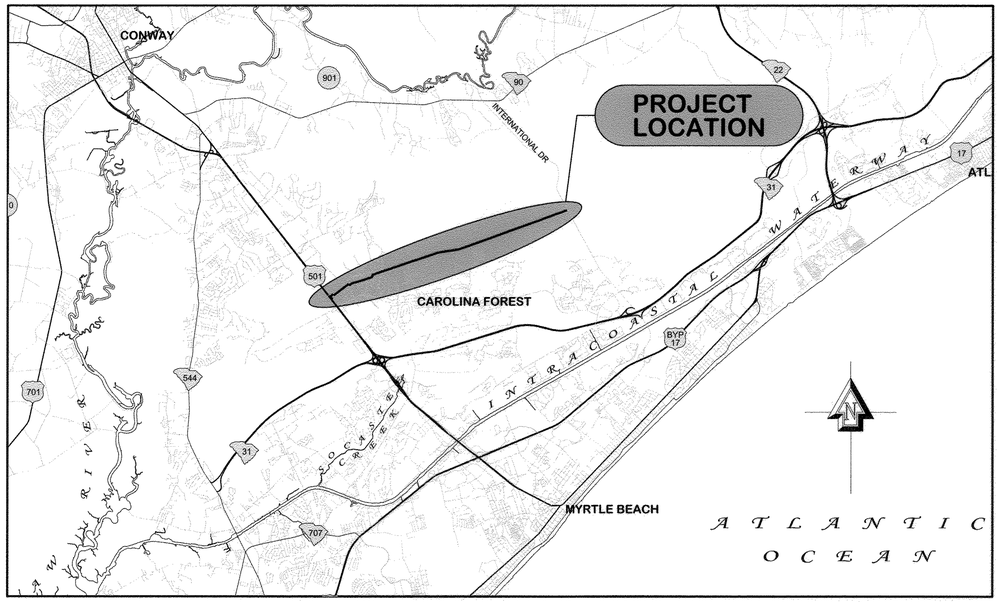
HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT



LOCATION MAP
NOT TO SCALE

GRAND STRAND WATER & SEWER AUTHORITY

PREPARED BY:

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
P.O. BOX 2368 CONWAY, SC 29528–2368
(843) 443–8200 OR 347–4641
(843) 347–4680 (FAX)
E–MAIL: GSWSA.COM

APPROVED BY:

CHRISTINA S. EVERETT PE #21255

"HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT"

PROJ. #545–01
~~NOVEMBER, 2008~~
MAY 2013 (UPDATED)

SHEET INDEX:

1	TITLE W/ SHEET INDEX & NOTES
2	OVERALL PLAN
3-12	PLAN SHEETS
12	DIRECTIONAL BORE LOGS
13	CONSTRUCTION DETAILS
14	TYPICAL CROSS SECTIONS

Notifications & Existing Utility Locations

1. PRIOR TO ANY EXCAVATION THE CONTRACTOR IS REQUIRED TO CONTACT SOUTH CAROLINA PALMETTO UTILITY PROTECTION SERVICES, INC. [SCPUPS; 811 OR (888) 721-7877] FOR UTILITY LOCATIONS. THE CONRACTOR IS ALSO REQUIRED TO CONTACT ANY UTILITIES OR ENTITIES THAT MAY BE IN CONFLICT WHO DO NOT USE SCPUPS NOTIFICATIONS.

2. 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.

3. DISTANCES SHOWN ON THE PLAN FOR THE DESIGNATED LOCATION OF THE PROPOSED WATERLINE AND APPURTENANCES ARE INTENDED ONLY AS DESIRED LOCATIONS FOR THIS INSTALLATION. HOWEVER, SHOULD A CONFLICT OCCUR, AND/ OR DUE TO UNFORESEEN OR OTHER UTILITIES DISCOVERED THAT ARE IN CONFLICT, IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE FOR ANY AND ALL INSTALLATIONS AND DEVIATIONS OF ALIGNMENT NECESSARY TO ACHIEVE A CHANGED AND SATISFACTORY LOCATION FOR THIS INSTALLATION. THE INSTALLATION COSTS THAT MAY OCCUR DUE TO ALIGNMENT CHANGES ARE CONSIDERED TO BE A PART OF THE PRICE SUBMITTED FOR PIPE INSTALLATION AND NO ADDITIONAL COMPENSATION IS ALLOWED. THE FINAL LOCATION SELECTED FOR INSTALLATION BY THE CONTRACTOR OTHER THAN WHAT IS SHOWN ON THE PLANS SHALL BE FIRST APPROVED BY THE AUTHORITY PRIOR TO PROCEEDING WITH THE WORK AND ACTUAL INSTALLATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR VERIFYING THE LOCATION AND EXISTENCE OF ALL UNDERGROUND UTILITIES BOTH PRIOR TO THE BID SUBMITTAL AND DURING CONSTRUCTION. LOCATION OF UTILITIES AS TENTATIVELY SHOWN ON THE PLANS, WHETHER FULLY AND CORRECTLY LOCATED OR PARTIALLY AND/OR INCORRECTLY LOCATED OR OMITTED WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OR LIABILITY FOR PROVIDING FOR ANY DEVIATION FROM THE PLANNED LOCATION AND FOR THE COMPLETE INSTALLATION AND/ OR DAMAGE TO UTILITIES. THE CONTRACTOR WILL BE RESPONSIBLE FOR CON1ACTING APPROPRIATE ENTITIES FOR ASSISTANCE IN LOCATING UTILITIES BOTH PRIOR TO BID PROPOSALS AND DURING INSTALLATIONS. THE CONTRACTOR MUST FULLY COMPLY WITH THE SOUTH CAROLINA UNDERGROUND UTILITIES DAMAGE PREVENTION ACT, GENERAL STATUTES 58-36, SECTIONS 10 THROUGH 120 AND ALL APPLICABLE STATUTES AND STATE APPROVED REQUIREMENTS.

Easements & Rights-of-Way

1. GSWSA HAS OBTAINED APPLICABLE ROADWAY ENCROACHMENT PERMITS AND PERMANENT AND TEMPORARY EASEMENTS FOR THE ENTIRE LENGTH OF THIS PROJECT FOR THE PURPOSE OF INSTALLATION, OPERATION AND MAINTENANCE OF THE PROPOSED WATERLINE AND APPURTENANCES.

2. WORK WITHIN PUBLIC RIGHTS-OF-WAY 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 DOCUMENTS WERE ISSUED IN THE CONTRACTOR'S 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 RIGHTS-OF-WAY DURING CONSTRUCTION OF THE PROJECT AND UNTIL THE CONTRACTOR OBTAINS AND DELIVERS TO THE OWNER A WRITTEN RELEASE 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 RELEASE HAS BEEN OBTAINED FROM THE APPROPRIATE PUBLIC AGENCIES AND PROVIDED TO THE OWNER.

Waterline Material & Construction

1. ALL MATERIALS AND/OR INSTALLATION, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE AUTHORITY'S WATER AND SEWER STANDARDS AND SPECIFICATIONS, AND WHERE APPLICABLE, ALL FEDERAL, SOUTH CAROLINA AND LOCAL ORDINANCES, REGULATIONS, SPECIFICATIONS AND PERMITS.

2. THE CONTRACTOR SHALL USE A CONTINUOUS #12 GAUGE BLUE INSULATED COPPER TRACER WIRE, APPROVED FOR DIRECT BURIAL (SEE GSWSA'S SPEC'S SECT. 4.2.2.1).

3. CONTRACTOR SHALL COMPLY WITH GSWSA'S SPECIFICATIONS CONCERNING BUTTERFLY VALVE INSTALLATIONS (SEE SECT. 4.6.5).

4. CONCRETE WATERLINE LOCATE MARKERS SHALL BE SET AT EACH BEND AND EVERY 1,000-LF OF ENTIRE PROJECT SCOPE.

5. WHEN MUCK, SOFT CLAY, SWAMPY OR OTHER MATERIAL UNSUITABLE FOR FOUNDATIONS OR SUBGRADE ARE ENCOUNTERED, SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH PIPE BEDDING MATERIAL(S) CONSISTING OF GRAVEL OR CRUSHED STONE. BEDDING MATERIAL SHALL BE A MINIMUM THICKNESS OF 4" BELOW PIPING AND UP TO CENTERLINE OF PIPE. COST OF APPROVED PIPE BEDDING MATERIAL SHALL BE INCLUDED IN UNIT COST OF PIPE INSTALLATION (SEE SPEC'S SECT. 2.2.2).

6. WHEN THE CONTRACTOR IS UNABLE TO COMPLETE HIS WORK AS SHOWN ON THE PLANS BECAUSE OF AN EXISTING UTILITY, CONTRACTOR SHALL STAKE THE LOCATION OF THE UTILITY PRIOR TO PROCEEDING, AND CONTACT THE ENGINEER.

7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE INTEGRITY AND CONTINUED OPERATION OF THE EXISTING 24" TRANSMISSION WATERLINE. A DETAILED SUBMITTAL INCLUDING THE METHOD, EQUIPMENT AND MATERIALS TO BE USED FOR CROSSING MUST BE SUBMITTED FOR APPROVAL PRIOR TO ANY EXCAVATION AND / OR DISTURBANCE OCCURRING NEAR OR ADJACENT TO THE EXISTING 24" TRANSMISSION WATERLINE.

8. DATA REQUIRED FOR PREPARATION OF AS-BUILT 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.

Clearing, Restoration & Site Access

1. CONTRACTOR SHALL LEAVE ROADWAYS, DITCHES, BERMS, GATES, ETC. IN AS GOOD CONDITION AS PRIOR TO CONSTRUCTION. ANY GATED ACCESS TO WORK SITE PERMITTED BY PROPERTY OWNER(S) TO THE CONTRACTOR AND/OR GSWSA SHALL BE RE-CLOSED AS DIRECTED BY THE PROPERTY OWNER(S) TO DISALLOW NON-PERMITTED ACCESS TO PROPERTY.

2. EXISTING TREES, ROOTS & WOOD DEBRIS ARE TO BE CLEARED AS REQUIRED WITHIN UTILITY EASEMENT AREA. ALL TREES AND VEGETATIVE DEBRIS REMOVED FOR CONSTRUCTION OF THE NEW WATERLINE SHALL BE HAULED FROM THE PROPERTIES.

3. REPLACE IN KIND ALL AREAS PROPERTY OWNER HAS DEVELOPED SPECIAL GRASS, TURF, OR LANDSCAPING. ALL DISTURBED AREAS ARE TO BE RAKED AND SEEDED.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE IN ALL PROJECT AREAS DURING COURSE OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO MINIMIZE EROSION DURING AND AFTER CONSTRUCTION IS COMPLETE AND WILL ALSO BE BACK FILLING, RE-ESTABLISHING TURF AND RESTORING ALL PROPERTIES INCLUDING ALL SWALES, DITCHES, CULVERTS, ETC. TO A CONDITION EQUAL TO OR BETTER THAN THE ORIGINAL , TO FACILITATE DRAINAGE.

Wetlands

1. NPDES TYPICAL LIMITS OF DISTURBANCE FOR THIS PROJECT CONSISTS OF A 30' WIDE CORRIDOR ALONG THE PROJECT PATH INCLUDING PERMANENT AND TEMPORARY GSWSA UTILITY EASEMENTS ADJACENT TO AND WITHIN THE SCPSA RIGHT-OF-WAY UNLESS OTHERWISE NOTED ON PLANS.

2. ALL NEW RIGHT-OF-WAY CLEARING SHALL BE DONE USING CONVENTIONAL TIMBER HARVESTING METHODS WITHIN WETLAND AREAS. MECHANIZED LAND CLEARING IS NOT PERMITTED WITHIN THE WETLAND AREAS. CLEARING INCLUDES THOSE ACTIVITIES DISTURBING THE ROOT MAT SOIL. VEGETATION SHOULD BE REMOVED FROM THE GROUND LINE UP. STUMPS AND ROOT SYSTEMS SHOULD BE LEFT INTACT WITHIN WETLAND AREAS WITH THE EXCEPTION OF THE TRENCH AREA.

3. INSTALLATION OF PIPE WITHIN WETLANDS SHALL CONSIST OF AN EXCAVATED TRENCH WITH THE SPOIL PLACEMENT DIRECTLY ADJACENT TO TRENCH. UPON INSTALLATION OF PIPE THE TRENCH SHOULD BE BACKFILLED WITH PARENT MATERIAL IF SUITABLE, AND RESTORED TO PRE-CONSTRUCTION CONTOURS.

Erosion Control

1. PROVISIONS SHALL BE MADE TO PREVENT EROSION CAUSED BY CONSTRUCTION. TEMPORARY GRASSING, HAY BALES, SILT FENCES, ROCK CHECK DAMS OR OTHER BEST MANAGEMENT PRACTICES, AS CALLED FOR ON THE PLAN OR THAT MAY BE REQUIRED, SHALL BE USED.

2. ALL EROSION AND SEDIMENT CONTROL DEVICES MUST BE IN PLACE PRIOR TO START OF CONSTRUCTION.

3. ALL EXISTING VEGETATED AREAS THAT ARE DISTURBED AS A RESULT OF CONSTRUCTION MUST BE HYDROSEEDED IMMEDIATELY AFTER CONSTRUCTION TO PROVIDE STABILIZATION. ADHERENCE TO THE APPROVED SEEDING SCHEDULE IS MANDATORY. STRAW MATTING / BLANKET SHOULD BE USED TO FURTHER STABILIZE THE SEED BED AS NECESSARY.

4. ADDITIONAL EROSION AND SEDIMENT CONTROL DEVICES MAY BE ADDED AT THE DISCRETION OF THE ENGINEER IF DEEMED NECESSARY. ANY ADDITIONS MUST BE NOTED BY THE CONTRACTOR ON THE FIELD MARK-UPS.

5. NO UTILITY INSTALLATION WILL BE ALLOWED TO CONTINUE PAST 1,000-LF WITHOUT COMPLETING SHOULDER AND DITCH LINE GRADING, CLEANUP, AND STABILIZATION.

6. ADHERENCE TO ALL STATE, COUNTY, LOCAL, AND SCDHEC BEST MANAGEMENT PRACTICES (BMP) IS MANDATORY.

7. IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.

8. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.

   a. WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
   b. WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THE PORTION OF THE SITE.

9. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED EVERY SEVEN (7) DAYS. IF SITE INSPECTIONS IDENTIFY BMPS THAT ARE DAMAGED OR ARE NOT OPERATING EFFECTIVELY, MAINTENANCE MUST BE PERFORMED AS SOON AS PRACTICAL OR AS REASONABLY POSSIBLE AND BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE.

