CONSTRUCTION PLANS

FOR:

CITY OF DARLINGTON

EAST BROAD STREET SEWER MAIN REPLACEMENT

CITY COUNCIL

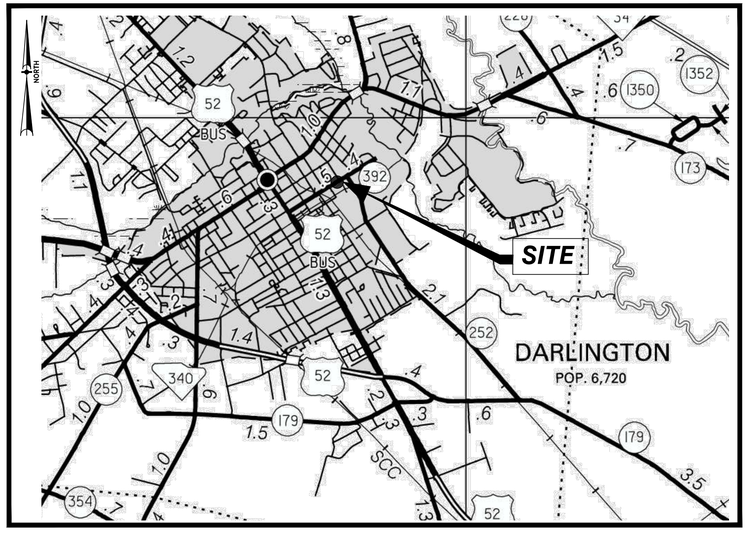
Curtis Boyd, Mayor
John Segars, Mayor Pro-Tem
Sheila Baccus
Bryant Gardner
John Milling
Howard Nettles
Elaine Reed

Howard Garland - City Manager
Freddie Kinsaul - Water & Sewer Superintendent

City of Darlington
South Carolina

PROJECT No. DB2020.304

JUNE, 2020



LOCATION MAP

INDEX TO DRAWINGS:

South Carolina 811
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ADDENDUM #1 7-30-2020

LEGEND

ABBREVIATIONS

A

AC	ALTERNATING CURRENT
ACP	ASBESTOS CEMENT PIPE
ALT	ALTERNATE
ALUM	ALUMINUM
AMP	AMPERAGE
ARV	AIR RELEASE VALVE
AFF	ABOVE FINISHED FLOOR
ASPH	ASPHALT

B

BLDG	BUILDING
BM	BENCH MARK
BOT	BOTTOM
BFV	BUTTERFLY VALVE
BV	BALL VALVE
BF	BLIND FLANGE
BO	BLOW OFF

C

CB	CATCH BASIN
CJ	CONTROL JOINT
CP	CONTROL POINT
CL	CENTER LINE
CV	CHECK VALVE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
CONC	CONCRETE
CONT	CONTINUOUS

D

DC	DIRECT CURRENT
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING(S)

E

EA	EACH
EF	EACH FACE
EFF	EFFLUENT
EOP	EDGE OF PAVEMENT
EJ	EXPANSION JOINT
ELEV	ELEVATION
ELEC	ELECTRIC
EQUIP	EQUIPMENT
EW	EACH WAY
EXH	EXHAUST
EXT	EXTERIOR
EX	EXISTING

F

FC	FENCE CORNER
FG	FINISH GRADE
FD	FLOOR DRAIN
FF	FINISHED FLOOR
FH	FIRE HYDRANT
FT	FEET
FTG	FOOTING
FM	FORCE MAIN

G

GA	GAGE
GAL	GALLON
GPD	GALLONS/DAY
GPM	GALLONS/MINUTE
GV	GATE VALVE
GY	GUY WIRE

H

HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HT	HEIGHT
HP	HORSE POWER/HIGH POINT
HTG	HEATING
HTR	HEATER
HYD	FIRE HYDRANT

I

ID	INSIDE DIAMETER
INV	INVERT ELEVATION
IN	INCHE(S)
INSUL	INSULATION
INT	INTERIOR
IPF	IRON PIN FOUND
IPS	IRON PIN SET

J

JB	JUNCTION BOX

L

LF	LINEAR FEET
LS	LUMP SUM

M

MH	MANHOLE
MATL	MATERIAL
MFR	MANUFACTURER
MGD	MILLION GALLONS/DAY

O

OC	ON CENTER
OCEW	ON CENTER EACH WAY
OD	OUTSIDE DIAMETER
OPNG	OPENING
OH	OVER HEAD

P

PC	PRE CAST CONCRETE
PL	PROPERTY LINE
PP	POWER POLE
PT	POINT
PV	PLUG VALVE
PVC	POLYVINYL CHLORIDE

R

R	RADIUS
REINF	REINFORCING
RM	ROOM
RPM	REVOLUTION/MIN
RCP	REINFORCED CONCRETE PIPE
R/W	RIGHT OF WAY

S

SD	STORM DRAIN
SH	SHEET
SPEC	SPECIFICATION
SF	SQUARE FOOT
STA	STATION
SS	STAINLESS STEEL
SW	SWITCH

T

TEL	TELEPHONE
TEMP	TEMPERATURE
TOB	TOP OF BANK
TOC	TOP OF CURB
TDH	TOTAL DYNAMIC HEAD
T&B	TOP & BOTTOM
TMB	TEMPORARY BENCH MARK
TOP	TOP OF PAVEMENT
TYP	TYPICAL

U

UGE	UNDERGROUND ELECTRIC
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY LINE

V

V	VOLTAGE
VERT	VERTICAL
VCP	VITRIFIED CLAY PIPE
VOL	VOLUME

W

W	WATT
WM	WATER METER
WW	WETWELL
W/	WITH
W/O	WITH OUT
WP	WATERPROOF
WWF	WELDED WIRE FABRIC

MATERIALS

	CONCRETE
	WALL
	ASPHALT PAVEMENT
	EARTH
	ROCK/STONE
	GRATING
	WETLANDS

SYMBOLS

EXISTING	PROPOSED	
WM	WM	WATER METER
		SIGN
		BUILDING/STRUCTURE
		POWER POLE
		BLOW OFF
S	S	SEWER MANHOLE
		GATE VALVE
		FIRE HYDRANT
		TREE
		PROPERTY PIN
T	T	PHONE PED

LINE TYPES

EXISTING	PROPOSED	
		RIGHT OF WAY/ PROPERTY LINE
RCP RCP RCP	RCP RCP RCP	REINFORCED CONCRETE PIPE
FM FM FM	FM FM FM	FORCEMAIN
		CENTERLINE
DITCH DITCH	DITCH DITCH	DITCH
X X X X	X X X X	FENCE
GAS GAS GAS	GAS GAS GAS	GAS LINE
SM SM SM	SM SM SM	SEWER MAIN/GRAVITY SEWER
		RAIL ROAD
X in X in X in	X in X in X in	WATER MAIN (SIZE)
> > > >	> > > >	FLOW ARROW
OHE OHE OHE	OHE OHE OHE	OVER HEAD ELECTRICAL

NO.	DATE	REVISION	BY

DESIGNED BY: X
DRAWN BY: X
CHECKED BY: X
APPROVED BY: X
DATE PRINTED: Jul 29, 2020
SCALE:

