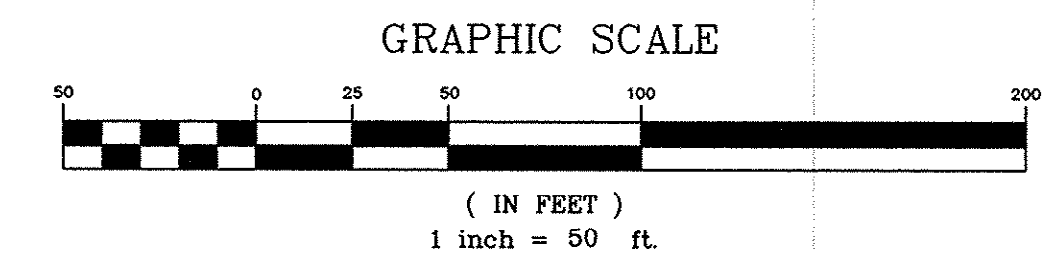
---	EXISTING WATER MAIN
---	EXISTING FORCE MAIN
---	PROPOSED FORCE MAIN
---	EXISTING SAN. SEWER MAIN
---	EXISTING CREEK/DITCH
---	EXISTING WOODS LINE
---	EXISTING SEWER MANHOLE
---	EXISTING UTILITY POLE
---	PROPOSED VALVE
---	EXISTING VALVE

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: *For E. David* DATE: *7/1/02*
INSPECTIONS

REVIEWED BY: *JWA* DATE: *7/1/02*
ENGINEERING

GRAND STRAND WATER AND SEWER AUTHORITY



SYMBOL	DESCRIPTION	DATE	BY
1	PER GWSA COMMENTS	8/10/98	BEB
2	AS-BUILT	5/5/02	MT
	AS-BUILT	7/03/02	CAR

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

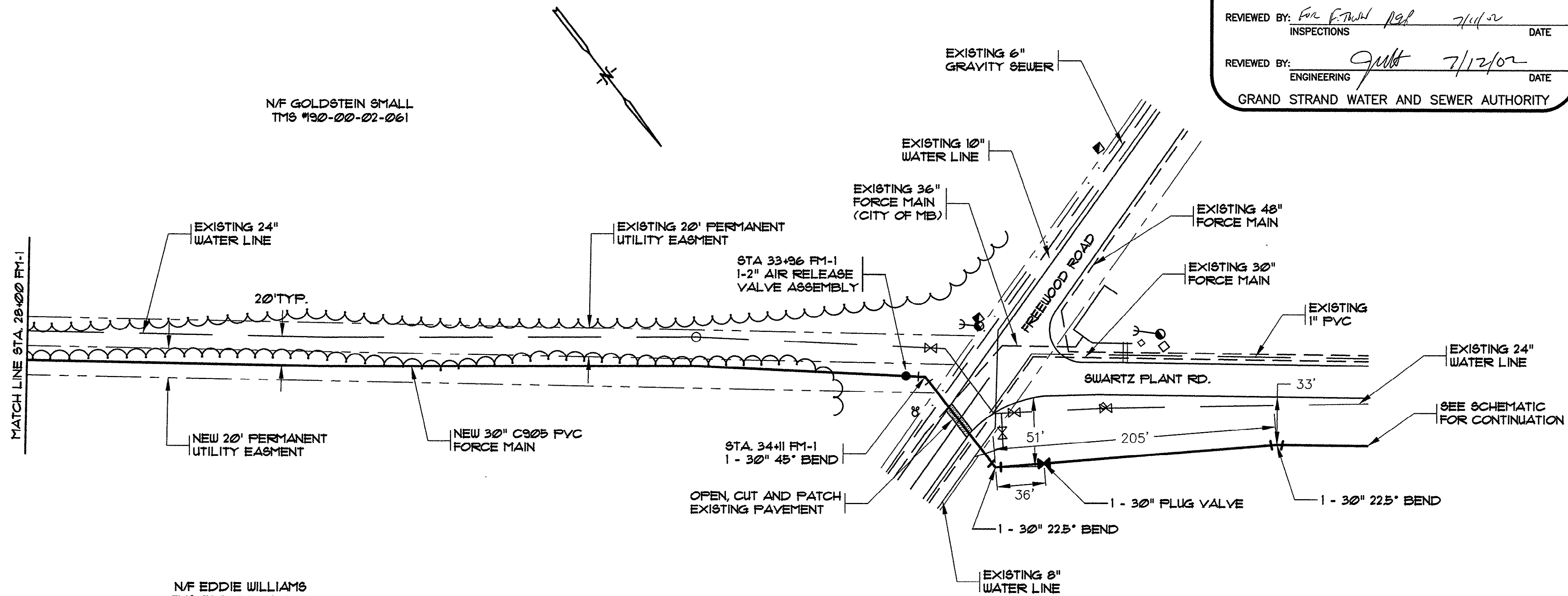
FORCE MAIN
PLAN AND PROFILE

HWY 707 TO FREEMOOD RD
SEWER FORCE MAIN
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE: JUNE 1998
DESIGNED: WDL
DRAWN: PED
CHECKED: JWM
SCALE: 1" = 50'
SHEET NO. 5
OF 9

