

City of Wilson Natural Gas Division

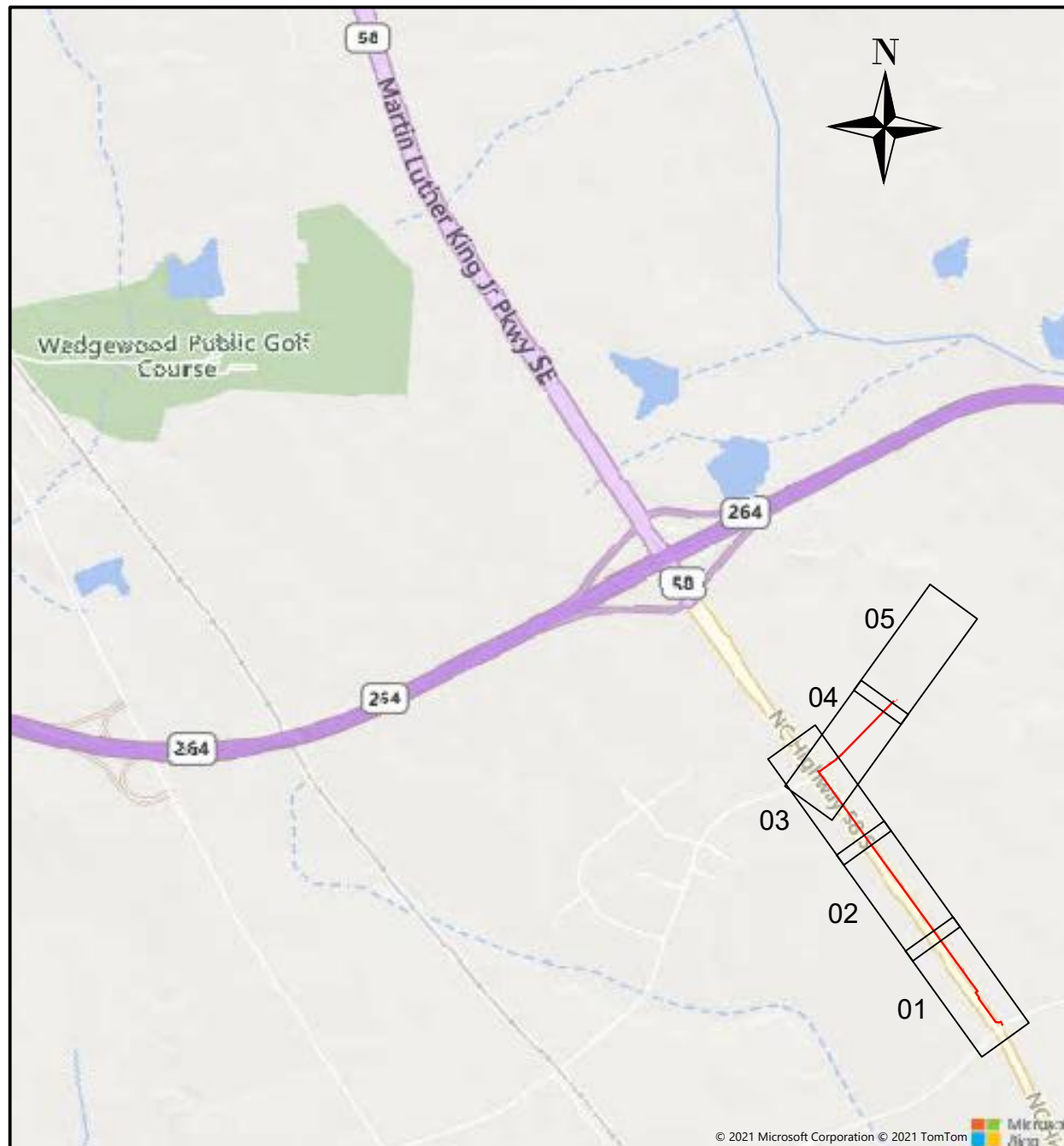
NATURAL GAS SYSTEM IMPROVEMENTS
PROJECT: 22110
December, 2021

Hwy 58 Engineering
Wilson, North Carolina

PREPARED BY:



HEATH AND ASSOCIATES, INC.
108 W. Warren Street, Suite 300
Shelby, North Carolina 28150
License Number: F-1035



SCALE: 1" = 2,000'

Map Index

THIS DRAWING IS FOR
PREVIEWING THE PROJECT VIA
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PURPOSES.

GENERAL CONSTRUCTION NOTES

GENERAL CONSTRUCTION NOTES

1. THE PIPELINE WILL BE INSTALLED WITH A MINIMUM OF 36" OF COVER THROUGHOUT THE ENTIRE PROJECT, EXCEPT WHERE ADDITIONAL DEPTH IS REQUIRED BY THE ENGINEER, PLANS OR SPECIFICATIONS.
2. THE PIPELINE WILL BE INSTALLED PARALLEL TO NCDOT ROADWAYS AND IN PRIVATE EASEMENTS VIA OPEN TRENCHING OR DIRECTIONAL BORING AT THE CONTRACTOR'S DISCRETION.
3. THE PIPELINE WILL BE INSTALLED WITH A MINIMUM OF 48" COVER AT NCDOT ROADWAY CROSSINGS VIA OPEN CUT, PIERCING TOOL OR OTHER DRY BORE METHOD. NCDOT ROADWAY CROSSINGS VIA HDD SHALL ONLY BE PERMITTED WHERE NOTED ON PLANS. ONE OPEN CUT NCDOT ROADWAY CROSSING IS PLANNED FOR THIS PROJECT.
4. DRIVEWAYS DISTURBED BY INSTALLATION SHALL BE REPLACED WITH LIKE MATERIAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES AND/OR PENALTIES RESULTING FROM ALL NON-COMPLIANCE WITH FEDERAL, STATE, AND LOCAL PERMITS AND ENCROACHMENT AGREEMENTS.
6. A NUMBER OF UTILITIES ARE SHOWN ON PLANS. THIS UTILITY INFORMATION IS PROVIDED AS A TOOL, HOWEVER THE CITY DOES NOT INSURE THIS DATA IS CORRECT. THE CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY LOCATIONS, MARKINGS, AND DAMAGE ON THE PROJECT.
7. PLEASE CONTACT NC ONE-CALL AT 811 FOR UTILITY LOCATIONS ON THE PROJECT.
8. THE ALIGNMENT OF THE PIPELINE IS DETAILED ON THE PLAN SHEETS. IN GENERAL, THE CONTRACTOR MAY VARY THE HORIZONTAL ALIGNMENT OF THE PIPE $\pm 2'$ TO AVOID OTHER UTILITIES OR DRAINAGE STRUCTURES. THE PIPELINE INSPECTOR MUST APPROVE ALL DEVIATIONS BEYOND THIS THRESHOLD.
9. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE PIPE AND WORK WITHIN THE RIGHT-OF-WAY PROVIDED.
10. AWG 10 TRACER WIRE SHALL BE INSTALLED ALONG WITH THE INSTALLATION OF THE PIPELINE. IT SHALL BE AT LEAST 6" ABOVE THE PIPELINE. WHEN THE PIPELINE IS INSTALLED VIA DIRECTIONAL DRILLING, TWO STRANDS OF AWG 10 TRACER WIRE WILL BE USED.

RIGHT-OF-WAY

1. ALL ROADWAY CROSSINGS WILL BE MADE IN THE NCDOT RIGHT-OF-WAY. THE PLANS DETAIL THE PIPELINE ALIGNMENT AND INSTALLATION DETAILS.
2. THE NECESSARY RIGHT-OF-WAY WHERE THE PIPELINE WILL BE INSTALLED IN PRIVATE EASEMENTS WILL BE PROVIDED BY THE OWNER. THE PLANS DETAIL THE THE PIPELINE ALIGNMENT AND INSTALLATION DETAILS.

CLEANUP

THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN CLEANUP ON A DAILY BASIS. CLEANUP SHALL BE STARTED IMMEDIATELY IN CONJUNCTION WITH THE START OF CONSTRUCTION AND SHALL CONTINUOUSLY FOLLOW AS CLOSE AS POSSIBLE TO THE PIPE LAYING AND BACKFILLING OPERATIONS. STREETS, SIDEWALKS, ETC., WILL BE WASHED OR SWEEPED ON A DAILY BASIS. UNTIMELY CLEANUP OF PIPELINE CONSTRUCTION MAY RESULT IN THE SUSPENSION OF NEW CONSTRUCTION, IF DEEMED NECESSARY BY THE ENGINEER AND/OR OWNER.

PRESSURE TESTING

1. THE PIPELINE IS TO BE PIGGED AND TESTED SEPARATELY IN SECTIONS APPROVED BY CITY OF WILSON STAFF. PIPE JOINS MADE AFTER TESTING ARE TO BE SOAP BUBBLE TESTED. ALL GAS LINE TESTING SHALL OCCUR AT THE TIME OF CONSTRUCTION. A DESIGNATED REPRESENTATIVE FROM THE CITY OF WILSON SHALL BE NOTIFIED TO WITNESS TESTING PRIOR TO THEIR ACCEPTANCE.
2. A MINIMUM OF TWO "PIG" RUNS SHALL BE REQUIRED. THE FINAL PIG RUN MUST BE CLEAN AND DRY.
3. ALL HDPE PIPE ON THE PROJECT WILL BE TESTED TO 150 psig BY THE CONTRACTOR FOR A DURATION OF 24 HOURS USING NITROGEN OR COMPRESSED AIR. ALL STEEL PIPE ON THE PROJECT WILL BE TESTED TO 275 psig FOR A DURATION OF 24 HOURS USING NITROGEN OR COMPRESSED AIR.
4. ALL DIRECTIONAL BORES (SPECIFIED OR NOT) SHALL BE PRE-TESTED AT 100 psig FOR 2 HOURS AFTER INSTALLATION, THEN RE-TESTED AGAIN WITH ADJOINING PIPE AFTER CONNECTION.
5. THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIALS, AND TESTING EQUIPMENT FOR HIS PORTION OF THE PROJECT. ALL TESTS SHALL BE RECORDED ON A CHART AND PROVIDED TO THE CITY FOR APPROVAL.

HORIZONTAL DIRECTIONAL DRILLING NOTES

1. THERE ARE NO SPECIFIED HDDS ON THIS PROJECT. THE CITY CREW MAY UTILIZE DIRECTIONAL DRILLING TECHNIQUES AT THEIR OPTION. THE CONTRACTOR MAY UTILIZE DIRECTIONAL DRILLING TECHNIQUES AT HIS OPTION; HOWEVER, NO ADDITIONAL COMPENSATION FOR UTILIZING DIRECTIONAL DRILLING TECHNIQUES SHALL BE PAID. NO ADDITIONAL PAYMENT WILL BE MADE FOR ROCK ENCOUNTERED DURING ANY OPTIONAL DIRECTIONAL DRILLING.
2. EXIT AND ENTRANCE PITS SHOULD BE SUFFICIENT SIZE TO CONTAIN THE DRILLING MUD AND SPOILS. PIT DIMENSIONS SHALL BE NO LARGER THAN 3' x 3' FOR THIS PROJECT.
3. DETERGENTS ARE NOT TO BE USED TO LUBRICATE THE PIPE DURING PULLBACK.
4. DRILL HEAD SHOULD BE MONITORED AND LOCATION MAPPED DURING THE DRILLING OPERATION. AN AS BUILT PLAN AND PROFILE OF THE DIRECTIONAL BORE SHALL BE SUPPLIED TO THE ENGINEER.
5. PIPE USED IN DIRECTIONAL BORE SHALL BE WELDED OR BUTT FUSED. BACKREAM HOLE DIAMETERS SHOULD MATCH PIPE DIAMETERS AS FOLLOWS:

PIPE OUTSIDE DIAMETER (inches)	REAMER MAXIMUM DIAMETER (inches)	REAMER MINIMUM DIAMETER (inches)
8.625	12	10
6.625	10	8
4.5	8	6
2.375	6	4

6. TWO STRANDS OF TRACER WIRE ARE TO BE INSTALLED WITH DIRECTIONALLY BORED PE PIPE. TRACER WIRE SHALL BE COPPER CLAD STEEL OR SINGLE STRAND HARD COPPER, AWG 10 GAUGE, WITH 600 VOLT POLYETHYLENE INSULATION MEETING CODE REQUIREMENTS FOR UNDERGROUND USE, AND MINIMUM TENSILE STRENGTH OF 500 POUNDS. TRACER WIRE SHALL BE FREE OF SPLICES IN BORE PATH. COPPER CLAD STEEL WIRE WILL REQUIRE APPROPRIATE CONNECTORS DESIGNED FOR COPPER CLAD STEEL WIRE.
7. AN HDPE WEAK LINK SHALL BE INSTALLED BETWEEN THE SWIVEL AND THE LEADING END OF THE PIPE TO PREVENT OVERSTRESSING OF PE PIPE. USE REDUCERS AS NECESSARY. MAXIMUM WEAK LINK DIAMETERS ARE AS FOLLOWS:

PIPE OUTSIDE DIAMETER (inches)	WEAK LINK MAXIMUM DIAMETER (inches)	WEAK LINK WALL (SDR)	PULL FORCE (lbf) NOT TO EXCEED
8.625	6.625	11	33,800
6.625	4.5	11	19,942
4.5	3.5	11	9,200
2.375	1.5	11	2,562

8. PIPE ROLLERS, SKATES, OR OTHER PROTECTIVE DEVICES SHALL BE USED TO PREVENT DAMAGE TO THE PIPE FROM THE EDGES OF THE PIT OR SUB-STRUCTURES DURING PULL-IN. ROLLERS SHALL BE USED UNDER PIPE TO PROTECT THE PIPE FROM GOUGES, ELIMINATE GROUND DRAG, AND REDUCE THE PULL-IN FORCE.
9. AN ADDITIONAL FIFTEEN FEET (15') OF PIPE SHALL BE PULLED THROUGH THE EXIT PIT, EXPOSED, AND EXAMINED FOR DAMAGE.
10. INSTALLATION OF THE PIPE SHOULD BE PLANNED SO BOTH THE FINAL BACKREAM AND THE PULL BACK CAN BE COMPLETED IN THE SAME DAY.
11. CONTRACTOR AND CITY CREW ARE RESPONSIBLE FOR DISPOSAL OF EXCESS DRILLING FLUID ON THEIR PORTION OF THE PROJECT. SPOILS AND DRILLING FLUID ARE NOT PERMITTED TO BE DISPOSED INTO STREAMS OR INTO STORM, SANITARY, OTHER DRAINAGE SYSTEMS. DISPOSAL SHOULD COMPLY WITH LOCAL ORDINANCES, REGULATIONS, AND ENVIRONMENTALLY SOUND PRACTICES.
12. CONTRACTOR MUST PROVIDE A WRITTEN CONTINGENCY PLAN FOR CLEAN UP OF SURFACE SEEPAGE OF DRILLING FLUID AND SPOILS BEFORE BEGINNING ANY PORTION OF PROJECT.
13. PIPE INSTALLED BY DIRECTIONAL BORING SHALL BE ALLOWED TO RECOVER 24 HOURS BEFORE CONNECTION TO OTHER PIPE.
14. PIPE INSTALLED BY DIRECTIONAL BORING SHOULD BE PIGGED AND PRESSURE TESTED ONCE AS A SEPARATE UNIT AFTER PIPE INSTALLATION AND AGAIN AS PART OF THE OTHER INSTALLATION.
15. CONTRACTOR AND CITY CREW ARE RESPONSIBLE FOR RESTORATION OF ANY SUBSURFACE UTILITIES DAMAGED DURING BORING, BACKREAMING, AND OTHER OPERATIONS ON THEIR PORTION OF THE PROJECT.
16. IF A DRILL HOLE MUST BE ABANDONED, THE HOLE SHOULD BE FILLED WITH GROUT OR CEMENT TO PREVENT FUTURE SUBSIDENCE.
17. STEEL PIPE USED IN DIRECTIONAL BORES WILL BE COATED WITH 40 MILS OF POWERCRETE IN ADDITION TO THE 16-18 MILS FBE COATING. THE CITY CREW WILL COAT STEEL PIPE JOINTS WITH A POWERCRETE F-1 OR R-95 COATING KIT. POWERCRETE APPLICATION REQUIRES THE SUBSTRATE TEMPERATURE TO BE ABOVE 50 DEG. F AND BELOW 176 DEG. F DURING APPLICATION. PIPE IS NOT TO BE INSTALLED LESS THAN ONE AND ONE-HALF (1.5) HOURS AFTER APPLICATIONS OF POWERCRETE F-1 OR POWERCRETE R-95.

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REVISIONS:

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CITY OF WILSON
HWY 58
ENGINEERING

NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET GEN CON 01

GENERAL CONSTRUCTION NOTES

PLAN SHEET LEGEND

<u>UTILITIES</u>		<u>BOUNDARIES, PROPERTY & MISC.</u>		
NEW NATURAL GAS LINE		PROPERTY LINE		
NEW NATURAL GAS VALVE		FENCE		
NEW NATURAL GAS STOPPER FITTING		GUARD RAIL		
NEW NATURAL GAS REDUCER		TREE/ SHRUB		
NEW NATURAL GAS END CAP		HEDGES		
NEW NATURAL GAS ANODE		CULVERT		
NEW NATURAL GAS CASING		CATCH BASIN		
NEW NATURAL GAS VENT PIPE		ROW MARKER		
REGULATOR STATION		ROW LINE		
EXISTING NATURAL GAS LINE		PERMANENT UTILITY EASEMENT		
EXISTING NATURAL GAS VALVE		WATERBODY		
WATER LINE		BORE PIT ENTRANCE/EXIT		
SANITARY SEWER		<u>EROSION CONTROL</u>		
WATER METER/HAND HOLE (HH)/VALVE		CULVERT/ CATCH BASIN INLET PROTECTION		
HYDRANT		EC BLANKET		
LIGHT POLE/UTILITY POLE/PED./FIBER MH		SILT FENCE		
STONE PILLAR/CABLE BOX/ELEC. BOX		ROCK CHECK DAM		
CONC. SLAB/POWERLINE TOWER		LIMITS OF DISTURBANCE		
SIGN				

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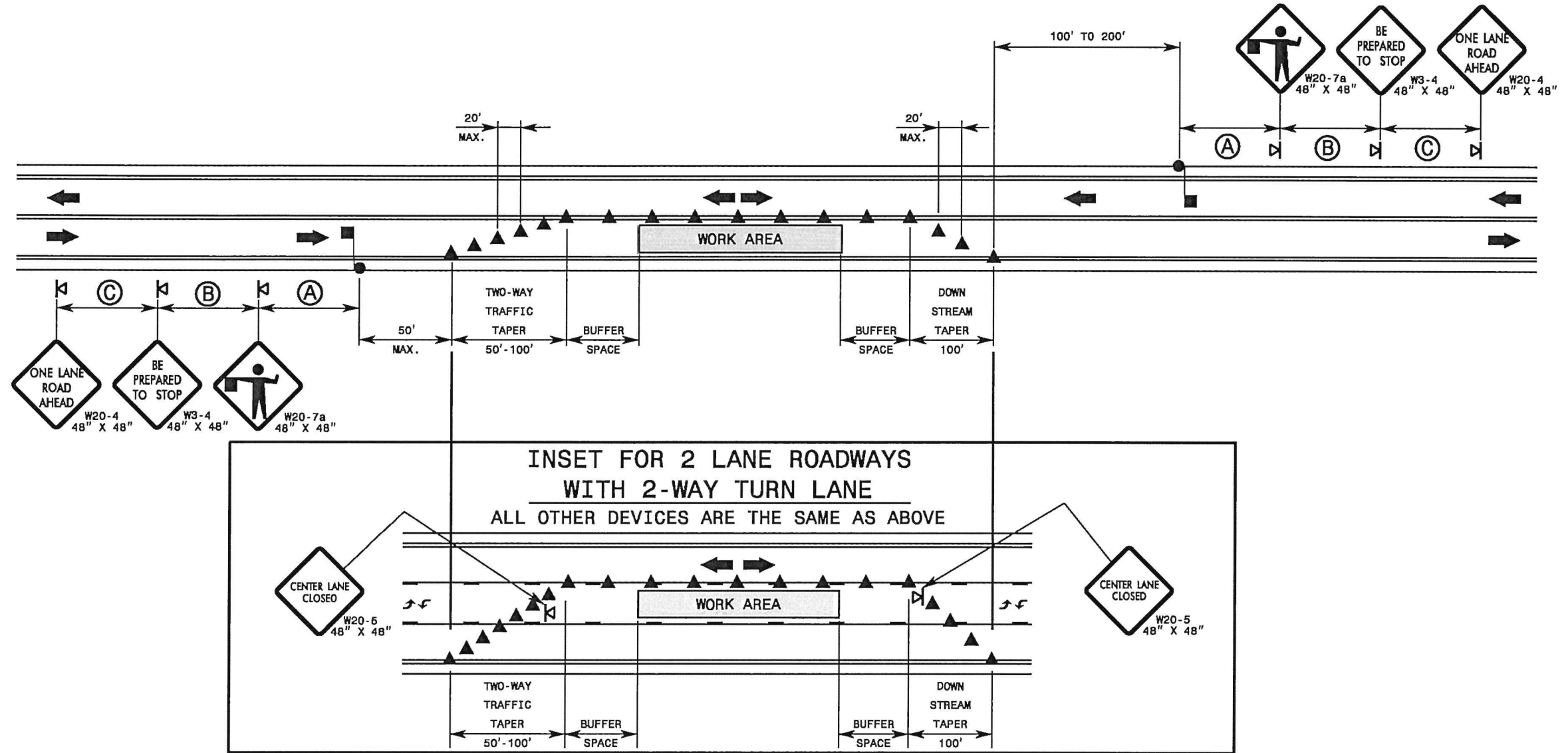
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CITY OF WILSON
HWY 58
ENGINEERING

NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

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DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET GEN CON 02



GENERAL NOTES FOR FLAGGER OPERATIONS

- 1- REFER TO STD. 1101.11 SHEET 4 FOR SIGN SPACING.
- 2- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC.
- 3- REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
- 4- PLACE CONES THRU THE WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
- 5- EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED TO THE FLAGGER (REFER TO STD. 1101.11 SHEET 2).
- 6- DO NOT STOP TRAFFIC IN ANY ONE DIRECTION FOR MORE THAN 5 MINUTES AT A TIME.
- 7- DRUMS OR SKINNY-DRUMS MAY BE USED IN LIEU OF CONES. REFER TO ROADWAY STANDARD DRAWING 1180.01 FOR SKINNY-DRUM REQUIREMENTS.
- 8- USE FLAGGERS TO CONTROL TRAFFIC AT INTERSECTIONS AFFECTED BY THE LANE CLOSURE. SUPPLEMENT FLAGGERS LOCATED AT INTERSECTIONS WITH FLAGGER AHEAD SIGNS (W20-7a) PLACED APPROXIMATELY 250 FT. IN ADVANCE OF THE FLAGGER. FOR SIGNALIZED INTERSECTIONS PLACE SIGNALS IN THE FLASH MODE AND RECOMMEND THE USE OF LAW ENFORCEMENT.
- 9- REFER TO 2009 MUTCD, CHAPTER 6, FOR FLAGGER CONTROL, REQUIREMENTS, AND PROCEDURES.
- 10- DO NOT EXCEED A 1 MILE LANE CLOSURE LENGTH UNLESS OTHERWISE SHOWN IN THE TMP OR AS DIRECTED BY THE ENGINEER.