2020-07-29 UPDATED FOR ADDENDUM.dwg

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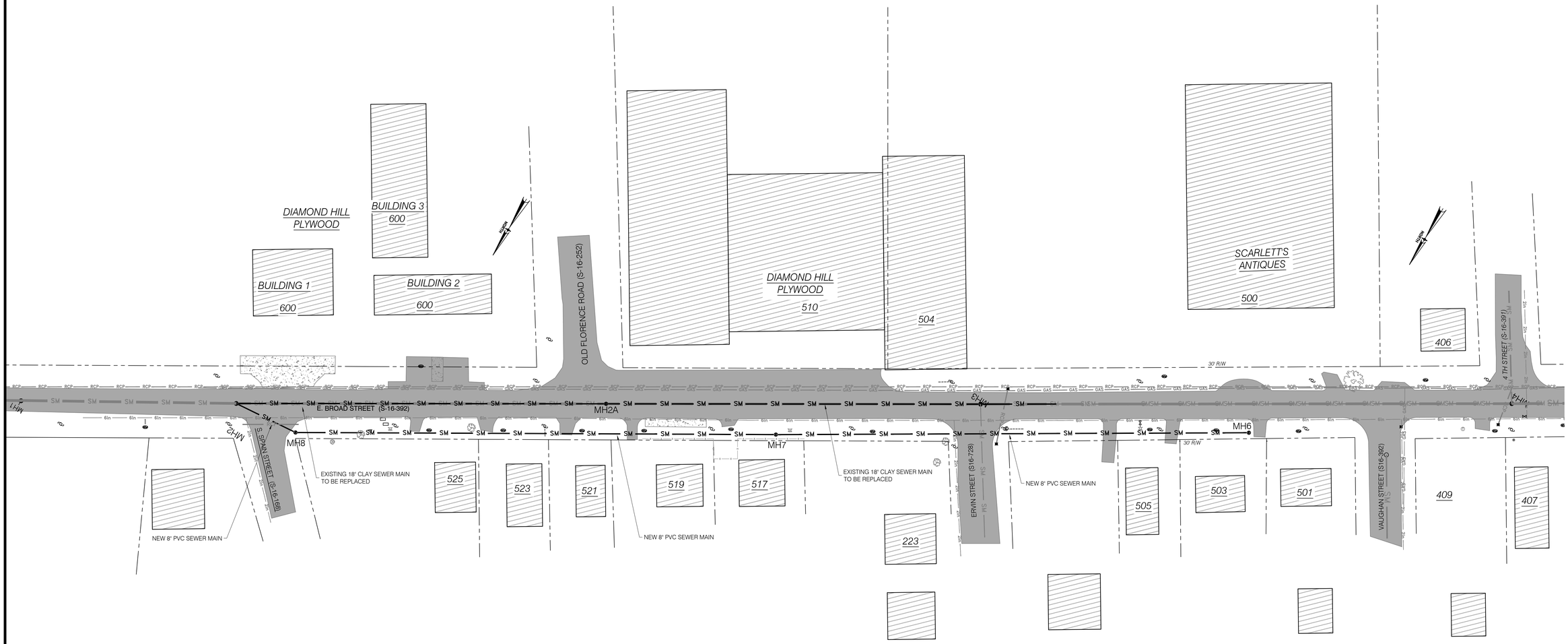
CITY OF DARLINGTON

EAST BROAD ST. SEWER MAIN REPLACEMENT

LEGEND

LEGEND

PLAN SET:	BID
DATE:	06-12-2020
PROJECT:	DB2020.304
SHEET:	2 OF 9



OVERALL PROJECT PLAN

1" = 40'

1 inch = 40 ft.

REVISION	DATE	NO.	BY

DESIGNED BY:	X
DRAWN BY:	X
CHECKED BY:	X
APPROVED BY:	X
DATE PRINTED:	Jul 29, 2020
SCALE:	X

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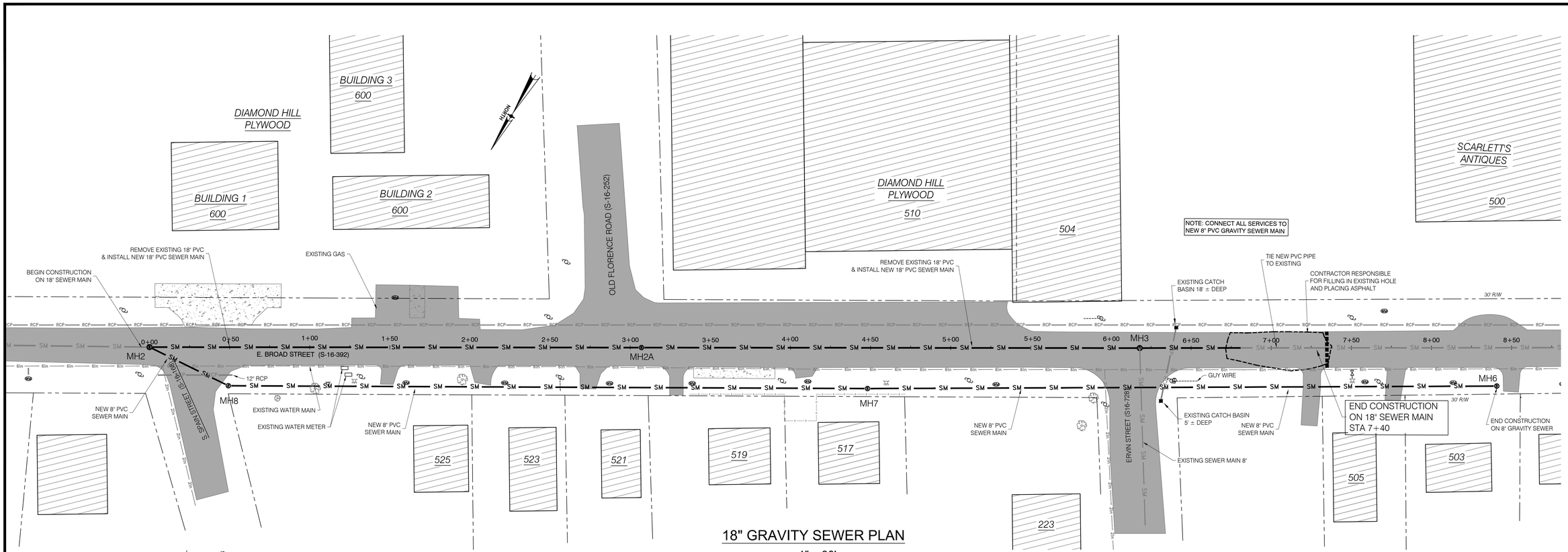
CITY OF DARLINGTON, SC

EAST BROAD ST. SEWER REPLACEMENT

OVERALL PROJECT PLAN

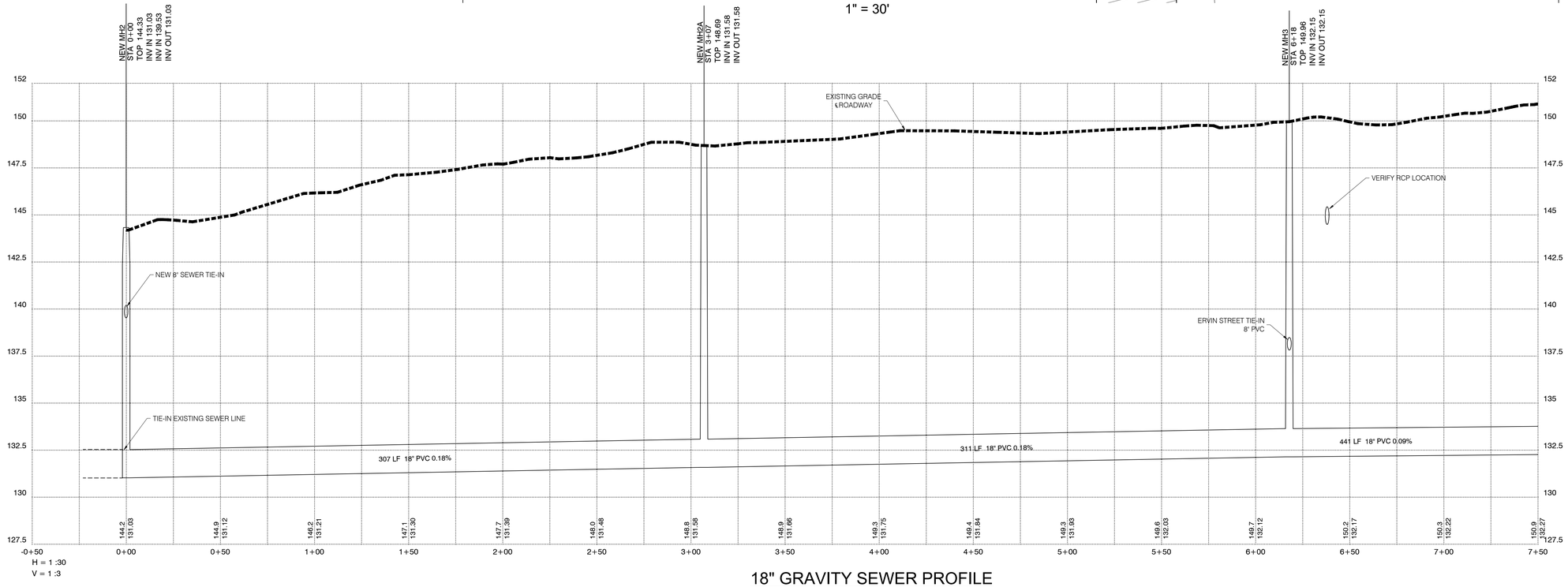
OVERALL PROJECT PLAN

PLAN SET:	BID
DATE:	06-12-2020
PROJECT:	DB2020.304
SHEET:	3 OF 9



18" GRAVITY SEWER PLAN

1" = 30'



