

**48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)**  
 FOR THE  
**GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES**  
**GCDWR PROJECT NUMBER M0735-78**  
**PPI PROJECT NUMBER E16151**  
 Land Lots 137, 138, 141, and 142 - 7th Land District  
 CDP 2017-00095

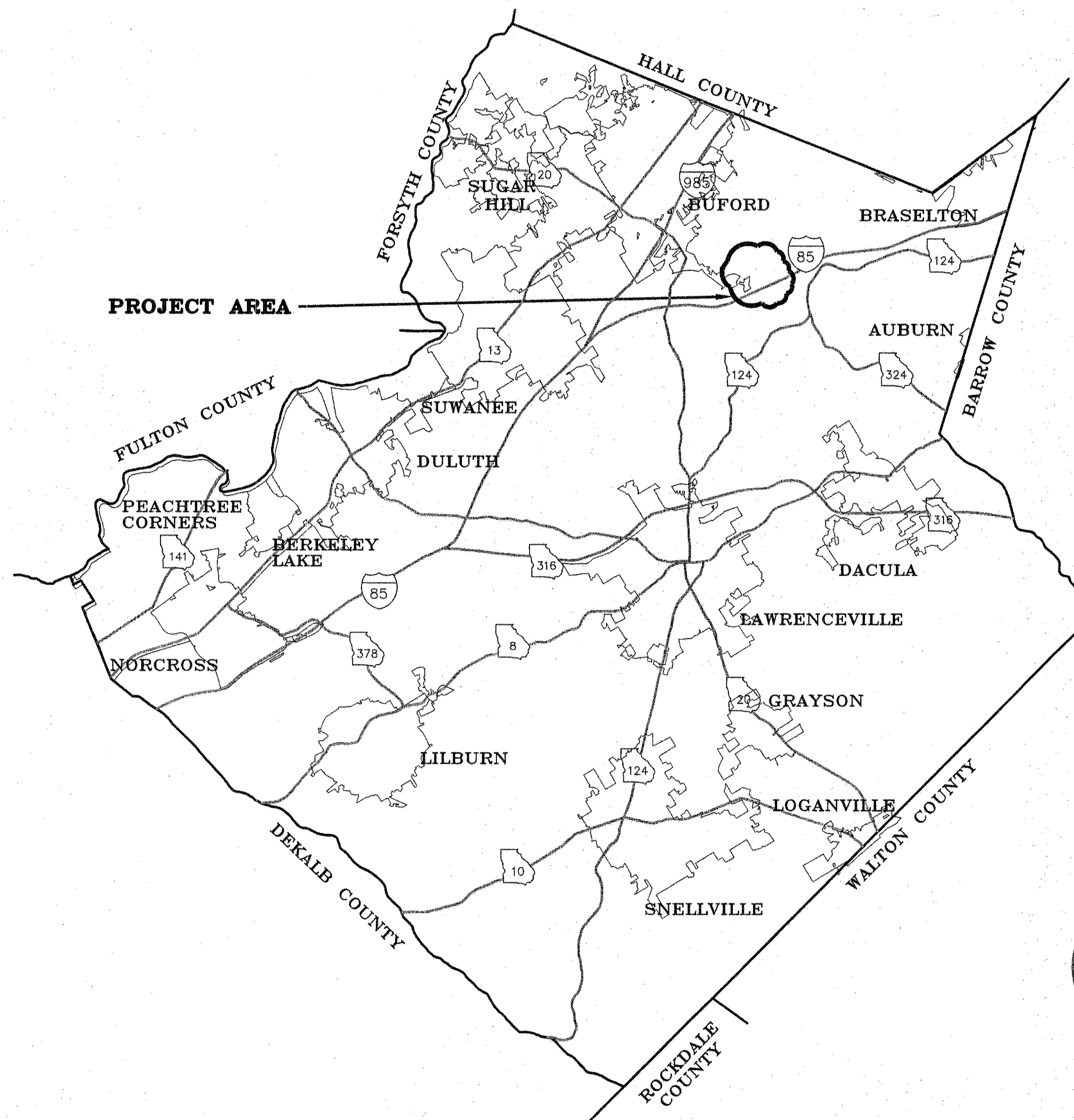


**GWINNETT COUNTY  
 BOARD OF COMMISSIONERS**

CHARLOTTE NASH	CHAIRMAN
JACE BROOKS	DISTRICT 1
LYNETTE HOWARD	DISTRICT 2
TOMMY HUNTER	DISTRICT 3
JOHN HEARD	DISTRICT 4

**GWINNETT COUNTY  
 WATER & SEWERAGE AUTHORITY**

STEPHEN HILL	CHAIRMAN
LARRY GENN	DISTRICT 1
MICHAEL SULLIVAN	DISTRICT 2
WAYNE HILL	DISTRICT 3
CHIP RANDALL	DISTRICT 4



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**CERTIFICATE OF DEVELOPMENT PLANS APPROVAL**

ALL REQUIREMENTS OF THE GWINNETT COUNTY UDO REGULATIONS RELATIVE TO THE PREPARATION AND SUBMISSION OF A DEVELOPMENT PERMIT APPLICATION HAVING BEEN FULFILLED, AND SAID APPLICATION AND ALL SUPPORTING PLANS AND DATA HAVING BEEN REVIEWED AND APPROVED BY ALL AFFECTED COUNTY DEPARTMENTS AS REQUIRED UNDER THEIR RESPECTIVE AND APPLICABLE REGULATIONS, APPROVAL IS HEREBY GRANTED OF THIS SITE PLAN AND ALL OTHER DEVELOPMENT PLANS ASSOCIATED WITH THIS PROJECT. SUBJECT TO ALL FURTHER PROVISIONS OF SAID DEVELOPMENT AND OTHER COUNTY REGULATIONS.

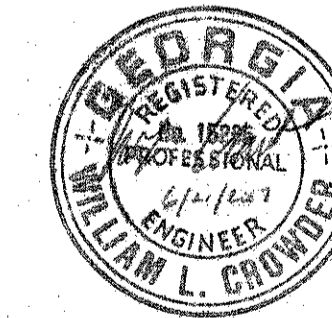
DIRECTOR, DEPT. PLANNING & DEVELOPMENT \_\_\_\_\_ DATE \_\_\_\_\_

THIS CERTIFICATE EXPIRES TWELVE MONTHS FROM THE DATE OF APPROVAL UNLESS A DEVELOPMENT PERMIT IS ISSUED.

NO.	REVISION DESCRIPTION	DATE
0	ISSUED FOR BID	6/15/17

**GWINNETT COUNTY**  
 PROJECT LOCATION  
 N.T.S.

**24-HOUR CONTACT**  
**GCDWR**  
**684 WINDER HWY**  
**LAWRENCEVILLE, GA 30045**  
**(678) 376-7000**



Know what's below.  
 Call before you dig.

TOTAL SITE AREA	3.0± AC
TOTAL DISTURBED AREA	3.0± AC
TOTAL PIPE LENGTH	2,320 LF
COMMISSION DISTRICT	4



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 770.338.8000 • www.ppi.us

**NOTIFICATION REQUIREMENTS/CONTACTS**

- 24-HOUR EMERGENCY CONTACT: GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES (GCDWR)
  - OFFICE HOURS (9-5, M-F): (770) 376-7000
  - AFTER HOURS: (770) 376-7000
- OWNER: GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES
  - 684 WINDER HIGHWAY
  - LAWRENCEVILLE, GA 30045
  - CONTACT: MICHAEL EFFEYNI
  - PHONE: 678-376-6928
- ENGINEER: PRECISION PLANNING
  - 400 PIKE BLVD
  - LAWRENCEVILLE, GA 30046
  - CONTACT: BILL CROWDER, P.E.
  - PHONE: 770-338-8188

NOTIFY GCDWR INSPECTIONS OF THE FOLLOWING AT THE INDICATED TIME INTERVAL. INSPECTION POINT OF CONTACT WILL BE PROVIDED AT PRE-CONSTRUCTION MEETING.

- 24 HOURS BEFORE THE BEGINNING OF EACH PHASE OF CONSTRUCTION.
- 24 HOURS BEFORE EACH BLAST ROUND.
- NOTE THAT BLASTING REQUIRES APPROVAL OF A BLASTING PLAN 30 WORKING DAYS PRIOR AND ENGINEER APPROVAL OF A DETAILED BLAST ROUND DESIGN PLAN 24 HOURS PRIOR. ALSO REQUIRES 7 DAYS ADVANCE NOTICE TO ADJACENT PROPERTY OWNERS FOLLOWED BY ANOTHER NOTICE 24 HOURS IN ADVANCE.
- 72 HOURS IN ADVANCE, A REQUEST MUST BE PLACED TO THE INSPECTOR FOR APPROVAL TO REMOVE OR DISTURB SIGNS, MAILBOXES, FENCING, LANDSCAPING, ETC. APPROVAL OF REQUEST IS REQUIRED BEFORE PERFORMING RELATED WORK.
- 7 DAYS IN ADVANCE, COORDINATE PLANNED SHUT OFF OF SERVICES AND/OR WET CUT-INS WITH THE INSPECTOR. REQUIRES A FOLLOW UP NOTIFICATION TO INSPECTOR AND AFFECTED CUSTOMERS A MINIMUM OF 24 HOURS PRIOR TO LOSS OF SERVICE. GCDWR INSPECTOR MUST BE PRESENT AT WET CUT-INS AND ANY OTHER ACTIVITY THAT REQUIRES THE SERVICES TO BE SHUT OFF.

4. THE CONTRACTOR SHALL VERIFY LOCATIONS OF EXISTING UTILITIES AND CONTACT THE GEORGIA UTILITY PROTECTION CENTER FOR FIELD MARKING OF UTILITIES 72 HOURS PRIOR TO BEGINNING CONSTRUCTION.

- UTILITY PROTECTION CENTER PHONE NUMBER: 811

5. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES 24 HOURS PRIOR TO CONSTRUCTION IN AREAS WHERE THE UTILITIES ARE SHOWN OR SUSPECTED TO BE. THE LIST IS BASED ON BEST INFORMATION AVAILABLE, BUT IS NOT GUARANTEED TO BE COMPLETE.

- CITY OF BUFORD GAS (770) 932-7981
- AT&T (770) 784-3972
- CHARTER COMMUNICATIONS (404) 597-2712
- COMCAST (770) 559-8879
- GEORGIA POWER COMPANY (404) 506-4569
- CITY OF BUFORD (770) 945-6781
- JACKSON EMC (708) 367-6188

6. GWINNETT COUNTY DEPARTMENT OF TRANSPORTATION (GCDOT) APPROVAL IS REQUIRED PRIOR TO ANY OPEN CUTS OR LANE CLOSURES.

- MARK STONECYPHER: (770) 822-7413

7. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION WHENEVER ANY STREET IS TO BE PARTIALLY BLOCKED.

- GWINNETT COUNTY POLICE DEPARTMENT (770) 513-5000
- GWINNETT COUNTY FIRE DEPARTMENT (678) 518-4800
- GWINNETT COUNTY BOARD OF EDUCATION (770) 338-4800

8. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING GOVERNMENT AGENCIES AND UTILITIES AT LEAST 48 HOURS BEFORE ENCOACHING ON THEIR RIGHT-OF-WAY.

- GEORGIA DEPARTMENT OF TRANSPORTATION (GDOT): (770) 674-8921

9. CONTRACTOR IS TO NOTIFY AFFECTED CUSTOMERS 24 HOURS IN ADVANCE OF BLOCKING ACCESS TO PROPERTY OR TRAFFIC ROADWAYS. FULL ACCESS TO PROPERTY MUST BE RESTORED BY THE END OF THE WORK DAY.

**PROJECT SPECIFIC NOTES**

- PROPERTY LINES AND BACKGROUND TOPOGRAPHIC FEATURES SHOWN ON THE PLANS ARE BASED ON TOPOGRAPHIC SURVEY & GWINNETT GIS.
- THE SURVEY FOR THIS PROJECT WAS PREPARED BY PRECISION PLANNING, INC USING NAD83 GEORGIA STATE PLANE WEST ZONE.
- THERE IS NO FLOODPLAIN PER FEMA FIRM 13135C0036F, DATED SEPTEMBER 29, 2009
- NO HYDROLOGY STUDY IS PROVIDED WITH THIS WATER MAIN PROJECT. ALL GRADES SHALL BE RETURNED TO PRE-CONSTRUCTION GRADES.
- THE DESIGN PROFESSIONAL, WHOSE SEAL APPEARS HEREON, CERTIFIES THE FOLLOWING:
  - THE NATIONAL WETLAND INVENTORY MAPS HAVE BEEN CONSULTED; AND,
  - THE APPROPRIATE PLAN SHEET (I) DOES / (X) DOES NOT INDICATE AREAS OF UNITED STATES ARMY CORPS OF ENGINEERS JURISDICTIONAL WETLANDS AS SHOWN ON THE MAPS; AND,
  - IF WETLANDS ARE INDICATED, THE LAND OWNER OR DEVELOPER HAS BEEN ADVISED THAT LAND DISTURBANCE OF PROTECTED WETLANDS SHALL NOT OCCUR UNLESS THE APPROPRIATE FEDERAL WETLANDS ALTERATION ("SECTION 404") PERMIT HAS BEEN OBTAINED
- THERE ARE 0 ACRES OF WETLANDS DISTURBANCE ON THIS PROJECT.
- STREAM BUFFERS ARE ENCOACHED UPON IN THIS PROJECT PER THE EROSION AND SEDIMENT ACT 12 - 7 - 8 (B) 16 (C).
- NO CLEARING IS ALLOWED WITHIN THE 25' STATE STREAM BUFFER WITHOUT ACQUISITION OF A BUFFER VARIANCE PERMIT FROM THE GEORGIA EPD.
- THE 25-FOOT NATURAL, UNDISTURBED STREAM BUFFER, UNDER ARTICLE V, SECTION 15, OF THE SOIL AND EROSION AND SEDIMENT CONTROL ORDINANCE SHALL REMAIN IN FORCE.

**GENERAL NOTES**

- ALL CONSTRUCTION TO COMPLY WITH GWINNETT COUNTY STANDARDS.
- ALL CONSTRUCTION SHALL COMPLY WITH THE CONTRACT PLANS, CONTRACT SPECIFICATIONS, PERMIT REQUIREMENTS, AND ALL APPLICABLE STATE, FEDERAL, AND LOCAL CODES. NO ADDITIONAL PAYMENT WILL BE GIVEN FOR ANY COST INCURRED TO COMPLY WITH REQUIREMENTS SET BY THE AFOREMENTIONED ITEMS.
- I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATIONS DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT, UNDER MY DIRECT SUPERVISION.
 

NAME: WILLIAM L. CROWDER, P.E. SIGNATURE: *William L. Crowder*
- APPROVAL OF THESE PLANS DOES NOT CONSTITUTE APPROVAL BY GWINNETT COUNTY OF ANY LAND DISTURBING ACTIVITIES WITHIN WETLAND AREAS. CONTACT THE APPROPRIATE REGULATORY AGENCY FOR APPROVAL OF ANY WETLAND AREA DISTURBANCE.
- THE CONTRACTOR SHALL IMMEDIATELY INFORM THE OWNER OF ANY DISCREPANCIES OR ERRORS DISCOVERED IN THE CONTRACT DOCUMENTS. ANY DEVIATION FROM THE PLANS WITHOUT PRIOR CONSENT OF OWNER MAY BE CAUSE FOR THE WORK TO BE UNACCEPTABLE.
- ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT THE CONTRACTOR'S OWN EXPENSE, EXCEPT THE FOLLOWING THAT WILL BE OBTAINED BY GCDWR:
  - GWINNETT COUNTY COMMERCIAL DEVELOPMENT PERMIT
- A PRE-CONSTRUCTION MEETING MUST BE HELD WITH GCDWR, ENGINEER, CONTRACTOR, AND GCDOT (IF APPLICABLE) PRIOR TO COMMENCING WORK.

**GENERAL NOTES, CONTINUED**

- ALL CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO PUBLIC RIGHT-OF-WAYS AND ACQUIRED EASEMENTS. WORK IS TO BE PERFORMED IN CONFORMITY WITH ALL APPLICABLE PERMITS, AGREEMENTS, AND EASEMENT STIPULATIONS. CONTRACTOR SHALL NOT ENTER OR OCCUPY ANY EASEMENT WITHOUT FIRST CONFIRMING WITH GCDWR THAT SUCH EASEMENT IS FULLY EXECUTED. CONTRACTOR SHALL NOT ENTER OR OCCUPY ANY LAND OUTSIDE OF THE EASEMENTS AND RIGHT-OF-WAY, SHOULD THE CONTRACTOR DESIRE OR REQUIRE ADDITIONAL SPACE, THE CONTRACTOR SHALL ARRANGE FOR SUCH A SPACE WITH THE EASEMENT OWNER AT CONTRACTOR'S EXPENSE.
- LAND DISTURBANCE SHALL BE LIMITED TO THOSE AREAS INDICATED ON THE PLANS FOR ACCESS, STAGING, AND UTILITY CONSTRUCTION.
- ALL BUFFERS AND TREE SAVE AREAS ARE TO BE CLEARLY IDENTIFIED WITH TREE PROTECTIVE FENCING PRIOR TO COMMENCEMENT OF ANY LAND DISTURBANCE.
- INSTALLATION OF EROSION CONTROL MEASURES AND PRACTICES SHALL TAKE PLACE PRIOR TO AND CONCURRENT WITH LAND DISTURBING ACTIVITIES. ALL EROSION AND CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES AND SHALL BE INSPECTED REGULARLY USING THE EROSION AND SEDIMENT CONTROL CHECKLIST. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY THE OWNER.
- DRAINAGE SYSTEMS SHALL BE MAINTAINED, KEPT FREE OF DEBRIS, AND IN OPERATING CONDITION AT ALL TIMES DURING CONSTRUCTION OF THIS PROJECT. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED OR REGRADED AS REQUIRED BY THE ENGINEER. EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS IN THE PLANS AND HAVING SPECIFIC PAY ITEMS IN THE DETAILED ESTIMATE, NO SEPARATE PAYMENT WILL BE MADE FOR ANY COSTS INCURRED TO COMPLY WITH THIS REQUIREMENT.
- MONUMENTS OR LANDMARKS SHALL NOT BE DISTURBED OR REMOVED BY THE CONTRACTOR WITHOUT WRITTEN CONSENT OF THE OWNER. ANY MONUMENT OR LANDMARK REMOVED OR DAMAGED SHALL BE REPLACED BY THE OWNER AT THE EXPENSE OF THE CONTRACTOR.
- ALL SIGNS, MAILBOXES, FENCING, LANDSCAPING, ETC. SHALL BE PROTECTED DURING CONSTRUCTION. SHOULD IT BE REQUIRED TO REMOVE OR DISTURB SUCH ITEMS, THE CONTRACTOR SHALL SEEK APPROVAL FROM THE OWNER FIRST AND IF APPROVED, THE REMOVAL OR DISTURBANCE OF SUCH ITEMS SHALL BE DONE AT NO ADDITIONAL COST TO OWNER. SHOULD THE OWNER DEEM ANY ITEMS AS DAMAGED, THE CONTRACTOR SHALL REPLACE THE ITEM IN LIKE AND KIND AT NO ADDITIONAL EXPENSE TO GWINNETT COUNTY. TRANSPALNT AND/OR REPLACED ITEMS SHALL BE GUARANTEED BY THE CONTRACTOR FOR ONE YEAR AFTER WORK IS COMPLETED. TRAFFIC CONTROL SIGNS AND MAIL BOXES SHALL BE REPLACED THE DAY OF THEIR REMOVAL. ALL TRAFFIC CONTROL SIGNS THAT ARE REMOVED OR DAMAGED MUST BE REINSTALLED OR REPLACED. ALL SIGNS MUST BE REINSTALLED TO THE STANDARDS IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
- NO TRENCH SHALL BE OPENED MORE THAN 160 FEET AHEAD OF PIPE LAYING AND NO MORE THAN 500 FEET OF TRENCH MAY BE OPEN AT ANY ONE TIME. CLEANUP AND GRASSING SHALL FOLLOW A MAXIMUM OF 500 FEET BEHIND PIPE INSTALLATION. AT THE END OF EACH WORKDAY, NO TRENCH IS TO BE LEFT OPEN WITHOUT THE APPROVAL OF THE GCDWR INSPECTOR. ALL ACCESS AND OPERABILITY SHALL BE FULLY RESTORED.
- CONTRACTOR SHALL FURNISH SUITABLE BORROW MATERIAL FOR THE PROJECT THAT SHALL BE APPROVED BY GCDWR MATERIALS TESTING FIRM PRIOR TO USE. ALL SPOIL MATERIALS, REFUSE, AND DEBRIS SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND LEGALLY DISPOSED OF AT AN APPROPRIATE OFFSITE LOCATION. BURNING OF REFUSE, DEBRIS, OR SPOIL MATERIAL AT THE PROJECT SITE IS NOT ALLOWED.
- FILL AREAS UNDER PAVED AREAS SHALL BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR AND FILL AREAS UNDER NON-PAVED AREAS SHALL BE COMPACTED TO A MINIMUM 85% STANDARD PROCTOR, UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS, OR DIRECTED BY THE ENGINEER.
- OWNER'S MATERIAL TESTING FIRM TO PERFORM TESTING OF CONTRACTOR'S WORK WHERE DIRECTED BY GCDWR. CONTRACTOR IS TO ALLOW FULL ACCESS AS NEEDED BY THE MATERIALS TESTING FIRM. ANY FAILED TEST SHALL REQUIRE THE CONTRACTOR TO REDO THE WORK UNTIL THE TEST IS PASSED. ADDITIONAL TESTING DUE TO A FAILED TEST SHALL BE PERFORMED BY CONTRACTOR'S OWN MATERIALS TESTING FIRM AND AT THE EXPENSE OF THE CONTRACTOR.
- ALL PROJECT SITE AREAS DISTURBED BY CONTRACTOR OPERATIONS SHALL BE STABILIZED WITH PERMANENT GRASSING UNLESS OTHERWISE NOTED. PERMANENT GRASSING SHALL BE 500 UNLESS OTHERWISE SPECIFICALLY NOTED IN THE CONTRACT DOCUMENTS OR APPROVED BY THE OWNER. ANY AREAS OUTSIDE THE PROJECT SITE AREA THAT ARE DISTURBED SHALL BE RESTORED AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL RESTORE ALL DISTURBED GRAVEL, PAVED, OR CONCRETE ENTRANCES, DRIVEWAYS, AND APPROX TO PRE-CONSTRUCTION CONDITIONS AND IN ACCORDANCE WITH APPLICABLE GDOT AND GCDOT STANDARDS AND SPECIFICATIONS. DRIVEWAYS TO BE REPLACED 10 FEET BACK FROM THE CURB OR TO THE CLOSEST EXPANSION JOINT, UNLESS OTHERWISE DIRECTED BY THE OWNER.
- A PAVING PLAN MUST BE SUBMITTED TO AND APPROVED BY THE ENGINEER BEFORE EXECUTING ASPHALTIC CONCRETE CONSTRUCTION. MILLING IS REQUIRED PRIOR TO ASPHALT RESURFACING, AND IS TO BE DONE IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. SURFACE OVERLAY IS TO OCCUR IN ONE OPERATION.
- VEHICULAR AND PEDESTRIAN TRAFFIC ACCESS TO PUBLIC ROADWAYS, DRIVEWAYS, FIRE HYDRANTS, VALVES, ETC. SHALL BE MAINTAINED AT ALL TIMES FOR RESIDENTS, PROPERTY OWNERS, PEDESTRIANS, THE TRAVELING PUBLIC, TRASH PICKUP, MAIL AND PARCEL DELIVERY SERVICES, SCHOOL BUSES, AND EMERGENCY VEHICLES.
- STREET INTERSECTIONS MAY NOT BE BLOCKED EXCEPT FOR 1/2 THE ROADWAY AT ANY GIVEN TIME. IF IT BECOMES NECESSARY TO CLOSE A PORTION OF THE ROAD, THE CONTRACTOR SHALL PROVIDE A TRAFFIC ROUTING (DETOUR) PLAN AND SHALL HAVE IT APPROVED BY GCDOT PRIOR TO CLOSING THE ROAD.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY FLAGMEN, SIGNAGE, BARRICADES, LIGHTS, AND OTHER TRAFFIC CONTROL DEVICES NECESSARY TO CONTROL THE TRAFFIC AND PROTECT THE PUBLIC. ALL TRAFFIC CONTROL MUST BE IN ACCORDANCE WITH THE LATEST EDITION OF "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS & HIGHWAYS", GCDOT STANDARDS, AND GDOT STANDARDS. TRAFFIC CONTROL TO BE FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATIONS.
- CONTRACTOR SHALL PROVIDE PARKING WITHIN THE CONSTRUCTION LIMITS DETAILED AND SHALL PARK VEHICLES AND EQUIPMENT SO THAT THERE IS NO DISRUPTION TO TRAFFIC. NO PARKING ON PRIVATE PROPERTY WILL BE PERMITTED.
- THE SIZE, TYPE, MATERIALS, AND LOCATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION. SUBSURFACE UTILITY DATA SHOWN IS APPROXIMATE ONLY AND NO GUARANTEE IS MADE THAT ALL UTILITIES AND OTHER FEATURES ARE REPRESENTED ON THE PLANS ARE CORRECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATION AND SIZE OF ALL EXISTING UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
- IF THE CONTRACTOR ENCOUNTERS SUBSURFACE CONDITIONS DIFFERENT FROM THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE OWNER AND ENGINEER. NO EXISTING UTILITY SHALL BE DISTURBED WITHOUT PROPER AUTHORITY AND THEN ONLY IN SUCH A MANNER AS PRESCRIBED AND APPROVED BY THE OWNER OF THE EXISTING UTILITY.
- SHOULD IT BECOME NECESSARY TO DISTURB AN EXISTING UTILITY, THE CONTRACTOR IS TO NOTIFY THE OWNER AND THE OWNER OF THE UTILITY. WHEN NECESSARY, CONTRACTOR IS TO CEASE WORK UNTIL SATISFACTORY ARRANGEMENTS HAVE BEEN MADE WITH THE UTILITY OWNER TO PROPERLY CARE FOR AND RELOCATE THE UTILITY. NO CLAIMS FOR DAMAGES SHALL BE ALLOWED THE CONTRACTOR ON ACCOUNT OF ANY DELAY OCCASIONED THEREBY.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES FROM DAMAGE. ANY DAMAGE TO EXISTING UTILITIES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. EITHER THE CONTRACTOR OR UTILITY OWNER WILL PERFORM THE REPAIR AT THE DISCRETION OF THE UTILITY OWNER. NO CLAIMS FOR DAMAGES SHALL BE ALLOWED THE CONTRACTOR ON ACCOUNT OF ANY DELAY OCCASIONED THEREBY.
- THE CONTRACTOR SHALL PROVIDE ALL PIPE FITTINGS AND APPURTENANCES REQUIRED FOR THE COMPLETE INSTALLATION OF THE PROPOSED PIPELINE, WHETHER OR NOT SUCH ITEMS ARE SHOWN OR CALLED OUT ON THE PLANS. THE CONTRACTOR IS ADVISED THAT FIELD ADJUSTMENTS MAY BE REQUIRED BASED ON ACTUAL SUBSURFACE CONDITIONS AND LOCATIONS OF EXISTING BURIED UTILITIES ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOT RECEIVE ANY ADDITIONAL PAYMENT OR TIME EXTENSION FOR ITEMS NOT BEING SHOWN IN PLANS OR FOR FIELD ADJUSTMENTS MADE DUE TO ACTUAL SUBSURFACE CONDITIONS AND UTILITY LOCATION.
- REPLACE THE WORD "SEWER" WITH "WATER" FOR THE FOR THE COVER SHOWN ON THE TRAFFIC FRAME AND COVER DETAIL S3 (SEE SHEET 8).

**GENERAL NOTES, CONTINUED**

- PIPELINE ROUTE STATIONING IS BASED ON PROPOSED PIPE CENTERLINE. PAYMENT FOR PIPELINE WILL BE BASED ON ACTUAL LENGTH OF PIPELINE INSTALLED, IN ACCORDANCE WITH THE SPECIFICATIONS.
- A MINIMUM OF 10 FEET HORIZONTAL AND 1.5 FOOT VERTICAL SEPARATION SHALL BE MAINTAINED BETWEEN WATER MAINS AND SEWER MAINS. WHEN CROSSING PIPES, PIPE JOINTS ARE TO BE PLACED AS FAR AWAY FROM EACH OTHER AS POSSIBLE. WHENEVER PRACTICAL, WATER MAINS SHALL CROSS ABOVE SEWER MAINS.
- AT COMPLETION OF CONSTRUCTION, ALL VALVE BOXES, METERS, AND APPURTENANCES SHALL BE SET FOR PROPER FINISH GRADE. PRECAST STRUCTURES, MANHOLE FRAMES AND COVERS ARE TO BE SET FLUSH WITH FINISHED GRADE UNLESS OTHERWISE INDICATED IN THE PLANS OR SPECIFICATIONS.
- ANY MATERIAL SALVAGED ON SITE BEARING THE NAME "GWINNETT" SHALL BE RETURNED TO GCDWR BEFORE FINAL PAYMENT WILL BE MADE.

**WATER NOTES**

- WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE GCDWR WATER MAIN AND SANITARY SEWER DESIGN AND CONSTRUCTION STANDARDS, DATED APRIL 6, 2016.
- THE CONTRACTOR MUST USE POLYETHYLENE ENCASEMENT IN SOILS WITHIN 10 FEET OF AN EXISTING GAS MAIN WITH CATHODIC PROTECTION.
- NEW WATER SERVICE LINES SHALL BE INSTALLED AND EXISTING WATER SERVICE LINES SHALL BE RECONNECTED, RELOCATED, OR REPLACED AT THE SAME TIME AS THE NEW WATER MAIN IS INSTALLED. WORK SHALL BE SEQUENCED IN SUCH A MANNER THAT INTERRUPTED WATER SERVICES SHALL BE RESTORED BEFORE THE WORK DAY IS COMPLETE.
- PROPOSED WATER MAINS SHALL BE INSTALLED AT A MINIMUM COVER OF 5 FEET UNLESS OTHERWISE SHOWN ON THE PLANS OR APPROVED BY THE ENGINEER.
- EXISTING FIRE HYDRANT AND METERS, OR ANYTHING BEARING THE NAME OF GWINNETT COUNTY, THAT ARE REMOVED AS PART OF THIS PROJECT SHALL BE TURNED OVER TO THE OWNER AND DELIVERED BY THE CONTRACTOR TO A LOCATION AS DIRECTED BY THE OWNER.
- 48" WATER MAIN SHALL BE MINIMUM PRESSURE CLASS 250. FITTINGS SHALL BE RESTRAINED WITH MEGALUGS PLUS THRUST BLOCKING. ALL WATER MAINS SHALL BE INSTALLED IN ACCORDANCE WITH THE GCDWR WATER MAIN DESIGN AND CONSTRUCTION MANUAL.
- EXISTING AIR VALVES / MANHOLE AND DRAIN MANHOLE TO BE REMOVED SHALL HAVE REMAINING VOID(S) FILLED WITH WELL COMPACTED EARTH, FREE OF DEBRIS OR ROCKS LARGER THAN 4" IN SIZE.
- THE CONTRACTOR SHALL VERIFY THAT ALL FIRE HYDRANT ISOLATION VALVES ARE OPEN AT THE COMPLETION OF CONSTRUCTION.
- BUTTERFLY VALVES SHALL BE PRESSURE CLASS 250B.
- PIPE BEDDING SHALL BE TYPE 3 UNLESS OTHERWISE NOTED ON 48" WATER MAIN PROFILE. BEDDING TYPES SHOWN ARE BASED ON DESIGN DEPTHS. SHOULD DEPTH OF PIPE VARY FROM DESIGN, CONTRACTOR SHALL PROVIDE TYPE 4 BEDDING FOR COVER GREATER THAN 10' BUT LESS THAN 14' AND TYPE 5 BEDDING FOR COVER GREATER THAN 14'.
- THE CONTRACTOR SHALL PROVIDE ALL PIPE FITTINGS AND APPURTENANCES REQUIRED FOR THE COMPLETE INSTALLATION OF THE PROPOSED PIPELINE, WHETHER OR NOT SUCH ITEMS ARE SHOWN OR CALLED OUT ON THE PLANS. THE CONTRACTOR IS ADVISED THAT FIELD ADJUSTMENTS MAY BE REQUIRED BASED ON ACTUAL SUBSURFACE CONDITIONS AND LOCATIONS OF EXISTING BURIED UTILITIES ENCOUNTERED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOT RECEIVE ANY ADDITIONAL PAYMENT OR TIME EXTENSION FOR ITEMS NOT BEING SHOWN IN PLANS OR FOR FIELD ADJUSTMENTS MADE DUE TO ACTUAL SUBSURFACE CONDITIONS AND UTILITY LOCATION.

**CONSTRUCTION SEQUENCING AND CONNECTION NOTES:**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ASPECTS OF CONSTRUCTION SEQUENCING AND PHASING.
- THE CONTRACTOR SHALL PREPARE A DETAILED CONSTRUCTION PLAN AND SUBMIT TO GCDWR FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION.

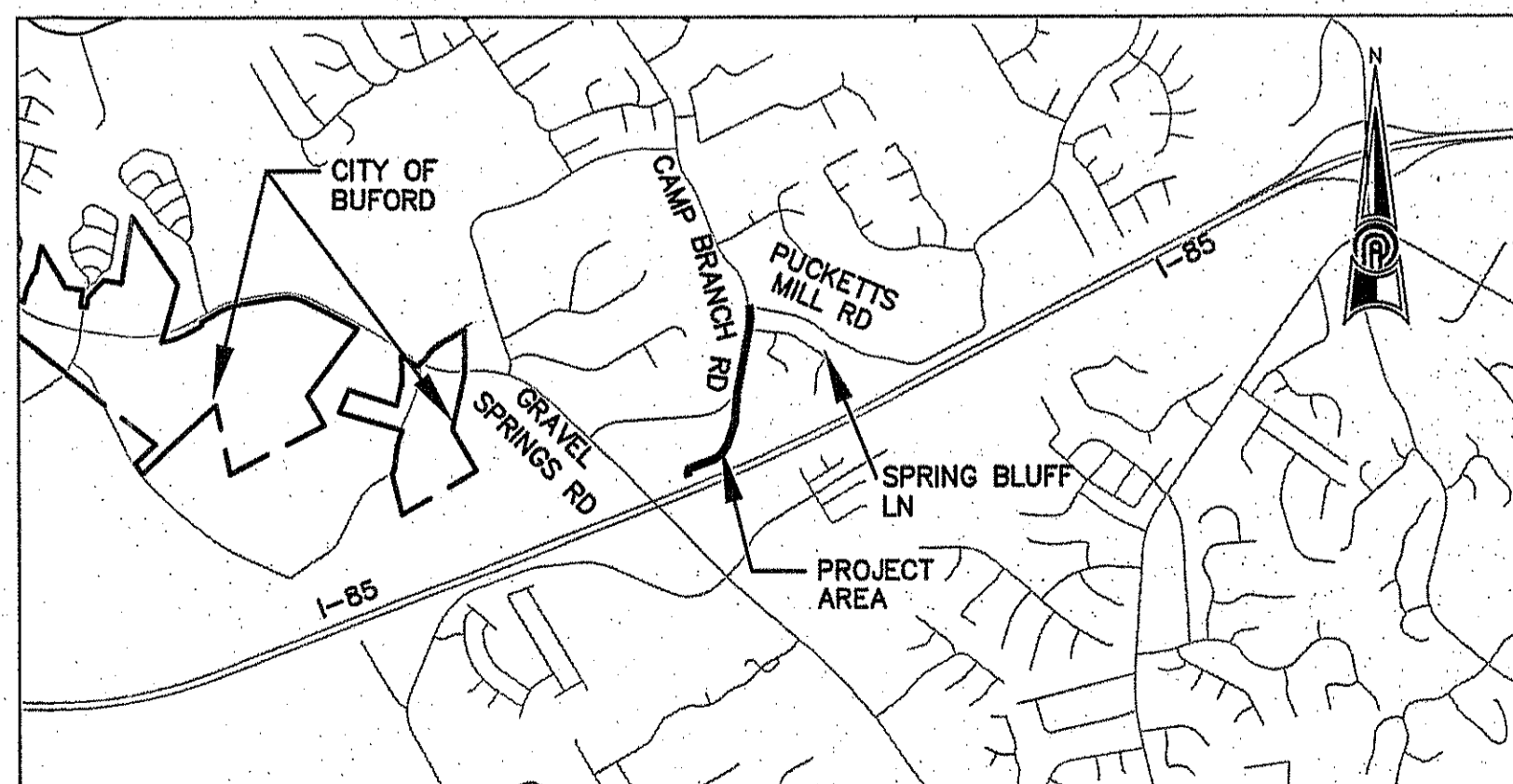
**PAVING NOTES:**

- ROADWAY REPAIR/REPLACEMENT NOTE: WHERE NEW WATER MAIN IS TO BE INSTALLED IN THE STREET, REQUIRING THE PARTIAL REMOVAL OF PAVEMENT THE REMAINDER OF THE ROADWAY WIDTH SHALL BE MILLED TO A DEPTH OF 1-1/2 IN. AND RESURFACED WITH ASPHALTIC CONCRETE 9.5MM SUPERPAVE, GP2. ALL COSTS ASSOCIATED WITH PAVEMENT MILLING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ASPHALT PAVING RESURFACING.
- CAMP BRANCH ROAD AND PUCKETT'S MILL ROAD ARE CLASSIFIED AS "LOCAL/COLLECTOR" STREETS.