   OR

   ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AT LEAST ONCE EVERY FOURTEEN (14) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM EVENT OF 0.5 INCHES OR GREATER. IF SITE INSPECTIONS IDENTIFY BMPS THAT ARE DAMAGED OR ARE NOT OPERATING EFFECTIVELY, MAINTENANCE MUST BE PERFORMED AS SOON AS PRACTICAL OR AS REASONABLY POSSIBLE AND BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE.

10. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE ANY SEDIMENTS BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.

11. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

12. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.

13. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.

14. ALL WATERS OF THE STATE, INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WATERS OF THE STATE. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WATERS OF THE STATE.

15. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY: 9/26/14
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

Permit Information:
SCDOT Encroachment Permit #12-139696(296)
County Encroachment Permit #2012.0158
County Drainage Encroachment Permit #0009-2012
SCDHEC Water Construction Permit #26640-WS
Dept. of Army (PCN) Permit #SAC 2008-01928-3NH
OCRM & SCDHEC Permit #SCR10 L432/67532
Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
36"

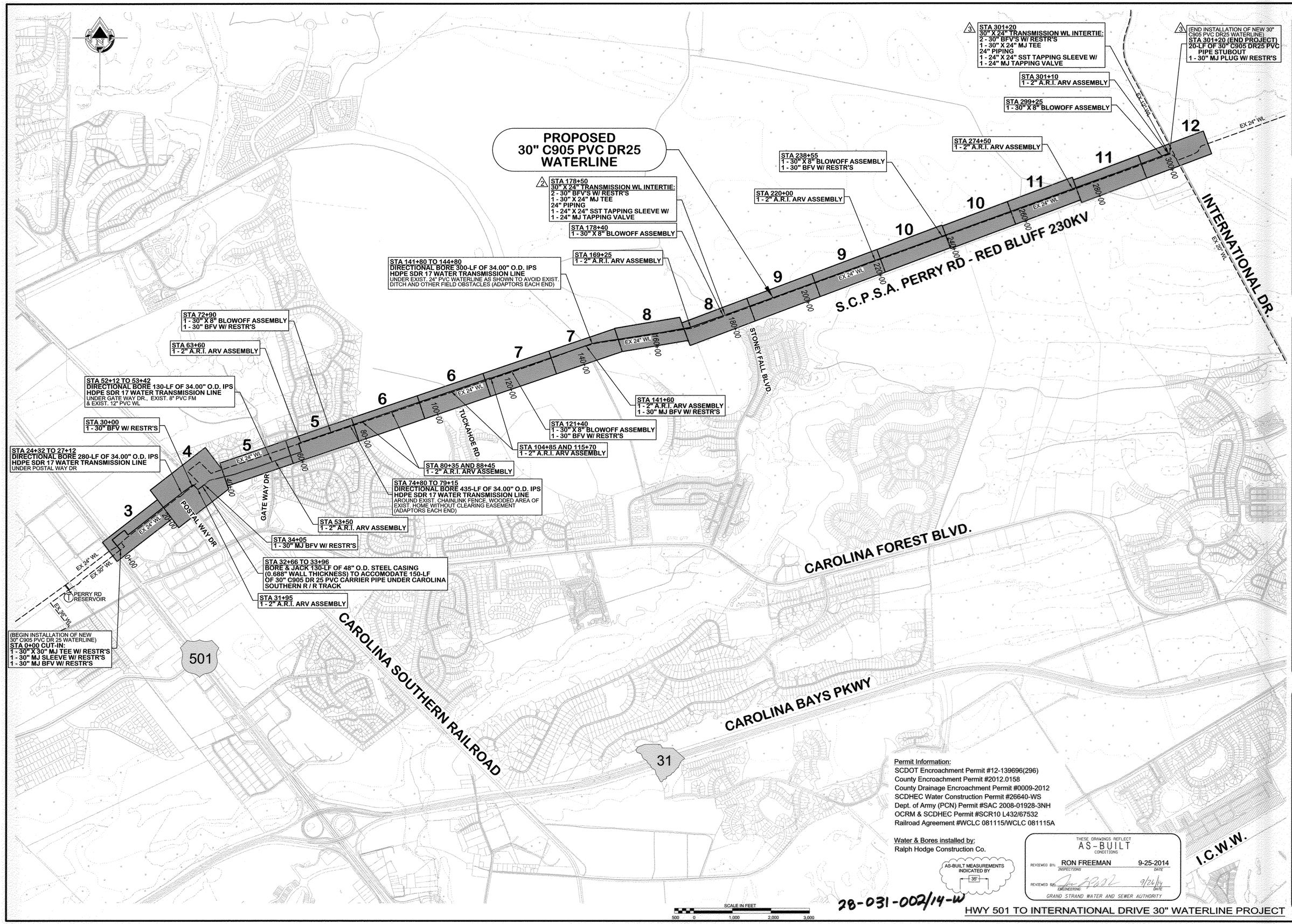
EROSION CONTROL LEGEND
(APPLIES TYPICALLY THROUGHOUT PLAN SHEETS)

- EROSION CONTROL BLANKET
- BONDED FIBER MATRIX (HYDRO-SEEDING) — BFM
- PERMANENT SEEDING — PS
- RIPRAP - PERMANENT — RP
- ROCK CHECK DAM
- SEDIMENT TUBE
- SEDIMENT TUBE INLET PROTECTION — A

LEGEND (APPLIES TYPICALLY THROUGHOUT PLAN SHEETS)

- DIRT/GRASS DRIVEWAY
- COQUINA/GRAVEL DRIVEWAY
- CONCRETE DRIVEWAY
- ASPHALT DRIVEWAY
- REINFORCED CONCRETE PIPE (RCP)
- TELEPHONE PEDESTAL — TP
- T.V. CABLE PEDESTAL — TV
- ELECTRIC POWER POLE
- U.G. ELECTRIC TRANSFORMER — E
- GAS MAIN — GAS
- TELEPHONE/TV CABLE — C — T
- FIBER OPTIC CABLE — FOC
- CATCH BASIN
- WATER WELL HOUSE — W
- WATER OR SEWER AIR RELEASE VALVE — W S
- SEWER FM PUMPER CONNECTION ASSEMBLY — PC
- SEWER FM PLUG VALVE
- SEWER MANHOLE — M
- SEWER LIFT STATION — P
- SEWER S.T.E.P. TANK — ST
- SEWER GRINDER PUMP STATION — G
- WATER FIRE HYDRANT — FH
- WATER POST HYDRANT — PH
- WATER GATE VALVE
- WATER/SEWER REDUCER
- WATER SERVICE METER
- CUSTOMER TO RECEIVE WATER AND/OR SEWER SERVICE

28-031-001/14-W



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Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY 35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY: 9/26/14
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

28-031-002/14-W

SCALE IN FEET
500 0 1,000 2,000 3,000

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
GENERAL REVISIONS: REMOVED "OFFSET" FROM A.R.V. NOTES.	DRT	10-17-2012
1 ADDED A 30" X 24" TRANSMISSION WATER-LINE INTERTIE AT STA 178+50	DRT	12-19-2012
2 CHANGED 30" X 24" TRANSMISSION WATER-LINE INTERTIE FROM STA 305+00 TO 301+00	DRT	5-28-2013
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
P.O. BOX 2368
CONWAY, SC 29528-2368
(843) 443-8200 OR 347-4641
FAX: (843) 347-4643
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.

PROJ. #545-01

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS

DATE: ~~November, 2009~~ May 2013 (updated)

SCALE: as shown

FILENAME: Wtr Design Layout.dgn

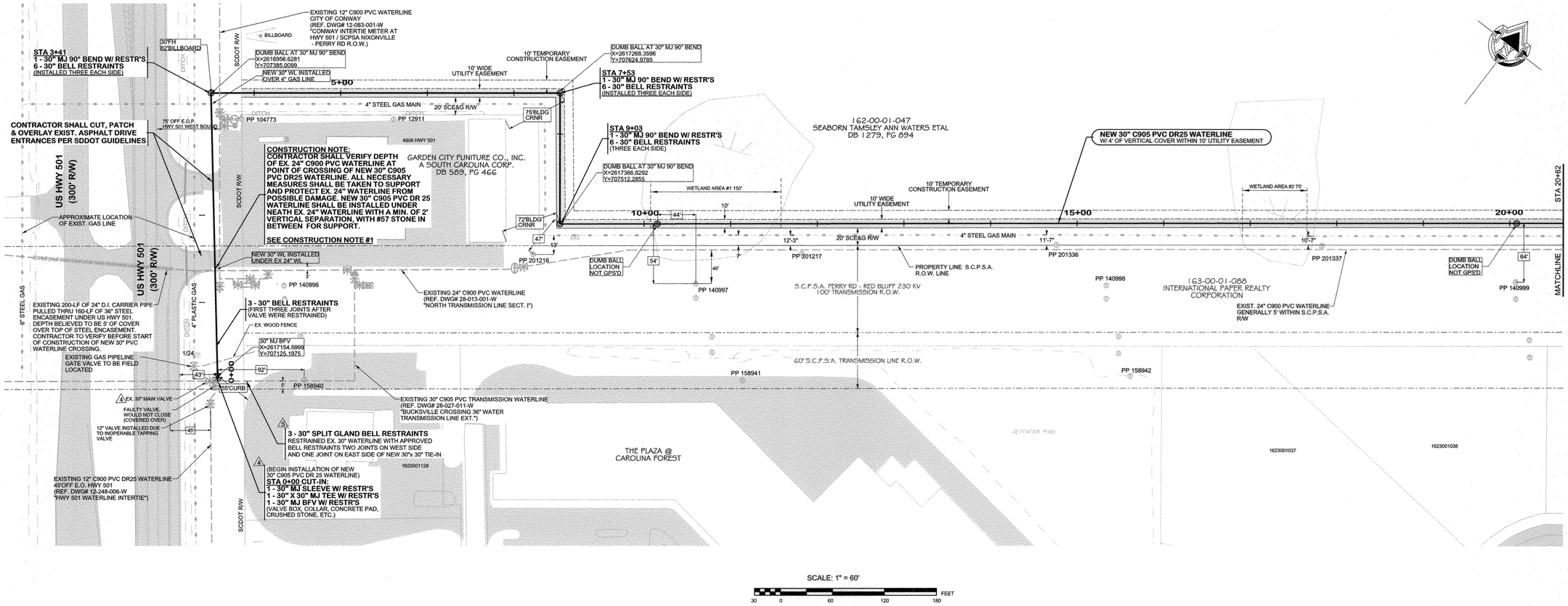
DESIGNED BY: David Johnson

CHECKED BY: Jason Poston

APPROVED BY:

CHRISTINA S. EVERETT PE #21255

SHEET 2 OF 14



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Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY: 9/26/14
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

REVISION	BY	DATE
ADDED SCE&G GAS LINE & EASEMENT, REVISED GSWSA UTILITY & CONST EASEMENT LOCATION	DEJ	7-16-09
REVISED TO SHOW SCE&G GAS LINE LOCATION	DEJ	4-16-10
GENERAL REVISIONS. REMOVED "OFFSET" FROM A.R.V. NOTES	DRT	10-17-2012
1. ADDED 30" MJ GATE VALVE, MOVED 30"x 30" TIE-IN, ADDING (1) 30" SLEEVE AND (2) 45° BENDS. REMOVED WORDING FOR TAP.	DRT	12-19-2012
2. NOTE TO RESTRAIN EX. 30" WL	DRT	5-31-2013
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
CONWAY, P.O. BOX 23268
SC 29528-2368
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(843) 347-4980 (FAX)
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

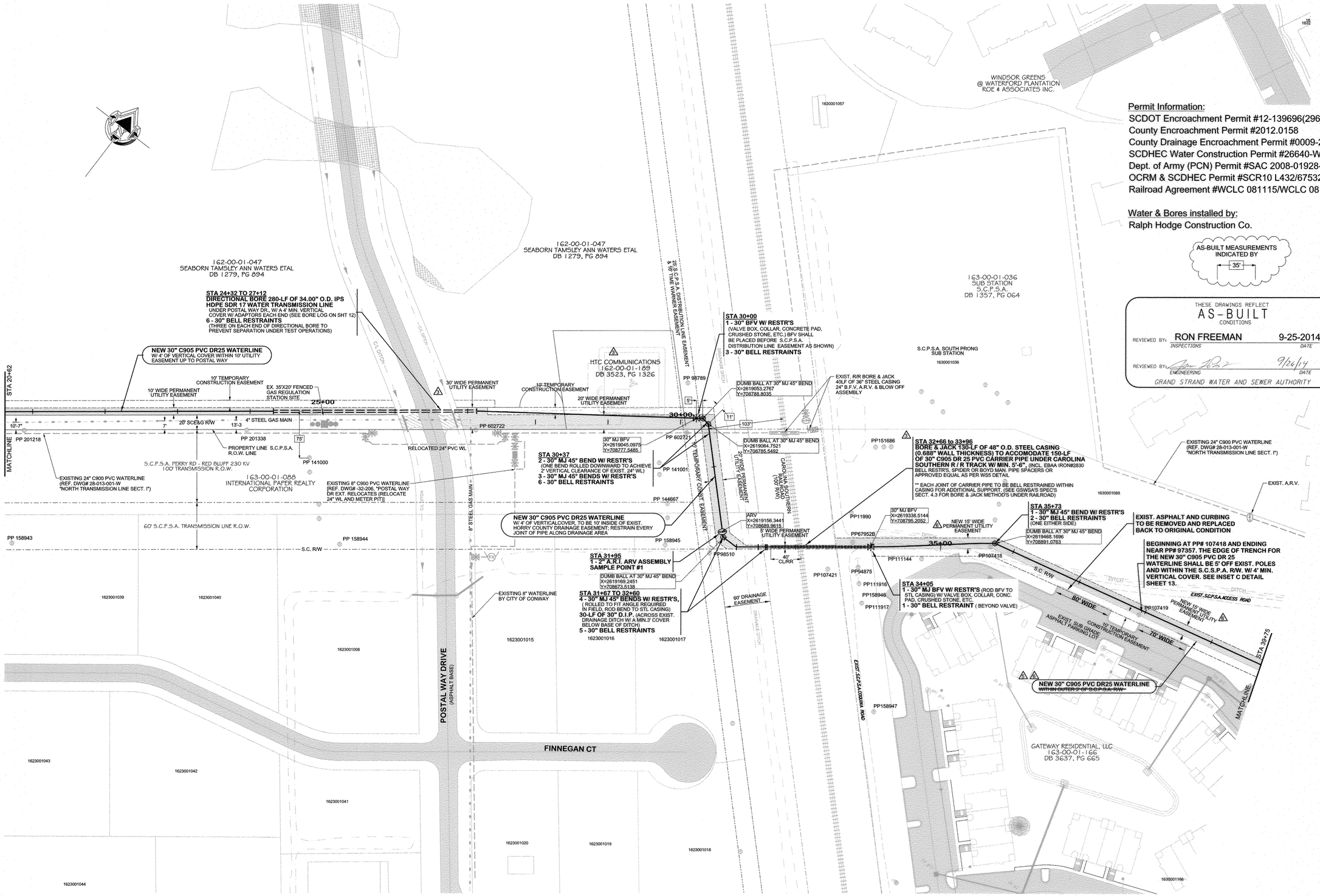
(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.
PROJ. #545-01

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS
DATE: ~~November, 2009~~ May 2013 (updated)
SCALE: as shown
FILENAME: Wtr Design Layout.dgn
DESIGNED BY: David Johnson
CHECKED BY: Jason Poston
APPROVED BY
CHRISTINA S. EVERETT PE #21255

SHEET 3 OF 14

28-031-003/14-W



SCALE: 1" = 60'

30 0 60 120 180 FEET

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Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY: 9/26/14
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

REVISION	BY	DATE
ADDED SCE&G GAS LINE & EASEMENT, REVISED GSWSA UTILITY & CONST. EASEMENT LOCATION	DEJ	7-16-09
REVISED TO SHOW ASBUILTED LOCATION OF SCE&G GAS LINE	DEJ	4-16-10
△1 ADDED HTC PROPERTY, CORRECTED ALIGNMENT OF POSTAL WAY, REMOVED "OFFSET" TO 48" OD.	DRT	10-10-2012
GENERAL REVISIONS; REMOVED "OFFSET" FROM A.R.V. NOTES	DRT	10-17-2012
△2 CORRECTED 30" WL NOTE FOR EASEMENT WIDTH, ADDED ARV NOTE, REMOVED △3 STRAY MIN. WITH OUTER 3' OF S.C.P.S.A. R/W FROM 30" WL NOTE FOR EASEMENT AND ADDED PROPOSED 15' WIDE EASEMENT IN SCP&A R/W	DRT	2-20-2013
AS-BUILT	DRT	3-13-2014
	DRT	9-25-2014

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HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.