18" GRAVITY SEWER PROFILE

HORZ. 1" = 30'
VERT. 1" = 3'

NO.	DATE	REVISION	BY
1	7-30-20	ADDENDUM #1 (ADDED RCP TO PROFILE)	

DESIGNED BY: X
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DATE PRINTED: Jul 29, 2020
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SOUTH CAROLINA PROFESSIONAL ENGINEER No. 12702 BRYAN T. KINGSLEY

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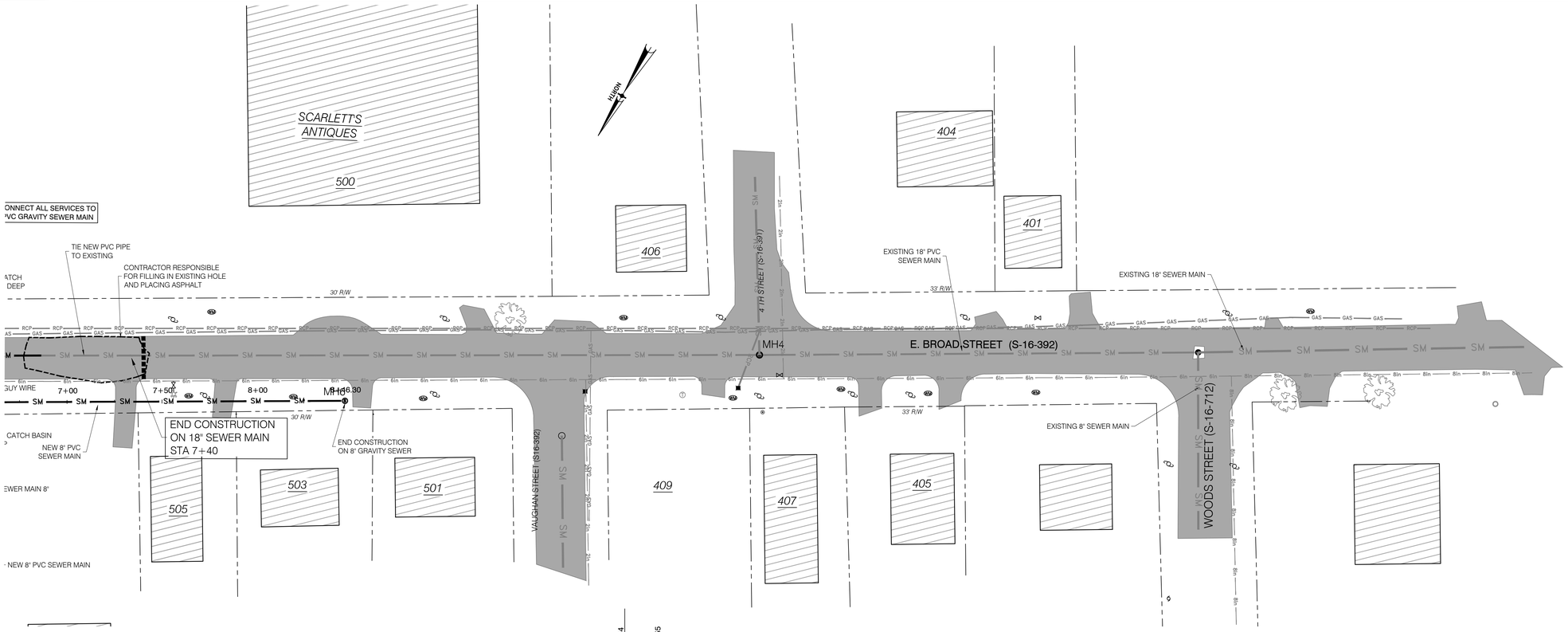
CITY OF DARLINGTON, SC

EAST BROAD ST. SEWER REPLACEMENT

18" GRAVITY SEWER PLAN & PROFILE

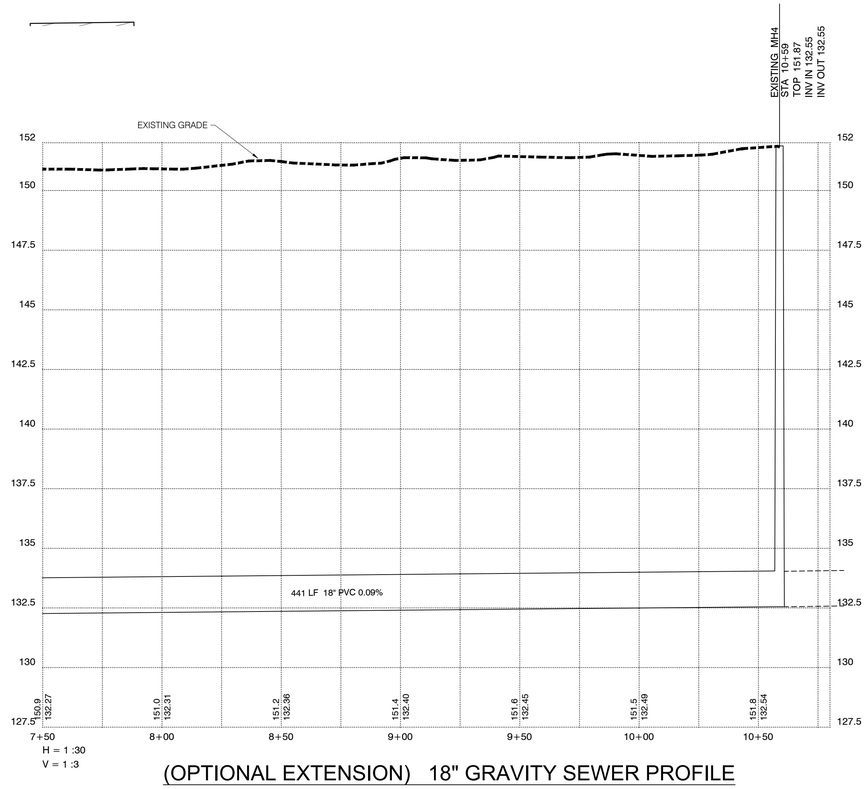
PLAN & PROFILE 18" GRAVITY SEWER

PLAN SET:	BID
DATE:	06-12-2020
PROJECT:	DB2020.304
SHEET:	4 OF 9



18" GRAVITY SEWER PLAN

1" = 30'



(OPTIONAL EXTENSION) 18" GRAVITY SEWER PROFILE

HORZ. 1" = 30'
VERT. 1" = 3'

NO.	DATE	REVISION	BY
1	7-30-20	ADDENDUM #1 (CHANGED TITLE)	

DESIGNED BY: X
DRAWN BY: X
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APPROVED BY: X
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SCALE: X
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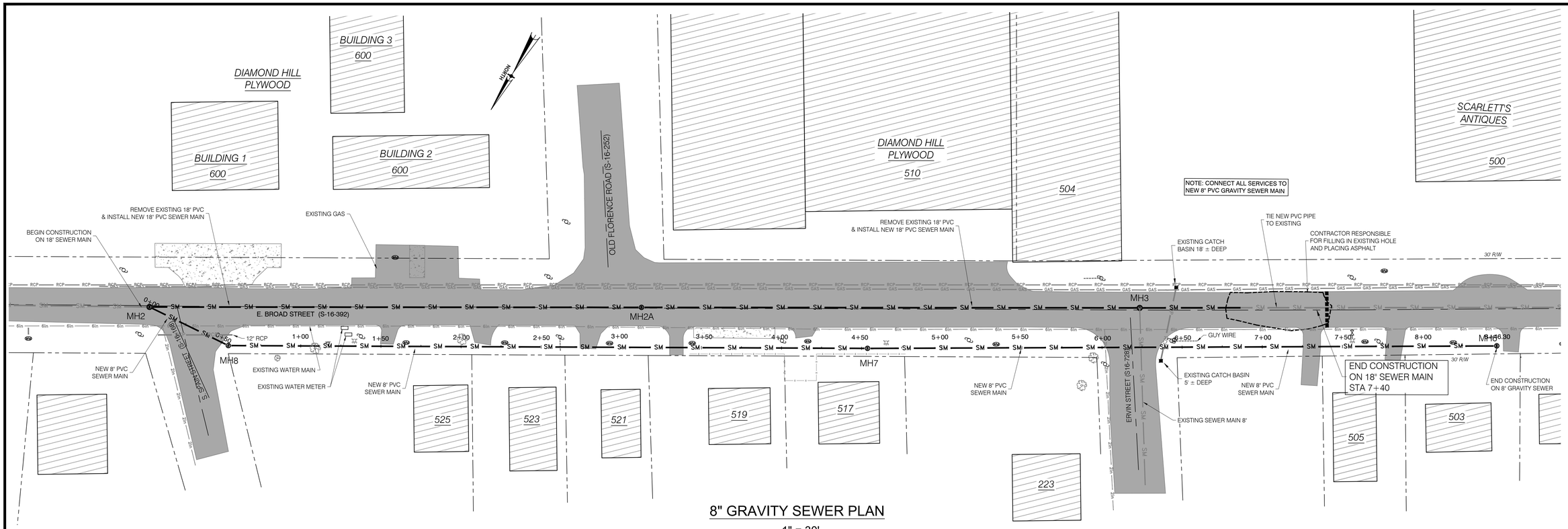
EAST BROAD ST. SEWER REPLACEMENT