**ABBREVIATIONS:**

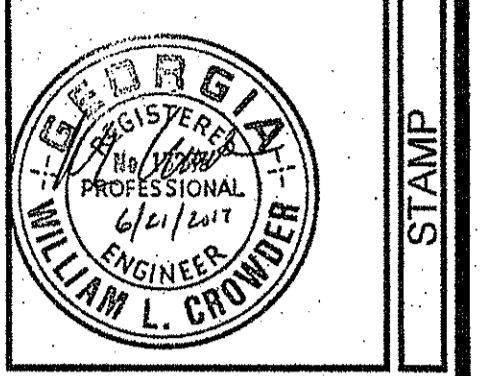
CMP	=	CORRUGATED METAL PIPE
DB	=	DEED BOOK
DI	=	DROP INLET
DIP	=	DUCTILE IRON PIPE
EX	=	EXISTING
FH	=	FIRE HYDRANT
MH	=	MANHOLE
NL	=	NAIL
N/F	=	NOW OR FORMERLY
PB	=	PLAT BOOK
PCCP	=	PRESTRESSED CONCRETE CYLINDER PIPE
PE	=	POLYETHYLENE
PG	=	PAGE
PK	=	PK NAIL
R	=	PROPERTY LINE
RBWC	=	REBAR WITH CAP
RCP	=	REINFORCED CONCRETE PIPE
R/W	=	RIGHT-OF-WAY
STA	=	STATION
TYP.	=	TYPICAL

EXISTING	LEGEND	NEW
W W	48" DIA. WATER	W W
W W	WATER LINE	N.A.
SS SS	SANITARY SEWER	N.A.
G G	GAS LINE	N.A.
UP UP	UNDERGROUND POWER LINE	N.A.
UT UT	UNDERGROUND TELEPHONE LINE	N.A.
CTV CTV	CABLE T.V.	N.A.
UCTV UCTV	UNDERGROUND CABLE T.V.	N.A.
	25' STREAM BUFFER	N.A.
	STORM DRAIN	N.A.
	RIGHT-OF-WAY	N.A.
	FUTURE RIGHT-OF-WAY	
	EDGE OF PAVEMENT	N.A.
	PERMANENT EASEMENT	
	TEMPORARY CONSTRUCTION EASEMENT	
	PROPERTY LINE	N.A.
	CREEK CENTERLINE	N.A.
	DITCH CENTERLINE	N.A.
	ROAD CENTERLINE	N.A.
	POWER POLE	N.A.
	GUY WIRE	N.A.
	MANHOLE	N.A.
	WATER VALVE	N.A.
	FIRE HYDRANT	N.A.
	GUARDRAIL	N.A.
	WATER METER	N.A.
	TELEPHONE PEDESTAL	N.A.
	AIR RELEASE VALVE	N.A.
	IRON PIN	N.A.
	SIGN	N.A.
	BUILDING	N.A.
	FENCE	N.A.
	TREE LINE	N.A.
	DRIVEWAY REPAIR	



Know what's Below. Call before you dig. GWINNETT COUNTY DOT IS NOT ON THE ONE-CALL SYSTEM. CALL (770) 822-7474 WHEN LOCATING UTILITIES FOR CONSTRUCTION.

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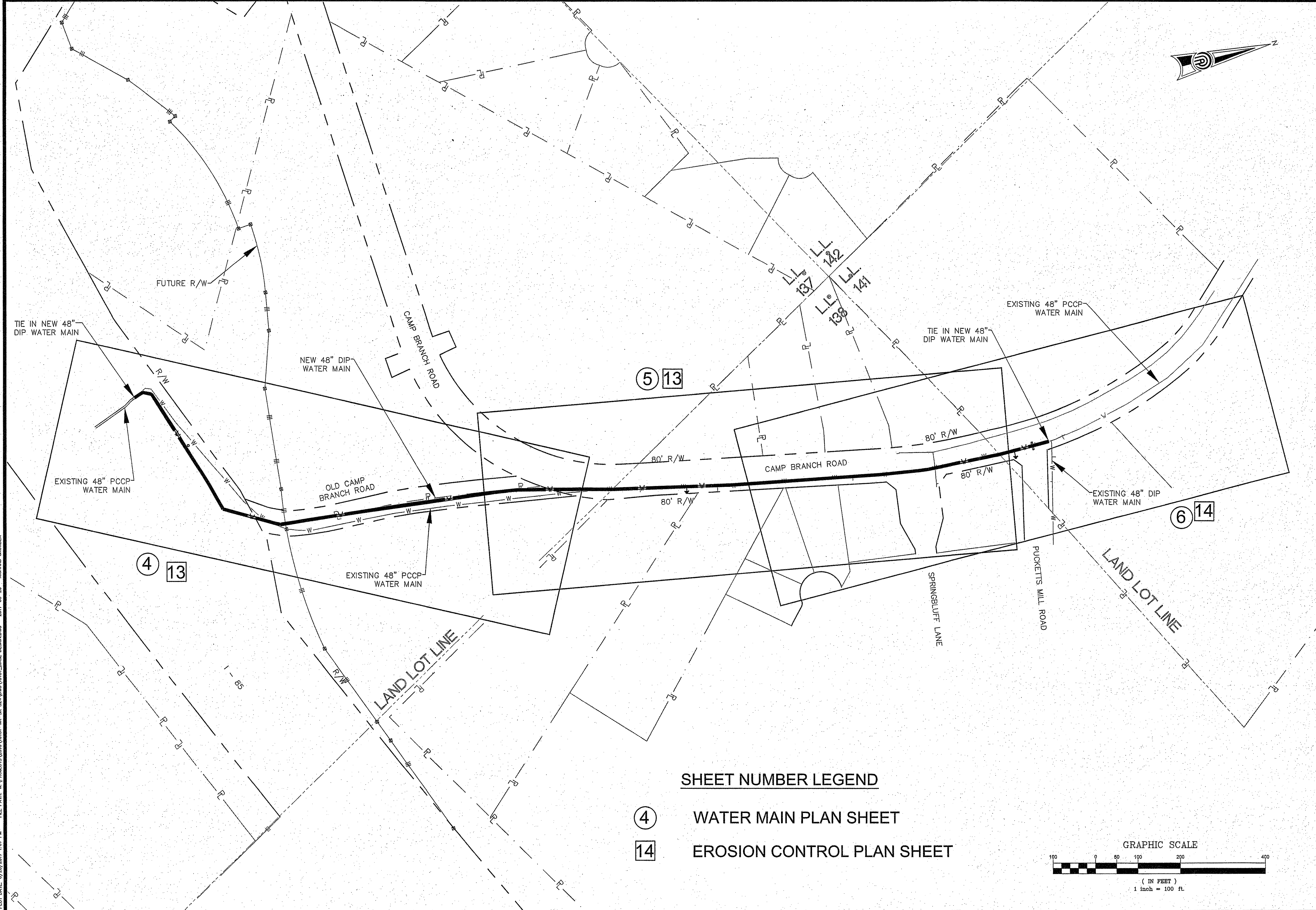
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**48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)**

GENERAL NOTES AND LEGEND	SHEET TITLE	DESIGN	RHC	CHECKED	WLC
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DATE	NO.	DESCRIPTION
8/18/17	0	ISSUED FOR BID

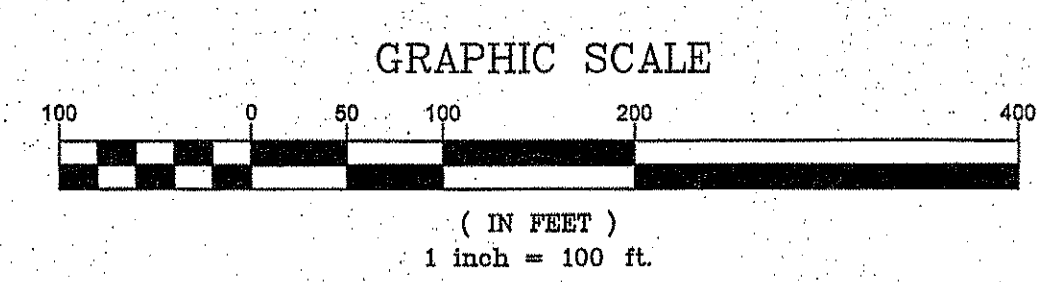
E16151 PPI PROJECT NO.



PLOT DATE: 6/20/2017 1:07 PM FILE PATH: W:\PROJECTS\2016\16151-NR-SR-324\DWG\16151\_PASE\_DESIGNING - 2017-06-20 - RICHARD CROWDER

**SHEET NUMBER LEGEND**

4	WATER MAIN PLAN SHEET
14	EROSION CONTROL PLAN SHEET



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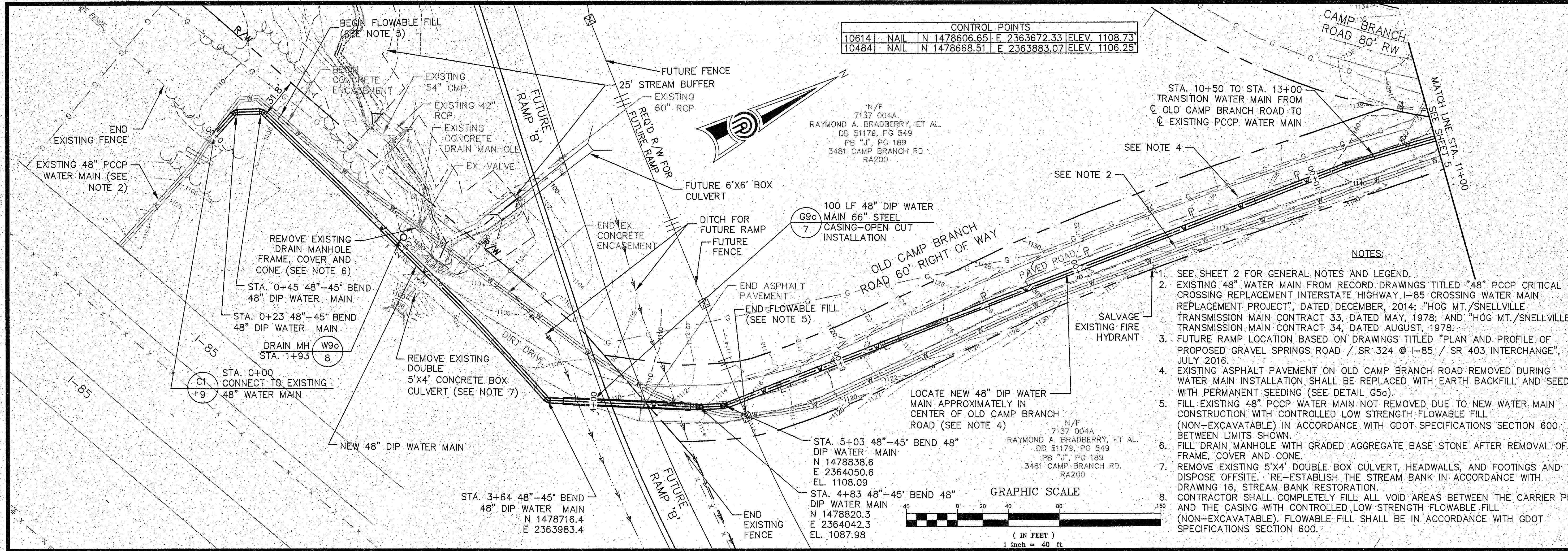
**48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)**

SHEET INDEX		SHEET TITLE	
		DESIGN	CHECKED
		FHC	WLC

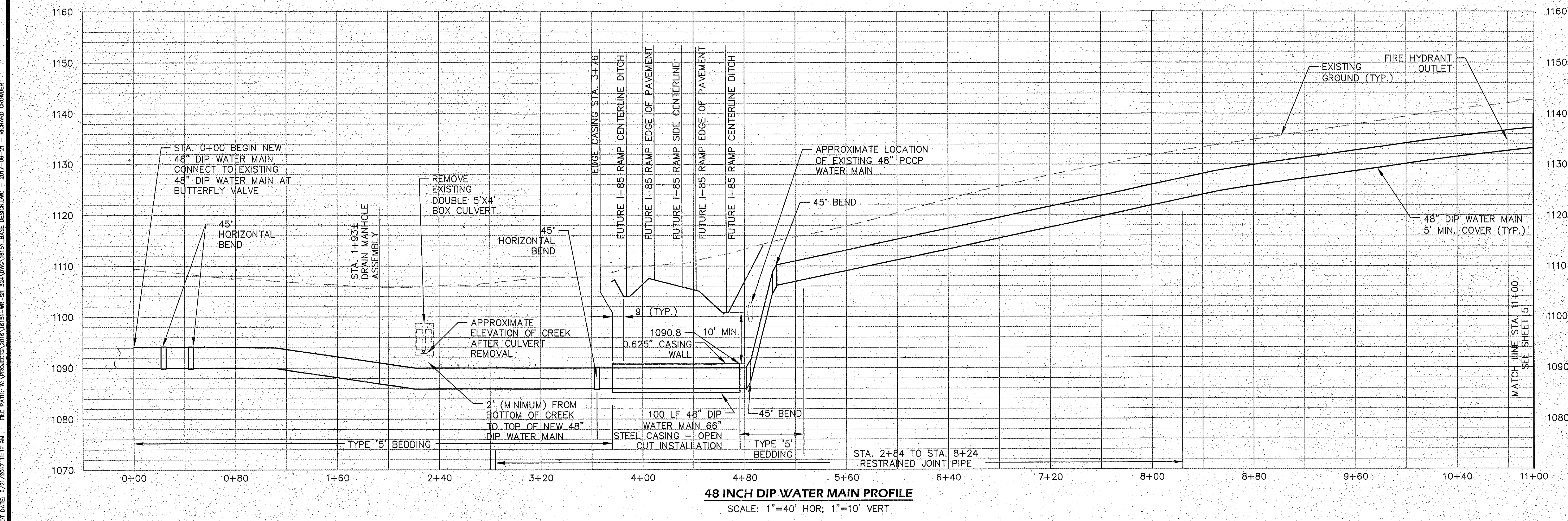
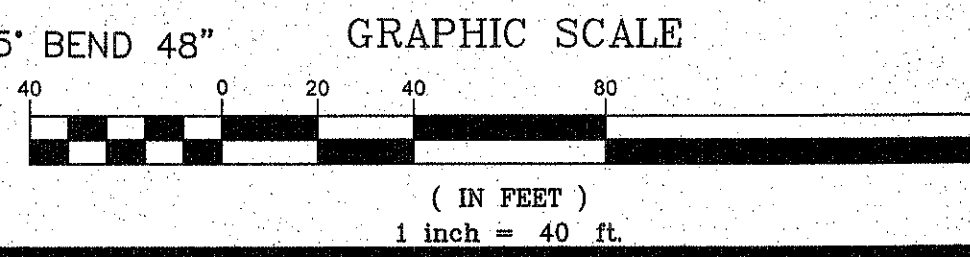
DATE: 6/16/17  
 NO: 0  
 DESCRIPTION: ISSUED FOR BID

E16151  
 PPI PROJECT NO.

3



- NOTES:**
- SEE SHEET 2 FOR GENERAL NOTES AND LEGEND.
  - EXISTING 48" WATER MAIN FROM RECORD DRAWINGS TITLED "48" PCCP CRITICAL CROSSING REPLACEMENT INTERSTATE HIGHWAY I-85 CROSSING WATER MAIN REPLACEMENT PROJECT", DATED DECEMBER, 2014; "HOG MT./SNELLVILLE TRANSMISSION MAIN CONTRACT 33, DATED MAY, 1978; AND "HOG MT./SNELLVILLE TRANSMISSION MAIN CONTRACT 34, DATED AUGUST, 1978.
  - FUTURE RAMP LOCATION BASED ON DRAWINGS TITLED "PLAN AND PROFILE OF PROPOSED GRAVEL SPRINGS ROAD / SR 324 @ I-85 / SR 403 INTERCHANGE", JULY 2016.
  - EXISTING ASPHALT PAVEMENT ON OLD CAMP BRANCH ROAD REMOVED DURING WATER MAIN INSTALLATION SHALL BE REPLACED WITH EARTH BACKFILL AND SEEDED WITH PERMANENT SEEDING (SEE DETAIL G5g).
  - FILL EXISTING 48" PCCP WATER MAIN NOT REMOVED DUE TO NEW WATER MAIN CONSTRUCTION WITH CONTROLLED LOW STRENGTH FLOWABLE FILL (NON-EXCAVATABLE) IN ACCORDANCE WITH GDOT SPECIFICATIONS SECTION 600 BETWEEN LIMITS SHOWN.
  - FILL DRAIN MANHOLE WITH GRADED AGGREGATE BASE STONE AFTER REMOVAL OF FRAME, COVER AND CONE.
  - REMOVE EXISTING 5'X4' DOUBLE BOX CULVERT, HEADWALLS, AND FOOTINGS AND DISPOSE OFFSITE. RE-ESTABLISH THE STREAM BANK IN ACCORDANCE WITH DRAWING 16, STREAM BANK RESTORATION.
  - CONTRACTOR SHALL COMPLETELY FILL ALL VOID AREAS BETWEEN THE CARRIER PIPE AND THE CASING WITH CONTROLLED LOW STRENGTH FLOWABLE FILL (NON-EXCAVATABLE). FLOWABLE FILL SHALL BE IN ACCORDANCE WITH GDOT SPECIFICATIONS SECTION 600.



**48 INCH DIP WATER MAIN PROFILE**  
SCALE: 1"=40' HOR; 1"=10' VERT

PLOT DATE: 6/20/2017 11:11 AM FILE PATH: W:\PROJECTS\2016\16151-WR-SR-324\DWG\16151-BASE DESIGN.DWG - 2017-06-21 - RICHARD CROWDER

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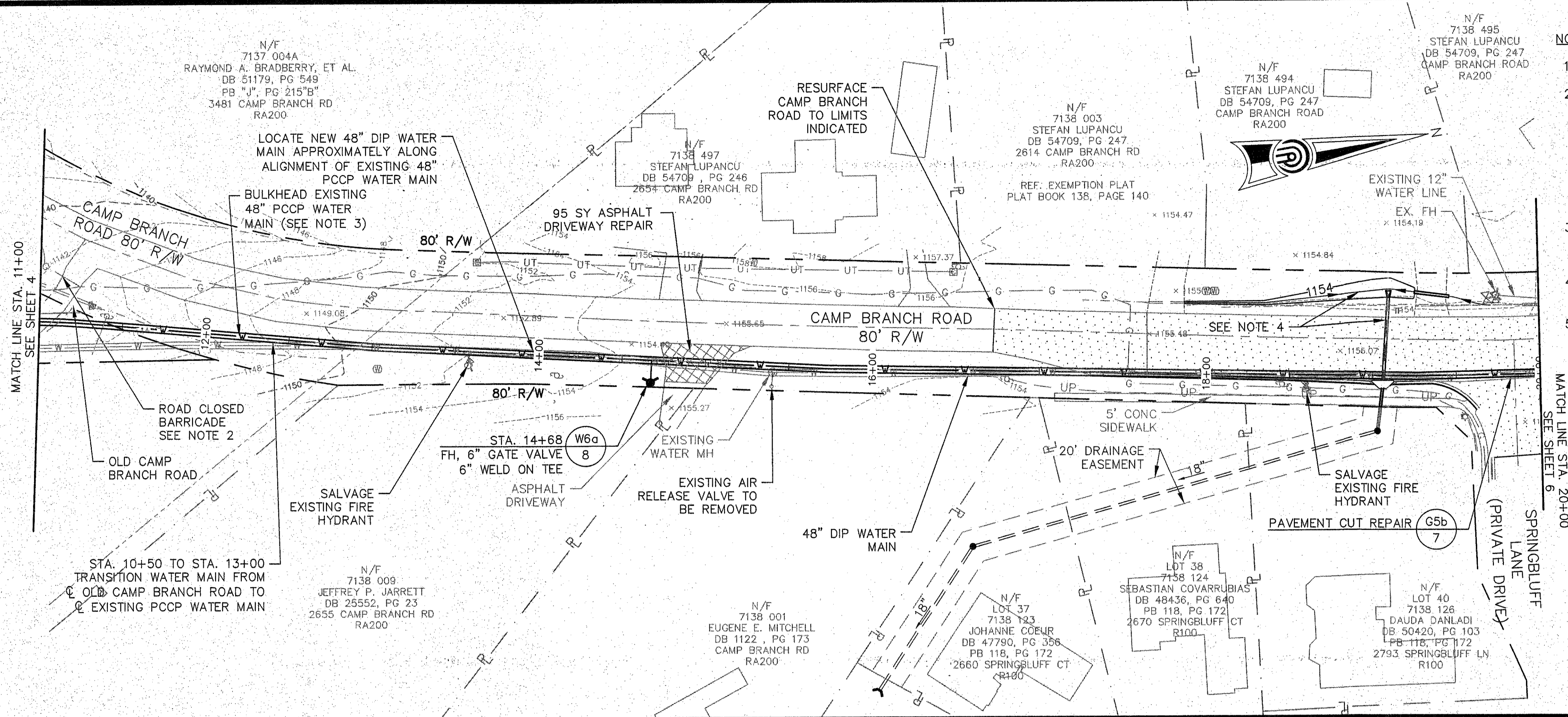
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**48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)**

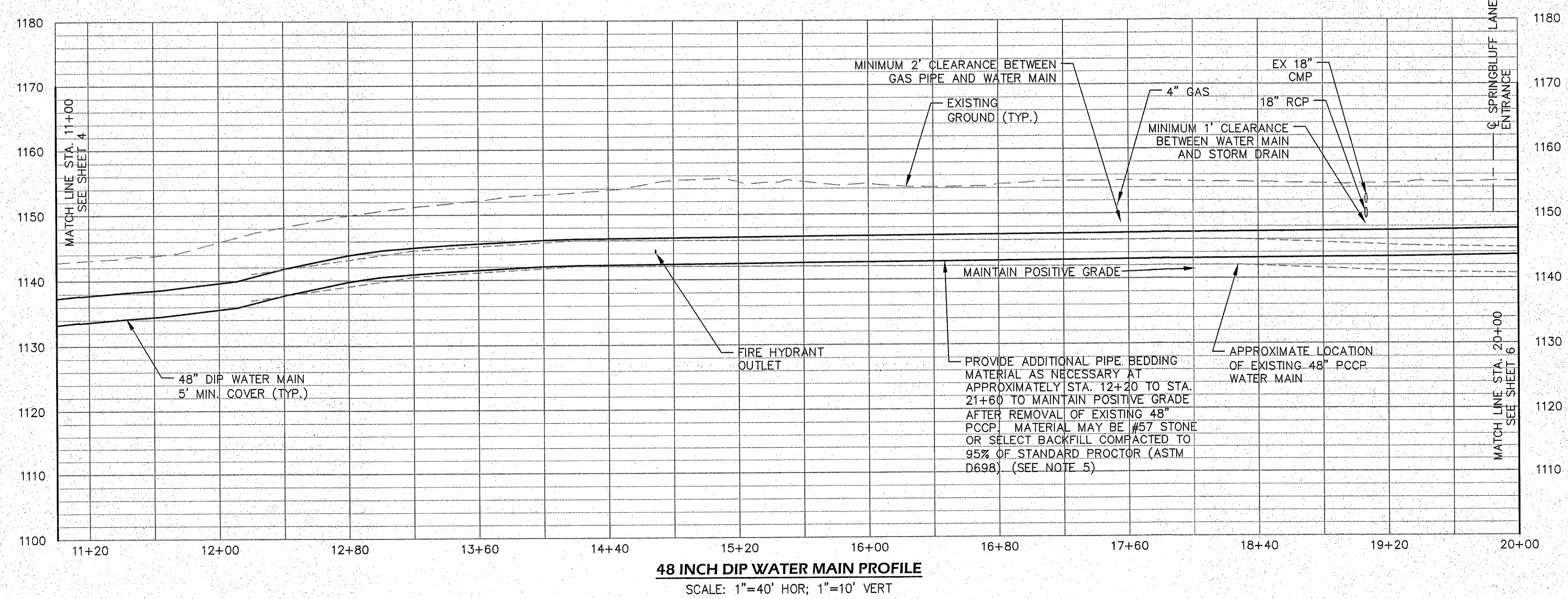
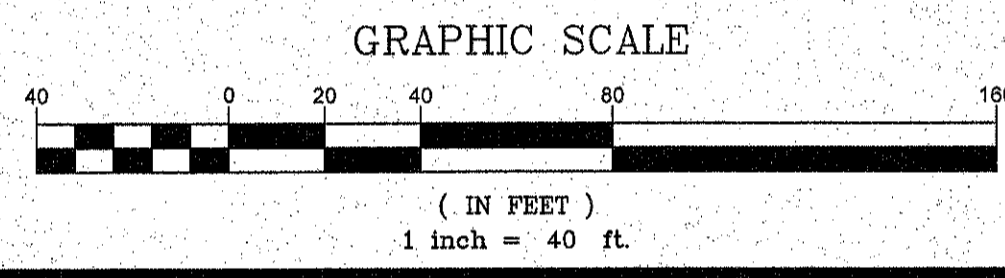
WATER MAIN PLAN AND PROFILE	SHEET TITLE
DESIGN: RHC	CHECKED: RHC
DRAWN: RHC	DATE: 6/16/17
ISSUED FOR BID: 0	PROJECT NO. E16151
PPI PROJECT NO.	

4

PLT DATE: 6/21/2017 11:21 AM FILE PATH: W:\PROJECTS\2016\16151-NR-SR-32A\DWG\16151\_BASE\_DESIGN.DWG - 2017-06-21 - RICHARD CROWDER



- NOTES:**
- SEE SHEET 2 FOR GENERAL NOTES AND LEGEND.
  - CONTRACTOR MAY TEMPORARILY REMOVE THE EXISTING PERMANENT ROAD CLOSURE BARRICADE FOR CONSTRUCTION ACCESS ALONG OLD CAMP BRANCH ROAD. TEMPORARY GDOT TYPE II BARRICADES SHALL BE USED TO BLOCK VEHICLE ACCESS WHEN WORKERS ARE NOT PRESENT. AFTER CONSTRUCTION HAS BEEN COMPLETED, THE PERMANENT ROAD CLOSURE BARRICADE SHALL BE REINSTALLED.
  - CONSTRUCT WATER-TIGHT MASONRY BULKHEAD IN EXISTING 48" PCCP WATER MAIN AT STATION 12+20 ±.
  - SEE SHEET 19 FOR STORM DRAINAGE REPLACEMENT/IMPROVEMENTS.
  - WHEN SELECT BACKFILL MATERIAL IS USED, CONTRACTOR TO NOTIFY GCDWR A MINIMUM OF 14-DAYS IN ADVANCE OF HAULING MATERIAL TO SITE, THE LOCATION OF THE BORROW SOURCE AND PROVIDE ACCESS TO THE SOURCE FOR OBTAINING A SOIL SAMPLE FOR A LAB PROCTOR TO BE OBTAINED (TYP. ALL LOCATIONS).



**48 INCH DIP WATER MAIN PROFILE**  
SCALE: 1"=40' HOR; 1"=10' VERT

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**48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)**

DATE	NO.	DESCRIPTION
6/16/17	0	ISSUED FOR BID

DESIGN	RHC
DRAWN	RHC
CHECKED	RHC

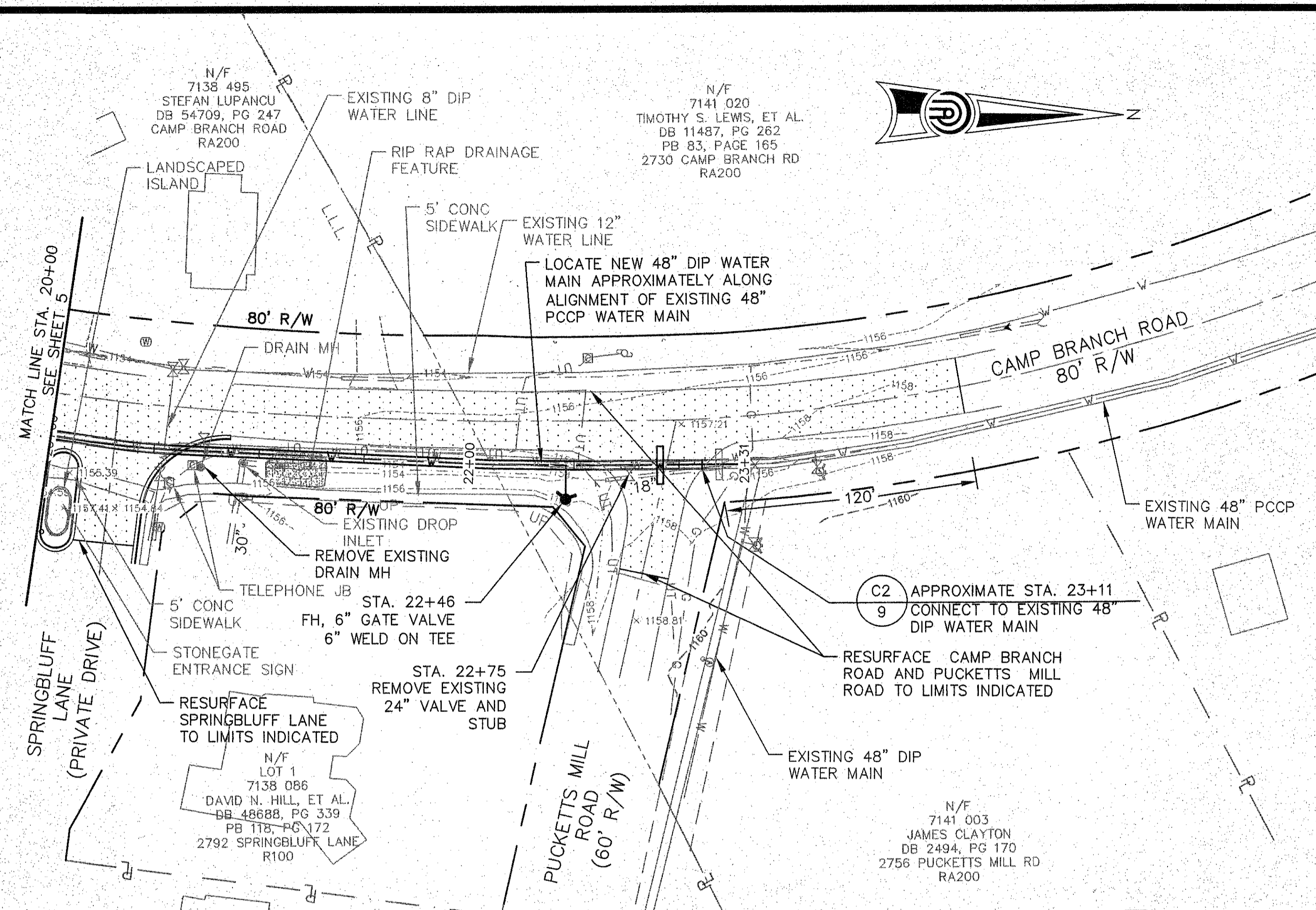
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RELEASE

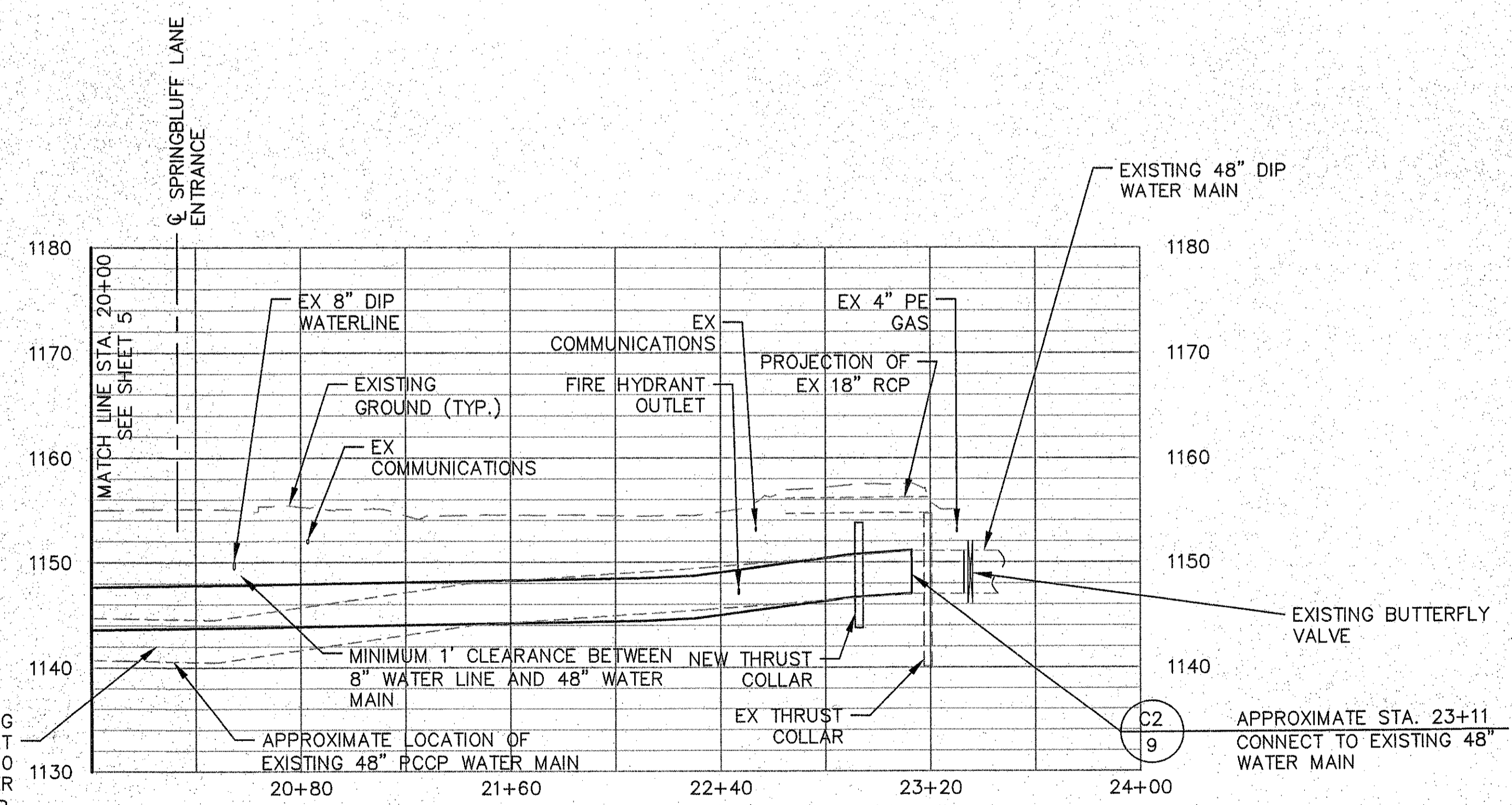
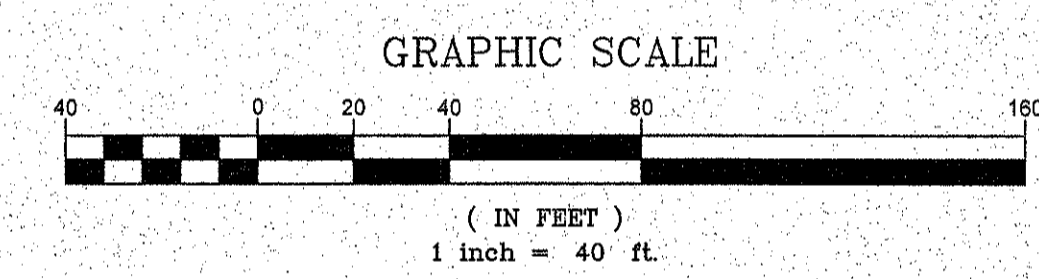
E16151  
PPI PROJECT NO.

**5**

PLOT DATE: 6/21/2017 11:23 AM FILE PATH: W:\PROJECTS\2016\16161-WR-SR-324\DWG\16161-BASE DESIGN\DWG - 2017-06-21 - RICHARD CROWMER



- NOTES:**
- SEE SHEET 2 FOR GENERAL NOTES AND LEGEND.
  - EXISTING 48" WATER MAIN FROM RECORD DRAWINGS TITLED "PHASE 2 NORTH GWINNETT 30" AND 48" TRANSMISSION MAIN", DATED SEPTEMBER, 2005.
  - CONTRACTOR SHALL INVESTIGATE BY EXCAVATION TO UNCOVER THE END OF THE EXISTING 48" DIP WATER MAIN WHERE IT CONNECTS TO THE EXISTING 48" PCCP WATER MAIN TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF THE CONNECTION POINT AT APPROXIMATELY STA. 23+11 WHEN THE WATER MAIN CONSTRUCTION REACHES STA. 20+00, AND REPORT FINDINGS IN WRITING TO GCDWR BEFORE CONTINUATION OF WATER MAIN INSTALLATION.



PROVIDE ADDITIONAL PIPE BEDDING MATERIAL AS NECESSARY AT APPROXIMATELY STA. 12+20 TO 21+60 TO MAINTAIN POSITIVE GRADE AFTER REMOVAL OF EXISTING 48" PCCP. MATERIAL MAY BE #57 STONE OR SELECT BACKFILL COMPACTED TO 95% OF STANDARD PROCTOR (ASTM D698).