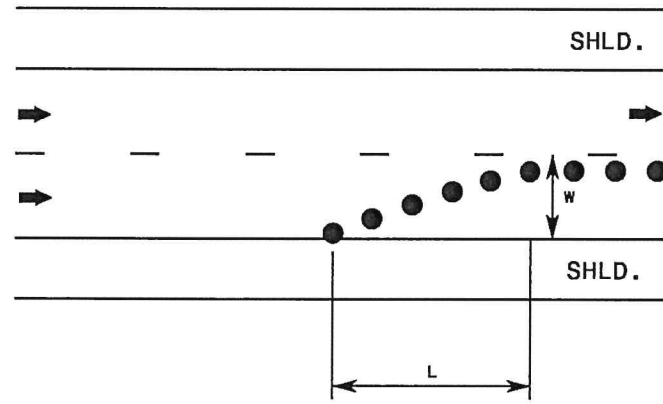
GENERAL NOTES FOR PILOT CAR OPERATIONS

- 1- USE PILOT CARS WHEN DIRECTED BY THE ENGINEER.
- 2- IF ROADWAY WIDTH IS LESS THAN 22 FEET (EOP TO EOP), CONES MAY NOT BE REQUIRED ALONG THE WORK AREA, AND AT THE DISCRETION OF THE ENGINEER, CONES MAY BE OMITTED ALONG THE WORK AREA IF USING A PILOT CAR.
- 3- CONES ARE ALWAYS REQUIRED IN THE UPSTREAM AND DOWNSTREAM TAPERS.
- 4- MOUNT SIGN G20-4 "PILOT CAR FOLLOW ME" AT A CONSPICUOUS POSITION ON THE REAR OF THE PILOT VEHICLE.
- 5- DO NOT INSTALL MORE THAN ONE (1) MILE OF LANE CLOSURE, MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.
- 6- ADVISE RESIDENTS AND BUSINESSES WITHIN THE LANE CLOSURE LIMITS ABOUT METHODS OF SAFE EGRESS AND INGRESS FROM DRIVEWAYS DURING FLAGGING AND PILOT CAR OPERATIONS.

LEGEND

- FLAGGER
- CONE
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

EXAMPLE OF "L" & "W" DESIGNATIONS



TAPER LENGTH CRITERIA FOR CHANNELIZING DEVICES IN WORK ZONES

<u>TYPES OF TAPERS</u>	<u>TAPER LENGTH</u>
<u>UPSTREAM TAPER</u>	
MERGING TAPER.....	L MINIMUM
SHIFTING TAPER.....	1/2 L MINIMUM
SHOULDER TAPER.....	1/3 L MINIMUM
TWO-WAY TRAFFIC TAPER.....	.60 - 100 FEET MAXIMUM
<u>DOWNSTREAM TAPER</u>100 FEET MAXIMUM	

QUICK REFERENCE - "L" DISTANCE TABLE

POSTED SPEED "S" (MPH)	MINIMUM LONGITUDINAL DISTANCE "L" (FEET) (ROUNDED VALUES)											
	LATERAL WIDTH "W" (FEET)											
	1	2	3	4	5	6	7	8	9	10	11	12
20	10	15	20	30	35	40	50	55	60	70	75	80
25	15	25	35	45	55	65	75	85	95	105	115	125
30	15	30	45	60	75	90	105	120	135	150	165	180
35	25	45	65	85	105	125	145	165	185	205	225	245
40	30	55	80	110	135	160	190	215	240	270	295	320
45	45	90	135	180	225	270	315	360	405	450	495	540
50	50	100	150	200	250	300	350	400	450	500	550	600
55	55	110	165	220	275	330	385	440	495	550	605	660
60	60	120	180	240	300	360	420	480	540	600	660	720
65	65	130	195	260	325	390	455	520	585	650	715	780
70	70	140	210	280	350	420	490	560	630	700	770	840

GENERAL NOTES

1- TABLE FOR "L" DISTANCE IS BASED ON CHANNELIZATION TAPER FORMULA FROM THE M.U.T.C.D. WHERE:

<u>SPEED LIMIT</u>	<u>FORMULA</u>
40 MPH OR LESS	$L_{MIN} = \frac{W \times S^2}{60}$
45 MPH OR GREATER	$L_{MIN} = W \times S$

L = MINIMUM TAPER LENGTH IN FEET (LONGITUDINAL DISTANCE)
W = WIDTH OF OFFSET IN FEET (LATERAL DISTANCE)
S = POSTED SPEED LIMIT, OR OFF-PEAK 85 PERCENTILE SPEED IN MPH PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED IN MPH

2- "L" DISTANCE IS FOR APPLICATION WITH CHANNELIZING DEVICE AND PAVEMENT MARKING TAPERS AND TRANSITIONS. CHANNELIZING DEVICES INCLUDE DRUMS, CONES, TUBULAR MARKERS, BARRICADES, RAISED ASPHALT ISLANDS, AND VERTICAL PANELS.

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
TRAFFIC CONTROL DESIGN TABLES
 BUFFER SPACE & SIGHT DISTANCE

SHEET 2 OF 4

1101.11

DESIGN SPEED (MPH)	MINIMUM SIGHT DISTANCE		MINIMUM LONGITUDINAL BUFFER SPACE (FEET)
	STOPPING SIGHT DISTANCE (FEET)	PASSING SIGHT DISTANCE (FEET)	
30	200	1090	85
35	250	1280	120
40	305	1470	155
45	360	1625	195
50	425	1835	240
55	495	1985	290
60	570	2135	345
65	645	2285	405
70	730	2480	470
75	820	2580	540
80	910	2660	615

GENERAL NOTES

- 1- TABLES ARE BASED ON THE AASHTO GREEN BOOK "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS" AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES". MINIMUM SIGHT DISTANCE VALUES ARE FOR PASSENGER CAR VEHICLES ON WET AND LEVEL ROADWAYS. CONSULT THE AASHTO GREEN BOOK TO MAKE FINAL DETERMINATION OF STOPPING SIGHT DISTANCE REQUIREMENTS.
- 2- BUFFER SPACE TABLE IS BASED ON THE BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS.
- 3- USE OF STOPPING SIGHT DISTANCE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE FOR TRAFFIC APPROACHING A LANE CLOSURE. PROVIDE 2-LANE, 2-WAY ROADWAYS STOPPING SIGHT DISTANCE TO THE FLAGGER. FOR LANE CLOSURES ON MULTILANE ROADWAYS PROVIDE STOPPING SIGHT DISTANCE TO THE BEGINNING OF THE LANE CLOSURE MERGE TAPER, OR FLASHING ARROW BOARD. EXTEND LANE CLOSURES AT THE BUFFER SPACE SUCH THAT STOPPING SIGHT DISTANCE IS PROVIDED.
- 4- USE OF MINIMUM PASSING SIGHT DISTANCE TABLE IN TRAFFIC CONTROL PLAN APPLICATIONS INCLUDES PROVIDING SIGHT DISTANCE REQUIREMENTS FOR PLACEMENT OF PAVEMENT MARKING PASSING/NO-PASSING ZONES FOR 2-LANE, 2-WAY ROADWAYS.

STATE OF NORTH CAROLINA
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 RALEIGH, N.C.

1-12

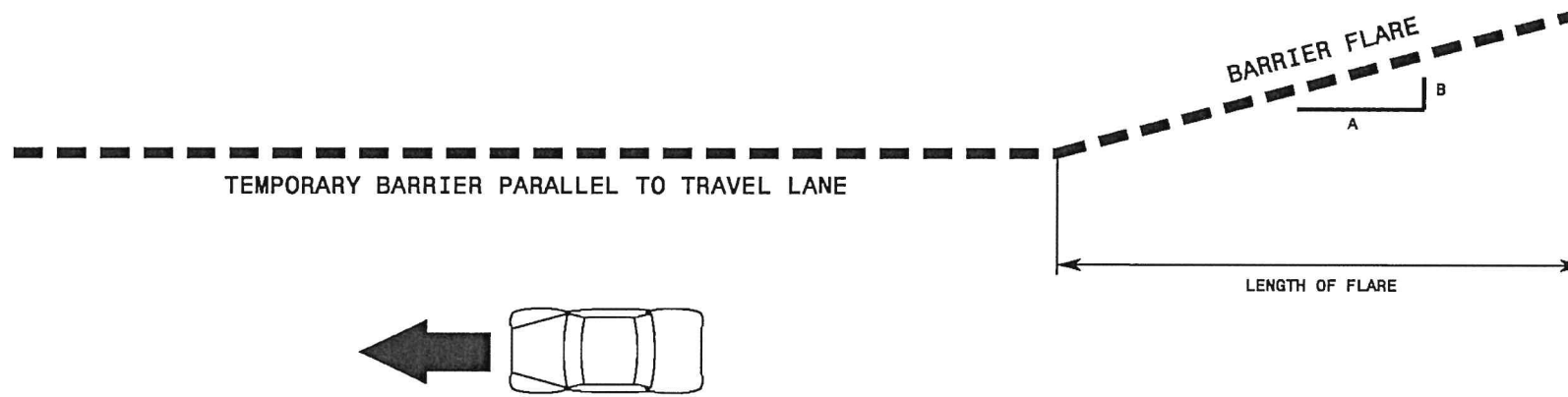
ENGLISH STANDARD DRAWING FOR
TRAFFIC CONTROL DESIGN TABLES
 BUFFER SPACE & SIGHT DISTANCE

SHEET 2 OF 4

1101.11

ENGLISH STANDARD DRAWING FOR
TRAFFIC CONTROL DESIGN TABLES
 TEMPORARY BARRIER FLARE RATES

TEMPORARY BARRIER FLARE RATES		
POSTED SPEED LIMIT (MPH)	ANCHORED (A:B)	UNANCHORED (A:B)
≤ 30	8 : 1	7 : 1
35	9 : 1	8 : 1
40	10 : 1	8 : 1
45	12 : 1	10 : 1
50	14 : 1	11 : 1
55	18 : 1	12 : 1
60	18 : 1	14 : 1
85	19 : 1	15 : 1
70	20 : 1	15 : 1



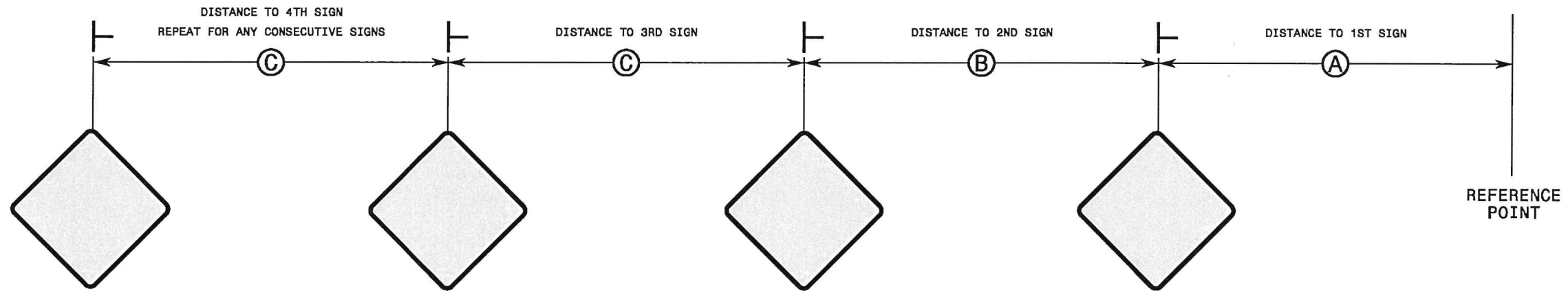
GENERAL NOTES

- 1- REFER TO 2002 ROADSIDE DESIGN GUIDE.
- 2- A BARRIER IS CONSIDERED FLARED WHEN IT IS NOT PARALLEL TO THE EDGE OF THE TRAVELWAY.
- 3- THE PRIMARY USE OF BARRIERS ARE FOR WORK AREA PROTECTION. WHEN SERVING THE ADDITIONAL FUNCTION OF A CHANNELIZING DEVICE, SUCH AS WHEN SHIFTING TRAFFIC, BARRIER TAPERS SHALL MEET STANDARD CHANNELIZING TAPER LENGTHS AS SHOWN ON STD. 1101.11 SHEET 1.

ENGLISH STANDARD DRAWING FOR
TRAFFIC CONTROL DESIGN TABLES
 TEMPORARY BARRIER FLARE RATES

ADVANCE WARNING SIGN SPACING CHART			
POSTED SPEED LIMIT (MPH)	RECOMMENDED DISTANCE BETWEEN SIGNS (FEET)±		
	(A)	(B)	(C)
≤ 35	200	200	200
40-50	350	350	350
55	500	500	500
CONTROLLED ACCESS ROADS (≥ 55)	1000	1500	2700

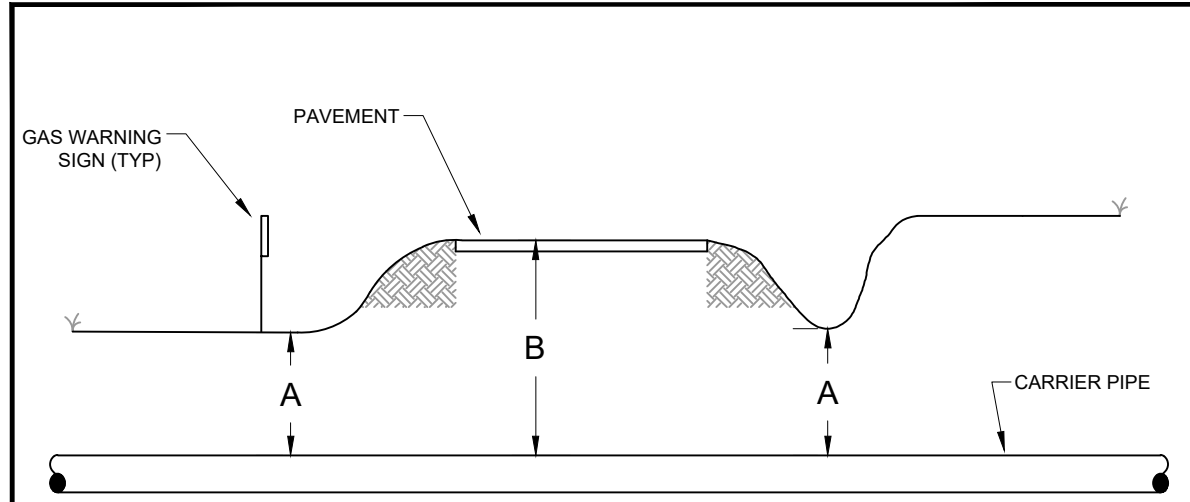
STATIONARY OR PORTABLE SIGNS



GENERAL NOTES

- 1- REFER TO 2009 MUTCD.
- 2- USE THIS STANDARD DRAWING IN CONJUNCTION WITH OTHER TRAFFIC CONTROL ROADWAY STANDARD DRAWINGS WHERE SIGN SPACING DISTANCES A, B, C, ARE SPECIFIED.
- 3- APPLY THE ADVANCE WARNING SIGN SPACING CHART WHERE A SERIES OF 2 OR MORE SIGNS ARE USED. ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE. FIELD ADJUST AS VARIOUS CONDITIONS OCCUR, SUCH AS LIMITED SIGHT DISTANCE, OBSTRUCTION INTERFERENCE, ETC.

GAS SPECIFICATIONS



WARNING SIGNS AND TEST STATIONS AT LOCATIONS DETAILED ON PLAN SHEETS.

DIMENSIONS

FOR HIGHWAY CROSSINGS VIA BORE* (DUAL AND SINGLE LANE ROUTES)

"A" = 3 FEET MINIMUM

"B" = 4 FEET OR AS SPECIFIED ON PLANS, WHICHEVER IS DEEPER

* BORE VIA PIERCING TOOL OR OTHER DRY BORE METHOD

FOR HIGHWAY CROSSINGS VIA HDD (DUAL AND SINGLE LANE ROUTES)

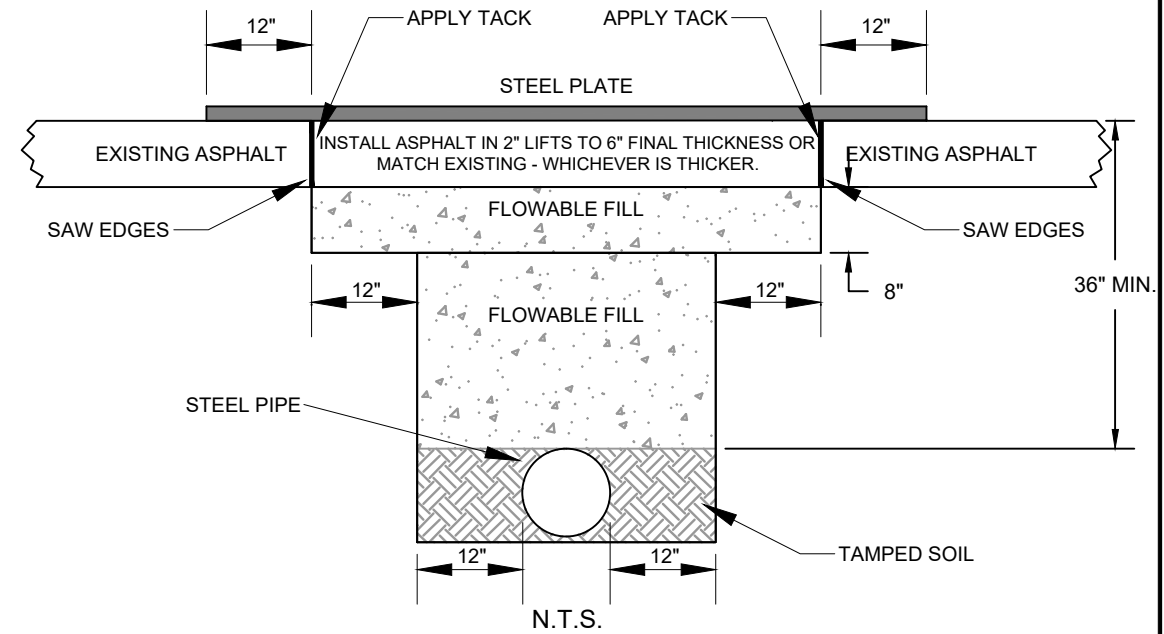
"A" = 3 FEET MINIMUM

"B" = 5 FEET OR AS SPECIFIED ON PLANS, WHICHEVER IS DEEPER

TYPICAL ROAD CROSSING DETAILS

DRAWING A

- TRENCH SHOULD BE OF SUFFICIENT WIDTH TO ALLOW ROLLER COMPACTION OF ASPHALT IN 2" LIFTS.



PAVEMENT CUT DETAIL WHERE FLOWABLE FILL IS REQUIRED

DRAWING B

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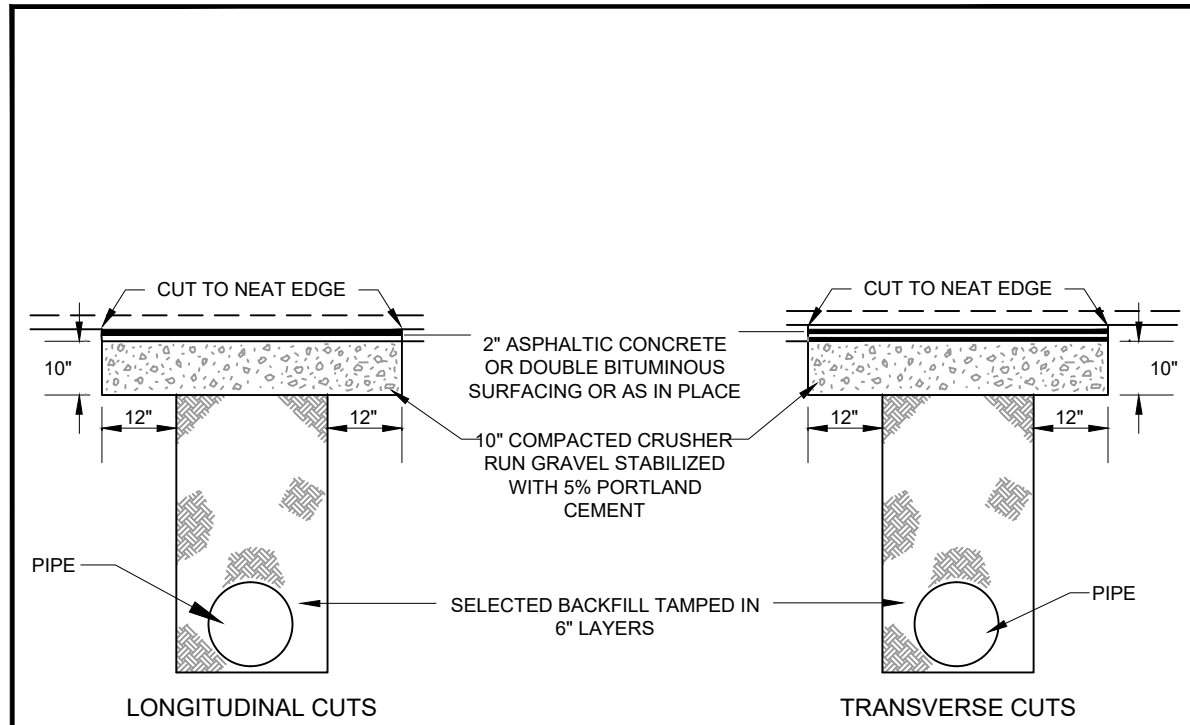


CITY OF WILSON
HWY 58
ENGINEERING

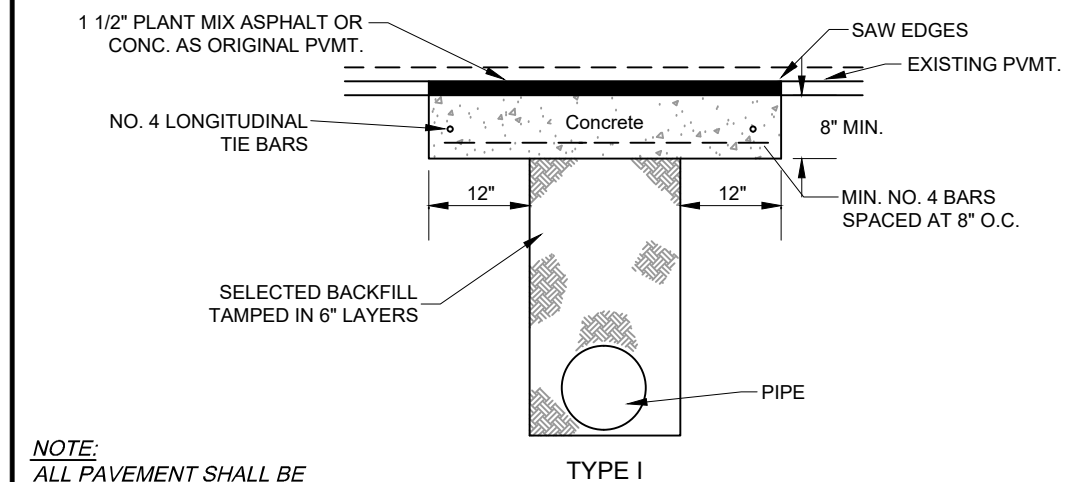
NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

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DATE DRAWN 10/26/2021	PROJECT NO. 22110
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GAS SPECIFICATIONS



