

# West Energy Sanitary Sewer Re-Bid

in Columbia, SC  
 State Project # H27-Z185  
 Prepared For



UNIVERSITY OF  
**SOUTH CAROLINA**

by:

**Chao & Associates, Inc.**

CA#: 398108-16

June 26, 2016



The Owner Is:  
 University of South Carolina  
 743 Greene Street  
 Columbia, SC 29208

Project Manager  
 Civil and Surveying  
 Chao & Associates, Inc.  
 7 Clusters Court  
 Columbia, SC 29210

Plumbing Engineer  
 Swygert & Associates Ltd  
 1315 State Street  
 Cayce, SC 29033

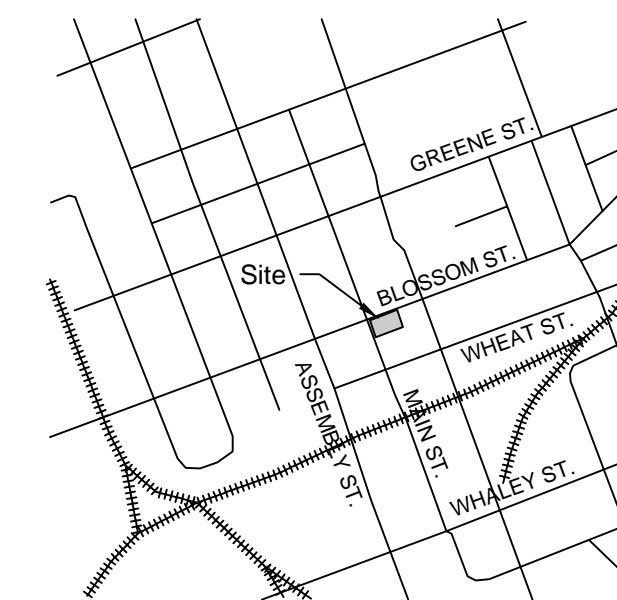
DRAWING INDEX

Civil  
 c1.0 - Existing Conditions  
 c2.0 - Utility Plan  
 c3.0 - Construction Details

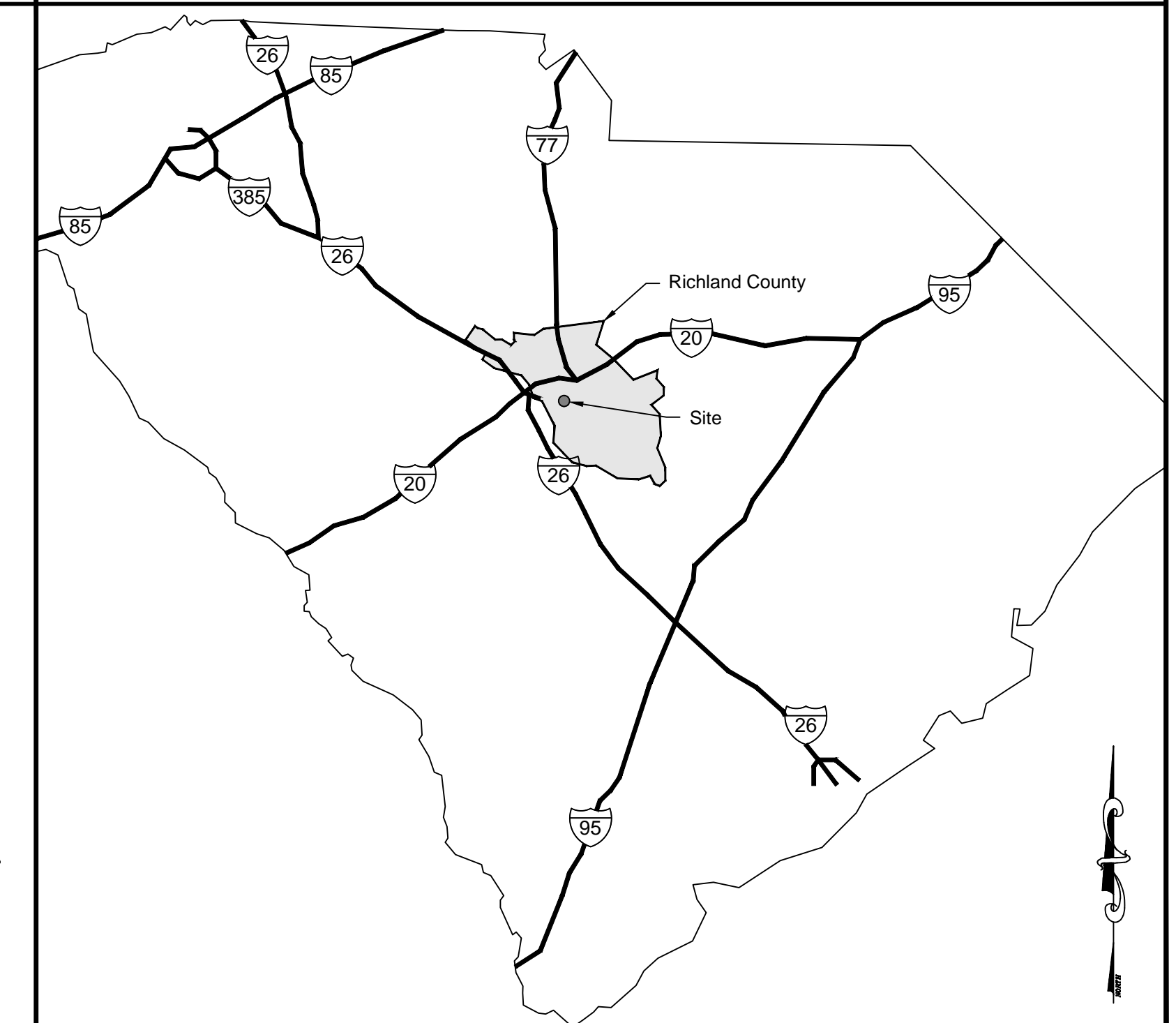
Plumbing  
 p1.0 - Floor Plan, Notes and Details