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REGISTERED PROFESSIONAL ENGINEER  
 WILLIAM L. CROWMER  
 No. 11447  
 State of Georgia

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**48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)**

WATER MAIN PLAN AND PROFILE

SHEET TITLE

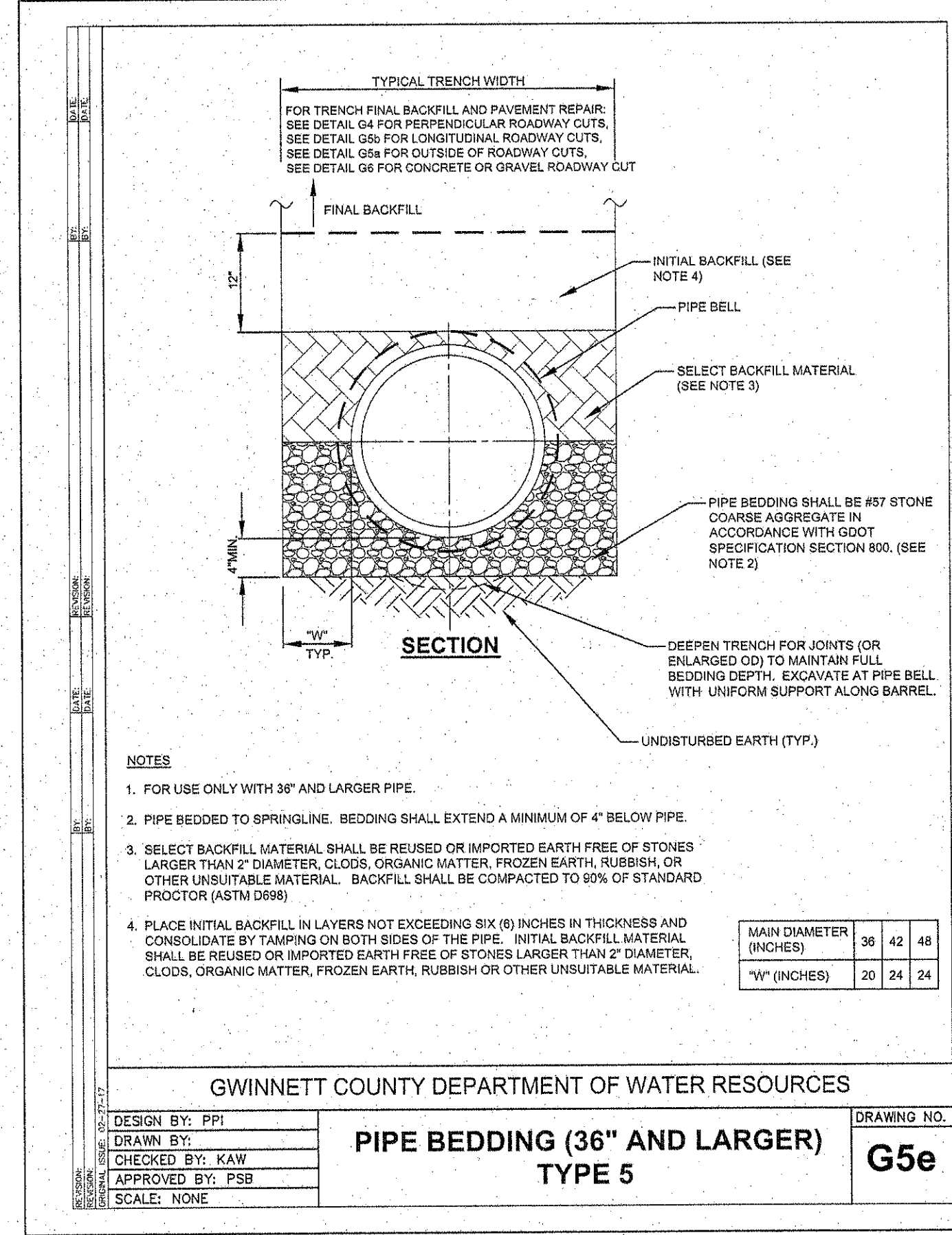
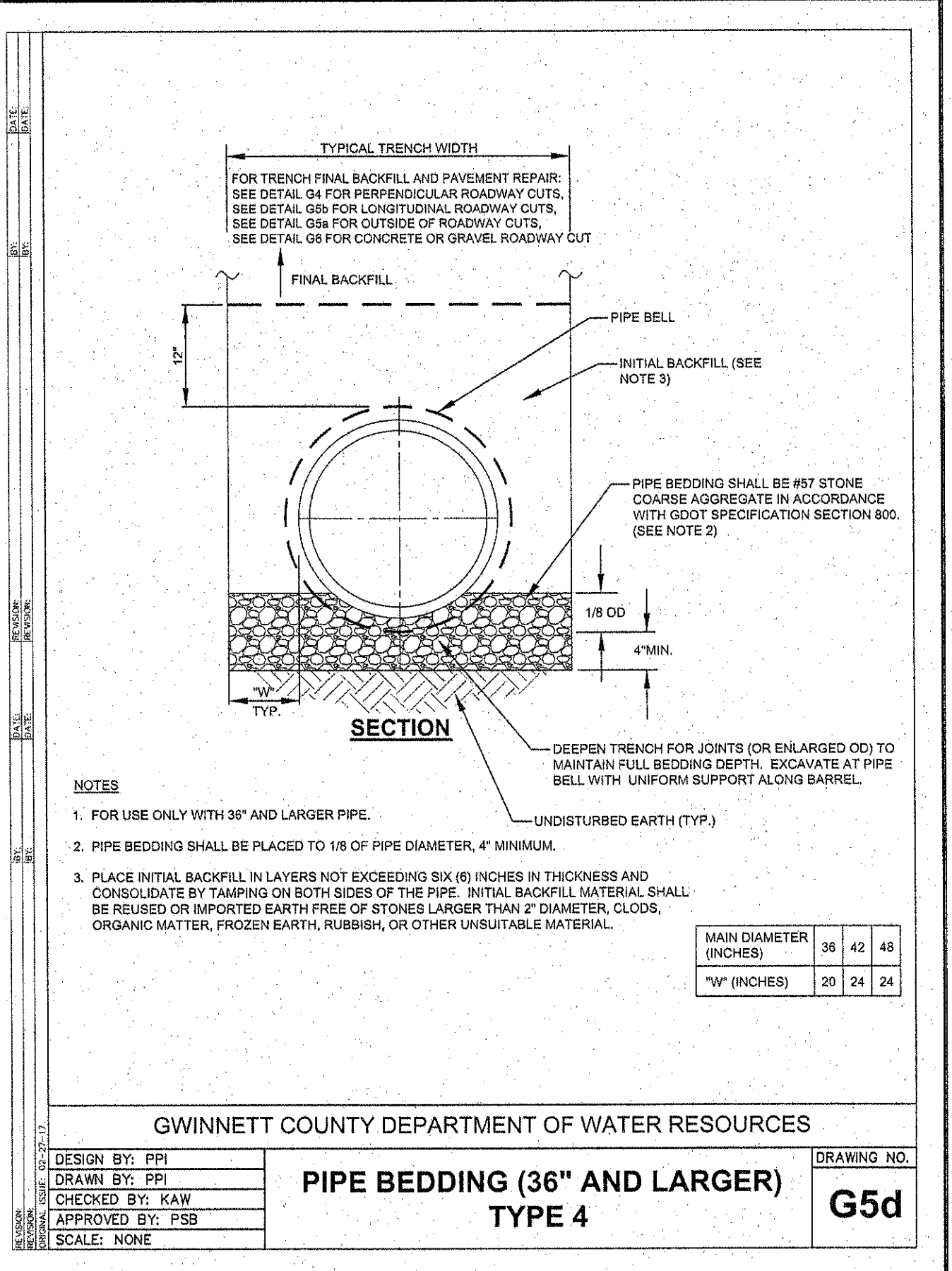
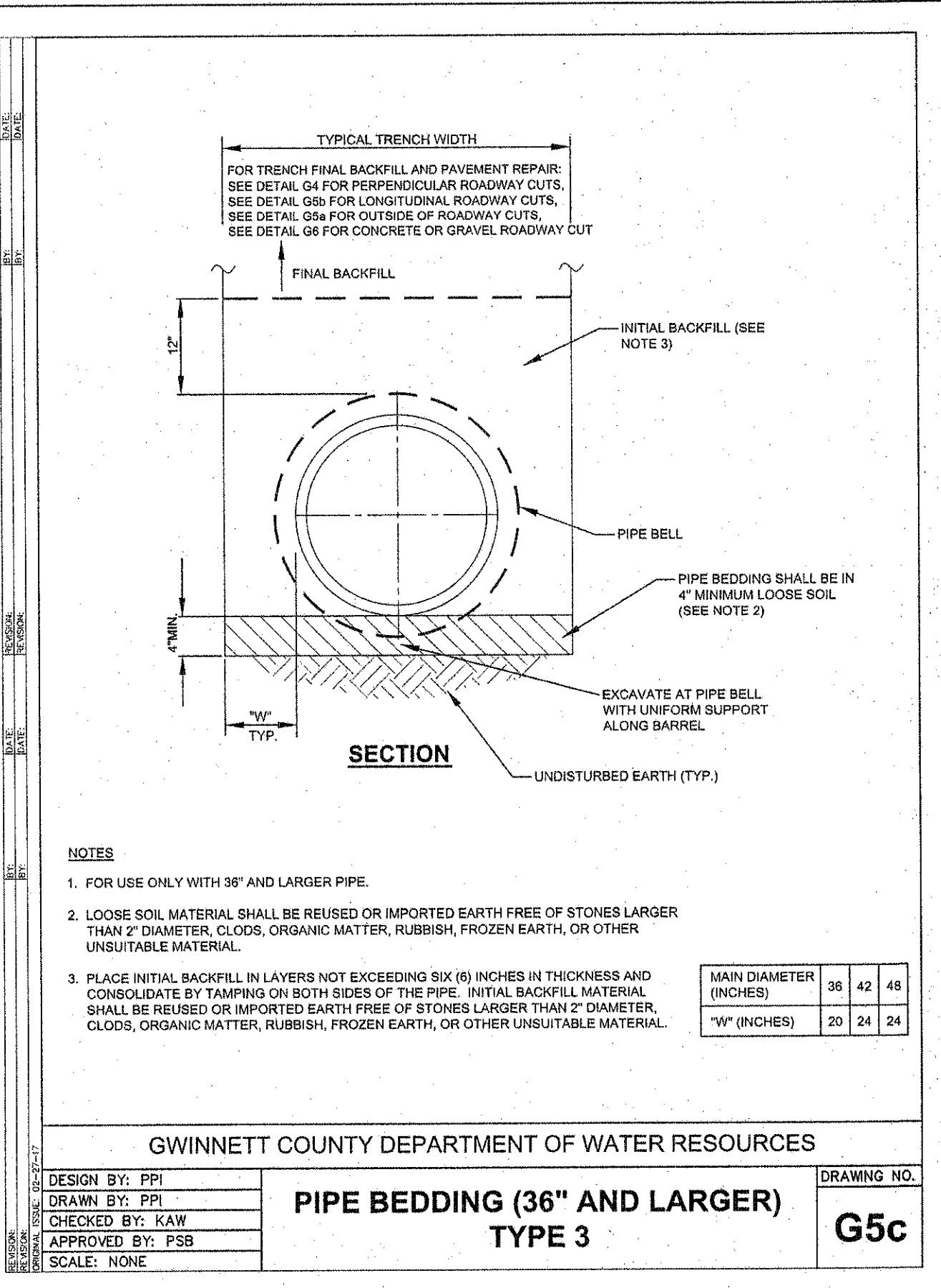
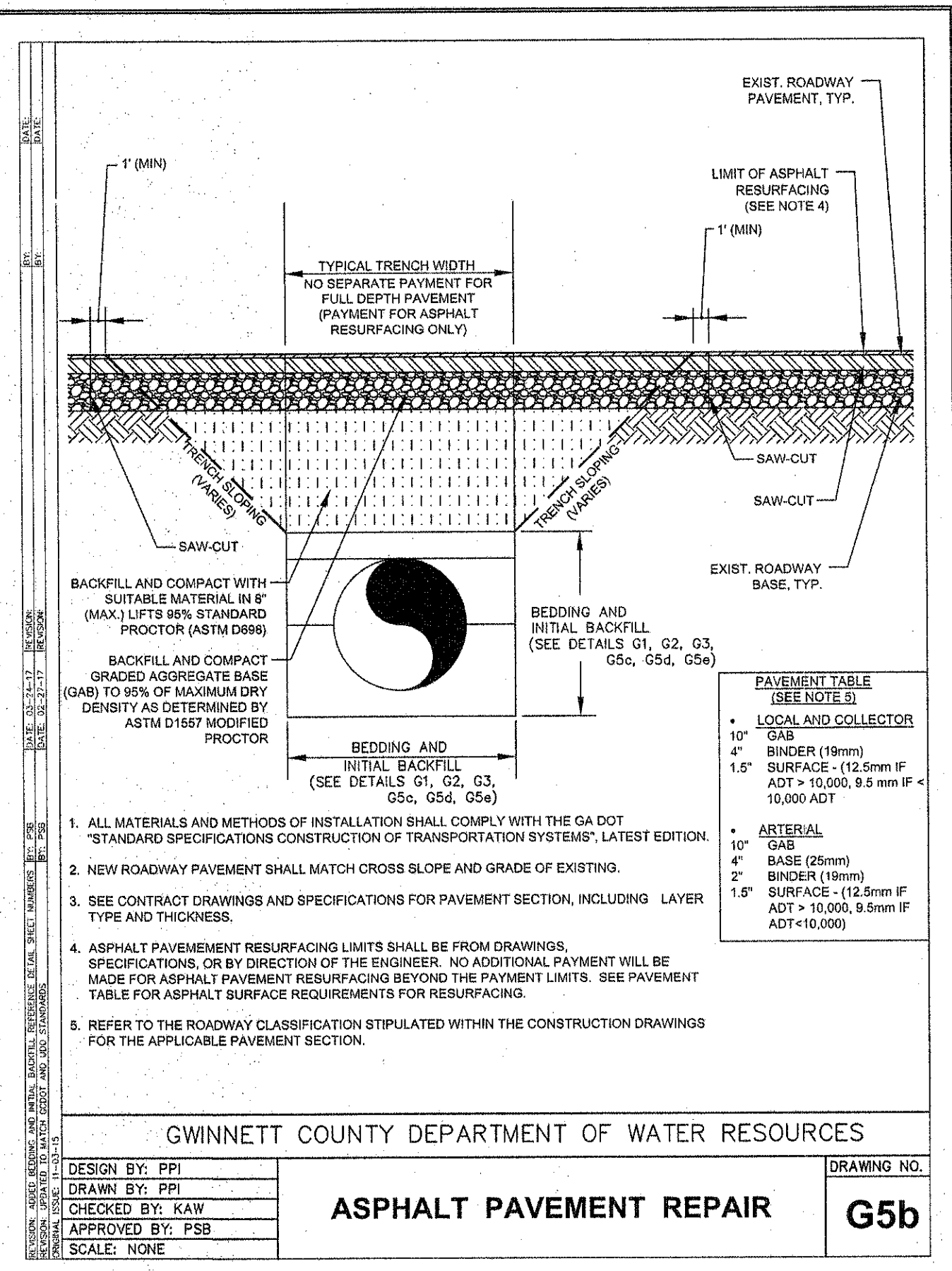
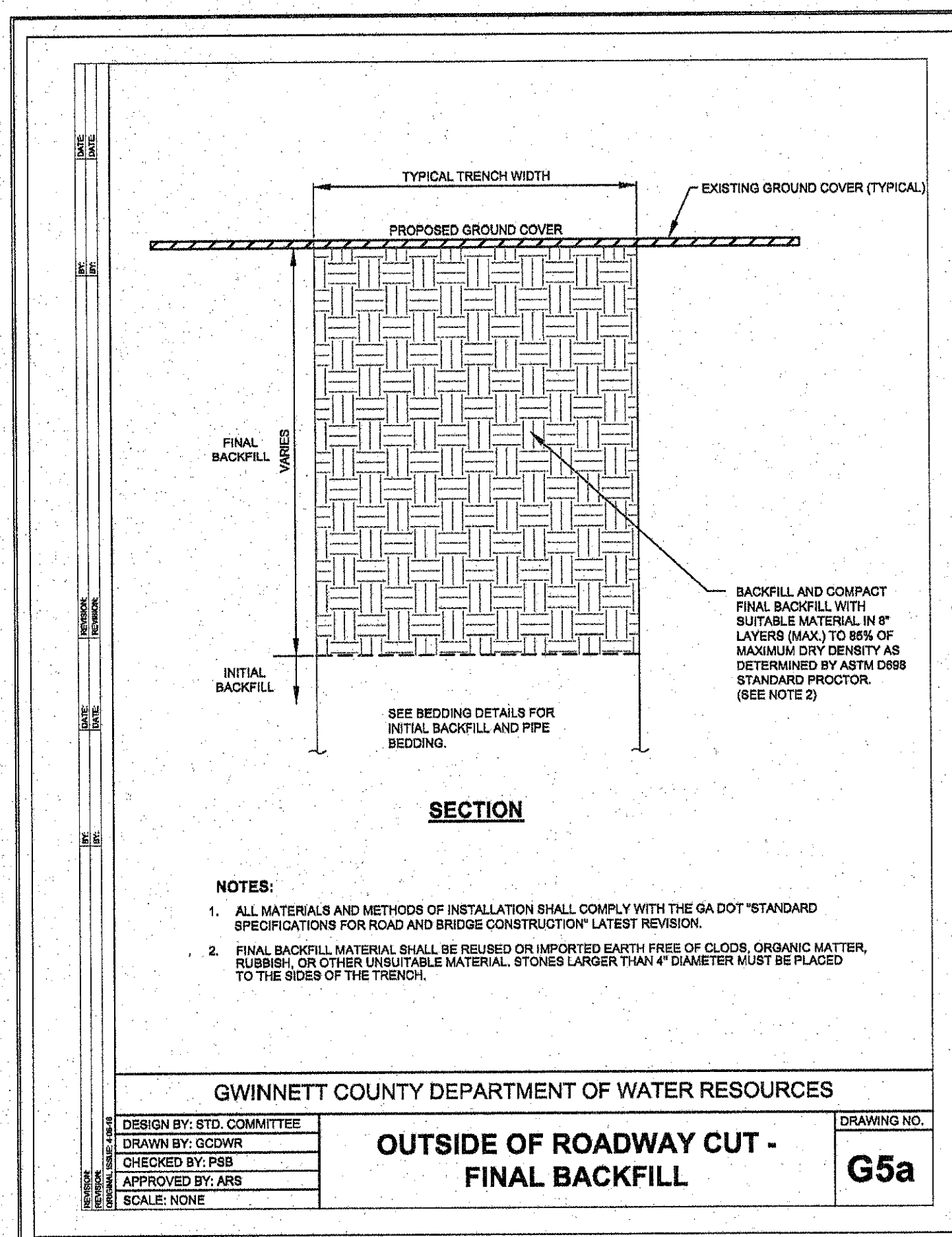
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CHECKED	WLL

DATE: 6/16/17  
 NO: 0  
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E16151  
 PPI PROJECT NO.

6

PLOT DATE: 6/20/2017 2:11 PM FILE PATH: W:\PROJECTS\2016\16151-RR-SR-324\DWG\16151\_C501\_DETAILS.DWG - 2017-06-20 - RICHARD CROWMER



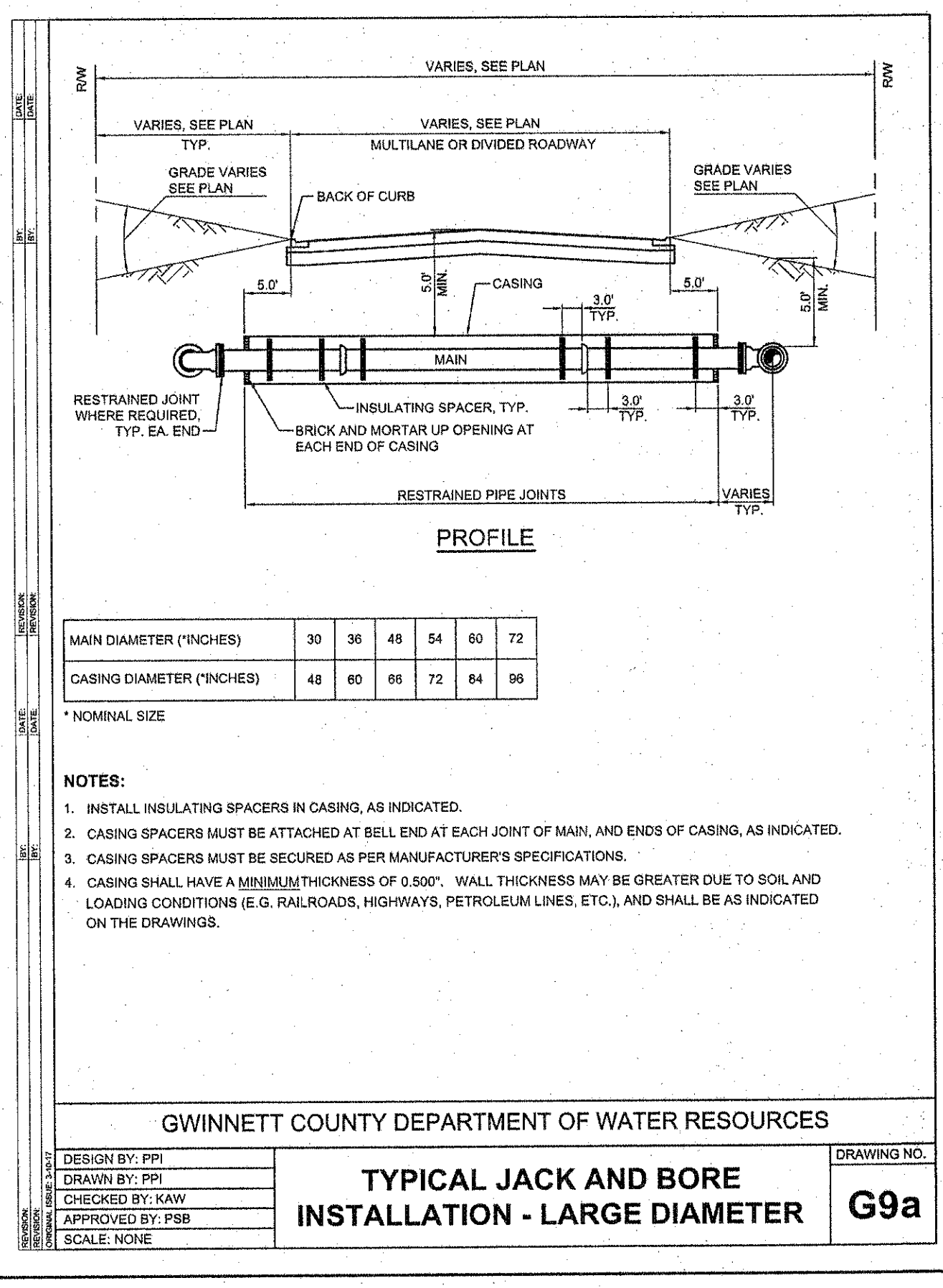
NO PAYMENT SHALL BE MADE FOR ASPHALT PAVEMENT RESURFACING - FULL DEPTH PAVEMENT. ANY GAB, BASE, AND BINDER REQUIRED DUE TO TRENCH SLOPING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR DUCTILE IRON PIPE. ASPHALT PAVEMENT RESURFACING SHALL BE TO THE LIMITS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

DESIGN BY: PPI  
DRAWN BY: PPI  
CHECKED BY: KAW  
APPROVED BY: PSB  
SCALE: NONE

**TYPICAL JACK AND BORE INSTALLATION - LARGE DIAMETER**

DRAWING NO. **G9a**



1. CASING WALL THICKNESS SHALL BE 0.625".

2. SEE SHEET 4 FOR LOCATIONS.

3. CASING SHALL BE INSTALLED BY OPEN CUT.

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

DESIGN BY: PPI  
DRAWN BY: PPI  
CHECKED BY: KAW  
APPROVED BY: PSB  
SCALE: NONE

**TYPICAL JACK AND BORE INSTALLATION - LARGE DIAMETER**

DRAWING NO. **G9a**

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REGISTERED PROFESSIONAL ENGINEER  
WILLIAM L. CROWMER, P.E.  
No. 12680  
6/21/1987

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**48-INCH PCCP REPLACEMENT (1-85 INTERCHANGE AT SR 324)**

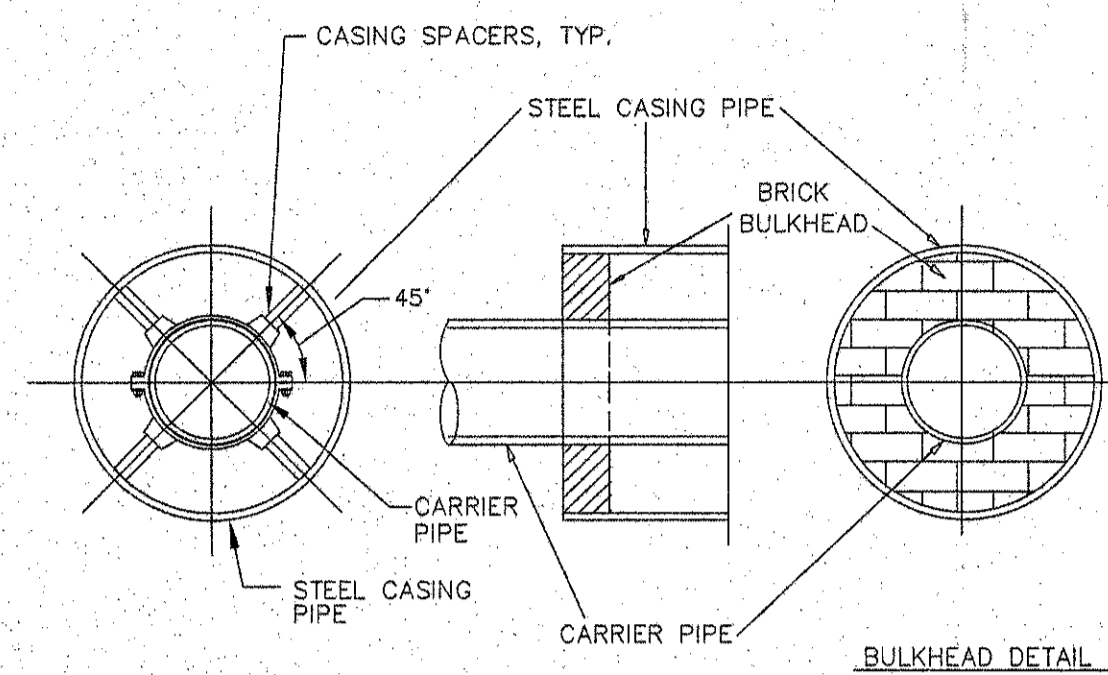
CONSTRUCTION DETAILS

DATE	NO.	DESCRIPTION	DESIGN	DRAWN	CHECKED
8/15/17	0	ISSUED FOR BID	PPI	RHC	WLC

RELEASE

E16151  
PPI PROJECT NO.

7

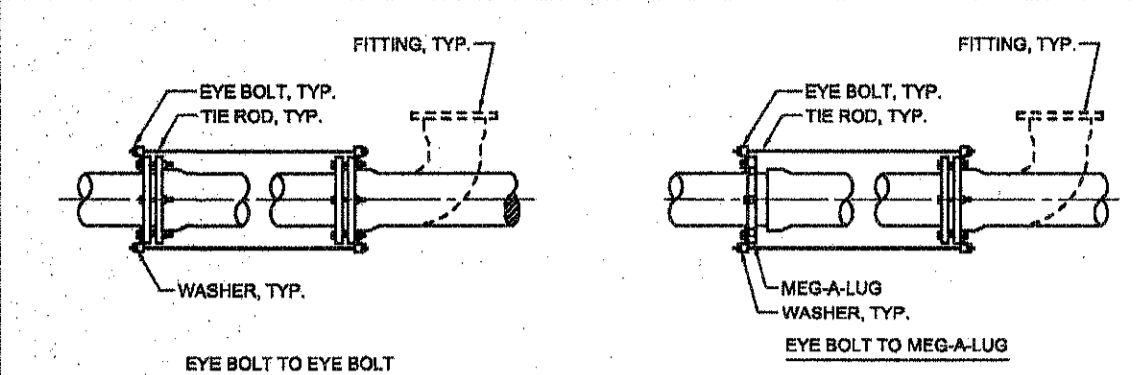


- NOTES:**
- CASING PIPE UP TO 20" SHALL HAVE A THICKNESS OF .375 INCH.
  - CASING PIPE OVER 20" SHALL HAVE A THICKNESS OF .5 INCH.
  - CASING SPACERS SECURED AT BELL END OF EACH JOINT OF CARRIER PIPE, AND IN THE MIDDLE OF EACH JOINT OF PIPE WITH 10' MAXIMUM DISTANCE BETWEEN SPACERS.
  - TO REDUCE CORROSION POTENTIAL, AT NO TIME SHALL THE CARRIER PIPE TOUCH THE CASING PIPE. INSULATING SPACERS SHALL BE USED.

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

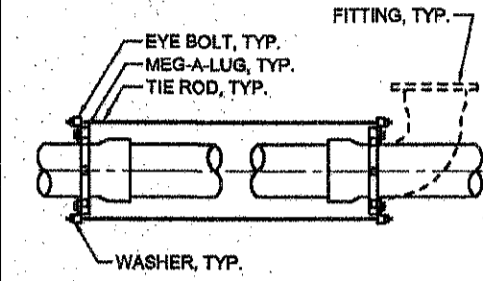
DESIGN BY: STD. COMMITTEE	DRAWING NO. <b>G8</b>
DRAWN BY: GCDWR	
CHECKED BY: PSB	
APPROVED BY: ARS	
SCALE: NONE	

**AUGERED JACKED CASING**



**TYPE 2 FITTING RESTRAINT**

PIPE SIZE (IN.)	ROD SIZE (IN.)	NO. OF RODS (TEES, PLUGS AND VALVES)	NO. OF RODS (11-1/4" - 22-1/2" BENDS)	NO. OF RODS (48" - 90" BENDS)
6	3/4	3	2	3
8	3/4	3	3	3
10	3/4	4	4	4
12	3/4	4	4	4
14	3/4	6	4	6
16	3/4	6	6	6
20	3/4	6	6	6
24	3/4	8	8	8
30	1	6	6	6
36	1	6	6	6



**TYPE 3 FITTING RESTRAINT**

**THRUST RESTRAINT TIE ROD CHART**

- NOTES:**
- RODS SHALL BE A MINIMUM 304 S.S. ALL THREAD RODS WITH A MINIMUM YIELD STRENGTH OF 80,000 PSI.
  - USE LISTED NUMBER OF RODS AS SHOWN ON THE ROD CHART (MINIMUM NUMBER SHOWN).
  - RODS MUST HAVE A MINIMUM 6" OF THREAD ON EACH END.
  - ALL STEEL MUST BE CLEANED AND COATED WITH ROYSTON ROSSKOTIE, KOPPERS SUPER SERVICE BLACK OR APPROVED EQUAL.
  - ALL NUTS USED ON THE RODS MUST HAVE A WASHER.

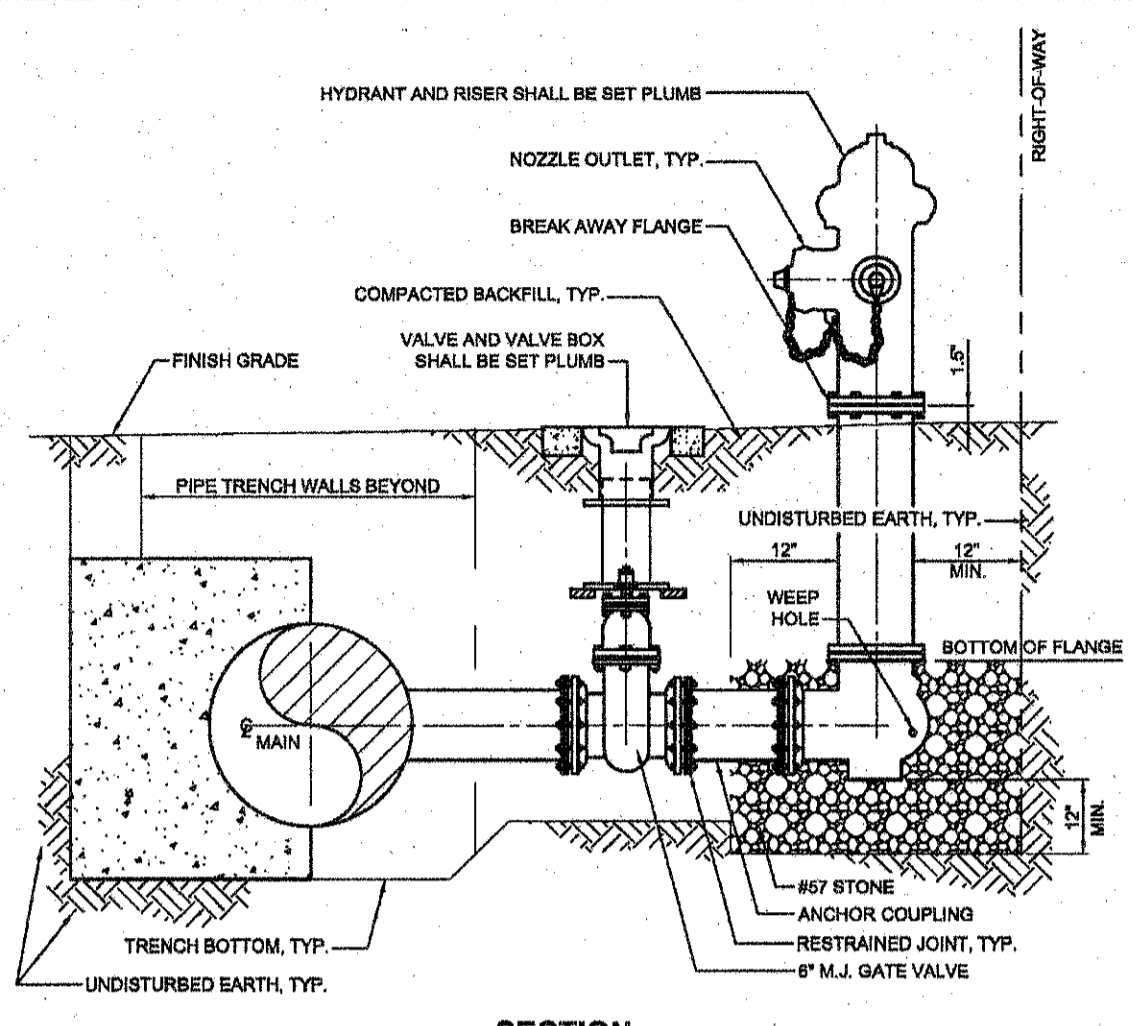
**DESIGN CRITERIA:**

- FITTING SHOWN IS REPRESENTATIVE FOR ALL FITTINGS, VALVES, DEAD ENDS AND PLUGS.
- FOR WATER MAINS AT A RATED TEST PRESSURE OF 280 PSI.