PROJ. #5545-01

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS

DATE: ~~November, 2009~~ May 2013 (updated)

SCALE: as shown

FILENAME: Wtr Design Layout.dgn

DESIGNED BY: David Johnson

CHECKED BY: Jason Poston

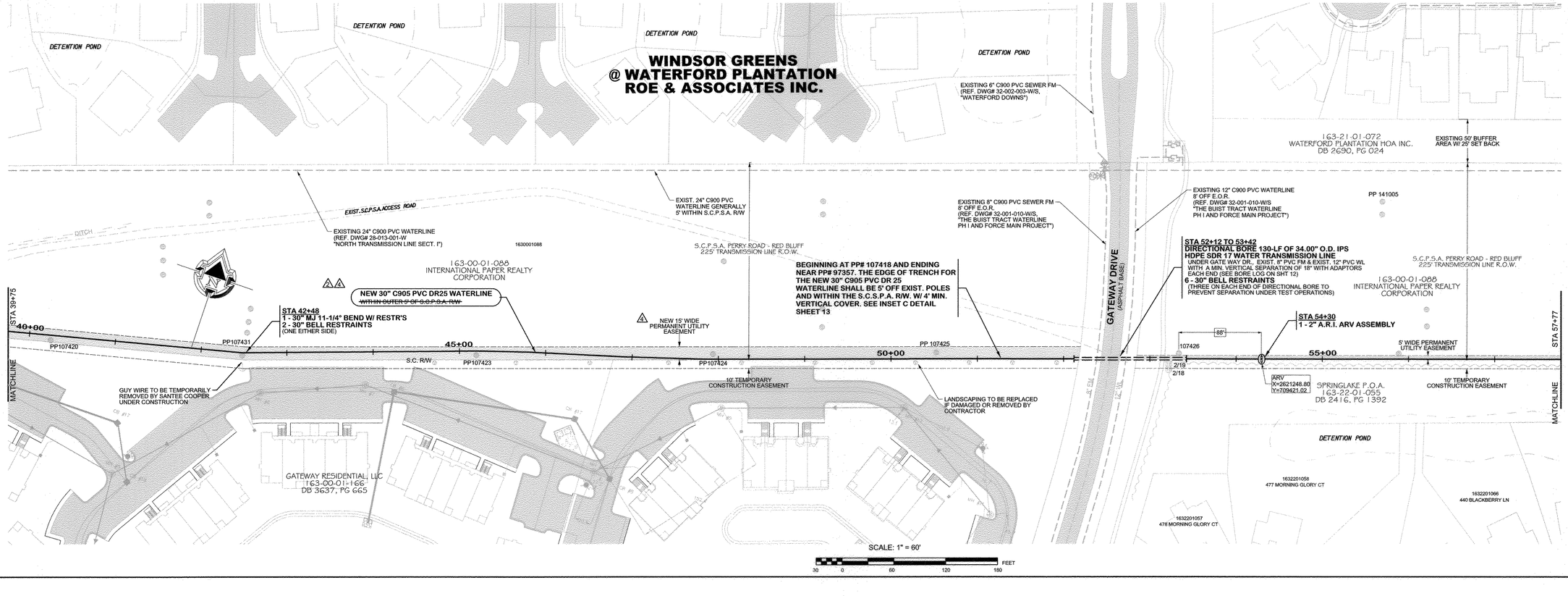
APPROVED BY

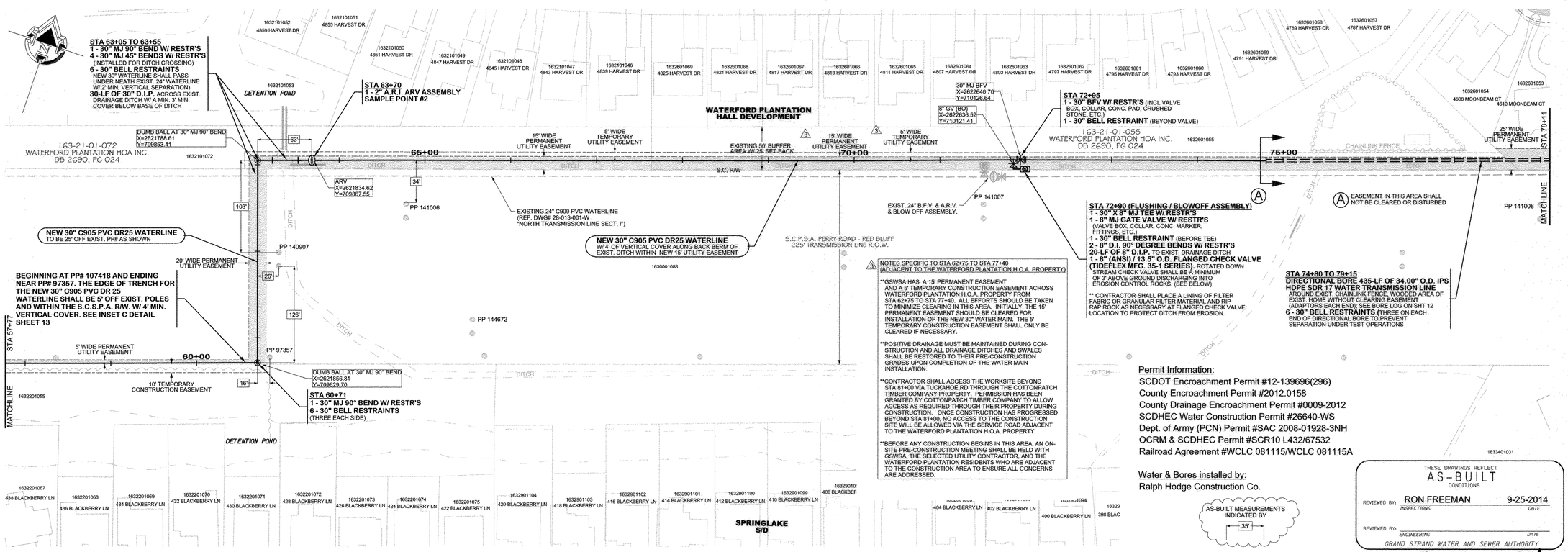
CHRISTINA S. EVERETT PE #21255

SHEET 4 OF 14

28-031-004/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT





Permit Information:

SCDOT Encroachment Permit #12-139696(296)
County Encroachment Permit #2012.0158
County Drainage Encroachment Permit #0009-2012
SCDHEC Water Construction Permit #26640-WS
Dept. of Army (PCN) Permit #SAC 2008-01928-3NH
OCRM & SCDHEC Permit #SCR10 L432/67532
Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY 35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY:
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

28-031-005/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
GENERAL REVISIONS; REMOVED "OFFSET" FROM A.R.V. NOTES.	DRT	10-17-2012
△1 CORRECTED "X" VS. "Y" NOTE FOR EASEMENT; ADDED NOTES FOR STA 42+48 & STA 54+30	DRT	2-20-2013
△2 ADDED NOTES; REVISION REGARDING ADJACENT PROPERTY OWNER TO WATERFORD PLANTATION.	DRT	4-2-2013
△3 STRUCK "WITHIN OUTER 5' OF S.C.P.S.A. R/W" AND ADDED NOTE REGARDING 15' AND PROPOSED 5' WIDE EASEMENT IN S.C.P.S.A. R/W	DRT	3-13-2014
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
CONWAY, SC 29928-2368
(843) 443-9200 OR 347-4641
(843) 347-4680 (FAX)
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD.- RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.

PROJ. #545-01

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS

DATE: ~~November, 2009~~ May 2013 (updated)

SCALE: as shown

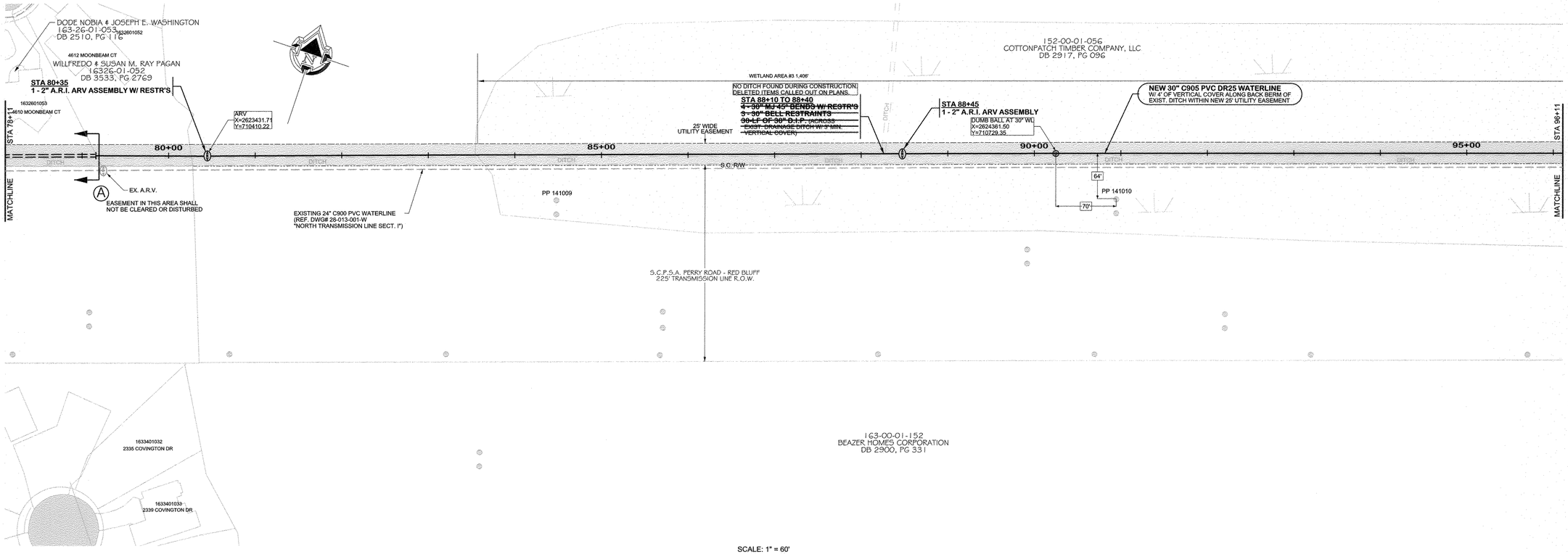
FILENAME: Wtr Design Layout.dgn

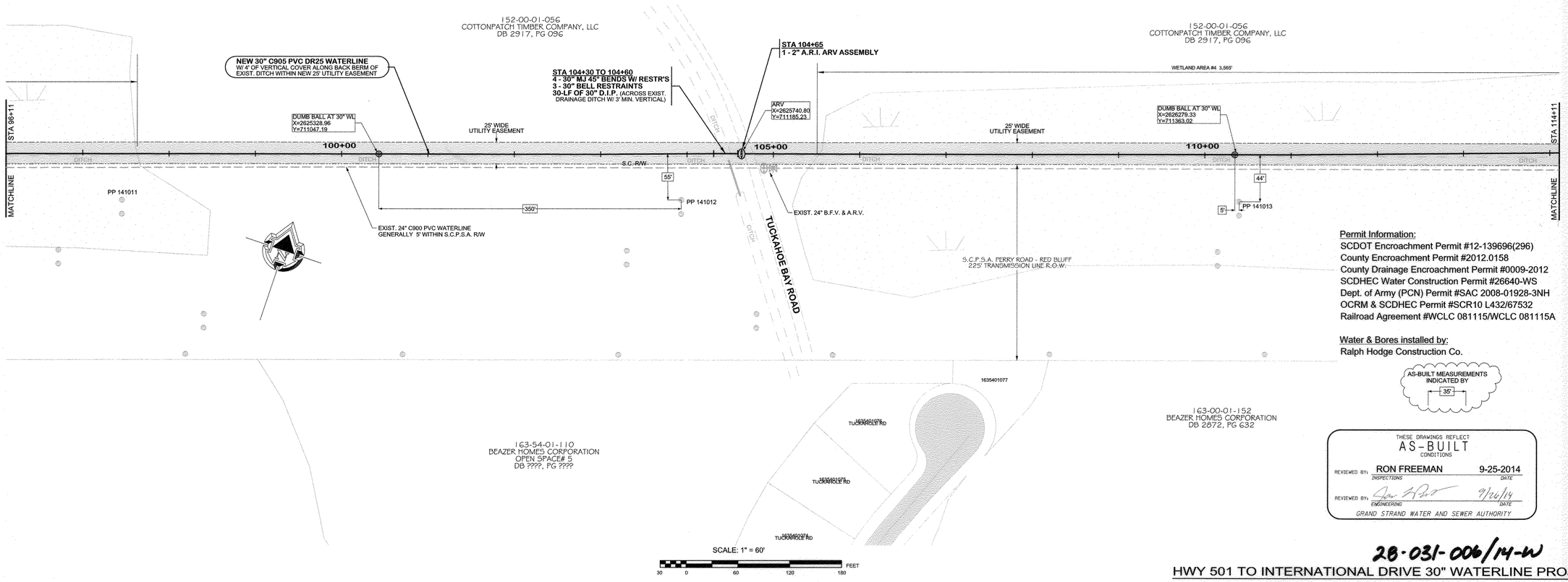
DESIGNED BY: David Johnson

CHECKED BY: Jason Poston

APPROVED BY: CHRISTINA S. EVERETT PE #21255

SHEET 5 OF 14





Permit Information:
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SCDHEC Water Construction Permit #26640-WS
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OCRM & SCDHEC Permit #SCR10 L432/67532
Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY 35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY: 9/26/14
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