LOCATION MAP

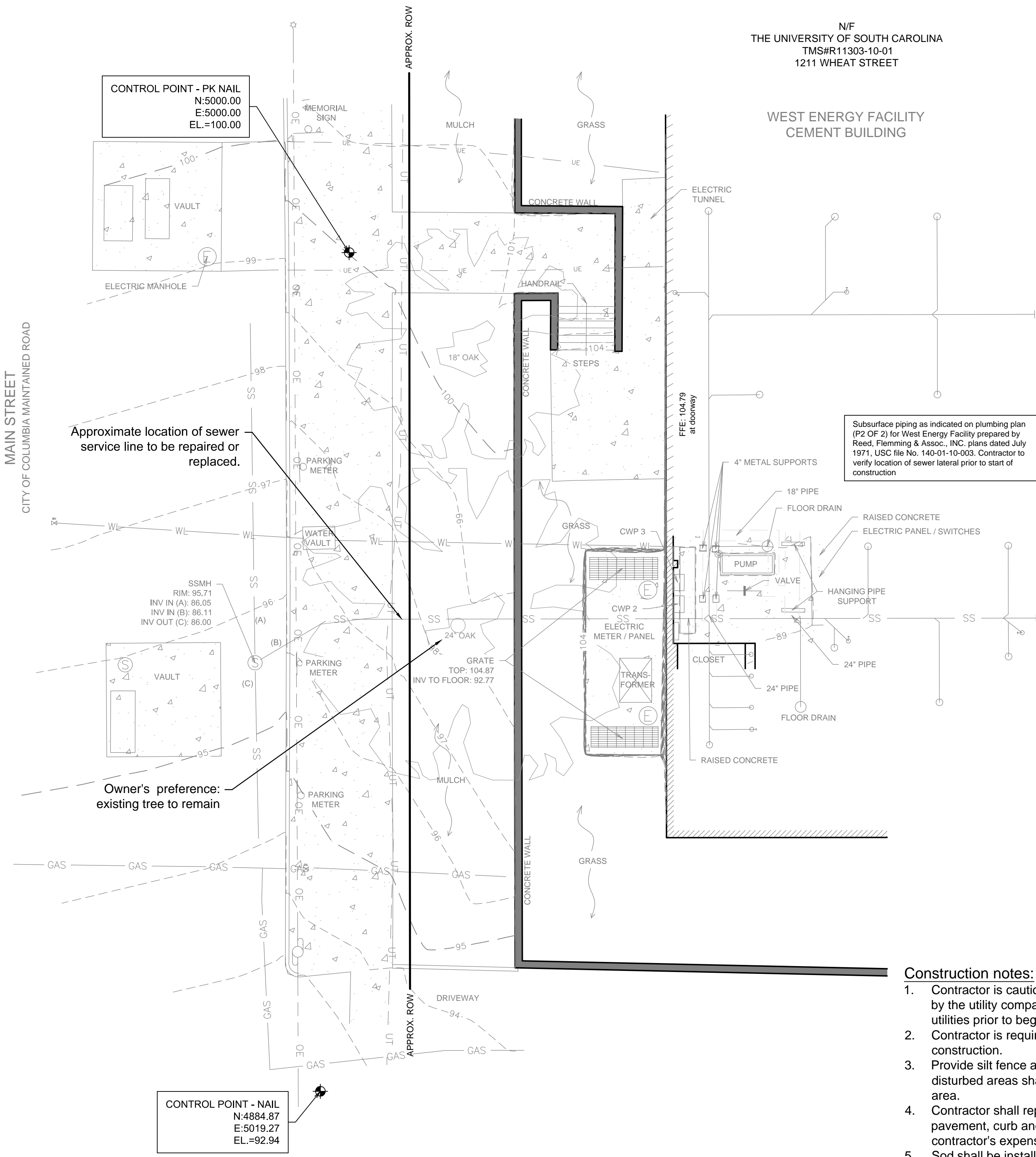
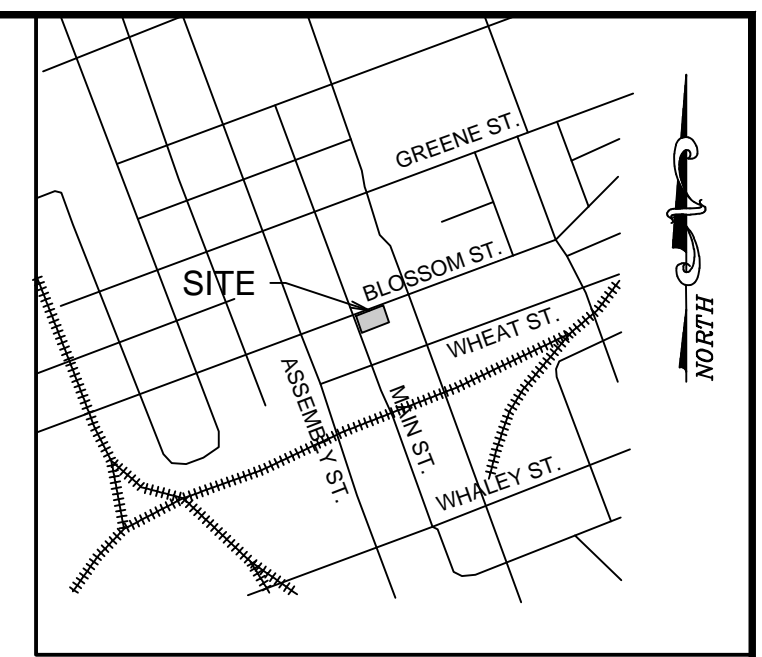
COUNTY OF RICHLAND  
 SCALE: NOT TO SCALE



STATE OF SOUTH CAROLINA  
 SCALE: 1" = 30 MILES



LEGEND	
	FIRE HYDRANT
	WATER VALVE
	WATER METER
	GAS VALVE
	SANITARY SEWER MANHOLE
	CLEANOUT (CO)
	NATURAL GAS LINE
	SANITARY SEWER LINE (MATERIAL UNKNOWN)
	WATER LINE
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND TELEPHONE
	UNDERGROUND FIBER OPTIC LINE
	UNDERGROUND CABLE TV
	CONC. CURB & GUTTER
	YARD INLET (YI)
	JUNCTION BOX (JB)
	DROP INLET (DI)
	CURB INLET (CI)
	STORM DRAIN PIPE
	CONCRETE SIDEWALK
	POWER POLE & GUY
	LIGHT POLE
	ELEC BOX
	TELEPHONE PED
	A/C 2 X 2 PAD

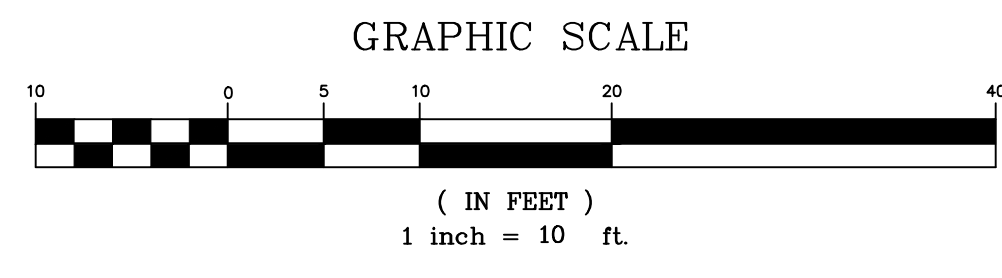


**General Notes:**

- The information shown on these plans is a compilation of the existing conditions survey and drawings of the building's plumbing furnished by the owner and is intended to show the obstacles that will be encountered in replacing the existing sanitary sewer service. Additional underground utilities may be present within the designated work area. As is required for all excavation projects contractor shall contact SC-811 to have all utilities marked prior to start of construction.
- Contractor shall abide by all rules and regulations pertaining to worker safety for excavations in confined spaces.
- Excavated areas shall be restored to original elevations and surface treatment after construction.
- This plan is not intended to dictate the contractor's methodology for sewer service replacement. The owner will entertain any replacement methods that are based on sound engineering and construction practice and meets or exceeds the minimum design requirements.

**Construction notes:**

- Contractor is cautioned that the location and/or elevation of existing utilities shown herein are based on records provided by the utility company and information obtained from the field. Contractor shall verify all existing field conditions and utilities prior to beginning work.
- Contractor is required to contact Palmetto Utility Protection Service (811) three days prior to any digging or commencing construction.
- Provide silt fence and other erosion control devices, as may be required, to control soil erosion during construction. All disturbed areas shall be cleaned, graded and stabilized with grassing immediately after completion of construction in the area.
- Contractor shall repair any damage caused to any existing site features to remain including, but not limited to, buildings, pavement, curb and gutter, storm drains, underground utilities, fencing, etc. in their entirety. Repairs shall be at the contractor's expense.
- Sod shall be installed in all areas disturbed by construction that are not intended to be covered by impervious material, unless otherwise indicated.
- If necessary, slopes which exceed four vertical feet or 4:1 slopes should be stabilized with an approved turf reinforcing mat in addition to hydroseeding. It may be necessary to install temporary slope drains during construction. Temporary berms may be needed daily until slope is brought to grade.
- Contractor shall take necessary action to minimize the tracking of mud onto the paved roadway from construction areas. Contractor to daily remove mud/soil from pavement as required.
- All erosion control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and/or offsite sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized to the satisfaction of Lexington County.
- Contractor shall abide by all provisions of the City of Columbia storm drainage and erosion control ordinances as well as the South Carolina Sediment Reduction Act.
- All excavation is unclassified. Excess material is to be removed from the site and disposed of in a legal manner.
- All construction staking shall be provided at the contractor's expense.



3 DAYS BEFORE DIGGING IN  
SOUTH CAROLINA  
**CALL 811**  
Palmetto Utility Protection Service

- Notes:**
- Existing conditions survey performed by Chao and Associates.
  - Street Right-of-Way and property information taken from Richland County GIS.
  - Benchmark is based on assumed datum.