14-164-005/9-S

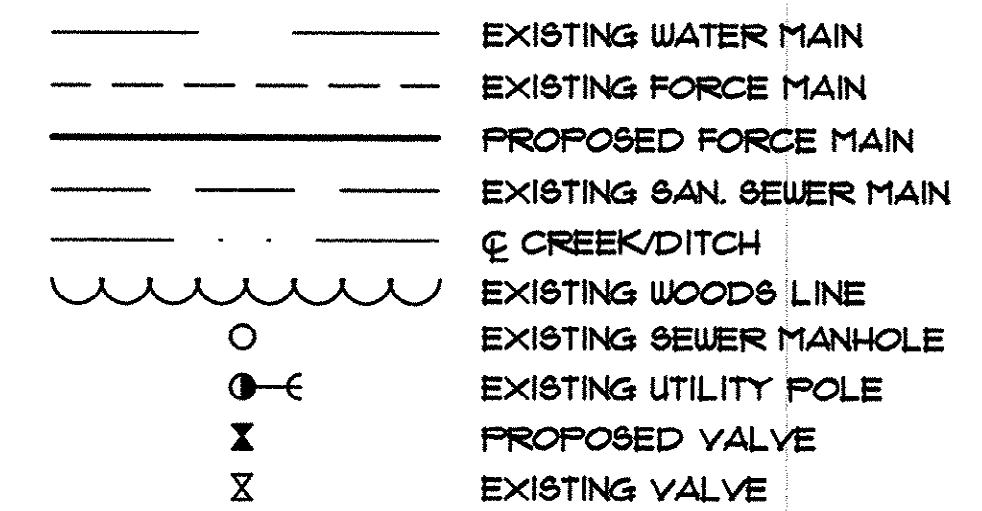
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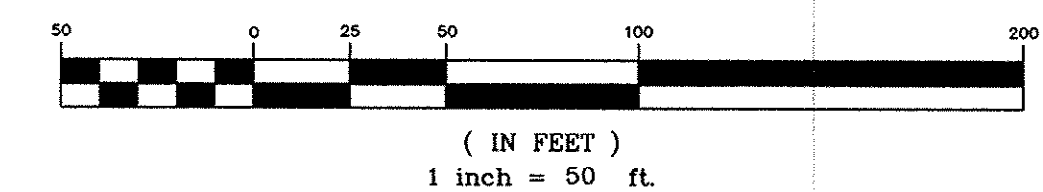
NOTES:

- 1.) THE CONTRACTOR SHALL CONTACT ALL APPLICABLE UTILITY COMPANIES FOR THE EXACT LOCATION OF ALL UNDERGROUND MAINS, CABLES, OR LINES BEFORE CONSTRUCTION BEGINS.
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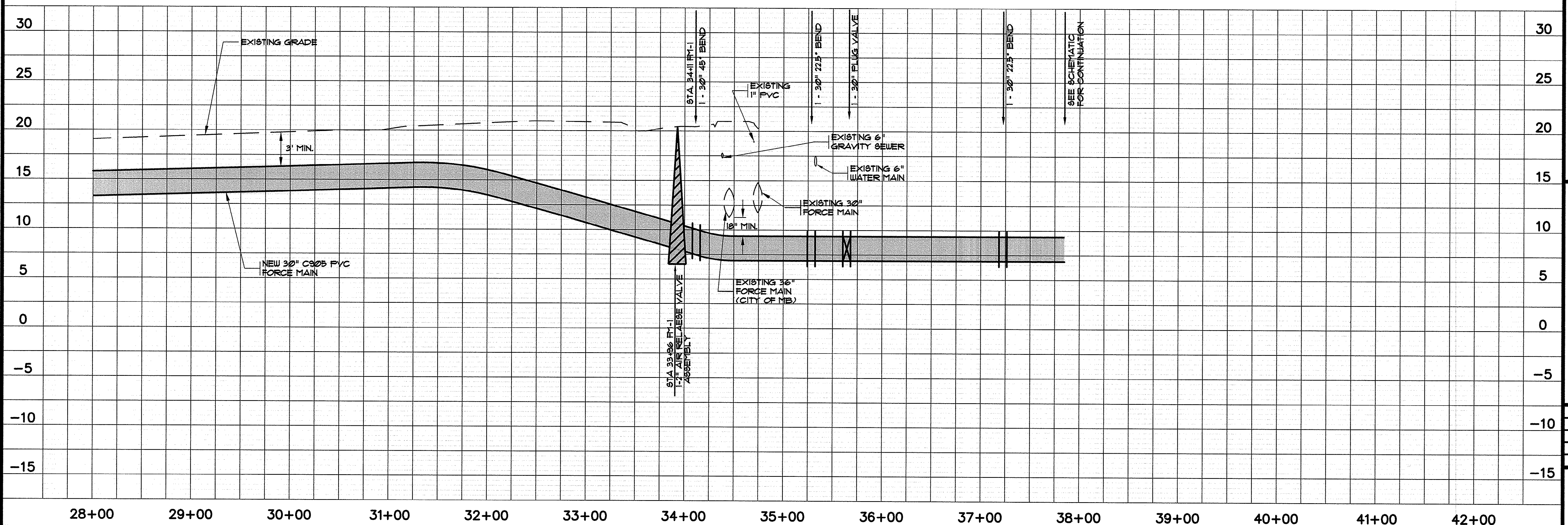
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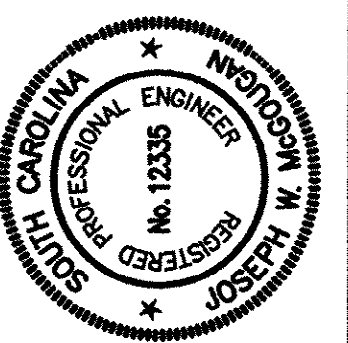