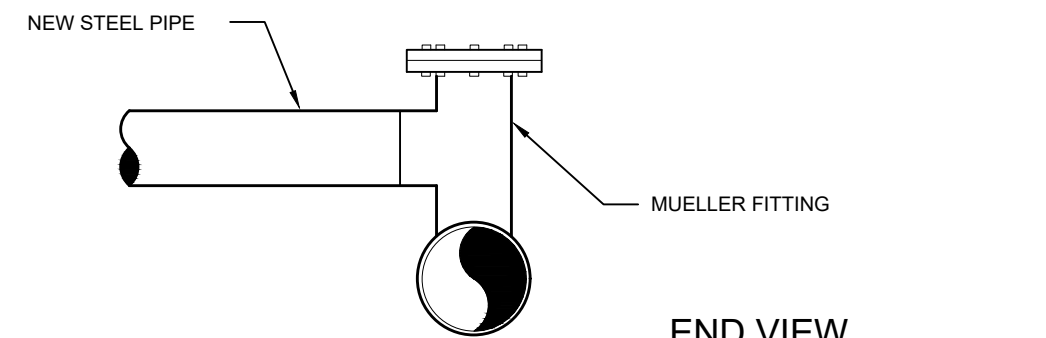
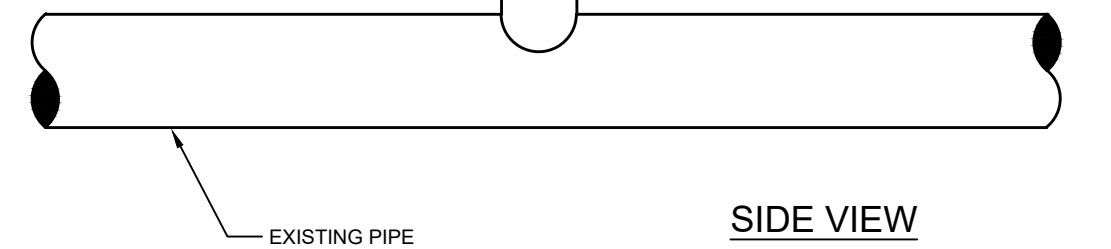
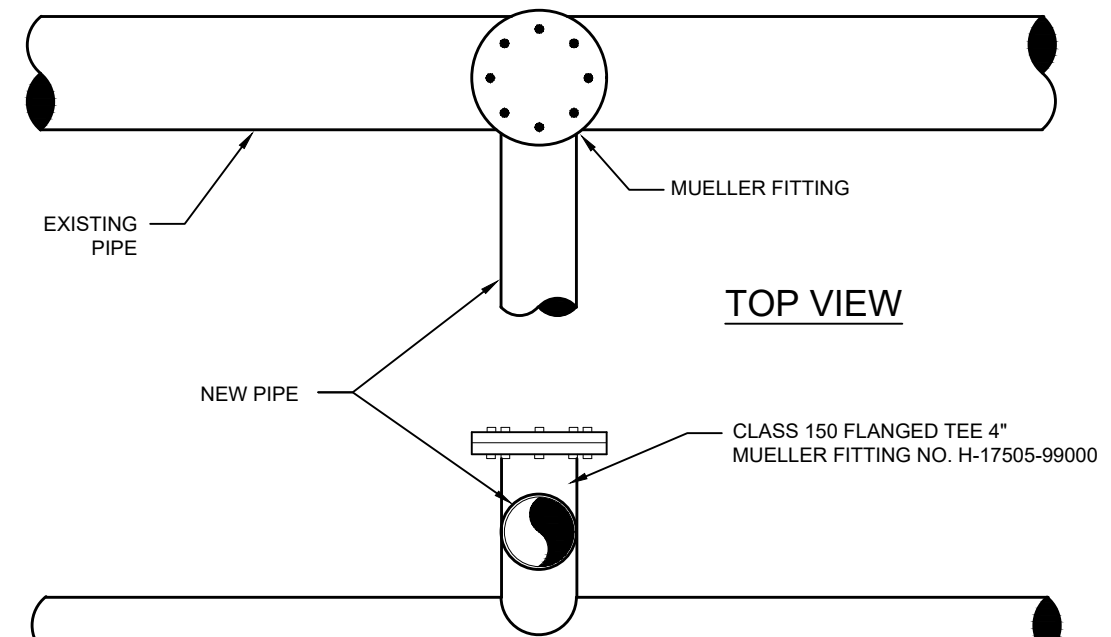
STATE - SECONDARY HIGHWAYS



*NOTE:
ALL PAVEMENT SHALL BE
REPAIRED WITHIN THE
SAME WEEK IT IS CUT*

PRIMARY HIGHWAYS ONLY

DRAWING C



FLANGED TEE DETAIL

DRAWING D

THIS DRAWING IS FOR
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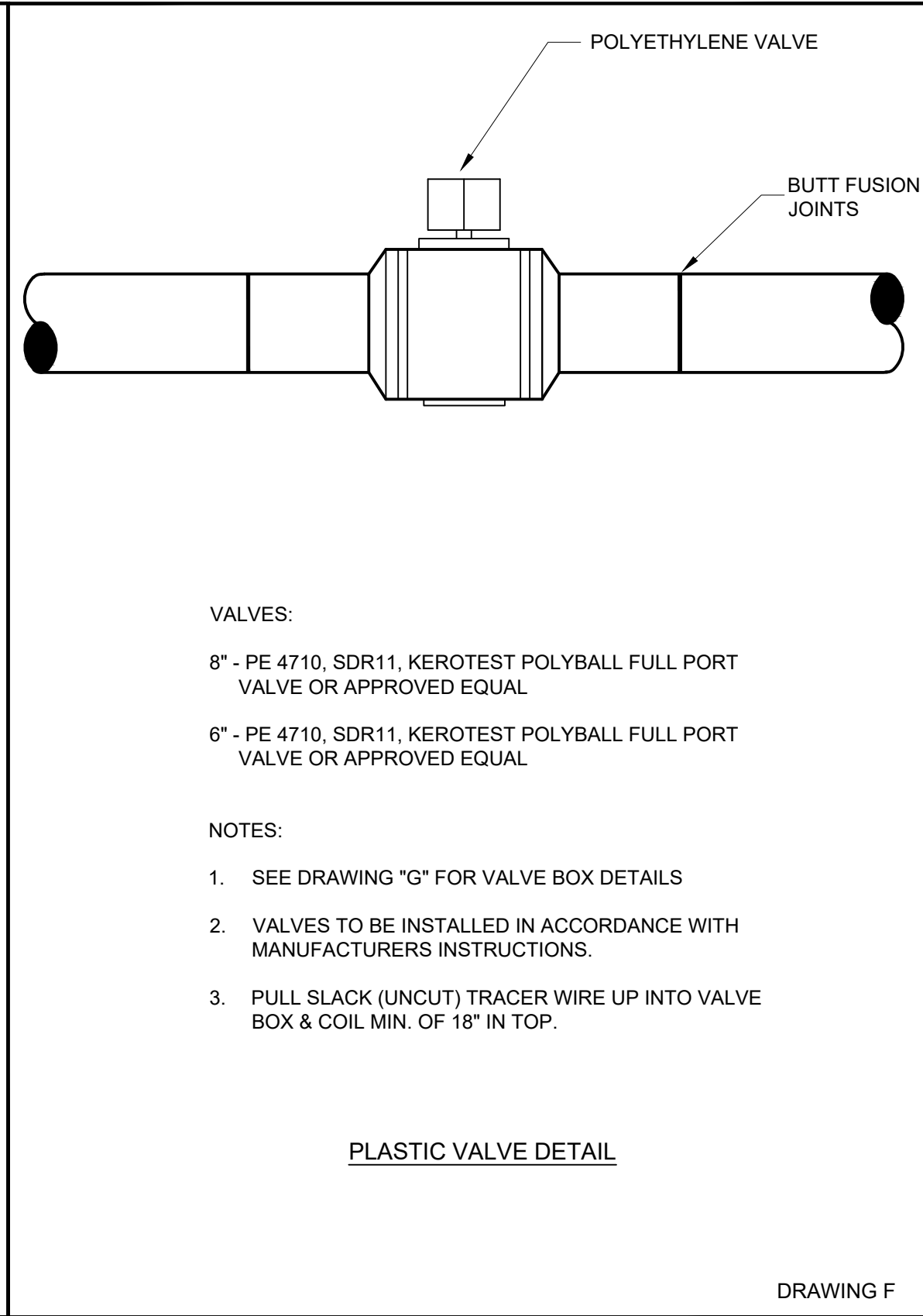
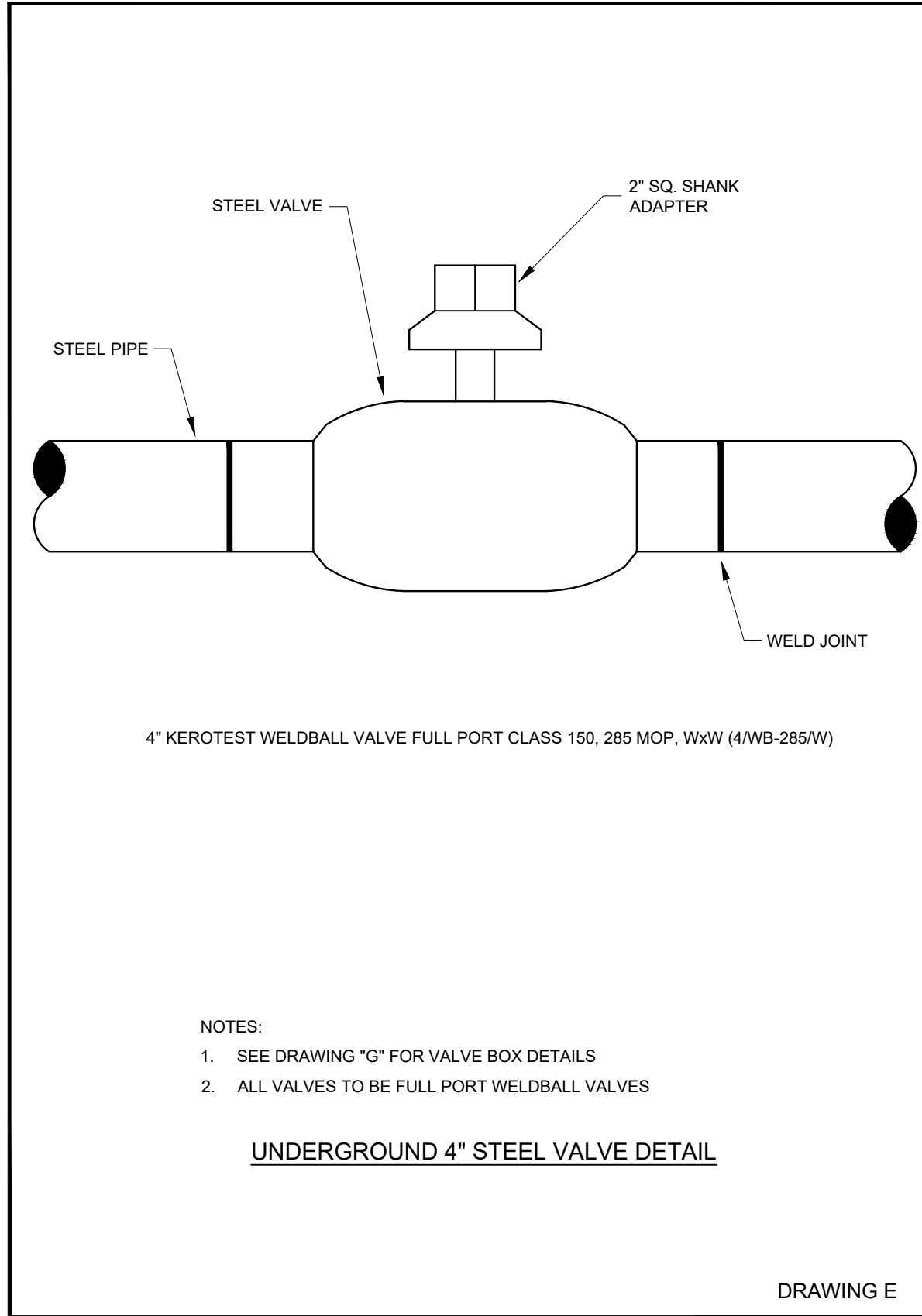


CITY OF WILSON
HWY 58
ENGINEERING

NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET GAS SPEC 02

GAS SPECIFICATIONS



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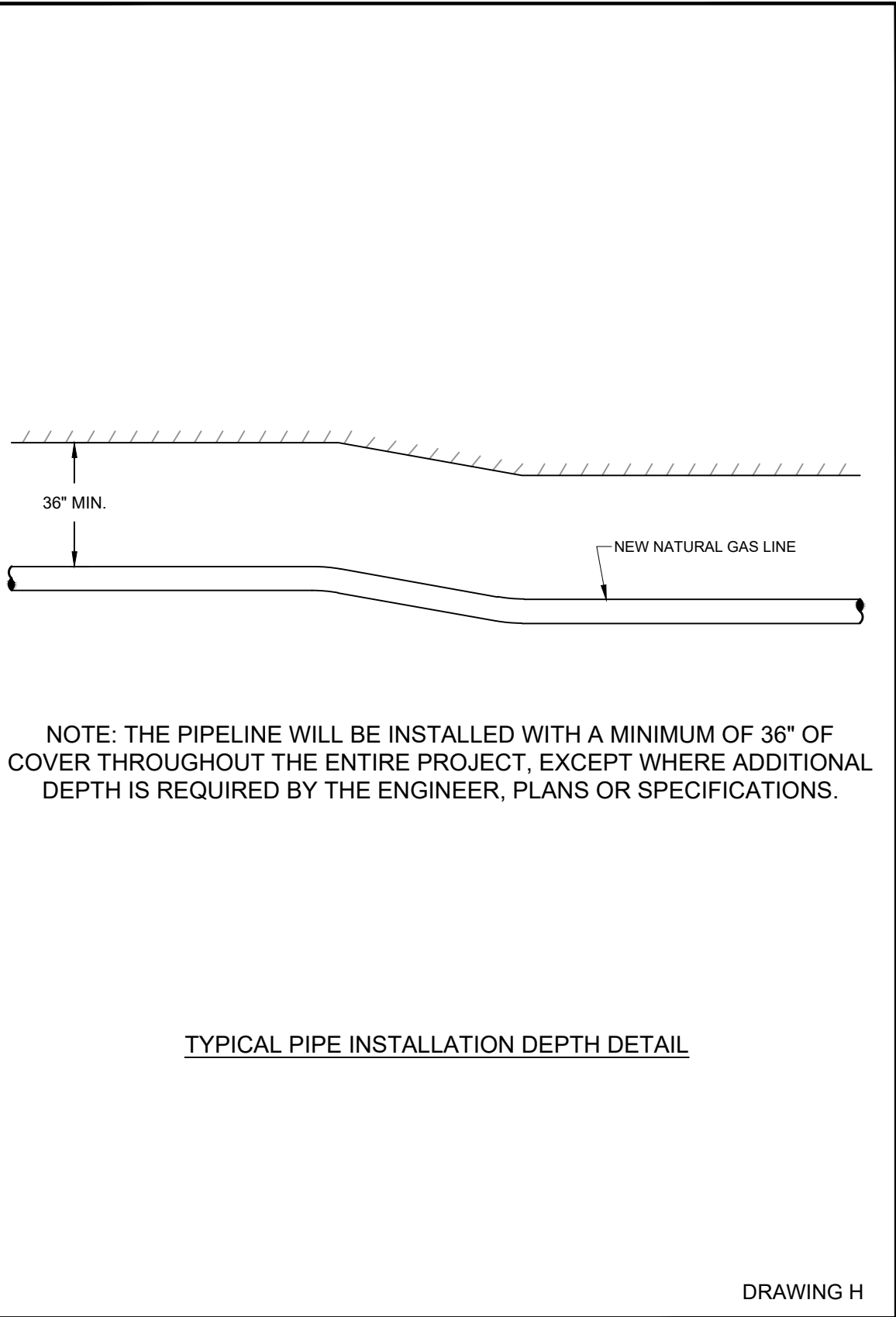
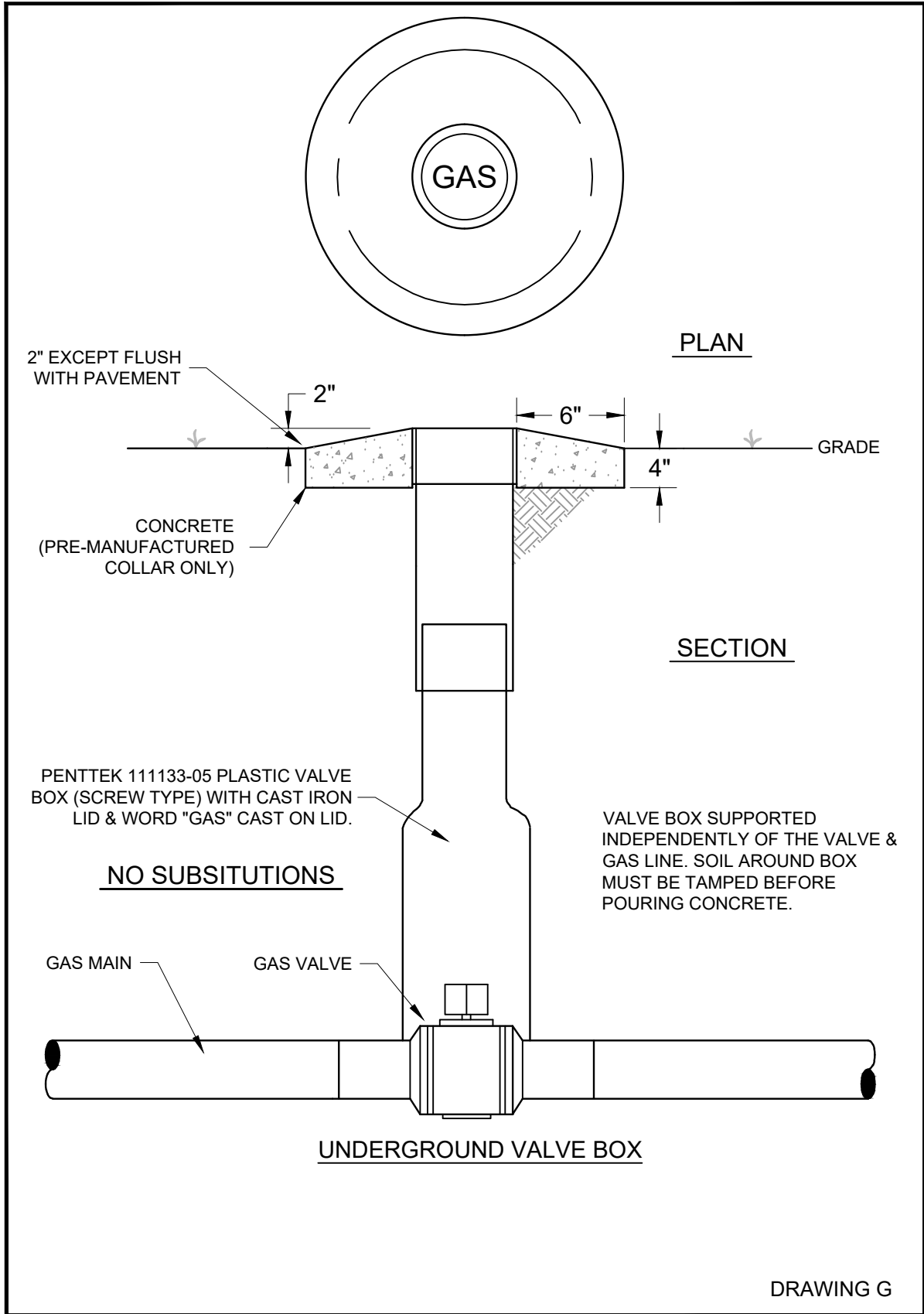


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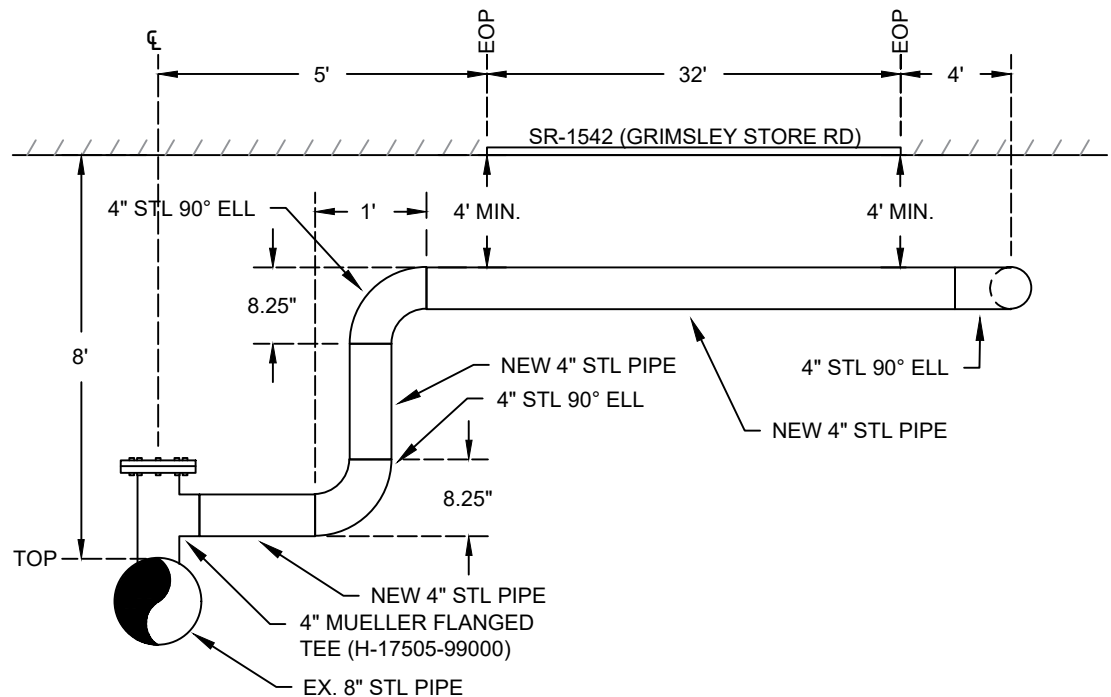
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DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET GAS SPEC 03

GAS SPECIFICATIONS



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GAS SPECIFICATIONS



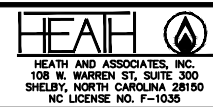
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TIE-IN DETAIL 01

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WILSON, NC

DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
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EROSION CONTROL NOTES

EROSION CONTROL NOTES

SPECIAL CONDITIONS (CONT.)