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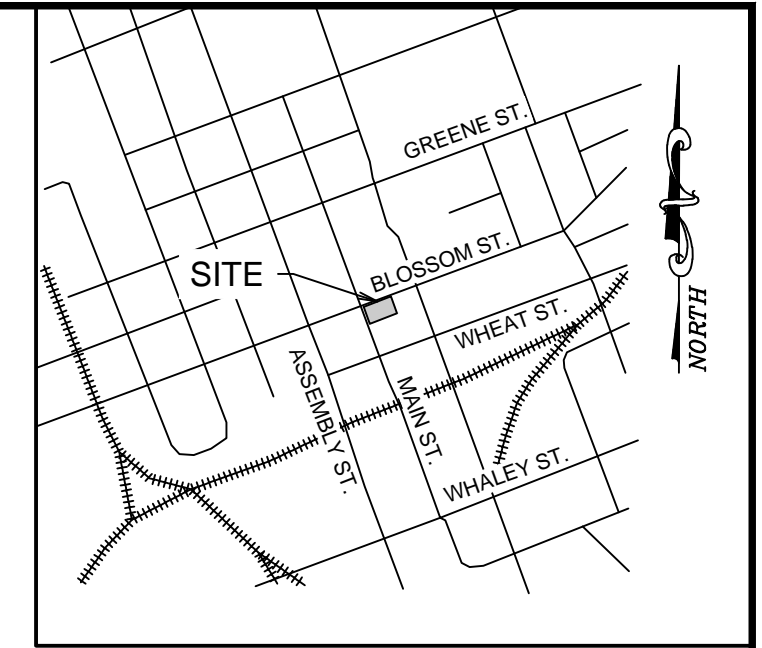
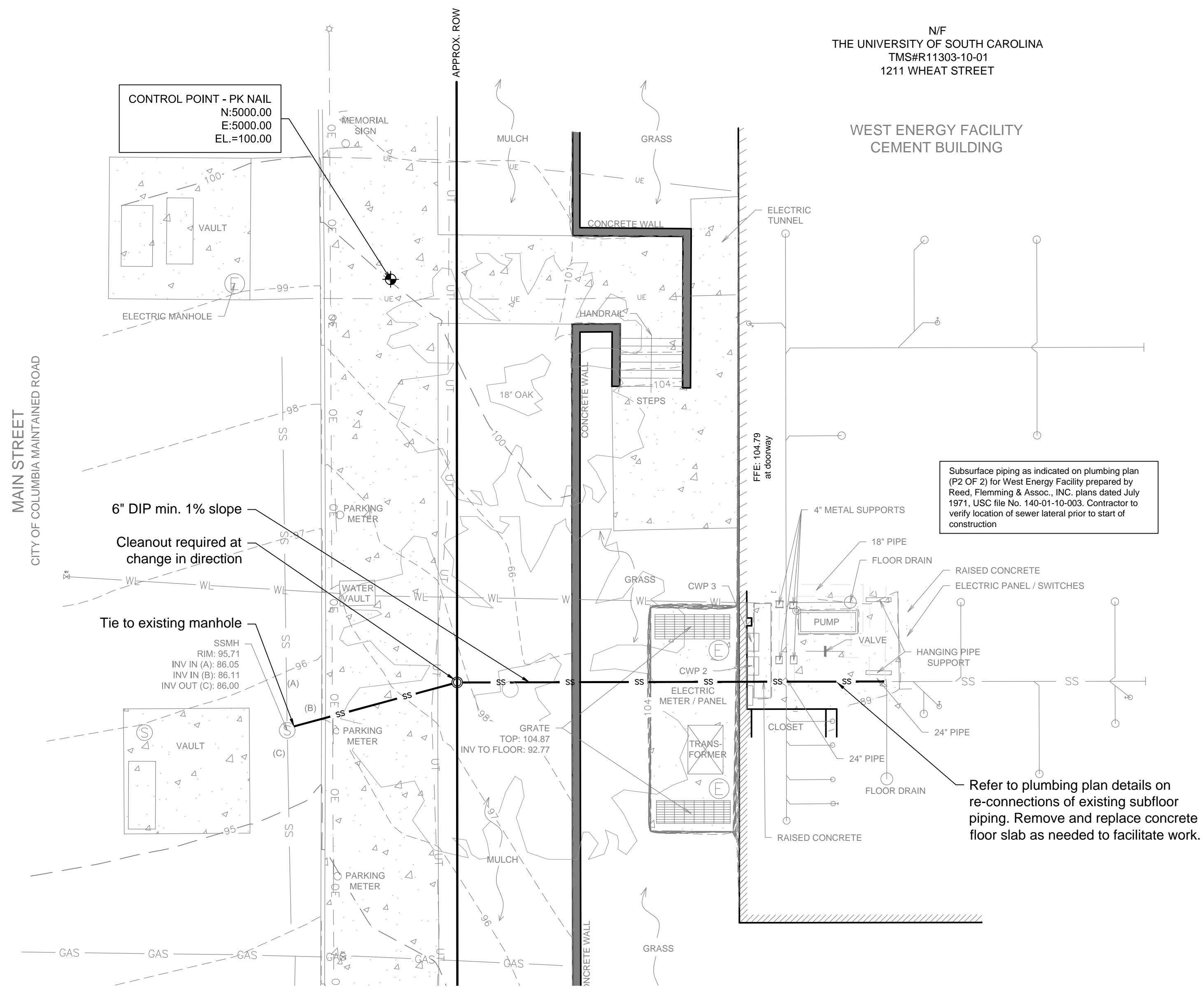
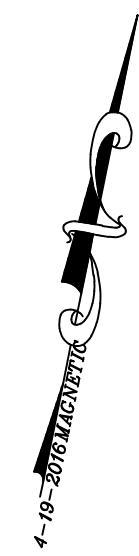
**Re-Bid**

**Existing Conditions and Profile  
West Energy Sanitary Sewer - State Project # H27-Z185**  
Prepared for:  
**University of South Carolina  
Columbia, Richland County, SC**

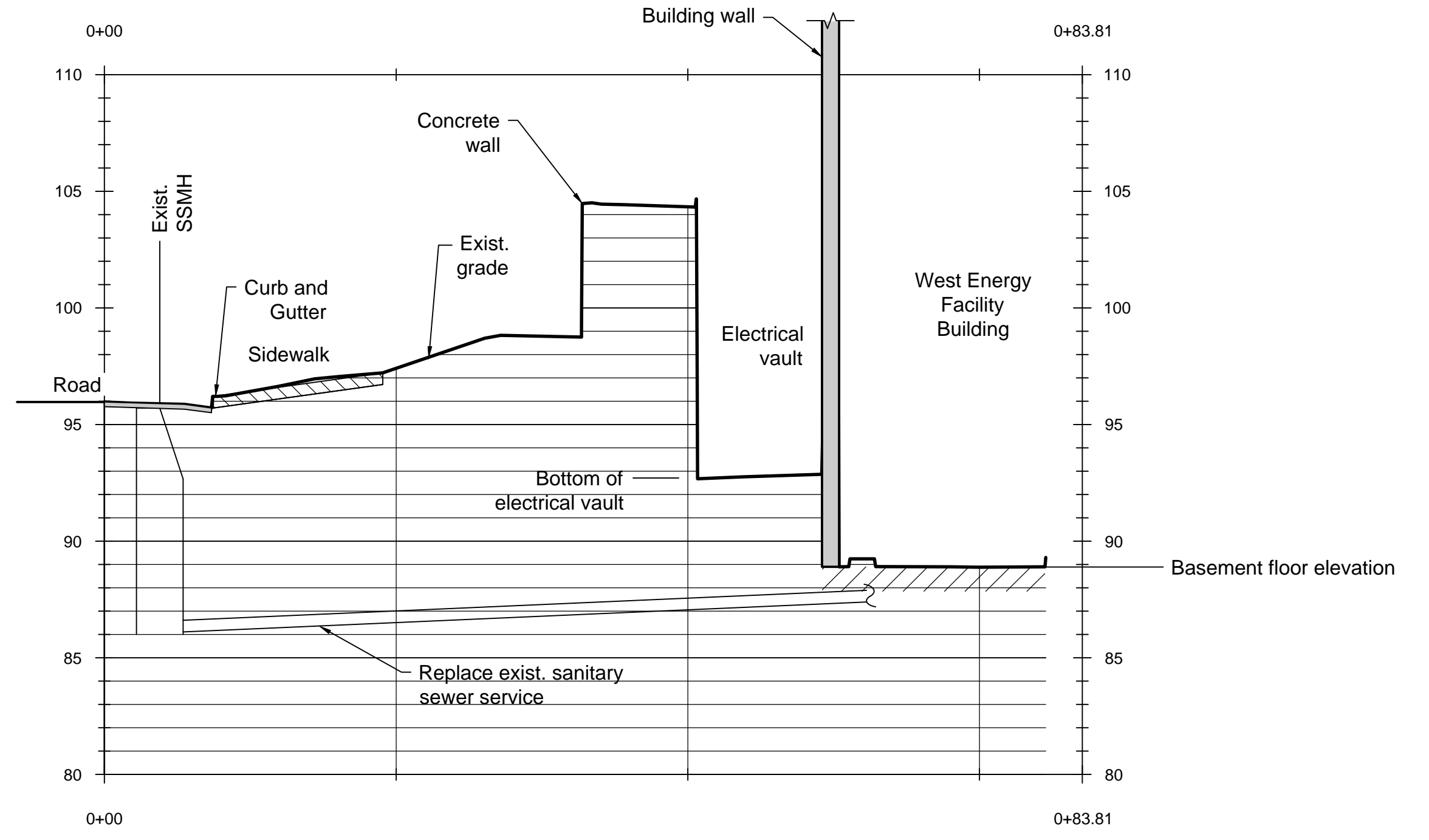
Drawn: HMC      Checked: GAL  
Revised:  
Project No.: 398108  
File: 398108C-R2.dwg