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

DESIGN BY: STD. COMMITTEE	DRAWING NO. <b>G14</b>
DRAWN BY: GCDWR	
CHECKED BY: PSB	
APPROVED BY: ARS	
SCALE: NONE	

**TYPICAL TIE ROD RESTRAINT INSTALLATION**

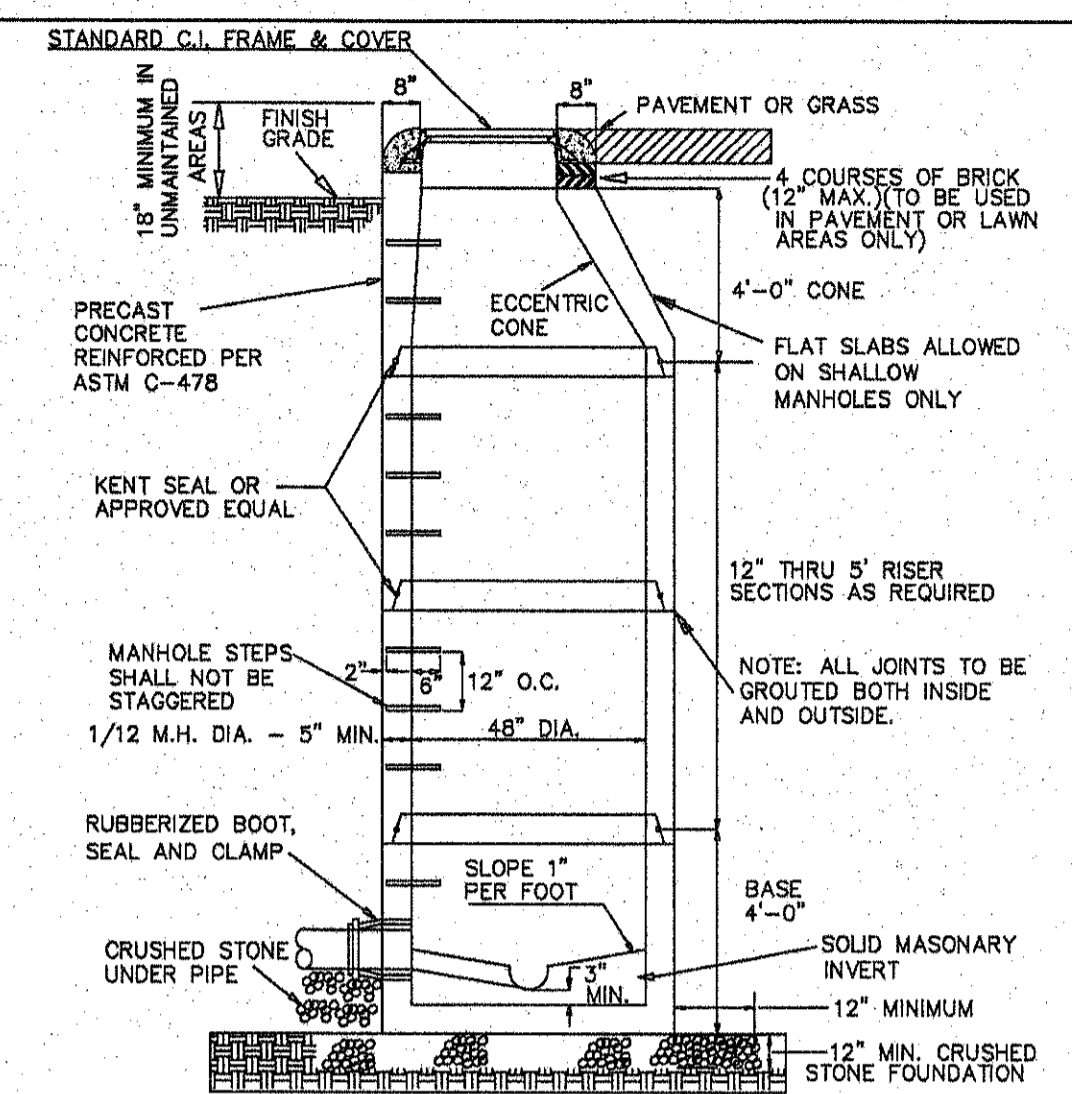


- NOTES:**
- REFER TO TYPICAL TIE ROD RESTRAINT DRAWING G14 FOR ADDITIONAL DETAILS.
  - REFER TO TYPICAL HORIZONTAL THRUST BLOCK DRAWING G11 FOR ADDITIONAL DETAILS.
  - REFER TO TYPICAL VALVE BOX DRAWING W6 FOR ADDITIONAL DETAILS.

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

DESIGN BY: STD. COMMITTEE	DRAWING NO. <b>W5</b>
DRAWN BY: DWR	
CHECKED BY: PSB	
APPROVED BY: ARS	
SCALE: NONE	

**TYPICAL TYPE 'A' FIRE HYDRANT INSTALLATION**

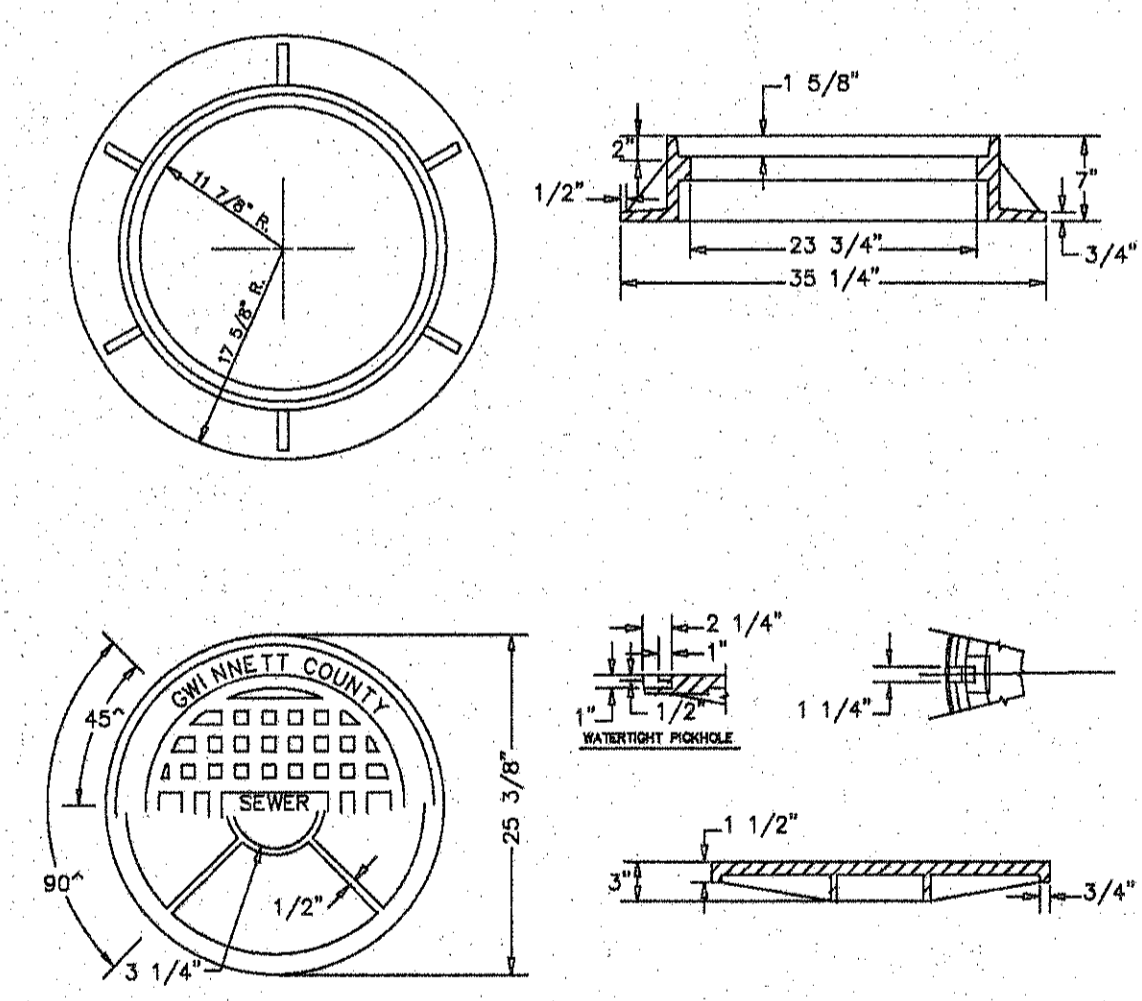


- NOTES:**
- TABLES ARE TO BE GENTLY SLOPED AND TROWELED SMOOTH FROM M.H. WALL TO INVERT WALL AND CONSTRUCTED OF SOLID MASONRY.
  - BASES LARGER THAN 48" (HIGH) MUST USE TRANSITION SLAB AND 48" (HIGH) RISER SECTIONS.
  - CONES WITH CAST-IN PLACE FRAMES ARE REQUIRED ON OUTFALL SEVERS IN UNMAINTAINED AREAS.
  - BOLT DOWN RING & COVER REQUIRED OUTSIDE OF PAVEMENT.
  - ALL MANHOLES RECEIVING A FORCE MAIN DISCHARGE SHALL BE POLYMER CONCRETE MANHOLES AS MANUFACTURED BY US COMPOSITE PIPE, INC. OR GCDWR APPROVED EQUAL.
  - USE OF T-BASE MANHOLES IS PROHIBITED.

GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

DESIGN BY: STD. COMMITTEE	DRAWING NO. <b>S1</b>
DRAWN BY: DWR	
CHECKED BY: PSB	
APPROVED BY: ARS	
SCALE: NONE	

**STANDARD PRECAST MANHOLE (PIPE SIZES LESS THAN 36")**

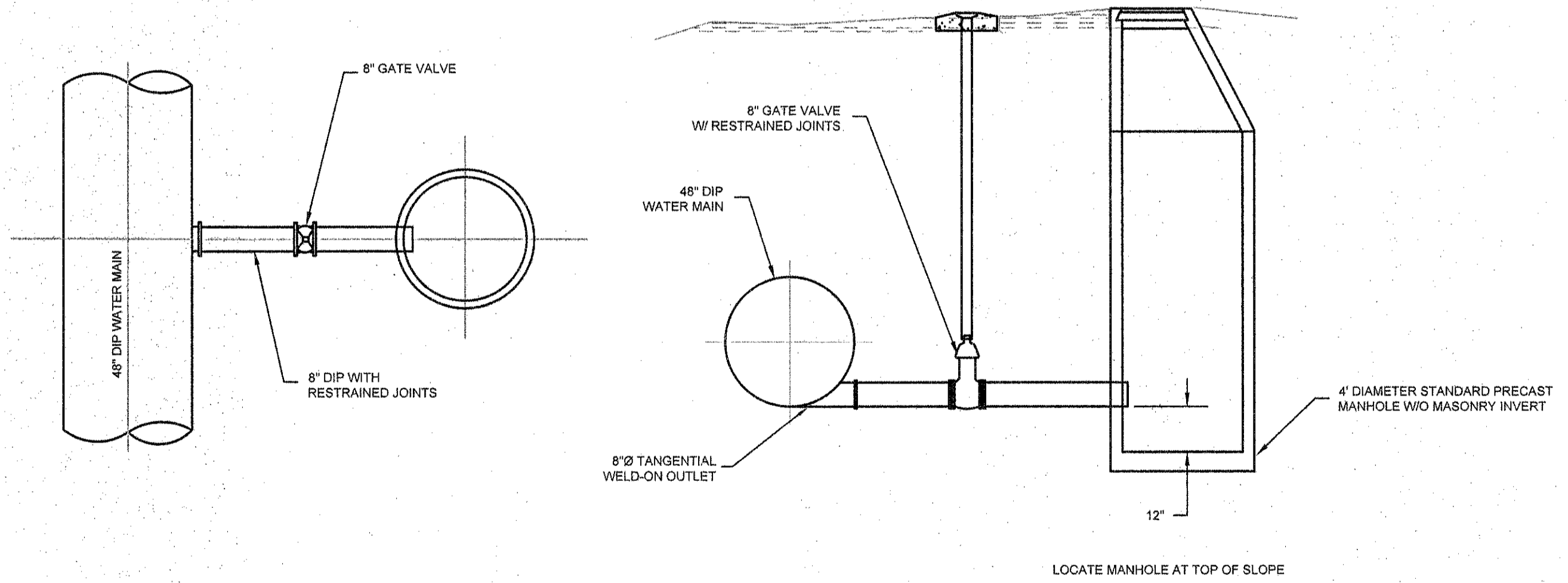


NOTE: EAST JORDAN IRON WORKS V-1357 OR INTERCHANGEABLE

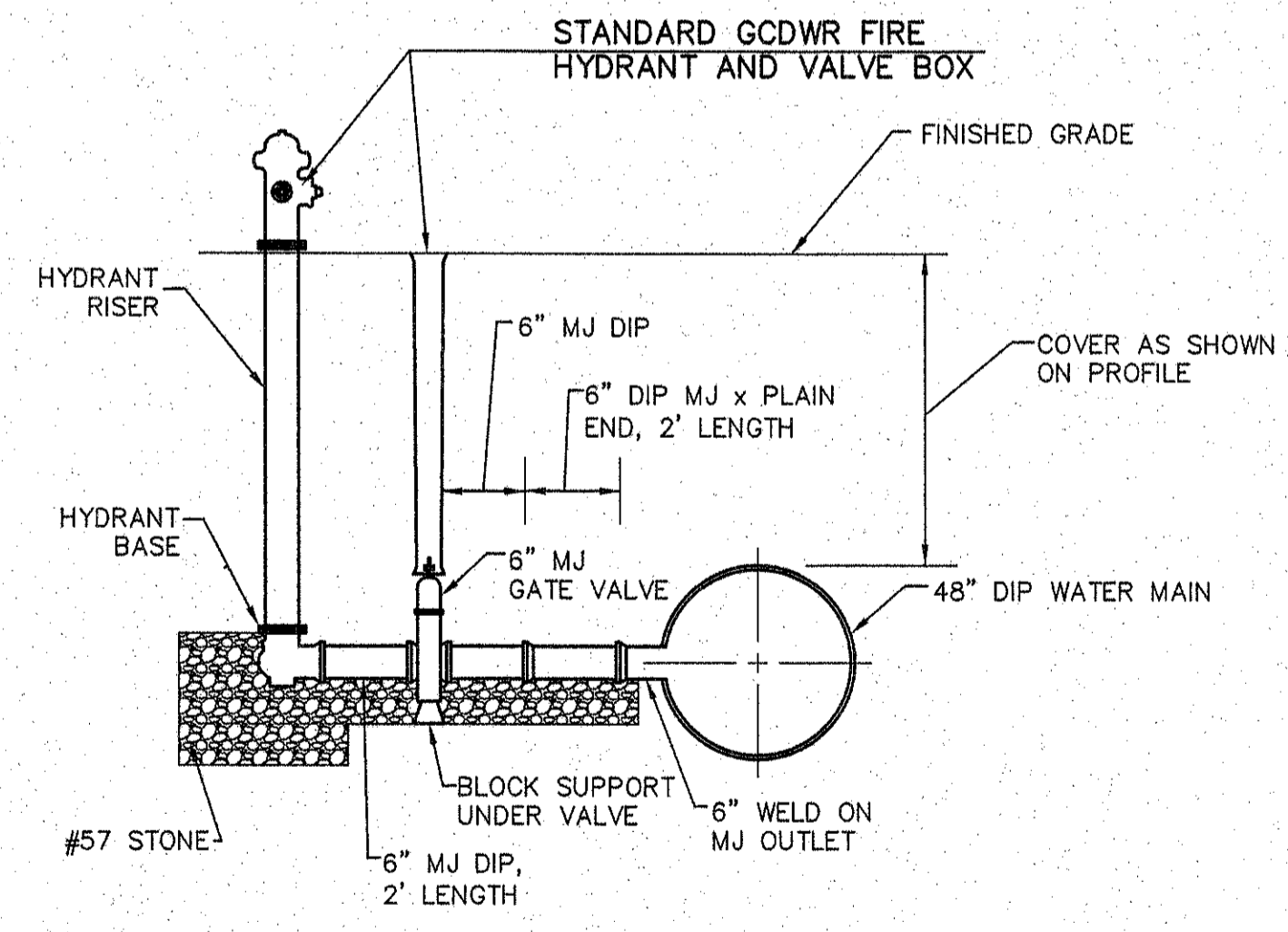
GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES

DESIGN BY: STD. COMMITTEE	DRAWING NO. <b>S3</b>
DRAWN BY: DWR	
CHECKED BY: PSB	
APPROVED BY: ARS	
SCALE: NONE	

**TRAFFIC FRAME & COVER**

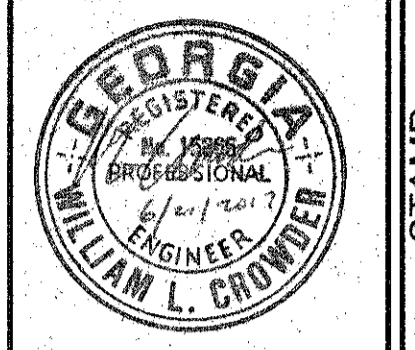


**W9d DRAIN MANHOLE ASSEMBLY**  
N.T.S.



**W6a FIRE HYDRANT FOR 48" DIP WATER MAIN**  
N.T.S.

- NOTES:**
- ALL MECHANICAL JOINTS TO BE RESTRAINED WITH RETAINER GLANDS.
  - BED HYDRANT ASSEMBLY IN 6-INCH MIN. #57 STONE.
  - WELD-ON OUTLET SHALL BE SHOP FABRICATED. NO FIELD WELDING IS PERMITTED.



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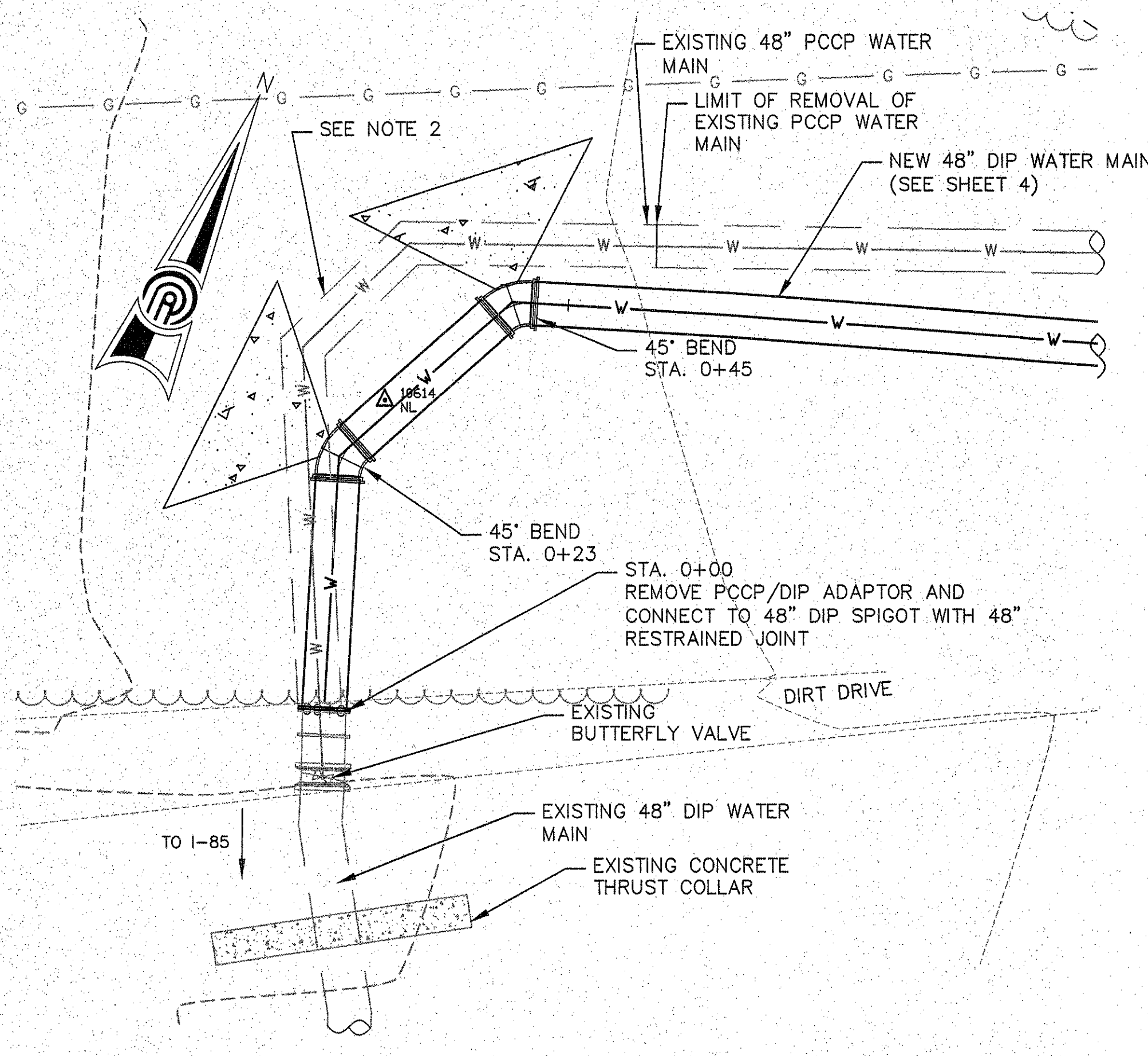
**48-INCH PCCP REPLACEMENT (1-85 INTERCHANGE AT SR 324)**

CONSTRUCTION DETAILS	SHEET TITLE	CHECKED
	DRAWN	W6a
	DESIGN	RHC
	SCALE	RHC

DATE	NO.	DESCRIPTION
6/15/17	0	ISSUED FOR BID
E16151 PPI PROJECT NO.		

PLOT DATE: 6/20/2017 2:15 PM FILE PATH: W:\PROJECTS\2016\16151-WR-SR-324\DWG\16151\_CSD1 DETAILS.DWG - 2017-06-20 - RICHARD CROWDER

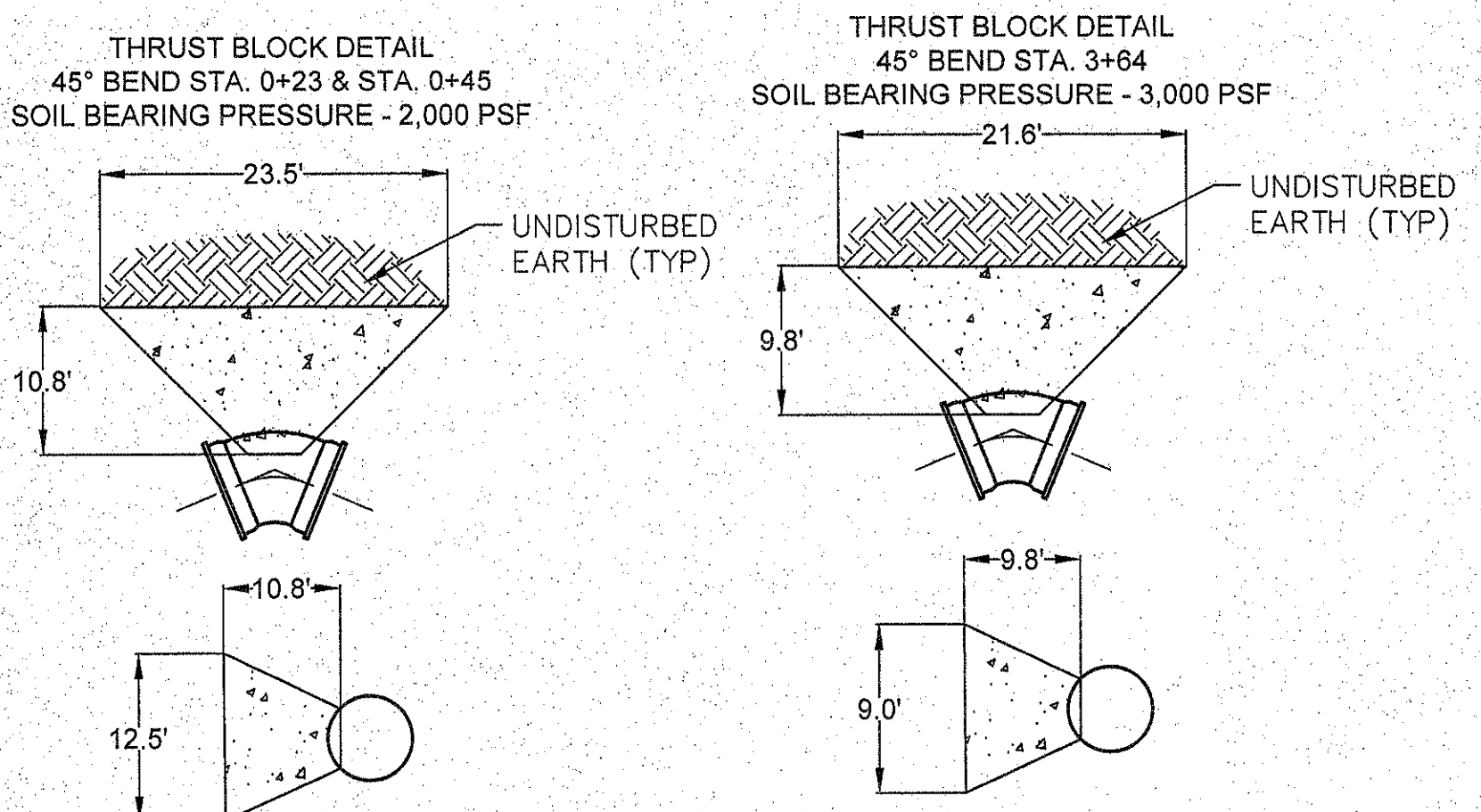




**C1 STA. 0+00 TIE-IN DETAIL**  
SCALE: 1"=10'

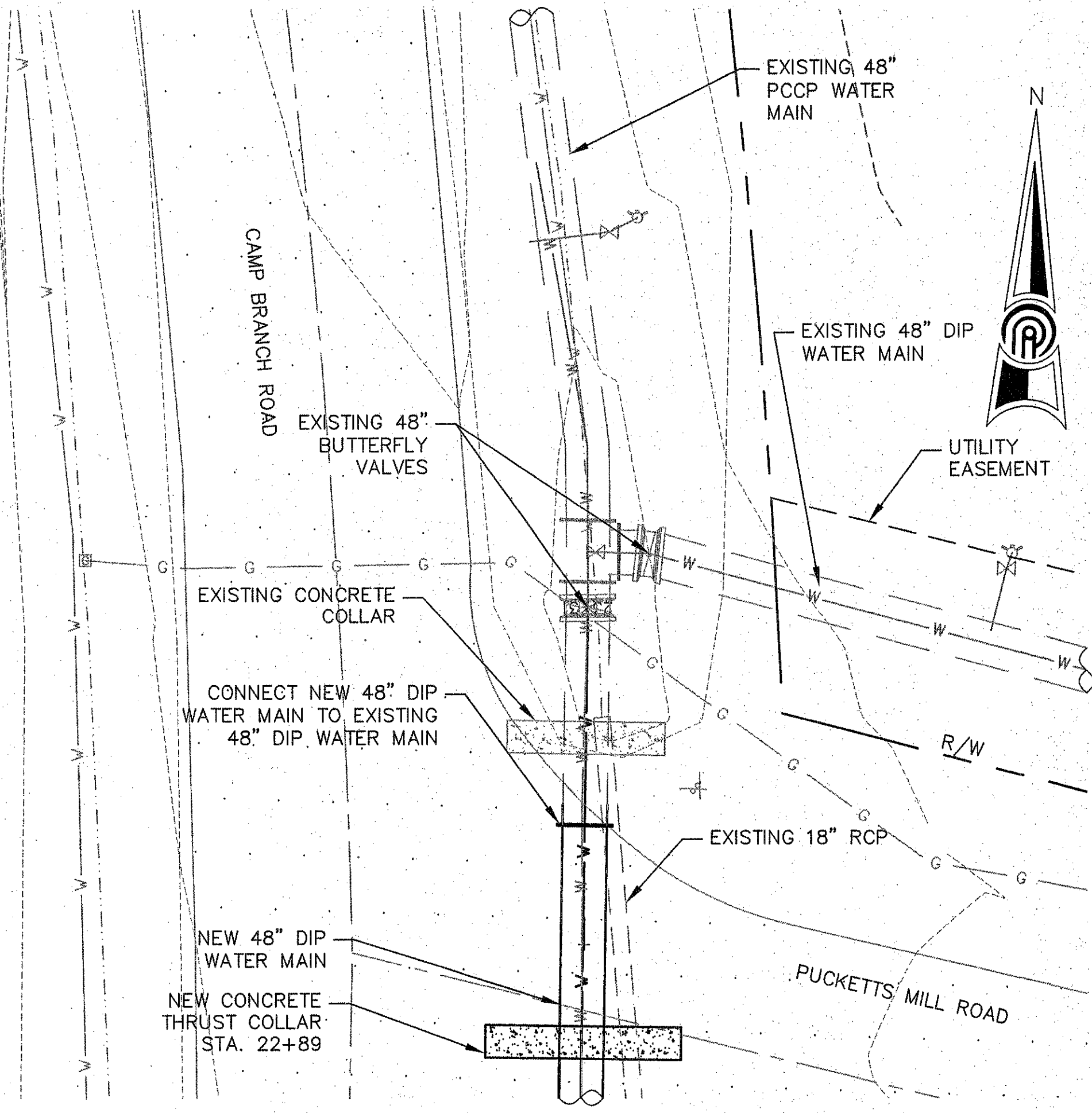
**NOTES:**

- EXISTING WATER MAIN CONFIGURATION SHOWN FROM AS-BUILT PLANS PREPARED BY CARDOZO ENGINEERING, INC, DATED DECEMBER 17, 2014. ACTUAL CONFIGURATION AND ALIGNMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INSTALLATION OF THE NEW WATER MAIN.
- REMOVE APPROXIMATELY 70 LF OF EXISTING 48" PCCP PIPE TO ALLOW FOR INSTALLATION OF THRUST BLOCKS.
- ANY/ALL EXISTING EARTH OR ROCK MATERIALS THAT ARE DISTURBED WITHIN THE LATERAL OR VERTICAL BEARING ZONE OF THE CONCRETE THRUST BLOCK SHALL BE REMOVED AND REPLACED WITH CLASS "B" CONCRETE IN ACCORDANCE WITH GDOT SPECIFICATION SECTION 500.



- NOTES:**
- CONCRETE FOR THRUST BLOCKS SHALL BE FORMED AROUND THE FITTING SO THAT REMOVAL OF GLANDS, BOLTS, RETAINERS, ETC. ARE NOT OBSTRUCTED BY CONCRETE.
  - SOIL CONDITIONS MUST BE VERIFIED BY THE GCDWR INSPECTOR BEFORE THRUST BLOCK IS POURED.
  - BEARING AREAS ARE BASED ON SOIL BEARING CAPACITY AS SHOWN ON EACH THRUST DETAIL, 250 PSI DESIGN PRESSURE, AND MINIMUM 1.5 SAFETY FACTOR. IF WEAK (LESS THAN DESIGN PSF RESISTANCE) SOIL POCKETS ARE ENCOUNTERED, INCREASE THE BEARING AREAS SHOWN TO PREVENT MOVEMENT UNDER TEST OR OPERATING PRESSURES. COMPACTION OF BACKFILL AROUND THRUST BLOCKS SHALL BE COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR.
  - A GEOTECHNICAL ENGINEER'S REPRESENTATIVE SHALL BE PRESENT DURING EXCAVATION AND PLACEMENT OF ALL THRUST BLOCKS AND BACKFILL CONCRETE.

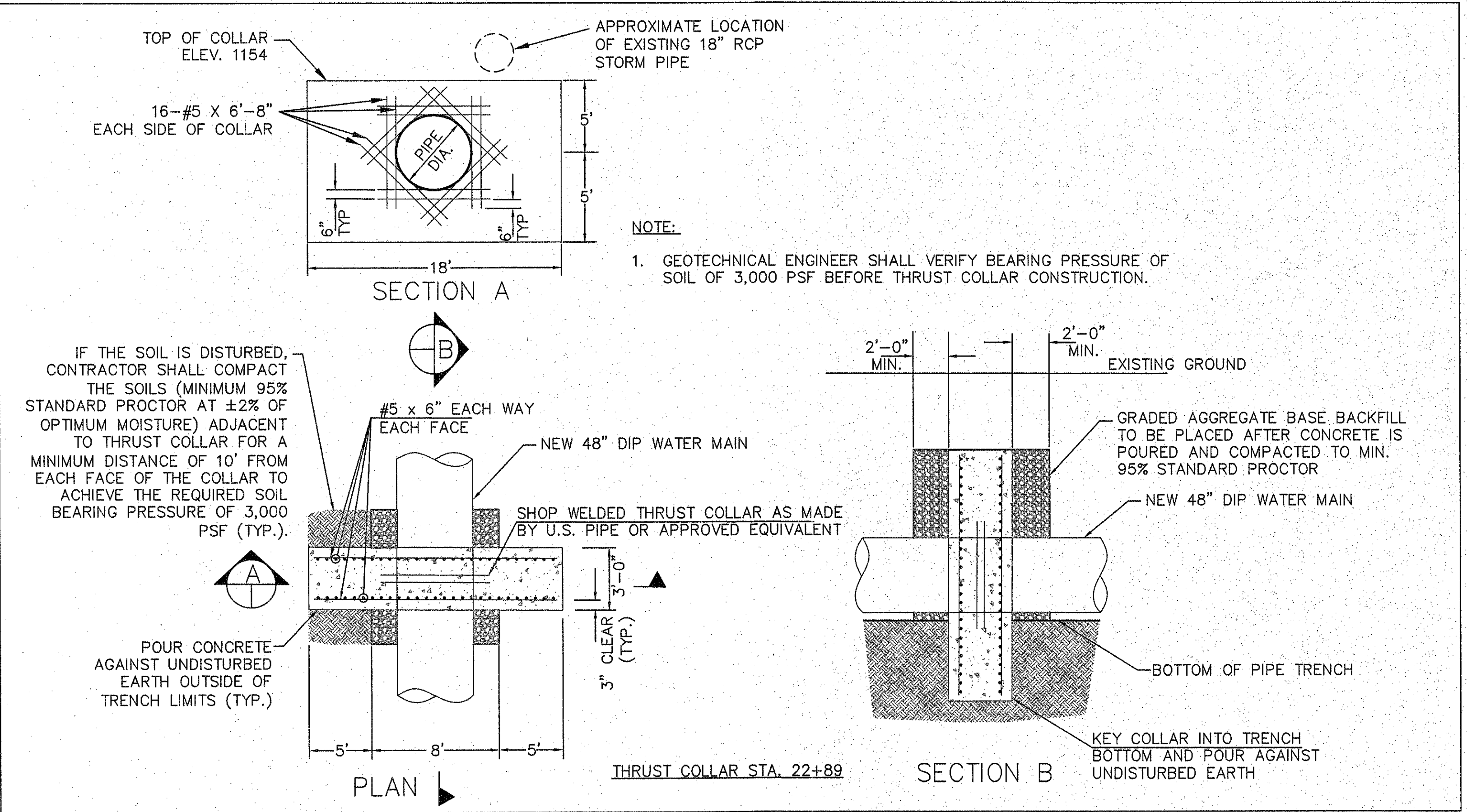
**G12a THRUST BLOCK DETAILS**  
N.T.S.



**C2 STA. 23+11 TIE-IN DETAIL**  
SCALE: 1"=10'

**NOTES:**

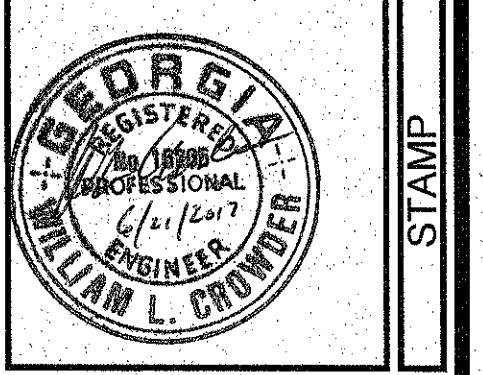
- EXISTING WATER MAIN CONFIGURATION SHOWN FROM CONSTRUCTION PLANS PREPARED BY BLACK & VEATCH, INC, DATED SEPTEMBER 15, 2005 AND GCDWR VERBAL REPORTS. ACTUAL CONFIGURATION SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO INSTALLATION OF THE NEW WATER MAIN.
- CONTRACTOR SHALL INVESTIGATE BY EXCAVATION TO UNCOVER THE END OF THE EXISTING 48" DIP WATER MAIN WHERE IT CONNECTS TO THE EXISTING 48" PCCP WATER MAIN TO CONFIRM THE HORIZONTAL AND VERTICAL LOCATION OF THE CONNECTION POINT AT APPROXIMATELY STA. 23+11 WHEN THE WATER MAIN CONSTRUCTION REACHES STA. 23+00, AND REPORT FINDINGS IN WRITING TO GCDWR BEFORE CONTINUATION OF WATER MAIN INSTALLATION.



**NOTE:**

- GEOTECHNICAL ENGINEER SHALL VERIFY BEARING PRESSURE OF SOIL OF 3,000 PSF BEFORE THRUST COLLAR CONSTRUCTION.

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**48-INCH PCCP  
REPLACEMENT (I-85  
INTERCHANGE AT  
SR 324)**

CONSTRUCTION DETAILS	SHEET TITLE	DESIGN	DRAWN	CHECKED
		FHC	FHC	WLL

DATE	NO.	DESCRIPTION	RELEASE
6/15/17	0	ISSUED FOR BID	
E16151 PPI PROJECT NO.			