18" GRAVITY SEWER PLAN & PROFILE

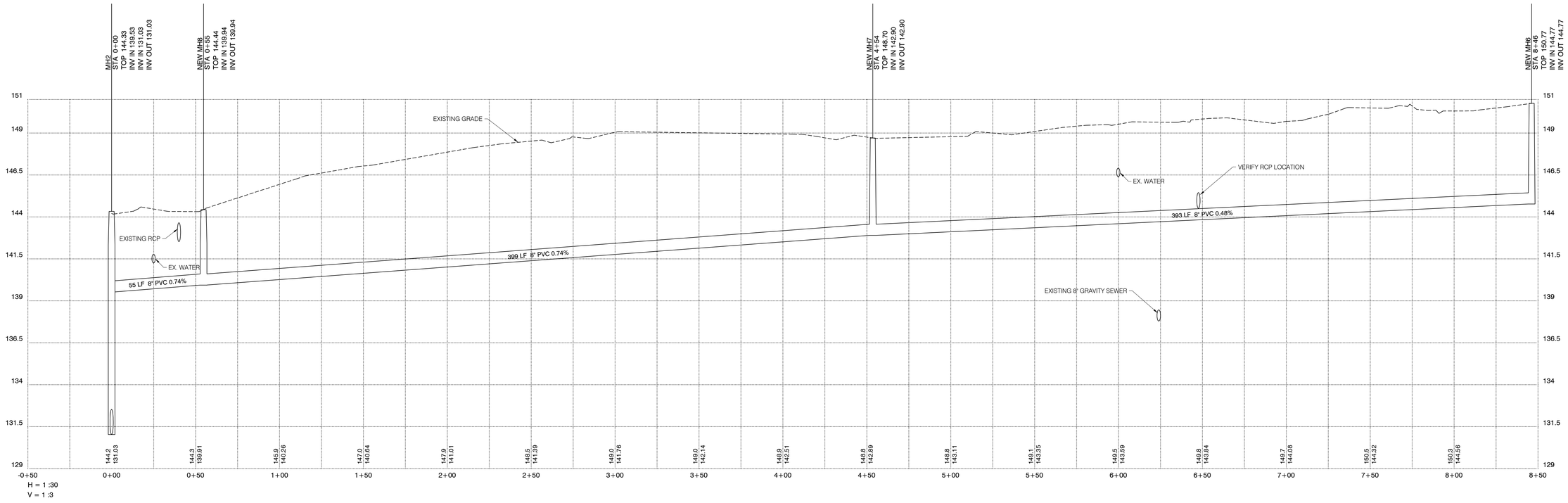
PLAN & PROFILE 18" GRAVITY SEWER

PLAN SET: BID
DATE: 06-12-2020
PROJECT: DB2020.304
SHEET: 5 OF 9



8" GRAVITY SEWER PLAN

1" = 30'



8" GRAVITY SEWER PROFILE

HORZ. 1" = 30'
VERT. 1" = 3'

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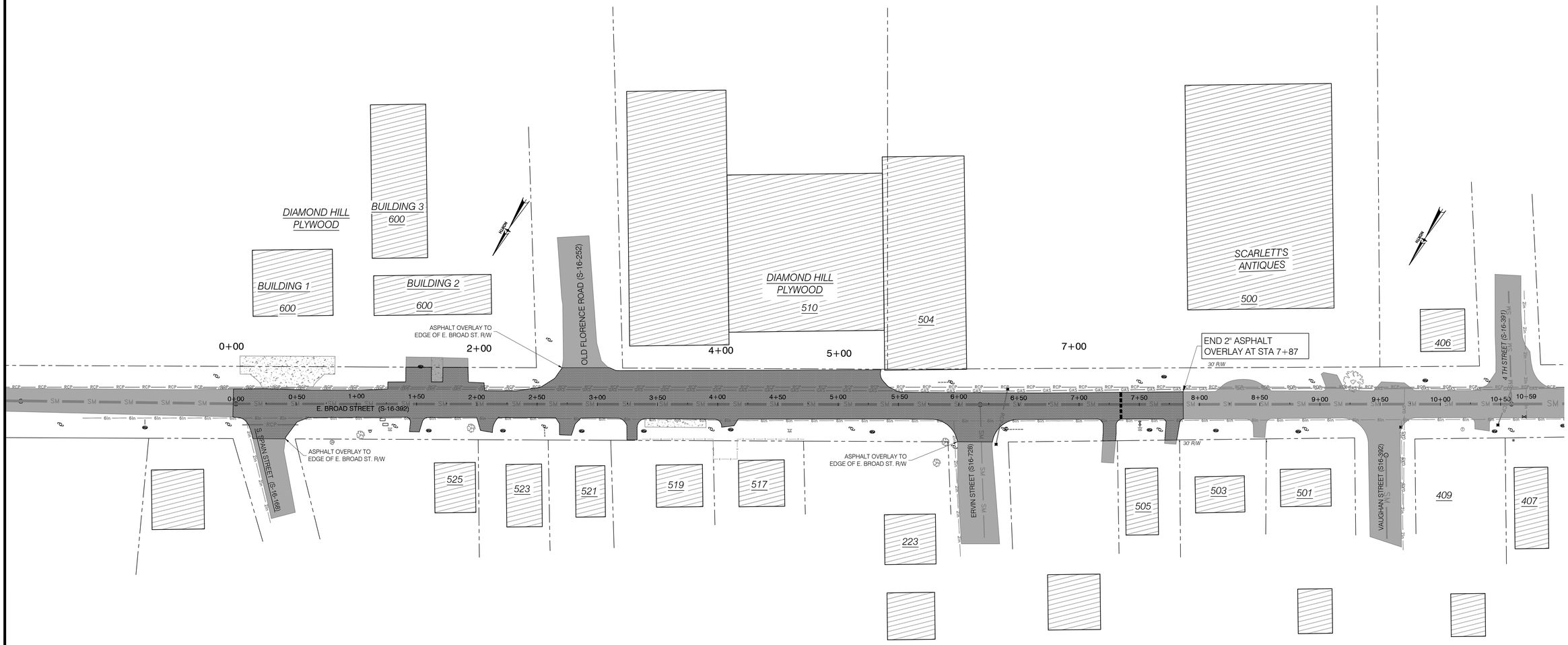
EAST BROAD ST. SEWER REPLACEMENT

8" GRAVITY SEWER PLAN & PROFILE

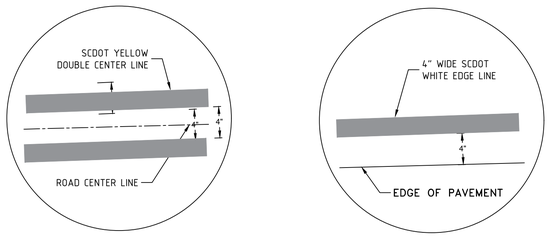
PLAN & PROFILE 8" GRAVITY SEWER

PLAN SET:	BID
DATE:	06-12-2020
PROJECT:	DB2020.304
SHEET:	6 OF 9



ASPHALT OVERLAY PLAN

1" = 40'



NOTE
INSTALL THERMOPLASTIC PAVEMENT MARKINGS TO MATCH EXISTING ROADWAY PER SECTION 627 OF THE SCDOT STANDARD SPECIFICATIONS.