**c1.0**  
Sheet Number  
June 26, 2016  
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LEGEND	
	FIRE HYDRANT
	WATER VALVE
	WATER METER
	GAS VALVE
	SANITARY SEWER MANHOLE
	CLEANOUT (CO)
	NATURAL GAS LINE
	SANITARY SEWER LINE (MATERIAL UNKNOWN)
	WATER LINE
	FENCE
	OVERHEAD ELECTRIC TELEPHONE
	UNDERGROUND FIBER OPTIC LINE
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	YARD INLET (YI)
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	STORM DRAIN PIPE
	CONCRETE SIDEWALK
	POWER POLE & GUY
	LIGHT POLE
	ELEC BOX
	TELEPHONE PED
	A/C 2 X 2 PAD



Area of disturbance: 0.1 acre



Ground Level to Basement  
Scale: 1" = 10' horiz.  
1" = 5' vert.

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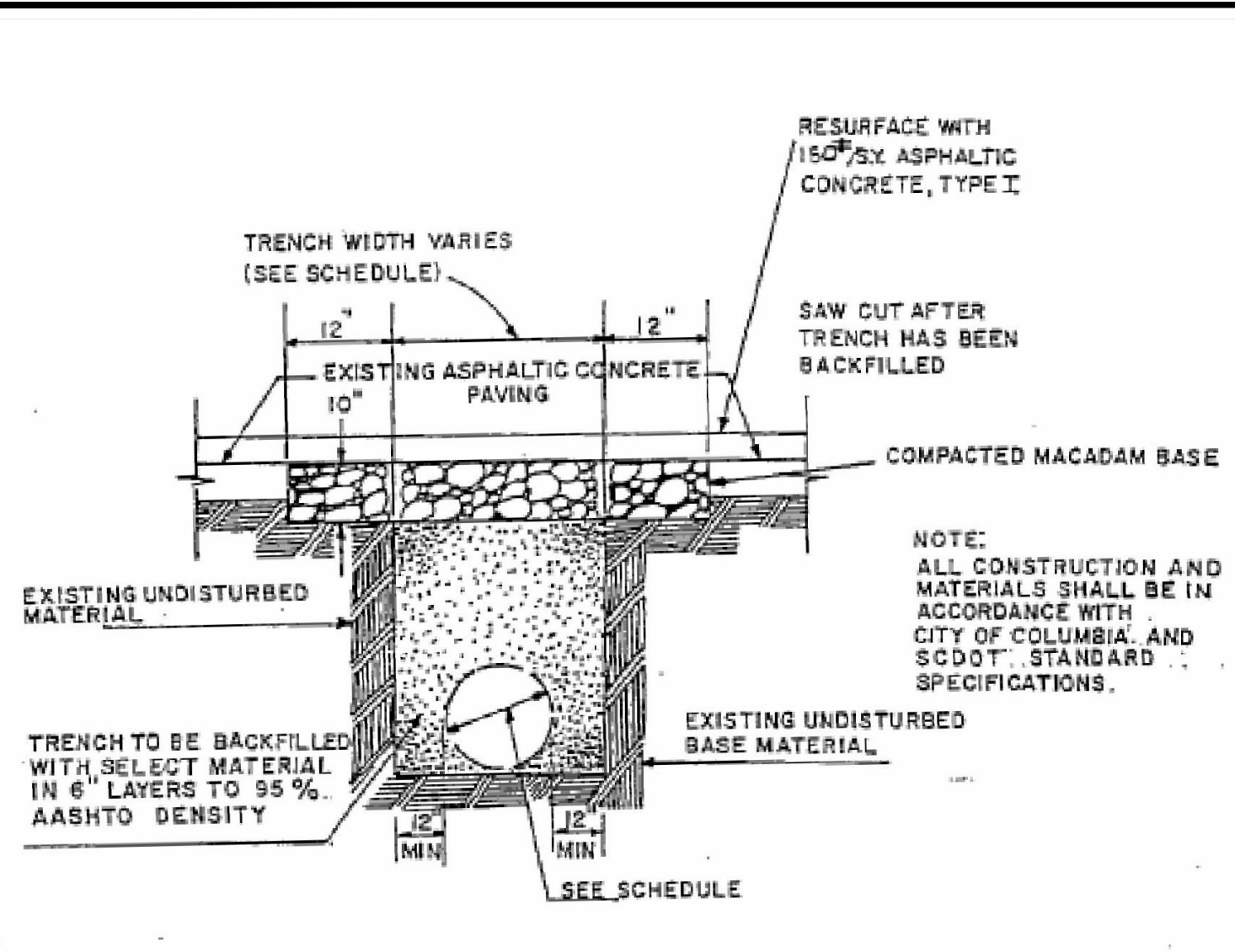
# Re-Bid

Utility Plan  
West Energy Sanitary Sewer - State Project # H27-Z185  
Prepared for:  
University of South Carolina  
Columbia, Richland County, SC