28-031-006/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
GENERAL REVISIONS; REMOVED "OFFSET" FROM A.R.I. NOTES	DRT	10-17-2012
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
P.O. BOX 2368
CONWAY, SC 29528-2368
(843) 443-6200 OR 347-4641
(843) 347-4600 (FAX)
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

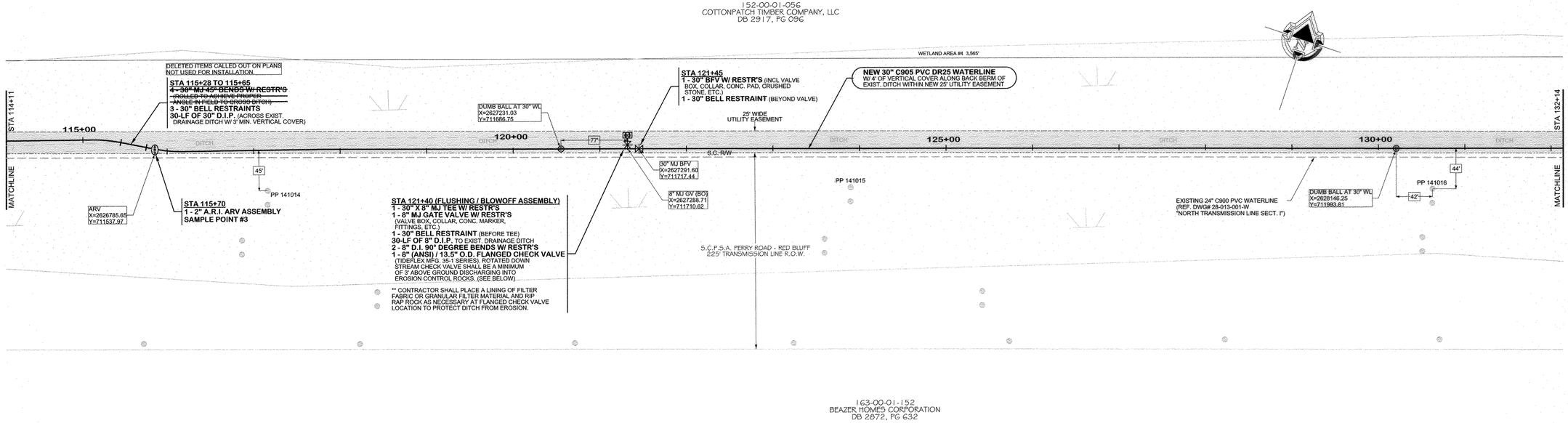
(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.

PROJ. #545-01

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

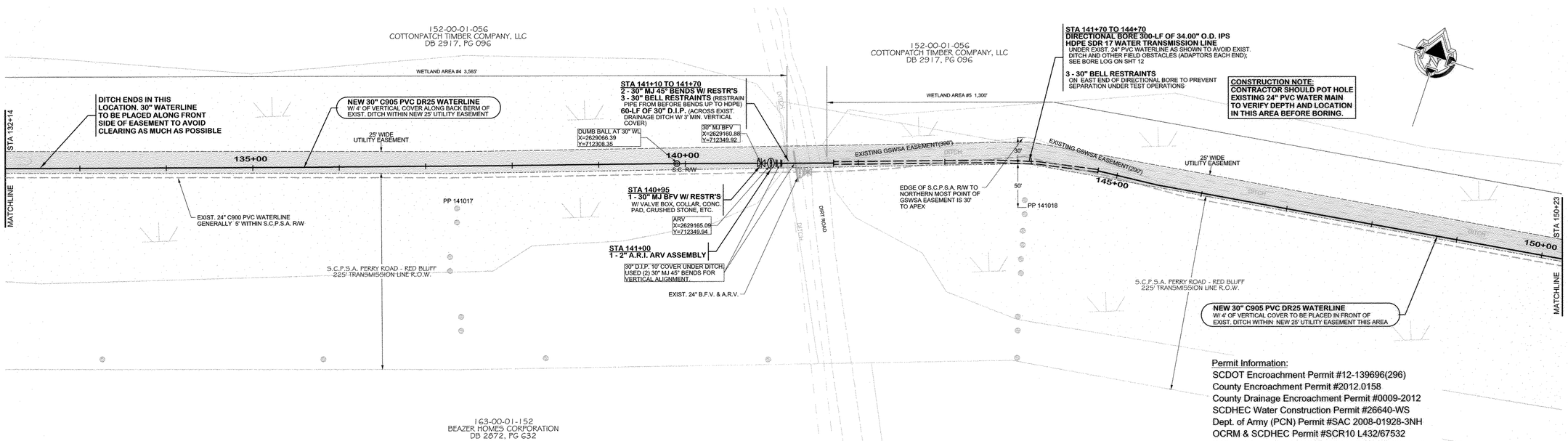
SC DHEC CONSTRUCTION PERMIT #26640-WS	
DATE: ~~November, 2008~~	May 2013 (updated)
SCALE: as shown	
FILENAME: Wtr Design Layout.dgn	
DESIGNED BY	David Johnson
CHECKED BY	Jason Poston
APPROVED BY	
CHRISTINA S. EVERETT PE #21255	

SHEET 6 OF 14



SCALE: 1" = 60'

30 0 60 120 180 FEET



SCALE: 1" = 60'

30 0 60 120 180 FEET

Permit Information:

SCDOT Encroachment Permit #12-139696(296)
County Encroachment Permit #2012.0158
County Drainage Encroachment Permit #0009-2012
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Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY: 9/26/14
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

28-031-007/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
GENERAL REVISIONS; REMOVED "OFFSET" REMARKS / NOTES.	DRT	10-17-2012
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
POST OFFICE BOX 696
CONWAY, SC 29528-2398
(843) 443-9200 OR 347-4641
(843) 347-4980 (FAX)
E-MAIL: CS@GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.

PROJ. #545-01

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS

DATE: ~~November, 2008~~ May 2013 (updated)

SCALE: as shown

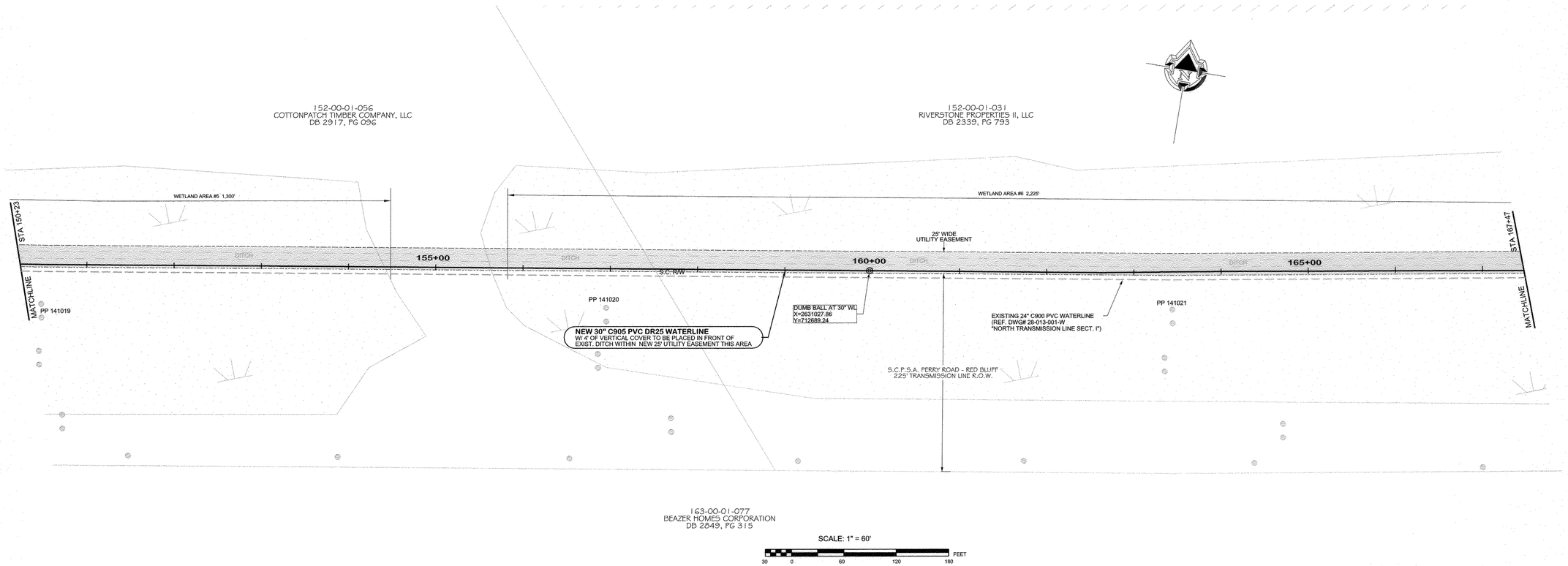
FILENAME: Wtr Design Layout.dgn

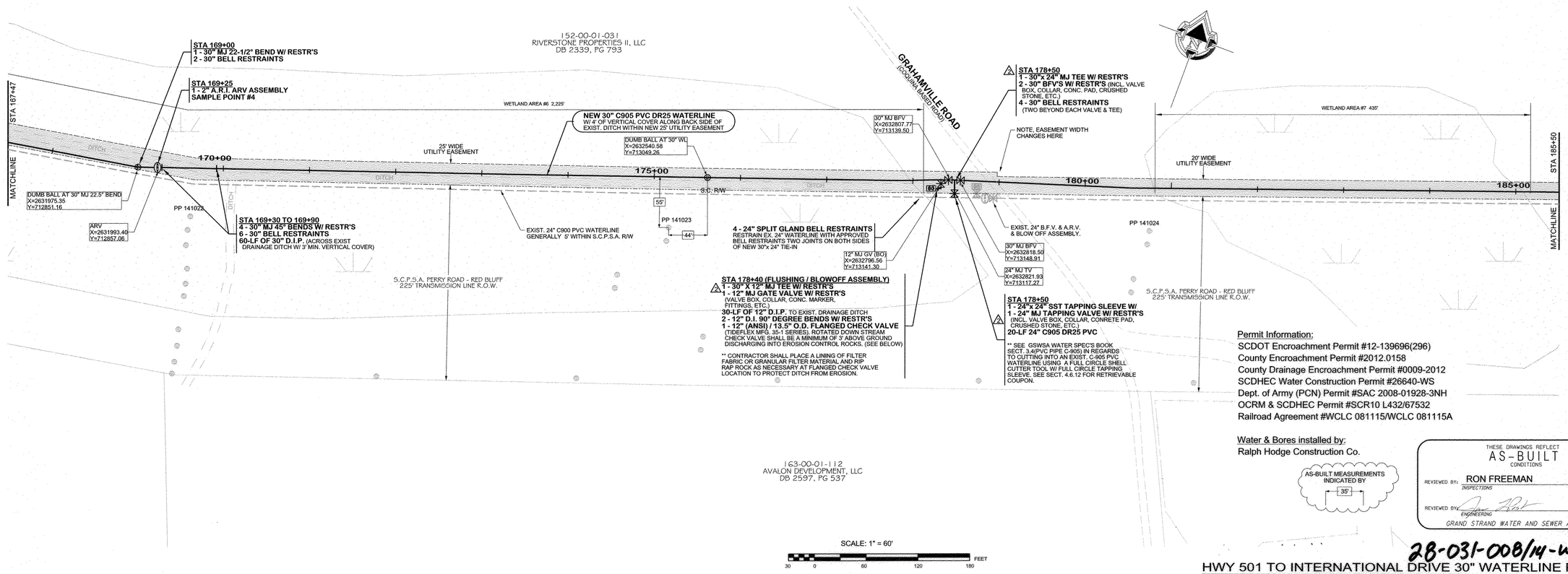
DESIGNED BY: David Johnson

CHECKED BY: Jason Poston

APPROVED BY: CHRISTINA S. EVERETT PE #21255

SHEET 7 OF 14





Permit Information:
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Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY: 9/26/14
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

28-031-008/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
GENERAL REVISIONS: REMOVED "OFFSET" FROM A.R.V. NOTES.	DRT	10-17-2012
△1 ADDED 24"x 30" TIE-IN ASTA 179+90 WITH (1) 24"x 24" TeP W/ 24" VALVE & 2" BRBC. (1) 24"x 24" TeP W/ 24" VALVE	DRT	12-19-2012
△2 NOTE TO RESTRAIN EX. 24" WL	DRT	5-31-2013
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
P.O. BOX 2368
CONWAY, SC 29928-2368
(843) 443-8200 OR 347-4641
(843) 347-4650 FAX
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD.- RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.

