

## INDEX TO SHEETS

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Know what's below.  
Call before you dig.

## LEGEND

EXISTING CONTOURS	
PROPOSED CONTOURS	
CENTERLINE	
PROPERTY LINE	
EXISTING SANITARY SEWER & MANHOLE	
PROPOSED SANITARY SEWER & MANHOLE	
EXISTING WATER MAIN	
FIRE HYDRANT	
WATER VALVE	
PROPOSED WATER MAIN	
EXISTING GAS MAIN	
SUMP DRAIN LINE	
EXISTING STORM PIPE & CATCH BASIN	
STORM CATCH BASIN	
STORM MANHOLE	
PROPOSED STORM PIPE	
EXISTING TELEPHONE	
EXISTING CABLE	
DIRECTION OF DRAINAGE	
PROPOSED SWALE	
LOT SWALE	

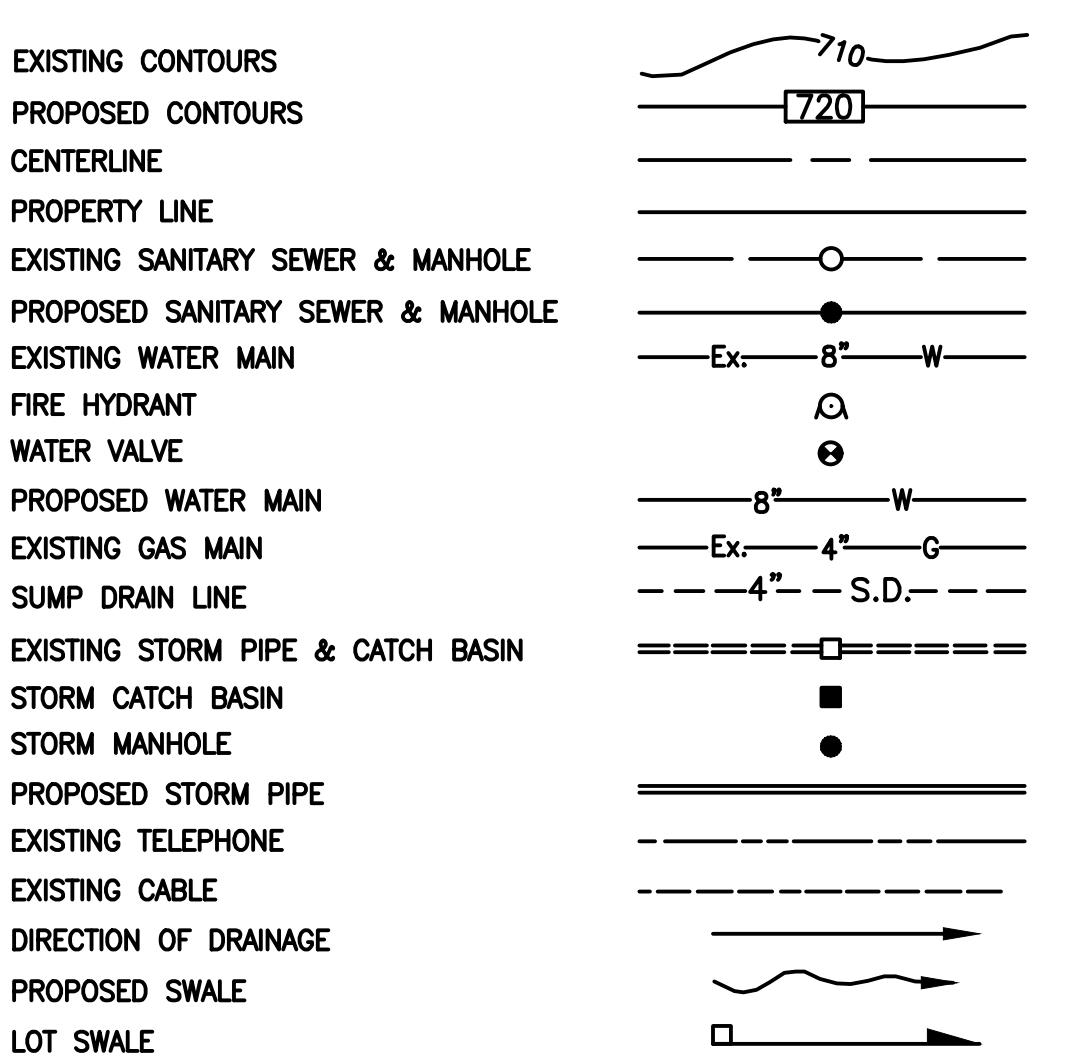