Drawn: HMC	Checked: GAL
Revised:	
File: 398108C-R2.dwg	
Project No.: 398108	

**c2.0**  
Sheet Number  
June 26, 2016  
Date

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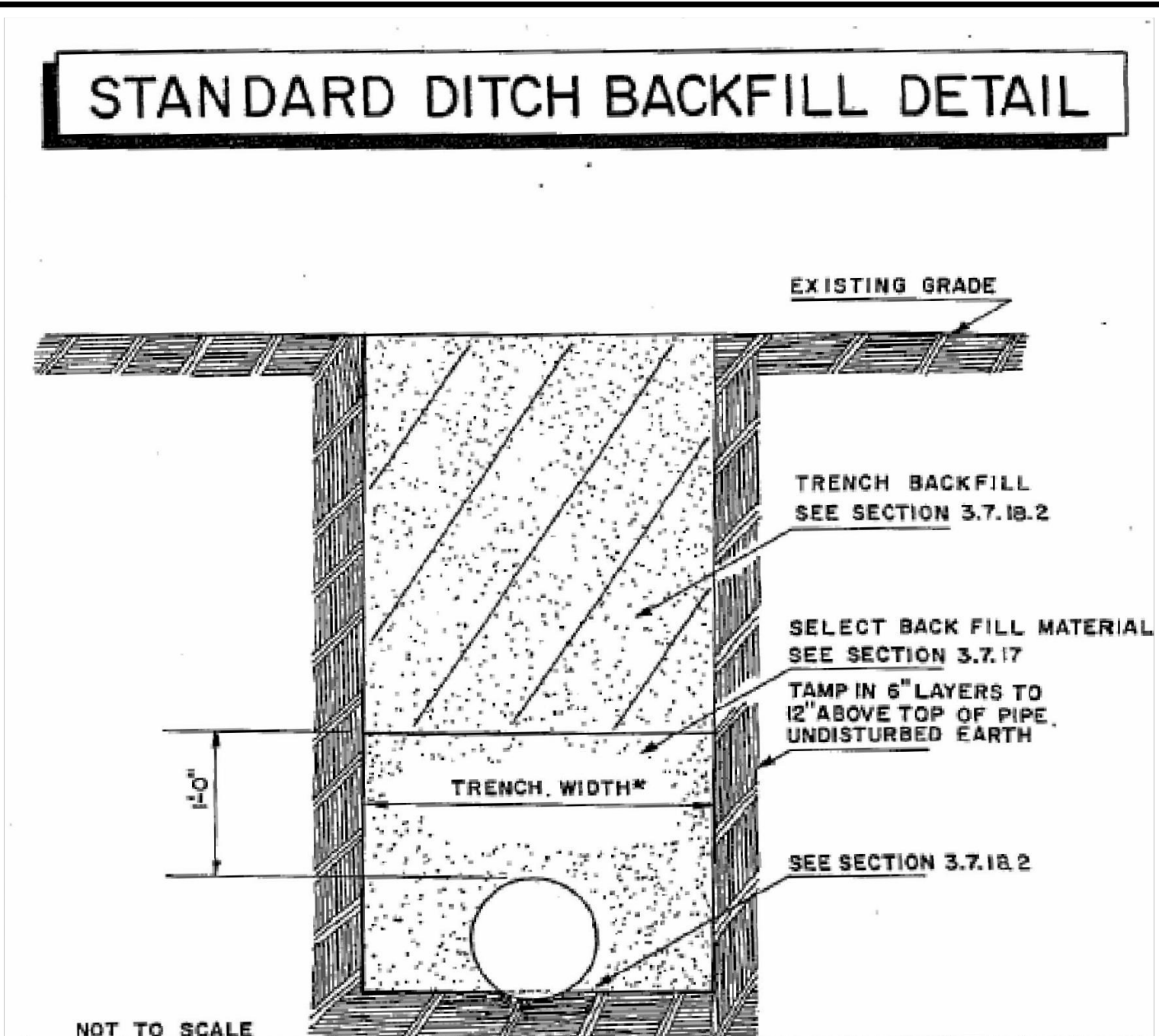
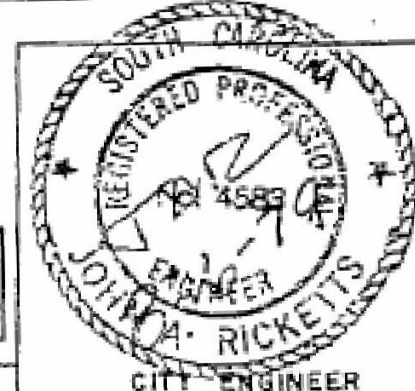
**TYPICAL PERMANENT REPAIR SECTION ROAD PAVEMENT**

NOT TO SCALE  
FOR USE ONLY ON SECONDARY ROADS WITH LOW VOLUME OF TRAFFIC WHERE CONSTRUCTION IS GENERALLY PARALLEL TO THE CENTERLINE OF THE PAVING AND EXISTING STREET DOES NOT HAVE CURB AND GUTTER

MIN. TRENCH WIDTH SCHEDULE					
PIPE SIZE I.D.	12" & LESS	15" TO 24"	24" TO 30"	33" TO 54"	60" & OVER
TRENCH WIDTH (W/O SHORING)	36"	1.0+24"	1.0+30"	0.0+30"	0.0+36"
TRENCH WIDTH (W/SHORING)	48"	1.0+36"	1.0+42"	0.0+42"	0.0+48"

**TYPICAL REPAIR SECTIONS**

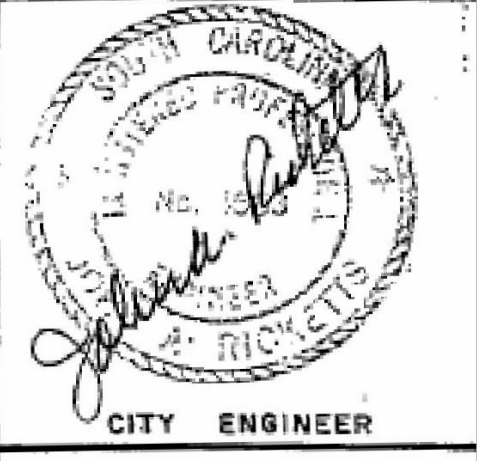
REVISED: 2-21-94  
REVISED: 9-10-93  
REVISED: 8-20-79  
DATE: 8-16-79



MIN. TRENCH WIDTH						
PIPE SIZE I.D.	6" THRU 10"	12"	15"	18"	21"	24"
TRENCH WIDTH*	2'-6"	2'-8"	2'-10"	3'-2"	3'-8"	4'-0"
TRENCH WIDTH WITH BRACING	3'-2"	3'-4"	3'-6"	3'-10"	4'-4"	4'-8"

TRENCH WIDTH DIMENSIONS ARE FROM THE INSIDE OF THE SHEETING AND BRACING AND AT AND BELOW THE TOP OF THE PIPE.  
SEE SECT. 3.7.3 FOR PIPE OVER 24" DIA.