PROJ. #545-01

SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
No. 21255
CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS

DATE: ~~November, 2008~~ May 2013 (updated)

SCALE: as shown

FILENAME: Wtr Design Layout.dgn

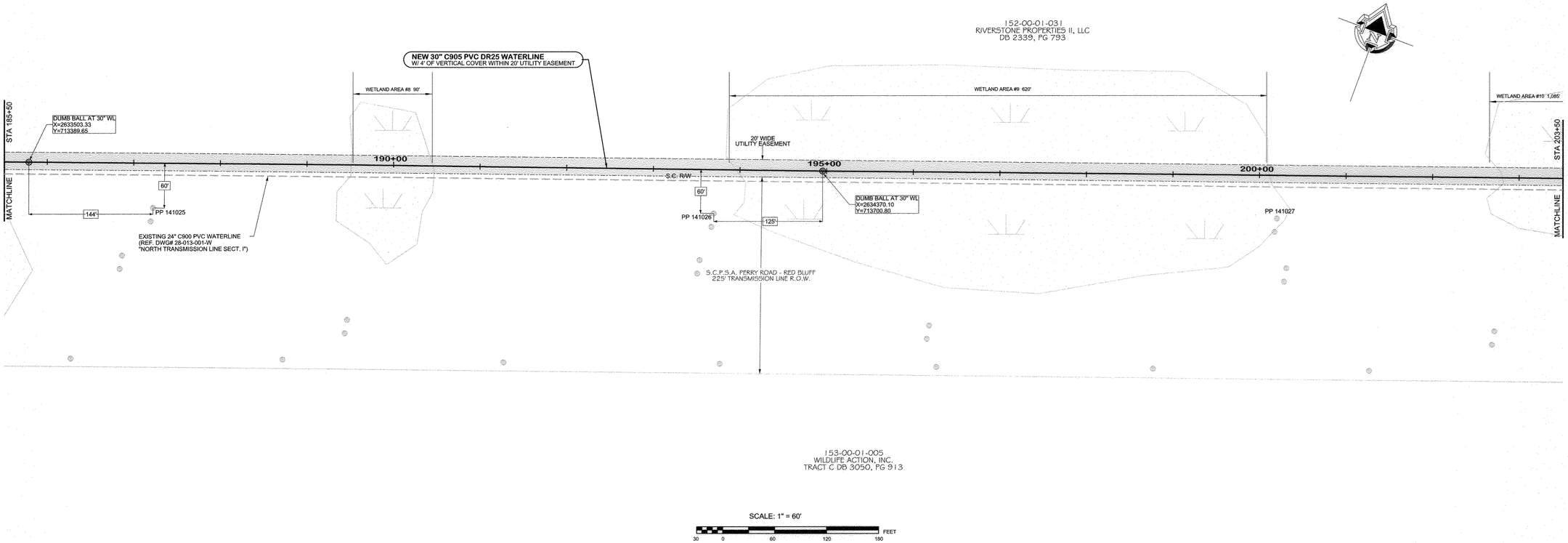
DESIGNED BY: David Johnson

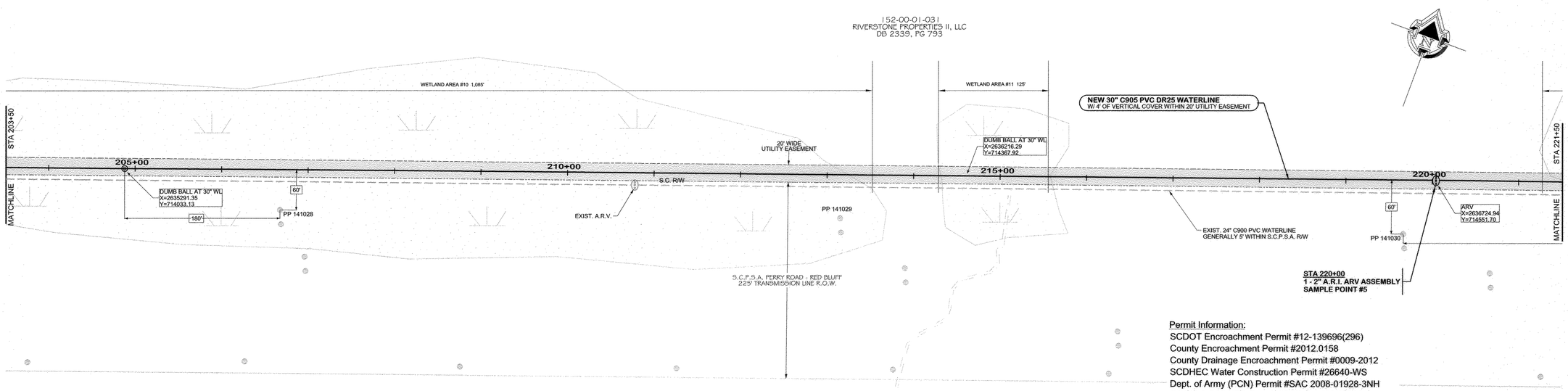
CHECKED BY: Jason Poston

APPROVED BY

CHRISTINA S. EVERETT PE #21255

SHEET 8 OF 14





Permit Information:
SCDOT Encroachment Permit #12-139696(296)
County Encroachment Permit #2012.0158
County Drainage Encroachment Permit #0009-2012
SCDHEC Water Construction Permit #26640-WS
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OCRM & SCDHEC Permit #SCR10 L432/67532
Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY 35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS
REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE
REVIEWED BY: 9/26/14
ENGINEERING DATE
GRAND STRAND WATER AND SEWER AUTHORITY

28-031-009/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
GENERAL REVISIONS: REMOVED "OFFSET" FROM A.R.V. NOTES.	DRT	10-17-2012
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
P.O. BOX 2368
CONWAY, SC 29528-2368
(843) 443-6200 OR 347-4641
(843) 347-4649 FAX
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

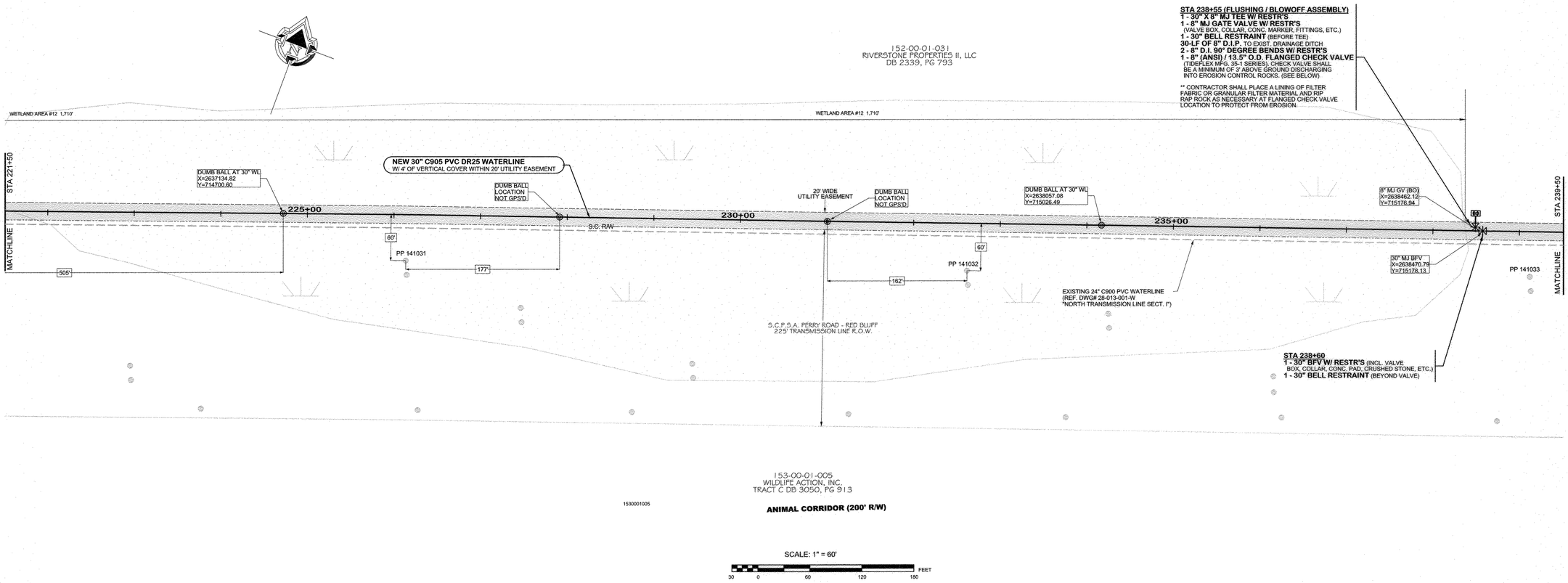
(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.

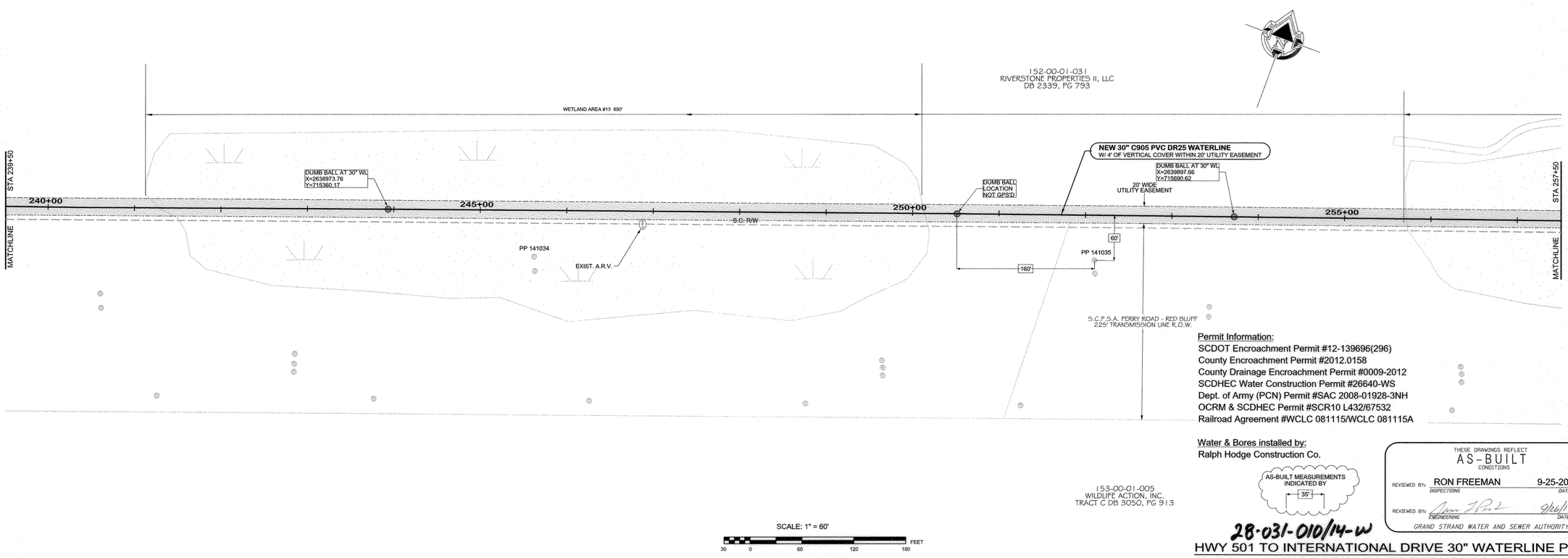
PROJ. #S45-01

SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 21255
CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS	
DATE: ~~November, 2009~~ May 2013 (updated)	
SCALE: as shown	
FILENAME: Wtr Design Layout.dgn	
DESIGNED BY	David Johnson
CHECKED BY	Jason Poston
APPROVED BY	
CHRISTINA S. EVERETT PE #21255	

SHEET 9 OF 14





Permit Information:
SCDOT Encroachment Permit #12-139696(296)
County Encroachment Permit #2012.0158
County Drainage Encroachment Permit #0009-2012
SCDHEC Water Construction Permit #26640-WS
Dept. of Army (PCN) Permit #SAC 2008-01928-3NH
OCRM & SCDHEC Permit #SCR10 L432/67532
Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS
REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE
REVIEWED BY: 9/26/14
ENGINEERING DATE
GRAND STRAND WATER AND SEWER AUTHORITY

28-031-010/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
GENERAL REVISIONS; REMOVED "OFFSET" FROM A.R.V. NOTES.	DRT	10-17-2012
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
P.O. BOX 2368
CONWAY, SC 29528-2368
(843) 449-6200 OR 347-2641
(843) 347-4680 (FAX)
E-MAIL: GSWSA.COM

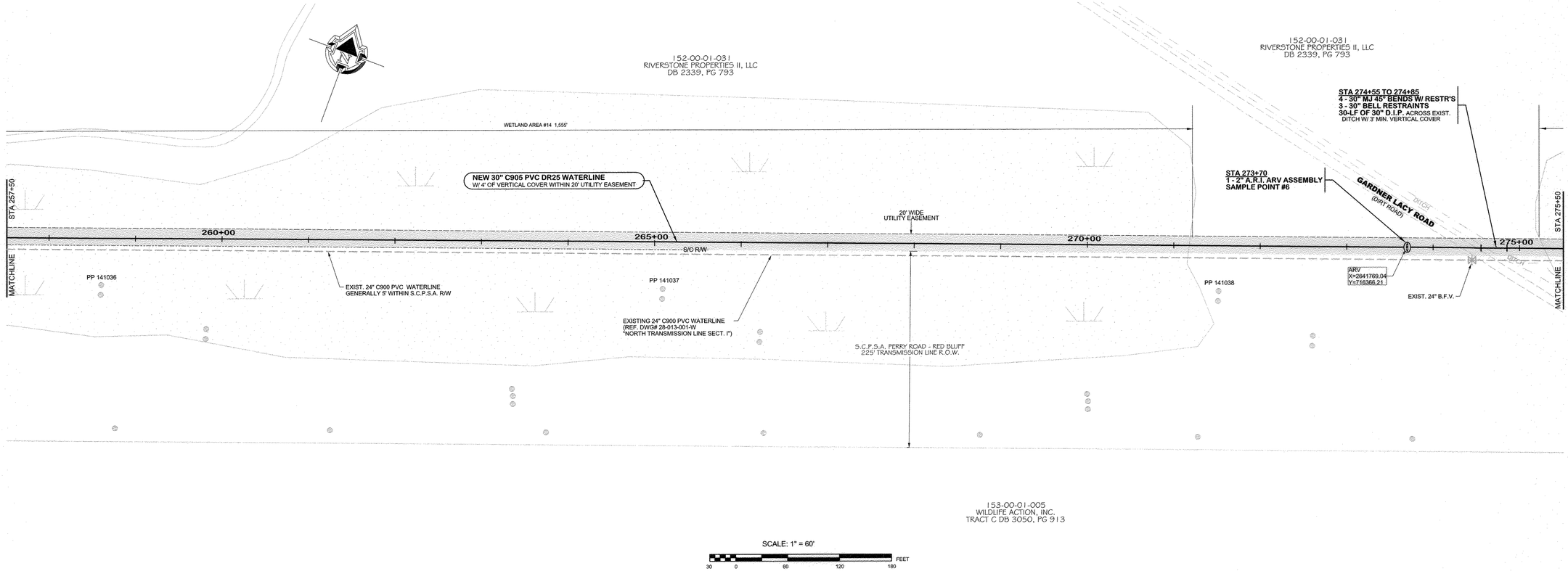
HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