ASPHALT MARKING DETAILS

NTS

40 0 20 40
1 inch = 40 ft.

NO.	DATE	REVISION	BY

DESIGNED BY: X
DRAWN BY: X
CHECKED BY: X
APPROVED BY: X
DATE PRINTED: Jul 29, 2020
SCALE:
2020-30 7/29/20 UPDATED FOR ADDENDUM.dwg

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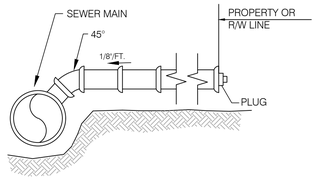
CITY OF DARLINGTON, SC

EAST BROAD ST. SEWER REPLACEMENT

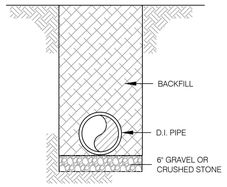
ASPHALT OVERLAY PLAN

ASPHALT OVERLAY PLAN

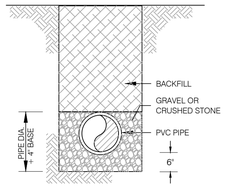
PLAN SET:	BID
DATE:	06-12-2020
PROJECT:	DB2020.304
SHEET:	7 OF 9



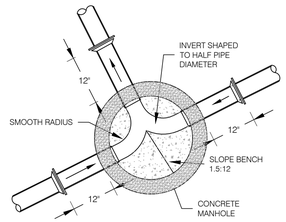
TYPICAL SEWER SERVICE
NTS



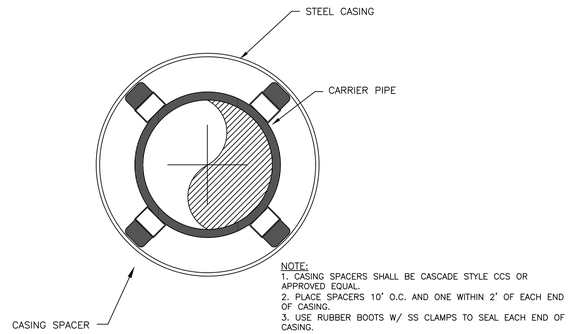
D.I. SEWER PIPE BEDDING DETAIL
NTS



SEWER PIPE BEDDING DETAIL
PVC (DR26) PIPE @ DEPTHS > 12'
PVC (DR35) PIPE @ DEPTHS 0' TO 12' UNO
NTS

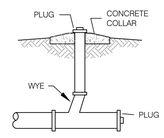


TYPICAL MANHOLE INVERT
NTS

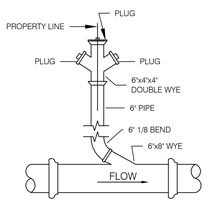


NOTE:
1. CASING SPACERS SHALL BE CASCADE STYLE CCS OR APPROVED EQUAL.
2. PLACE SPACERS 10' O.C. AND ONE WITHIN 2' OF EACH END OF CASING.
3. USE RUBBER BOOTS W/ SS CLAMPS TO SEAL EACH END OF CASING.

CASING SPACER DETAIL

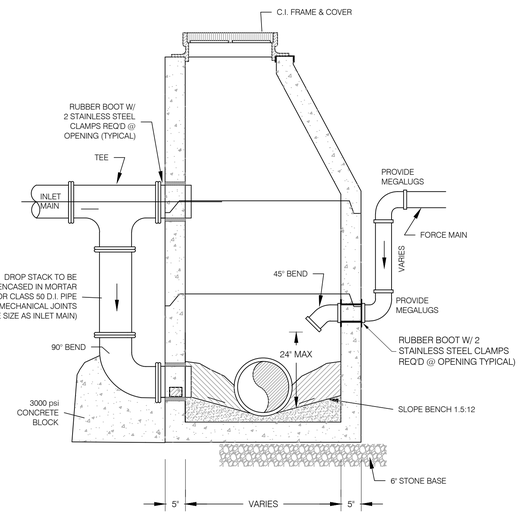


TYPICAL CLEANOUT DETAIL
NTS



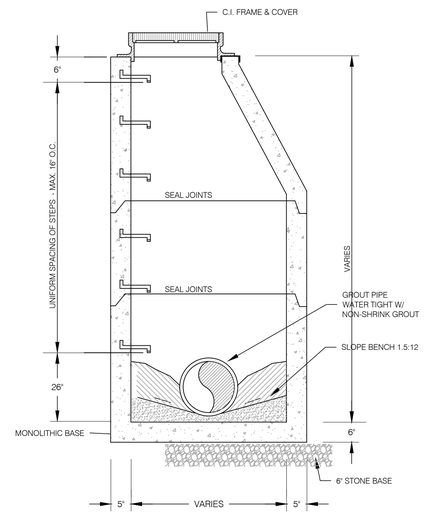
TYPICAL DOUBLE SERVICE DETAIL
NTS

NOTES:
MANHOLE FRAME AND COVER SHALL BE CAST IRON, USF 678 RING, KM COVER BY US FOUNDRY, OR EQUAL. FOR WATER TIGHT APPLICATIONS USE TYPE BWTL BY US FOUNDRY OR EQUAL. MANHOLE SHALL CONFORM TO ASTM A48 CLASS 30B LATEST REVISION.

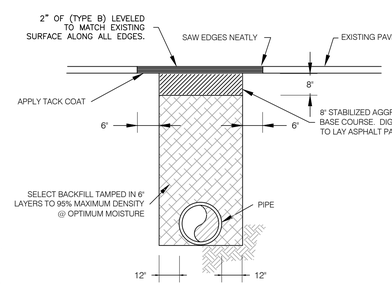


DROP MANHOLE &
FORCE MAIN TIE-IN DETAIL
NTS

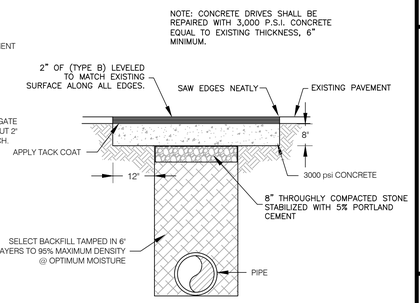
NOTES:
MANHOLE FRAME AND COVER SHALL BE CAST IRON, USF 678 RING, KM COVER BY US FOUNDRY, OR EQUAL. FOR WATER TIGHT APPLICATIONS USE TYPE BWTL BY US FOUNDRY OR EQUAL. MANHOLE SHALL CONFORM TO ASTM A48 CLASS 30B LATEST REVISION.



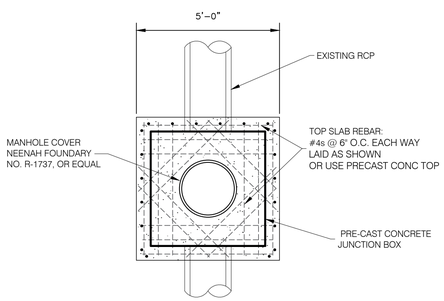
PRECAST CONCRETE MANHOLE DETAIL
NTS



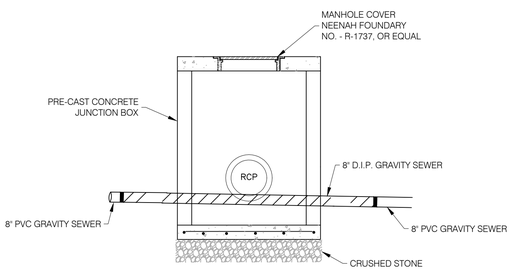
DRIVEWAY PATCH
NTS



ROADWAY ASPHALT PATCH
NTS

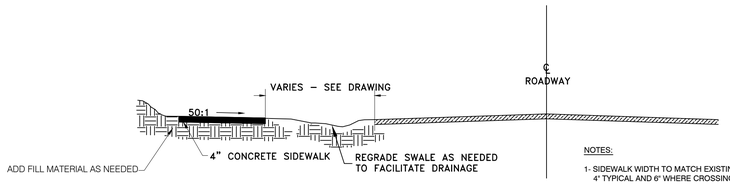


PLAN



SECTION

SEWER SERVICE REPAIR BELOW SPRING LINE
NTS



SIDEWALK SECTION
NTS

NOTES:

1- SIDEWALK WIDTH TO MATCH EXISTING. THICKNESS SHALL BE 4" TYPICAL AND 6" WHERE CROSSING DRIVEWAYS.