LINE FM-1



DATE	BY
8/10/98	BBB
8/9/02	MT
7/03/02	CAR

REVISIONS	DESCRIPTION	PER	DATE
1	AS-BUILT		
2	AS-BUILT REV LOCATIONS		



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

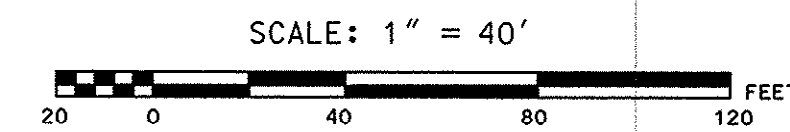
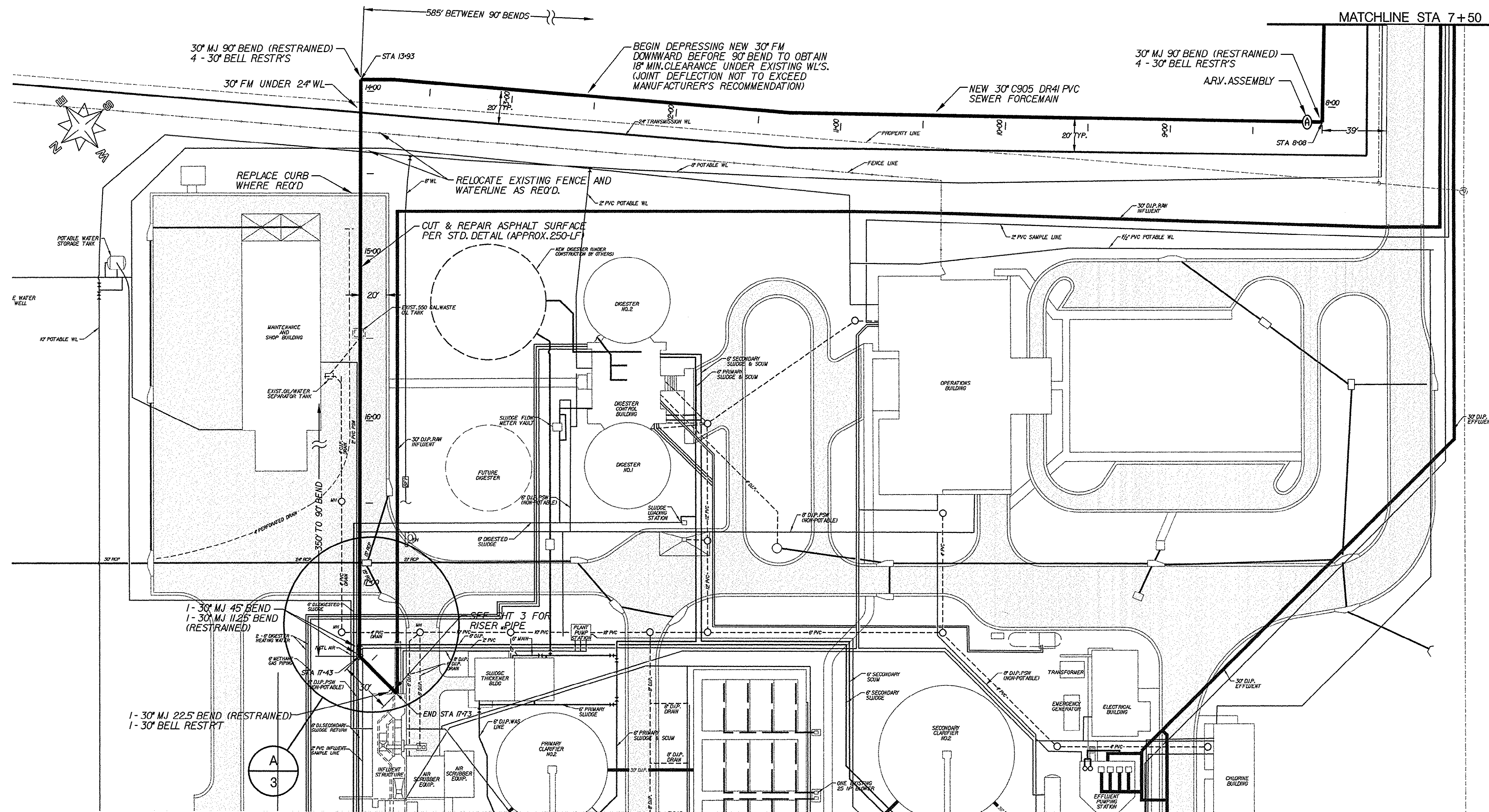
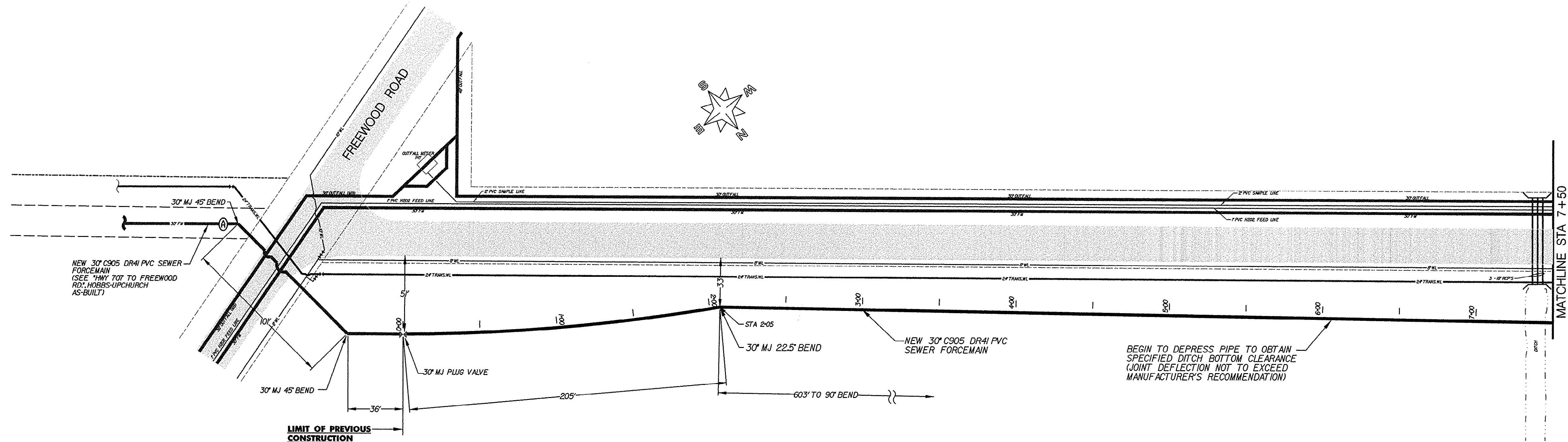