**9**

PLOT DATE: 7/17/2017 9:13 AM FILE PATH: \\PROJECTS\3081\3081-WR-SR-324\DWG\DETAILS\G12a.DWG - 2017-07-17 - RICHARD OSWOWER

Table 6H-2. Meaning of Symbols on Typical Application Diagrams

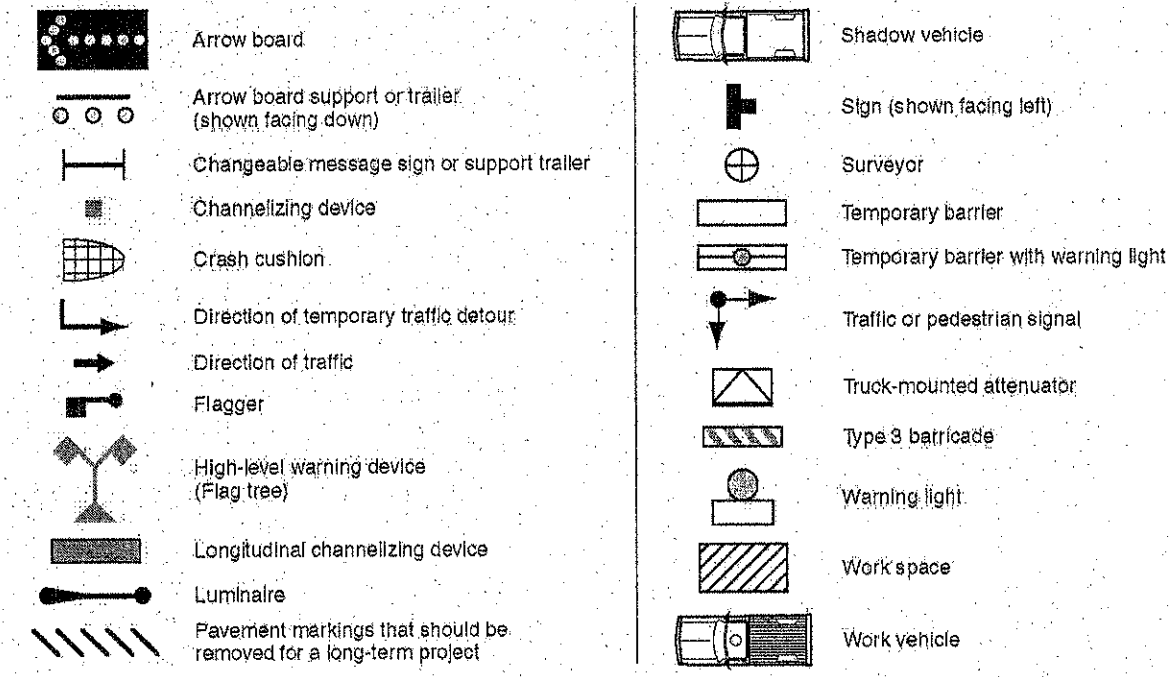


Table 6H-3. Meaning of Letter Codes on Typical Application Diagrams

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)	100 feet	100 feet	100 feet
Urban (high speed)	350 feet	350 feet	350 feet
Rural	400 feet	400 feet	300 feet
Expressway / Freeway	1,000 feet	1,200 feet	2,640 feet

\* Speed category to be determined by highway agency.  
 \*\* The column headings A, B, and C are the dimensions shown in Figures 6H-1 through 6H-4B. The A dimension is the distance from the location or point of reaction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign" is the sign that is furthest upstream from the TTC zone.)

Table 6H-4. Formulas for Determining Taper Length

Speed (S)	Taper Length (L) In feet
45 mph or less	$L = \frac{WS^2}{60}$
45 mph or more	$L = WS$

Where: L = taper length in feet  
 W = width of offset in feet  
 S = posted speed limit, or off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph

Notes for Figure 6H-10—Typical Application 10 Lane Closure on a Two-Lane Road Using Flaggers

- Option:
- For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6E).
  - The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short-duration operations.
  - Flashing warning lights and/or flags may be used to call attention to the advance warning signs. A BE PREPARED TO STOP sign may be added to the sign series.
- Guidance:
- The buffer space should be extended so that the two-way traffic taper is placed before a horizontal (or crest vertical) curve to provide adequate sight distance for the flagger and a queue of stopped vehicles.
- Standards:
- At night, flagger stations shall be illuminated, except in emergencies.
- Guidance:
- When used, the BE PREPARED TO STOP sign should be located between the flagger sign and the ONE LANE ROAD sign.
  - When a grade crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the grade crossing, the TTC zone should be extended so that the transition area precedes the grade crossing.
  - When a grade crossing equipped with active warning devices exists within the activity area, provisions should be made for keeping flaggers informed as to the activation status of these warning devices.
  - When a grade crossing exists within the activity area, drivers operating on the left-hand side of the normal center line should be provided with comparable warning devices as for drivers operating on the right-hand side of the normal center line.
  - Early coordination with the railroad company or light rail transit agency should occur before work starts.
- Option:
- A flagger or a uniformed law enforcement officer may be used at the grade crossing to minimize the probability that vehicles are stopped within 15 feet of the grade crossing, measured from both sides of the outside rails.

Notes for Figure 6H-13—Typical Application 13 Temporary Road Closure

- Support:
- Conditions represented are a planned closure not exceeding 20 minutes during the daytime.
- Standard:
- A flagger or uniformed law enforcement officer shall be used for this application. The flagger, if used for this application, shall follow the procedures provided in Sections 6E.07 and 6E.08.
- Guidance:
- The uniformed law enforcement officer, if used for this application, should follow the procedures provided in Sections 6E.07 and 6E.08.
- Option:
- A BE PREPARED TO STOP sign may be added to the sign series.
- Guidance:
- When used, the BE PREPARED TO STOP sign should be located before the flagger symbol sign.

Figure 6H-10. Lane Closure on a Two-Lane Road Using Flaggers (TA-10)

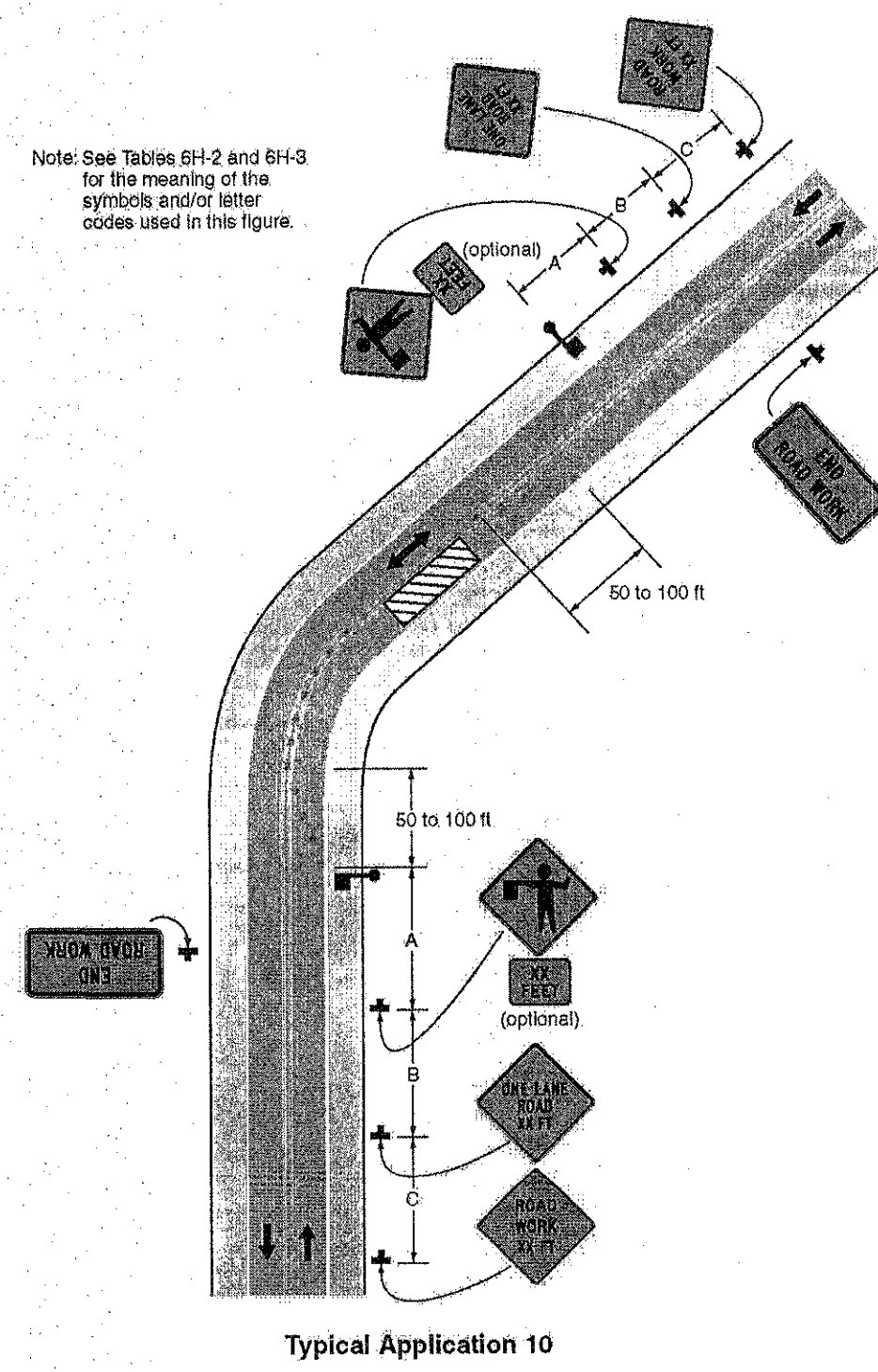
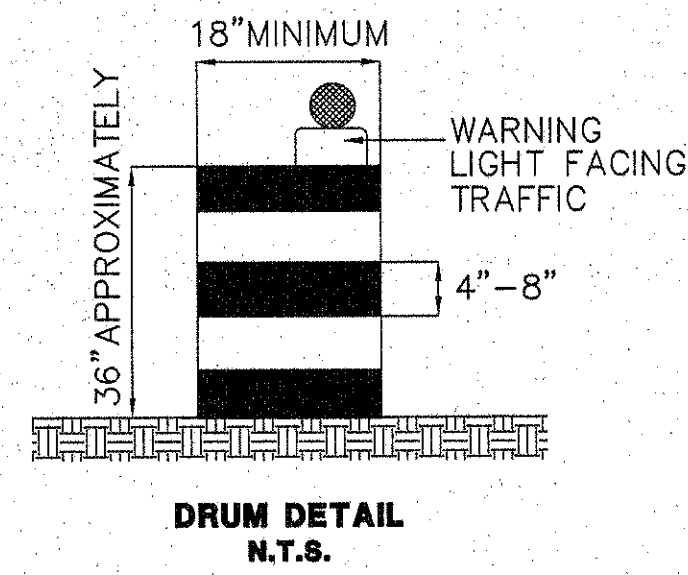
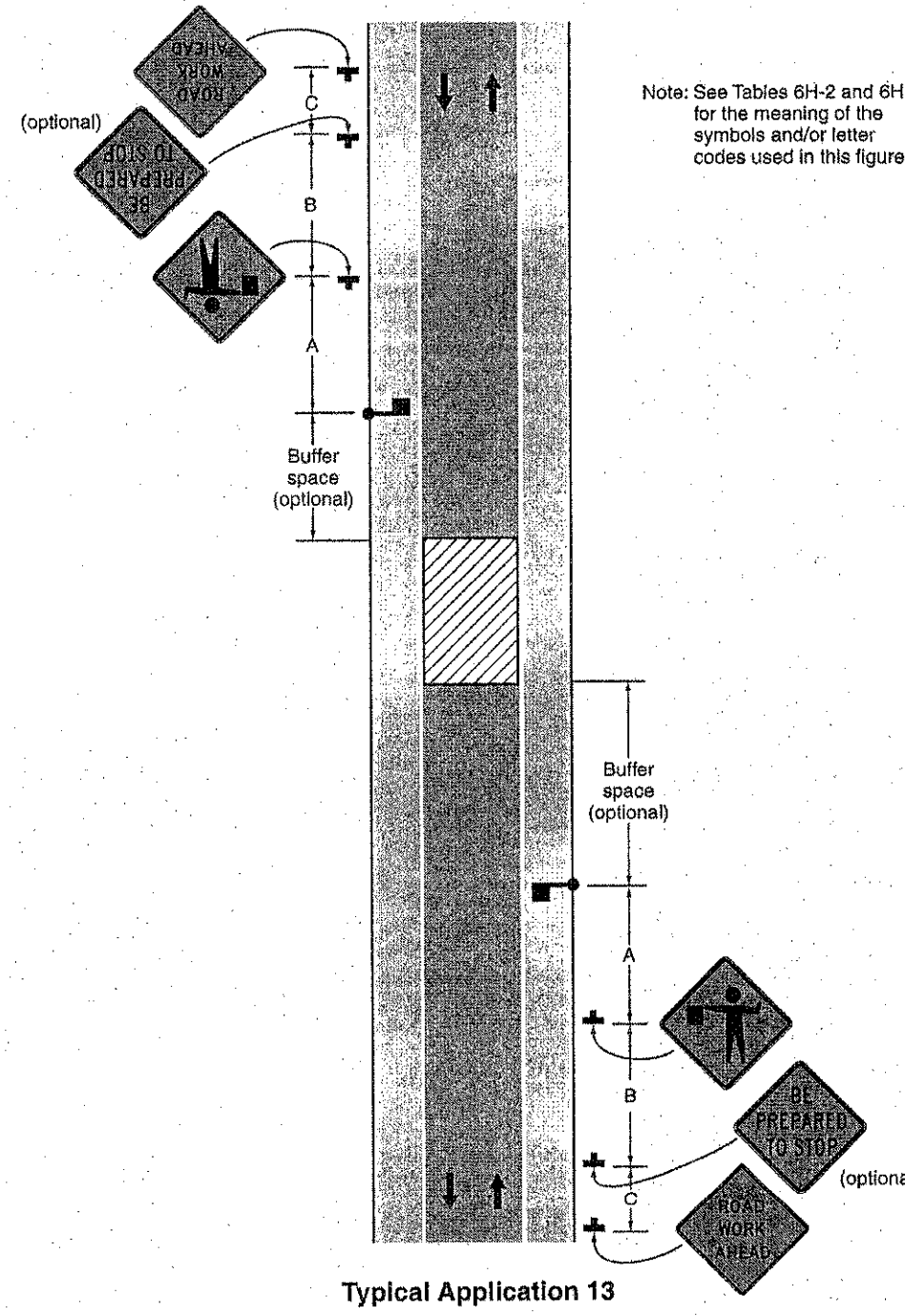


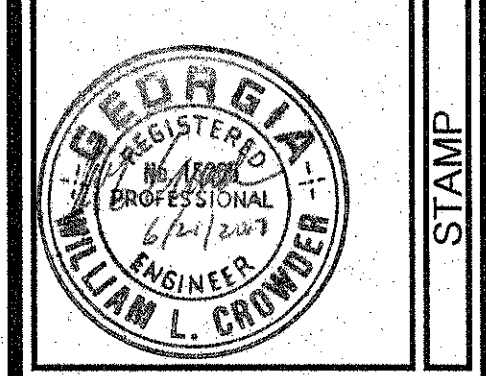
Figure 6H-13. Temporary Road Closure (TA-13)



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48-INCH PCCP  
 REPLACEMENT (1-85  
 INTERCHANGE AT  
 SR 324)

TRAFFIC CONTROL  
 PLAN

SHEET TITLE

DESIGN: RHC  
 DRAWN: RHC  
 CHECKED: LLL

DATE	NO.	DESCRIPTION
6/15/17	0	ISSUED FOR BID

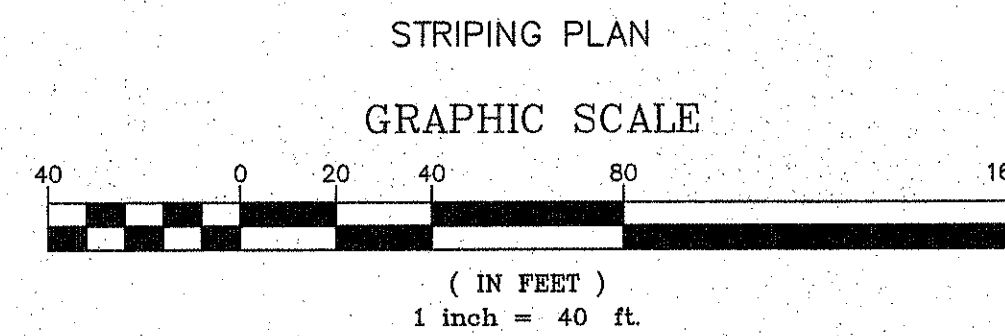
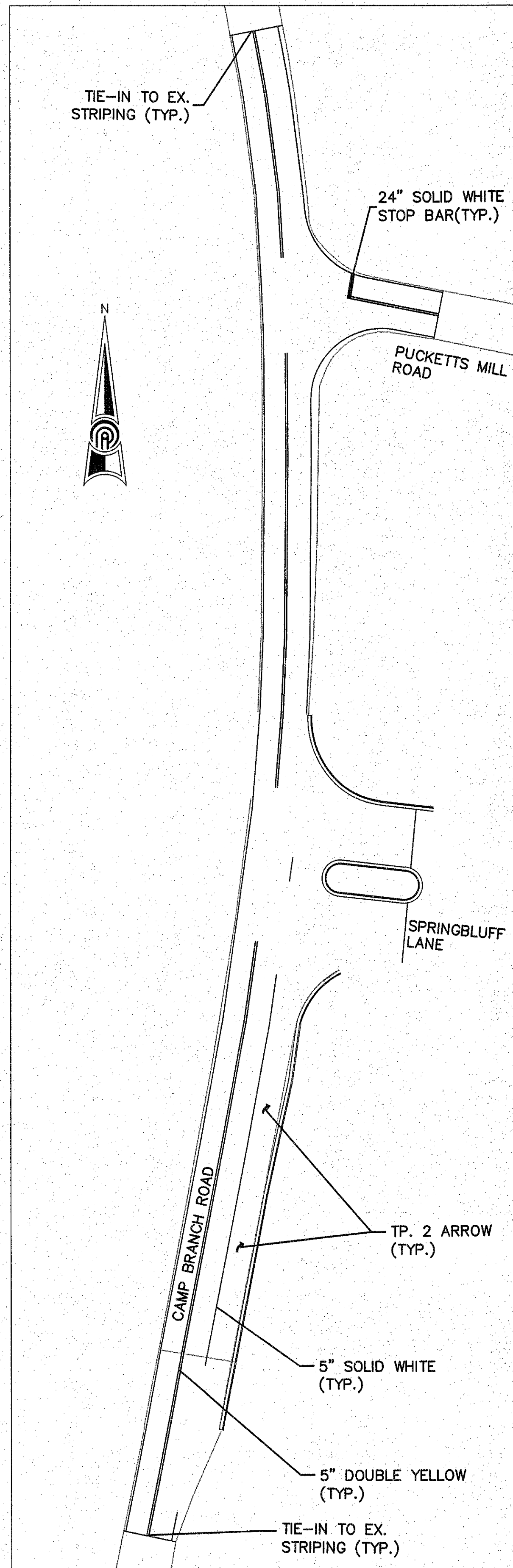
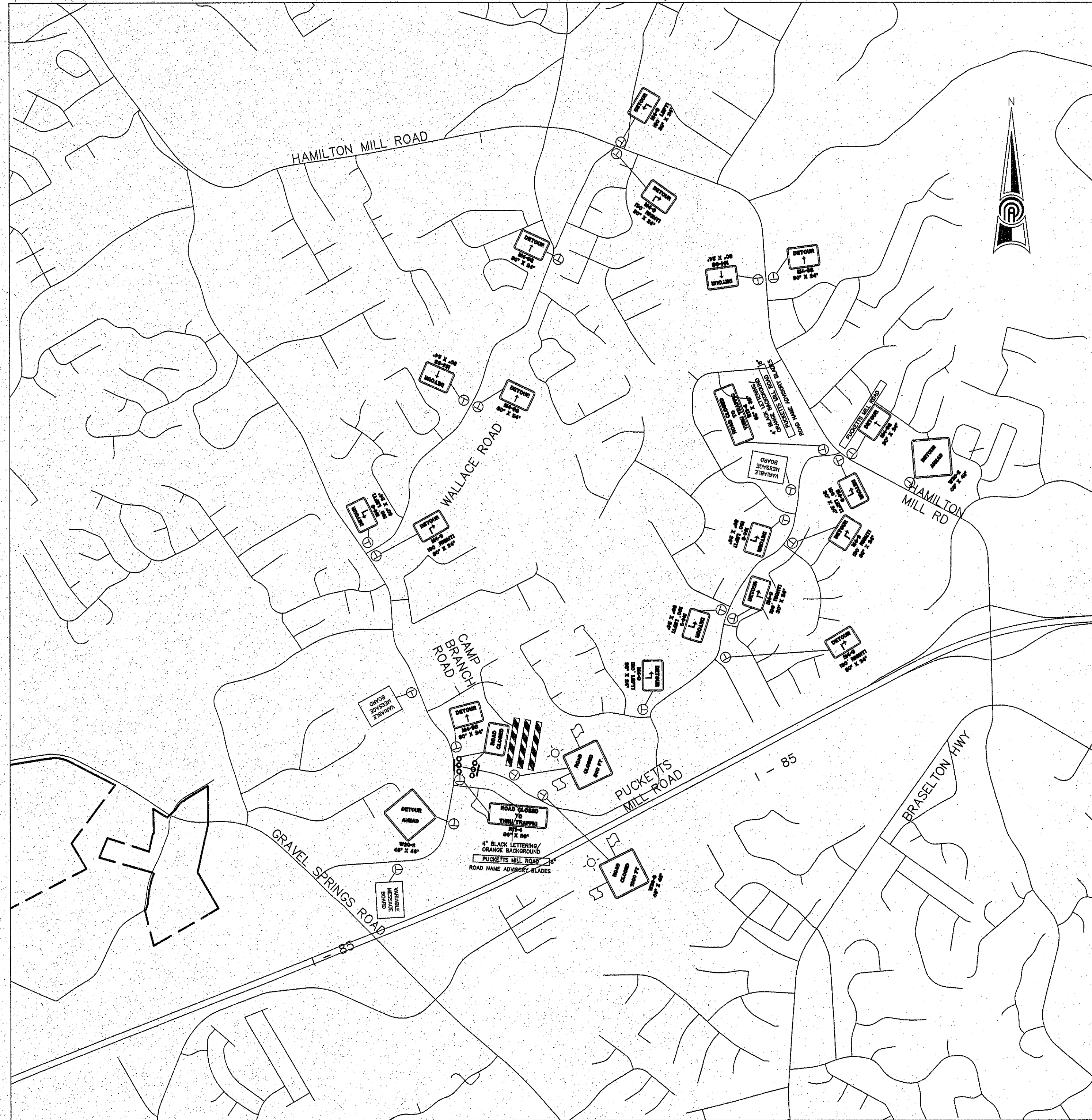
RELEASE

E16151  
 PPI PROJECT NO.

10

**NOTES:**

- ALL SIDEWALKS DISTURBED DUE TO CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS AND IN ACCORDANCE WITH GWINNETT COUNTY STANDARDS AND REQUIREMENTS.



**NOTE: USE VMS BOARD FOR INFO SIGN**

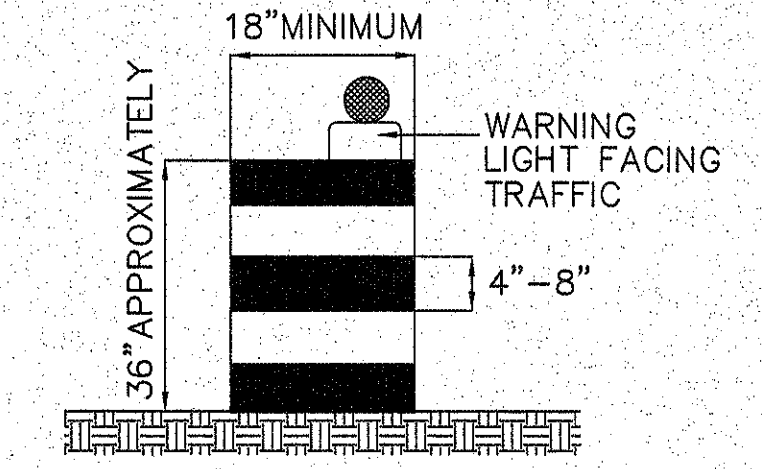
INFORMATION SIGN SHALL READ:

**MESSAGE 1**  
NOTE: INSTALL TWO WEEKS PRIOR TO CONSTRUCTION.

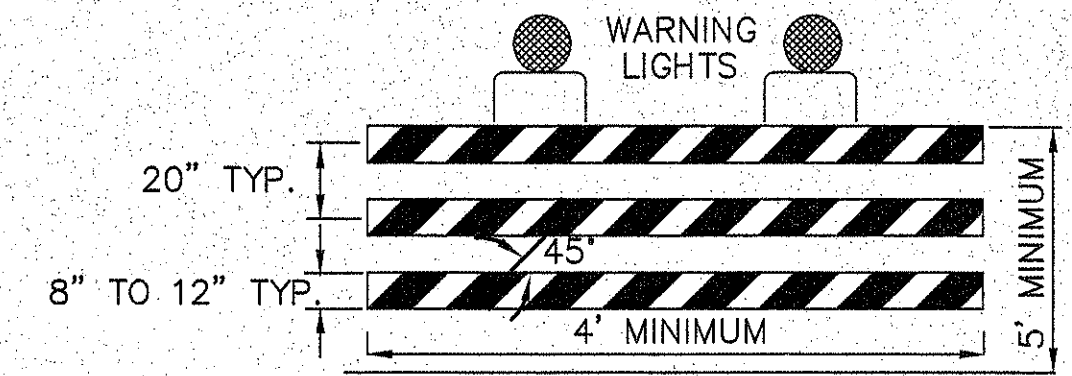
**MESSAGE 2**

PUCKETTS MILL ROAD  
CLOSURE STARTING (DATE)  
CALL 678-376-6700

PUCKETTS MILL ROAD CLOSED  
AFTER  
(ROAD NAME)



NOTE: DRUMS TO BE PLACED WITH BARRICADES WITH MINIMUM TWO PER LANE CLOSURE



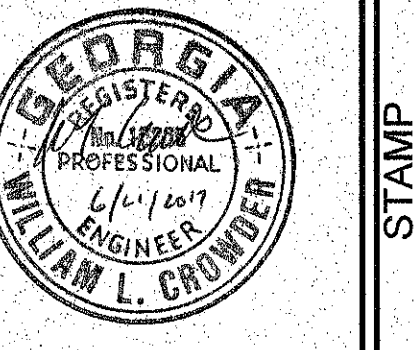
NOTE: MINIMUM ONE BARRICADE PER LANE CLOSED.

- DETOUR NOTES:**
- CONTRACTOR SHALL NOTIFY GWINNETT COUNTY D.O.T. OF DATES ROAD IS TO BE CLOSED AT LEAST 14 DAYS PRIOR TO ROAD CLOSURE.
  - ALL SIGNS SHALL BE ACCORDING TO GA. D.O.T. SPEC. SECTION 150.
  - ALL SIGNS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES ANSI D6.1, (LATEST EDITION).
  - CONTRACTOR SHALL INSPECT ALL TRAFFIC CONTROL DEVICES DAILY TO MAKE CERTAIN ALL DEVICES ARE PROPERLY MAINTAINED AND VISIBLE TO MOTORISTS.
  - CONTRACTOR MUST MAKE CERTAIN THAT DETOUR/ROAD CLOSED SIGNS DO NOT BLOCK MOTORISTS' VIEW OF EXISTING TRAFFIC SIGNS.
  - TYPE III BARRICADES SHALL HAVE TYPE "A" LIGHTS AND BE SECURED WITH SANDBAGS.
  - CONTRACTOR SHALL COORDINATE WITH RESIDENTS IN PROJECT AREA THROUGHOUT CONSTRUCTION OF THE PROJECT AND ALLOW FOR ACCESS TO THOSE PROPERTIES.
  - CONTRACTOR SHALL NOTIFY THE PUBLIC A MINIMUM OF 14 DAYS PRIOR TO THE ROAD CLOSURE BY USE OF THE VARIABLE MESSAGE BOARDS.
  - GWINNETT COUNTY DOT PROJECT AT THIS LOCATION COORDINATE WITH BRITTON LOCKHEART PROJECT MANAGER AT 770-822-7490.

PLOT DATE: 6/20/2017 2:49 PM FILE PATH: W:\PROJECTS\2016\16151-MR-SR-324\DWG\16151-C701\_TRAFFIC CONTROL PLANDWG - 2017-06-20 - RICHARD CROWDER

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REPLACEMENT (I-85  
INTERCHANGE AT  
SR 324)**

TRAFFIC CONTROL PLAN	CHECKED	WLC
SHEET TITLE	DRAWN	RHC
	DESIGN	RHC

DATE	NO.	DESCRIPTION
6/15/17	0	ISSUED FOR BID

E16151  
PPI PROJECT NO.

11

**OWNER/PRIMARY PERMITTEE:**  
**GWINNETT COUNTY DEPT. OF WATER RESOURCES**  
 684 WINDER HIGHWAY  
 LAWRENCEVILLE, GA 30045  
 PH. 678-376-6700

**24-HOUR EMERGENCY CONTACT:**  
 GCDWR  
 (678) 376-7000



Know what's below.  
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**SOIL EROSION NOTES**

1. DISTURBED AREA CALCULATIONS INDICATE MAXIMUM TOTAL AREA DISTURBED DURING CONSTRUCTION AND IS LIMITED TO EASEMENT AREAS SHOWN FOR TRENCHING OPERATIONS WITHIN RIGHTS-OF-WAY, THE AREAS INCLUDE TRENCH, EQUIPMENT TRACK, AND SPOIL HEAP WIDTHS.

TOTAL PROJECT AREA: 3.0± ACRES  
 TOTAL DISTURBED AREA: 3.0± ACRES

2. GPS COORDINATES OF THE PROJECT LOCATION ARE LATITUDE 34.064810° N AND LONGITUDE 83.944610° W.
3. DESCRIPTION OF THE NATURE OF CONSTRUCTION ACTIVITY: THIS INFRASTRUCTURE PROJECT INCLUDES CONSTRUCTION OF APPROXIMATELY 2,300 LF OF 48" WATER MAIN. LINWORK WILL BE INSTALLED BY TRENCHING AND EXISTING GRADE WILL BE RESTORED OVER THE PIPELINE.
4. THE RECEIVING WATER IS A TRIBUTARY TO LITTLE IVEY CREEK. THERE ARE NO WETLANDS OR OTHER SENSITIVE AREAS IDENTIFIED ON OR ADJACENT TO THE SITE.

**CERTIFICATION STATEMENTS:**

"I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATION DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT UNDER MY SUPERVISION."

"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100002."

"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR THE MONITORING OF: (A) ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES SHOWN ON THE USGS TOPOGRAPHIC MAP AND ALL OTHER FIELD VERIFIED PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES, OR (B) WHERE ANY SUCH SPECIFIC IDENTIFIED PERENNIAL OR INTERMITTENT STREAM AND OTHER WATER BODY IS NOT PROPOSED TO BE SAMPLED, I HAVE DETERMINED IN MY PROFESSIONAL JUDGMENT, UTILIZING THE FACTORS REQUIRED IN THE GENERAL NPDES PERMIT NO. GAR 100002, THAT THE INCREASE IN THE TURBIDITY OF EACH SPECIFIC IDENTIFIED SAMPLED RECEIVING WATER WILL BE REPRESENTATIVE OF THE INCREASE IN THE TURBIDITY OF A SPECIFIC IDENTIFIED UN-SAMPLED RECEIVING WATER."

*William L. Crowder*  
 SIGNATURE OF DESIGN PROFESSIONAL

6. THE DESIGN PROFESSIONAL WHO PREPARED THE ES&PC PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS, PERIMETER CONTROL BMPs AND SEDIMENT BASINS IN ACCORDANCE WITH PART IV.A.5 WITHIN 7 DAYS AFTER INSTALLATION.
7. NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50-FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.
8. AMENDMENTS/REVISIONS TO THE ES&PC PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY A DESIGN PROFESSIONAL.
9. WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.
10. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO LAND DISTURBING ACTIVITIES.
11. EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
12. ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.
13. CONSTRUCTION ACTIVITY DOES NOT DISCHARGE STORM WATER INTO AN IMPAIRED STREAM SEGMENT, OR WITHIN 1 LINEAR MILE UPSTREAM OF ANY PORTION OF A BIOTA-IMPAIRED STREAM SEGMENT.
14. **CONCRETE WASHDOWN:** WASHOUT OF THE DRUM AT THE CONSTRUCTION SITE IS PROHIBITED. AN AREA HAS BEEN INDICATED ON THE PLANS FOR WASHDOWN OF TOOLS FOR CONCRETE INSTALLATION.
15. **REMEDIATION OF PETROLEUM SPILLS AND LEAKS:** ANY LEAKS OR SPILLS OF PETROLEUM PRODUCTS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTAIN, CONTROL, AND REMEDIATE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL GUIDELINES, ORDINANCES, AND LAWS.
- LOCAL, STATE AND MANUFACTURER'S RECOMMENDED METHODS FOR SPILL CLEANUP WILL BE CLEARLY POSTED AND PROCEDURES WILL BE MADE AVAILABLE TO SITE PERSONNEL.
  - MATERIAL AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREAS. TYPICAL MATERIALS AND EQUIPMENT INCLUDES, BUT IS NOT LIMITED TO, BROOMS, DUSTPANS, MOPS, RAGS, GLOVES, GOGGLES, CAT LITTER, SAND, SAWDUST, AND PROPERLY LABELED PLASTIC AND METAL WASTE CONTAINERS.
  - PETROLEUM SPILLS SHALL BE IMMEDIATELY CONTAINED. ALL INLETS MUST BE PLUGGED IMMEDIATELY, AND THE PETROLEUM DIRECTED AWAY FROM RECEIVING WATERS OR STORM DRAINAGE SYSTEMS. CLEANUP MAY BE ACCOMPLISHED BY, BUT IS NOT LIMITED TO, SWEEPING, SHOVELING, AND VACUUMING ALONG WITH THE USE OF SORBENTS AND GELS.
  - ANY CONTAMINATED SOILS MUST BE REMOVED FROM THE SITE IMMEDIATELY AND REPLACED WITH SOIL OF SIMILAR PROPERTIES.
  - SPILL PREVENTION PRACTICES AND PROCEDURES WILL BE REVIEWED AFTER A SPILL AND ADJUSTED AS NECESSARY TO PREVENT FUTURE SPILLS.
  - ALL SPILLS WILL BE CLEANED UP IMMEDIATELY UPON DISCOVERY. ALL SPILLS WILL BE REPORTED AS REQUIRED BY LOCAL, STATE, AND FEDERAL REGULATIONS.
  - FOR SPILLS THAT IMPACT SURFACE WATER (LEAVE A SHEEN ON SURFACE WATER), THE NATIONAL RESPONSE CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675.
  - FOR SPILLS OF AN UNKNOWN AMOUNT, THE NATIONAL CENTER (NRC) WILL BE CONTACTED WITHIN 24 HOURS AT 1-800-426-2675.
  - FOR SPILLS GREATER THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE GEORGIA EPD WILL BE CONTACTED WITHIN 24 HOURS.
  - FOR SPILLS LESS THAN 25 GALLONS AND NO SURFACE WATER IMPACTS, THE SPILL WILL BE CLEANED UP AND LOCAL AGENCIES WILL BE CONTACTED AS REQUIRED.
  - THE CONTRACTOR SHALL NOTIFY THE LICENSED PROFESSIONAL WHO PREPARED THIS PLAN IF MORE THAN 1320 GALLONS OF PETROLEUM IS STORED ON-SITE (THIS INCLUDES CAPACITIES OF EQUIPMENT) OR IF ANY ONE PIECE OF EQUIPMENT HAS A CAPACITY GREATER THAN 680 GALLONS. THE CONTRACTOR WILL NEED A SPILL PREVENTION CONTAINMENT AND COUNTERMEASURES PLAN PREPARED BY THAT LICENSED PROFESSIONAL AT THE CONTACTOR'S EXPENSE.

**SOIL EROSION NOTES, CONT.**

16. DESCRIPTION OF PRACTICES THAT WILL BE USED TO REDUCE AND CONTROL POLLUTANTS IN STORM WATER DISCHARGES: POLLUTANTS OR POTENTIALLY HAZARDOUS MATERIALS, SUCH AS FUELS, LUBRICANTS, LEAD PAINT, CHEMICALS, OR BATTERIES, SHALL BE TRANSPORTED, STORED, AND UTILIZED IN A MANNER TO PREVENT LEAKAGE OR SPILLAGE INTO THE ENVIRONMENT. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROPER AND LEGAL DISPOSAL OF ALL SUCH MATERIALS. EQUIPMENT, ESPECIALLY CONCRETE OR ASPHALT TRUCKS, SHALL NOT BE WASHED OR CLEANED OUT ON THE PROJECT EXCEPT IN AREAS WHERE UNUSED PRODUCT CONTAMINANTS CAN BE PREVENTED FROM ENTERING WATERWAYS.

PETROLEUM BASED PRODUCTS - CONTAINERS FOR PRODUCTS SUCH AS FUELS, LUBRICANTS, AND TARS WILL BE INSPECTED DAILY FOR LEAKS AND SPILLS. THIS INCLUDES ONSITE VEHICLES AND MACHINERY DAILY INSPECTIONS AND REGULAR PREVENTATIVE MAINTENANCE OF SUCH EQUIPMENT. EQUIPMENT MAINTENANCE AREAS WILL BE LOCATED AWAY FROM STATE WATERS, NATURAL DRAINS, AND STORM WATER DRAINAGE INLETS. IN ADDITION, TEMPORARY FUELING TANKS SHALL HAVE A SECONDARY CONTAINMENT LINER TO PREVENT/MINIMIZE SITE CONTAMINATION. DISCHARGE OF OILS, FUELS, AND LUBRICANTS IS PROHIBITED. PROPER DISPOSAL METHODS WILL INCLUDE COLLECTION IN A SUITABLE CONTAINER AND DISPOSAL AS REQUIRED BY LOCAL AND STATE REGULATIONS.

PAINT/FINISHES/SOLVENTS - ALL PRODUCT WILL BE STORED IN TIGHTLY SEALED ORIGINAL CONTAINERS WHEN NOT IN USE. EXCESS PRODUCT WILL NOT BE DISCHARGED TO THE STORM WATER COLLECTION SYSTEM. EXCESS PRODUCT, MATERIALS USED WITH THESE PRODUCTS, AND PRODUCT CONTAINERS WILL BE DISPOSED OF ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

CONCRETE TRUCK WASHING - NO CONCRETE TRUCKS WILL BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ONSITE.