# HUGHES RETREAT

## SECTION 26, TOWN 3, RANGE 3

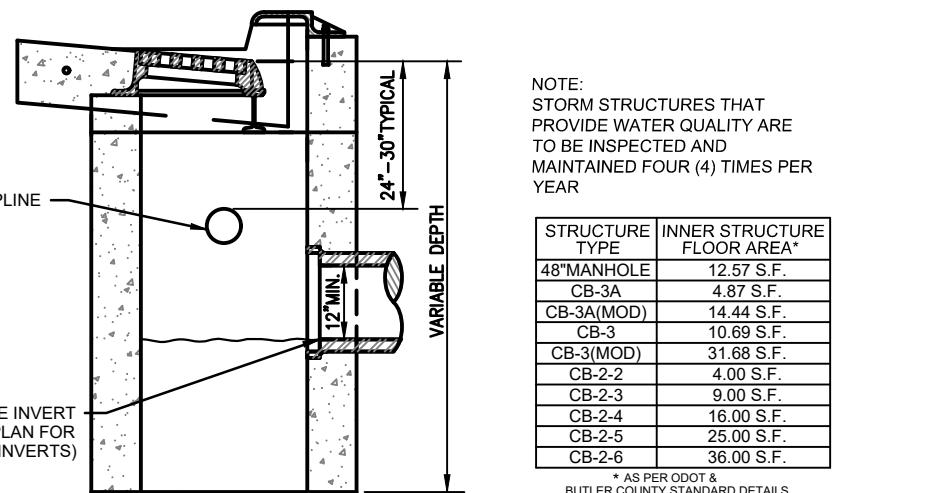
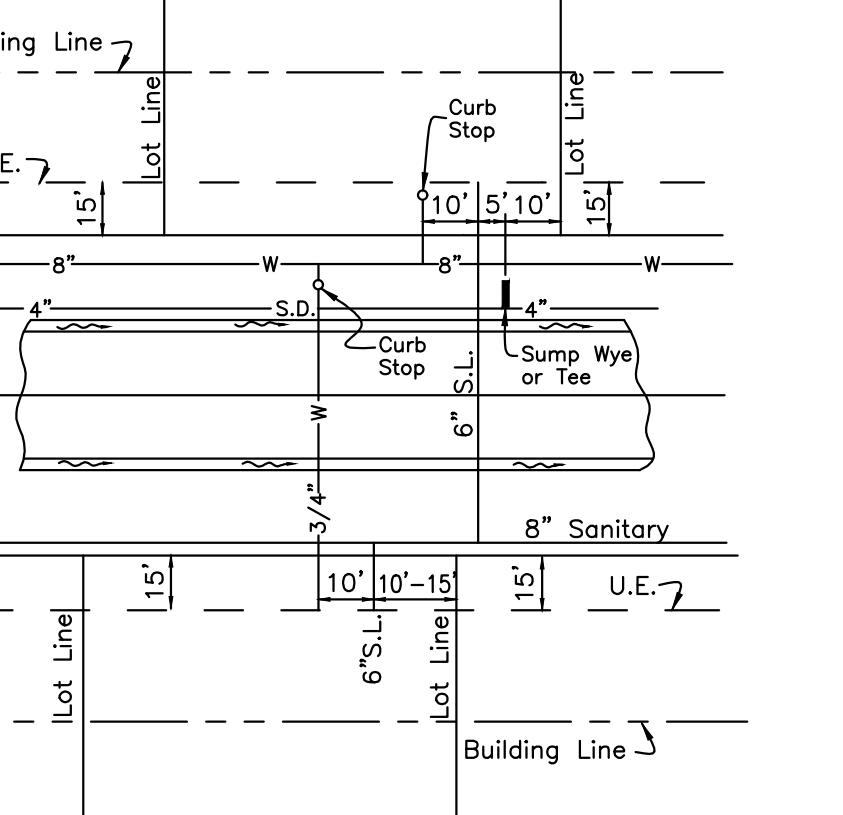
### LIBERTY TOWNSHIP, BUTLER COUNTY, OHIO

#### OCTOBER, 2021

✓ APPROVED  
EJP 10/22/2021



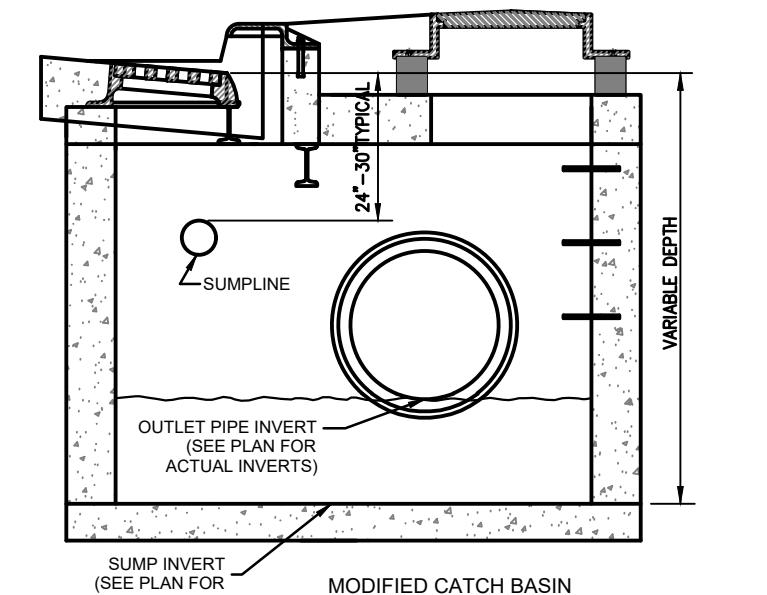
## STANDARD SERVICE DETAIL



NOTE:  
STORM STRUCTURES THAT  
PROVIDE WATER DRAULIC ARE  
TO BE INSPECTED AND  
MAINTAINED FOUR (4) TIMES PER  
YEAR

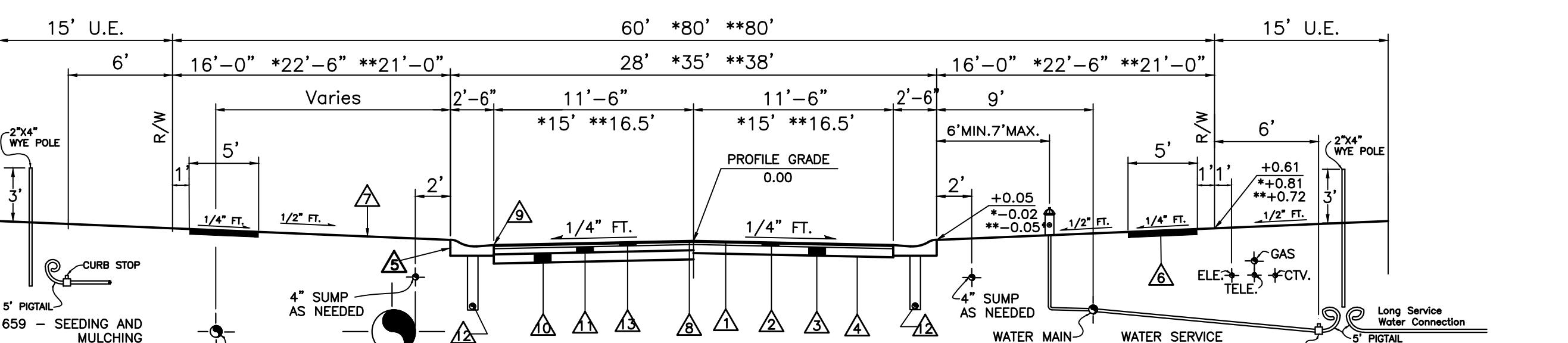
STRUCTURE INNER STRUCTURE  
28" MANHOLE 12.57 S.F.  
CB-3A 4.87 S.F.  
CB-3B (1) 10.69 S.F.  
CB-3(MOD) 31.88 S.F.  
CB-2 4.52 S.F.  
CB-2-3 9.00 S.F.  
CB-2-4 16.00 S.F.  
CB-2-5 25.00 S.F.  
CB-2-6 36.00 S.F.