2- MAX. RUNNING SLOPE OF SIDEWALK SHALL NOT EXCEED 5%.

3- MAX. CROSS SLOPE 2%.

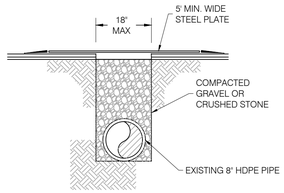
4- SIDEWALK SHALL BE CONSTRUCTED PER SCDOT SECTION 720 UNLESS OTHERWISE STATED.

5- USE 4,000 PSI CONCRETE.

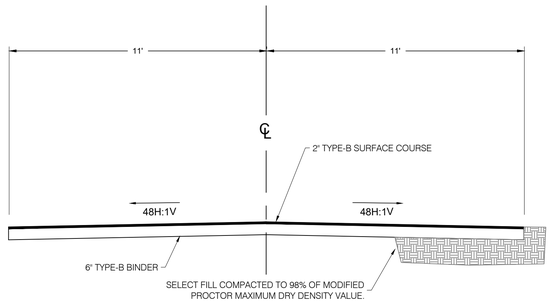
6- SOIL UNDER SIDEWALK SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY MODIFIED PROCTOR IN ACCORDANCE WITH ASTM D 1557.

7- ADD EXPANSION JOINTS AT A MINIMUM OF 100' INTERVALS AND CONTRACTION JOINTS AT A MINIMUM OF 10' INTERVALS.

NOTES:
1. SAW CUT EXISTING ASPHALT
2. LENGTH OF ASPHALT CUT 40'.
3. PLACE TOP OF PIPE 12" BELOW GRADE.
4. USE MINIMUM 1" THICK x 5' WIDE STEEL PLATE.
5. SECURE STEEL PLATES W/ ASPHALT AROUND PERIMETER.
6. WHEN PROJECT IS COMPLETED REMOVE BYPASS PIPING, INSTALL COMPACTED FILL, & REPAIR ASPHALT.



4TH STREET BYPASS PIPING CROSSING DETAIL
NTS



BROAD ST ROADWAY
CROSS SECTION
NTS

BY	REVISION	NO.	DATE
	ADDENDUM #1 BEDDING DETAIL & BYPASS PIPING	1	7-31-20

DESIGNED BY: X
DRAWN BY: X
CHECKED BY: X
DATE PRINTED: Aug 03, 2020
SCALE: X
DATED UPDATED FOR ADDENDUM 1.dwg 2020-SOC

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 12702 KEVIN T. KIRKPATRICK

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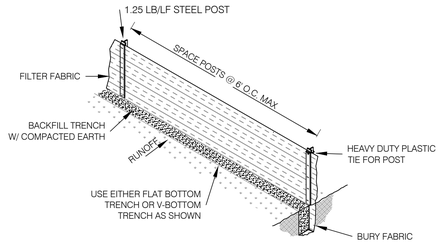
CITY OF DARLINGTON, SC

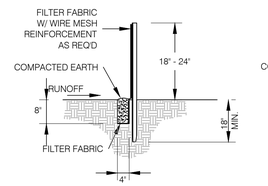
EAST BROAD ST. SEWER REPLACEMENT

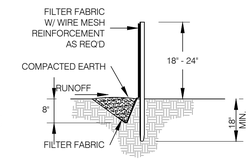
CONSTRUCTION DETAILS

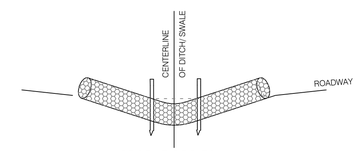
CONSTRUCTION DETAILS

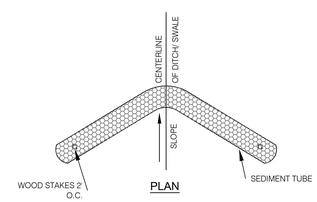
PLAN SET:	BID
DATE:	06-12-2020
PROJECT:	DB2020.304
SHEET:	8 OF 9











STANDARD NOTES

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

2. 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.

3. 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.

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

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

14. 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.

15. 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, ETC.).

16. 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.

17. 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.

18. 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.

19. 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.

TEMPORARY GRASS SEEDING REQUIREMENTS (SITE SPECIFIC)

TEMPORARY GRASS SEEDING MAY BE APPLIED DURING TIMES SHOWN. THE FOLLOWING TYPES OF SEED AND APPLICATION RATES ARE ALLOWED:

SPECIES	Lbs/Ac	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	NOV	DEC
SANDY, DROUGHTY SITES												
BROWNTOP MILLET	40			■	■	■	■	■	■			
RYE, GRAIN	56	■	■	■						■	■	■
RYEGRASS	50	■	■	■	■					■	■	■
WELL DRAINED, CLAYEY/LOAMEY SITES												
BROWNTOP MILLET OR JAPANESE MILLET	40 40			■	■	■	■	■	■			
RYE, GRAIN OR OATS	56 75	■	■	■						■	■	■
RYEGRASS	50	■	■	■	■					■	■	■

1- APPLY A MINIMUM OF 500 POUNDS PER ACRE OF 10-10-10 FERTILIZER (11.5 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING TEMPORARY SEEDING UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT. INCORPORATE FERTILIZER AND LIME (IF USED) INTO THE TOP 4-6 INCHES OF THE SOIL BY DISCING OR OTHER MEANS WHERE CONDITIONS ALLOW.

2- LOOSEN THE SOIL SURFACE BEFORE BROADCASTING THE SEED. APPLY SEED EVENLY BY THE MOST CONVENIENT METHOD AVAILABLE FOR THE TYPE OF SEED USED AND THE LOCATION OF THE TEMPORARY SEEDING.

3- COVER APPLIED SEED BY RAKING OR DRAGGING A CHAIN, AND THEN LIGHTLY FIRM THE AREA WITH A ROLLER OR CULTI-PACKER.

4- USE MULCH WITH TEMPORARY SEED APPLICATIONS TO RETAIN SOIL MOISTURE AND REDUCE EROSION DURING THE ESTABLISHMENT OF VEGETATION. TYPICAL MULCH APPLICATIONS INCLUDE STRAW, WOOD FIBER, HYDRO-MULCHES, BFM AND FGM. USE HYDRO-MULCHES WITH A MINIMUM BLEND OF 70% WOOD FIBERS.

5- APPLY THE STRAW MULCH BY HAND OR MACHINE AT THE RATE 1.5-2 TONS PER ACRE (90 POUNDS PER 1000 SQUARE FEET). FREQUENT INSPECTIONS ARE NECESSARY TO CHECK THAT CONDITIONS FOR GROWTH ARE GOOD.

6- SEEDED AREAS SHOULD BE KEPT ADEQUATELY MOIST. IRRIGATE THE SEEDED AREA IF NORMAL RAINFALL IS NOT ADEQUATE FOR THE GERMINATION AND GROWTH OF SEEDLINGS.

7- RE-SEED AREAS WHERE SEEDING DOES NOT GROW QUICKLY, THICK ENOUGH, OR ADEQUATELY TO PREVENT EROSION. INSPECT EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION.