- CONSTRUCTION SPOIL SHALL BE PREVENTED FROM ENTERING CULVERTS BY PROPER INSTALLATION OF ENVIRONMENTAL CONTROLS AS DESCRIBED ON THE "EROSION CONTROL NOTES" PLAN SHEETS.
- WHERE TRENCH LINE IS NEAR BOTTOM OF DITCH LINE AT INLET OR OUTLET OF CULVERT (CONCENTRATED FLOW), DITCH SHALL BE LINED WITH EROSION CONTROL FABRIC AT LEAST 10' ALONG EACH FLOW CHANNEL.
- WHERE TRENCH LINE IS AT OR NEAR BOTTOM OF DITCH LINE (WITHIN 4' ELEVATION) AND DITCH LINE IS AT 2% SLOPE OR STEEPER, DITCH SHALL BE LINED WITH EROSION CONTROL FABRIC.
- ON THEIR PORTION OF THE PROJECT, CONTRACTOR OR CITY CREW IS TO HAVE SEDIMENT TRAPS, SILT FENCE, ROCK CHECK DAMS, EXCELSIOR WATTLES, CULVERT INLET PROTECTION AND CATCH BASIN PROTECTION IN PLACE AT ANY DOWN SLOPE LOCATION BEFORE BEGINNING PIPE INSTALLATION. EROSION CONTROL MEASURES MAY BE TEMPORARILY REMOVED AS NECESSARY TO FACILITATE PIPELINE INSTALLATION, AND THEN PROMPTLY REPLACED.
- ALL DISTURBED AREAS SHALL BE MULCHED AND TACKED WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING PIPELINE INSTALLATION, OR PIPELINE INSTALLATION MUST CEASE UNTIL MULCH AND TACK ARE INSTALLED. ALL STRAW OR OTHER MULCH WHICH BLOWS AWAY OR WASHES AWAY BEFORE PERMANENT GROUND COVER IS ESTABLISHED MUST BE REPLACED AND TACKED DOWN WITHIN SEVEN (7) CALENDAR DAYS.
- JUTE (OR OTHER MATERIAL) NETTING IS AN ACCEPTABLE SUBSTITUTE FOR ASPHALT TACKING OF STRAW. THIS NETTING IS NOT A PAY ITEM AND IS INCLUDED IN THE COST PER LINEAR FOOT OF PIPE THE SAME AS OTHER TACK, SUCH AS ASPHALT EMULSION. IF ASPHALT EMULSION IS NOT USED, AN ACCEPTABLE SUBSTITUTE MUST BE USED IN ITS PLACE WHICH WILL NOT DEGRADE IN PERFORMANCE PRIOR TO ESTABLISHMENT OF PERMANENT GROUND COVER. SPRAYED ON POWDERED CELLULOSE MAY BE ACCEPTABLE AS TEMPORARY TACK ON OTHER MULCH, BUT WILL NOT BE ACCEPTED AS MULCH MATERIAL.
- FAILURE TO INSTALL TACK WITHIN THE TIME SPECIFIED WILL RESULT IN PROJECT SHUT DOWN. NO ADDITIONAL PIPE INSTALLATION WILL BE ALLOWED UNTIL ALL EROSION PREVENTION AND SEDIMENTATION CONTROL MEASURES ARE PROPERLY INSTALLED, INCLUDING TACK.
- WHERE SPECIFIED ON DRAWINGS, EROSION CONTROL BLANKETS SHOULD BE NORTH AMERICAN GREEN SC150 STRAW/COCONUT FIBER MATTING. NO OTHER MATTING WILL BE ACCEPTED UNLESS PRE-APPROVED BEFORE BID OPENING. BLANKET SHOULD BE INSTALLED USING STAPLE PATTERN SHOWN ON DRAWING EC-6.

SPECIAL CONDITIONS

- GENERAL INFORMATION.** EROSION AND SEDIMENT CONTROL PROCEDURES SHALL BE INCLUDED IN THIS PROJECT. THEY SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING SECTIONS. ON THEIR PORTION OF THE PROJECT, THE CONTRACTOR OR CITY CREW SHALL ENSURE THAT ALL SEDIMENTATION FEATURES ARE IN PLACE PRIOR TO CONSTRUCTION AS NECESSARY AND DESCRIBED IN SECTIONS 3, 4, 5, AND 6. CONTRACTOR OR CITY CREW SHALL REMOVE THESE FEATURES AS GROUND COVER IS ESTABLISHED WITH APPROVAL OF THE OWNER'S REPRESENTATIVE AND/OR CONTROLLING AUTHORITIES. ALL COSTS OF EROSION CONTROL MEASURES SHALL BE INCLUDED IN THE COST OF PIPE PER LINEAR FOOT EXCEPTING PAY ITEM(S) FOR STONE MATERIAL (GRAVEL, RIP RAP), EXCELSIOR WATTLES, AND THE INSTALLATION OF EROSION CONTROL BLANKET WHERE REQUIRED BY SPECIFICATION, SITE CONDITIONS (WITH APPROVAL OF OWNER), OR LOCAL AUTHORITY.

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 SEVEN (7) CALENDAR DAYS AFTER WORK HAS CEASED.

ON THEIR PORTION OF THE PROJECT, CONTRACTOR OR CITY CREW TO 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.

ON THEIR PORTION OF THE PROJECT, CONTRACTOR OR CITY CREW MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO THE PAVED ROADWAY CONSTRUCTION AREAS. THE CONTRACTOR OR CITY CREW SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.

ON THEIR PORTION OF THE PROJECT, CONTRACTOR OR CITY CREW WILL CONSTRUCT TEMPORARY DIVERSION BERMS AND/OR DITCHES AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.

- SEED AND MULCH.** THIS WORK INCLUDES THE FINAL PREPARATION OF THE GROUND, DISTRIBUTION OF FERTILIZERS, LIME, MULCH, AND SEED OVER THE ENTIRE AREA DISTURBED BY CONSTRUCTION ACTIVITIES INCLUDING THE RESTORATION OF TRENCHES, DITCHES, AND OTHER DAMAGED AREAS. PRIOR TO COMMENCING THE SOIL DISTURBING ACTIVITIES, CONTRACTOR OR CITY CREW SHOULD HAVE SUFFICIENT EROSION CONTROL MATERIALS ON SITE TO PROTECT AT LEAST ONE DISTURBED ACRE PER MILE OF 6" OR SMALLER PIPE INSTALLATION, OR 1.5 DISTURBED ACRE PER MILE OF LARGER DIAMETER PIPE.

THE SEED MIXTURE AND SEED BED PREPARATION SHALL ADHERE TO THE TEMPORARY AND PERMANENT SEEDING RECOMMENDATIONS AS SHOWN ON THE TWO NC ENVIRONMENTAL QUALITY SHEETS THAT ARE INCLUDED AFTER THE SHEET "EC NOTES 02".

MIX FERTILIZER WITH SOIL TO A DEPTH OF 4"-6" BY DISKING OR OTHER APPROVED METHOD.

MULCH THE ENTIRE AREA (WELL DISTRIBUTED, 80-85% COVERAGE) WITH A DRY STRAW (PREFERABLY WHEAT OR OAT) FREE OF NOXIOUS WEEDS. MULCH SHALL BE REASONABLY BRIGHT IN COLOR AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR DUSTY. ALL MULCH MUST BE TACKED. TACK MULCH WITH EMULSIFIED ASPHALT AT THE RATE OF 0.10 GAL/SY (10 GAL/1000SF) OR APPROVED EQUAL. RYE GRAIN IS AN ACCEPTABLE SUBSTITUTE FOR TACKING OF STRAW AT 15 LB/ACRE TO BE SEEDING PRIOR TO MULCH APPLICATION FROM SEPTEMBER 1 TO NOVEMBER 1. RYE GRAIN FOR TACKING IS IN ADDITION TO RYE GRAIN INCLUDED IN THE MIX IN THE SEED MIXTURE LANGUAGE. JUTE (OR OTHER MATERIAL) NETTING IS AN ACCEPTABLE SUBSTITUTE FOR TACKING OF STRAW. NOTE THAT THIS NETTING IS NOT A PAY ITEM AND IS INCLUDED IN THE COST PER LINEAR FOOT OF PIPE THE SAME AS OTHER TACK.

- RIPRAP FOR SLOPE PROTECTION.** RIPRAP FOR SLOPE PROTECTION SHALL BE USED AT ALL STREAM CROSSINGS AND SHALL BE PLACED ON THE STREAM EMBANKMENTS WHERE SHOWN. RIPRAP FOR SLOPE PROTECTION SHALL BE CLASS I WEIGHING FROM 5 TO 200 POUNDS OF WHICH 30% SHALL WEIGH A MINIMUM OF 60 POUNDS AND NO MORE THAN 10% SHALL WEIGH LESS THAN 15 POUNDS EACH. RIPRAP SHALL BE HARD ANGULAR WEATHER RESISTANT STONE WITH A SPECIFIC GRAVITY OF 2.5 OR GREATER. RIPRAP SHALL BE PLACED AT A THICKNESS OF 1.5 TIMES THE MAXIMUM STONE DIAMETER AND SHALL BE EMBEDDED AT THE BASE OF THE SLOPE IN A KEYWAY. A FILTER BLANKET OF SAND AND GRAVEL 6" THICK SHALL BE PLACED BETWEEN THE RIPRAP STONES AND THE SOIL.

4. **DITCH PROTECTION.**

RIPRAP

RIPRAP SHALL BE USED FOR DITCH EROSION AND FLOW CONTROL ON SLOPES OF GREATER THAN 5%. THE RIPRAP SHALL BE PLACED AS SHOWN ON THE DRAWING "EC-4". THIS SHALL REMAIN UNTIL THE GRASS HAS A GOOD ROOT MAT AND THEN SHALL BE REMOVED WHEN DIRECTED BY THE ENGINEER AND SEEDING AS SPECIFIED.

ROCK CHECK DAMS

ROCK CHECK DAMS SHALL BE PLACED AS INDICATED ON THE CONSTRUCTION DRAWINGS. THESE SHALL BE IN PLACE PRIOR TO TRENCH INSTALLATION IN ANY AREA WHERE WATER WILL FLOW FROM DISTURBED AREAS VIA THE ROCK CHECK DAM LOCATION. ROCK CHECK DAMS MAY BE TEMPORARILY REMOVED AND REPLACED IMMEDIATELY THEREAFTER TO FACILITATE PIPELINE INSTALLATION. RIPRAP FOR ROCK CHECK DAMS SHALL BE 4 TO 15-INCH HARD ANGULAR WEATHER RESISTANT STONE, AND UPSTREAM FACE OF CHECK DAM SHOULD BE SIX INCHES OF #57 STONE AS A FILTER.

EXCELSIOR WATTLES

EXCELSIOR WATTLES MAY BE USED FOR DITCH EROSION AND FLOW CONTROL ON SLOPES LESS THAN 2.5% IN PLACE OF ROCK CHECK DAMS. ON SLOPES OF 2% - 2.5% EXCELSIOR WATTLES SHALL HAVE A MAXIMUM SPACING OF 75 FEET AND FOR SLOPES OF LESS THAN 2% THEY SHALL HAVE A MAXIMUM SPACING OF 100 FEET. EXCELSIOR WATTLES MAY ALSO BE USED AS INLET PROTECTION TO ROADWAY DRAINAGE CULVERTS.

THE PROJECT EROSION CONTROL MEASURES HAVE BEEN DESIGNED TO UTILIZE RIP RAP AND GRAVEL FOR CHECK DAMS AND INLET PROTECTION. THE PROPOSAL INCLUDES 100 LINEAR FEET OF EXCELSIOR WATTLES. IT IS ANTICIPATED THAT SOME OF THE CHECK DAMS AND INLET PROTECTION CAN BE BETTER ADDRESSED USING WATTLES. BECAUSE OF THE SIGNIFICANT PRICE DIFFERENCE, THE CONTRACTOR SHALL ONLY BE ALLOWED TO UTILIZE THE WATTLES UPON APPROVAL OF THE INSPECTOR ON A CASE BY CASE BASIS. INSTALLATION OF WATTLES WITHOUT PRIOR AUTHORIZATION SHALL NOT QUALIFY FOR PAYMENT.

WATTLES SHALL MEET THE FOLLOWING SPECIFICATIONS:

100% CURLED WOOD (EXCELSIOR) FIBERS	
MINIMUM DIAMETER	12 IN.
MINIMUM DENSITY	2.5 LB/FT ³ +/- 10%
NET MATERIAL	SYNTHETIC
NET OPENINGS	1 IN. X 1 IN.
NET CONFIGURATION	TOTALLY ENCASED
MINIMUM WEIGHT	20 LB. +/- 10% PER 10 FT. LENGTH

ANCHORS: STAKES SHALL BE USED AS ANCHORS.

WOODEN STAKES:

PROVIDE HARDWOOD STAKES A MINIMUM OF 2 FEET LONG WITH A 2 IN. X 2 IN. NOMINAL SQUARE CROSS SECTION. ONE END OF THE STAKE MUST BE SHARPENED OR BEVELED TO FACILITATE DRIVING DOWN INTO THE UNDERLYING SOIL.

PROVIDE STAPLES MADE OF 0.125" DIAMETER NEW STEEL WIRE FORMED INTO A "U" SHAPE NOT LESS THAN 12" IN LENGTH WITH A THROAT OF 1" IN WIDTH.

CONSTRUCTION METHODS:

WATTLES SHALL BE SECURED TO THE SOIL BY WIRE STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT AND AT THE END OF EACH SECTION OF WATTLE. A MINIMUM OF 4 STAKES SHALL BE INSTALLED ON THE DOWNSTREAM SIDE OF THE WATTLE WITH A MAXIMUM SPACING OF 2 LINEAR FEET ALONG THE WATTLE. INSTALL A MINIMUM OF 2 STAKES ON THE UPSTREAM SIDE OF THE WATTLE. STAKES SHALL BE DRIVEN INTO THE GROUND A MINIMUM OF 10 INCHES WITH NO MORE THAN 2 INCHES PROJECTING FROM THE TOP OF THE WATTLE. DRIVE STAKES AT AN ANGLE AS SHOWN ON DRAWING "EC-11".

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES. OVERLAP ADJOINING SECTIONS OF WATTLES A MINIMUM OF 6 INCHES.

INSTALLATION OF MATTING SHALL BE IN ACCORDANCE WITH DRAWINGS "EC-11" AND "EC-6" AND SHALL BE STRAW/COCONUT FIBER MATTING (NORTH AMERICAN GREEN SC150).

- SILT FENCE.** SILT FENCES SHALL BE PLACED AS INDICATED ON THE CONSTRUCTION DRAWINGS. THESE SHALL BE IN PLACE PRIOR TO TRENCH INSTALLATION IN ANY AREA WHERE WATER WILL FLOW FROM DISTURBED AREAS TO THE SILT FENCE LOCATION. SILT FENCES MAY BE TEMPORARILY REMOVED AND REPLACED IMMEDIATELY THEREAFTER TO FACILITATE PIPELINE INSTALLATION. SILT FENCE SHALL BE PLACED BETWEEN THE TOP OF THE SLOPE AND THE EDGE OF THE CREEK THROUGHOUT THE DISTURBED AREA. THE SILT FENCE SHALL EXTEND FIVE (5') FEET INTO THE UNDISTURBED AREA TO ENSURE SEDIMENTS ARE TRAPPED AS DESIRED. SILT FENCES SHALL BE PLACED SO THAT THE LOWER TWELVE (12") INCHES OF FABRIC IS PLACED BELOW THE SURFACE OF THE GROUND. POSTS SHALL BE DRIVEN TO A DEPTH OF TWENTY-FOUR (24") INCHES AND SHALL BE SPACED AT SIX (6') FOOT INTERVALS MAXIMUM. SEDIMENT FENCE FABRIC MUST HAVE A MINIMUM OF 85% FILTERING EFFICIENCY. TENSILE STRENGTH OF FABRIC AT 20% MAXIMUM ELONGATION IS TO BE 30 LB/LINEAR INCH FOR STANDARD STRENGTH FABRIC AND 50 LB/LINEAR INCH FOR HIGH STRENGTH FABRIC.

AFTER GROUND COVER HAS BEEN ESTABLISHED AND APPROVED BY THE OWNER'S REPRESENTATIVE, THE SILT FENCE SHALL BE REMOVED AND THE REMAINING DISTURBED AREAS SEEDING AS SPECIFIED.

- TEMPORARY SEDIMENT TRAPS.** INSTALL TEMPORARY SEDIMENT TRAPS IN BAR DITCHES PRIOR TO STREAM CROSSINGS WHERE THE SHOULDER OF THE ROAD HAS BEEN DISTURBED BY CONSTRUCTION ACTIVITY. THESE SEDIMENT TRAPS SHALL BE EXCAVATED TO BE A MINIMUM OF ONE (1') FOOT BELOW THE LOWEST LEVEL OF THE EXISTING DITCH. THEY SHOULD BE TWO (2') FEET WIDE AND TEN (10') FEET LONG AT THE BOTTOM OF THE TRAP WITH 2:1 SIDES. AT THE DOWNSTREAM END OF THE TRAP, A GRAVEL FILTER DAM SHALL BE PLACED TO THE TOP OF THE DITCH. THIS GRAVEL DAM SHALL BE A MINIMUM OF ONE (1') FOOT AT ITS TOP ELEVATION WHEN MEASURED ALONG THE FLOW LINE OF THE DITCH. AFTER GROUND COVER HAS BEEN ESTABLISHED AND APPROVED BY THE OWNER'S REPRESENTATIVE, THE GRAVEL SHALL BE REMOVED AND THE SEDIMENT TRAP FILLED, COMPACTED, AND SEEDING AS SPECIFIED.

- MAINTENANCE OF SEDIMENT CONTROL FACILITIES.** ON THEIR PORTION OF THE PROJECT, CONTRACTOR OR CITY CREW SHALL INSPECT THE FACILITIES PERIODICALLY (MINIMUM ONCE PER WEEK) AND AFTER EACH RAIN. SEDIMENT SHALL BE REMOVED FROM SEDIMENT TRAPS AND PROPERLY DISPOSED OF AFTER THE EXCAVATED AREA HAS FILLED TO ITS ORIGINAL LEVEL. SEDIMENT, MULCH AND DEBRIS SHALL BE REMOVED FROM ABOVE RIP RAP CHECK DAMS AND/OR WATTLES AND PROPERLY DISPOSED OF WHEN SEDIMENT ACCUMULATION HAS REACHED 6" DEPTH OR 1/3 OF CAPACITY, WHICHEVER IS LESS. SILT FENCES SHALL BE RECONSTRUCTED AS NECESSARY BY RE-STAKING OR REPLACEMENT AS NEEDED.

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.

- GRASS MATTING/EROSION CONTROL BLANKETS.** GRASS MATTING OR EROSION CONTROL BLANKETS MAY BE REQUIRED TO ADEQUATELY STABILIZE THE DITCHES DISTURBED BY CONSTRUCTION OF GAS LINES IN DITCH LINES OF OVER 2% SLOPE. ON THEIR PORTION OF THE PROJECT, CONTRACTOR OR CITY CREW SHOULD PLAN TO INSTALL GRASS MATTING OR EROSION CONTROL MATTING WHEREVER THE TRENCH IS LESS THAN 4" ELEVATION HIGHER THAN THE PARALLEL BOTTOM OF EXISTING DRAINAGE DITCH LINE. SHOULD THE ABOVE PROCEDURES, INCLUDING SEED AND MULCH, NOT STABILIZE THE DISTURBED DITCH LINE, THE CONTRACTOR OR CITY CREW SHALL USE A GRASS MATTING AS DIRECTED BY THE OWNER'S REPRESENTATIVE OR CONTROLLING AUTHORITY. THIS MATTING SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS AND SHALL BE OF SUFFICIENT LENGTH AND WIDTH TO ELIMINATE EROSION OF THE DITCH LINE. A PRE-SEEDING MANUFACTURED NETTING MAY BE USED IF OF SUFFICIENT SHEAR STRENGTH FOR SOIL TYPE, WATER FLOW, AND SLOPE. SUBMIT PRODUCT INFORMATION TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.

SOME AREAS OF THE PROJECT MAY BE STEEP ENOUGH TO REQUIRE THE EXTRA EROSION PROTECTION OFFERED BY STRAW/COCONUT FIBER MATTING (NORTH AMERICAN GREEN SC150). IN ADDITION, ANY DISTURBED AREA WITHIN 50' OF A STREAM BED SHALL BE PROTECTED BY STRAW/COCONUT FIBER MATTING (NORTH AMERICAN GREEN SC150). BLANKET SHALL BE INSTALLED USING A MINIMUM OF THREE STAPLES PER YARD WITH THE WATER FLOW AND THREE STAPLES PER YARD ACROSS THE FLOW. THE NUMBER OF SQUARE YARDS OF NORTH AMERICAN GREEN SC150 LISTED IN THE PROPOSAL ARE REQUIRED TO FULFILL THE SPECIFICATIONS ON THE DRAWINGS. THE OWNER'S REPRESENTATIVE MAY REQUIRE ADDITIONAL MATTING INSTALLATION DURING THE PROJECT. ADDITIONAL INSTALLATION WILL BE PAID AT THE UNIT PRICE IN THE CONTRACT PROPOSAL.

ON THEIR PORTION OF THE PROJECT, CONTRACTOR OR CITY CREW IS RESPONSIBLE FOR ENSURING THAT EROSION CONTROL BLANKET AND NECESSARY STAPLES/STAKES ARE ON SITE AND READY FOR INSTALLATION PRIOR TO SOIL DISTURBING ACTIVITIES.

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DATE DRAWN	10/26/2021	PROJECT NO.	22110
DRAWING NAME		SHEET	EC NOTES 01

SPECIAL CONDITIONS (CONT.)

EROSION CONTROL NOTES

9. CONSTRUCTION SEQUENCE.

- I. RECEIVE E&SC PLAN APPROVAL AND CERTIFICATE OF COVERAGE (COC) FROM NC DEPARTMENT OF ENVIRONMENTAL QUALITY (NCDEQ). FILE AN ELECTRONIC NOTIFICATION OF INTENT UNDER NCG01. PER NPDES REQUIREMENTS, A RAIN GAUGE, SELF-INSPECTIONS RECORDS, PERMIT, CERTIFICATE OF COVERAGE, AND S&E PLAN ARE REQUIRED TO BE MAINTAINED ON SITE AND ACCESSIBLE DURING INSPECTION. IT IS RECOMMENDED THAT THESE ITEMS BE PLACED IN A PERMITS BOX AT THE BEGINNING OR ENTRANCE OF PROJECT.
- II. NOTIFY NCDEQ OF PRE-CONSTRUCTION MEETING.
- III. HOLD PRE-CONSTRUCTION MEETING. (MAY BE OFF-SITE DUE TO LINEAR NATURE OF PROJECT).