**FORCE MAIN
PLAN AND PROFILE**

HWY 707 TO FREELWOOD RD
SEWER FORCE MAIN
GRAND STRAND WATER
AND SEWER AUTHORITY

DATE:	JUNE 1998
DESIGNED:	WDL
DRAWN:	PED
CHECKED:	JWM
SCALE:	1" = 50'
SHEET NO.	6
OF	9

14-164-006/9-S

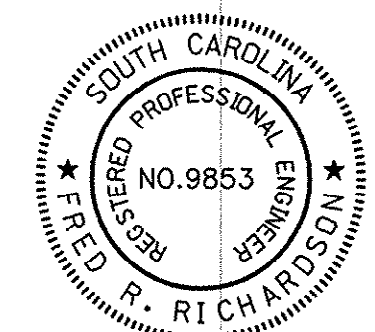


THESE DRAWINGS REFLECT
AS-BUILT
 CONDITIONS

REVIEWED BY: *F. F. Town* *Rep* 7/14/02 DATE
 INSPECTIONS

REVIEWED BY: *J. H. H* 7/12/02 DATE
 ENGINEERING

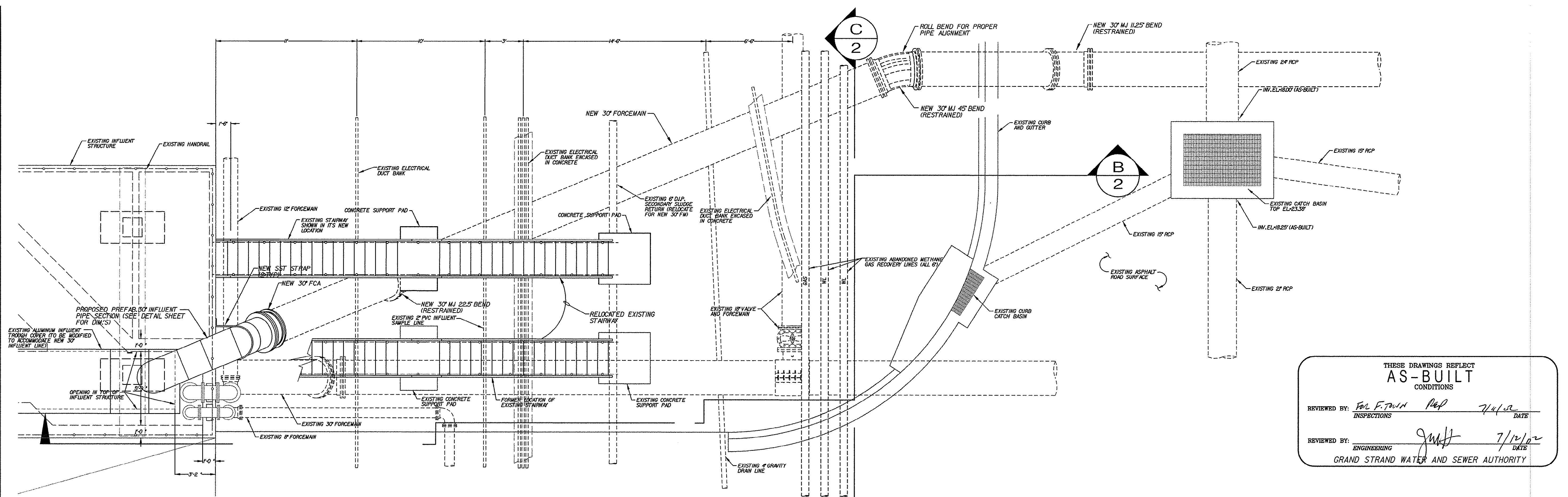
GRAND STRAND WATER AND SEWER AUTHORITY



FREWOOD RD TO SCHWARTZ WWTP

14-164-007/9-S

DATE	7/3/02
BY	DRT
REVISION	
AS-BUILT	
30" INFLUENT MAIN FREWOOD RD TO SCHWARTZ WWTP GRAND STRAND WATER & SEWER AUTHORITY (943) 347-4641 OR 448-1688 E-MAIL: GSWWSA.COM 170 JACKSON BLUFF RD. JACKSON BLUFF, SC 29525-2368 CONWAY, SC	
SC DHEC CONSTR. PERMIT #25,615-WW ISSUED: JUNE 28, 2000 PROJ. #812-01 CONT. # DATE: APRIL 2001, A.D. SCALE: 1" = 40' FILENAME: PLAN.DGN DRAWN BY: <i>D.R.T.</i> RAY THOMPSON CHECKED BY: <i>J.H.H.</i> JIM HEMBREE APPROVED BY: FRED R. RICHARDSON PE #9853 SHEET 1-60 OF 3-60 DWG #	