PERMANENT GRASSING REQUIREMENTS (SITE SPECIFIC)

PERMANENT GRASS SEEDING MAY BE APPLIED DURING TIMES SHOWN. THE FOLLOWING TYPES OF SEED AND APPLICATION RATES ARE ALLOWED:
PLS - PURE LIVE SEED

SPECIES	Lbs/Ac	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	NOV	DEC
SANDY, DROUGHTY SITES												
BROWNTOP MILLET BAHIAGRASS	10 40			■	■	■	■	■	■			
BROWNTOP MILLET BAHIAGRASS SERICEA LESPEDEZA	10 30 40			■	■	■	■	■	■			
BROWNTOP MILLET ATLANTIC COASTAL PANICGRASS	10 15 PLS			■	■	■	■					
BROWNTOP MILLET SWITCHGRASS (ALAMO) LITTLE BLUESTEM SERICEA LESPEDEZA	10 8 PLS 4 20			■	■	■	■					
BROWNTOP MILLET WEEPING LOVEGRASS	10 8			■	■	■	■					
WELL DRAINED, CLAYEY/LOAMEY SITES												
BROWNTOP MILLET BAHIAGRASS	10 40			■	■	■	■	■	■			
RYE, GRAIN BAHIAGRASS CLOVER, CRIMSON (ANNUAL)	10 40 5									■	■	
BROWNTOP MILLET BAHIAGRASS SERICEA LESPEDEZA	10 30 40			■	■	■	■	■	■			
BROWNTOP MILLET BERMUDA, COMMON SERICEA LESPEDEZA	10 10 40			■	■	■	■	■	■			
BROWNTOP MILLET BERMUDA, COMMON KOBE LESPEDEZA (ANNUAL)	10 12 10			■	■	■	■	■	■			
BROWNTOP MILLET BAHIAGRASS BERMUDA, COMMON SERICEA LESPEDEZA	10 20 6 40			■	■	■	■	■	■			
BROWNTOP MILLET SWITCHGRASS LITTLE BLUESTEM INDIANGRASS	10 8 PLS 3 PLS 3 PLS			■	■	■	■	■	■			

1 - APPLY TOPSOIL IF THE SURFACE SOIL OF THE SEEDBED IS NOT ADEQUATE FOR PLANT GROWTH.

2 -IF THE AREA HAS BEEN RECENTLY PLOWED, NO TILLAGE IS REQUIRED OTHER THAN RAKING OR SURFACE ROUGHENING TO BREAK ANY CRUST THAT HAS FORMED LEAVING A TEXTURED SURFACE. DISC THE SOIL FOR OPTIMAL GERMINATION WHEN THE SOIL IS COMPACTED LESS THAN 6-INCHES. IF THE SOIL IS COMPACTED MORE THAN 6-INCHES, SUB-SOILED AND DISC THE AREA.

3-SOIL TESTING IS AVAILABLE THROUGH CLEMSON UNIVERSITY COOPERATIVE EXTENSION SERVICE.

4-UNLESS A SPECIFIC SOIL TEST INDICATES OTHERWISE, APPLY 1½ TONS OF GROUND COURSE TEXTURED AGRICULTURAL LIMESTONE PER ACRE (70 POUNDS PER 1000 SQUARE FEET).

5-APPLY A MINIMUM OF 1000 POUNDS PER ACRE OF A COMPLETE 10-10-10 FERTILIZER (23 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING PERMANENT SEEDING OF GRASSES UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT. INCORPORATE FERTILIZER AND LIME (IF USED) INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR OTHER MEANS WHERE CONDITIONS ALLOW. DO NOT MIX THE LIME AND THE FERTILIZER PRIOR TO THE FIELD APPLICATION.

6-LOOSEN THE SURFACE OF THE SOIL JUST BEFORE BROADCASTING THE SEED. EVENLY APPLY SEED BY THE MOST CONVENIENT METHOD AVAILABLE FOR THE TYPE OF SEED APPLIED AND THE LOCATION OF THE SEEDING. TYPICAL APPLICATION METHODS INCLUDE BUT ARE NOT LIMITED TO CYCLONE SEEDERS, ROTARY SPREADERS, DROP SPREADERS, BROADCAST SPREADERS, HAND SPREADERS, CULTI-PACKER SEEDER, AND HYDRO-SEEDERS. COVER APPLIED SEED BY RAKING OR DRAGGING A CHAIN OR BRUSH MAT, AND THEN LIGHTLY FIRM THE AREA WITH A ROLLER OR CULTI-PACKER. DO NOT ROLL SEED THAT IS APPLIED WITH A HYDRO-SEEDER AND HYDRO-MULCH. 7-COVER ALL PERMANENT SEEDED AREAS WITH MULCH IMMEDIATELY UPON COMPLETION OF THE SEEDING APPLICATION TO RETAIN SOIL MOISTURE AND REDUCE EROSION DURING ESTABLISHMENT OF VEGETATION. APPLY THE MULCH EVENLY IN SUCH A MANNER THAT IT PROVIDES A MINIMUM OF 75% COVERAGE. TYPICAL MULCH APPLICATIONS INCLUDE STRAW, WOOD FIBER, HYDRO-MULCHES, BFM AND FGM. USE HYDRO-MULCHES WITH A MINIMUM BLEND OF 70% WOOD FIBERS.

7-APPLY STRAW MULCH BY HAND OR MACHINE AT THE RATE 2 TONS PER ACRE (90 POUNDS PER 1000 SQUARE FEET). FREQUENT INSPECTIONS ARE NECESSARY TO CHECK THAT CONDITIONS FOR GROWTH ARE GOOD.

8-KEEP PERMANENT SEEDED AREAS ADEQUATELY MOIST, ESPECIALLY LATE IN THE SPECIFIC GROWING SEASON. IRRIGATE THE SEEDED AREA IF NORMAL RAINFALL IS NOT ADEQUATE FOR THE GERMINATION AND GROWTH OF SEEDLINGS. WATER SEEDED AREAS AT CONTROLLED RATES THAT ARE LESS THAN THE RATE AT WHICH THE SOIL CAN ABSORB WATER TO PREVENT RUNOFF. RUNOFF OF IRRIGATION WATER WASTES WATER AND CAN CAUSE EROSION.

9-INSPECT PERMANENTLY SEEDED AREAS FOR FAILURE, MAKE NECESSARY REPAIRS AND RE-SEED OR OVER-SEED WITHIN THE SAME GROWING SEASON IF POSSIBLE. IF THE GRASS COVER IS SPARSE OR PATCHY, RE-EVALUATE THE CHOICE OF GRASS AND QUANTITIES OF LIME AND FERTILIZER APPLIED. FINAL STABILIZATION BY PERMANENT SEEDING OF THE SITE REQUIRES THAT IT BE COVERED BY A 70% COVERAGE RATE.

10-INSPECT SEEDED AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RE-SEED IMMEDIATELY. CONDUCT A FOLLOW-UP SURVEY AFTER ONE YEAR AND REPLACE FAILED PLANTS WHERE NECESSARY.

11-IF VEGETATIVE COVER IS INADEQUATE TO PREVENT RILL EROSION, OVER-SEED AND FERTILIZE IN ACCORDANCE WITH SOIL TEST RESULTS.

12-IF A STAND OF PERMANENT VEGETATION HAS LESS THAN 40 PERCENT COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER.

13-RE-ESTABLISH THE STAND FOLLOWING SEED BED PREPARATION AND SEEDING RECOMMENDATIONS, OMITTING LIME AND FERTILIZER IN THE ABSENCE OF SOIL TEST RESULTS.

14-IF THE SEASON PREVENTS RE-SOWING, MULCH IS AN EFFECTIVE TEMPORARY COVER.

15-FINAL STABILIZATION OF THE SITE REQUIRES A 70 PERCENT OVERALL COVERAGE RATE. THIS DOES NOT MEAN THAT 30 PERCENT OF THE SITE CAN REMAIN BARE. THE COVERAGE IS DEFINED AS LOOKING AT A SQUARE YARD OF COVERAGE, IN WHICH 70 PERCENT OF THAT SQUARE YARD IS COVERED WITH VEGETATION.