FERTILIZER/HERBICIDES - THESE PRODUCTS WILL BE APPLIED AT RATES THAT DO NOT EXCEED THE MANUFACTURER'S SPECIFICATIONS OR ABOVE THE GUIDELINES SET FORTH IN THE CROP ESTABLISHMENT OR IN THE GSWCC MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA. ANY STORAGE OF THESE MATERIALS WILL BE UNDER ROOF IN SEALED CONTAINERS.

BUILDING MATERIALS - NO BUILDING OR CONSTRUCTION MATERIALS WILL BE BURIED OR DISPOSED OF ONSITE. ALL SUCH MATERIAL WILL BE DISPOSED OF IN PROPER WASTE DISPOSAL PROCEDURES.

17. DESCRIPTION OF CONTROLS AND MEASURES FOR SEDIMENT CONTROL: AT A MINIMUM, THE FOLLOWING EROSION CONTROL MEASURES SHALL BE UTILIZED IN THE CONSTRUCTION OF THE PROJECT AS INDICATED ON THE PHASED ES&PC PLAN:

- A. SILT FENCE SHALL BE INSTALLED AT APPROPRIATE LOCATIONS TO PREVENT SEDIMENT FROM BEING WASHED OFF OF THE SITE.
- B. CHECK DAMS WILL BE CONSTRUCTED WHERE CONCENTRATED RUNOFF MAY OCCUR ACROSS THE PROJECT SITE.
- C. TEMPORARY AND PERMANENT GRASSING/SODDING AND MULCHING SHALL BE USED TO REESTABLISH VEGETATION ON THE DISTURBED AREAS AS CONSTRUCTION PROCEEDS.
- D. CONSTRUCTION EXITS SHALL BE USED TO PREVENT THE TRANSPORT OF MUD FROM MATERIAL. EQUIPMENT STORAGE AREAS AND CONSTRUCTION ROAD STABILIZATION WILL BE USED WHERE CONSTRUCTION TRAFFIC IS REQUIRED TO PREVENT EROSION FROM THESE AREAS.

18. JUSTIFICATION TO USE EQUIVALENT CONTROLS FOR SEDIMENT STORAGE ON LINEAR PORTIONS OF THE PROJECT: A MINIMUM OF 67 CY OF SEDIMENT STORAGE PER ACRE IS NOT ATTAINABLE USING A TEMPORARY SEDIMENT BASIN. THEREFORE, A MINIMUM OF 67 CY/ACRE SEDIMENT STORAGE IS PROVIDED USING EQUIVALENT CONTROLS. AT 1/3-FULL (0.33' SEDIMENT DEPTH) AND AT MAXIMUM SLOPE OF 5:1, EACH LINEAR FOOT OF Sd1 SILT FENCE HOLDS 1.74 CF OF SEDIMENT. APPROXIMATELY 3,815 LF OF SILT FENCE IS SHOWN ON THE PLANS FOR THE LINWORK WHICH CAN PROVIDE 246 CY OF STORAGE. THE REQUIRED STORAGE IS (67 CY/ACRE x 2.8 ACRES) 188 CY TOTAL. AVAILABLE STORAGE EXCEEDS REQUIRED STORAGE.

19. IT SHALL BE THE RESPONSIBILITY OF THE PERSON PERFORMING THE CONSTRUCTION OPERATIONS TO INSTALL AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES INDICATED ON THESE DRAWINGS OR TO PROVIDE ADDITIONAL MEASURES AS DEEMED NECESSARY BY SITE CONDITIONS.

20. ADDITIONAL MEASURES SHALL BE ADDED IF DETERMINED TO BE NECESSARY BY ON-SITE INSPECTIONS AND/OR BY THE GOVERNING AUTHORITY.

21. STANDARDS AND SPECIFICATIONS: ALL DESIGNS WILL CONFORM TO AND ALL WORK WILL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE 'MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA' (LATEST EDITION), PUBLISHED BY THE GEORGIA SOIL AND WATER CONSERVATION COMMISSION.

22. REMOVE ACCUMULATED SEDIMENT FROM CHECK DAMS (Cd) WHEN THE STORAGE CAPACITY HAS BEEN REDUCED BY 1/3. REMOVED SEDIMENT SHALL BE RETURNED TO ANY ERODED AREAS UPSTREAM OF THE SEDIMENT TRAPS AND IMMEDIATELY SEEDED.

23. SURVEY INFORMATION: TOPOGRAPHIC INFORMATION TAKEN FROM PRECISION PLANNING, INC. SURVEY AND USGS TOPOGRAPHIC MAP.

24. SOILS INFORMATION: SOILS INFORMATION TAKEN FROM SOIL SURVEY OF GWINNETT COUNTY, GEORGIA BY USDA SOIL CONSERVATION SERVICE IN COOPERATION WITH UNIVERSITY OF GEORGIA COLLEGE OF AGRICULTURE AGRICULTURAL EXPERIMENT STATIONS.

25. TEMPORARY EROSION MEASURES: TEMPORARY EROSION CONTROL STRUCTURES, MEASURES, AND DEVICES SHALL BE INSTALLED AND OPERATIONAL PRIOR TO ANY LAND DISTURBING ACTIVITY. IF, DURING ANY STAGE OF CONSTRUCTION, ADDITIONAL MEASURES ARE DEEMED NECESSARY THEY SHALL BE INSTALLED AS SOON AS POSSIBLE AFTER NOTIFICATION.

26. MAINTENANCE OF TEMPORARY EROSION CONTROL MEASURES SHALL BE REQUIRED THROUGHOUT ALL STAGES OF CONSTRUCTION. MAINTENANCE SHALL BE IN ACCORDANCE WITH THE EROSION CONTROL MANUAL CHAPTER 6 AND THE EROSION CONTROL DETAILS INCLUDED ON THESE DRAWINGS. MAINTENANCE OF ALL EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE PERSON PERFORMING THE CONSTRUCTION.

27. PERMANENT EROSION MEASURES: PERMANENT EROSION CONTROL STRUCTURES SHALL BE INSTALLED AS CONSTRUCTION PROGRESSES. PERMANENT VEGETATIVE MEASURES SHALL BE PLACED IMMEDIATELY DURING THE VARIOUS STAGES OF CONSTRUCTION.

28. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL LAND DISTURBED DURING CONSTRUCTION HAS STABILIZED AND A STRONG STAND OF PERMANENT VEGETATION HAS BEEN ESTABLISHED. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED UNTIL THE OWNER APPROVES REMOVAL.

29. TRENCH BACKFILL AND COMPACTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CONSTRUCTION SPECIFICATIONS. TRENCHES SHALL BE BACKFILLED AND COMPACTED TO MINIMIZE SETTLEMENT AND SCOURING. IT IS THE RESPONSIBILITY OF THE PERSON PERFORMING THE CONSTRUCTION TO CORRECT ANY SETTLED OR SCOURED AREAS THROUGHOUT THE WARRANTY PERIOD.

30. WATER AND SEWER LINES ARE EXEMPT FROM 50- AND 75-FOOT BUFFERS. A 25-FOOT BUFFER SHALL BE MAINTAINED FOR ALL UTILITIES INCLUDING PERMANENT AND TEMPORARY CONSTRUCTION EASEMENTS.

31. ALL GRASSING/SODDING AND MULCHING SHALL TAKE PLACE AS SOON AS PRACTICAL AFTER BACKFILLING OF TRENCH EXCAVATIONS OR OTHER LAND DISTURBING ACTIVITIES.

32. CONSTRUCTION MATERIAL STORAGE AREA WILL REQUIRE THE INSTALLATION OF A CONSTRUCTION EXIT (Co) TO REDUCE OR ELIMINATE THE TRANSPORT OF MUD FROM THE AREA. SILT FENCE SHALL ALSO BE INSTALLED TO PREVENT SEDIMENT FROM LEAVING THE MATERIAL STORAGE AREA. AFTER DEMOBILIZATION, THE MATERIAL STORAGE AREA SHALL BE SEEDED AND MULCHED, AND THE SILT FENCE SHALL REMAIN UNTIL THE AREA IS PERMANENTLY STABILIZED.

33. 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 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED.

34. THERE IS NO FLOODPLAIN ON THIS PROPERTY FROM A WATER COURSE WITH A DRAINAGE AREA EXCEEDING 100 ACRES OR FLOODPLAIN PER FIRM MAP NUMBER 13135C0038F DATED SEPTEMBER 29, 2006.

35. THE ESTIMATED RUNOFF COEFFICIENT OF THE SITE PRIOR TO CONSTRUCTION IS A CN VALUE OF 70 AND AFTER CONSTRUCTION SHALL REMAIN 70.

**SOIL TYPES (FROM USDA SOIL SURVEY)**

SYMBOL	SOIL NAME	TEXTURE
AmC2	Appling	Sandy Loam
PfB2	Pacolet	Sandy Loam
PfC2	Pacolet	Sandy Loam
WkB	Worsham	Sandy Loam

**ANTICIPATED ACTIVITY SCHEDULE**

ACTIVITY	MONTH				
	1	2	3	4	5
48-IN WATER MAIN CONST.	█	█	█	█	█
INSTALLATION OF EROSION CONTROL	█	█	█	█	█
MAINTENANCE OF EROSION CONTROL	█	█	█	█	█
48-IN WATER MAIN CONSTRUCTION	█	█	█	█	█
FINAL CLEANUP AND GRASSING					█

**EROSION CONTROL LEGEND**

DESCRIPTION	SYMBOL
Cd-Hb HAYBALE CHECK DAM	
Co CONSTRUCTION EXIT	
Sd1-S SILT FENCE	
DISTURBED AREA LIMITS	

**Ds1 MULCHING**  
 ALL DISTURBED AREA SHALL BE MULCHED AT THE END OF EACH DAY.  
 SPECIES: STRAW OR HAY  
 RATE: 2.5 TONS/AC.

**Ds2 TEMPORARY GRASSING - AS NECESSARY**  
 TEMPORARY GRASSING SHALL CONSIST OF SOWING A QUICK GRASS SUCH AS RYE. BROWN TOP MILLET, OR A GRASS SUITABLE TO THE AREA AND SEASON. LIME AND FERTILIZER SHALL BE OMITTED.  
 SPECIES: RYEGRASS, ANNUAL; MILLET, BROWNTOP  
 RATE: 40#/AC.  
 PLANTING DATE: AUGUST THRU MARCH; APRIL THRU JULY

**Ds3 PERMANENT GRASSING**  
 PERMANENT GRASSING SHALL CONSIST OF GROUND PREPARATION, LIMING AND FERTILIZATION, SEEDING, AND MULCHING.  
 THE GROUND SHALL BE PREPARED BY PLOWING AND DISKING NOT LESS THAN 4". FERTILIZER AND LIME SHALL BE UNIFORMLY MIXED INTO THE GROUND - FERTILIZER AT A RATE OF 150#/AC. AND LIME AT 175#/AC. THE GROUND SHALL BE FINISHED OFF SMOOTH AND UNIFORM BEING FREE OF ROCKS, CLODS, ROOTS, ETC. FERTILIZER MIXED GRADE SHALL BE EITHER 4-12-12; 6-12-12 OR 10-10-10. SEEDING SHALL BE DONE WITHIN 24 HOURS OF THE FERTILIZER APPLICATION, WEATHER PERMITTING. SEED SHALL BE UNIFORMLY SPREAD AT THE RATE SHOWN BELOW. MULCHING IS REQUIRED AND SHALL BE DONE IMMEDIATELY AFTER SEEDING. MULCH SHALL BE UNIFORMLY APPLIED OVER THE AREA LEAVING APPROXIMATELY 25% OF THE GROUND SURFACE EXPOSED. MULCHING MATERIAL SHALL BE DRY STRAW OR DRY HAY OF GOOD QUALITY, FREE OF WEED SEEDS. APPLY AT A RATE OF 2.5 TONS PER ACRE. THE RATE OF APPLICATION SHALL BE DOUBLED ON SIDE SLOPES 4:1 AND STEEPER.

SPECIES	RATE	PLANTING DATE
TALL FESCUE	30#/AC.	AUGUST THRU OCTOBER
COMMON BERMUDA (UNHULLED)	10#/AC.	OCTOBER THRU FEBRUARY
COMMON BERMUDA (HULLED)	10#/AC.	MARCH THRU JUNE
SERICEA LESPEDEZA	75#/AC.	ALL YEAR

**Ds4 SODDING (TO MATCH EXISTING SPECIES):**  
 SODDING SHALL CONSIST OF GROUND PREPARATION, LIMING AND FERTILIZATION, AND CERTIFIED SOD OF A VARIETY MATCHING EXISTING GRASS SPECIES. THE GROUND SHALL BE PREPARED BY CLEARING SURFACE OF TRASH, WOODY DEBRIS, STONES, AND CLODS LARGER THAN 1". APPLY SOD TO SOIL SURFACES ONLY. MIX 10-10-10 FERTILIZER INTO SOIL AT 0.025 LBS./SQ.FT. APPLY AGRICULTURAL LIME AT A RATE OF 0.05 LBS./SQ.FT. IRRIGATE SOD AND SOIL TO A DEPTH OF 4" IMMEDIATELY AFTER INSTALLATION. SOD SHOULD NOT BE CUT OR SPREAD IN EXTREMELY WET OR DRY WEATHER. GRASS SPECIES ARE TO MATCH EXISTING SPECIES WHEN REPLACING GRASS LAWNS OF PROPERTY OWNERS.

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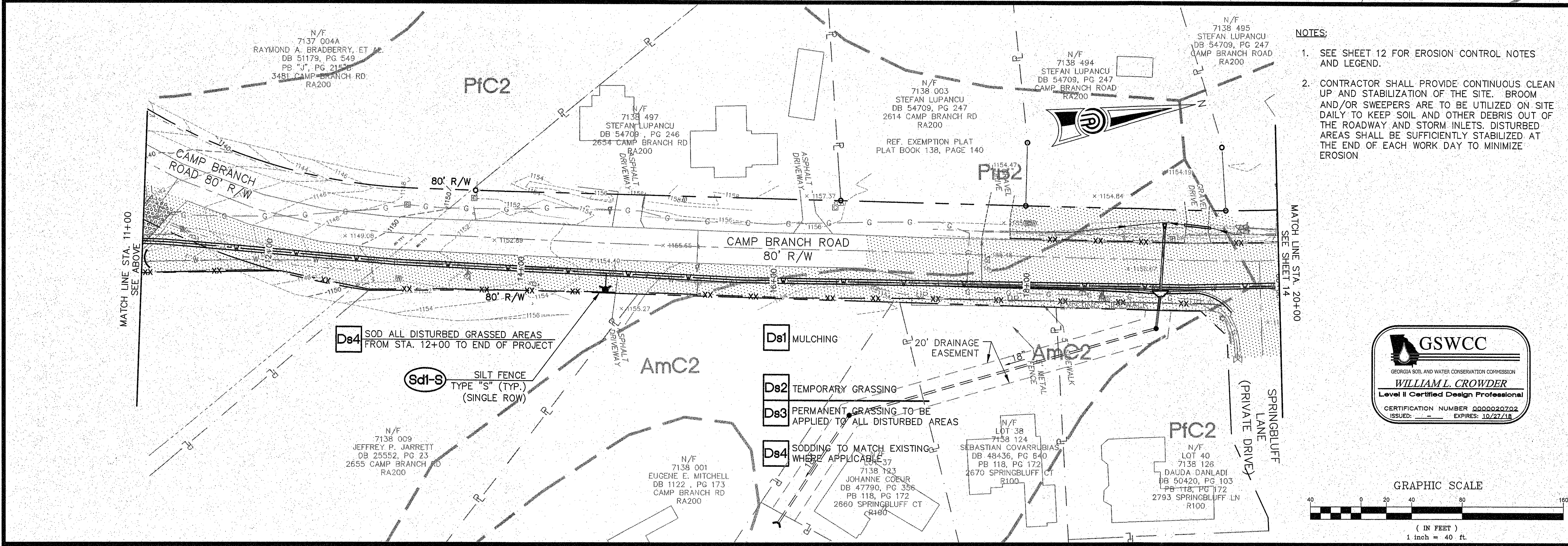
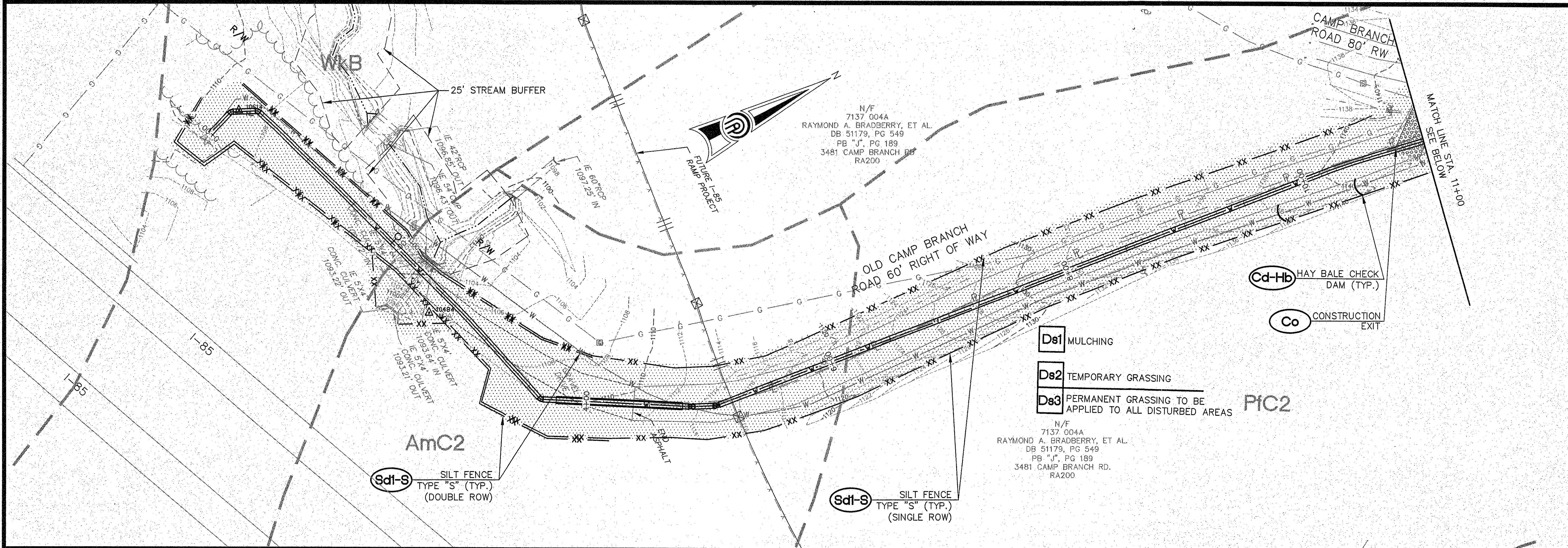
**48-INCH PCCP REPLACEMENT (1-85 INTERCHANGE AT SR 324)**

**EROSION CONTROL NOTES AND LEGEND**

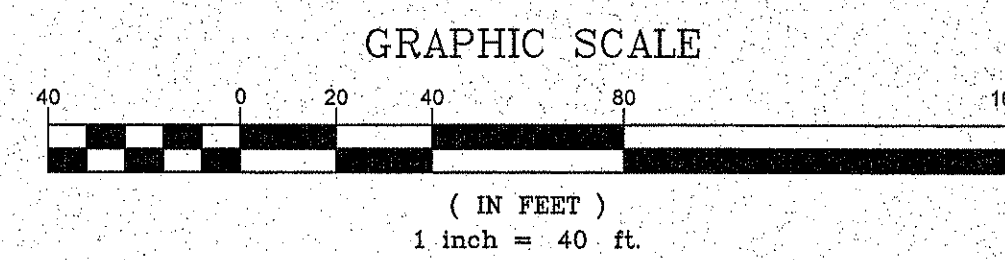
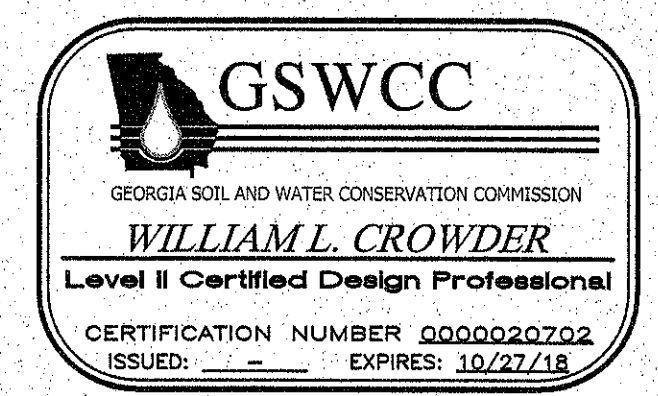
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 PLOT DATE: 6/20/2017 2:58 PM



- NOTES:**
- SEE SHEET 12 FOR EROSION CONTROL NOTES AND LEGEND.
  - CONTRACTOR SHALL PROVIDE CONTINUOUS CLEAN UP AND STABILIZATION OF THE SITE. BROOM AND/OR SWEEPERS ARE TO BE UTILIZED ON SITE DAILY TO KEEP SOIL AND OTHER DEBRIS OUT OF THE ROADWAY AND STORM INLETS. DISTURBED AREAS SHALL BE SUFFICIENTLY STABILIZED AT THE END OF EACH WORK DAY TO MINIMIZE EROSION



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**48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)**

DATE	NO.	DESCRIPTION	ISSUED FOR
8/15/17	0	ISSUED FOR BID	

DESIGN	RHC
DRAWN	RHC
CHECKED	WLC

EROSION CONTROL PLAN

SHEET TITLE

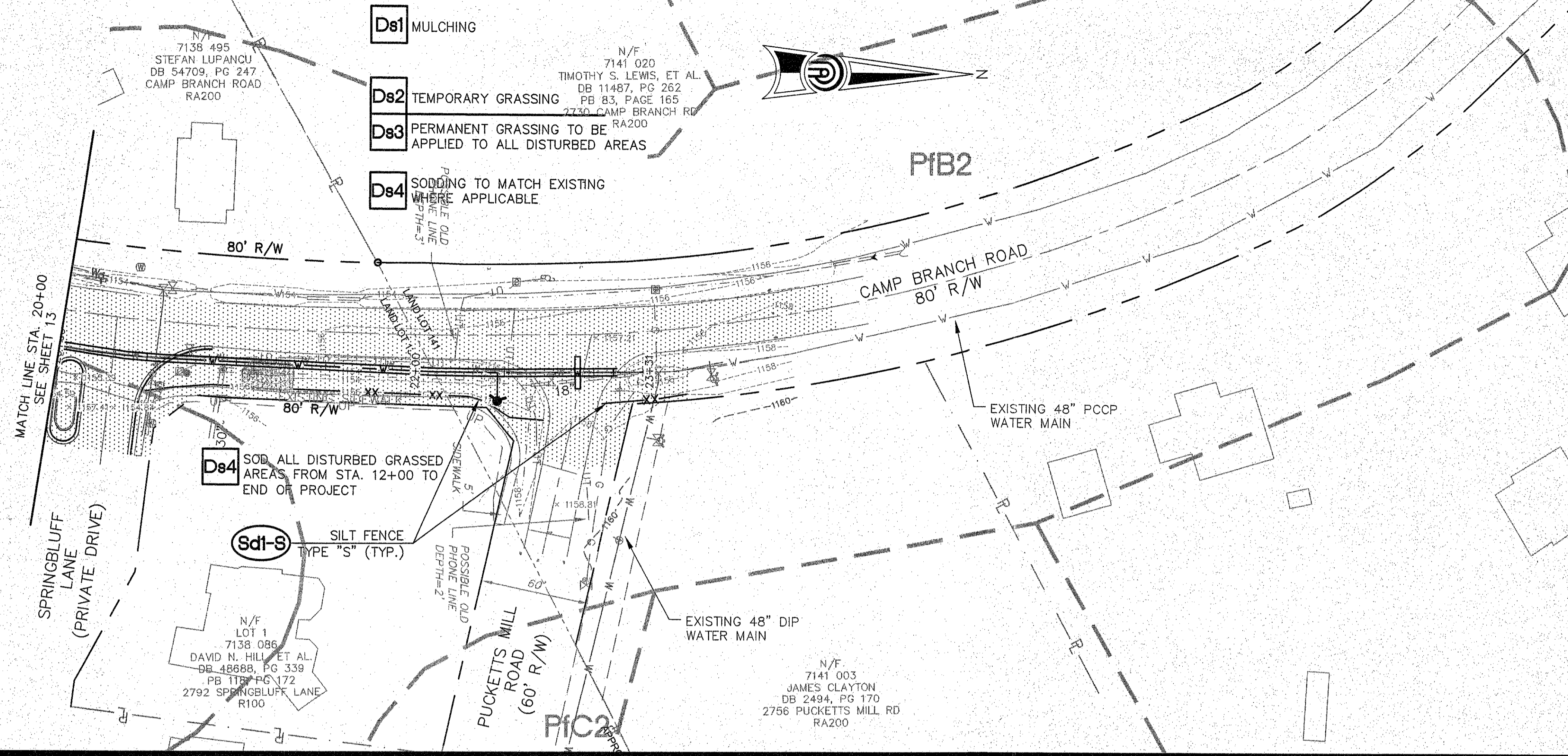
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 PPI PROJECT NO.

**13**

**NOTES:**

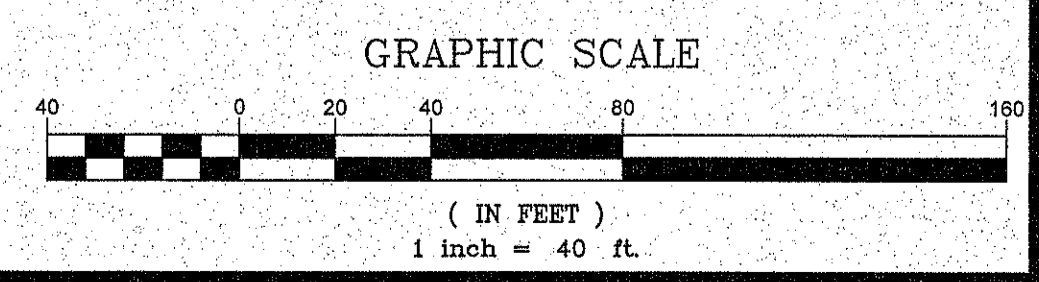
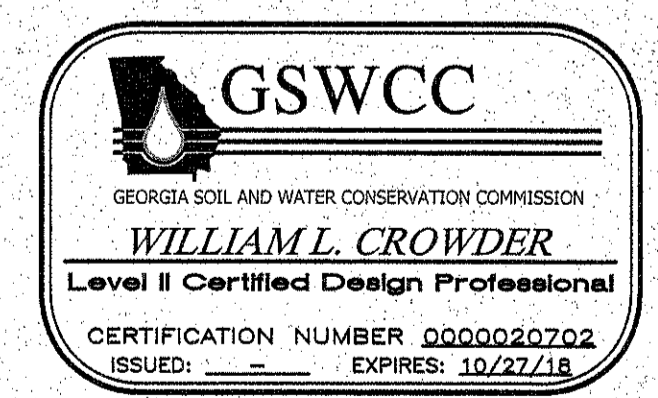
1. SEE SHEET 12 FOR EROSION CONTROL NOTES AND LEGEND.
2. CONTRACTOR SHALL PROVIDE CONTINUOUS CLEAN UP AND STABILIZATION OF THE SITE. BROOM AND/OR SWEEPERS ARE TO BE UTILIZED ON SITE DAILY TO KEEP SOIL AND OTHER DEBRIS OUT OF THE ROADWAY AND STORM INLETS. DISTURBED AREAS SHALL BE SUFFICIENTLY STABILIZED AT THE END OF EACH WORK DAY TO MINIMIZE EROSION



- Ds1** MULCHING
- Ds2** TEMPORARY GRASSING
- Ds3** PERMANENT GRASSING TO BE APPLIED TO ALL DISTURBED AREAS
- Ds4** SODDING TO MATCH EXISTING WHERE APPLICABLE

**Ds4** SOD ALL DISTURBED GRASSED AREAS FROM STA. 12+00 TO END OF PROJECT

**Sd1-S** SILT FENCE TYPE "S" (TYP.)



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**WILLIAM L. CROWDER**  
REGISTERED PROFESSIONAL ENGINEER

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48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)

EROSION CONTROL PLAN		SHEET TITLE	
DESIGN	RHC	DRAWN	RHC
		CHECKED	JAL

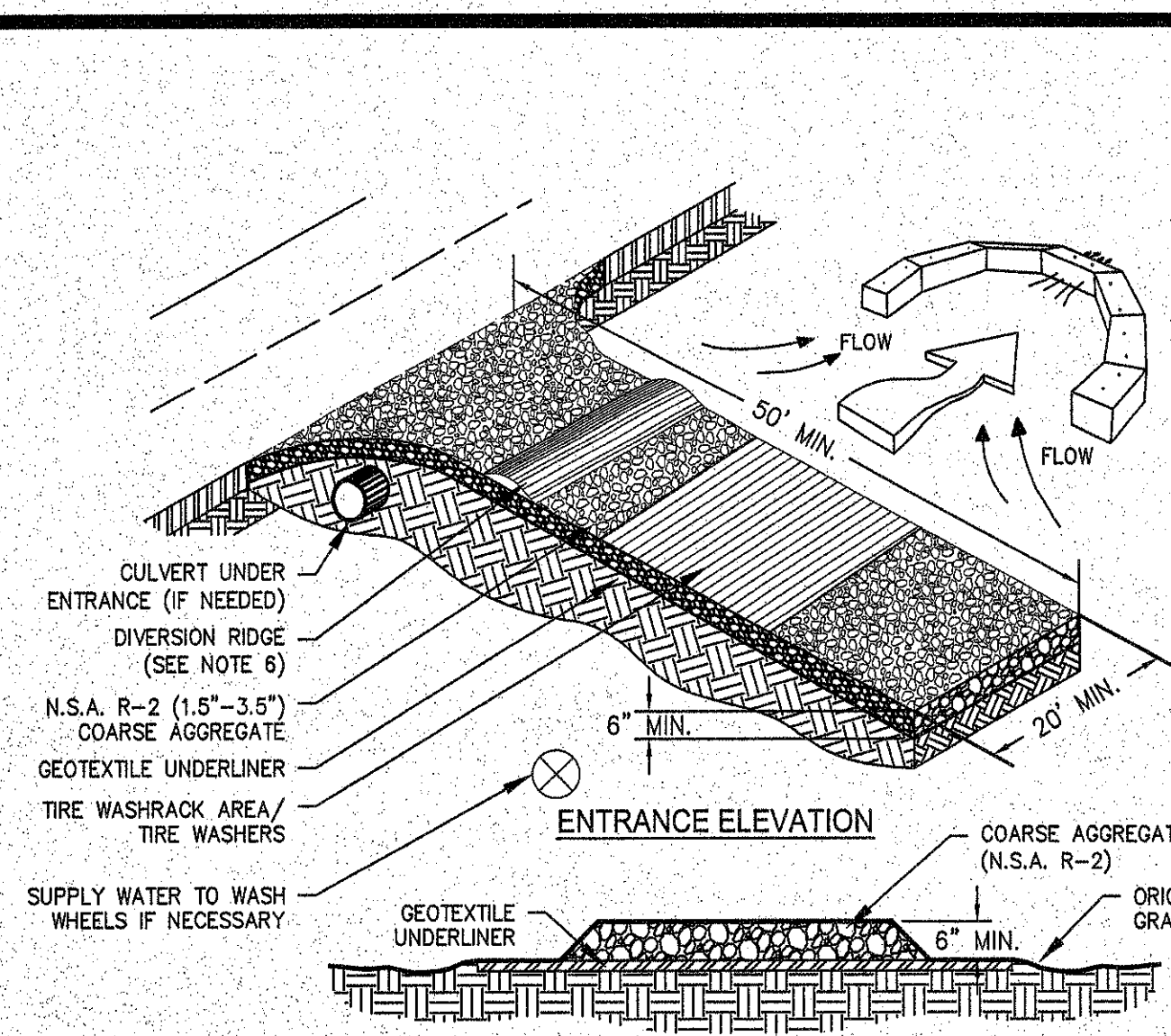
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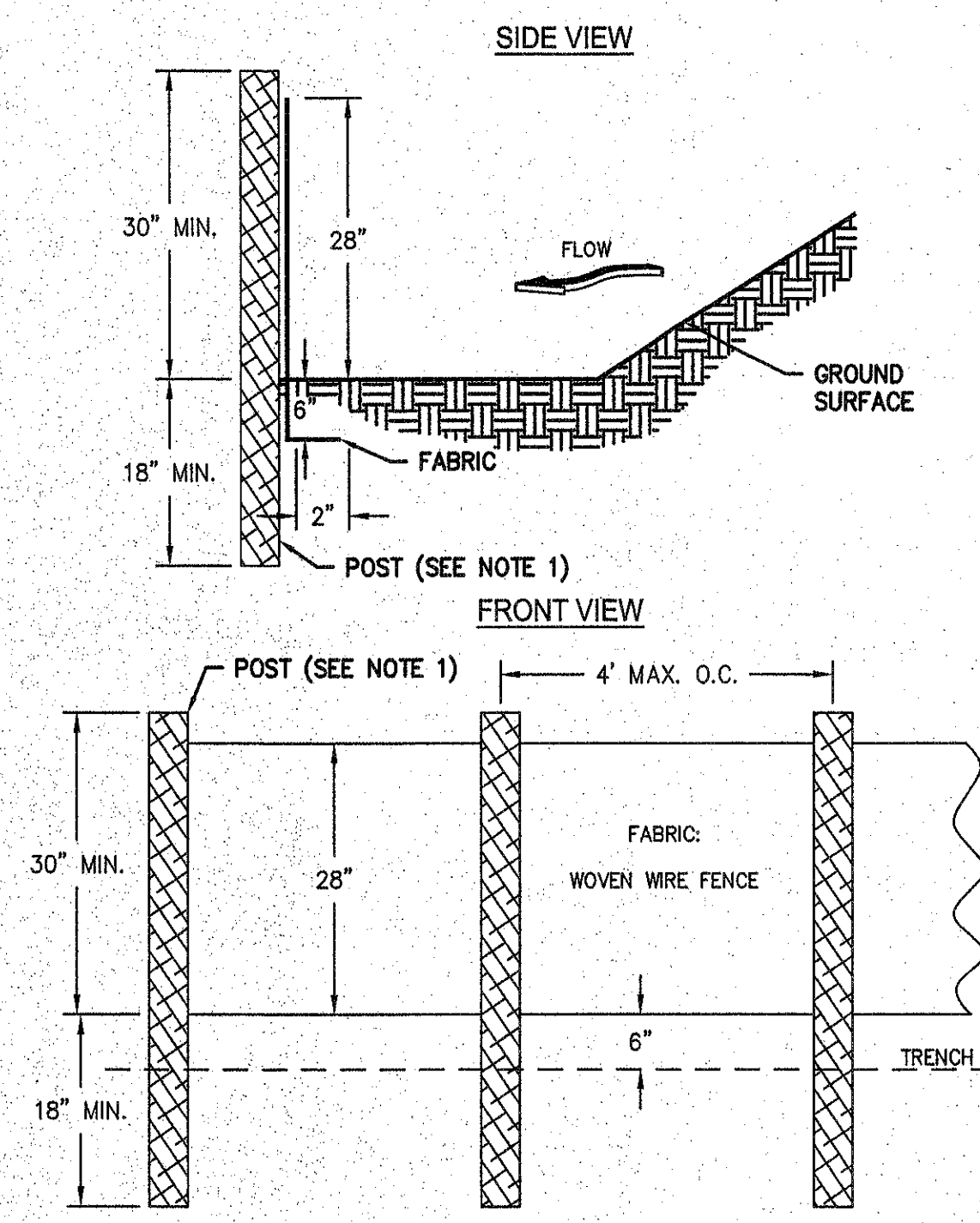
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14