CONTACT THE DEMLR RALEIGH REGIONAL OFFICE AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION. RALEIGH REGIONAL OFFICE OF NC DEMLR PHONE NUMBER: 919-791-4200.
- IV. INSTALLATION OF CONSTRUCTION ENTRANCE(S) IS NOT APPLICABLE WHERE PROJECT PARALLELS AND IS ADJACENT TO ROADWAYS. ON THEIR PORTION OF THE PROJECT, CONTRACTOR OR CITY CREW IS TO SWEEP PAVED ROADWAYS DAILY WITH A POWER BROOM. WHERE WORK LEAVES EDGE OF ROADWAY AND PROCEEDS CROSS COUNTRY, THE CONTRACTOR WILL USE EXISTING ENTRANCES AND ROADS TO ENTER THE WORKSITE.
- V. THE CONTRACTOR MUST FLAG WORK LIMITS BEFORE CONSTRUCTION BEGINS. THE CONTRACTOR SHALL NOT PERFORM ANY CLEARING BEYOND THE LIMITS SHOWN ON THE PLANS AND BRUSH CLEARING ONLY AS NECESSARY FOR INSTALLATION OF PERIMETER CONTROLS AND EROSION CONTROL MEASURES. ALL WORK SHALL BE PERFORMED IN NCDOT RIGHT-OF-WAY OR ACQUIRED EASEMENTS.
- VI. INSTALLATION OF PERIMETER CONTROLS (E.G., SILT FENCES).
- VII. INSTALLATION OF EROSION CONTROL MEASURES, AS NECESSARY. THE MEASURES CAN INCLUDE SEDIMENT TRAPS, SILT FENCE, ROCK CHECK DAMS, EXCELSIOR WATTLES, CULVERT INLET PROTECTION AND CATCH BASIN PROTECTION AND SEDIMENT FILTER BAGS. ALL DOWN SLOPE MEASURES ARE TO BE IN PLACE BEFORE EXCAVATION. MEASURES MAY BE TEMPORARILY REMOVED AS NECESSARY TO INSTALL PIPELINE, THEN PROMPTLY REPLACED. SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF GREATER THAN 1 INCH. ANY REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED. ALL E&SC MEASURES SHALL BE MAINTAINED AS SPECIFIED IN THE CONSTRUCTION DETAILS ON THIS PLAN.
- VIII. ADDITIONAL BRUSH CLEARING OF THE DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY, AS NECESSARY.
- IX. BEGIN EXCAVATION OF DITCH FOR PIPE. STORE EXCAVATED MATERIAL ON THE UPSTREAM SIDE OF THE DITCH TO ALLOW TRENCH TO CAPTURE ANY SEDIMENT. INSTALL PIPE, BACKFILL, AND FINISH GROUND TO ROUGH GRADE. WHERE THE UTILITY LINE IS INSTALLED ALONG THE ROADWAY, MATERIALS EXCAVATED SHALL BE PLACED ON ONE LANE OF PAVEMENT. A LAYER OF FINES, SAND, OR SCREENINGS WILL BE PLACED ON PAVED SURFACES PRIOR TO DEPOSITING ANY EXCAVATED MATERIALS. EXCAVATED MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE ROAD TO PROMOTE POSSIBLE SEDIMENT LADEN RUNOFF BACK INTO THE TRENCH. EROSION CONTROL WATTLES ARE TO BE USED IN CURB AND GUTTER SECTIONS. ANY DEWATERING WILL BE DONE THROUGH A SILT BAG WITH A FLOATING INTAKE THAT IS CONSTANTLY MONITORED WHEN IT IS IN USE. ANY BYPASS PUMPING WILL BE MONITORED CONSTANTLY UNTIL THE CHANNEL IS STABILIZED AND FLOW IS RESTORED TO THE CHANNEL. ALL DRAINAGEWAY CROSSINGS ARE TO BE COMPLETED WITHIN ONE DAY AND UNDER DRY CONDITIONS. ALL DISTURBED BANKS WILL BE PERMANENTLY RESTORED AND STABILIZED WITH THEIR ORIGINAL CONTOURS. IT IS ANTICIPATED THAT THE CITY CREW WILL BEGIN WORK AT STATION 0+00 AND INSTALL PIPE LINEARLY TO STATION 6+15. AFTER THE CITY CREW COMPLETES ITS INSTALLATION, IT IS ANTICIPATED THAT THE CONTRACTOR WILL BEGIN WORK AT STATION 6+15 AND INSTALL PIPE LINEARLY TO THE END OF THE PROJECT; HOWEVER, THE ORDER OF INSTALLATION MAY CHANGE DUE TO UN-ANTICIPATED CIRCUMSTANCES ALONG THE PROJECT ROUTE.
- X. TRENCH FILLING AND TAMPING SHALL KEEP UP WITH TRENCH OPENING OPERATION. PROPER GROUND COVER (SEED, STRAW, MULCH, TACK, GRASS MATTING, FILTER BLANKET AND RIPRAP) SHALL BE APPLIED TO TRENCH, BORE PITS AND ADJACENT SPOIL AREA AS SOON AS POSSIBLE AFTER TRENCH OPENING OR OTHER GROUND DISTURBANCE. BARE SOILS WILL BE STABILIZED DAILY. UNLESS SHORTER TIME FRAMES ARE SPECIFIED ON CONSTRUCTION DRAWINGS, TEMPORARY OR PERMANENT GROUND COVER MUST BE IN PLACE AND FUNCTIONAL (I.E., PROPERLY TACKED MULCH, HEALTHY GROWING VEGETATION, OR EROSION CONTROL MAT PROPERLY STAPLED) WITHIN 7 CALENDAR DAYS FOLLOWING ANY GROUND DISTURBANCE. PROVISIONS FOR PERMANENT GROUND COVER MUST BE ACCOMPLISHED ON EXPOSED SLOPES WITHIN 7 CALENDAR DAYS; WITHIN 7 CALENDAR DAYS IN SENSITIVE WATERSHEDS; AND IN REMAINING AREAS WITHIN 7 CALENDAR DAYS. DISTURBED AREAS LEFT INACTIVE BETWEEN ANY PHASE OF GRADING SHALL BE TEMPORARILY SEEDED WITHIN 5 WORKING DAYS OR 7 CALENDAR DAYS, WHICHEVER IS SHORTER. THE TEMPORARY AND PERMANENT SEEDING RECOMMENDATIONS, AS SHOWN ON THE TWO NC ENVIRONMENTAL QUALITY SHEETS THAT ARE INCLUDED AFTER THE SHEET "EC NOTES 02", SHALL BE UTILIZED FOR THE ENTIRE PROJECT AREA.
- XI. INSTALL ADDITIONAL EROSION CONTROL MEASURES, AS NECESSARY. THE MEASURES CAN INCLUDE SEDIMENT TRAPS, SILT FENCE, ROCK CHECK DAMS, EXCELSIOR WATTLES, CULVERT INLET PROTECTION, CATCH BASIN PROTECTION, SEDIMENT FILTER BAGS, AND EROSION CONTROL BLANKET.
- XII. INSTALL OR ACHIEVE PERMANENT/FINAL STABILIZATION.
- XIII. MAINTAIN ALL EROSION CONTROL MEASURES; IF NECESSARY, MODIFICATION OF EROSION CONTROL MEASURES WILL BE CONSIDERED TO ADDRESS ADDITIONAL EROSION ISSUES.
- XIV. REMOVAL OF TEMPORARY SEDIMENT & EROSION CONTROL MEASURES AS THE AREAS OF THE LINEAR PROJECT BECOME ESTABLISHED. ALL AREAS WILL NOT BE ESTABLISHED AT THE SAME TIME.

NOTE: MAINTENANCE OF SEDIMENT AND EROSION CONTROL MEASURES WILL CONTINUE UNTIL THE LINEAR PROJECT IS PERMANENTLY STABILIZED AND THE CONTROLS ARE REMOVED. WHEN THE PROJECT IS COMPLETE, THE CONTRACTOR SHALL CONTACT THE DEMLR AND REQUEST A CLOSE-OUT INSPECTION TO CLOSE OUT THE EROSION AND SEDIMENTATION CONTROL PLAN.

FARM DITCHES MUST BE CROSSED WITH EQUIPMENT BY USING THE EXISTING ENTRANCE ROADS AND GOING AROUND TO GET TO THE OTHER SIDE.

THIS DRAWING IS FOR PREVIEWING THE PROJECT VIA THE INTERNET. OBTAIN SEALED DRAWINGS FOR BIDDING PURPOSES.

REVISIONS:	
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CITY OF WILSON
HWY 58
ENGINEERING

NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET EC NOTES 02

TEMPORARY SEEDING RECOMMENDATIONS
FOR LATE WINTER AND EARLY SPRING

Seeding Mixture

Species	Rate (lb/acre)
Rye (grain)	120
Annual lespedeza (Kobe in Piedmont and Coastal Plain, Korean in Mountains)	50

Omit annual lespedeza when duration of temporary cover is not to extend beyond June.

Seeding Dates

Mountains—Above 2500 feet: Feb. 15 - May 15
Below 2500 feet: Feb. 1 - May 1
Piedmont—Jan. 1 - May 1
Coastal Plain—Dec. 1 - Apr. 15

Maintenance

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

TEMPORARY SEEDING RECOMMENDATIONS FOR SUMMER

Seeding Mixture

Species	Rate (lb/acre)
German millet	40

In the Piedmont and Mountains, a small-stemmed Sudangrass may be substituted at a rate of 50 lb/acre.

Seeding Dates

Mountains—May 15 - Aug. 15
Piedmont—May 1 - Aug. 15
Coastal Plain—Apr. 15 - Aug. 15

Maintenance

Refertilize if growth is not fully adequate. Reseed, refertilize and mulch immediately following erosion or other damage.

TEMPORARY SEEDING RECOMMENDATIONS FOR FALL

Seeding Mixture

Species	Rate (lb/acre)
Rye (grain)	120

Seeding Dates

Mountains—Aug. 15 - Dec. 15
Coastal Plain and Piedmont—Aug. 15 - Dec. 31

Maintenance

Repair and refertilize damaged areas immediately. Topdress with 50 lb/acre of nitrogen in March. If it is necessary to extend temporary cover beyond June 15, overseed with 50 lb/acre Kobe (Piedmont and Coastal Plain) or Korean (Mountains) lespedeza in late February or early March.

SEED BED PREPARATION:

LIMING- Apply lime according to soil test recommendations. If the pH (acidity) of the soil is not known, an application of ground agricultural limestone at the rate of 1-1 $\frac{1}{2}$ tons/acre on coarse-textured soils and 2-3 tons/acre on fine-textured soils is usually sufficient. Apply limestone uniformly and incorporate into the top 4-6 inches of soil. Soils with a pH of 6 or higher need not be limed.

FERTILIZER- Base application rates on soil tests. When these are not possible, apply a 10-10-10 grade fertilizer at 700-1,000 lb/acre. Both fertilizer and lime should be incorporated into the top 4-6 inches of soil. If a hydraulic seeder is used, do not mix seed and fertilizer more than 30 minutes before application.

SURFACE ROUGHENING- If recent tillage operations have resulted in a loose surface additional roughening may not be required, except to break up large clods. If rainfall causes the surface to become sealed or crusted, loosen it just prior to seeding by raking, harrowing, or other suitable methods for fine grading. The finished grade shall be a smooth even soil surface with a loosen uniformly fine texture. All ridges and depressions shall be removed and filled to provide the approved surface drainage. Planting is to be done immediately after finished grades are obtained and seedbed preparation is completed.

NON-INVASIVE PERMANENT SEEDING
RECOMMENDATIONS FOR FALL

NON-INVASIVE PERMANENT SEEDING RECOMMENDATIONS
FOR LATE WINTER AND EARLY SPRING

NON-INVASIVE PERMANENT SEEDING
RECOMMENDATIONS FOR SUMMER

SEEDING MIXTURE

Species	Rate
Centipede	5 lbs/acre
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

Seeding Dates

Coastal or Eastern Piedmont for Centipede- Sept. 1 - May 1
Coastal and Piedmont for Indian Woodoats and Virginia Wild Rye- Feb 15 - April 1
Mountains for Indian Woodoats and Virginia Wild Rye- March 1 - May 15

Maintenance:

Significant maintenance may be required to obtain desired cover once centipede is planted. Acceptable for sodding.

SEEDING MIXTURE

Species	Rate
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

Seeding Dates

Mountains - July 15- Aug 15
Piedmont - Aug 15 - Oct 15

Maintenance:

Indian Woodoats and Virginia Wild Rye are both sun and shade tolerant.

SEEDING MIXTURE

Species	Rate
Hard Fescue	15 lbs/acre
Switchgrass	2.5-3.5 lbs/acre*
Indian Grass	5-7 lbs/acre*
Big Bluestem	5-7 lbs/acre*
Indian Woodoats	1.5-2.5 lbs/acre*
Virginia Wild Rye	4-6 lbs/acre*

*Depending upon mix with other species. See table 6.11.d from Chapter 6 of the NC Erosion and Sediment Control Planning and Design Manual.

Seeding Dates

Mountains - Hard Fescue- Aug 1 - June 1
Mountains- Switchgrass, Indian Grass, Big Bluestem- Dec 1 - April 15
Piedmont and Coastal- Switchgrass, Indian Grass, Big Bluestem- Dec 1 - April 1
Coastal- Indian Woodoats and Virginia Wild Rye- Sept 1 - Nov 1

Maintenance:

Hard Fescue is not recommended for slopes > 5%. Prefers shade.

SEED BED PREPARATION:

LIMING- Apply lime according to soil test recommendations. If the pH (acidity) of the soil is not known, an application of ground agricultural limestone at the rate of 1 to 1 ½ tons/acre on coarse-textured soils and 2-3 tons/acre on fine-textured soils is usually sufficient. Apply limestone uniformly and incorporate into the top 4-6 inches of soil. Soils with a pH of 6 or higher need not be limed.

FERTILIZER- Base application rates on soil tests. When these are not possible, apply a 10-10-10 grade fertilizer at 700-1,000 lb/acre. Both fertilizer and lime should be incorporated into the top 4-6 inches of soil. If a hydraulic seeder is used, do not mix seed and fertilizer more than 30 minutes before application.

SURFACE ROUGHENING- If recent tillage operations have resulted in a loose surface additional roughening may not be required, except to break up large clods. If rainfall causes the surface to become sealed or crusted, loosen it just prior to seeding by raking, harrowing, or other suitable methods for fine grading. The finished grade shall be a smooth even soil surface with a loosen uniformly fine texture. All ridges and depressions shall be removed and filled to provide the approved surface drainage. Planting is to be done immediately after finished grades are obtained and seedbed preparation is completed.

NOTES:

1. Permanent seeding, sodding or other means of stabilization are required when all construction work is completed according to the NPDES timeframe's table.
2. A North Carolina Department of Agriculture soils test (or equal) is highly recommended to be obtained for all areas to be seeded, sprigged, sodded or planted.
3. Use a seeding mix that will produce fast growing nurse crops and includes non-invasive species that will eventually provide a permanent groundcover. Soil blankets may be used in lieu of nurse crops. Mat, tack or crimp mulch, as needed to stabilize seeded areas until root establishment. Mulch must be applied uniformly over the soil with a cover density of at least 80%.
4. Ground cover shall be maintained until permanent vegetation is established and stable against accelerated erosion.

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rolled erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

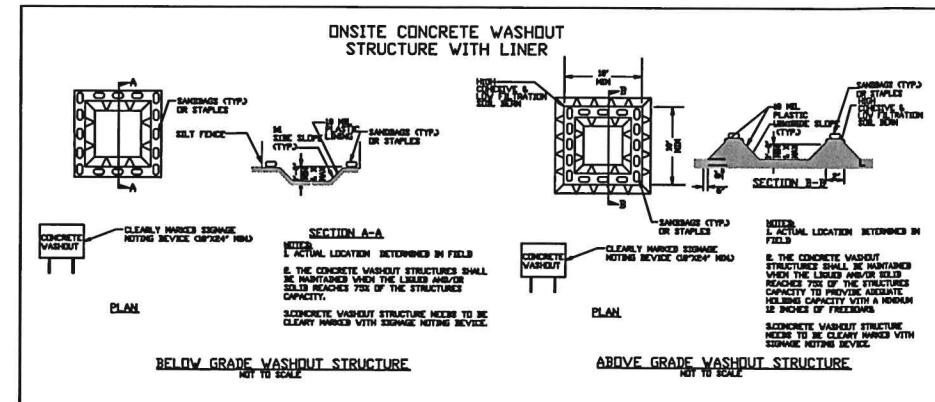
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.



**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDCs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

Item to Document	Documentation Requirements
(a) Each E&SC measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC plan.	Initial and date each E&SC measure on a copy of the approved E&SC plan or complete, date and sign an inspection report that lists each E&SC measure shown on the approved E&SC plan. This documentation is required upon the initial installation of the E&SC measures or if the E&SC measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC plan.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC measures.	Initial and date a copy of the approved E&SC plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- (a) This General Permit as well as the Certificate of Coverage, after it is received.
- (b) Records of inspections made during the previous twelve months. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION C: REPORTING

1. Occurrences that Must be Reported

Permittees shall report the following occurrences:

- (a) Visible sediment deposition in a stream or wetland.
- (b) Oil spills if:
 - They are 25 gallons or more,
 - They are less than 25 gallons but cannot be cleaned up within 24 hours,
 - They cause sheen on surface waters (regardless of volume), or
 - They are within 100 feet of surface waters (regardless of volume).
- (c) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
- (d) Anticipated bypasses and unanticipated bypasses.
- (e) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.

Occurrence	Reporting Timeframes [After Discovery] and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

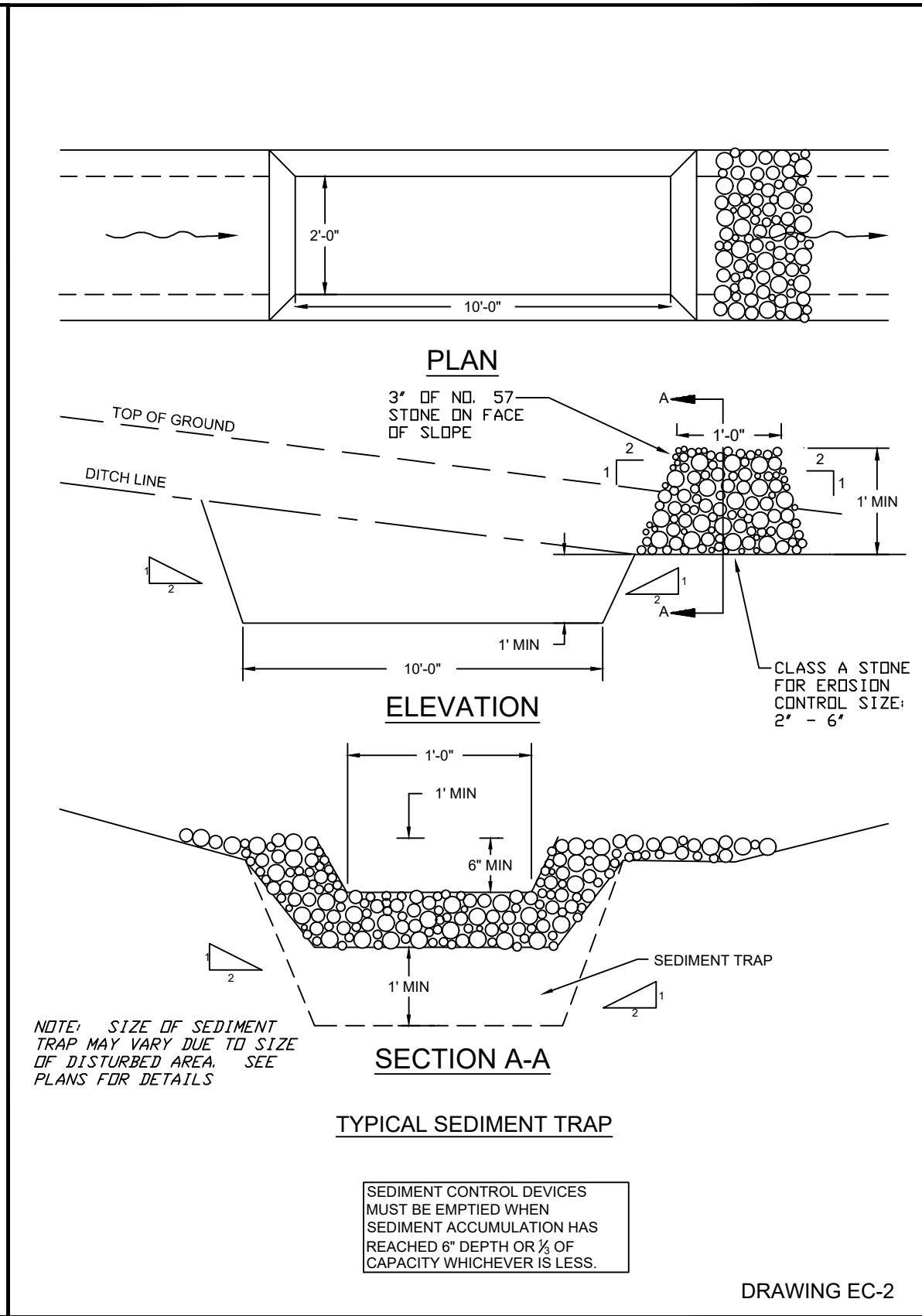
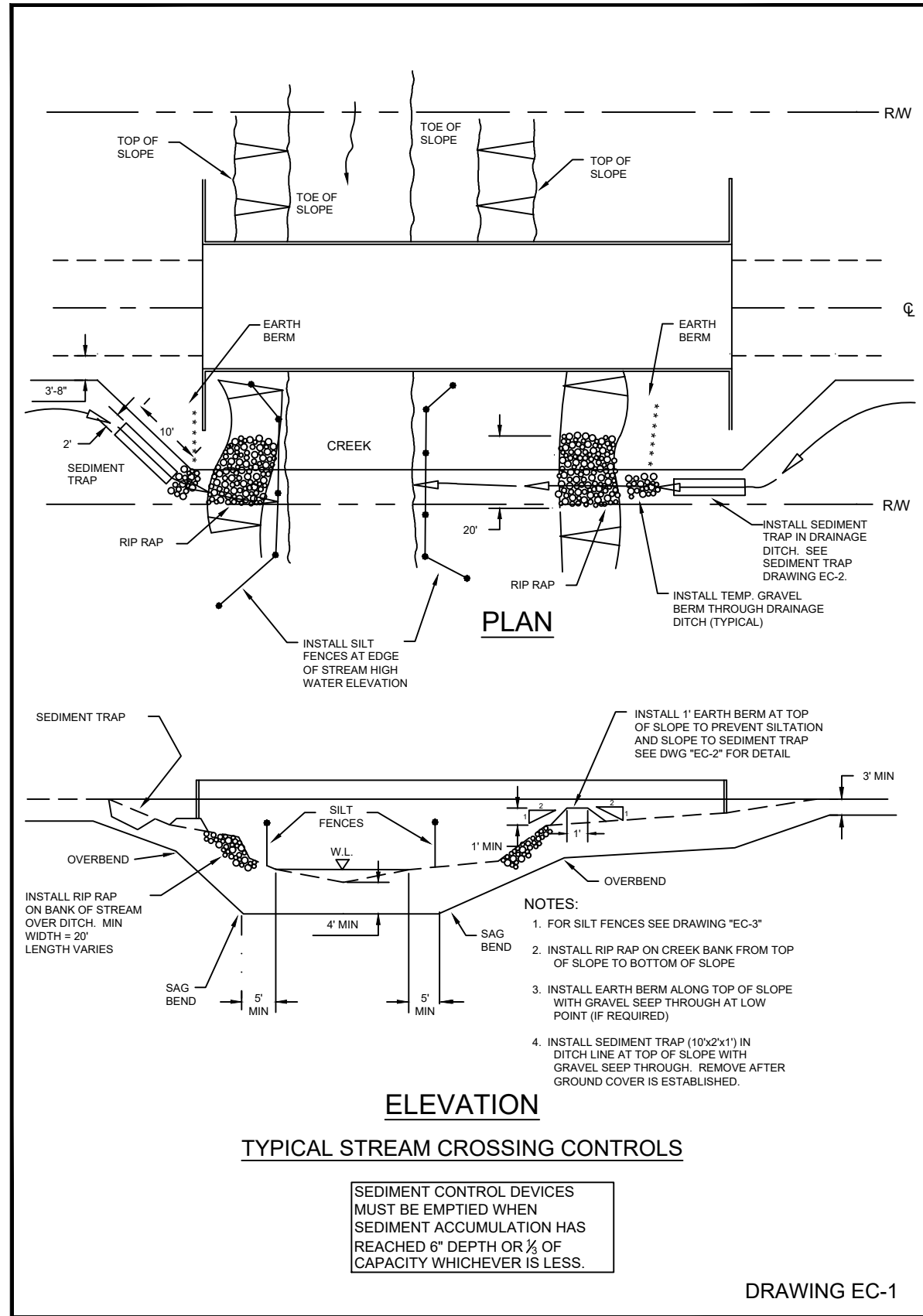
**PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT**

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- (a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
- (b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
- (c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
- (d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
- (e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
- (f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.