COLUMBIA ENGINEERING DEPARTMENT



REVISED: 2-21-94  
REVISED: NOV. 2, 1979  
DATE: 9-8-78

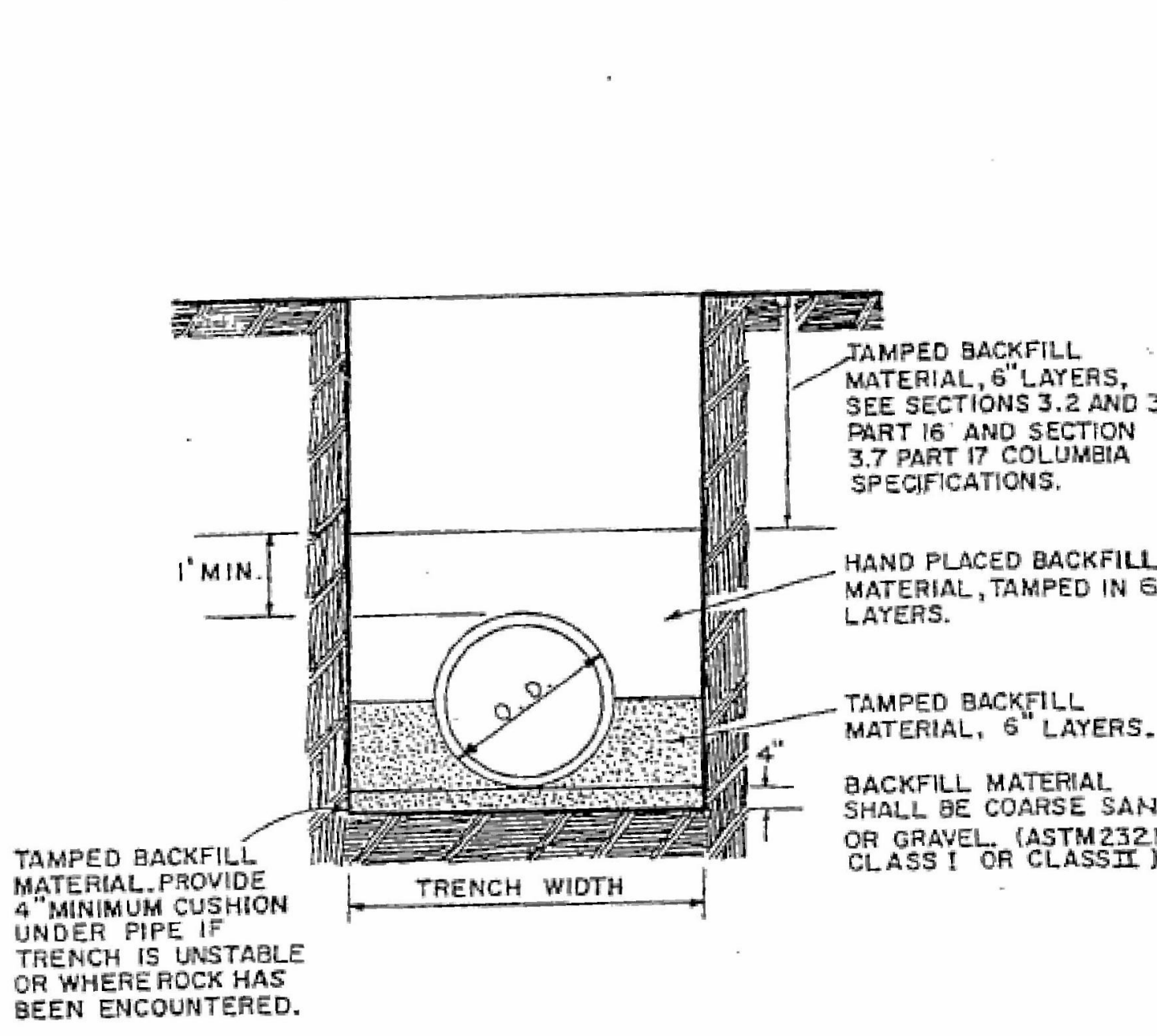
**STANDARD NOTES**

- If necessary, slopes, which exceed eight (8) vertical feet should be stabilized with synthetic or vegetative mats, in addition to hydros seeding. It may be necessary to install temporary slope drains during construction. Temporary berms may be needed until the slope is brought to grade.
- Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen (14) days after work has ceased, except as stated below.
  - Where stabilization by the 14th day is precluded by snow cover or frozen ground conditions stabilization measures must be initiated as soon as practicable.
  - Where construction activity on a portion of the Site is temporarily ceased, and earth-disturbing activities will be resumed within 14 days, temporary stabilization measures do not have to be initiated on that portion of the Site.
- All sediment and erosion control devices shall be inspected once every calendar week. If periodic inspection or other information indicates that a BMP has been inappropriately or incorrectly installed, the Permittee must address the necessary replacement or modification required to correct the BMP within 48 hours of identification.
- Provide silt fence and/or other control devices, as may be required, to control soil erosion during utility construction. All disturbed areas shall be cleaned, graded, and stabilized with grasing immediately after the utility installation. Fill, cover, and temporary seeding at the end of each day are recommended. If water is encountered while trenching, the water should be filtered to remove any sediments before being pumped back into any waters of the State.
- All erosion control devices shall be properly maintained during all phases of construction until the completion of all construction activities and all disturbed areas have been stabilized. Additional control devices may be required during construction in order to control erosion and/or offsite sedimentation. All temporary control devices shall be removed once construction is complete and the site is stabilized.
- The contractor must take necessary action to minimize the tracking of mud onto paved roadway(s) from construction areas and the generation of dust. The contractor shall daily remove mud/soil from pavement, as may be required.
- Residential subdivisions require erosion control features for infrastructure as well as for individual lot construction. Individual property owners shall follow these plans during construction or obtain approval of an individual plan in accordance with S.C Reg. 72-300 et seq. and SCR100000.
- Temporary diversion berms and/or ditches will be provided as needed during construction to protect work areas from upslope runoff and/or to divert sediment-laden water to appropriate traps or stable outlets.
- All waters of the State (WoS), including wetlands, are to be flagged or otherwise clearly marked in the field. A double row of silt fence is to be installed in all areas where a 50-foot buffer can't be maintained between the disturbed area and all WoS. A 10-foot buffer should be maintained between the last row of silt fence and all WoS.
- Litter, construction debris, oils, fuels, and building products with significant potential for impact (such as stockpiles of freshly treated lumber) and construction chemicals that could be exposed to storm water must be prevented from becoming a pollutant source in storm water discharges.
- A copy of the SWPPP, inspections records, and rainfall data must be retained at the construction site or a nearby location easily accessible during normal business hours, from the date of commencement of construction activities to the date that final stabilization is reached.
- Initiate stabilization measures on any exposed steep slope (3H:1V or greater) where land-disturbing activities have permanently or temporarily ceased, and will not resume for a period of 7 calendar days.
- Minimize soil compaction and, unless infeasible, preserve topsoil.
- Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;
- Minimize the discharge of pollutants from dewatering of trenches and excavated areas. These discharges are to be routed through appropriate BMPs (sediment basin, filter bag, dam, etc.).
- The following discharges from sites are prohibited:
  - Wastewater from washout of concrete, unless managed by an appropriate control;
  - Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials;
  - Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and
  - Soaps or solvents used in vehicle and equipment washing.
- After construction activities begin, inspections must be conducted at a minimum of at least once every calendar week and must be conducted until final stabilization is reached on all areas of the construction site.
- If existing BMPs need to be modified or if additional BMPs are necessary to comply with the requirements of this permit and/or SC's Water Quality Standards, implementation must be completed before the next storm event whenever practicable. If implementation before the next storm event is impracticable, the situation must be documented in the SWPPP and alternative BMPs must be implemented as soon as reasonably possible.
- A Pre-Construction Conference must be held for each construction site with an approved On-Site SWPPP prior to the implementation of construction activities. For non-linear projects that disturb 10 acres or more this conference must be held on-site unless the Department has approved otherwise.

Permanent Seeding													
Species	Lbs/Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bahiagrass (Alone)	40												
Bahiagrass (Mix)	30												
Bermuda Grass (Hulled) (Alone)	8-12												
Bermuda Grass (Hulled) (Mix)	46												
Fescue, Tall (KY31) Alone	40												
Fescue, Tall (KY31) mix	20												
Sericea Lespedeza (Scarified) Alone or Mix (inoculate with EL Inoculant)	40												
Ladino Clover (mix only) Inoculate with AB Inoculant	2												

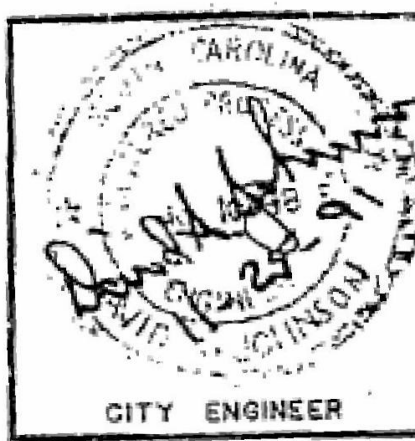
Temporary Seeding													
Species	Lbs/ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Browntop Millet (Alone)	40												
Browntop Millet (Mix)	10												
Rye Grain (Alone)	56												
Rye Grain (Mix)	10												
Rye Grain (Alone)	50												
Rye Grain (Mix)	8												

**STANDARD PIPE BEDDING AND BACKFILLING DETAIL PVC PIPE**



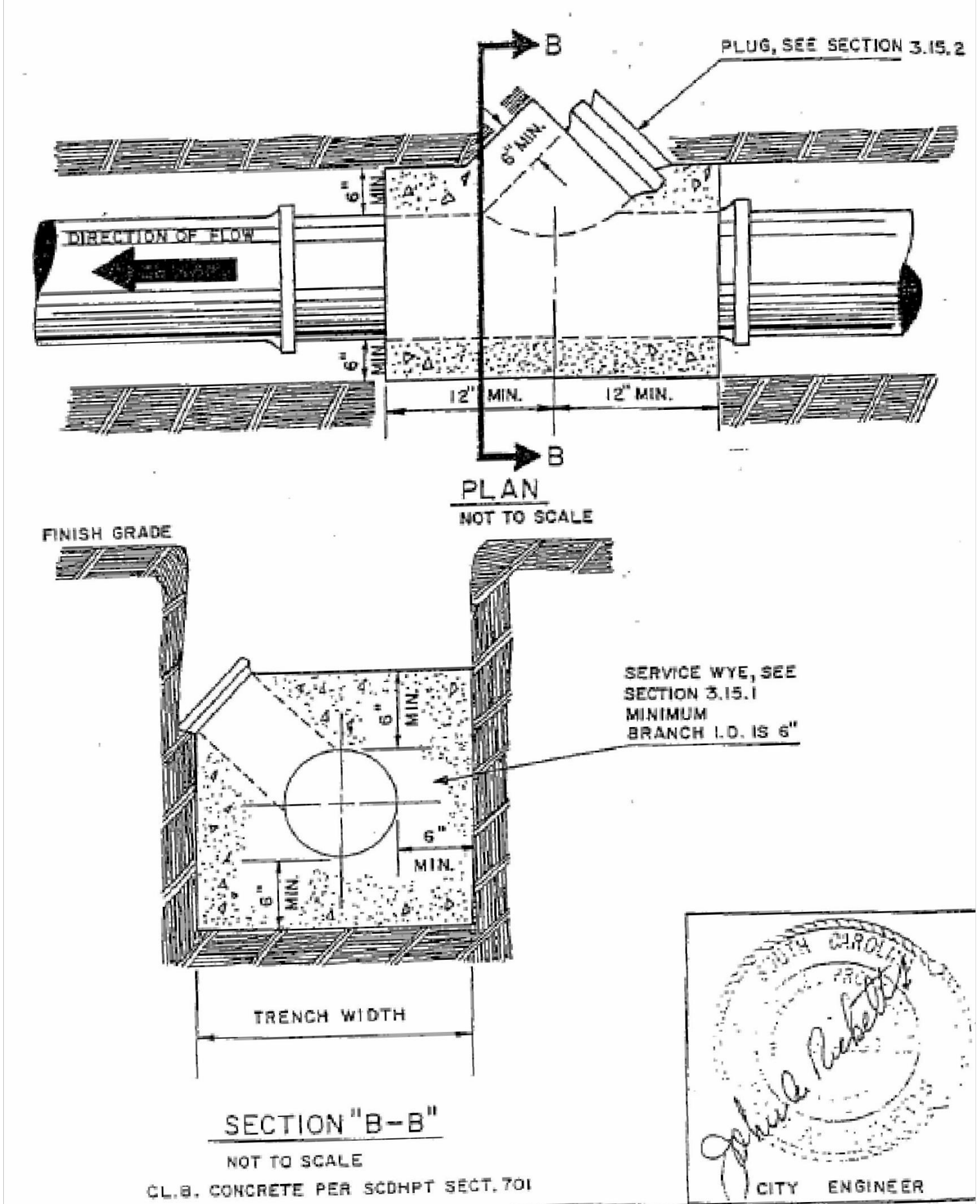
TAMPED BACKFILL MATERIAL, 6" LAYERS, SEE SECTIONS 3.2 AND 3.3 PART 16 AND SECTION 3.7 PART 17 COLUMBIA SPECIFICATIONS.  
HAND PLACED BACKFILL MATERIAL, TAMPED IN 6" LAYERS.  
TAMPED BACKFILL MATERIAL, 6" LAYERS.  
BACKFILL MATERIAL SHALL BE COARSE SAND OR GRAVEL (ASTM 2321 CLASS I OR CLASS II).  
TAMPED BACKFILL MATERIAL. PROVIDE 4" MINIMUM CUSHION UNDER PIPE IF TRENCH IS UNSTABLE OR WHERE ROCK HAS BEEN ENCOUNTERED.