\* AS PER DOT-4  
BUTLER COUNTY STANDARD DETAILS



## STORM WATER QUALITY STRUCTURE DETAILS

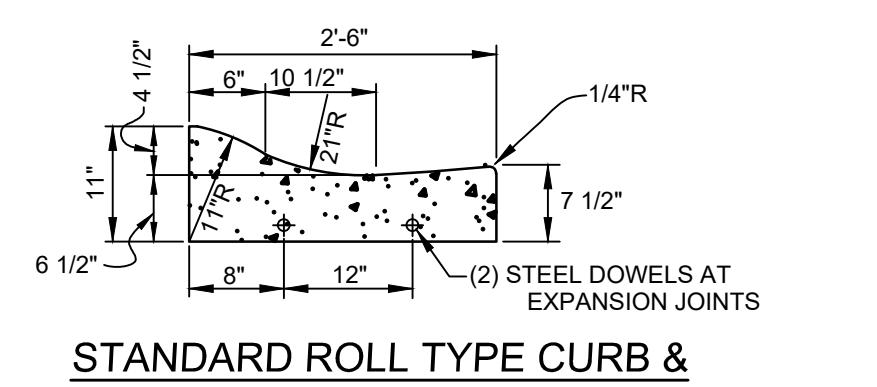
(Not to Scale)



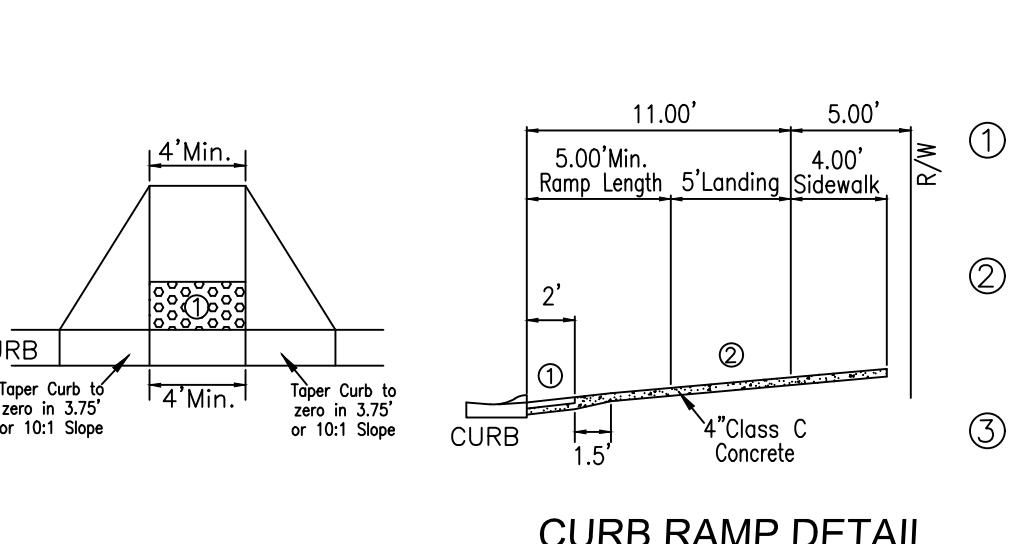
ITEM	DEPTH TOP OF PIPE
Underdrain	12'
Surfines	24" - 30"
Gas	24" - 30"
Electric	36" - 40"
Telephone	36" - 40"
Cable TV	36" - 40"

\* SURFACE COURSE (ITEM 448) AND TACK COAT (ITEM 407) ARE TO BE APPLIED NO SOONER THAN 12 MONTHS AFTER THE LEVELING COURSE (ITEM 446), AND FIFTY (50) PERCENT OF THE HOMES ARE COMPLETED. IF AFTER TWO (2) YEARS FIFTY (50) PERCENT OF THE HOMES HAVE NOT BEEN COMPLETED, THEN THE TOP COURSE MAY BE APPLIED.

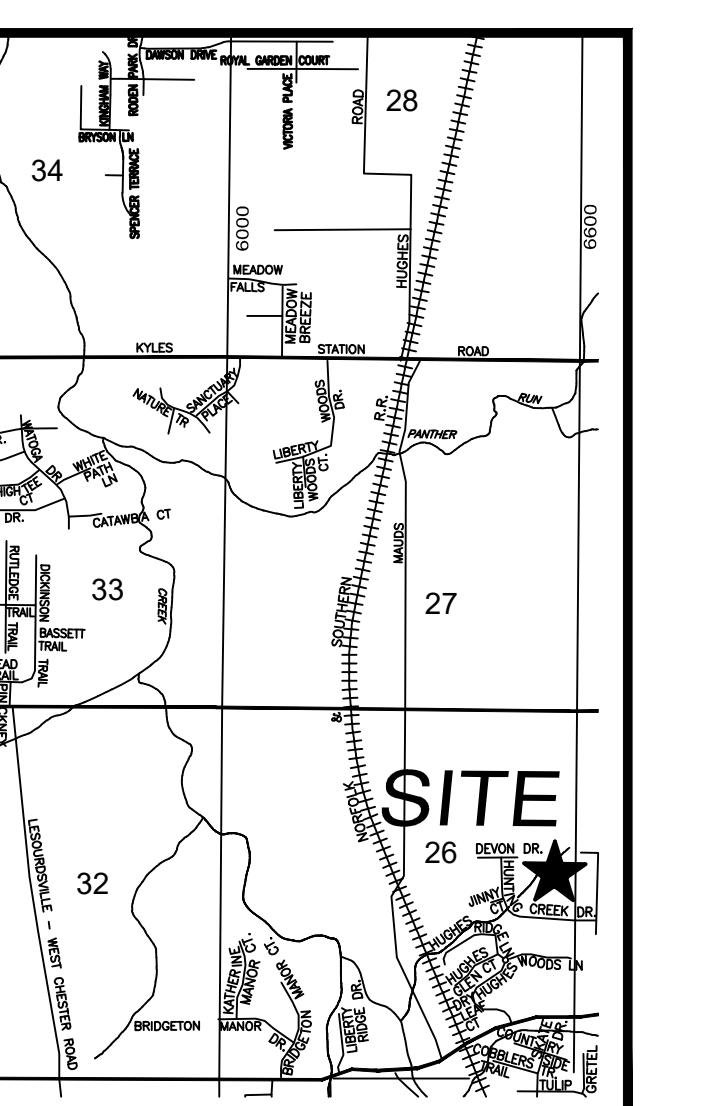
## TYPICAL SECTION



## STANDARD ROLL TYPE CURB & GUTTER C-1



## CURB RAMP DETAIL



## VICINITY MAP

## OWNER/DEVELOPER

Hickory Woods Development Company, LLC.  
11025 Reed Hartman Highway  
Cincinnati, OH 45242  
(513) 745-9019