EROSION CONTROL NOTES

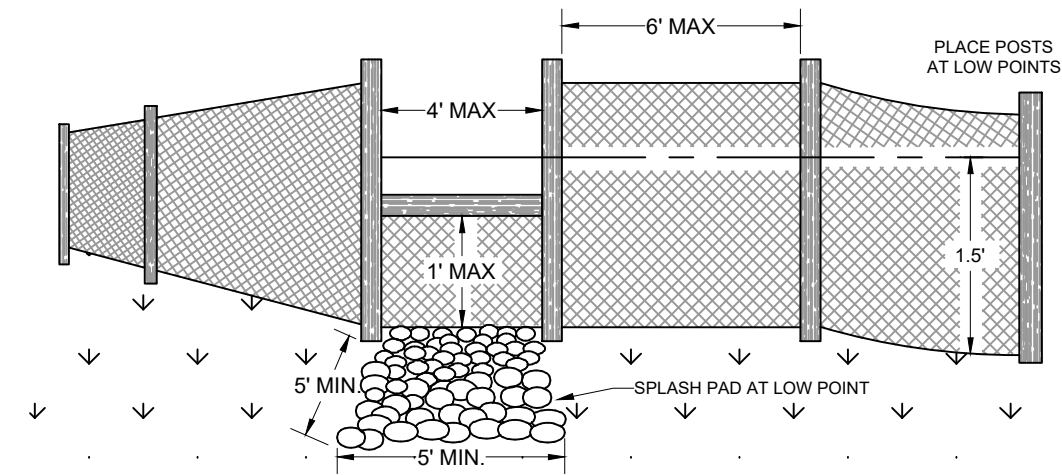
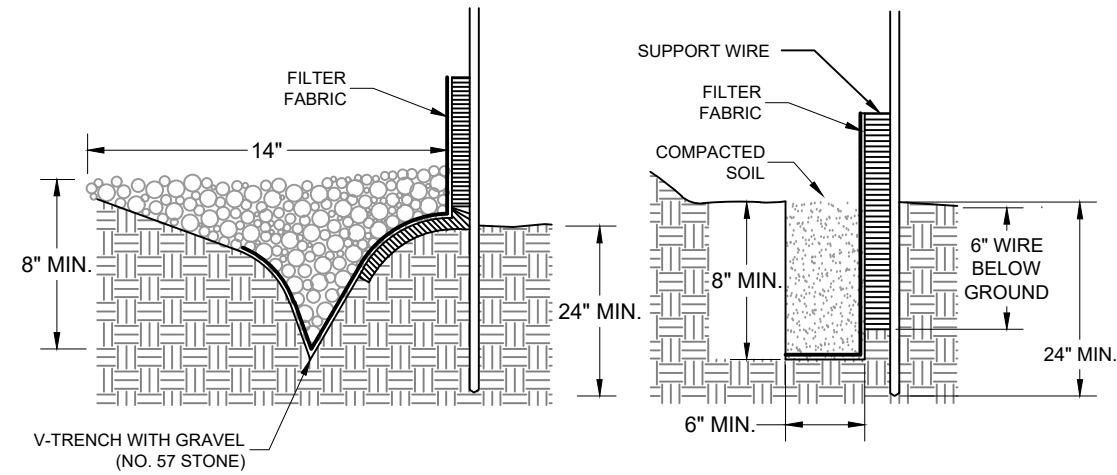


THIS DRAWING IS FOR PREVIEWING THE PROJECT VIA THE INTERNET. OBTAIN SEALED DRAWINGS FOR BIDDING PURPOSES.

EROSION CONTROL NOTES

NOTES:

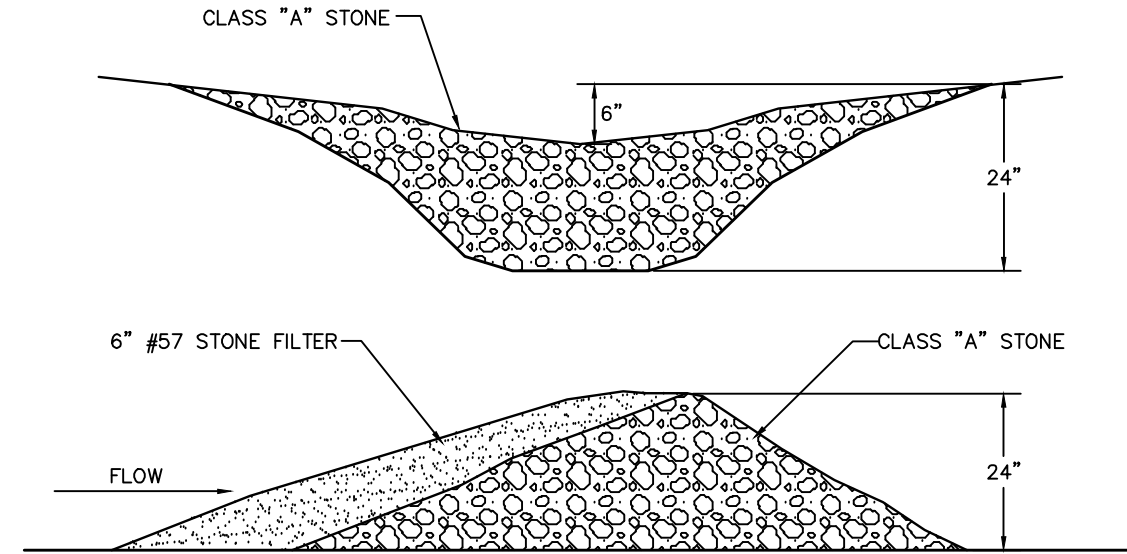
1. **DRAINAGE AREA:** LIMITED TO 1/4 ACRE PER 100' OF FENCE. AREA IS FURTHER RESTRICTED BY SLOPE STEEPNESS.
2. **LOCATION:** FENCE SHOULD BE NEARLY LEVEL AND AT LEAST 10' FROM THE TOE OF SLOPES TO PROVIDE A BROAD, SHALLOW SEDIMENT POOL.
3. **SPACING OF SUPPORT POST:** 6' MAX IF FENCE IS SUPPORTED BY WIRE, 6' MAX FOR EXTRA-STRENGTH FABRIC WITHOUT SUPPORT WIRE BACKING.
4. **TRENCH:** BOTTOM 1' OF FENCE MUST BE BURIED 8 INCHES DEEP MIN.
5. **FENCE HEIGHT:** DEPTH OF IMPOUNDED WATER SHOULD NOT EXCEED 1.5' AT ANY POINT ALONG THE FENCE.
6. **SUPPORT POSTS:** POSTS SHALL BE 4" DIAMETER PINE OR 1.33 lb/in² STEEL. POSTS SHALL BE A MINIMUM OF 5' LONG AND INSTALLED TO A MINIMUM DEPTH OF 24 INCHES WITH NO MORE THAN 3' OF THE POST ABOVE GROUND. STEEL POSTS SHOULD HAVE PROJECTIONS FOR FASTENING FABRICS.
7. **SUPPORT WIRE:** WIRE FENCE (14 GA WITH 6" MESH) IS REQUIRED TO SUPPORT STANDARD STRENGTH FABRIC.
8. **REINFORCED, STABILIZED OUTLETS:** LOCATED TO LIMIT WATER DEPTH TO 1.5' MEASURED AT LOWEST POINT ALONG FENCELINE. OUTLET ALLOWS SAFE STORM FLOW BYPASS. CREST HEIGHT - 1' MAX WIDTH OF SPLASH PAD - 5' MIN LENGTH OF SPLASH PAD - 5' MIN
9. **FENCE FABRIC:** SYNTHETIC FILTER FABRIC CONFORMING TO SPECIFICATIONS AND CONTAINING UV INHIBITORS AND STABILIZERS TO PROVIDE A LIFE OF 6 MONTHS MIN AT TEMPERATURES FROM 0° TO 120°F. (BURLAP MAY BE USED FOR SHORT PERIODS, NOT EXCEEDING 60 DAYS). 12 INCHES OF FABRIC SHOULD BE PLACED WITHIN THE EXCAVATED TRENCH WITH 24 INCHES ABOVE THE GROUND.



TYPICAL SEDIMENT FENCES

SEDIMENT CONTROL DEVICES MUST BE EMPTIED WHEN SEDIMENT ACCUMULATION HAS REACHED 6" DEPTH OR 1/2 OF CAPACITY WHICHEVER IS LESS

DRAWING EC-3

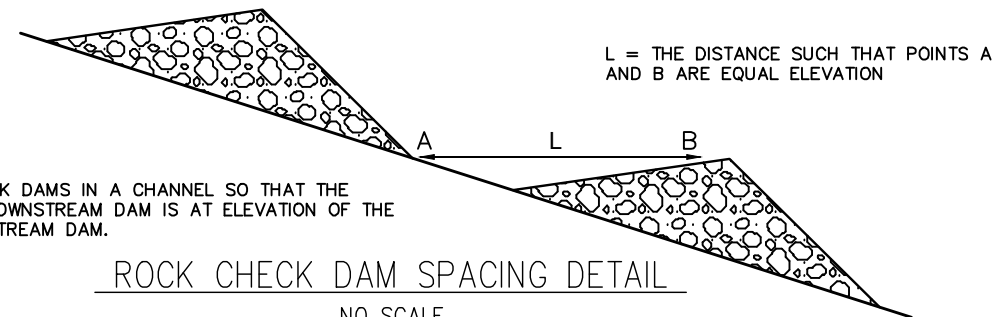


MAINTENANCE

- INSPECT CHECK DAMS AND CHANNELS FOR DAMAGE AFTER EACH RUNOFF EVENT
- ANTICIPATE SUBMERGENCE AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGES IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL A PROTECTIVE RIP-RAP LINER IN THAT PORTION OF THE CHANNEL.
- REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEEDED TO PREVENT DAMAGE TO THE CHANNEL VEGETATION. ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOW FROM THE CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.

ROCK CHECK DAM DETAIL

NO SCALE



NOTE
SPACE CHECK DAMS IN A CHANNEL SO THAT THE CREST OF DOWNSTREAM DAM IS AT ELEVATION OF THE TOE OF UPSTREAM DAM.

ROCK CHECK DAM SPACING DETAIL

NO SCALE

ROCK CHECK DAM FOR SEDIMENT CONTROL IN BAR DITCHES

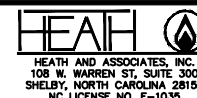
SEDIMENT CONTROL DEVICES MUST BE EMPTIED WHEN SEDIMENT ACCUMULATION HAS REACHED 6" DEPTH OR 1/2 OF CAPACITY WHICHEVER IS LESS.

DRAWING EC-4

THIS DRAWING IS FOR PREVIEWING THE PROJECT VIA THE INTERNET. OBTAIN SEALED DRAWINGS FOR BIDDING PURPOSES.

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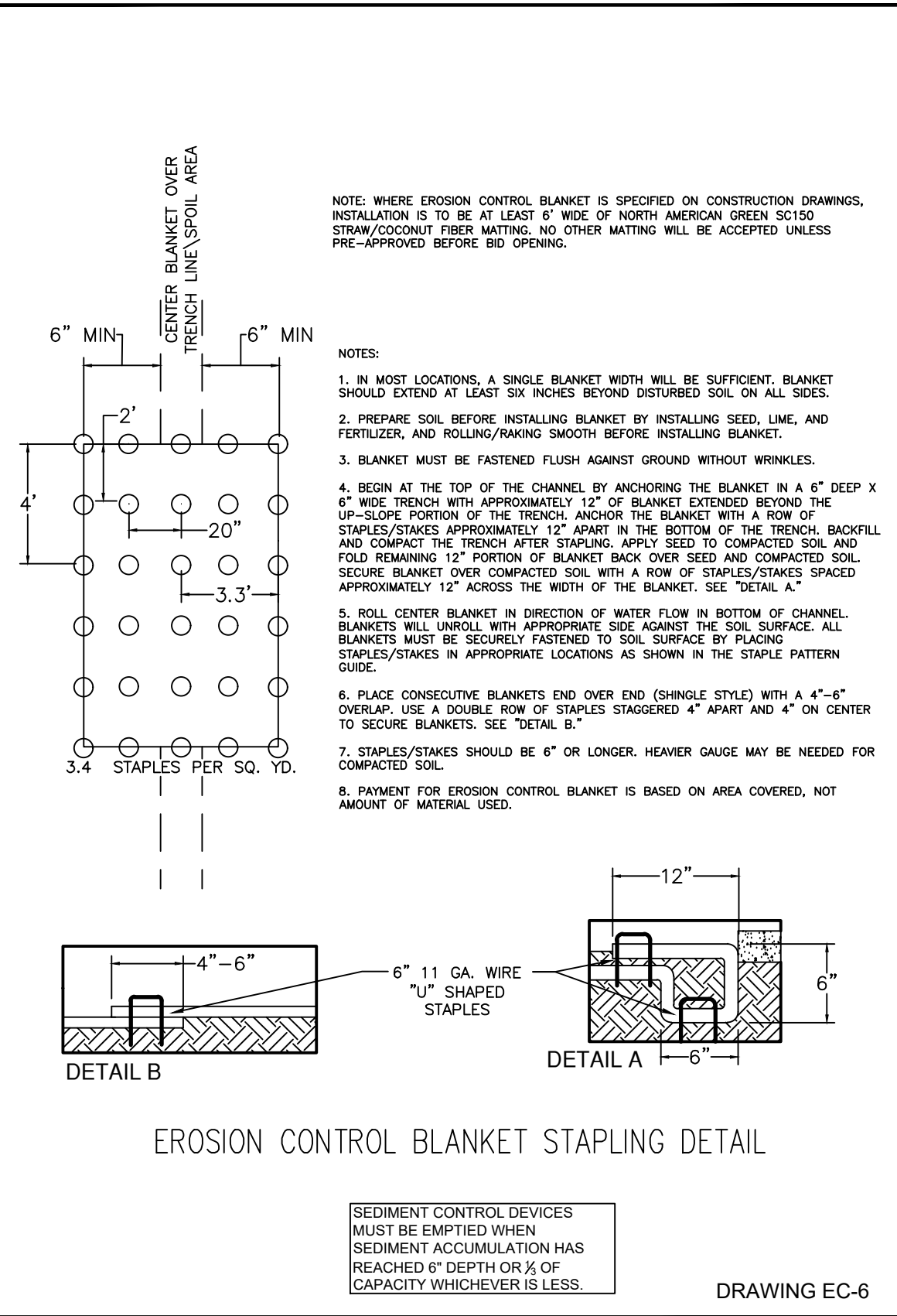
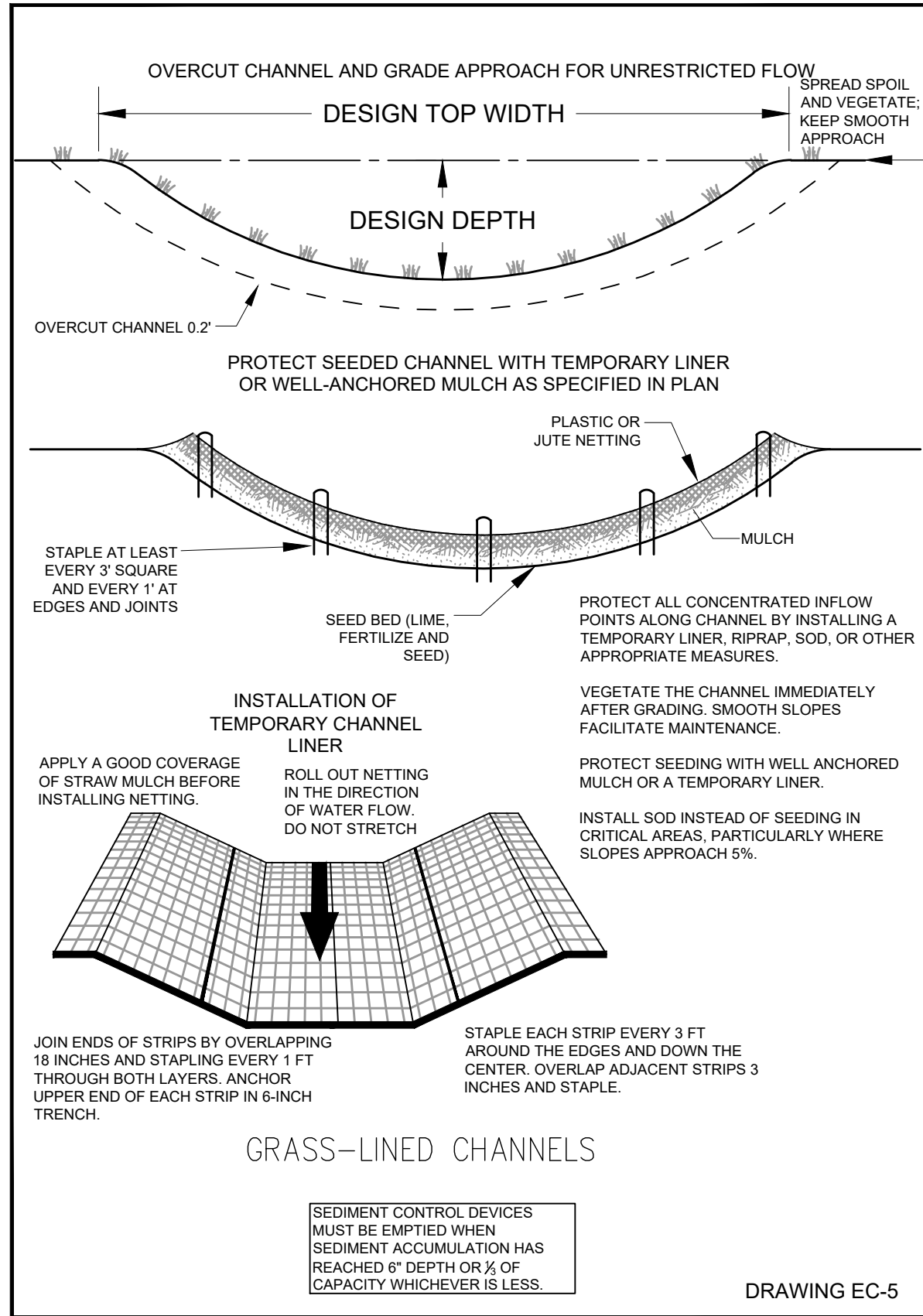


CITY OF WILSON
HWY 58
ENGINEERING

NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET EC NOTES 04

EROSION CONTROL NOTES



THIS DRAWING IS FOR PREVIEWING THE PROJECT VIA THE INTERNET. OBTAIN SEALED DRAWINGS FOR BIDDING PURPOSES.

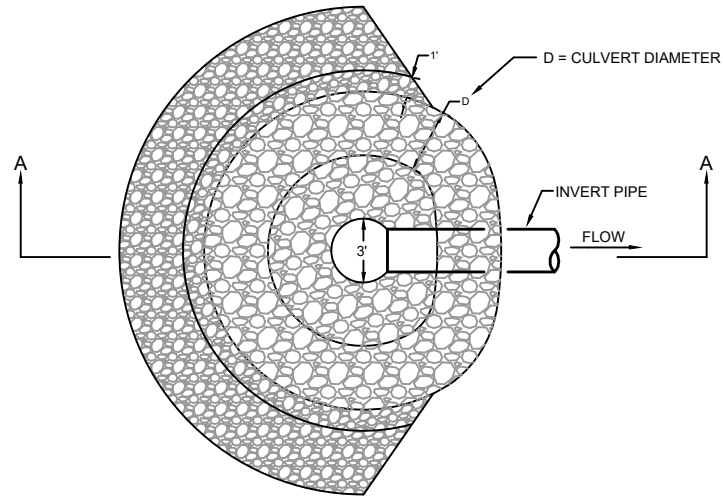
EROSION CONTROL NOTES

NOTE:

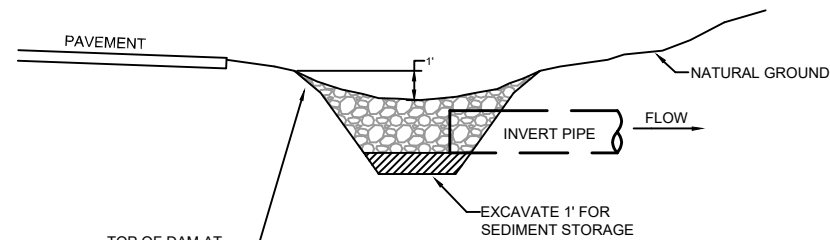
STRUCTURAL STONE SHALL BE PAID AT PRICE PER TON FOR RIP RAP.

SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57 STONE AND SHALL BE PAID FOR AT THE PRICE PER TON FOR GRAVEL.

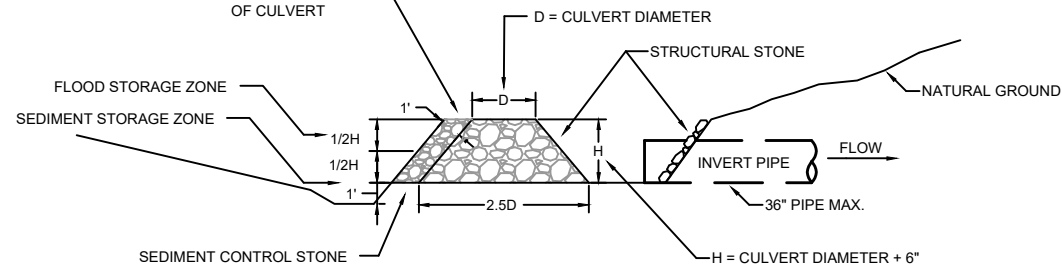
DIMENSIONS ARE MINIMUM ACCEPTABLE UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.



PLAN



SECTION A-A, DITCH DRAIN



SECTION A-A, FIELD DRAIN

CULVERT INLET PROTECTION

SEDIMENT CONTROL DEVICES MUST BE EMPTIED WHEN SEDIMENT ACCUMULATION HAS REACHED 6" DEPTH OR 1/2 OF CAPACITY WHICHEVER IS LESS.