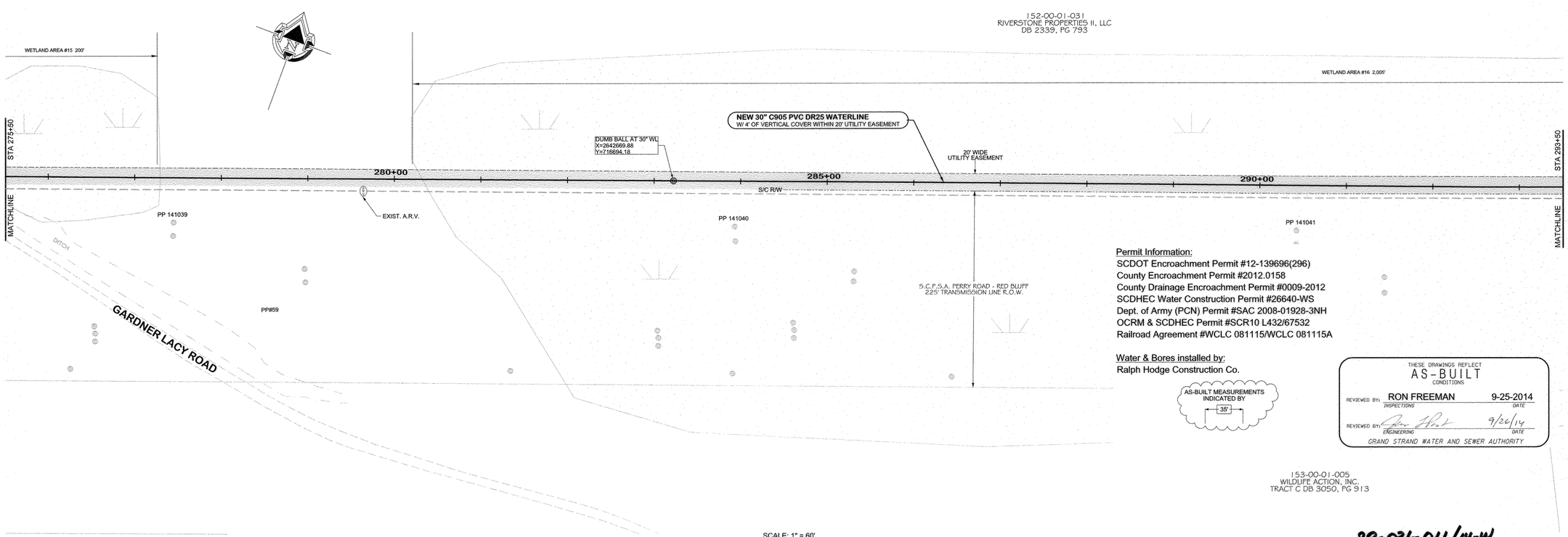
(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.
PROJ. #545-01

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER SEAL No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS
DATE: ~~November, 2009~~ May 2013 (updated)
SCALE: as shown
FILENAME: Wtr Design Layout.dgn
DESIGNED BY: David Johnson
CHECKED BY: Jason Poston
APPROVED BY
CHRISTINA S. EVERETT PE #21255

SHEET 10 OF 14





Permit Information:
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Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS
REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE
REVIEWED BY: 9/26/14
ENGINEERING DATE
GRAND STRAND WATER AND SEWER AUTHORITY

28-031-011/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
GENERAL REVISIONS; REMOVED "OFFSET" FROM A.R.V. NOTES.	DRT	10-17-2012
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
POST OFFICE BOX 2139
CONWAY, SC 29528-2398
(843) 443-6200 OR 347-4641
(843) 347-4680 (FAX)
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.
PROJ. #545-01

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS

DATE: ~~November, 2008~~ May 2013 (updated)

SCALE: as shown

FILENAME: Wtr Design Layout.dgn

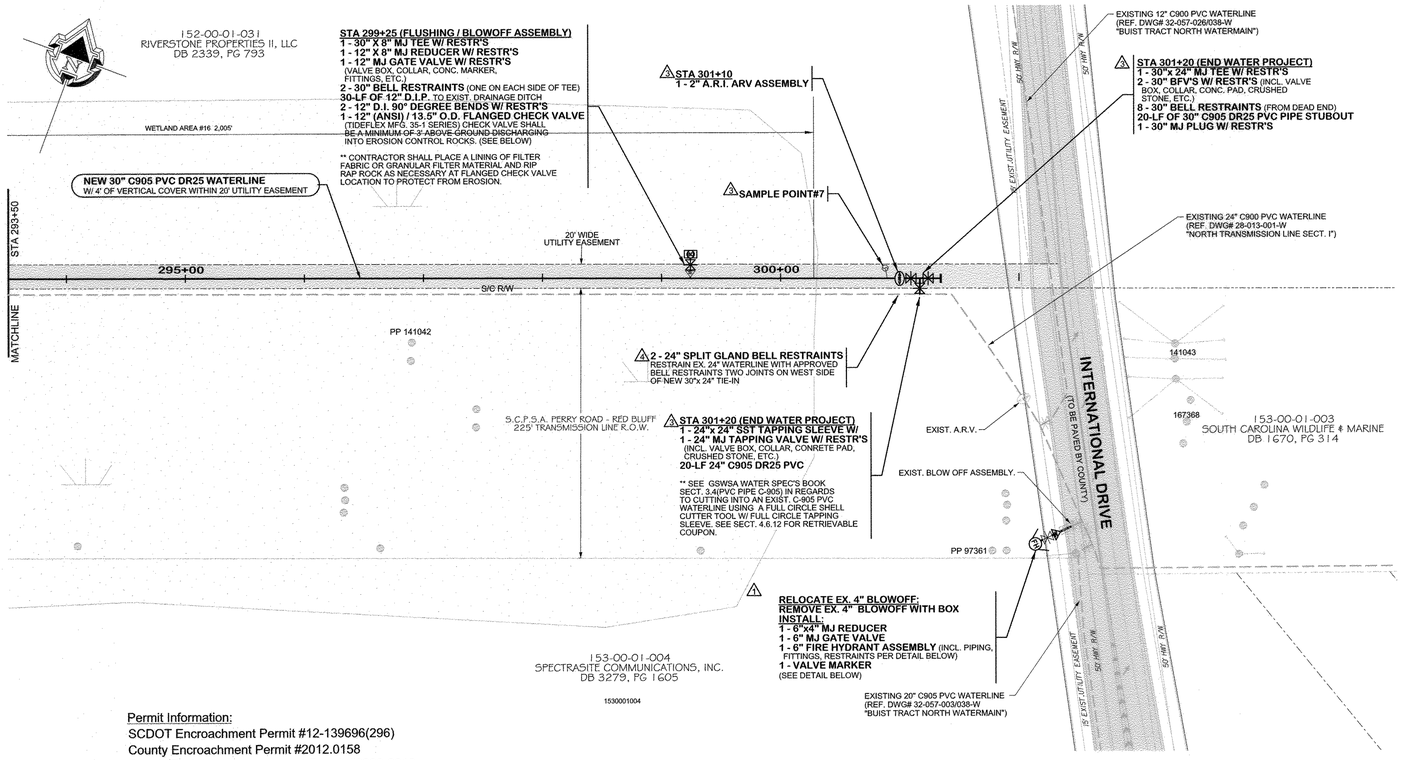
DESIGNED BY: David Johnson

CHECKED BY: Jason Poston

APPROVED BY

CHRISTINA S. EVERETT PE #21255

SHEET 11 OF 14



Permit Information:
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County Encroachment Permit #2012.0158
County Drainage Encroachment Permit #0009-2012
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Water & Bores installed by:
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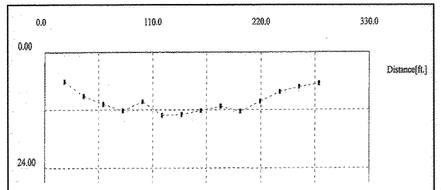
AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS
REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE
REVIEWED BY: 9/26/14
ENGINEERING DATE
GRAND STRAND WATER AND SEWER AUTHORITY

SCALE: 1" = 60'
FEET
30 0 60 120 180



PROFILE

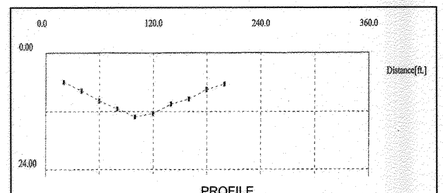
Filename : Grand Strand.map
Date : 3 / 1 No.1
Rod Length: 20ft.
Comment : 34" HDPE, 24+32

Bore Data

Rod(s)	Distance	Depth	Pitch		Temp.		Arrow	Yaw
1	20ft.00in.	6ft.00in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
2	40ft.00in.	9ft.01in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
3	60ft.00in.	10ft.09in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
4	80ft.00in.	12ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
5	100ft.00in.	10ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
6	120ft.00in.	13ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
7	140ft.00in.	12ft.00in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
8	160ft.00in.	12ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
9	180ft.00in.	11ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
10	200ft.00in.	12ft.04in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
11	220ft.00in.	10ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
12	240ft.00in.	8ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
13	260ft.00in.	7ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
14	280ft.00in.	6ft.05in.	0.0%	0.0°	0°F	-10.0°C	--%	--°

BORE LOG

30" Waterline Directional Bore (280-lf)
under Postal Way from STA 24+32 to 27+12 sht 4



PROFILE

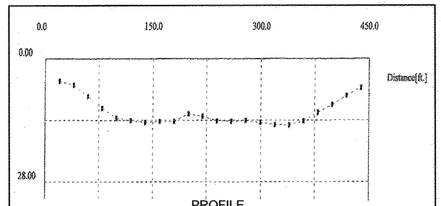
Filename : Grand Strand.map
Date : 3 / 1 No.1
Rod Length: 20ft.
Comment : 34" HDPE, 52+12

Bore Data

Rod(s)	Distance	Depth	Pitch		Temp.		Arrow	Yaw
1	20ft.00in.	6ft.00in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
2	40ft.00in.	7ft.09in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
3	60ft.00in.	9ft.09in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
4	80ft.00in.	11ft.05in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
5	100ft.00in.	13ft.01in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
6	120ft.00in.	12ft.05in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
7	140ft.00in.	10ft.05in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
8	160ft.00in.	9ft.05in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
9	180ft.00in.	7ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
10	200ft.00in.	6ft.05in.	0.0%	0.0°	0°F	-10.0°C	--%	--°

BORE LOG

30" Waterline Directional Bore (200-lf)
under Gate Way Dr. from STA 52+12 to 53+42 sht 5



PROFILE

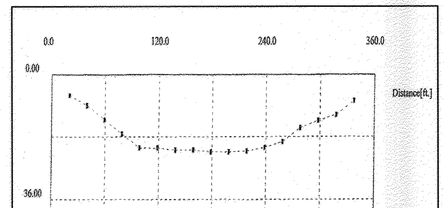
Filename : Grand Strand.map
Date : 3 / 1 No.1
Rod Length: 20ft.
Comment : 34" HDPE, 74+80

Bore Data

Rod(s)	Distance	Depth	Pitch		Temp.		Arrow	Yaw
1	20ft.00in.	4ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
2	40ft.00in.	5ft.11in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
3	60ft.00in.	8ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
4	80ft.00in.	11ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
5	100ft.00in.	13ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
6	120ft.00in.	14ft.01in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
7	140ft.00in.	14ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
8	160ft.00in.	14ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
9	180ft.00in.	14ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
10	200ft.00in.	12ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
11	220ft.00in.	13ft.01in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
12	240ft.00in.	14ft.01in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
13	260ft.00in.	14ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
14	280ft.00in.	14ft.01in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
15	300ft.00in.	14ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
16	320ft.00in.	14ft.00in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
17	340ft.00in.	15ft.01in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
18	360ft.00in.	14ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
19	380ft.00in.	12ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
20	400ft.00in.	10ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
21	420ft.00in.	8ft.04in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
22	440ft.00in.	6ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°

BORE LOG

30" Waterline Directional Bore (435-lf)
at wooded area from STA 74+80 to 79+15 sht 5



PROFILE

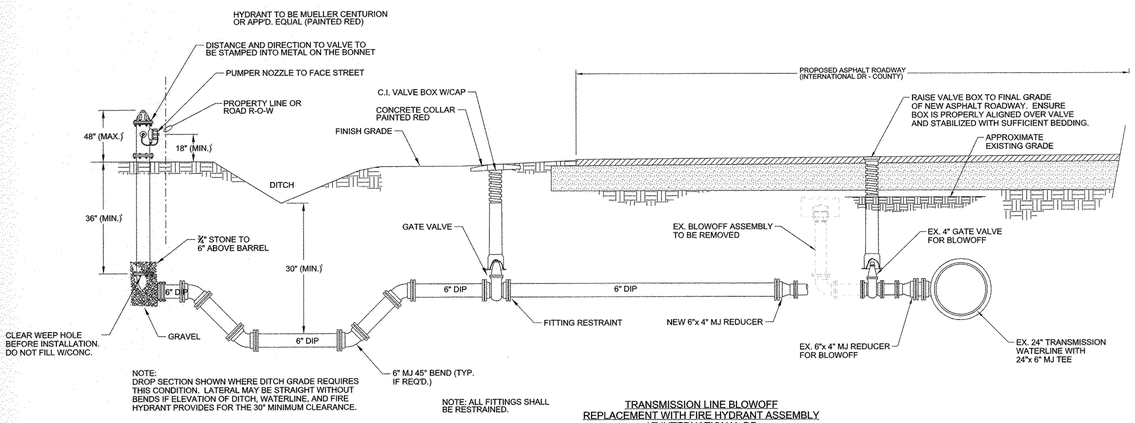
Filename : Grand Strand.map
Date : 3 / 1 No.1
Rod Length: 20ft.
Comment : 34" HDPE, 141+80

Bore Data

Rod(s)	Distance	Depth	Pitch		Temp.		Arrow	Yaw
1	20ft.00in.	6ft.00in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
2	40ft.00in.	8ft.00in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
3	60ft.00in.	13ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
4	80ft.00in.	17ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
5	100ft.00in.	21ft.01in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
6	120ft.00in.	21ft.02in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
7	140ft.00in.	21ft.09in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
8	160ft.00in.	21ft.09in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
9	180ft.00in.	22ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
10	200ft.00in.	22ft.03in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
11	220ft.00in.	22ft.00in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
12	240ft.00in.	20ft.00in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
13	260ft.00in.	19ft.05in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
14	280ft.00in.	15ft.06in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
15	300ft.00in.	13ft.05in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
16	320ft.00in.	11ft.09in.	0.0%	0.0°	0°F	-10.0°C	--%	--°
17	340ft.00in.	7ft.08in.	0.0%	0.0°	0°F	-10.0°C	--%	--°

BORE LOG

30" Waterline Directional Bore (300-lf)
at existing WL easement
from STA 141+80 to 144+80 sht 7



NOTE:
DROP SECTION SHOWN WHERE DITCH GRADE REQUIRES THIS CONDITION. LATERAL MAY BE STRAIGHT WITHOUT BENDS IF ELEVATION OF DITCH, WATERLINE, AND FIRE HYDRANT PROVIDES FOR THE 30" MINIMUM CLEARANCE.

NOTE: ALL FITTINGS SHALL BE RESTRAINED.