DEPARTMENT OF UTILITIES AND ENGINEERING

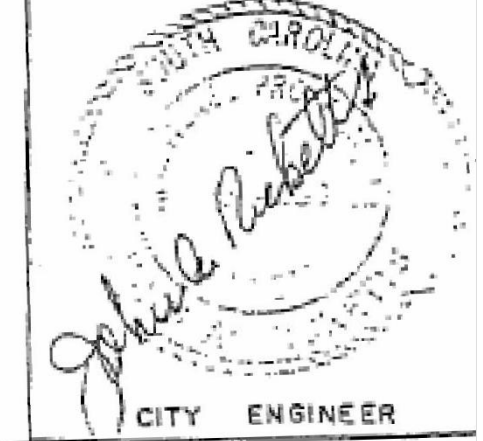


DATE: 11-25-91

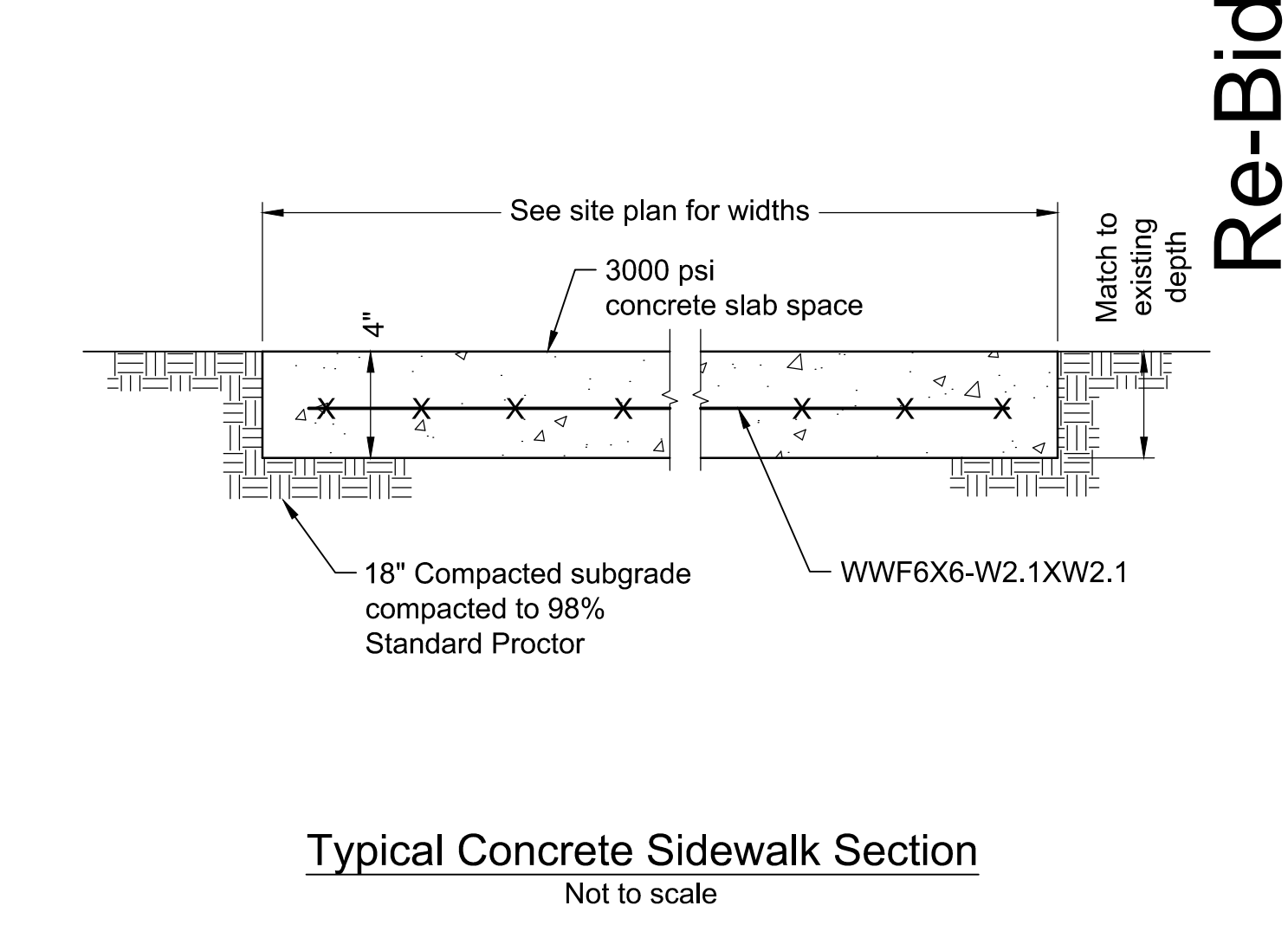
**SERVICE WYE**



COLUMBIA ENGINEERING DEPARTMENT



REVISED: NOV. 12, 1979  
DATE: 9-8-78



**Typical Concrete Sidewalk Section**  
Not to scale

Re-Bid

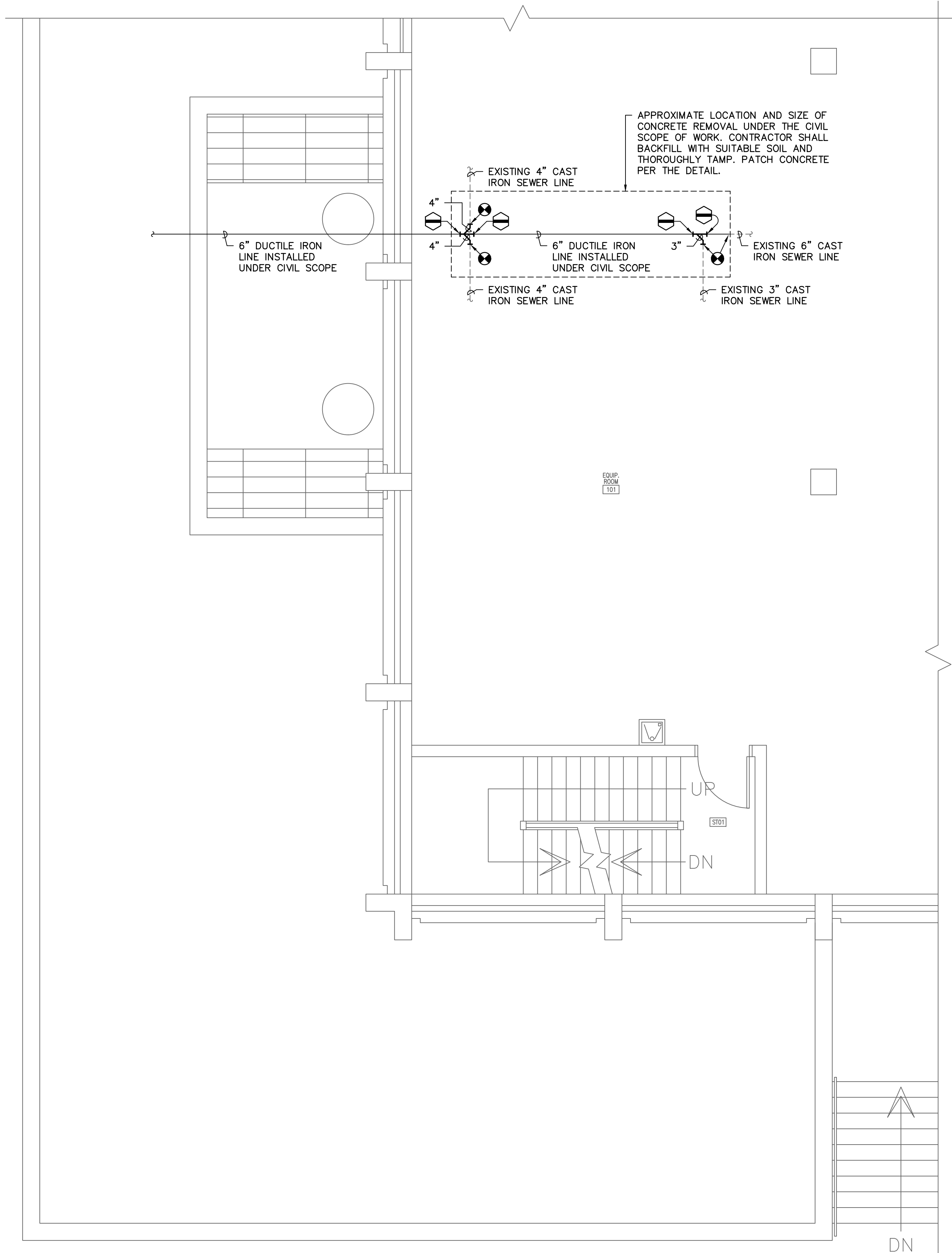
**CHAO & ASSOCIATES, INC.**  
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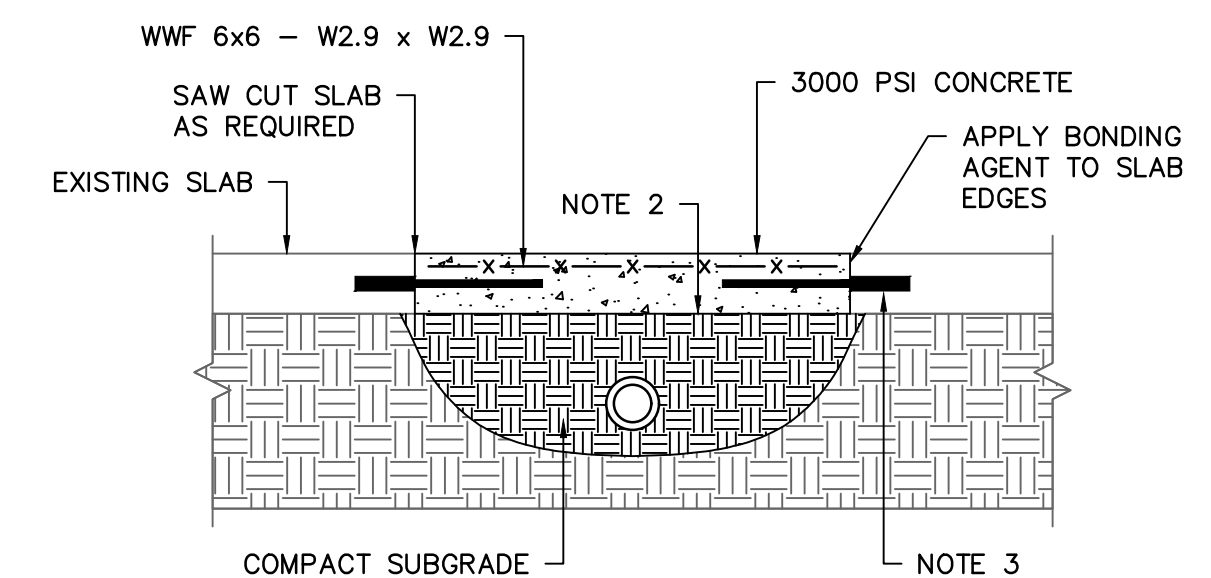
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**1** FIRST FLOOR PLAN  
 SCALE: 1/4" = 1'-0"

- ### GENERAL NOTES
- ALL WORK SHALL BE PERFORMED ACCORDING TO ALL LOCAL, STATE, NATIONAL CODES, AND THE 2015 INTERNATIONAL PLUMBING CODE.
  - THIS CONTRACTOR SHALL, PRIOR TO BIDDING, VISIT SITE AND DETERMINE SCOPE OF WORK AND POINTS OF CONNECTION FOR NEW WORK. VERIFY EXISTING INVERT ELEVATIONS.
  - COORDINATE CLOSELY WITH ALL WORK DONE UNDER OTHER DIVISIONS OF THE PROJECT SCOPE TO AVOID INTERFERENCE AND CONFLICT.
  - DURING CONSTRUCTION, CONTRACTOR SHALL ARRANGE FOR TEMPORARY REMOVAL OF WASTE FROM PIPING SYSTEM THROUGH THE USE OF A TEMPORARY SUMP BASIN AND SUMP PUMP. DISCHARGE TO AN ACCEPTABLE LOCATION.
  - ALL NEW PIPING SHALL BE STANDARD DUCTILE IRON PIPE TO MATCH THAT INSTALLED UNDER THE CIVIL SCOPE OF WORK.
  - EXISTING INFORMATION TAKEN FROM OWNERS RECORD SET OF DRAWINGS DATED JULY 1971. ALL LOCATIONS ARE APPROXIMATE.