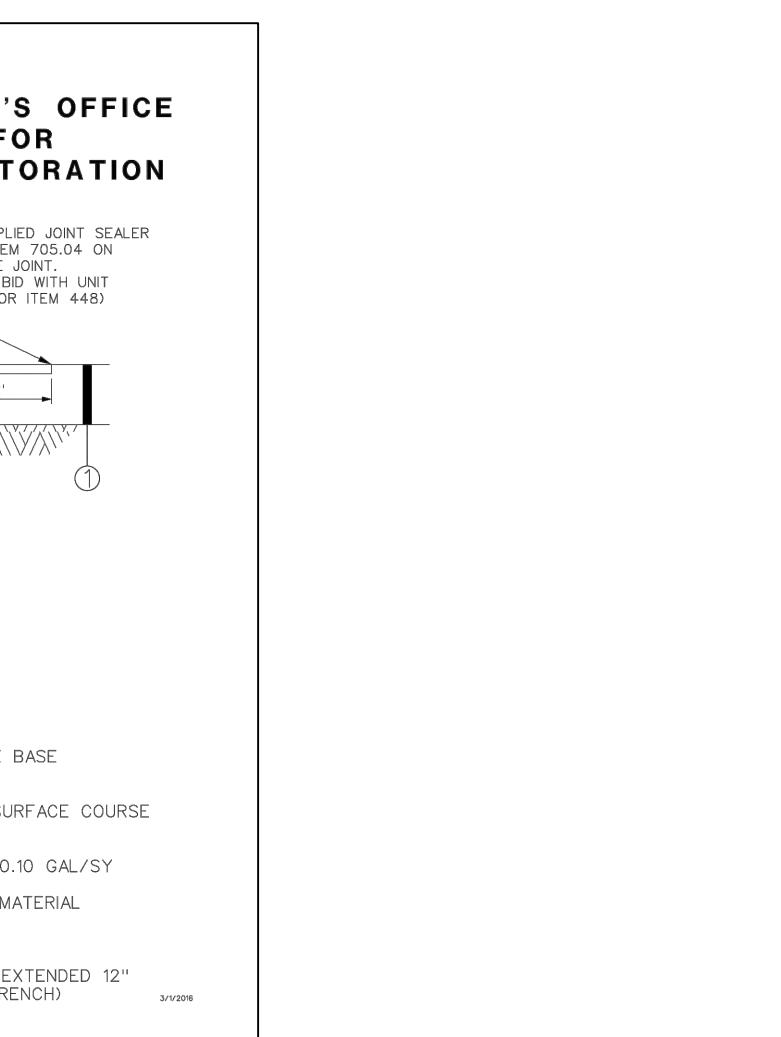
## BENCHMARK

Top Nut of Fire Hydrant  
@ Castle Hill & Bexhill Drive  
Elevation = 806.18

JOB LOG	
DATE	COMMENT
7-27-21	Submitted to Butler County Planning
8-24-21	Resubmitted to BCWS & BCSWCD
10-19-21	Resubmitted to BCEO

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS	
C-1	
Std.MH-1A	
Std.HW-D	
CB-3A	
CB-3A(Mod.)	
Std.R-1	

CONSTRUCTION APPROVAL	
Date	8-16-21
Butler Co. Water & Sewer Dept.	
Butler Co. Engineer's Office	
Army Corps of Engineers	
DEPA NPDES NOI #FC08305*AG	8-25-21
These plans are not for construction until ALL approval dates have been filled in.	



## SEQUENCE OF CONSTRUCTION

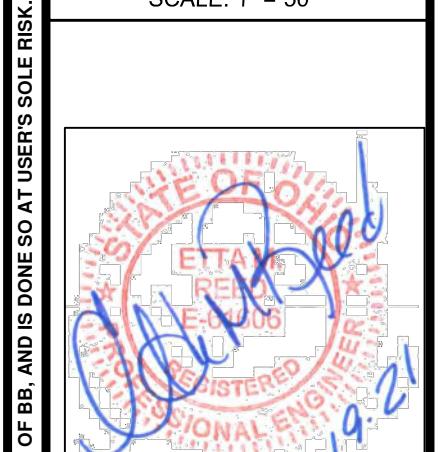
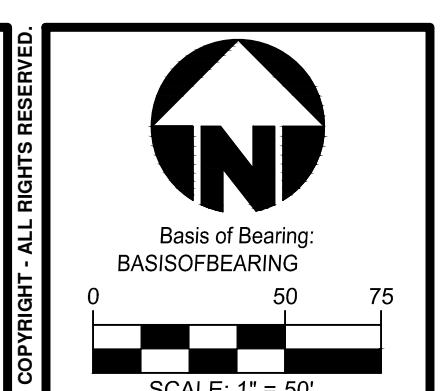
THE FOLLOWING SEQUENCE OF CONSTRUCTION WILL BE SIMULTANEOUSLY FOLLOWED FOR ALL AREAS ELIMINATING ONLY THOSE STEPS THAT DO NOT PERTAIN TO THAT PARTICULAR AREA:

- STEP 1: INSTALL EROSION AND SEDIMENT CONTROL MEASURES
- STEP 2: PERFORM CLEARING OPERATION, STRIP AND STOCKPILE TOPSOIL.
- STEP 3: ROUGH GRADE SITE, STABILIZE EROSION PRONE AREAS. ALL SLOPES 3 TO 1 AND GREATER SHALL BE IMMEDIATELY STABILIZED WITH SEED AND MULCH OR AN EQUAL.
- STEP 4: INSTALL UTILITIES, CONSTRUCT TEMPORARY SILT TRAPS WHERE SHOWN.
- STEP 5: INSTALL BASE COURSE IN ROADWAYS FOLLOWING THE INSTALLATION OF IMPROVEMENTS.
- STEP 6: FINE GRADE AND SEED; REMOVE EROSION CONTROL METHODS UPON COMPLETION OF ALL IMPROVEMENTS.