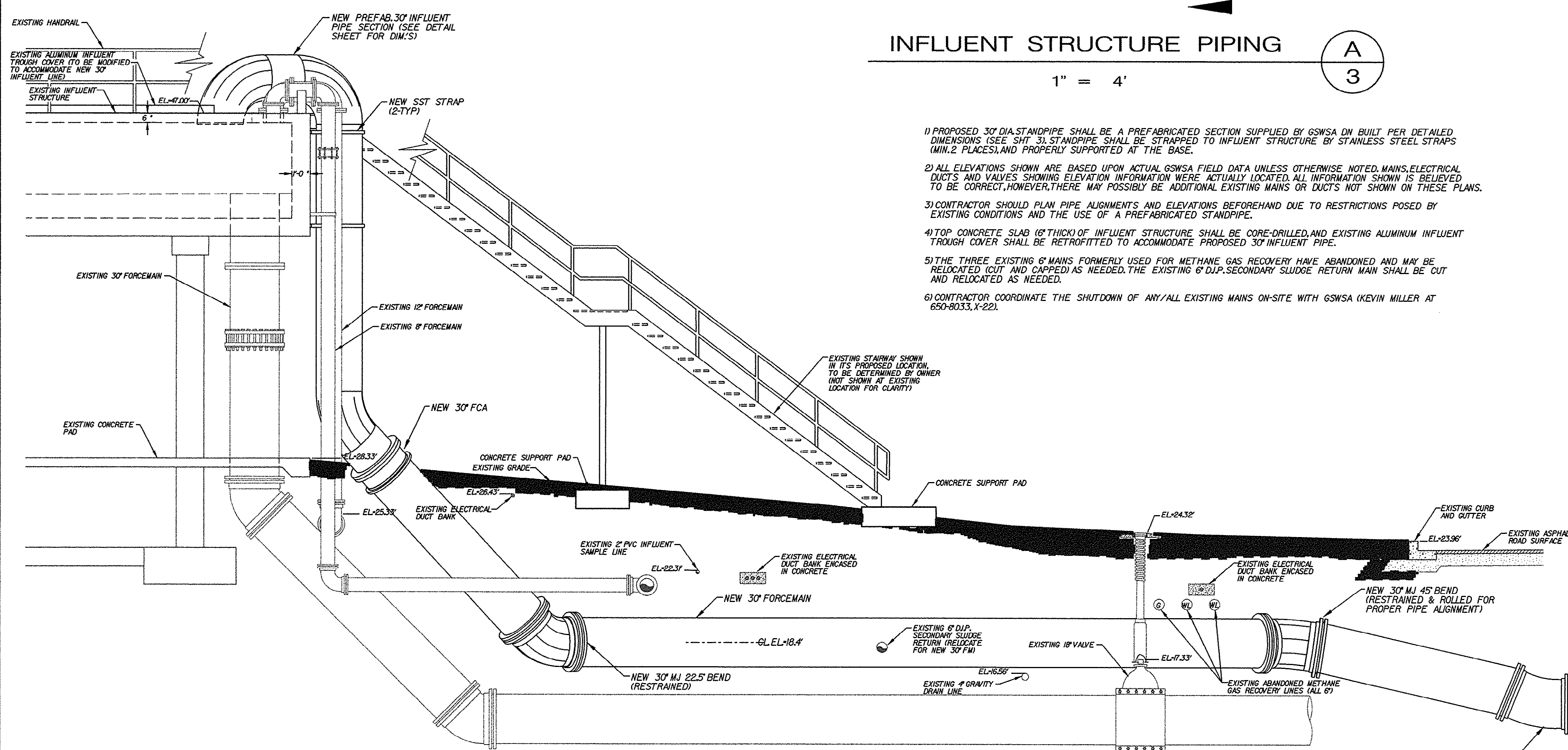


THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: *Paul F. Town* *Rep* *7/1/02* DATE
INSPECTIONS

REVIEWED BY: *JWH* *7/1/02* DATE
ENGINEERING

GRAND STRAND WATER AND SEWER AUTHORITY

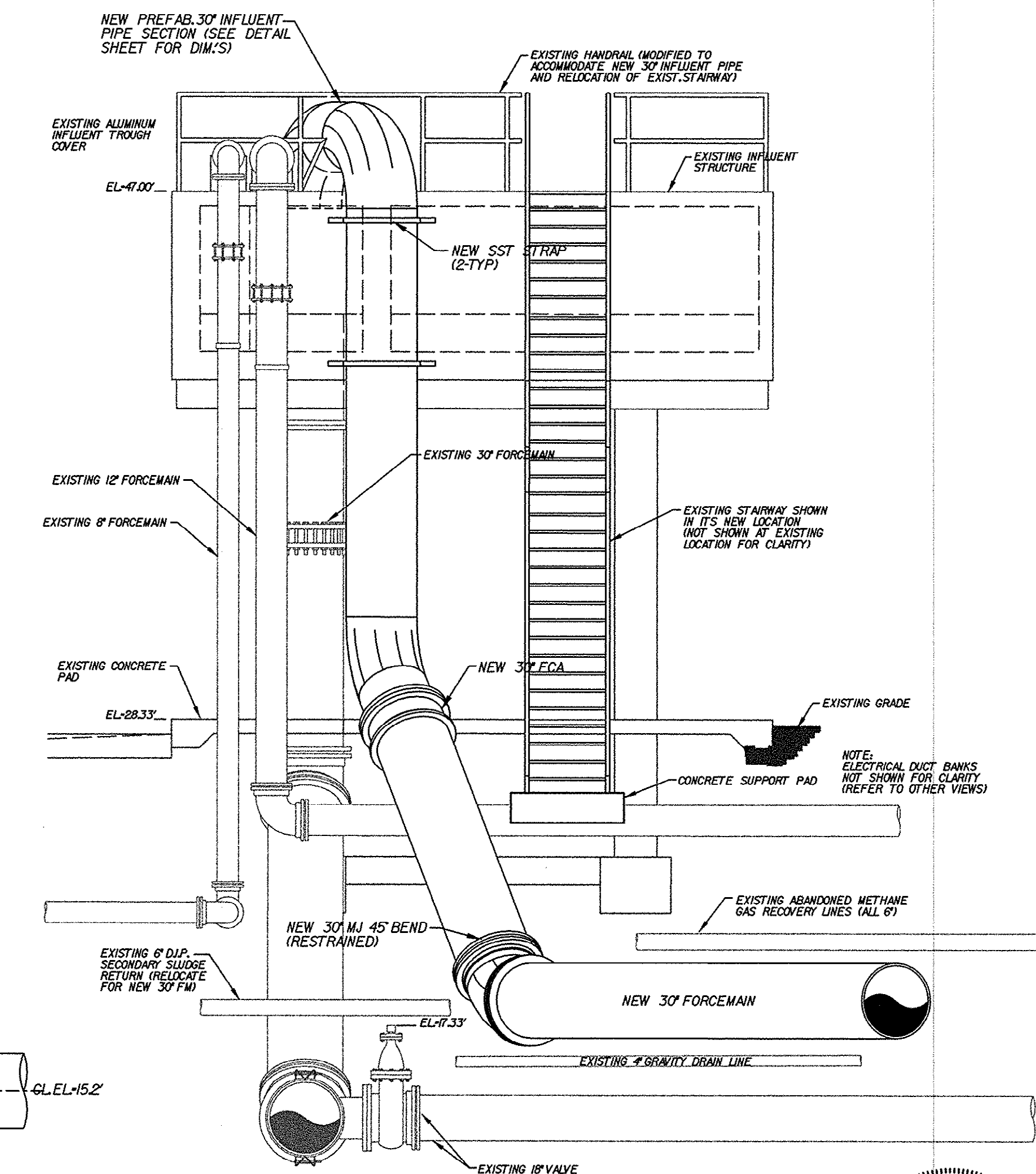


INFLUENT STRUCTURE PIPING

1" = 4'