- ### NOTES TO SHEET
- CUT DUCTILE IRON PIPE INSTALLED UNDER CIVIL SCOPE OF WORK FOR NEW FITTINGS REQUIRED TO CONNECT TO EXISTING SEWER LINES. RECONNECT DUCTILE IRON FITTINGS TO DUCTILE IRON PIPE WITH MECHANICAL JOINTS.
  - CONNECTION POINT OF NEW TO EXISTING BETWEEN DUCTILE IRON AND CAST IRON PIPE. UTILIZE TRANSITION GASKET WITH MECHANICAL JOINT FITTINGS AT JOINTS. PROVIDE CHANGE IN ELEVATION AS REQUIRED.



- NOTES:**
- SEE THE DRAWINGS OF ALL OTHER DISCIPLINES FOR AREAS WHERE EXISTING SLABS MUST BE CUT. REPAIR CUT AREAS AS SHOWN ABOVE.
  - PROVIDE NEW VAPOR RETARDER OVER COMPACTED SUBGRADE AND LAP AND SEAL TO EXISTING WATERPROOFING.
  - AT SIDES OF SLAB REPAIRS WIDER THAN 2'-0", PROVIDE 12" LONG #4 DOWELS @ 24" O.C. DRILL AND EPOXY GROUT 4" INTO EXISTING SLAB.

**SLAB PATCH DETAIL**  
 NO SCALE

		<p style="text-align: center;"><b>Swygert &amp; Associates</b>                  CONSULTING ENGINEERS</p> <p style="font-size: small;">DBA Swygert &amp; Assoc., Ltd. Telephone: (803) 791-9300                  Post Office Box 11686 Columbia, S.C. 29211 Facsimile: (803) 791-0830                  Email: swygert@swygert-associates.com</p>
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**CHAO**  
 ASSOCIATES, INC.  
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Floor Plan, Notes, & Detail  
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