## GENERAL NOTES

- Item numbers refer to the Ohio Department of Transportation construction and material specifications, and all construction work shall be done according to said specifications of Butler County requirements and standards for subdivisions. When in conflict, the County requirements shall prevail.
- Items that pertain to underground utilities such as watermain pipe, sanitary sewer pipe, water valves and manhole frames and covers, etc., will remain under specifications of the utility serving the area. Storm sewers shall be designed and constructed in accordance with the requirements of the Butler County Engineer.
- All trenches within the right-of-way and 10' utility easement shall be compacted and backfilled in accordance with item 203 and 611 in the state specifications.
- Surface course (item 448) and tack coat (item 407) are to be applied no sooner than nine (9) months after the leveling course, (item 448), and fifty (50) percent of the homes are completed. If after two (2) years fifty (50) percent of the homes have not been completed, then the top course may be applied.
- A minimum 10' utility easement shall be shown on the record plat parallel and immediately adjacent to the right-of-way line allowing for installation, operation and maintenance of sewers, water, electric and telephone conduits and any other public or quasi public utility.
- Developer shall be responsible for the installation of conduits for the full width of the public right-of-way at a depth of 36" for use by the electric, telephone and cable services. The location of the lines shall be coordinated with utility companies by the developer.
- All electrical transformers shall be located so that they do not interfere with the existing manholes or water main appurtenances.
- Sump line conduits are to be SDR 35, Armaco 2000, or equivalent.
- WATER MAIN
  - A. Water main materials, valves, fire hydrants, fittings and appurtenances and installation to be as per Butler County specifications, using class 53 Ductile Iron as per AWWA C-151 with minimum 4' cover.
  - B. All water main valves to have a minimum depth of 2.5' and a maximum depth of 4' from proposed grade to the top of the valve operating nut.
  - C. Minimum 10' horizontal, 18" vertical separation between water main and sanitary and/or storm sewer.
  - D. If meter pits cannot be initially installed at the location shown on the typical section, a curb stop can be set up at this location.
- SANITARY SEWER
  - A. Sanitary sewer materials and installation to be as per Butler County specifications, using Section 3110 for PVC SDR-35 & 26 pipe; Section 3140 for ABS or PVC composite pipe; Section 3410 for manholes.
  - B. Crossings Whenever a sanitary sewer and water main must cross, the sewer shall be at such an elevation that the crown of the sewer is at least 18 inches measured from the outside pipe walls, below the bottom of the water main.
  - If it is absolutely impossible to maintain the 18 inch vertical separation, the water main shall be relocated or the sewer shall be constructed as follows:
    - 1. A sewer passing over or under the water main shall be encased or constructed of materials that are equivalent to water main standards of construction for a minimum distance of 10 feet on each side of the water main.
    - 2. The sewer crossing shall be constructed so that the sewer joints will be equidistant and as far as possible from the water main joints.
    - 3. Where a water main passes under a sewer, adequate structural support shall be provided for the sewer to prevent damage to the water main.
  - C. Sanitary laterals shall be extended to at least ten (10) feet beyond the Property / Right-of-Way or to the edge of the easement, whichever is greater.
  - D. Sanitary sewer laterals, which shall include all pipe and appurtenances from the building to the public sewer main, and the connection to the public sewer main shall be considered private and the responsibility of the property owner to maintain. The connection to the sewer would be any piping that extends out from the main barrel of the sewer main.

- E. All buildings to be served by the public sewer system shall be constructed so as to provide a minimum of four feet (4') of vertical separation between the public sanitary sewer, at the point of connection, and the lowest building level served by a gravity sewer connection and shall not exceed a depth of 12 feet below finish grade at the end of the lateral at the right-of-way unless specifically authorized by the County. In addition, said building level shall be at least one (1) foot above the lowest point of free-flow (non-sealed manhole cover) upstream of any structure facing the public sewer line that receives the discharge from said building. Said minimum service levels shall be recorded on the "As-built" plans for the development which will be kept on file in the office of the Butler County Department of Environmental Services.
11. Butler County Water and Sewer Department does not accept any responsibility for the relocation, repair, or replacement of any other utility installed within five (5) feet of the center line of any sanitary sewer main or water main.
12. Private driveways, parking lots and other paved areas, earthen berms or structures should not be constructed over private water or sewer service lines within the public road right of way or within the easement areas for public utilities. Should this occur, the property owner shall be held responsible for the protection and repair and for providing access to any curb stops, meter pits, manholes, clean-outs, etc. installed in conjunction with these private service lines and for any damage or restoration of the paved surfaces or structures that may result from the future operation, maintenance, repair or replacement of said service lines and appurtenances.
13. STORM SEWER
  - A. Storm sewer pipe shall meet the requirements as follows:
    - 1. PVC pipe as per ODOT Specification 707.42 for all diameters
    - 2. HDPE pipe as per ODOT Specification 707.33
    - 3. Corrugated steel pipe as per ODOT Specification 707.01 or 707.02 for all diameters
    - 4. Reinforced concrete pipe as per ODOT Construction and Material Specification 706.02 for all diameters. Class shall be specified at the contractor's request. (Cincinnati Concrete Pipe, Duracore or equal).
    - 5. Bituminous coated corrugated steel pipe as per ODOT Specification 707.05 or 707.07
  - Installation shall meet Butler County Specifications. All joints shall be soil seal joints unless specifically noted on the plans.
  - B. Deflection Testing for Storm Sewers and Culverts 15% of all storm sewers shall be tested for deflection within thirty (30) days of completion. Butler County Engineer or his designated representative shall determine what 15% shall be tested. If no deflection over the original 15% is found, no deflection testing will be required or 100% of the remaining storm sewer. A vertical ring deflection greater than 5% will not be allowed. This deflection is defined as 5% reduction in the vertical base or average inside diameter. The method of testing shall be subject to the approval of the engineer. If rigid balls or mandrels are used to test pipe deflection, no mechanical pulling devices shall be used. The deflection test may be conducted with a nine prong mandrel, a ball or a cylinder or another device acceptable to the Butler County Engineer or his designated representative. The testing will be accomplished from manholes or other access points. The contractor shall furnish all equipment required to complete the deflection testing. The deflection test shall be witnessed by the County Engineer or his designated representative. Any section of pipe that fails to meet the aforementioned requirements shall be reburied by a procedure acceptable to the County or be excavated and either be relayed or replaced, and retested until the requirements are met.
  - C. All catch basins and manholes with a depth greater than 4' shall be provided with steps. Steps shall meet the requirements of ODOT 604 and shall conform to the details as shown on Butler County Standard Drawing MH-1A.
  - D. Headwall HW-4A to be used with Corrugated Metal pipe or HW-4B to be used with Concrete Pipe.
14. Any detention basin on site should be constructed prior to the clearing of topsoil and grading of the site. All trees and vegetation shall be removed from all proposed detention basins regardless of maintenance responsibility.
15. SEDIMENTATION CONTROL
  - The project has been designed to control erosion and prevent damage to other property. All stripping, earthwork, and regrading shall be performed to minimize erosion. Natural vegetation shall be retained wherever possible. The proposed plan will allow almost all eroded material to be retained on site.
  - All areas disturbed by the construction of the roadways, ditches and sediment basins shall be seeded and strawed as soon as possible to limit the erosion and stabilize the soil. Payment will be by the number of square yards disturbed as per the grading plan. For additional sediment control details, see grading plan.
16. Private driveways, parking lots and other paved areas, earthen berms or structures should not be constructed over private water or sewer service lines within the public road right of way or within the easement areas for public utilities. Should this occur, the property owner shall be held responsible for the protection and repair and for providing access to any curb stops, meter pits, manholes, clean-outs, etc. installed in conjunction with these private service lines and for any damage or restoration of the paved surfaces or structures that may result from the future operation, maintenance, repair or replacement of said service lines and appurtenances.
17. Butler County will not be responsible for any pavement or storm sewer repairs resulting from water main and sanitary sewer repairs. Butler County also will not be responsible for adjusting manholes, valves, fire hydrants, meter pits, etc. as a result of grade changes. The grantor shall be responsible for proper adjustment of manholes, valves, fire hydrants, meter pits, etc. to the satisfaction of Butler County, due to grade changes, paving, repairing, etc. initiated by the grantor.
18. A typical five (5) foot drainage easement is to be provided on both sides of every lot line.
19. Any roadway settlement greater than one inch will be required to be repaired with Item 613 Low Strength Mortar Backfill (Type 1). See Detail on Sheet #7.
20. Provide the Butler County Engineer's Office with a forty-eight (48) hour notice prior to the start of any construction, including sanitary installation. Phone 785-2569 (Matt Homan).
21. Contractors to accept all Quantities as correct prior to beginning construction.
22. Contractor shall include the cost of County inspection and extension fees in unit price bid.
23. Existing Zoning: R-1
  - Frontage: 100'
  - Lot Area: 20,000 s.f. Minimum
  - Setbacks: Front = 50', unless otherwise noted on plan
  - Side = 15 Min., 30 Total
  - Rear = 45', unless otherwise noted on plan
24. Total Acreage: 20.24 Acres
25. Total # Single Family Lots: 25