DESCRIPTION	SYMBOL
EROSION PREVENTION	
LAND GRADING:	LG OR 🚜
SURFACE ROUGHENING:	▨
TOPSOILING:	◉
TEMPORARY SEEDING:	TS
MULCHING:	M
ECB OR TRM	▦

DESCRIPTION	SYMBOL
EROSION PREVENTION	
FGM	FGM
BFM	BFM
PERMANENT SEEDING:	PS
SODDING:	SO
RIPRAP:	◍
OUTLET PROTECTION	▣ RipRap ▣ ECB or TRM
DUST CONTROL:	DC
POLYACRYLAMIDE (PAM)	PAM

DESCRIPTION	SYMBOL
SEDIMENT CONTROL	
SEDIMENT BASIN:	◓
TEMPORARY SEDIMENT TRAP:	◓
ROCK SEDIMENT DIKE:	◠
ROCK CHECK DAM:	▮ ▮ OR ▶ ▶
SEDIMENT TUBE:	◡
SILT FENCE:	□—□—□
REINFORCED SILT FENCE:	□×□×□
TYPE A — FABRIC INLET PROTECTION:	A
TYPE A — SEDIMENT TUBE INLET PROTECTION:	A

DESCRIPTION	SYMBOL
TYPE B — WIRE MESH AND STONE DROP INLET PROTECTION:	B
TYPE C — BLOCK AND GRAVEL INLET PROTECTION:	C
TYPE D — RIGID INLET FILTERS	D
TYPE E — SURFACE COURSE CURB INLET FILTER	E
TYPE F — INLET TUBE	F
ROCK SEDIMENT DIKE:	◠
RUNOFF CONVEYANCE MEASURES:	
VEGETATED CHANNELS:	▤—▤—▤
RIPRAP—LINED CHANNELS:	▤—▤—▤
ECB OR TRM—LINED CHANNELS:	▦—▦—▦
PAVED CHANNELS:	PC ➡ PC ➡ PC ➡
PIPE SLOPE DRAINS:	○■□■□■

DESCRIPTION	SYMBOL
RUNOFF CONVEYANCE MEASURES:	
TEMPORARY STREAM CROSSING:	T
TEMPORARY DIVERSION DITCH OR SWALE	⇒TD⇒TD⇒
PERMANENT DIVERSION DITCH:	→PD→PD→
DIVERSION DIKE OR BERM	⇒DD⇒DB⇒
LEVEL SPREADER:	⇉
SUBSURFACE DRAIN:	⇒SSD⇒SSD⇒

FLAT-BOTTOM TRENCH DETAIL

V-SHAPED TRENCH DETAIL

SILT FENCE DETAILS

SILT FENCE AS MANUFACTURED BY WEBTEC, INC. TERRATEX SC (800)438-0027 OR EQUAL

PROFILE OF DITCH

PLAN

SEDIMENT TUBE DETAILS

SILT FENCE SPECIFICATIONS

MATERIALS
USE 48-INCH LONG STEEL POSTS THAT MEET THE FOLLOWING MINIMUM PHYSICAL REQUIREMENTS:

- COMPOSED OF HIGH STRENGTH STEEL WITH MINIMUM YIELD STRENGTH OF 50,000 PSI.
- HAVE A STANDARD "T" SECTION WITH A NOMINAL FACE WIDTH OF 1.38-INCHES AND NOMINAL "T" LENGTH OF 1.48-INCHES.
- WEIGH 1.25 POUNDS PER FOOT (± 8%).
- HAVE A SOIL STABILIZATION PLATE WITH A MINIMUM CROSS SECTION AREA OF 17-SQUARE INCHES ATTACHED TO THE STEEL POSTS.
- PAINTED WITH A WATER BASED BAKED ENAMEL PAINT.
- USE STEEL POSTS WITH A MINIMUM LENGTH OF 4-FEET, WEIGHING 1.25 POUNDS PER LINEAR FOOT (± 8%) WITH PROJECTIONS TO AID IN FASTENING THE FABRIC.
- EXCEPT WHEN HEAVY CLAY SOILS ARE PRESENT ON SITE, STEEL POSTS WILL HAVE A METAL SOIL STABILIZATION PLATE WELDED NEAR THE BOTTOM SUCH THAT WHEN THE POST IS DRIVEN TO THE PROPER DEPTH, THE PLATE WILL BE BELOW THE GROUND LEVEL FOR ADDED STABILITY.

THE SOIL PLATES SHOULD HAVE THE FOLLOWING CHARACTERISTICS:

- BE COMPOSED OF MINIMUM 15 GAUGE STEEL.
- HAVE A MINIMUM CROSS SECTION AREA OF 17-SQUARE INCHES.

GEOTEXTILE FILTER FABRIC FILTER SHALL BE MANUFACTURED BY WEBTEC, INC. TERRATEX SC (800)438-0027 OR EQUAL.

INSTALLATION
EXCAVATE A TRENCH APPROXIMATELY 6-INCHES WIDE AND 6-INCHES DEEP WHEN PLACING FABRIC BY HAND. PLACE 12-INCHES OF GEOTEXTILE FABRIC INTO THE 6-INCH DEEP TRENCH, EXTENDING THE REMAINING 6-INCHES TOWARDS THE UPSLOPE SIDE OF THE TRENCH. BACKFILL THE TRENCH WITH SOIL OR GRAVEL AND COMPACT.BURY 12-INCHES OF FABRIC INTO THE GROUND WHEN PNEUMATICALLY INSTALLING SILT FENCE WITH A SLICING METHOD. PURCHASE FABRIC IN CONTINUOUS ROLLS AND CUT TO THE LENGTH OF THE BARRIER TO AVOID JOINTS. WHEN JOINTS ARE NECESSARY, WRAPPED THE FABRIC TOGETHER AT A SUPPORT POST WITH BOTH ENDS FASTENED TO THE POST, WITH A 6-INCH MINIMUM OVERLAP. INSTALL POSTS TO A MINIMUM DEPTH OF 24-INCHES. INSTALL POSTS A MINIMUM OF 1- TO 2- INCHES ABOVE THE FABRIC, WITH NO MORE THAN 3-FEET OF THE POST ABOVE THE ROUND. SPACE POSTS TO MAXIMUM 6-FEET CENTERS. ATTACH FABRIC TO THE STEEL POSTS USING HEAVY-DUTY PLASTIC TIES THAT ARE EVENLY SPACED AND PLACED IN A MANNER TO PREVENT SAGGING OR TEARING OF THE FABRIC. IN CALL CASES, TIES SHOULD BE AFFIXED IN NO LESS THAN 4 PLACES. INSTALL THE FABRIC A MINIMUM OF 24-INCHES ABOVE THE GROUND. WHEN NECESSARY, THE HEIGHT OF THE FENCE ABOVE GROUND MAY BE GREATER THAN 24-INCHES. IN TIDAL AREAS, EXTRA SILT FENCE HEIGHT MAY BE REQUIRED. THE POST HEIGHT WILL BE TWICE THE EXPOSED POST HEIGHT. POST SPACING WILL REMAIN THE SAME AND EXTRA HEIGHT FABRIC WILL BE 4-, 5-, OR 6-FEET TALL. LOCATE SILT FENCE CHECKS EVERY 100 FEET MAXIMUM AND AT LOW POINTS. INSTALL THE FENCE PERPENDICULAR TO THE DIRECTION OF FLOW AND PLACE THE FENCE THE PROPER DISTANCE FROM THE TOE OF STEEP SLOPES TO PROVIDE SEDIMENT STORAGE AND ACCESS FOR MAINTENANCE AND CLEANOUT.

INSPECTION AND MAINTENANCE
1- INSPECT EVERY SEVEN CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES ½-INCHES OR MORE OF PRECIPITATION.
2- CHECK FOR SEDIMENT BUILDUP AND FENCE INTEGRITY.
3- CHECK WHERE RUNOFF HAS ERODED A CHANNEL BENEATH THE FENCE, OR WHERE THE FENCE HAS SAGGED OR COLLAPSED BY FENCE OVERTOPPING. IF THE FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE SECTION OF FENCE IMMEDIATELY.
4- REMOVE SEDIMENT ACCUMULATED ALONG THE FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE, ESPECIALLY IF HEAVY RAINS ARE EXPECTED.
5- REMOVE TRAPPED SEDIMENT FROM THE SITE OR STABILIZE IT ON SITE.
6- REMOVE SILT FENCE WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED OR AFTER TEMPORARY BEST MANAGEMENT PRACTICES (BMPS) ARE NO LONGER NEEDED.
7- PERMANENTLY STABILIZE DISTURBED AREAS RESULTING FROM FENCE REMOVAL.

CONSTRUCTION SEQUENCE

1— INSTALL SILT FENCE AROUND DISTURBED AREAS.
2— INSTALL RAIN GAGE AND WATERPROOF DOCUMENT CONTAINER FOR PLANS AND PAPERWORK.
3— INSTALL GRAVITY SEWER.
4— PLANT GRASS ON DISTURBED AREAS.
5— REMOVE SILT FENCE WHEN AREAS ARE STABILIZED.

DATE	NO.	REVISION	BY

DESIGNED BY: X
DRAWN BY: X
CHECKED BY: X
APPROVED BY: X
DATE PRINTED: Jul 29, 2020
SCALE: X
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EROSION CONTROL DETAILS

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PLAN SET: BID
DATE: 06-12-2020
PROJECT: DB2020.304
SHEET: 9 OF 9