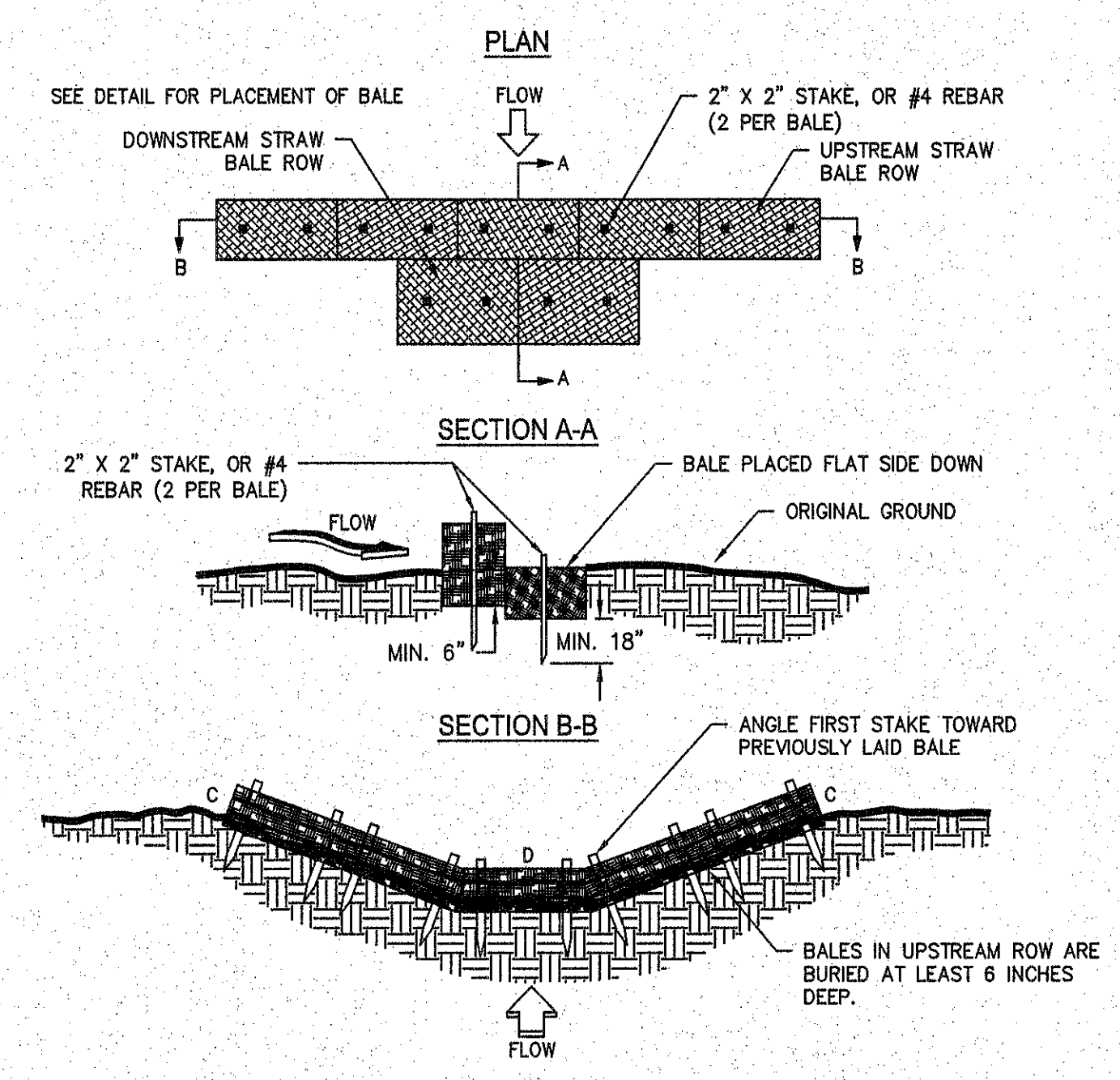
- NOTES:**
1. AVOID LOCATING ON STEEP SLOPES OR AT CURVES ON PUBLIC ROADS.
  2. REMOVE ALL VEGETATION AND OTHER UNSUITABLE MATERIAL FROM THE FOUNDATION AREA, GRADE, AND CROWN FOR POSITIVE DRAINAGE.
  3. AGGREGATE SIZE SHALL BE IN ACCORDANCE WITH NATIONAL STONE ASSOCIATION R-2 (1.5"-3.5" STONE).
  4. GRAVEL PAD SHALL HAVE A MINIMUM THICKNESS OF 6".
  5. PAD WIDTH SHALL BE EQUAL FULL WIDTH AT ALL POINTS OF VEHICULAR EGRESS, BUT NO LESS THAN 20'.
  6. A DIVERSION RIDGE SHOULD BE CONSTRUCTED WHEN GRADE TOWARD PAVED AREA IS GREATER THAN 2%.
  7. INSTALL PIPE UNDER THE ENTRANCE IF NEEDED TO MAINTAIN DRAINAGE DITCHES.
  8. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN (OVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE ENTRANCE TO A SEDIMENT CONTROL DEVICE).
  9. WASHRACKS AND/OR TIRE WASHERS MAY BE REQUIRED DEPENDING ON SCALE AND CIRCUMSTANCE. IF NECESSARY, WASHRACK DESIGN MAY CONSIST OF ANY MATERIAL SUITABLE FOR TRUCK TRAFFIC THAT REMOVE MUD AND DIRT.
  10. MAINTAIN AREA IN A WAY THAT PREVENTS TRACKING AND/OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

**Co CONSTRUCTION EXIT**



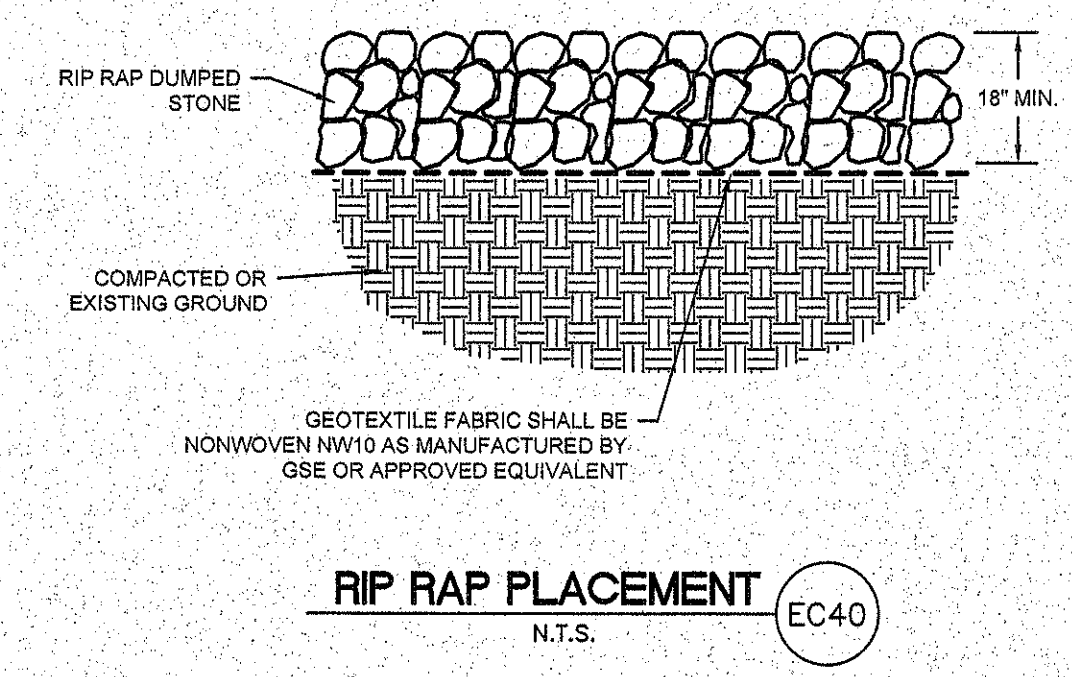
- NOTES:**
1. USE STEEL POSTS AS SPECIFIED BY THE EROSION, SEDIMENTATION, AND POLLUTION CONTROL PLAN.
  2. SILT FENCE FABRIC SHALL BE APPROVED BY GWINNETT COUNTY AS PRE-CONSTRUCTION MEETING AND BEFORE INSTALLATION.

**Sd1-S SEDIMENT BARRIER**  
TYPE (SENSITIVE)

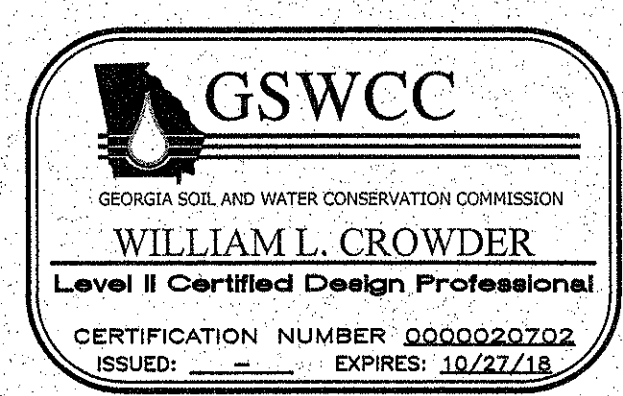


- NOTES:**
1. BALES SHOULD BE BOUND WITH WIRE OR NYLON STRING AND SHOULD BE PLACED IN ROWS WITH BALE ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
  2. REMOVE #4 REBAR AFTER STRAW BALES ARE NO LONGER IN PLACE.
  3. POINT C OF SECTION B-B SHOULD ALWAYS BE HIGHER THAN POINT D.

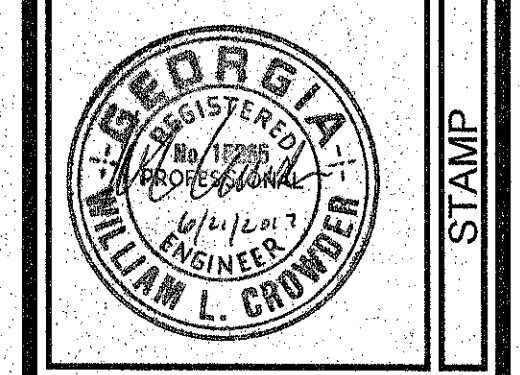
**Cd-Hb CHECK DAM**  
TYPE (HAYBALE)



**RIP RAP PLACEMENT EC40**  
N.T.S.



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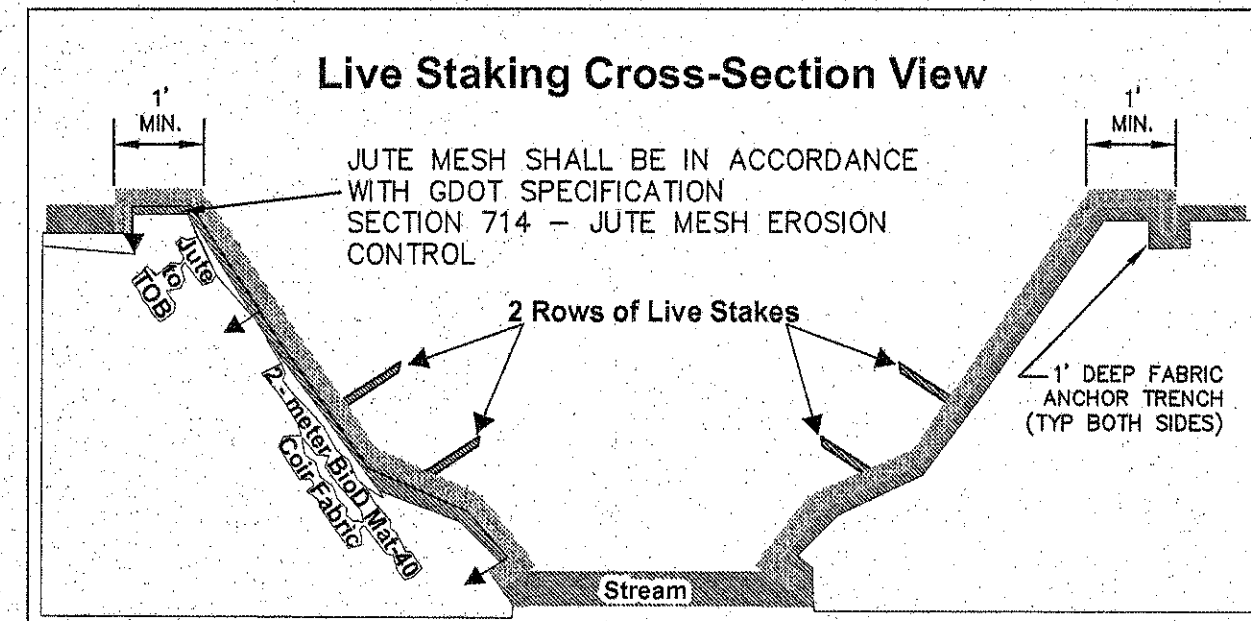
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**48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)**

EROSION CONTROL DETAILS		SHEET TITLE	
DESIGN	RHC	DRAWN	RHC
CHECKED	WLC		

NO.	DESCRIPTION	DATE
0	ISSUED FOR BID	8/15/17

**E16151**  
PPI PROJECT NO.  
**15**



**LIVE STAKING PLANT SPECIES**

SCIENTIFIC NAME	COMMON NAME
SALIX NIGRA	BLACK WILLOW
PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE
CORNUS AMOMUM	SILKY DOGWOOD

- LIVE STAKING SHALL INCLUDE TWO ROWS ALONG THE BANK AND STAKES WILL BE PLACED ON 2' CENTERS STARTING AT THE NORMAL WATER LEVEL.
- INSTALLATION OF STREAMBANK FABRIC SHALL FOLLOW DETAILS IN THE SOIL BIOENGINEERING HANDBOOK (EUBANKS AND MEADOWS, USDA-FOREST SERVICE 2002) AND ROLANKA MANUFACTURING INSTRUCTIONS (WWW.ROLANKA.COM).

**PLANT, TREE & SHRUB SPECIES NOTES**

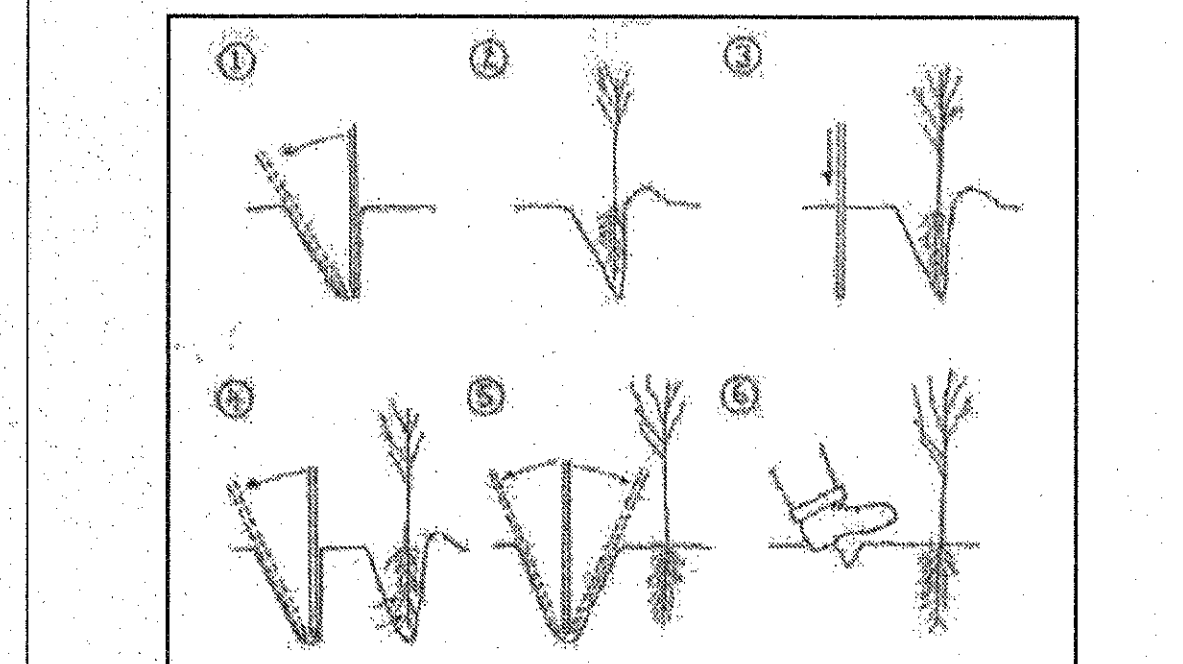
- THE SPECIES SELECTED FOR REPLANTING IN THE STREAM BUFFER AREAS SHALL MATCH THE SPECIES LISTED IN THE RIPARIAN BUFFER RE-PLANTING TREE AND SHRUB SPECIES TABLE. THIS TABLE LISTS FOUR SPECIES OF TREES (BARE ROOT) AND FIVE SPECIES OF SHRUBS (CONTAINER). NO ONE SPECIES OF PLANTED TREE SHALL CONSTITUTE MORE THAN 25% OF THE TOTAL PLANTED TREES. NO ONE SPECIES OF PLANTED SHRUBS SHALL CONSTITUTE MORE THAN 20% OF THE TOTAL PLANTED SHRUBS. FOR TOTAL NUMBER OF PLANTS, 50% SHALL BE TREES AND 50% SHALL BE SHRUBS.
- THE SPECIES SELECTED FOR LIVE STAKE PLANTS ON STREAM BANKS SHALL MATCH THE SPECIES LISTED IN THE LIVE STAKING PLANT SPECIES TABLE. THIS TABLE LISTS THREE SPECIES. NO ONE SPECIES OF LIVE STAKE SHALL CONSTITUTE MORE THAN 40% OF THE TOTAL LIVE STAKE PLANTS INSTALLED.
- DEVIATIONS FROM THE LISTED SPECIES, PLANTING RATIOS, AND/OR SIZES ARE NOT PERMITTED WITHOUT PRIOR OWNER CONSENT.

**PLANTING SCHEDULE**

SPECIES	ALLOWABLE PLANTING DATES
RIPARIAN BUFFER TREE & SHRUB SPECIES	DECEMBER 1 THROUGH APRIL 1
LIVE STAKE SPECIES	ALL YEAR

PLANTING OF ALL RIPARIAN BUFFER AND WETLAND TREE & SHRUB SPECIES AND LIVE STAKE SPECIES SHALL CONFORM TO THE ABOVE PLANTING SCHEDULE.

**PLANTING DETAIL FOR BARE-ROOT TREE SEEDLINGS**



- USE A PLANTING BAR TO CREATE A HOLE FOR SEEDLING; INSERT PLANTING BAR BLADE INTO THE SOIL 1"-2" DEEPER THAN THE LENGTH OF THE SEEDLING'S ROOTS AND PUSH IN ONE DIRECTION TO CREATE PLANTING HOLE
- INSERT SEEDLING INTO HOLE AT PROPER PLANTING DEPTH -- WITH ROOT COLLAR AT OR JUST BELOW GROUND SURFACE
- INSERT PLANTING BAR INTO THE GROUND APPROXIMATELY 2" OUTSIDE OF THE PLANTING HOLE.
- FIRM THE SOIL TO AVOID AIR POCKET AT BOTTOM OF PLANTING HOLE BY PUSHING THE PLANTING BAR AWAY FROM THE SEEDLING
- CLOSE THE UPPER PART OF THE PLANTING HOLE AND FIRM THE SOIL BY PUSHING THE PLANTING BAR BACK AND FORTH.
- RESTORE THE SOIL SURFACE AND FINISH COMPACTING THE SEEDLING INTO THE GROUND BY TAMPING SOIL AROUND THE PLANT WITH BOOT HEEL.

**PLANTING DETAIL FOR BARE-ROOT TREE SEEDLINGS**

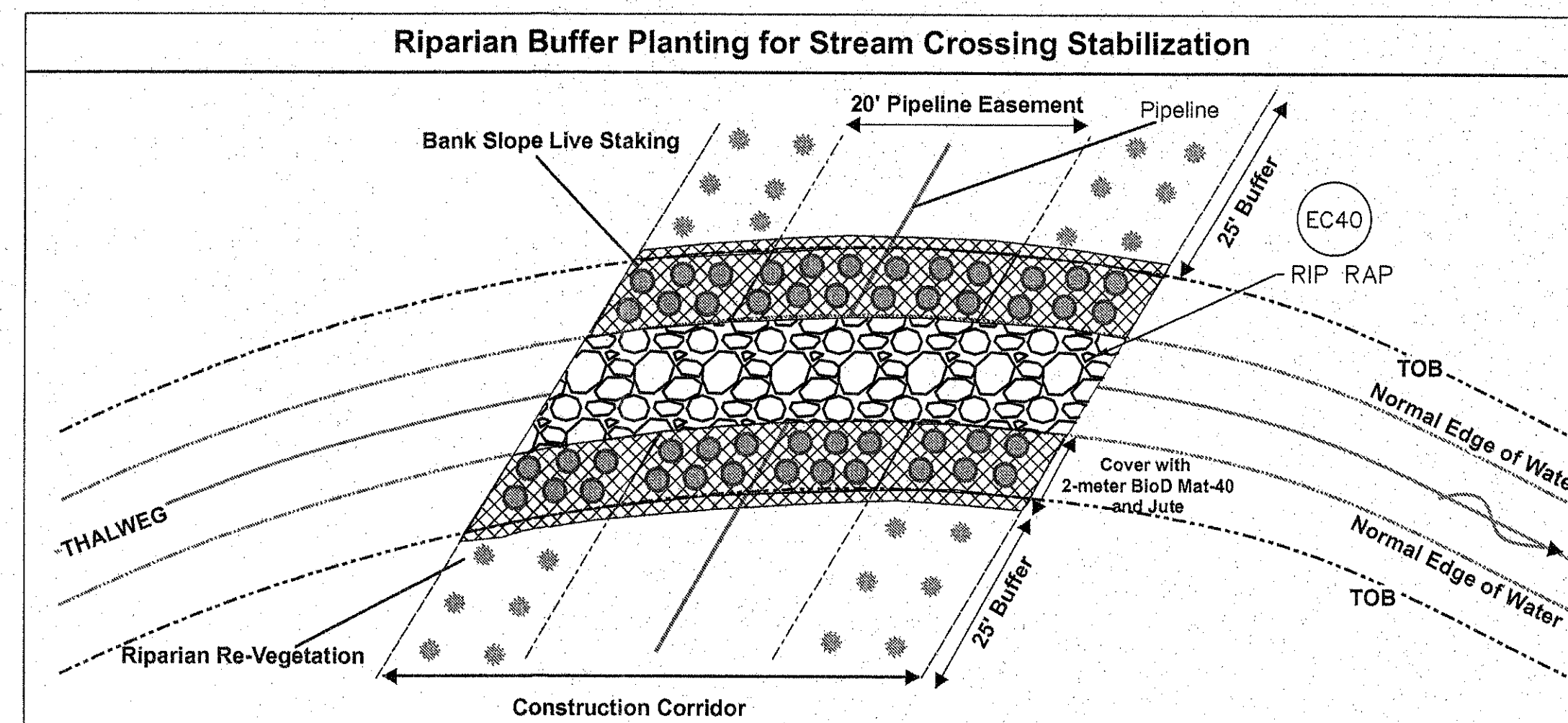
**RIPARIAN BUFFER RE-PLANTING TREE AND SHRUB SPECIES**

SCIENTIFIC NAME	COMMON NAME	SIZE	PLANTING TYPE
QUERCUS LYRATA	OVERCUP OAK	2-3 FT.	BARE-ROOT
QUERCUS MICHAUXII	SWAMP CHESTNUT OAK	2-3 FT.	BARE-ROOT
BETULA NIGRA	RIVER BIRCH	2-3 FT.	BARE-ROOT
POPULUS DELTOIDES	COTTONWOOD	2-3 FT.	BARE-ROOT
ALNUS SERRULATA	ALDER	1 GAL.	CONTAINER
CORNUS AMOMUM	SILKY DOGWOOD	1 GAL.	CONTAINER
CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH	1 GAL.	CONTAINER
ITEA VIRGINICA	VIRGINIA WILLOW	1 GAL.	CONTAINER
LINDERA BENZOIN	SPICEBUSH	1 GAL.	CONTAINER

STREAM BUFFER: PLANTING SHALL BE DONE ON 10-FOOT CENTERS WITHIN THE 25' BUFFER, OUTSIDE OF THE 20' PIPELINE EASEMENT.

**CONSTRUCTION NOTES**

- FINAL TOPOGRAPHY AND CONTOURS OF STREAM AFTER REMOVAL OF THE EXISTING BOX CULVERT SHALL ALIGN WITH THE CONTOURS OF THE STREAM AT EACH END OF THE EXISTING CULVERT. THIS SHALL BE THE CASE IN ALL AREAS UNLESS GRADING IS INDICATED.
- TEMPORARY SIDE-CASTING OF EXCAVATED MATERIAL NEAR STREAM BUFFERS SHALL BE PLACED ON THE LANDWARD SIDE OF THE TRENCH WHERE POSSIBLE AND SEPARATED FROM FORCES THAT COULD CAUSE EROSION RESULTING IN POTENTIAL SECONDARY IMPACTS TO WATERS OF THE U.S. GAPS IN THE TEMPORARY SPOIL PILE(S) SHALL BE LEFT AT APPROPRIATE INTERVALS TO ACCOMMODATE SHEET-FLOW DRAINAGE.
- IN STREAMS, THE SUBSTRATE SIZE COMPOSITION SHALL NOT CHANGE BETWEEN PRE- AND POST-CONSTRUCTION CONDITION. FOR EXAMPLE, IF THE STREAM SUBSTRATE IN THE CONSTRUCTION ZONE IS PRIMARILY SAND AND GRAVEL, THEN THE POST-CONSTRUCTION CONDITION SHALL EXHIBIT A SAND-AND-GRAVEL CONDITION, AND NOT A CONDITION THAT IS PRIMARILY CLAY, SILT, OR RIP-RAP/BOULDER. THE EXCEPTION IS FOR RIP-RAP PLACED DIRECTLY OVER THE TRENCH AS SHOWN ON THE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTING AND SUBMITTING TO THE COUNTY A PRE- AND POST-CONSTRUCTION PHOTOGRAPHIC RECORD OF THE CONDITIONS WHERE WORK WILL TAKE PLACE IN STREAMS. PHOTOGRAPHS SHALL BE TAKEN FROM TWO FIXED VANTAGE POINT LOCATIONS AND DIRECTIONS. EACH PHOTO SHALL BE TAKEN SUCH THAT THE PRE- AND POST-CONSTRUCTION PHOTOGRAPHS EXHIBIT THE SAME VISUAL AREA OF COVERAGE. PHOTOS SHALL BE PROVIDED TO THE OWNER ON 8 X 10 GLOSSY PHOTO PAPER AND IN ELECTRONIC FORM ON CD OR DVD. RESOLUTION OF PHOTOS SHALL BE 3 MP (MEGAPIXEL) OR BETTER.
- BEST MANAGEMENT PRACTICES AND METHODS TO ISOLATE THE CONSTRUCTION ACTIVITY FROM FLOWING WATERS SHALL BE ACCOMPLISHED DURING CROSSINGS OF STREAM. ISOLATION METHODS MAY INCLUDE FLUME/COFFER DAMS, AQUADAMS, PEA GRAVEL, SAND BAGS, ETC.



**RIPARIAN BUFFER PLANTING FOR STREAM CROSSING STABILIZATION**

PLOT DATE: 6/20/2017 3:08 PM  
 FILE PATH: W:\PROJECTS\2014\16151-MR-SR-324\DWG\16151-CRSD-EROSION CONTROL NOTES.DWG - 2017-06-20 - RICHARD CROWNER

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STAMP

PRECISION Planning Inc.

planners • engineers • architects • surveyors

400 Pike Boulevard, Lawrenceville, Ga 30046  
770.338.8000 • www.ppi.us

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48-INCH PCCP REPLACEMENT (1-85 INTERCHANGE AT SR 324)

---

STREAM BANK RESTORATION	SHEET TITLE
DESIGN: RHC	DRAWN: RHC
CHECKED: [Signature]	RELEASE

---

DATE: 6/15/17	NO. DESCRIPTION: 0 ISSUED FOR BID
E16151 PPI PROJECT NO.	
16	



The following statements are referenced from "Authorization to Discharge Under The National Pollutant Discharge Elimination System Storm Water Discharges Associated With Construction Activity for Infrastructure Construction" General Permit No. GAR 100002, Part IV. For the purposes of this plan the term Precision Planning, Inc. (PPI) is the Design Professional of these construction documents.

**GAR 100002 PART IV.**

**4. Inspections.**

(a) Permittee requirements.  
 (1) Each day when any type of construction activity has taken place at a primary permittee's site, certified personnel provided by the primary permittee shall inspect: (a) all areas at the primary permittee's site where petroleum products are stored, used, or handled for spills and leaks from vehicles and equipment; (b) all locations at the primary permittee's site where vehicles enter or exit the site for evidence of off-site sediment tracking. These inspections must be conducted until a Notice of Termination is submitted.

(2) Measure rainfall once every 24 hours except any non-working Saturday, non-working Sunday and non-working Federal Holiday until a Notice of Termination is submitted. Measurement of rainfall may be suspended if all areas of the site have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region.

(3) Certified personnel (provided by the primary permittee) shall inspect the following at least once every fourteen (14) calendar days and within 24 hours of the end of a storm that is 0.5 inches rainfall or greater (unless such storm ends after 5:00 PM on any Friday or on any nonworking Saturday, non-working Sunday or any non-working Federal holiday in which case the inspection shall be completed by the end of the next business day and/or working day, whichever occurs first): (a) disturbed areas of the primary permittee's construction site; (b) areas used by the primary permittee for storage of materials that are exposed to precipitation; and (c) structural control measures. Erosion and sediment control measures identified in the Plan applicable to the primary permittee's site shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s). For areas of a site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region, the permittee must comply with Part IV.D.4.a.(4). These inspections must be conducted until a Notice of Termination is submitted.

(4) Certified personnel (provided by the primary permittee) shall inspect at least once per month during the term of this permit (i.e., until a Notice of Termination is received by EPD) the areas of the site that have undergone final stabilization or established a crop of annual vegetation and a seeding of target perennials appropriate for the region. These areas shall be inspected for evidence of, or the potential for, pollutants entering the drainage system and the receiving water(s). Erosion and sediment control measures identified in the Plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving water(s).

(5) Based on the results of each inspection, the site description and the pollution prevention and control measures identified in the Erosion, Sedimentation and Pollution Control Plan, the Plan shall be revised as appropriate not later than seven (7) calendar days following each inspection. Implementation of such changes shall be made as soon as practical but in no case later than seven (7) calendar days following each inspection.

(6) A report of each inspection that includes the name(s) of certified personnel making each inspection, the date(s) of each inspection, construction phase (i.e., initial, intermediate or final), major observations relating to the implementation of the Erosion, Sedimentation and Pollution Control Plan, and actions taken in accordance with Part IV.D.4.a.(5), of the permit shall be made and retained at the site or be readily available at a designated alternate location until the entire site or that portion of a construction project that has been phased has undergone final stabilization and a Notice of Termination is submitted to EPD. Such reports shall be readily available by the end of the second business day and/or working day and shall identify all incidents of best management practices that have not been properly installed and/or maintained as described in the Plan. Where the report does not identify any incidents, the inspection report shall contain a statement that the best management practices are in compliance with the Erosion, Sedimentation and Pollution Control Plan. The report shall be signed in accordance with Part V.G.2. of this permit.

5. Maintenance. The Plan shall include a description of procedures to ensure the timely maintenance of vegetation, erosion and sediment control measures and other protective measures identified in the site plan.

6. Sampling Requirements. This permit requires the monitoring of nephelometric turbidity in receiving water(s) or outfalls in accordance with this permit. The following procedures constitute EPD's guidelines for sampling turbidity.

**a. Sampling Requirements shall include the following:**

(1) A USGS topographic map, a topographic map or a drawing (referred to as a topographic map) that is a scale equal to or more detailed than a 1:24000 map showing the location of the infrastructure construction, (a) the location of all perennial and intermittent streams and other water bodies as shown on a USGS topographic map, and all other perennial and intermittent streams and other water bodies located during mandatory field verification, into which the storm water is discharged and (b) the receiving water and/or outfall sampling locations for each representative storm water outfall. When the permittee has chosen to use a USGS topographic map and the receiving water(s) is not shown on the USGS topographic map, the location of the receiving water(s) must be hand-drawn on the USGS topographic map from where the storm water(s) enters the receiving water(s) to the point where the receiving water(s) combines with the first blue line stream shown on the USGS topographic map.

(2) A written narrative of site specific analytical methods used to collect and analyze the samples including quality control/quality assurance procedures. This narrative must include precise sampling methodology for each sampling location;

(3) When the permittee has determined that some or all outfalls will be sampled, a rationale must be included on the Plan for the NTU limit(s) selected from Appendix B. This rationale must include the size of the construction site, the calculation of the size of the surface water drainage area, and the type of receiving water(s) (i.e., trout stream or supporting warm water fisheries); and

(4) Any additional information EPD determines necessary to be part of the Plan. EPD will provide written notice to the permittee of the information necessary and the time line for submittal.

b. Sample Type. All sampling shall be collected by "grab samples" and the analysis of these samples must be conducted in accordance with methodology and test procedures established by 40 CFR Part 136 (unless other test procedures have been approved); the guidance document titled "NPDES Storm Water Sampling Guidance Document, EPA 833-B-92-001" and guidance documents that may be prepared by the EPD.

- (1) Sample containers should be labeled prior to collecting the samples.
- (2) Samples should be well mixed before transferring to a secondary container.
- (3) Large mouth, well cleaned and rinsed glass or plastic jars should be used for collecting samples. The jars should be cleaned thoroughly to avoid contamination.

(4) Manual, automatic or rising stage sampling may be utilized. Samples required by this permit should be analyzed immediately, but in no case later than 48 hours after collection. However, samples from automatic samplers must be collected no later than the next business day after their accumulation, unless flow through automated analysis is utilized. If automatic sampling is utilized and the automatic sampler is not activated during the qualifying event, the permittee must utilize manual sampling or rising stage sampling during the next qualifying event. Dilution of samples is not required. Samples may be analyzed directly with a properly calibrated turbidimeter. Samples are not required to be cooled.

(5) Sampling and analysis of the receiving water(s) or outfalls beyond the minimum frequency stated in this permit must be reported to EPD as specified in Part IV.E.

**c. Sampling Points.**

(1) For construction activities the primary permittee must sample all perennial and intermittent streams and other water bodies shown on the USGS topographic map and all other field verified perennial and intermittent streams and other water bodies, or all outfalls into such streams and other water bodies, or a combination thereof. However, provided for in and in accordance with Part IV.D.3.c.(2), of this permit, primary permittees on an infrastructure construction project may sample the representative perennial and intermittent streams, other water bodies or outfalls, or a combination thereof. Samples taken for the purpose of compliance with this permit shall be representative of the monitored activity and representative of the water quality of the receiving water(s) and/or the storm water outfalls using the following minimum guidelines:

(a) The upstream sample for each receiving water(s) must be taken immediately upstream of the confluence of the first storm water discharge from the permitted activity (i.e., the discharge farthest upstream at the site) but downstream of any other storm water discharges not associated with the permitted activity. Where appropriate, several upstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the upstream turbidity value.

(b) The downstream sample for each receiving water(s) must be taken downstream of the confluence of the last storm water discharge from the permitted activity (i.e., the discharge farthest downstream at the site) but upstream of any other storm water discharge not associated with the permitted activity. Where appropriate, several downstream samples from across the receiving water(s) may need to be taken and the arithmetic average of the turbidity of these samples used for the downstream turbidity value.

(c) Ideally the samples should be taken from the horizontal and vertical center of the receiving water(s) or the storm water outfall channel(s).

(d) Care should be taken to avoid stirring the bottom sediments in the receiving water(s) or in the outfall storm water channel.

(e) The sampling container should be held so that the opening faces upstream.

(f) The samples should be kept free from floating debris.

(g) Permittees do not have to sample sheetflow that flows onto undisturbed natural areas or areas stabilized by the project. For purposes of this section, stabilized shall mean, for upaved areas and areas not covered by permanent structures, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscape areas), or equivalent permanent stabilization measures as defined in the Manual (excluding a crop of annual vegetation and a seeding of target crop perennials appropriate for the region). For infrastructure construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use.

(h) All sampling pursuant to this permit must be done in such a way (including generally accepted sampling methods, locations, timing, and frequency) as to accurately reflect whether storm water runoff from the construction site is in compliance with the standard set forth in Parts III.D.3. or III.D.4., whichever is applicable.

(2) For infrastructure construction projects, the permittee is not required to sample a perennial or intermittent stream or other water bodies (or the associated outfall, if applicable) if the design professional preparing the Plan certifies that an increase in the turbidity of a specific identified receiving water to be sampled will be representative of the increase in the turbidity of a specific identified un-sampled receiving water. A written justification and detailed analysis shall be prepared by the design professional justifying such proposed sampling. A summary chart of the justification and analysis for the representative sampling must be included on the Plan. The justification and analysis shall include the location and description of the specified sampled and un-sampled receiving water and shall contain a detailed comparison and discussion of each such receiving water in the following areas:

- (a) site land disturbances and characteristics;
- (b) receiving water watershed sizes and characteristics; and
- (c) site and watershed runoff characteristics utilizing the methods in Appendix A-1 (United States Department of Agriculture Soil Conservation Service's TR-55, Urban Hydrology for Small Watersheds) of the most recent version of the "Manual for Erosion and Sedimentation Control in Georgia" for the various precipitation events and any other such considerations necessary to show that the increase in the turbidity of a specific identified sampled receiving water will be representative of the increases in the turbidity of a specific identified un-sampled receiving water(s).

(3) For infrastructure construction projects, when the permittee determines that some receiving water(s) will not be sampled due to representative sampling, the design professional making this determination and preparing the Plan must include and sign the following certification in the Plan:

"I certify that the permittee's Erosion, Sedimentation and Pollution Control plan provides for the monitoring of: (a) all perennial and intermittent streams and other water bodies shown on the USGS topographic map and all other field verified perennial and intermittent streams and other water bodies, or (b) where any such specific identified perennial or intermittent stream and other water body is not proposed to be sampled, I have determined in my professional judgment, utilizing the factors required in the General NPDES Permit No. GAR 100002, that the increase in the turbidity of each specific identified sampled receiving water will be representative of the increase in the turbidity of a specific identified un-sampled receiving water."

(4) For infrastructure construction projects, if at any time during the life of the project a selected receiving water no longer represents another receiving water, then the permittee shall sample the latter receiving water until selection of an alternative representative receiving water.

(5) For infrastructure projects, if at any time during the life of the project a receiving water is determined not to be represented as certified in the Plan, the permittee shall sample that receiving water until a Notice of Termination is submitted or until the applicable phase is stabilized in accordance with this permit.