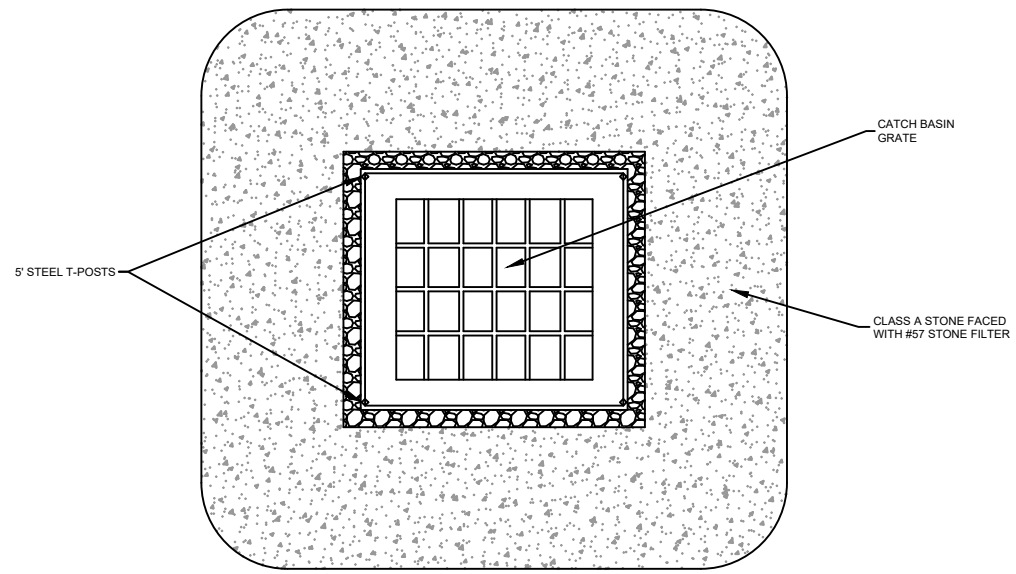
DRAWING EC-7

MAINTENANCE:

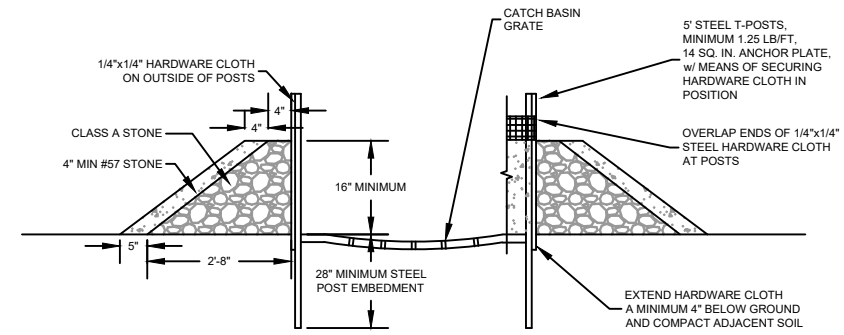
INSPECT ROCK INLET SEDIMENT TRAP FOR DAMAGE WEEKLY AND AFTER EACH RUNOFF EVENT.

ANTICIPATE SUBMERGENCE AND DEPOSITION OUTSIDE THE STONE FILTER AND EROSION FROM LATERAL FLOW IN FRONT OF STONE. CORRECT ALL DAMAGES IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS, INSTALL PROTECTIVE LINER IN ERODED CHANNEL.

REMOVE SEDIMENT ACCUMULATED AROUND THE TRAP AS NEEDED TO PREVENT DAMAGE TO VEGETATION AND WHEN IT EXCEEDS 3" DEPTH. ALLOW DRAINAGE THROUGH THE SEDIMENT TRAP, AND PREVENT LARGE FLOW FROM CARRYING SEDIMENT OVER THE STONE. ADD STONE AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.



PLAN VIEW



ELEVATION CROSS SECTION VIEW

CATCH BASIN PROTECTION

SEDIMENT CONTROL DEVICES MUST BE EMPTIED WHEN SEDIMENT ACCUMULATION HAS REACHED 3" DEPTH OR 1/2 OF CAPACITY WHICHEVER IS LESS.

DRAWING EC-8

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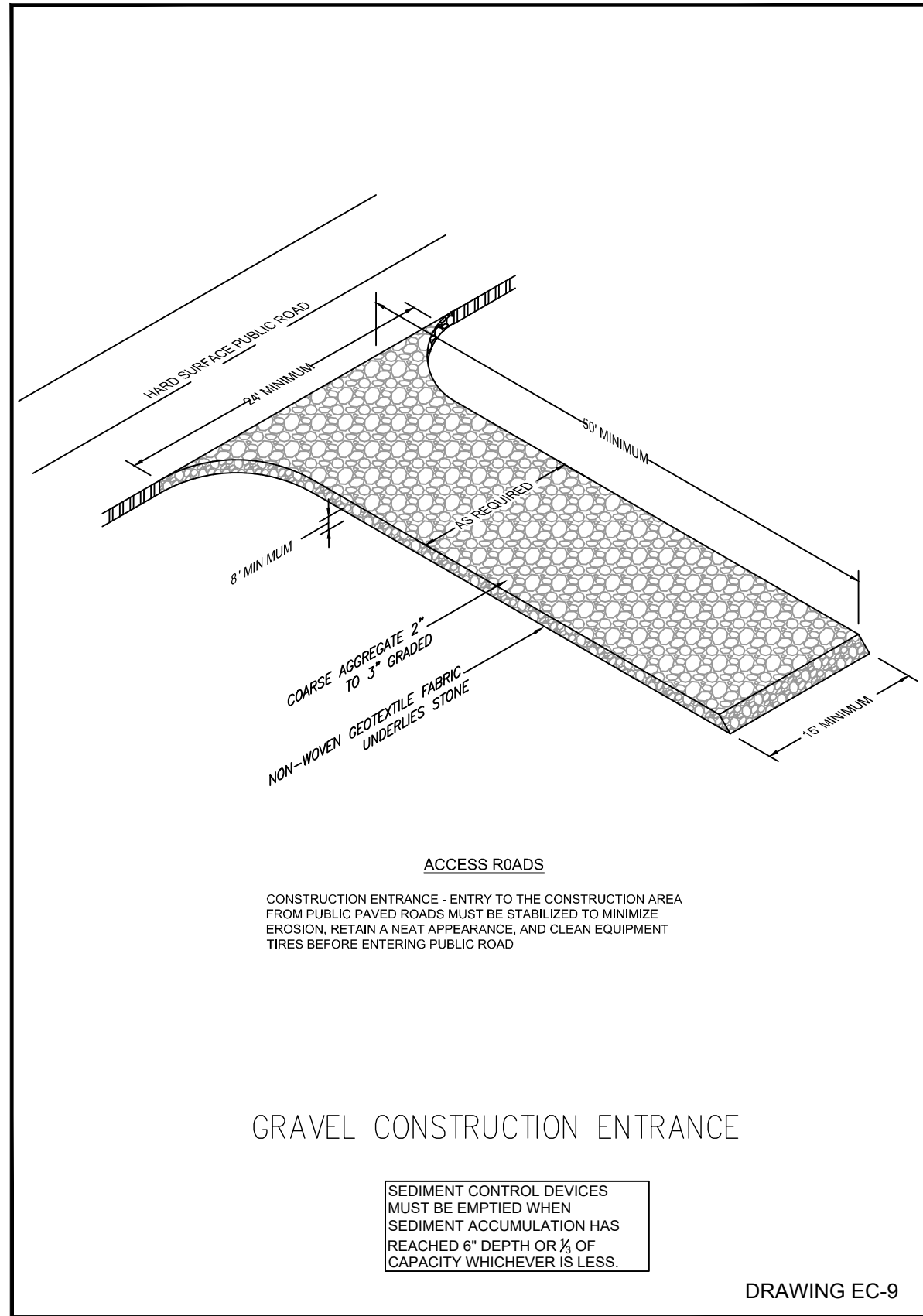


CITY OF WILSON
HWY 58
ENGINEERING

NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET EC NOTES 06

EROSION CONTROL NOTES



WEIGHTED INLET TUBES

WEIGHTED INLET TUBES ARE SEDIMENT TUBES CAPABLE OF STAYING IN PLACE WITHOUT EXTERNAL STABILIZATION MEASURES AND MAY HAVE A WEIGHTED INNER CORE OR OTHER WEIGHTED MECHANISM TO KEEP THEM IN PLACE

MATERIALS		
PROPERTY	TEST METHOD	VALUE
Diameter	Field Measured	6.0 inch to 12.0 inch.
Mass per Unit Length	Field Measured	6 inch = 6lbs/ft minimum. 12 inch = 12lbs/ft minimum.
Fiber Length	Field Measured	80% of the fiber materials at least 4 inches in length.
Length per Tube	Field Measured	6 foot minimum.
Netting Unit Weight	Certified	0.35 oz/ft minimum.

WEIGHTED INLET TUBES WILL BE SUPPLIED BY THE CONTRACTOR

INSTALLATION

- INSTALL WEIGHTED INLET TUBES BY LAYING THEM FLAT ON THE GROUND WITH NO GAPS BETWEEN UNDERLYING SURFACES AND THE BOTTOM OF THE INLET TUBE.
- LAP THE ENDS OF ADJACENT INLET TUBES A MINIMUM OF 6" TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT.
- NEVER STACK SEDIMENT TUBES ON TOP OF ONE ANOTHER.

INSPECTION AND MAINTENANCE

- INSPECT EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH STORM THAT PRODUCES 1/2-INCHES OR MORE OF RAIN. HANDLE ANY DAMAGE OR NEEDED REPAIRS IMMEDIATELY.
- INSPECT AFTER INSTALLATION FOR GAPS THAT MAY PERMIT SEDIMENT TO ENTER THE STORM DRAINAGE SYSTEM.
- REMOVE SEDIMENT WHEN IT REACHES APPROXIMATELY 1/3 THE HEIGHT OF THE INLET FILTER.
- REMOVE, MOVE, AND/OR REPLACE AS REQUIRED TO ADAPT TO CHANGING CONSTRUCTION SITE CONDITIONS.
- REMOVE INLET TUBES FROM THE SITE WHEN THE FUNCTIONAL LONGEVITY IS EXCEEDED AS DETERMINED BY THE ENGINEER, INSPECTOR OR MANUFACTURER'S REPRESENTATIVE.
- DISPOSE OF INLET TUBES NO LONGER IN USE AT AN APPROPRIATE RECYCLING OR SOLID WASTE FACILITY.
- REMOVE ALL CONSTRUCTION MATERIAL AND SEDIMENT AND DISPOSE OF THEM PROPERLY.

PLAN VIEW
CATCH BASIN APPLICATION

PLAN VIEW
DROP INLET APPLICATION

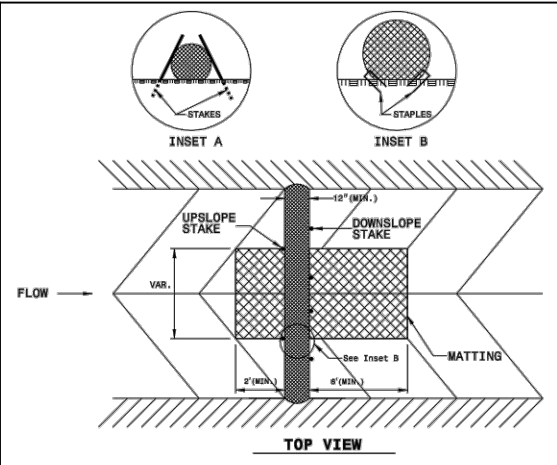
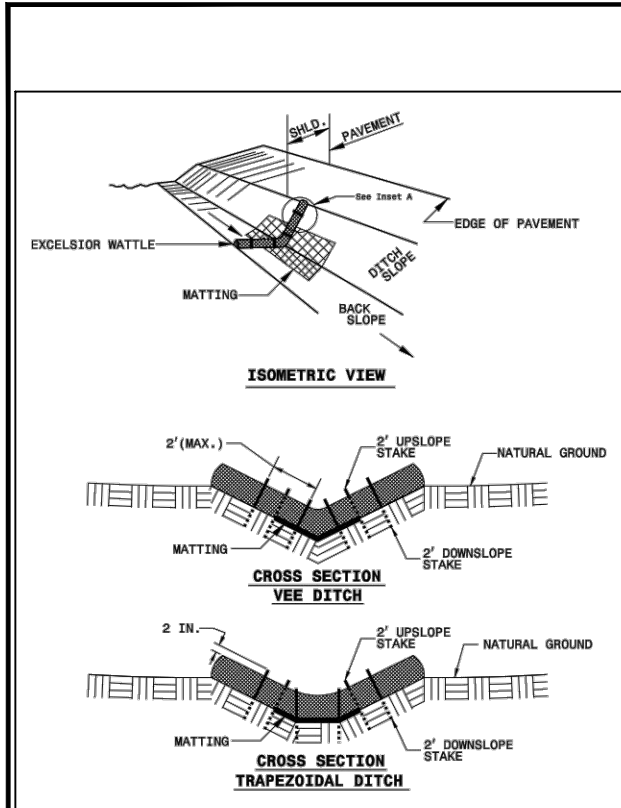
DROP INLET / CATCH BASIN PROTECTION IN PAVED AREAS

SEDIMENT CONTROL DEVICES MUST BE EMPTIED WHEN SEDIMENT ACCUMULATION HAS REACHED 3" DEPTH OR 1/2 OF CAPACITY WHICHEVER IS LESS.

DRAWING EC-10

THIS DRAWING IS FOR PREVIEWING THE PROJECT VIA THE INTERNET. OBTAIN SEALED DRAWINGS FOR BIDDING PURPOSES.

EROSION CONTROL NOTES



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

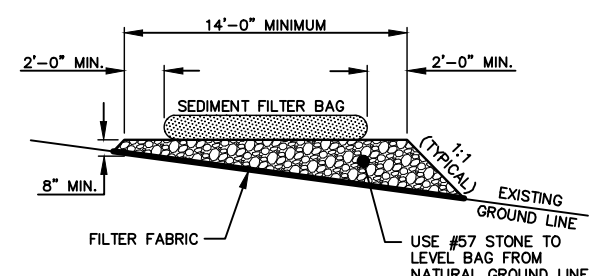
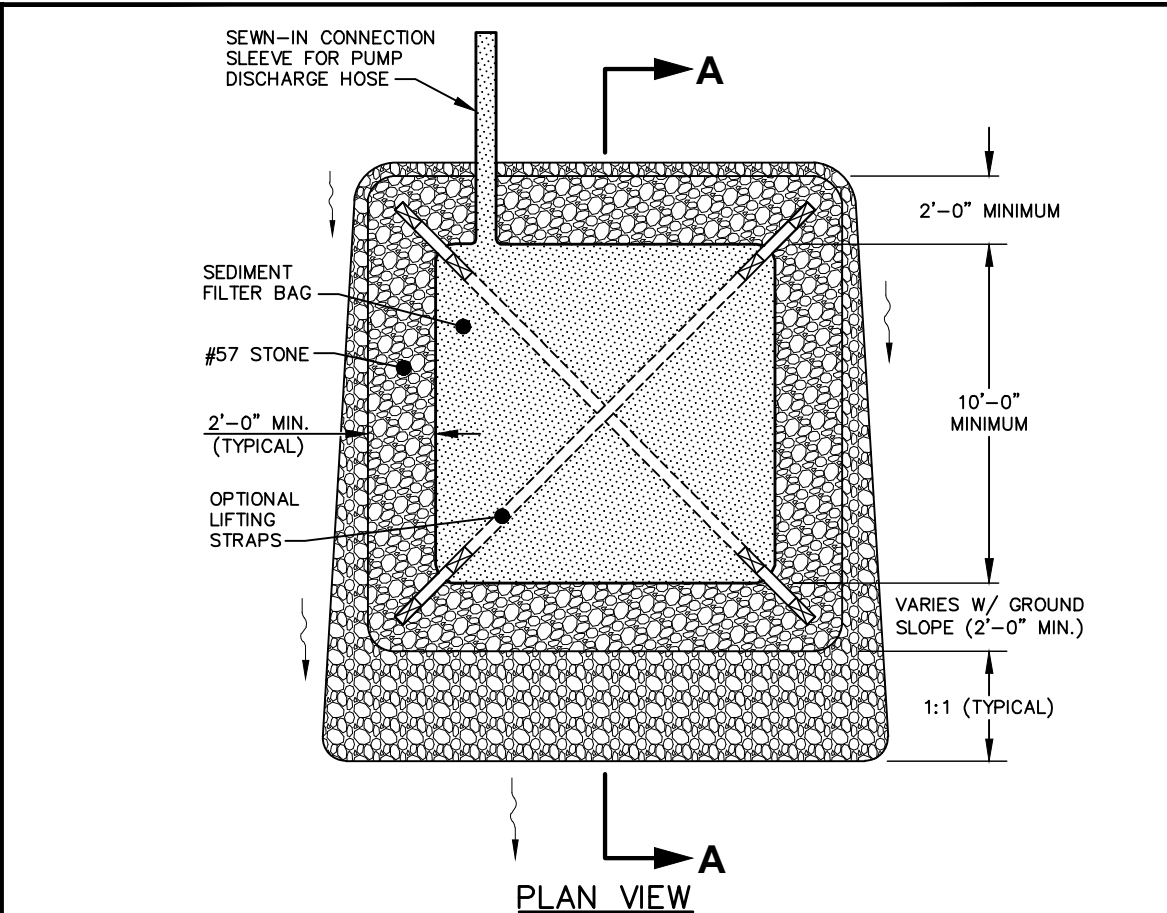
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING PER DWG EC-6.

EXCELSIOR WATTLE

SEDIMENT CONTROL DEVICES MUST BE EMPTIED WHEN SEDIMENT ACCUMULATION HAS REACHED 6" DEPTH OR 1/2 OF CAPACITY WHICHEVER IS LESS.

DRAWING EC-11



ADAPTED FROM TOWN OF CARY, NC
DETAIL #4000.27

- SEDIMENT FILTER BAG GENERAL NOTES:**
1. CONTRACTOR SHALL EXERCISE CAUTION NOT TO BURST OR DAMAGE THE SEDIMENT FILTER BAG WHEN PUMPING. THE SILT BAG WILL BE CONSTANTLY MONITORED DURING OPERATION.
 2. THE LENGTH AND WIDTH OF THE TEMPORARY SEDIMENT BAG SHOWN ON THIS DRAWING MAY VARY PER VENDOR SPECIFICATIONS. THE MINIMUM "FOOTPRINT" OF THE BAG SHALL BE 10 x 15 FEET.
 3. SEDIMENT FILTER BAGS SHALL BE EQUIPPED WITH A SEWN-IN SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MINIMUM 4 INCH DIAMETER PUMP DISCHARGE HOSE. THE DISCHARGE HOSE SHOULD BE EXTENDED INTO THIS SLEEVE A MINIMUM OF 6 INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE. HOSE CONNECTION THROUGH A SLIT IN THE BAG WILL NOT BE ACCEPTABLE.
 4. THE PUMP DISCHARGE HOSE CONNECTION SLEEVE SHALL BE SECURELY TIED OFF DURING DISPOSAL OF THE SEDIMENT FILTER BAG IN ORDER TO PREVENT LEAKAGE OF COLLECTED SEDIMENTS.
 5. SEDIMENT FILTER BAG SHALL BE MAINTAINED AND REPLACED WHEN ONE HALF FULL OF SEDIMENT OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

SEDIMENT FILTER BAG WITH GRAVEL PAD

DRAWING EC-12

THIS DRAWING IS FOR
PREVIEWING THE PROJECT
VIA THE INTERNET. OBTAIN
SEALED DRAWINGS FOR
BIDDING PURPOSES.

INSTALL SEDIMENT FILTER BAG AND GRAVEL PAD PER DWG EC-12, IF NECESSARY
INSTALL ROCK CHECK DAMS PER DWG EC-4

INSTALL EC BLANKET PER DWGS EC-5 & EC-6

GENERAL NOTE:
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Owner	Road Name	ROW
State	NC-58	Varies
State	SR-1542 (Grimsley Store Rd)	60'

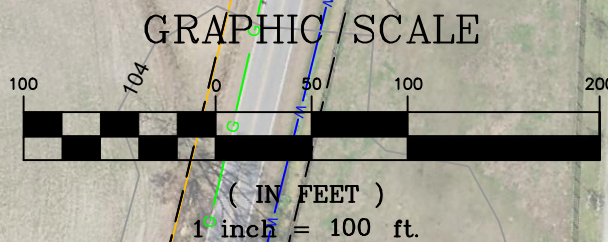
- THE CITY OF WILSON CREW WILL INSTALL 4" STL PIPE AND REGULATOR STATION. THEY WILL TRANSITION FROM 4" STL TO 4" PE ON THE OUTLET SIDE OF REGULATOR STATION AND CAP THE 4" PE. (STA. 0+00 TO APPROX. STA. 6+15)
 - THE CITY OF WILSON CREW WILL INSTALL GRAVEL AND FENCING FOR REGULATOR STATION
 - THE CONTRACTOR SHALL CUT AND REMOVE THE 4" PE CAP AND BEGIN CONSTRUCTION AT APPROX. STA. 6+15.
 - RAIN GAUGE AND RECORDS BOX SHALL BE PLACED AT OUTLET SIDE OF REGULATOR STATION.
- SEE SHEET RS1 FOR FURTHER DETAIL.

CITY OF WILSON CREW'S PORTION OF PROJECT
CONTRACTOR'S PORTION OF PROJECT

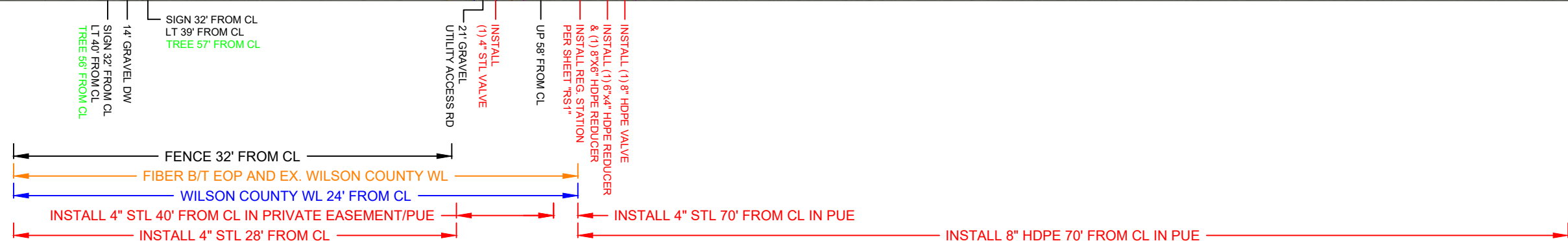
NC-58 ROW IS 30' FROM CL

NOTE: USE EXISTING UTILITY ACCESS GRAVEL ROAD TO ACCESS CONSTRUCTION AREA.

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GRIMSLEY STORE RD
INSTALL 4" STL BY OPEN CUT 32'. MAINTAIN ACCESS DURING INSTALLATION.
THE INTO 8" STL WITH (1) 4" MUELLER FLANGED TEE (H-17505-99000) AND 4" STL ELBS AS REQUIRED. EX. 8" STL IS APPROX. 8' DEEP. SEE "TIE-IN" DETAIL 01" ON SHEET "GAS SPEC 05".