A
3

- 1) PROPOSED 30" DIA STANDPIPE SHALL BE A PREFABRICATED SECTION SUPPLIED BY GSWA ON-BUILT PER DETAILED DIMENSIONS (SEE DETAIL SHEET FOR DIM'S). STANDPIPE SHALL BE STRAPPED TO INFLUENT STRUCTURE BY STAINLESS STEEL STRAPS (MIN. 2 PLACES), AND PROPERLY SUPPORTED AT THE BASE.
- 2) ALL ELEVATIONS SHOWN ARE BASED UPON ACTUAL GSWA FIELD DATA UNLESS OTHERWISE NOTED. MAINS, ELECTRICAL DUCTS AND VALVES SHOWING ELEVATION INFORMATION WERE ACTUALLY LOCATED. ALL INFORMATION SHOWN IS BELIEVED TO BE CORRECT, HOWEVER, THERE MAY POSSIBLY BE ADDITIONAL EXISTING MAINS OR DUCTS NOT SHOWN ON THESE PLANS.
- 3) CONTRACTOR SHOULD PLAN PIPE ALIGNMENTS AND ELEVATIONS BEFOREHAND DUE TO RESTRICTIONS POSED BY EXISTING CONDITIONS AND THE USE OF A PREFABRICATED STANDPIPE.
- 4) TOP CONCRETE SLAB (6" THICK) OF INFLUENT STRUCTURE SHALL BE CORE-DRILLED, AND EXISTING ALUMINUM INFLUENT TROUGH COVER SHALL BE RETROFITTED TO ACCOMMODATE PROPOSED 30" INFLUENT PIPE.
- 5) THE THREE EXISTING 6" MAINS FORMERLY USED FOR METHANE GAS RECOVERY HAVE BEEN ABANDONED AND MAY BE RELOCATED (CUT AND CAPPED) AS NEEDED. THE EXISTING 6" D.I.P. SECONDARY SLUDGE RETURN MAIN SHALL BE CUT AND RELOCATED AS NEEDED.
- 6) CONTRACTOR COORDINATE THE SHUTDOWN OF ANY/ALL EXISTING MAINS ON-SITE WITH GSWA (KEVIN MILLER AT 650-8033, X-22).

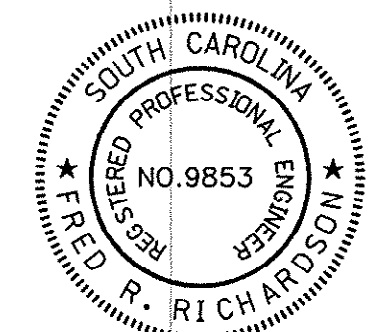
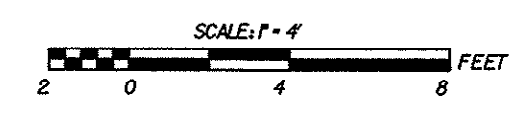


SECTION C

1" = 4'

C
3

WWTP INFLUENT STRUCTURE



DATE	6/25/02
BY	DRT
REVISION	AS-BUILT

30" INFLUENT MAIN

FREEWOOD RD TO SCHWARTZ WWTP

GRAND STRAND WATER & SEWER AUTHORITY

170 JACKSON BLUFF RD.
P.O. BOX 2088
CONWAY, SC 29928-2088

SC DHEC CONSTR. PERMIT #25,615-WW
ISSUED: JUNE 28, 2000

PROJ. #812-01
CONT. #

DATE: APRIL 2001, A.D.

SCALE: AS SHOWN

FILENAME:

DRAWN BY: *ART* RAY THOMPkins

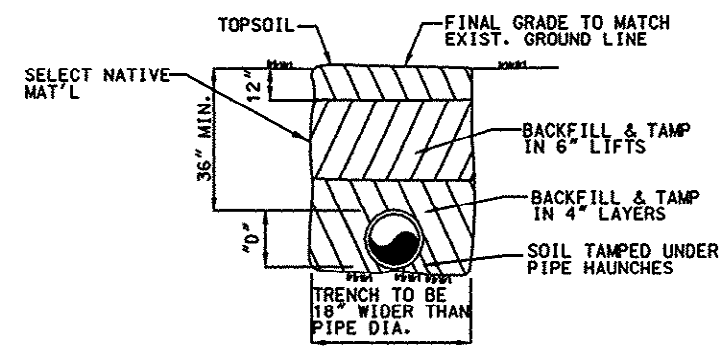
CHECKED BY: *JWH* JIM HEMBREE

APPROVED BY: FRED R. RICHARDSON PE #9853

SHEET 2-60 OF 3-60

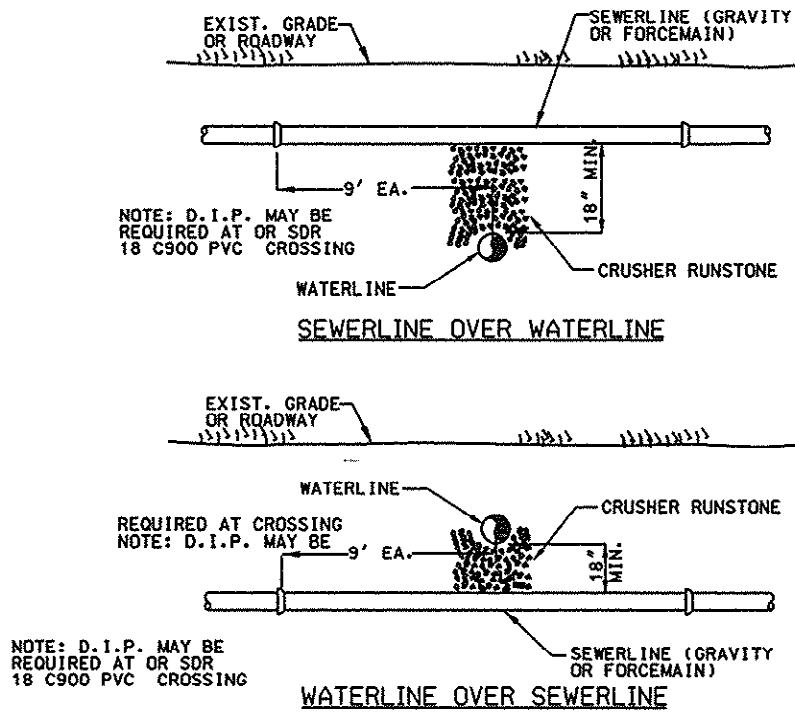
DWG #

14-164-008/9-S



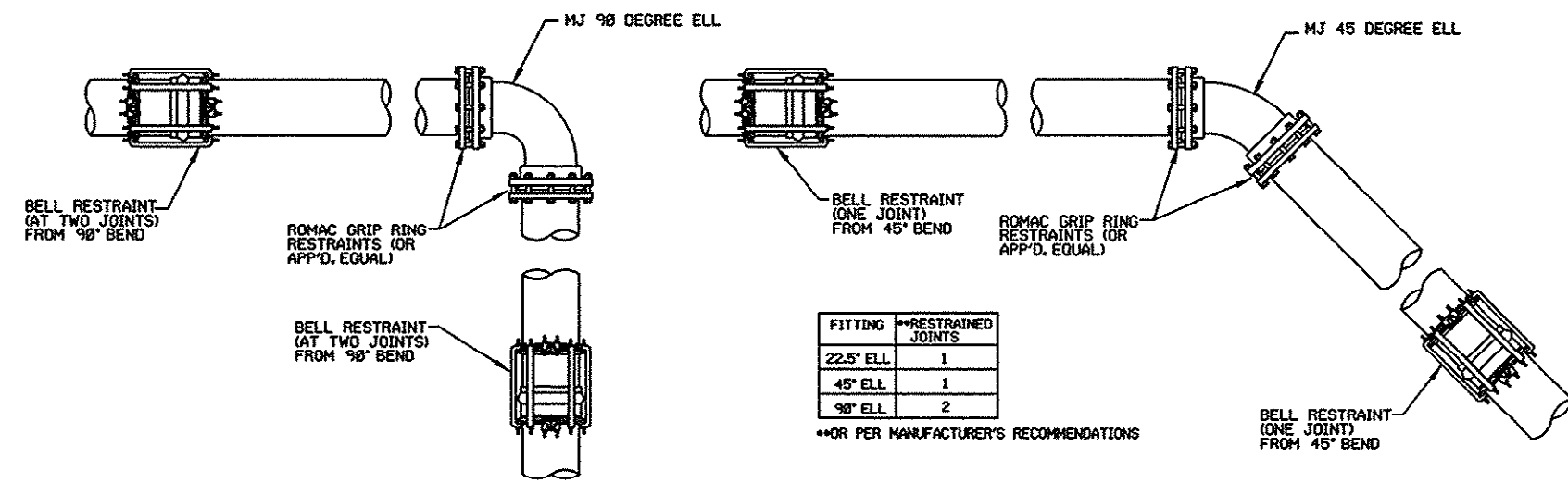
TYPICAL PIPE BEDDING DETAIL

WS11



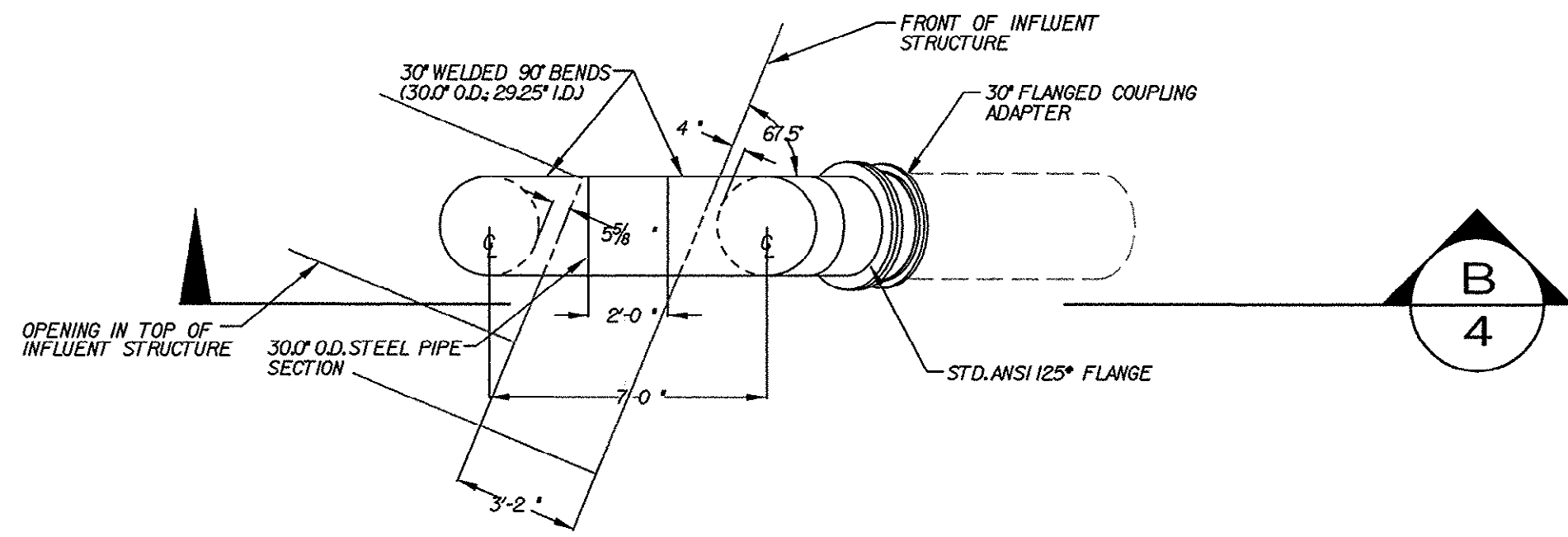
WATERLINE CROSSINGS

S17



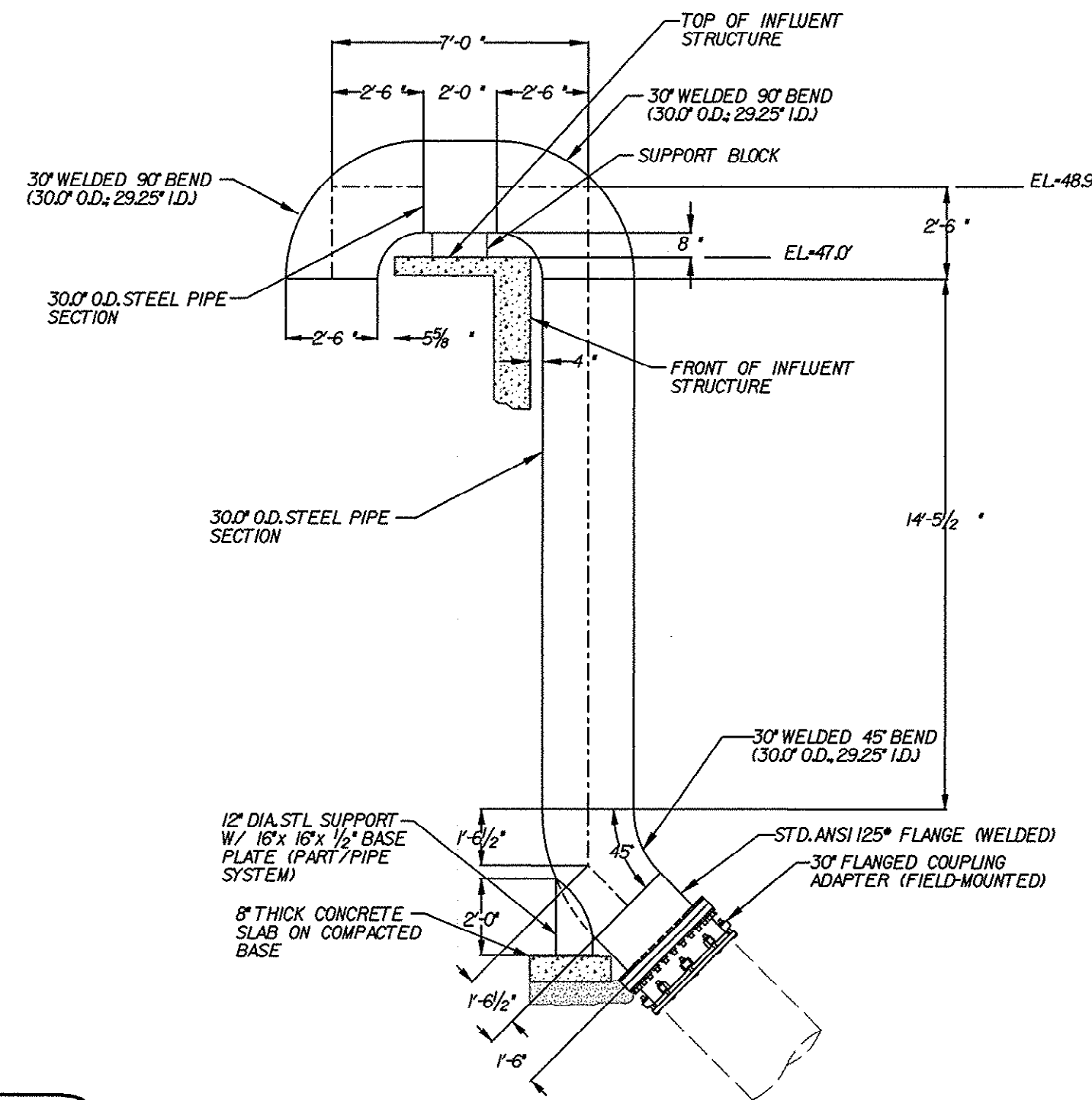
TYPICAL FITTING AND JOINT RESTRAINT (INCLUDES VALVES)

WS3



PREFABRICATED INFLUENT STANDPIPE

PLAN VIEW / 1" = 4'



SECTION

1" = 4'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: Fred E. Town Ray 7/11/02 DATE
INSPECTIONS

REVIEWED BY: Jim Hembree 7/12/02 DATE
ENGINEERING

GRAND STRAND WATER AND SEWER AUTHORITY



DETAILS

DATE	6/25/02
BY	DRT
REVISION	
AS-BUILT	

30" INFLUENT MAIN
FREEWOOD RD TO SCHWARTZ WWTP
GRAND STRAND WATER & SEWER AUTHORITY

(843) 347-4641 OR 445-1666
CONWAY, SC 29528-2388
E-MAIL: GSWSA.COM

170 JACKSON BLUFF RD.
CONWAY, SC 29528-2388

SC DHEC CONSTR. PERMIT #25,615-WW
ISSUED: JUNE 28, 2000

PROJ. #812-01
CONT. #

DATE: APRIL 2001, A.D.

SCALE: AS SHOWN

FILENAME:

DRAWN BY: DRT RAY THOMPSON

CHECKED BY: JH JIM HEMBREE

APPROVED BY: FRED R. RICHARDSON PE #9853

SHEET 3-60 OF 3-60

DWG #

14-164-009/9-S