(6) For infrastructure construction projects, monitoring obligations shall cease for any phase of the project that has been stabilized in accordance with Part IV.D.6.c.(1),(g).

**d. Sampling Frequency.**

(1) The primary permittee must sample in accordance with the Plan at least once for each rainfall event described below. For a qualifying event, the permittee shall sample at the beginning of any storm water discharge to a monitored receiving water and/or from a monitored outfall location within forty-five (45) minutes or as soon as possible.

(2) However, where manual and automatic sampling are impossible (as defined in this permit), or are beyond the permittee's control, the permittee shall take samples as soon as possible, but in no case more than twelve (12) hours after the beginning of the storm water discharge.

(3) Sampling by the permittee shall occur for the following qualifying events:

(a) For each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inch with a storm water discharge that occurs during normal business hours as defined in this permit, after all clearing and grubbing operations have been completed, but prior to completion of mass grading operations, in the drainage area of the location selected as the representative sampling location;

(b) In addition to (a) above, for each area of the site that discharges to a receiving water or from an outfall, the first rain event that reaches or exceeds 0.5 inches with a storm water discharge that occurs during normal business hours as defined in this permit either 90 days after the first sampling event or after all mass grading operations have been completed, but prior to submittal of a NOT, in the drainage area of the location selected as the representative sampling location, whichever comes first;

(c) At the time of sampling performed pursuant to (a) and (b) above, if BMPs in any area of the site that discharges to a receiving water or from an outfall are not properly designed, installed and maintained, corrective action shall be defined and implemented within two (2) business days, and turbidity samples shall be taken from discharges from that area of the site for each subsequent rain event that reaches or exceeds 0.5 inch during normal business hours\* until the selected turbidity standard is attained, or until post-storm event inspections determine that BMPs are properly designed, installed and maintained;

(d) Where sampling pursuant to (a), (b) or (c) above is required but not possible (or not required because there was no discharge), the permittee, in accordance with Part IV.D.4.a.(6), must include a written justification in the inspection report of why sampling was not performed. Providing this justification does not relieve the permittee of any subsequent sampling obligations under (a), (b) or (c) above; and

(e) Existing construction activities, i.e., those that are occurring on or before the effective date of this permit, that have met the sampling required by (a) above shall sample in accordance with (b) those existing construction activities that have met the sampling required by (b) above shall not be required to conduct additional sampling other than as required by (c) above.

\*Note that the Permittee may choose to meet the requirements of (a) and (b) above by collecting turbidity samples from any rain event that reaches or exceeds 0.5 inch and allows for sampling at any time of the day or week.

7. Non-storm water discharges. Except for flows from fire fighting activities, sources of non-storm water listed in Part III.A.2. of this permit that are combined with storm water discharges associated with construction activity must be identified in the Plan. The Plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

**E. Reporting.**

(1) The applicable permittees are required to submit the sampling results to the EPD at the address shown in Part II.C. by the fifteenth day of the month following the reporting period. Reporting periods are months during which samples are taken in accordance with this permit. Sampling results shall be in a clearly legible format. Upon written notification, EPD may require the applicable permittee to submit the sampling results on a more frequent basis. Sampling and analysis of any storm water discharge(s) or the receiving water(s) beyond the minimum frequency stated in this permit must be reported in the same manner to the EPD. The sampling reports must be signed in accordance with Part V.G.2. Sampling reports must be submitted to EPD until such time as a NOT is submitted in accordance with Part VI.

(2) All sampling reports shall include the following information:

- a. The rainfall amount, date, exact place, and time of sampling or measurements;
  - b. The name(s) of the certified personnel who performed the sampling and measurements;
  - c. The date(s) analyses were performed;
  - d. The time(s) analyses were initiated;
  - e. The name(s) of the certified personnel who performed the analyses;
  - f. References and written procedures, when available, for the analytical techniques or methods used;
  - g. The results of such analyses, including the bench sheets, instrument readouts, computer disks or tapes, etc., used to determine these results;
  - h. Results which exceed 1000 NTU shall be reported as "exceeds 1000 NTU"; and
- i. Certification statement that sampling was conducted as per the Plan.

(3) All written correspondence required by this permit shall be submitted by return receipt certified mail (or similar service) to the appropriate District Office of the EPD according to the schedule in Appendix A of this permit. The permittee shall retain a copy of the proof of submittal at the construction site or the proof of submittal shall be readily available at a designated location from commencement of construction until such time as a NOT is submitted in accordance with Part VI. If an electronic submittal is provided by EPD then the written correspondence may be submitted electronically; if required, a paper copy must also be submitted by return receipt certified mail or similar service.

**F. Retention of Records.**

(1) The primary permittee shall retain the following records at the construction site or the records shall be readily available at a designated alternate location from commencement of construction until such time as a NOT is submitted in accordance with Part VI:

- a. A copy of all Notices of Intent submitted to EPD;
- b. A copy of the Erosion, Sedimentation and Pollution Control Plan required by this permit;
- c. The design professional's report of the results of the inspection conducted in accordance with Part IV.A.5. of this permit;
- d. A copy of all monitoring information, results, and reports required by this permit;
- e. A copy of all inspection reports generated in accordance with Part IV.D.4.a. of this permit;
- f. A copy of all violation summaries and violation summary reports generated in accordance with Part III.D.2. of this permit; and
- g. Daily rainfall information collected in accordance with Part IV.D.4.a.(2) of this permit.

(2) Copies of all Notices of Intent, Notices of Termination, inspection reports, sampling reports (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), or other reports requested by the EPD, Erosion, Sedimentation and Pollution Control Plans, records of all data used to complete the Notice of Intent to be covered by this permit and all other records required by this permit shall be retained by the permittee who either produced or used it for a period of at least three years from the date that the NOT is submitted in accordance with Part VI of this permit. These records must be maintained at the permittee's primary place of business or at a designated alternative location once the construction activity has ceased at the permitted site. This period may be extended by request of the EPD at any time upon written notification to the permittee.

**CERTIFICATION STATEMENTS:**

"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR AN APPROPRIATE AND COMPREHENSIVE SYSTEM OF BEST MANAGEMENT PRACTICES REQUIRED BY THE GEORGIA WATER QUALITY CONTROL ACT AND THE DOCUMENT "MANUAL FOR EROSION AND SEDIMENT CONTROL IN GEORGIA" (MANUAL) PUBLISHED BY THE STATE SOIL AND WATER CONSERVATION COMMISSION AS OF JANUARY 1 OF THE YEAR IN WHICH THE LAND-DISTURBING ACTIVITY WAS PERMITTED, PROVIDES FOR THE SAMPLING OF THE RECEIVING WATER(S) OR THE SAMPLING OF THE STORM WATER OUTFALLS AND THAT THE DESIGNED SYSTEM OF BEST MANAGEMENT PRACTICES AND SAMPLING METHODS IS EXPECTED TO MEET THE REQUIREMENTS CONTAINED IN THE GENERAL NPDES PERMIT NO. GAR 100002."

"I CERTIFY UNDER PENALTY OF LAW THAT THIS PLAN WAS PREPARED AFTER A SITE VISIT TO THE LOCATION DESCRIBED HEREIN BY MYSELF OR MY AUTHORIZED AGENT UNDER MY DIRECT SUPERVISION."

"I CERTIFY THAT THE PERMITTEE'S EROSION, SEDIMENTATION AND POLLUTION CONTROL PLAN PROVIDES FOR THE MONITORING OF: (A) ALL PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES SHOWN ON THE USGS TOPOGRAPHIC MAP AND ALL OTHER FIELD VERIFIED PERENNIAL AND INTERMITTENT STREAMS AND OTHER WATER BODIES, OR (B) WHERE ANY SUCH SPECIFIC IDENTIFIED PERENNIAL OR INTERMITTENT STREAM AND OTHER WATER BODY IS NOT PROPOSED TO BE SAMPLED, I HAVE DETERMINED IN MY PROFESSIONAL JUDGMENT, UTILIZING THE FACTORS REQUIRED IN THE GENERAL NPDES PERMIT NO. GAR 100002, THAT THE INCREASE IN THE TURBIDITY OF EACH SPECIFIC IDENTIFIED SAMPLED RECEIVING WATER WILL BE REPRESENTATIVE OF THE INCREASE IN THE TURBIDITY OF A SPECIFIC IDENTIFIED UN-SAMPLED RECEIVING WATER."

*William L. Crowder*  
 SIGNATURE OF DESIGN PROFESSIONAL

THE DESIGN PROFESSIONAL WHO PREPARED THE ES&CP PLAN IS TO INSPECT THE INSTALLATION OF THE INITIAL SEDIMENT STORAGE REQUIREMENTS, PERIMETER CONTROL BMPs AND SEDIMENT BASINS IN ACCORDANCE WITH PART IV.A.5 WITHIN 7 DAYS AFTER INSTALLATION.

NON-EXEMPT ACTIVITIES SHALL NOT BE CONDUCTED WITHIN THE 25 OR 50 FOOT UNDISTURBED STREAM BUFFERS AS MEASURED FROM THE POINT OF WRESTED VEGETATION WITHOUT FIRST ACQUIRING THE NECESSARY VARIANCES AND PERMITS.

AMENDMENTS/REVISIONS TO THE ES&CP PLAN WHICH HAVE A SIGNIFICANT EFFECT ON BMPs WITH A HYDRAULIC COMPONENT MUST BE CERTIFIED BY THE DESIGN PROFESSIONAL.

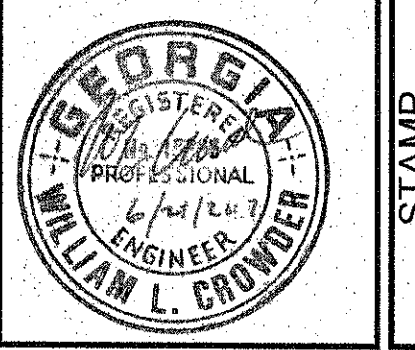
WASTE MATERIALS SHALL NOT BE DISCHARGED TO WATERS OF THE STATE, EXCEPT AS AUTHORIZED BY A SECTION 404 PERMIT.

THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO, OR CONCURRENT WITH, LAND-DISTURBING ACTIVITIES.

EROSION CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.

ANY DISTURBED AREA LEFT EXPOSED FOR A PERIOD OF GREATER THAN 14 DAYS SHALL BE STABILIZED WITH MULCH OR TEMPORARY SEEDING.

WILLIAM L. CROWDER, PE - GASWCC CERTIFICATION # 20702



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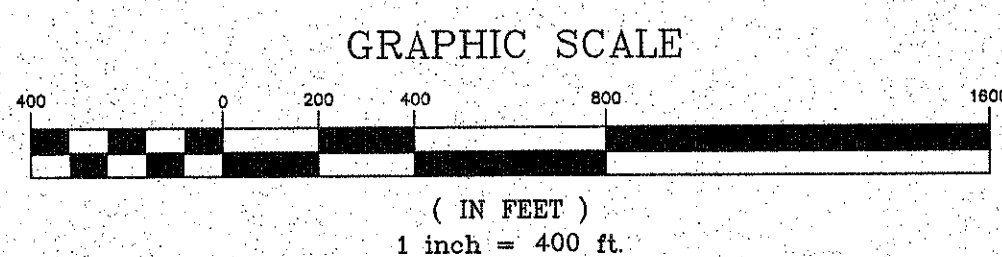
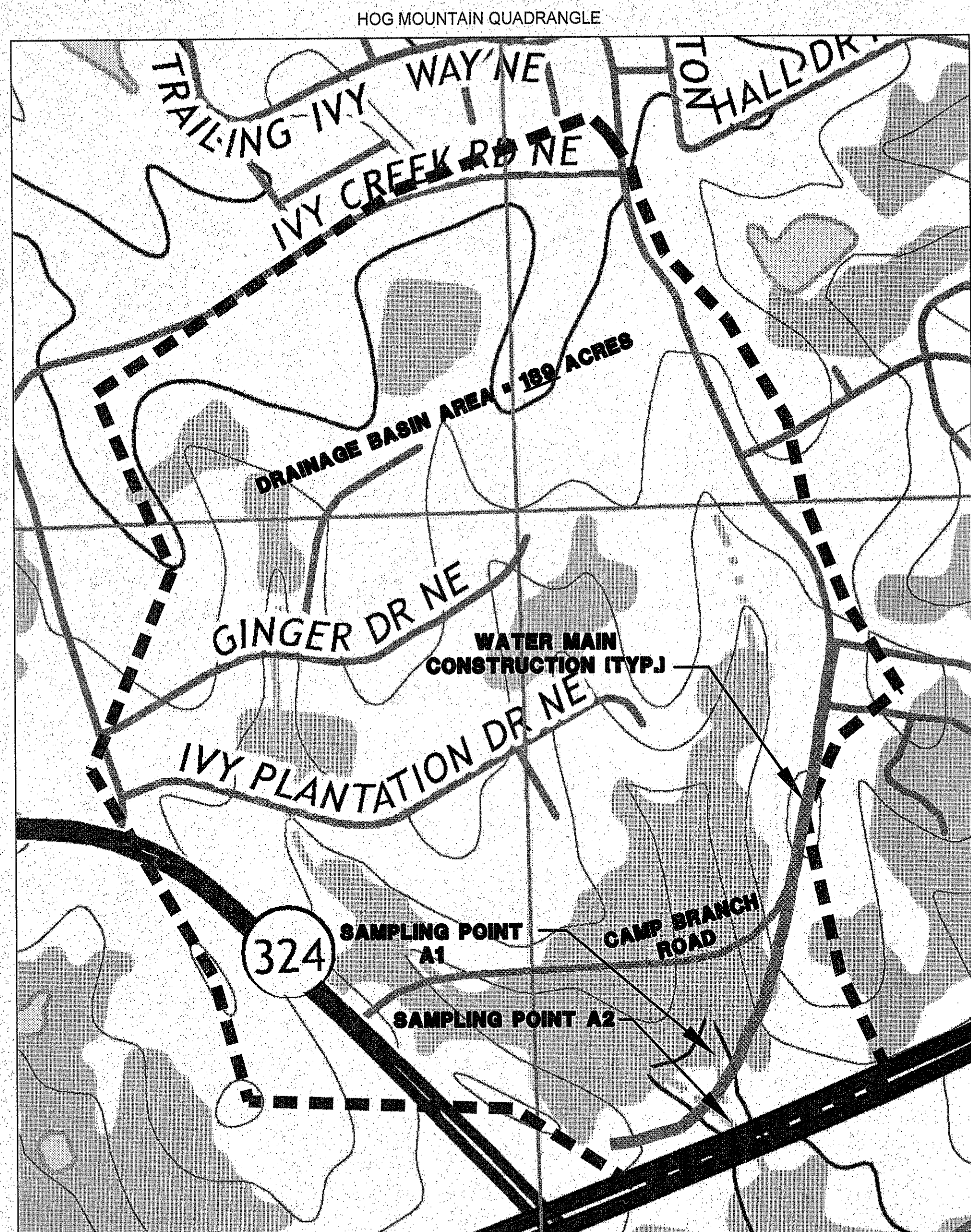
**48-INCH PCCP REPLACEMENT (1-85 INTERCHANGE AT SR 324)**

DATE	NO.	DESCRIPTION
6/15/17	0	ISSUED FOR BID

DESIGN	RHC
DRAWN	RHC
CHECKED	W-L

E16151  
 PPI PROJECT NO.

17



### STORM WATER MONITORING

CONTRACTOR SHALL PERFORM MONITORING OF STORM WATER LEAVING THE CONSTRUCTION SITE IN ACCORDANCE WITH THE REQUIREMENTS OF GENERAL PERMIT NO. GAR100002. THE MONITORING POINTS FOR STORM WATER SAMPLING FOR THIS PROJECT ARE DESCRIBED AS FOLLOWS:

Monitoring points A1 & A2 are located upstream and downstream, respectively, of the water main construction where it crosses a tributary of Little Ivey Creek. The location is approximately 0.10 miles north of I-85.

#### NTU SELECTION

No NTU selection from the tables in Appendix B of the General Permit is required since there is no monitoring of outfalls. Monitoring points are on live streams on the upstream and downstream sides of construction. A difference of 25 NTUs will be the maximum allowable difference between the monitoring points.

CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING, SUBMITTING, AND MAINTAINING ALL FORMS, MONITORING DATA REPORTS, INSPECTION REPORTS, ETC. ON A TIMELY BASIS IN ACCORDANCE WITH THE REQUIREMENTS OF GENERAL PERMIT NO. GAR100002.

#### Monitoring Point GPS Coordinates:

Monitoring Point A1  
 LATITUDE 34.064734°  
 LONGITUDE 83.945050°

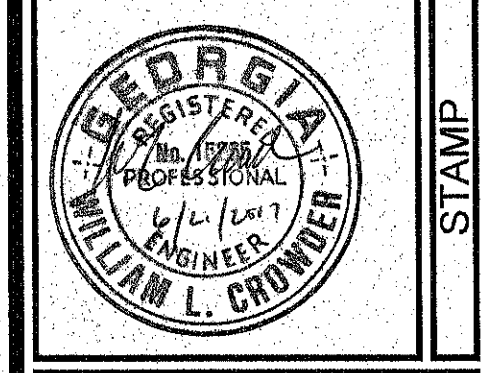
Monitoring Point A2  
 LATITUDE 34.064425°  
 LONGITUDE 83.944823°

EROSION, SEDIMENTATION & POLLUTION CONTROL PLAN CHECKLIST	
INFRASTRUCTURE CONSTRUCTION PROJECTS	
SWDC - GWINNETT COUNTY	
Project Name: <b>48-INCH PCCP REPLACEMENT (I-85)</b>	Address: <b>CAMP BRANCH ROAD</b>
City/County: <b>GWINNETT COUNTY</b>	Date on Plan: <b>3/29/17</b>
<b>TO BE SHOWN ON ESRPC PLAN</b>	
18	Y
19	Y
20	Y
21	Y
22	Y
23	Y
24	Y
25	Y
26	Y
27	Y
28	Y
29	Y
30	Y
31	Y
32	Y
33	Y
34	Y
35	Y
36	Y
37	Y
38	Y
39	Y
40	Y
41	Y
42	Y
43	Y
44	Y
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47	Y
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72	Y
73	Y
74	Y
75	Y
76	Y
77	Y
78	Y
79	Y
80	Y
81	Y
82	Y
83	Y
84	Y
85	Y
86	Y
87	Y
88	Y
89	Y
90	Y
91	Y
92	Y
93	Y
94	Y
95	Y
96	Y
97	Y
98	Y
99	Y
100	Y

PLOT DATE: 6/20/2017 3:11 PM FILE PATH: W:\PROJECTS\2016\16161-WE-SR-324\DWG\16161-IPRES NOTES.DWG - 2017-06-20 - RICHARD CROWDER

WILLIAM L. CROWDER, PE - GASWCC CERTIFICATION # 20702

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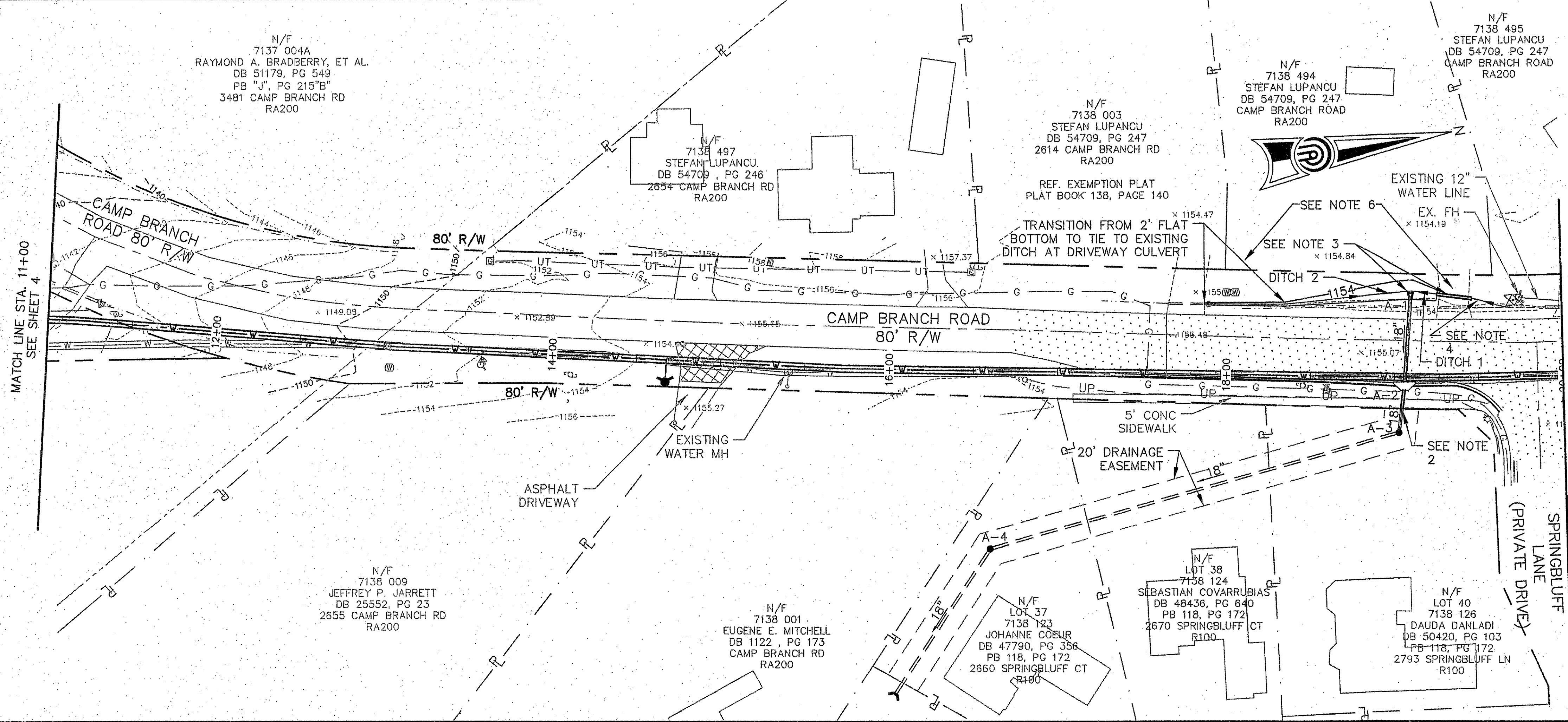
**PRECISION**  
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**48-INCH PCCP REPLACEMENT (I-85) INTERCHANGE AT SR 324)**

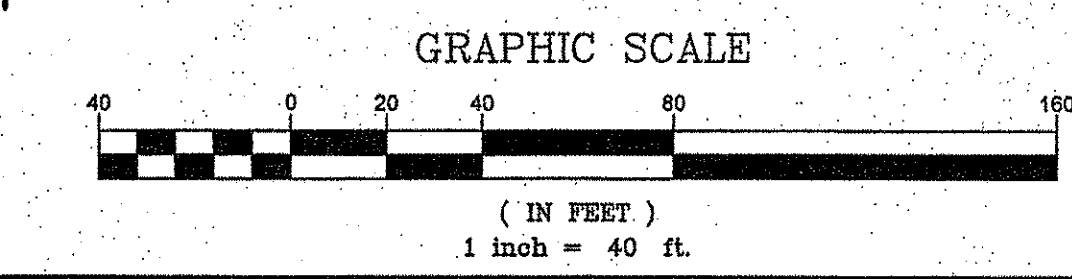
DATE	NO.	DESCRIPTION	ISSUED FOR	DATE	NO.	DESCRIPTION
6/15/17	0	ISSUED FOR BID				

DESIGN	RHC
DRAWN	RHC
CHECKED	W/L

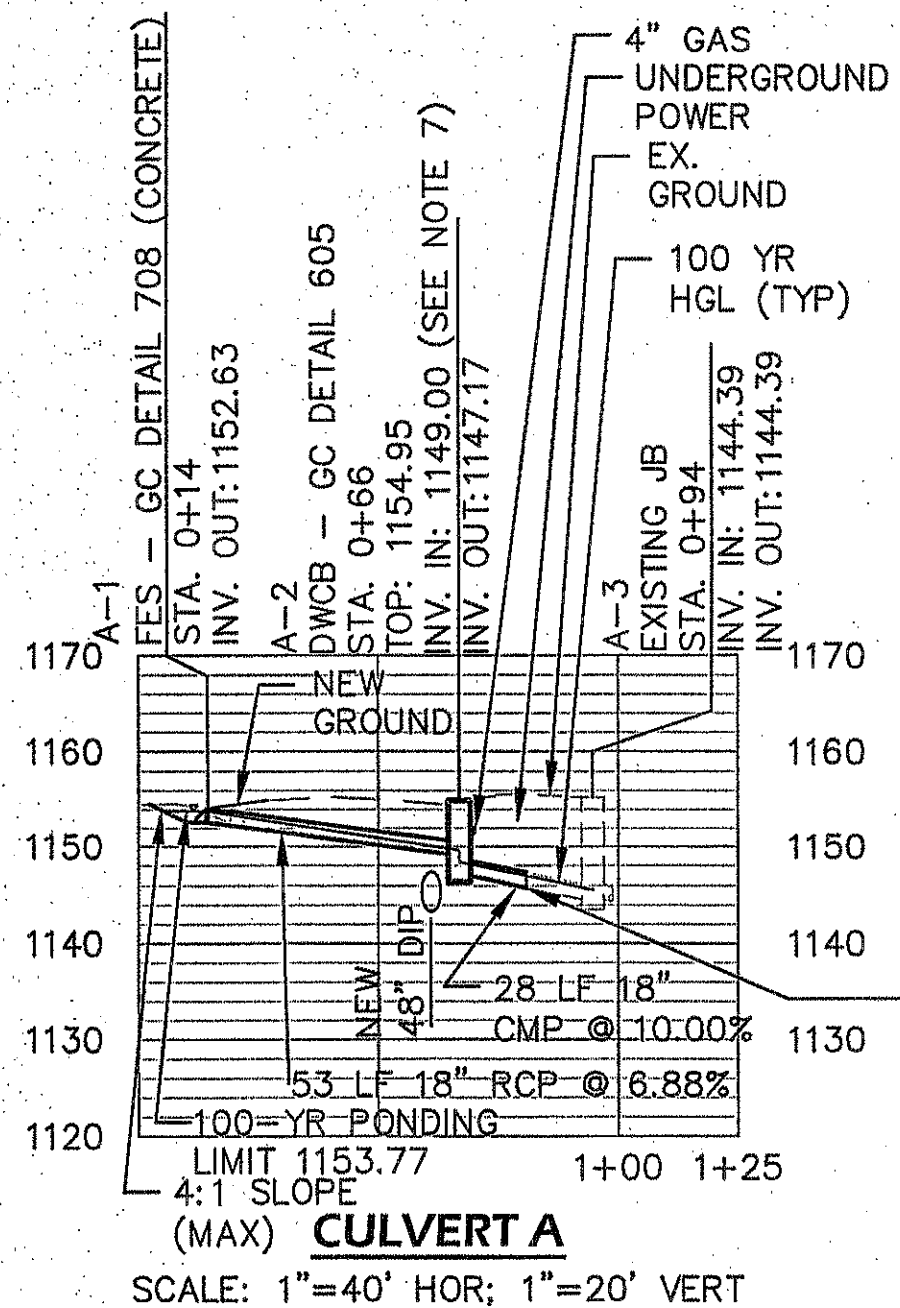
**E16151**  
 PPI PROJECT NO.



- NOTES:**
- SEE SHEET 2 FOR GENERAL NOTES AND LEGEND.
  - REPLACED DISTURBED SECTION OF 18" CMP TO THE RIGHT-OF-WAY LIMIT WITH NEW 18" CMP. CONNECT NEW AND EXISTING CMP WITH METAL BAND.
  - GRADE DITCH FOR POSITIVE DRAINAGE TO NEW FES. GRADE WITH 4:1 MINIMUM FORE AND BACK SLOPES, 2' FLAT BOTTOM DITCH. CONSTRUCT NEW 20' - 18" CMP DRIVEWAY CROSSING PIPE TO CONNECT TO RELOCATED DITCH (SEE NOTE 6).
  - RESHAPE SWALE FOR POSITIVE DRAINAGE TO NEW DRIVEWAY CULVERT.
  - CULVERT CONSTRUCTION SHALL BE IN ACCORDANCE WITH GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS CONSTRUCTION OF TRANSPORTATION SYSTEMS, LATEST EDITION.
  - DITCH GRADING AND CULVERT LOCATIONS SHOWN ARE APPROXIMATE DUE TO CURRENT CONSTRUCTION ACTIVITY FROM NEW RESIDENTIAL HOMES UNDER CONSTRUCTION. CONTRACTOR SHALL ADAPT FINAL DITCH GRADING AND PIPE PLACEMENT AT TIME OF CONSTRUCTION TO ACTUAL FIELD CONDITIONS AT NO ADDITIONAL COST TO THE OWNER.



- NOTES:**
- ALL RCP PIPE JOINTS SHALL BE BELL & SPIGOT TYPES WITH A RUBBER GASKET CONFORMING TO ASTM C-443. THE PIPE SHALL BE MANUFACTURED IN ACCORDANCE WITH AASHTO M-170 AND/OR ASTM C-76. CLASS OF PIPE AND WALL THICKNESS SHALL BE IN ACCORDANCE WITH 1030-D, GEORGIA DOT SPECIFICATION, TABLE NO. 1. INSTALLATION SHALL BE IN ACCORDANCE WITH SECTION 550 OF THE GEORGIA DOT STANDARD SPECIFICATIONS CONSTRUCTION OF TRANSPORTATION SYSTEMS, LATEST EDITION.
  - ALL STORM SEWER PIPES AND CULVERTS SHALL BE INSTALLED PER THE GWINNETT COUNTY "STORM WATER SYSTEMS AND FACILITIES INSTALLATION STANDARDS AND SPECIFICATIONS" JULY 28, 2006 (SSFISS).
  - ALL INSTALLATIONS ARE SUBJECT TO INSPECTION BY GWINNETT COUNTY DEPARTMENT OF WATER RESOURCES (GCDWR). ALL PIPES AND CULVERTS SHALL BE BEDDED AS REQUIRED BY SSFISS.
  - ALL MATERIAL CERTIFICATIONS, AND COMPACTION TESTS SPECIFIED IN THE SSFISS SHALL BE PROVIDED TO GCDWR PRIOR TO PIPE OR CULVERT INSTALLATION.
  - ALL RESISTIVITY TESTS, PH TESTS, AND ANY OTHER TEST SPECIFIED IN THE SSFISS SHALL BE PROVIDED TO GCDWR PRIOR TO PIPE OR CULVERT INSTALLATION.
  - CMP PIPE SHALL BE POLYMER PRECOAT STEEL 14 GAUGE AND SHALL MEET THE MINIMUM REQUIREMENTS OF GEORGIA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS CONSTRUCTION OF TRANSPORTATION SYSTEMS, LATEST EDITION.
  - REMOVE AND REPLACE EXISTING DWCB.



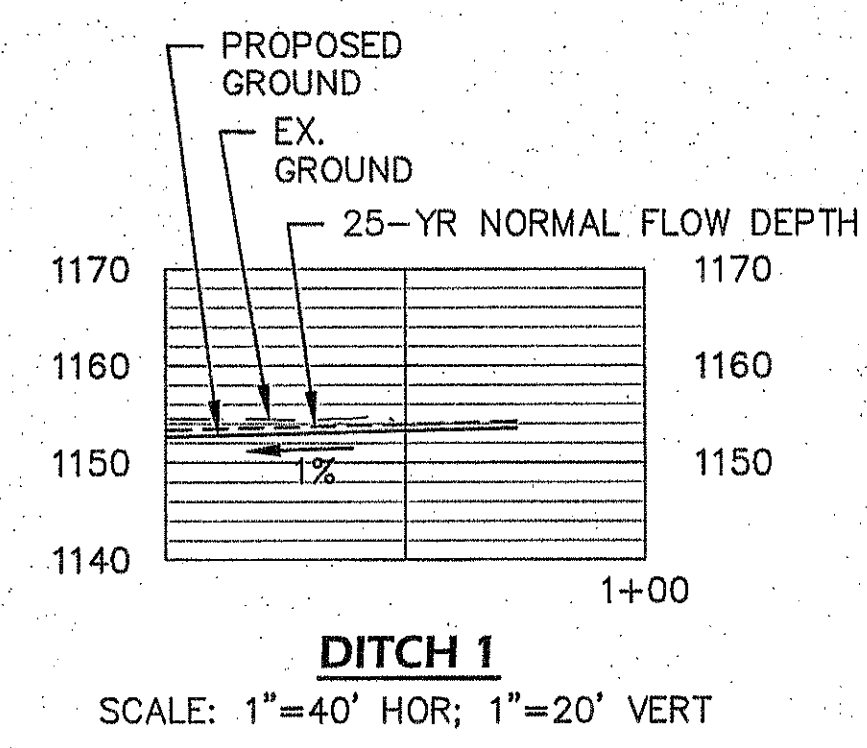
CONNECT TO EXISTING 18" CMP

**PIPE CHART**

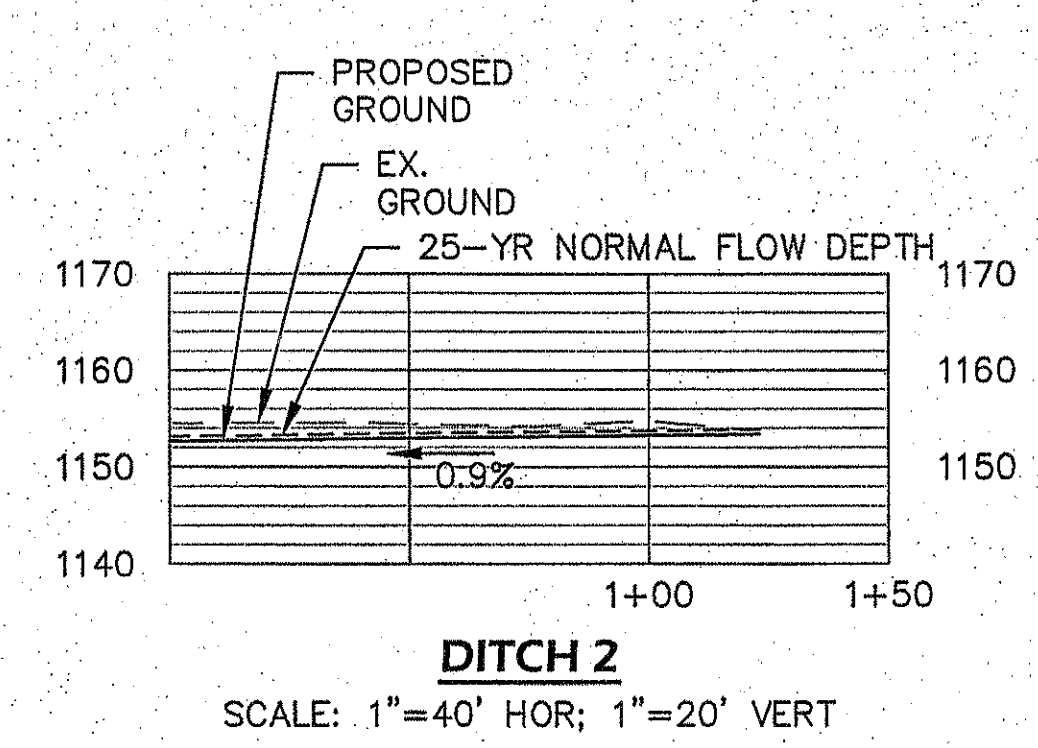
STR. TYPE	STR. I.D.	SIZE IN.	LENGTH FT.	SLOPE %	D.A. AC.	Q CFS	FREQ. YR.	C	VEL FPS
FES	A-1	18	53	6.88	1.54	8.66	100	0.58	6.02
DWCB	A-2	18	28	10.00	0.10	9.54	100	0.95	6.33

**OPEN CHANNEL CHART**

ID	DRAINAGE AREA (AC)	RUNOFF COEF.	STORM EVENT (YR)	RAINFALL INTENSITY (IN/HR)	T <sub>c</sub> (MIN)	Q (CFS)	ROUGHNESS COEF.	SLOPE %	DEPTH (FT)	LT. SIDE SLOPE	RT. SIDE SLOPE	BOTTOM WIDTH (FT)	VELOCITY (FT/SEC)	LINING MATL.	CHANNEL LENGTH
DITCH 1	1.13	0.59	25	8.28	5	5.52	0.58	1.0	0.7	4:1	4:1	2	1.7	SOD	73'
DITCH 2	0.41	0.45	25	8.28	5	1.53	0.45	0.9	0.5	4:1	4:1	2	1.2	SOD	123'



**DITCH 1**  
SCALE: 1"=40' HOR; 1"=20' VERT



**DITCH 2**  
SCALE: 1"=40' HOR; 1"=20' VERT

PLOT DATE: 6/21/2017 11:39 AM FILE PATH: W:\PROJECTS\2016\1615-RR-SR\_32A\DWG\1615\_BASE\_DESIGNING - 2017-06-21 - RICHARD CROWDER

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48-INCH PCCP REPLACEMENT (I-85 INTERCHANGE AT SR 324)

STORM CULVERT REPLACEMENT

SHEET TITLE

DESIGN: RHC CHECKED: LWC  
DRAWN: RHC

DATE: 6/19/17 0 ISSUED FOR BID

E1615  
PPI PROJECT NO.

19