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CITY OF WILSON
HWY 58
ENGINEERING

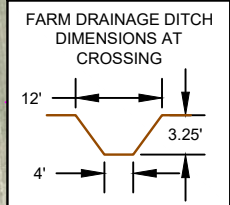
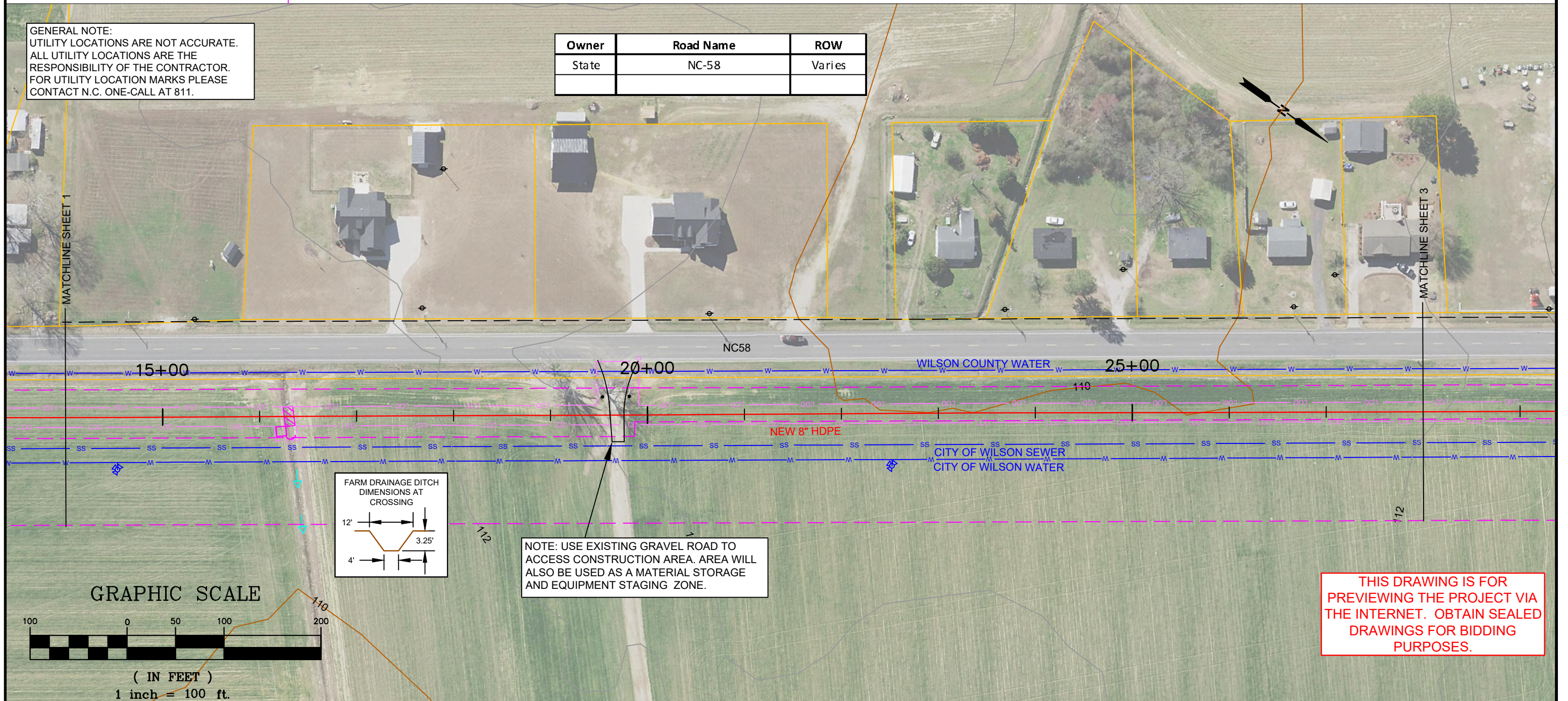
NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

DRAWN	SCALE
CMD	SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET 01 of 05

INSTALL SEDIMENT FILTER BAG AND GRAVEL PAD PER DWG EC-12, IF NECESSARY
 INSTALL EC BLANKET PER DWGS EC-5 & EC-6
 INSTALL ROCK CHECK DAMS PER DWG EC-4

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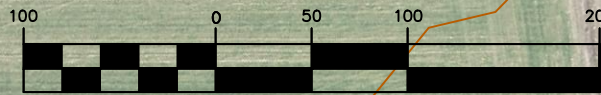
Owner	Road Name	ROW
State	NC-58	Varies



NOTE: USE EXISTING GRAVEL ROAD TO ACCESS CONSTRUCTION AREA. AREA WILL ALSO BE USED AS A MATERIAL STORAGE AND EQUIPMENT STAGING ZONE.

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GRAPHIC SCALE



(IN FEET)
 1 inch = 100 ft.

FARM DRAINAGE DITCH

FENCE POST 50' FROM CL
 10' GRAVEL DW
 FENCE POST 50' FROM CL

INSTALL 8" HDPE 70' FROM CL IN PUE

REVISIONS:

4/14/2022 10:22:23 AM



CITY OF WILSON
 HWY 58
 ENGINEERING

NATURAL GAS SYSTEM IMPROVEMENTS
 CITY OF WILSON NATURAL GAS DIVISION
 WILSON, NC

DRAWN	SCALE
CMD	SEE GRAPHIC
DATE DRAWN	PROJECT NO.
10/26/2021	22110
DRAWING NAME	SHEET
	02 of 05

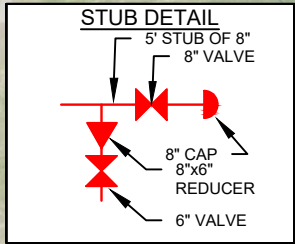
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Owner	Road Name	ROW
State	NC-58	Varies
State	SR-1622 (Evansdale Rd)	60'

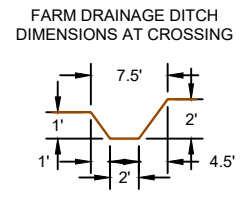


MATCHLINE SHEET 2

MATCHLINE SHEET 4

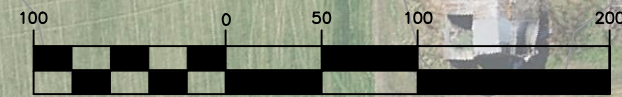
NOTE: USE EXISTING GRAVEL ROAD TO ACCESS CONSTRUCTION AREA.

BUILDINGS HAVE BEEN REMOVED FROM PROPERTY



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GRAPHIC SCALE



(IN FEET)
1 inch = 100 ft.

- 16" CONC DW BORE (22)
- TREE 88' FROM CL
- 16" CONC DW BORE (22)
- TREE 88' FROM CL
- TREE 88' FROM CL

FARM DRAINAGE DITCH

INSTALL (1) 8" HDPE TEE, (1) 8" HDPE STUB W/ (1) 8" PE VALVE & (1) 8" PE CAP, (1) 8"x6" HDPE REDUCER AND (1) 6" HDPE VALVE.

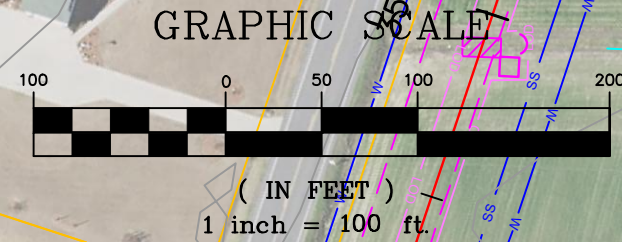
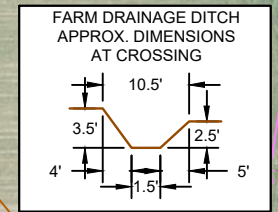
INSTALL 8" HDPE 70' FROM CL IN PUE

INSTALL SEDIMENT FILTER BAG AND GRAVEL PAD PER DWG EC-12, IF NECESSARY
 INSTALL EC BLANKET PER DWGS EC-5 & EC-6
 INSTALL ROCK CHECK DAMS PER DWG EC-4

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Owner	Road Name	ROW
State	NC-58	Varies

NOTE: USE EXISTING GRAVEL ROAD TO ACCESS CONSTRUCTION AREA.



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INSTALL (1) 8" HDPE TEE, (1) 8" HDPE STUB W/ (1) 8" PE VALVE & (1) 8" PE CAP, (1) 8"x6" HDPE REDUCER AND (1) 6" HDPE VALVE

INSTALL 6" HDPE 5' SOUTHEAST OF ROW

REVISIONS:
 4/14/2022 10:22:26 AM

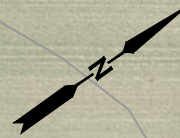


CITY OF WILSON
 HWY 58
 ENGINEERING

NATURAL GAS SYSTEM IMPROVEMENTS
 CITY OF WILSON NATURAL GAS DIVISION
 WILSON, NC

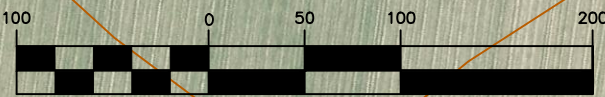
DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET 04 of 05

GENERAL NOTE:
 UTILITY LOCATIONS ARE NOT ACCURATE.
 ALL UTILITY LOCATIONS ARE THE
 RESPONSIBILITY OF THE CONTRACTOR.
 FOR UTILITY LOCATION MARKS PLEASE
 CONTACT N.C. ONE-CALL AT 811.



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GRAPHIC SCALE



(IN FEET)
 1 inch = 100 ft.

INSTALL (1) 6" HDPE CAP

INSTALL 6" HDPE 5' SOUTHEAST OF ROW

REVISIONS:

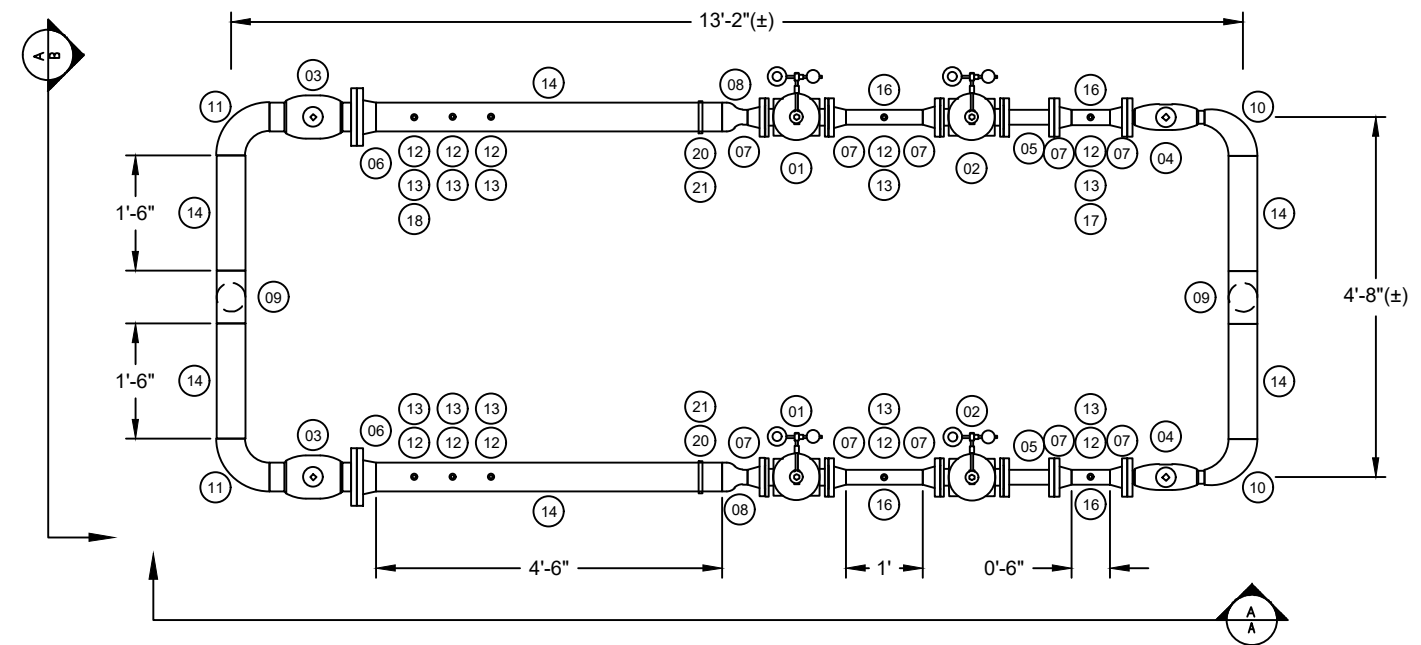
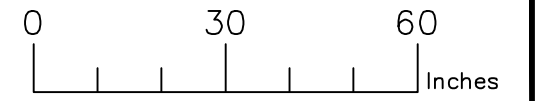
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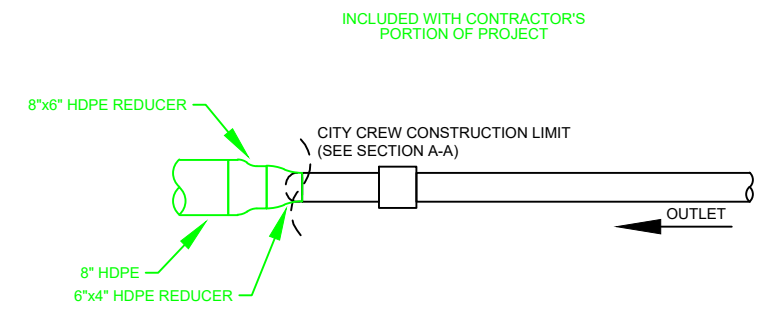
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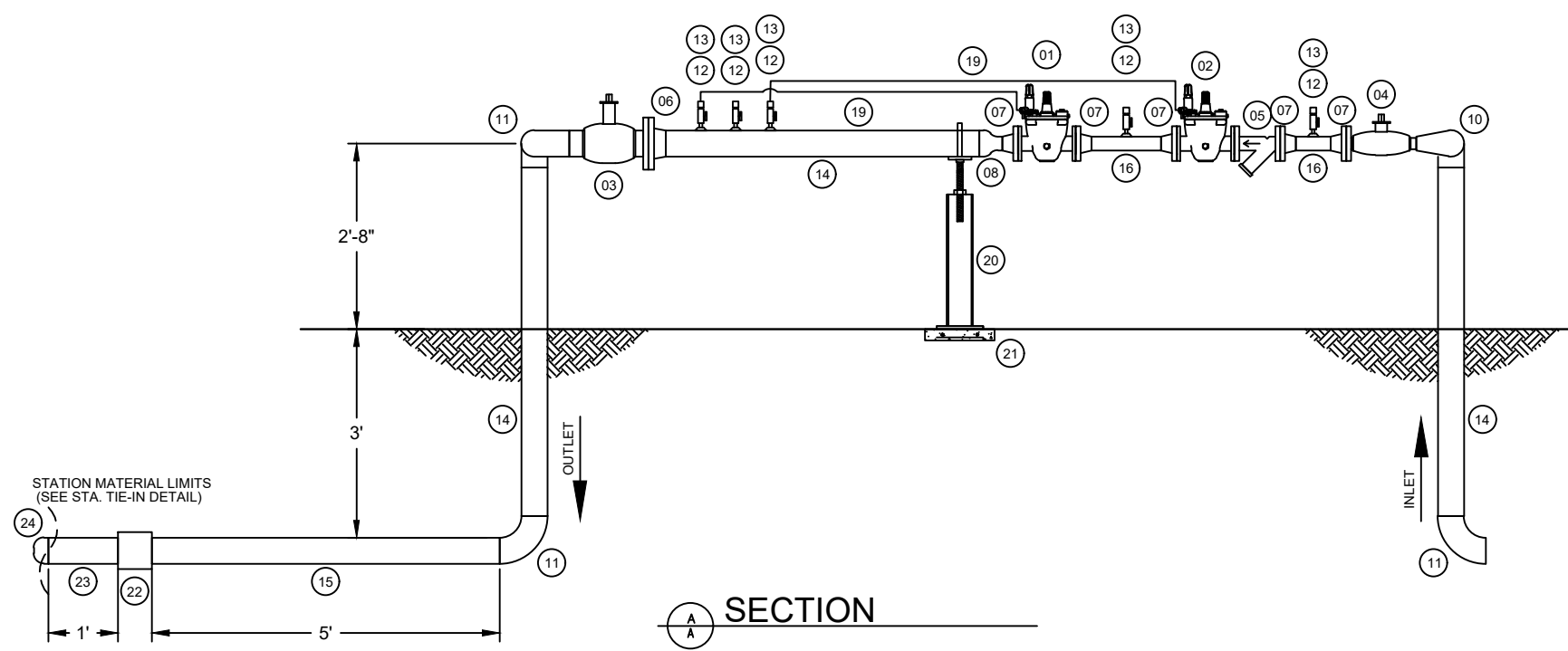
DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET 05 of 05



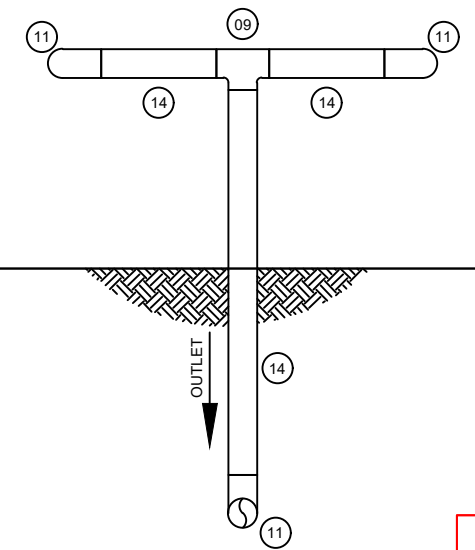
PLAN



STA. TIE-IN DETAIL



SECTION



SECTION

THIS DRAWING IS FOR PREVIEWING THE PROJECT VIA THE INTERNET. OBTAIN SEALED DRAWINGS FOR BIDDING PURPOSES.

REVISIONS: 02/08/2022: REMOVED PORTS ON INLET AND OUTLET HEADERS. ADDED PORTS ON NEW PIPE BETWEEN STRAINER AND 2" INLET VALVE PER CITY OF WILSON'S REQUEST.

4/14/2022 10:22:31 AM



CITY OF WILSON
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NATURAL GAS SYSTEM IMPROVEMENTS
CITY OF WILSON NATURAL GAS DIVISION
WILSON, NC

DRAWN CMD	SCALE SEE GRAPHIC
DATE DRAWN 10/26/2021	PROJECT NO. 22110
DRAWING NAME	SHEET RS1

HWY 58 STATION			
HOURLY LOAD	=	150,000	CFH
INLET MAOP	=	175	PSIG = 189.7 PSIA
DOWNSTREAM MAOP	=	100	PSIG = 114.7 PSIA
		114.7 > (189.7 * 0.5)	NON-CRITICAL PRESSURE DROP USE LONG FORMULA
INLET NORMAL OP	=	150	PSIG = 164.7 PSIA
SET PRESSURE	=	75	PSIG = 89.7 PSIA
		89.7 > (164.7 * 0.5)	NON-CRITICAL PRESSURE DROP USE LONG FORMULA

2" FISHER EZR REGULATOR - 100% CAPACITY WITH INLET STRAINER
(NOTE: FLOW CALCULATED AT 80% OF CAPACITY DUE TO MONITOR SETUP)

C _g	=	1800	(REGULATING)
C _g	=	1850	(WIDE OPEN)
C ₁	=	35.7	
G	=	0.6	
T (Fahrenheit)	=	60	
T (Rankine)	=	519.67	

AT INLET MAOP & DOWNSTREAM MAOP:

$$Q = \sqrt{\frac{520}{GT}} C_g P_1 \sin\left(\frac{3417}{C_1} \sqrt{\frac{\Delta P}{P_1}}\right) DEG * 0.8$$

Q(regulating)	=	306,069	CFH	ADEQUATE FLOW
Q(wide open)	=	314,571	CFH	ADEQUATE FLOW

AT INLET NORMAL OP & SET PRESSURE:

$$Q = \sqrt{\frac{520}{GT}} C_g P_1 \sin\left(\frac{3417}{C_1} \sqrt{\frac{\Delta P}{P_1}}\right) DEG * 0.8$$

Q(regulating)	=	276,648	CFH	ADEQUATE FLOW
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ITEM	QUANTITY	DESCRIPTION
01	2	2" FISHER TYPE EZR STEEL BODY REGULATOR, CLASS 150 RF, 100% CAPACITY TRIM w/ INLET STRAINER, LOW TEMPERATURE 17E68 NITRILE DIAPHRAGM, PART NO. 18B2126X012 GREEN MAIN VALVE SPRING, TYPE 112 RESTRICTOR, PRE-PIPED PILOT SUPPLY w/ TYPE 252 STANDARD LENGTH STAINLESS STEEL PILOT SUPPLY FILTER. PILOT TYPE 161EB w/ 70 to 140 PSIG SPRING 17B1261X012 (GREEN).
02	2	2" FISHER TYPE EZR STEEL BODY REGULATOR, CLASS 150 RF, 100% CAPACITY TRIM w/ INLET STRAINER, LOW TEMPERATURE 17E68 NITRILE DIAPHRAGM, PART NO. 18B2126X012 GREEN MAIN VALVE SPRING, TYPE 112 RESTRICTOR, PRE-PIPED PILOT SUPPLY w/ TYPE 252 STANDARD LENGTH STAINLESS STEEL PILOT SUPPLY FILTER. PILOT TYPE 161EBM w/ 70 to 140 PSIG SPRING 17B1261X012 (GREEN).
03	2	4" KEROTEST FULL PORT WXF BALL VALVE, ANSI CLASS 150, 4/WB-285/WF (ALL VALVES TO HAVE LOCKING DEVICE)
04	2	2" KEROTEST FULL PORT WXF BALL VALVE, ANSI CLASS 150, 2/WB-285/WF (ALL VALVES TO HAVE LOCKING DEVICE)
05	2	2" CLASS 150 "Y" (WYE) STRAINER, RF FXF, TITAN FLOW CONTROL MODEL YS-61-CS
06	2	4" CLASS 150 WELDNECK RF FLANGE WITH BOLTS, NUTS, AND GASKETS
07	10	2" CLASS 150 WELDNECK RF FLANGE WITH BOLTS, NUTS, AND GASKETS
08	2	4" X 2" REDUCER, STANDARD WEIGHT STEEL
09	2	4" TEE, STANDARD WEIGHT STEEL
10	2	4" X 2" REDUCING 90° ELL, STANDARD WEIGHT STEEL
11	4	4" 90° ELL, STANDARD WEIGHT STEEL
12	10	1/2" THREDOLET (3000#), 1/2" EXTRA HEAVY NIPPLE
13	10	BALON BALL VALVE, 1/2" X 3/8" X 1/2", 3000 PSIG, REDUCED PORT, SCREWED ENDS, STAINLESS STEEL, MODEL NO. LS-05591. PROVIDE PLUG, IF NECESSARY.
14	25	4" STANDARD WALL PIPE, API 5L-X52 BARE (FEET)
15	5	4" (0.188") WALL PIPE, API 5L-X52 W/ 16-18 MILS FBE (FEET)
16	3	2" STANDARD WALL PIPE, API 5L-X52 BARE (FEET)
17	1	ASHCROFT PRESSURE GAUGE (0-300 PSIG), STAINLESS STEEL CASE, 316L STAINLESS TUBE AND SOCKET, 2-1/2" FACE, 1/2" NPT BOTTOM CONNECTION, GLYCERIN FILLED. (ORDER CODE: 251009SWL04LXGV 300#)
18	1	ASHCROFT PRESSURE GAUGE (0-100 PSIG), STAINLESS STEEL CASE, 316L STAINLESS TUBE AND SOCKET, 2-1/2" FACE, 1/2" NPT BOTTOM CONNECTION, GLYCERIN FILLED. (ORDER CODE: 251009SWL04LXGV 100#)
19	34	STAINLESS STEEL TUBING CONTROL LINES (FEET)
20	2	4" PIPE SUPPORT, CITY OF WILSON TO PROVIDE.
21	2	12"X12"X2" REINFORCED CONCRETE BLOCKS
22	1	4" STL/PE TRANSITION FITTING
23	1	4" HDPE PIPE (FEET)
24	1	4" HDPE CAP

PRESSURE TEST ENTIRE STATION TO 275 PSIG FOR 8 HOURS
W/ NITROGEN WITHOUT REGULATORS.

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PURPOSES.

REVISIONS: 02/08/2022: UPDATED QUANTITIES FOR ITEMS 07, 12, 13 AND 16 PER CITY OF WILSON'S REQUEST.

4/14/2022 10:22:31 AM



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DRAWN	CMD	SCALE	SEE GRAPHIC
DATE DRAWN	10/26/2021	PROJECT NO.	22110
DRAWING NAME		SHEET	RS2