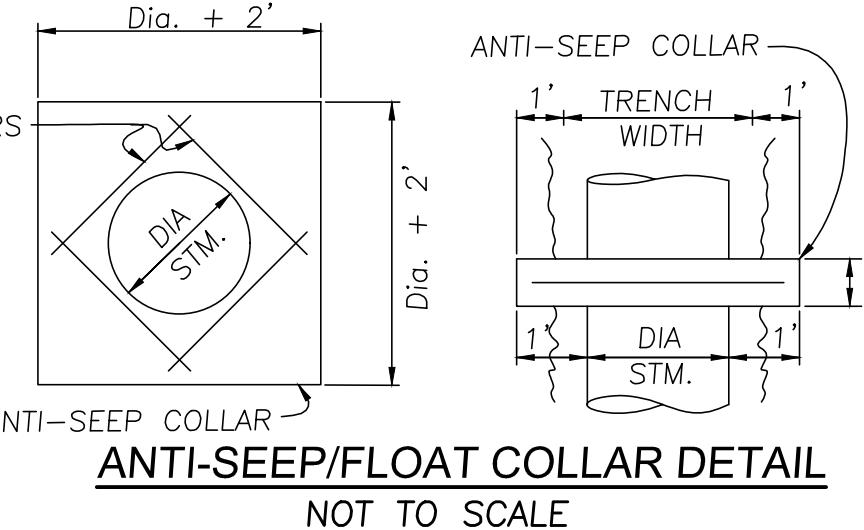
THIS DOCUMENT AND ALL RELATED DETAIL DRAWINGS,	
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A graphic consisting of a black rectangular box with a blue horizontal line extending from its left side. The text 'REGULATED WATERWAY OF UNITED STATES' is positioned to the right of the line.

OTES:

1. 48 hours notice to be given to affected residents before construction begins.
2. Lower 3/4" Water Services as needed to avoid conflicts with Storm with Min. 4' Cover.
3. Location of existing utilities to be determined in the field prior to work beginning.
4. All lots Sump to Sump Drain unless otherwise noted in plan.
5. Sump Lines to be installed as per Standard Service Detail. Wyes or Tees are to be placed ten feet past lot line, on the low side of specified lots, and marked with Wye poles.
6. Contractors to accept all quantities as correct prior to beginning construction.

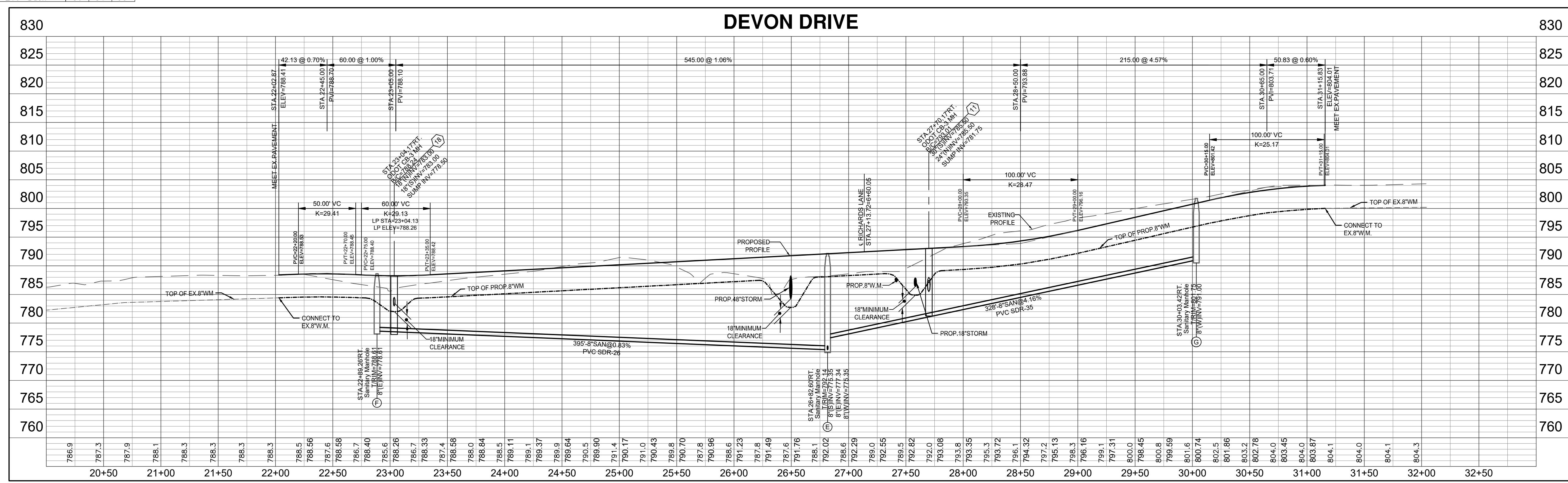
**NOTE:**  
At Crossings, the water main shall have a minimum vertical distance of eighteen (18") inches from storm and sanitary sewers. Also, one full length of water main shall be located so the joints are as far from the storm and sanitary sewers as possible. Fittings, not joint deflection, must be used when water main is lowered at crossings.