TRANSMISSION LINE BLOWOFF
REPLACEMENT WITH FIRE HYDRANT ASSEMBLY
AT INTERNATIONAL DR
(NTS)

REVISION	BY	DATE
1 ADDED STEEL CASING FOR WL CROSSING INTER-SECTION OF INTERNATIONAL DR. & PERRY RD. ADDED NOTES AND DETAIL FOR CHANGE FROM PVC TO DIP PIPE IN CASING PER INTERNATIONAL DR.	DRT	9-18-2012
2 CHANGED FITTINGS FLUSHING REMOVED "OFFSET FROM" & LV NOTES.	DRT	10-17-2012
3 CHANGED 24"x 30" TIE-IN FROM STA 305+00 TO STA 301+20 AND ADDING WITH A.R.V. AND SAMPLING POINT	DRT	5-28-2013
4 NOTE TO RESTRAIN EX. 24" WL	DRT	5-31-2013
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
CONWAY, SC 29526-2388
(843) 449-8200 OR 347-4841
(843) 347-4880 (FAX)
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.
PROJ. #545-01

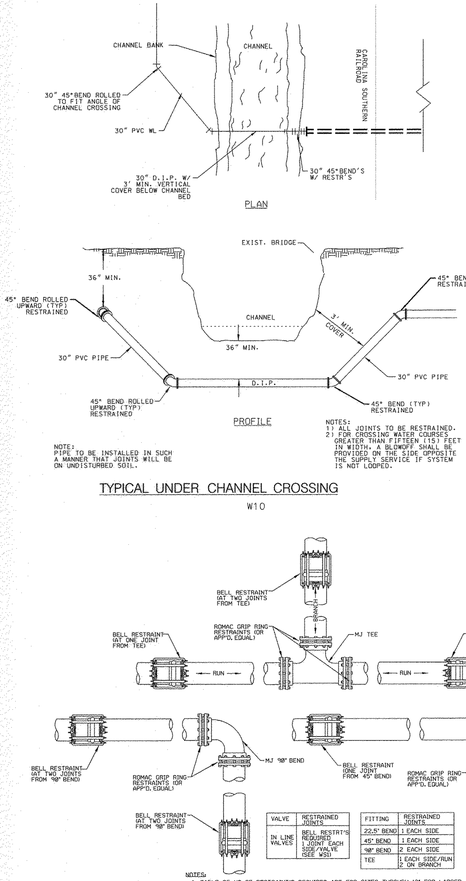
SOUTH CAROLINA PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS
DATE: ~~November, 2009~~ May 2013 (updated)
SCALE: as shown
FILENAME: Wtr Design Layout.dgn
DESIGNED BY: David Johnson
CHECKED BY: Jason Poston
APPROVED BY
CHRISTINA S. EVERETT PE #21255

SHEET 12 OF 14

28-031-012/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

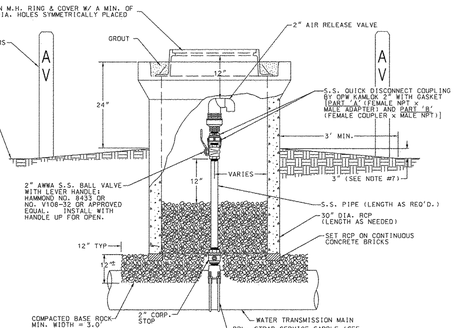


NOTES:
1) ALL JOINTS TO BE RESTRAINED.
2) FOR CROSSING WATER COURSES GREATER THAN FIFTEEN (15) FEET IN WIDTH, A BLOWOFF SHALL BE PROVIDED ON THE SIDE OPPOSITE THE SUPPLY SERVICE IF SYSTEM IS NOT LOOPED.

NOTE:
PIPE TO BE INSTALLED IN SUCH A MANNER THAT JOINTS WILL BE ON UNDISTURBED SOIL.

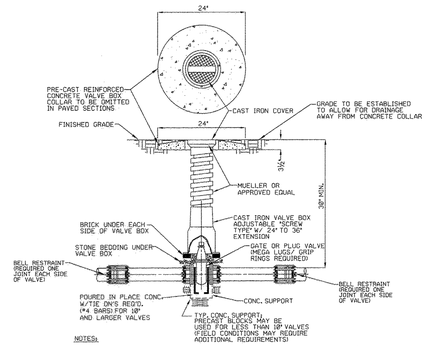
TYPICAL UNDER CHANNEL CROSSING

W10



NOTES:
1) AIR RELEASE VALVE SHALL BE INSTALLED ON THE HIGH POINT OF WATER MAIN.
2) ALL MATERIALS & EQUIPMENT TO BE PER AWWA SPEC'S.
3) AIR RELEASE SHALL BE A.R.I. MODEL D-040.
4) CORPORATION STOP, S.S. PIPE, FITTINGS, AND PIPING TO BE SAME DIAMETER AS AIR RELEASE VALVE (INLET).
5) AIR RELEASE VALVES MUST BE NSF APPROVED.
6) LIMIT OF PAY (ITEMS INCLUDES SERVICE SADDLE.
7) ARV ASSEMBLIES INSTALLED IN ROAD RIGHTS-OF-WAY MUST BE FLUSH WITH EXISTING SHOULDER GRADE. INSTALLATIONS IN EASEMENT AREAS SHALL BE RAISED ABOVE EXISTING GRADE AS SHOWN IN DETAIL.

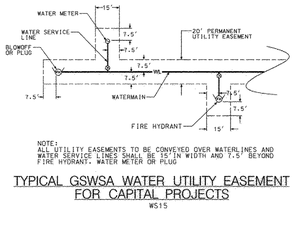
1 TYPICAL AIR RELEASE VALVE ASSEMBLY



NOTES:
(1) SEE "TYPICAL FITTING AND JOINT RESTRAINT" DETAIL FOR VALVE RESTRAINTS.
(2) TOP OF VALVE BOX AND COLLAR SHALL BE PAINTED GREEN FOR SEWER FM AND BLUE FOR WATER.
(3) EXTENSION STEM WILL BE REQUIRED TO BE WITHIN 2 FT. OF THE SURFACE IF OPERATING NUT IS OVER 5 FT. BELOW GRADE. EXTENSIONS SHALL BE PERMANENTLY ATTACHED TO VALVE NUT AND SHALL BE PROVIDED WITH HORIZONTAL SPACERS FOR BERTICLE ALIGNMENT WITHIN THE VALVE BOX.
(4) PER GSWSA STANDARDS, MATERIAL APPROVAL THRU THE SUBMITTAL PROCESS ARE REQUIRED PRIOR TO ANY INSTALLATIONS.

TYPICAL VALVE AND VALVE BOX

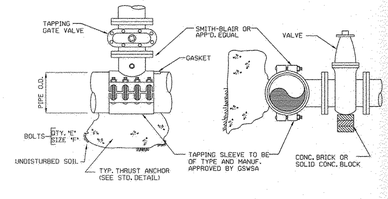
WS1



NOTE:
ALL UTILITY EASEMENTS TO BE CONVEYED OVER WATERLINES AND WATER SERVICE LINES SHALL BE 15' IN WIDTH AND 7.5' BEYOND FIRE HYDRANT, WATER METER OR PLUG

TYPICAL GSWSA WATER UTILITY EASEMENT FOR CAPITAL PROJECTS

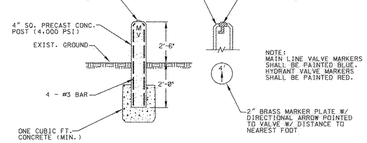
WS15



TYPICAL TAPPING SLEEVE

(FOR WATERLINE OR SEWER FORCEMAIN)

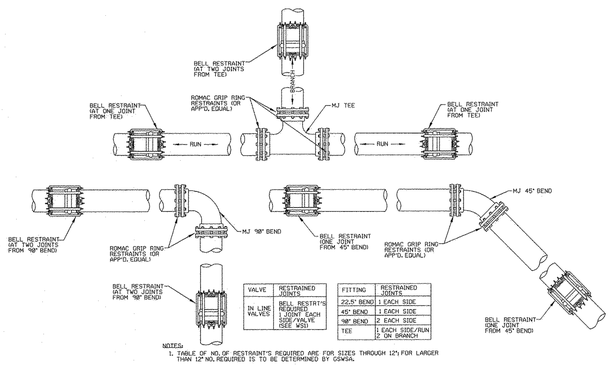
WS2



NOTE:
MAIN LINE VALVE MARKERS SHALL BE PAINTED BLUE. HYDRANT VALVE MARKERS SHALL BE PAINTED RED.

TYPICAL CONCRETE VALVE MARKER

W17



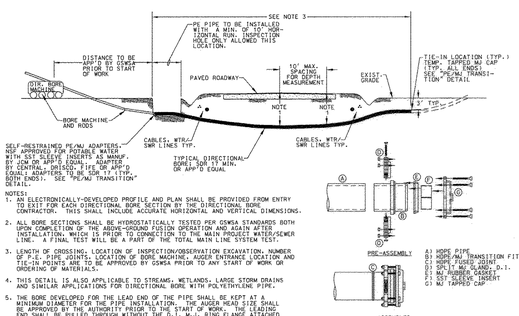
VALVE	RESTRAINED JOINTS
IN LINE VALVES	BELL RESTRT'S REQUIRED 1 JOINT EACH SIDE OF VALVE SEE W301

FITTING	RESTRAINED JOINTS
22.5° BEND	1 EACH SIDE
45° BEND	1 EACH SIDE
90° BEND	2 EACH SIDE
TEE	1 EACH SIDE/RUN 2 ON BRANCH

NOTES:
1. TABLE OF USE OF RESTRAINT'S REQUIRED ARE FOR SIZES THROUGH 12" FOR LARGER THAN 12" NO, REQUIRED IS TO BE DETERMINED BY GSWSA.
2. PER GSWSA STANDARDS, MATERIAL APPROVAL THRU THE SUBMITTAL PROCESS ARE REQUIRED PRIOR TO ANY INSTALLATIONS.
3. PIPE BELL RESTRAINTS ARE REQUIRED TO BE INSTALLED ON THE TWO JOINTS IMMEDIATELY FOLLOWING THE PE/MJ ADAPTERS ON EACH END OF HDPE PIPE.

TYPICAL FITTING AND JOINT RESTRAINT

WS3

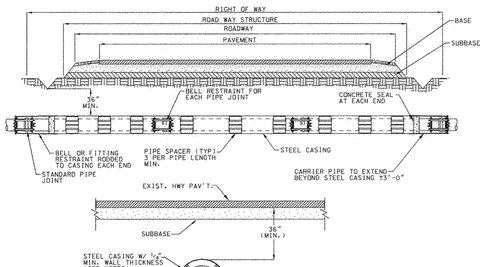


NOTES:
1. TO ELECTRONICALLY-DEVELOPED PROFILE AND PLAN SHALL BE PROVIDED FROM ENTRY TO EXIT FOR EACH DIRECTIONAL BORE SECTION BY THE DIRECTIONAL BORE CONTRACTOR. THIS SHALL INCLUDE ACCURATE HORIZONTAL AND VERTICAL DIMENSIONS.
2. ALL BORE SECTIONS SHALL BE HYDROSTATICALLY TESTED PER GSWSA STANDARDS BOTH UPON COMPLETION OF THE ABOVE-GROUND FUSION OPERATION AND AGAIN AFTER INSTALLATION, WHICH IS PRIOR TO CONNECTION TO THE MAIN PROJECT WATER/SEWER LINE. A FINAL TEST WILL BE A PART OF THE TOTAL MAIN LINE SYSTEM TEST.
3. LENGTH OF CROSSING; LOCATION OF INSPECTION/OBSERVATION EXCAVATION; NUMBER OF P.C. PIPE JOINTS; LOCATION OF BORE MACHINE; AUGER ENTRANCE LOCATION AND TIE-IN POINTS ARE TO BE APPROVED BY GSWSA PRIOR TO ANY START OF WORK OR ORDERING OF MATERIALS.
4. THIS DETAIL IS ALSO APPLICABLE TO STREAMS, WETLANDS, LARGE STORM DRAINS AND SIMILAR APPLICATIONS FOR DIRECTIONAL BORE WITH POLYETHYLENE PIPE.
5. THE BORE DEVELOPED FOR THE LEAD END OF THE PIPE SHALL BE KEPT AT A MINIMUM DIAMETER FOR THE PIPE INSTALLATION. THE AUGER HEAD SIZE SHALL BE APPROVED BY THE AUTHORITY PRIOR TO THE START OF WORK. THE LEADING END SHALL BE PULLED THROUGH WITHOUT THE D.I. M.J. RING FLANGE ATTACHED FOR LARGER THAN 6" PIPE INSTALLATIONS. THE D.I. M.J. RING FLANGE FOR SAID LEADING END SHALL BE INSTALLED AFTER THE PIPE INSTALLATION WITH THE USE OF A SPLIT D.I. M.J. FLANGE PER THE DETAIL DRAWING.
6. THE MANUFACTURER AND TYPE OF DRILLERS MUD SELECTED FOR USE SHALL BE APPROVED BY THE AUTHORITY PRIOR TO THE START OF WORK.
7. PIPE BELL RESTRAINTS ARE REQUIRED TO BE INSTALLED ON THE TWO JOINTS (MINIMUM) IMMEDIATELY FOLLOWING THE PE/MJ ADAPTERS ON EACH END OF HDPE PIPE.

PE/MJ TRANSITION ASSEMBLY

TYPICAL ROADWAY DIRECTIONAL BORE FOR POLYETHYLENE (PE) PIPE

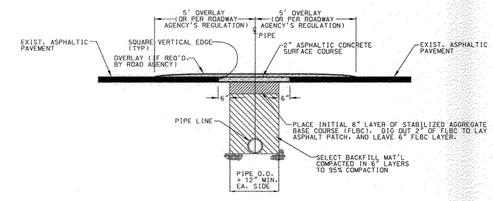
WS4



NOTES:
1) STEEL CASING TO EXTEND MIN. 5' BEYOND EACH EDGE OF PAVEMENT.
2) ALL CONSTRUCTION TO BE INSPECTED AND APPROVED BY LOCAL COUNTY OR STATE ROAD DEPARTMENT.
3) CONTRACTOR TO BE RESPONSIBLE FOR NOTIFICATION AND OBTAINING INSPECTION.
4) SIZE AND WALL THICKNESS OF CASING TO BE APPROVED BY GSWSA AND ROAD DEPARTMENT.
5) PIPE SPACERS TO BE BY SPIDER MANUFACTURING, BOYD'S FABRICATION OR APP'D EQUAL. MINIMUM THREE (3) SPACERS PER PIPE LENGTH.
6) ALL CARRIER PIPING SHALL BE RESTRAINED AT EACH JOINT WITHIN THE CASING PIPE.

TYPICAL ROADWAY BORE & JACK

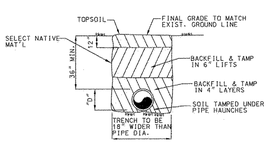
WS5



NOTES:
1) PAVEMENT CUT TO EXTEND 6" BEYOND EDGES OF TRENCH AS SHOWN. PAVEMENT SHALL BE CUT TO TRUE LINE AND REMOVED WITHOUT DAMAGE TO THE PAVEMENT REMAIN. PAVEMENT REPAIRS TO BE IN ACCORDANCE WITH ROAD AGENCY SPECS.
2) ROAD AGENCY MAY REQUIRE A CUT & PATCH OF TRENCH AREA AND AN OVERLAY OF ENTIRE APRON OR ENTRANCE FROM THE EDGE OF THE MAIN ROAD TO THE EDGE OF THE ROAD RIGHT-OF-WAY (SEE ENCROACHMENT PERMIT).
3) WHERE EXISTING PAVEMENT IS INSUFFICIENT THICKNESS TO DEVELOP TIGHT SEAL WITH NEW SURFACE, NEW PAVEMENT SHALL LAP EXISTING SURFACE WITH AT LEAST A 10' OVERLAP ON BOTH SIDES FOR SMOOTH TRANSITION OR AS PER SPEC'S. OF ROAD AGENCY.

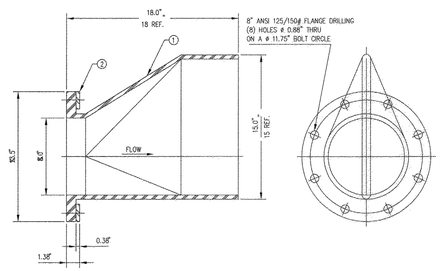
OPEN CUT REPAIR FOR LOW VOLUME ASPHALT PAVEMENT

WS9

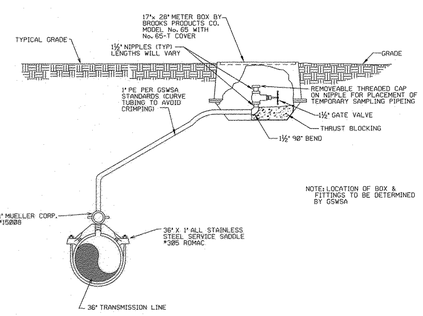


TYPICAL PIPE BEDDING DETAIL

WS11

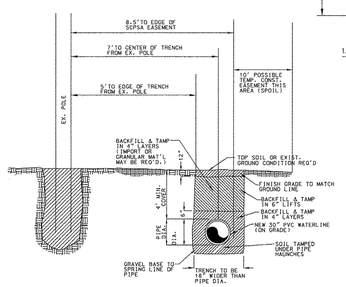


TYPICAL FLANGED CHECK VALVE



TYPICAL WATER SAMPLING ASSEMBLY

W19



INSET C FROM PP #107418 TO PP #97357 AREA OF INSTALLATION

Permit Information:
SCDOT Encroachment Permit #12-139696(296)
County Encroachment Permit #2012.0158
County Drainage Encroachment Permit #0009-2012
SCDHEC Water Construction Permit #26640-WS
Dept. of Army (PCN) Permit #SAC 2008-01928-3NH
OCRM & SCDHEC Permit #SCR10 L432/67532
Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS

REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE

REVIEWED BY: 9/26/14
ENGINEERING DATE

GRAND STRAND WATER AND SEWER AUTHORITY

28-031-013/14-W

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
CHANGED A.R.V. ASSEMBLY DETAIL FROM CURB TO 30" RCP W/ MANHOLE LID. UPDATED REFERENCE TO STANDARD DETAILS.	DRT	10-9-2012
UPDATED REFERENCE NOTES. REMOVED "OFFSET FROM A.R.V." NOTES.	DRT	10-17-2012
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
168 JACKSON BLUFF RD.
P.O. BOX 2398
CONWAY, SC 29928-2398
(843) 443-8200 OR 347-4641
FAX: (843) 347-4642
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

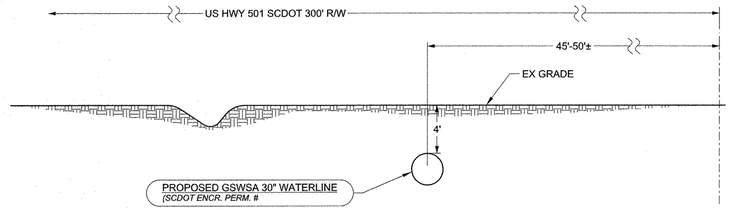
(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.

PROJ. #545-01

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

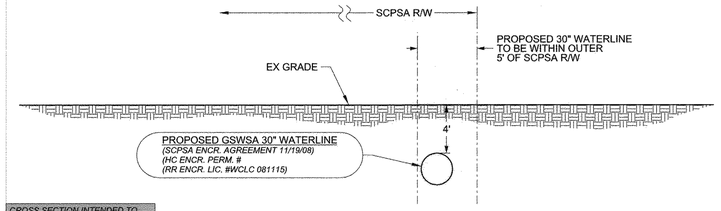
SC DHEC CONSTRUCTION PERMIT #26640-WS	
DATE: ~~November, 2009~~ May 2013 (updated)	
SCALE: as shown	
FILENAME: Wtr Design Layout.dgn	
DESIGNED BY	David Johnson
CHECKED BY	Jason Poston
APPROVED BY	
CHRISTINA S. EVERETT PE #21255	

SHEET 13 OF 14



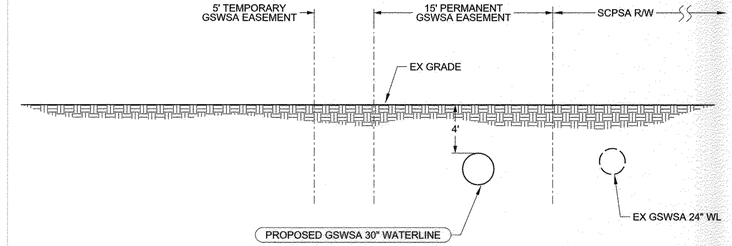
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 0+00 TO 3+85



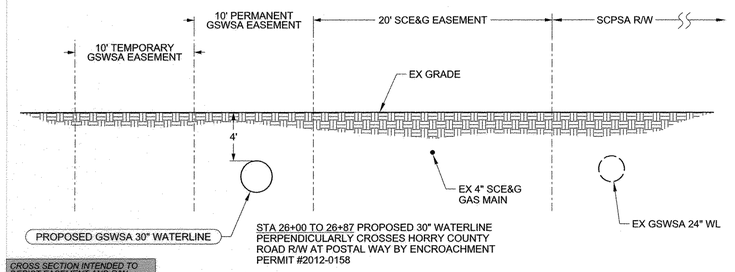
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 31+96 TO 33+56
PERPENDICULARLY CROSSING HORRY COUNTY 60' DRAINAGE EASEMENT
AND CAROLINA SOUTHERN RAILROAD 100' R/W



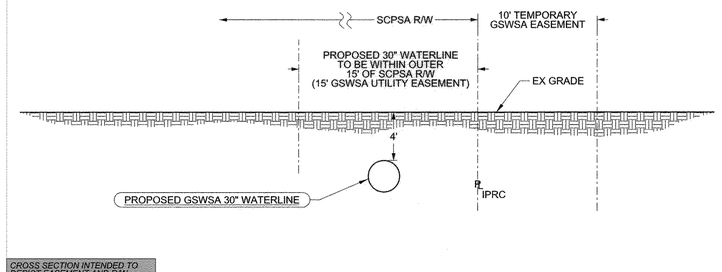
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 63+00 TO 75+60 (AT WATERFORD H.O.A.)



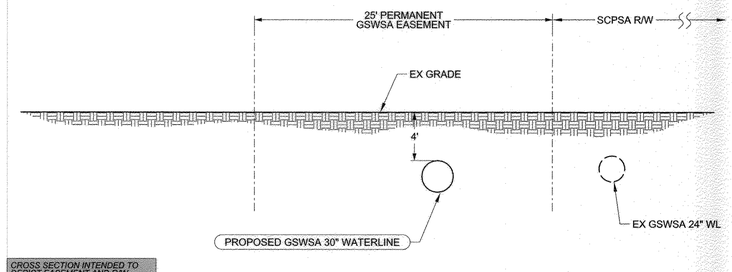
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 3+85 TO 26+87



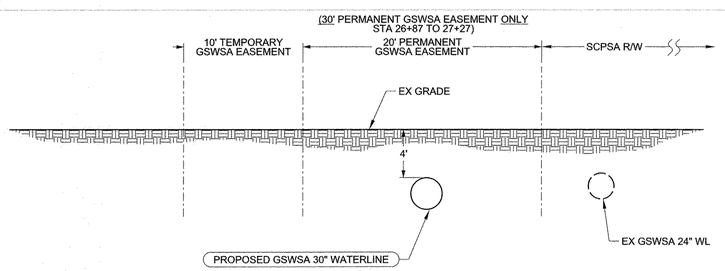
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 33+56 TO 52+17



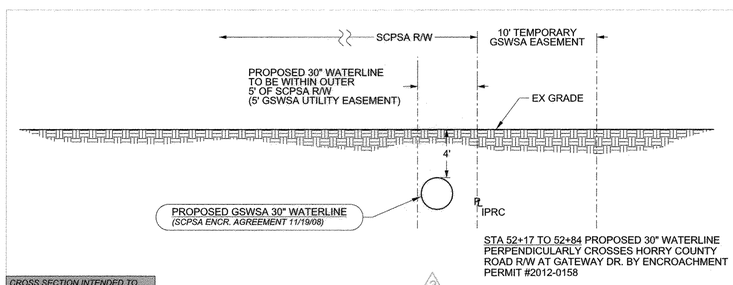
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 75+60 TO 178+98



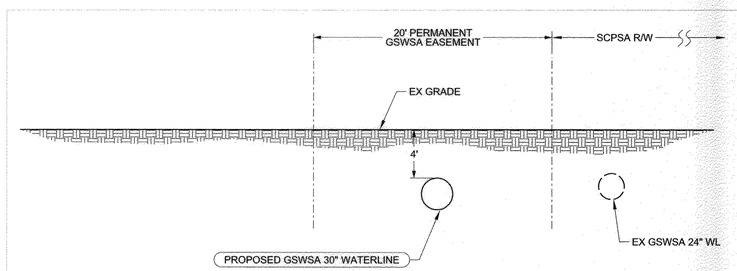
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 26+87 TO 30+27



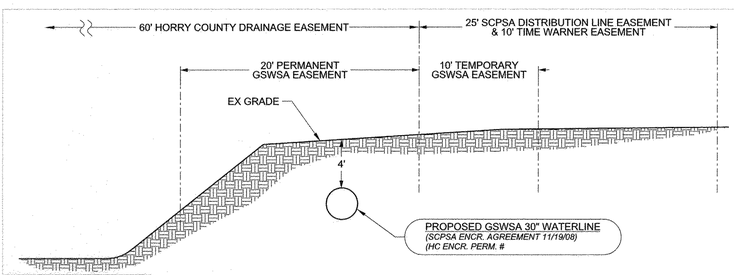
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 52+17 TO 60+71



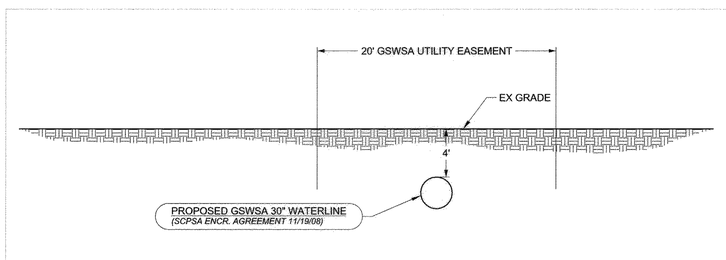
CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 178+98 TO 301+20



CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 30+27 TO 31+96
PERPENDICULARLY CROSSING 160' SCPSA R/W



CROSS SECTION INTENDED TO DEPICT EASEMENT AND R/W CONDITIONS, NOT ACTUAL GRADE OR TERRAIN.

TYPICAL CROSS SECTION STA 60+71 TO 63+00
PERPENDICULARLY CROSSING SCPSA 225' R/W

Permit Information:
SCDOT Encroachment Permit #12-139696(296)
County Encroachment Permit #2012.0158
County Drainage Encroachment Permit #0009-2012
SCDHEC Water Construction Permit #26640-WS
Dept. of Army (PCN) Permit #SAC 2008-01928-3NH
OCRM & SCDHEC Permit #SCR10 L432/67532
Railroad Agreement #WCLC 081115/WCLC 081115A

Water & Bores installed by:
Ralph Hodge Construction Co.

AS-BUILT MEASUREMENTS INDICATED BY
35'

THESE DRAWINGS REFLECT
AS-BUILT
CONDITIONS
REVIEWED BY: RON FREEMAN 9-25-2014
INSPECTIONS DATE
REVIEWED BY: 9/26/14
ENGINEERING DATE
GRAND STRAND WATER AND SEWER AUTHORITY

28-031-014/14-W

TYPICAL CROSS SECTIONS
HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

REVISION	BY	DATE
ADDED SHEET 13A	DRT	10-25-2012
2 REVISED STATIONING AND ADDED A CROSS SECTION FOR 30" WATERLINE PERPENDICULARLY CROSSING HORRY COUNTY UTILITY EASEMENT ON SCPSA R/W FROM STA 31+96 TO 33+56 AND ADDED A CROSS SECTION FOR 5' TO 15' FROM APPROXIMATELY STA 33+56 TO 52+17	DRT	3-14-2014
AS-BUILT	DRT	9-25-2014

GRAND STRAND WATER & SEWER AUTHORITY
166 JACKSON BLUFF RD.
P.O. BOX 2368
CONWAY, S.C. 29528-2368
(843) 443-8200 OR 347-4641
(843) 347-4680 (FAX)
E-MAIL: GSWSA.COM

HWY 501 TO INTERNATIONAL DRIVE 30" WATERLINE PROJECT

(LOCATED PARALLEL TO THE S.C.P.S.A. (PERRY RD. - RED BLUFF) POWERLINE RIGHT - OF - WAY TO INTERNATIONAL DR.
PROJ. #545-01

NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 21255 CHRISTINA S. EVERETT

SC DHEC CONSTRUCTION PERMIT #26640-WS
DATE: ~~November, 2008~~ May 2013 (updated)
SCALE: NTS
FILENAME: Wtr Design Layout.dgn
DESIGNED BY: David Johnson
CHECKED BY: Jason Poston
APPROVED BY
CHRISTINA S. EVERETT PE #21255

SHEET 14 OF 14