## WATER MAIN RESTRAINT JOINT LOCATION CHART

Water Main Dia.	Horizontal 45°Bends	Vertical 45°Bends	Vertical 45°Bends	Dead Ends	Tees (for Tee Branch)		
		Up (Lower Water Under...)	Down (Lower Water Under...)	(Permanent & Temporary)	6"	8"	10"
6"	18' both sides	18' both sides	36' both sides	72' Back	54'		
8"	18' both sides	36' both sides	36' both sides	90' Back	54'	72'	
10"	36' both sides	36' both sides	54' both sides	117' Back	54'	72'	90'
12"	36' both sides	54' both sides	72' both sides	180' Back	36'	72'	90'
14"	54' both sides	54' both sides	90' both sides	198' Back	36'	72'	90'
16"	54' both sides	54' both sides	90' both sides	216' Back	36'	54'	90'

NOTE:  
FOR RICHARDS LANE CENTERLINE  
PROFILES, SEE SHEET #3



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**INSTITUTE OF SURVEYORS**

Basis of Bearing:  
BASISOFBEARING

0 50 75

SCALE: 1" = 50'

REVISION DESCRIPTION

BECKER (BB), ARE INSTRUMENTS OF BB'S PROFESSIONAL SERVICE, AND

**specifications, and electronic media pre-**  
**bayer**

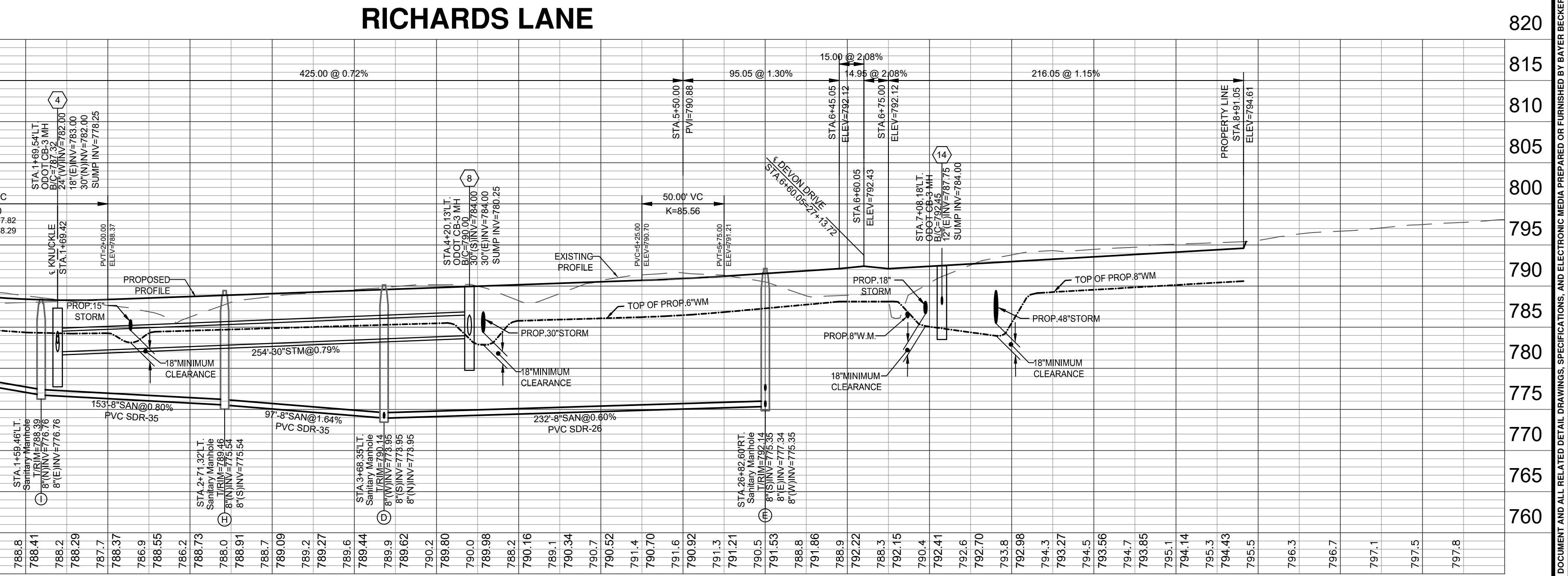
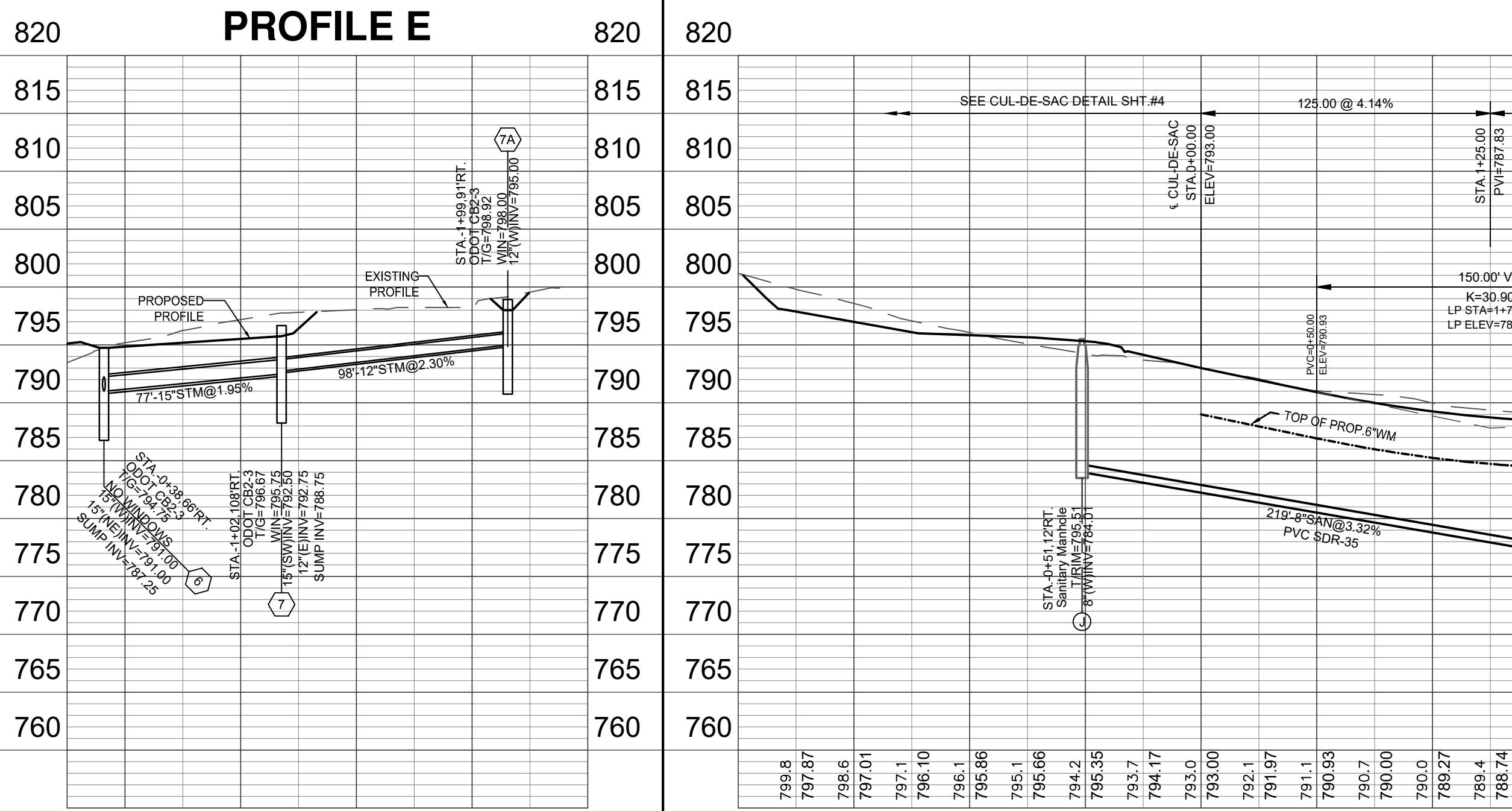
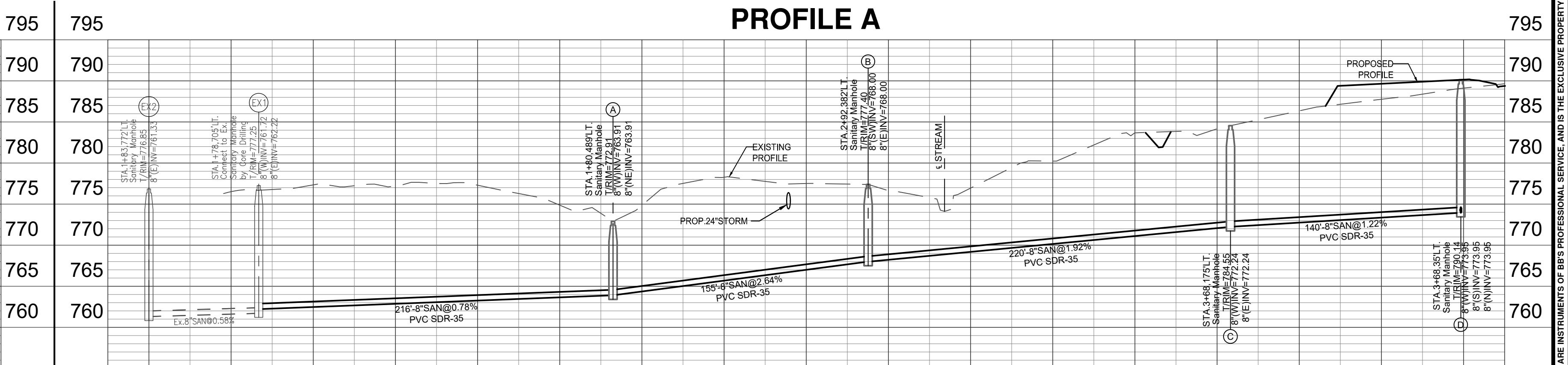
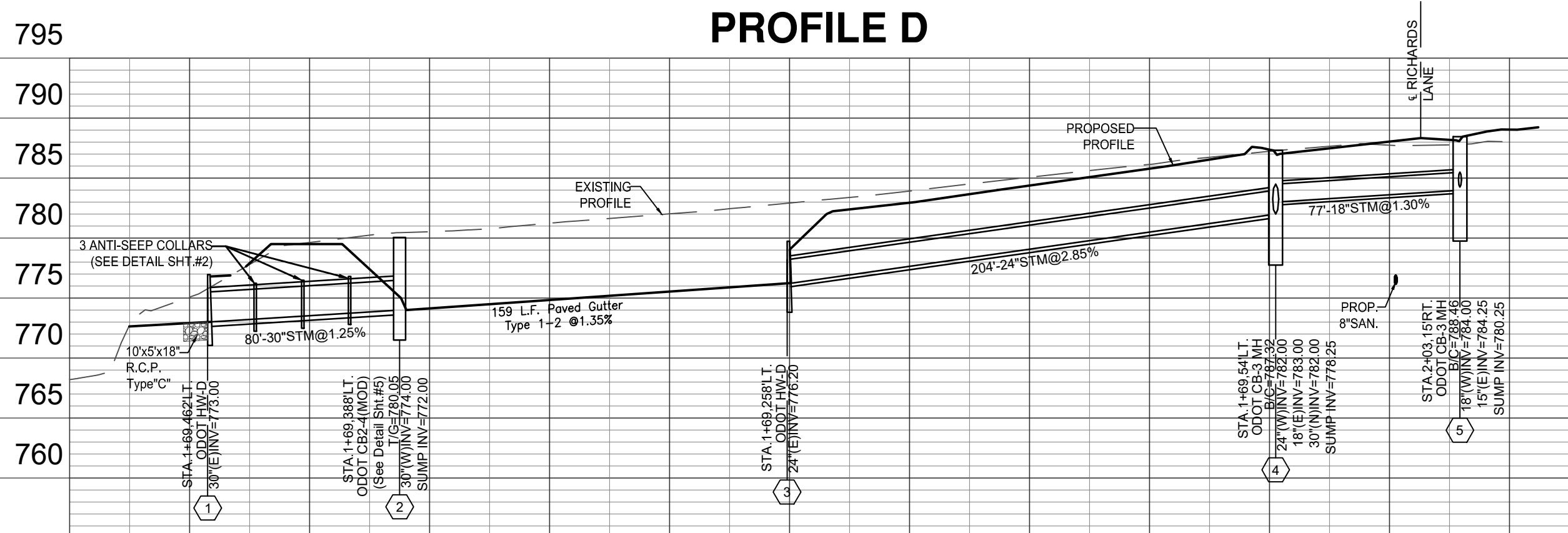
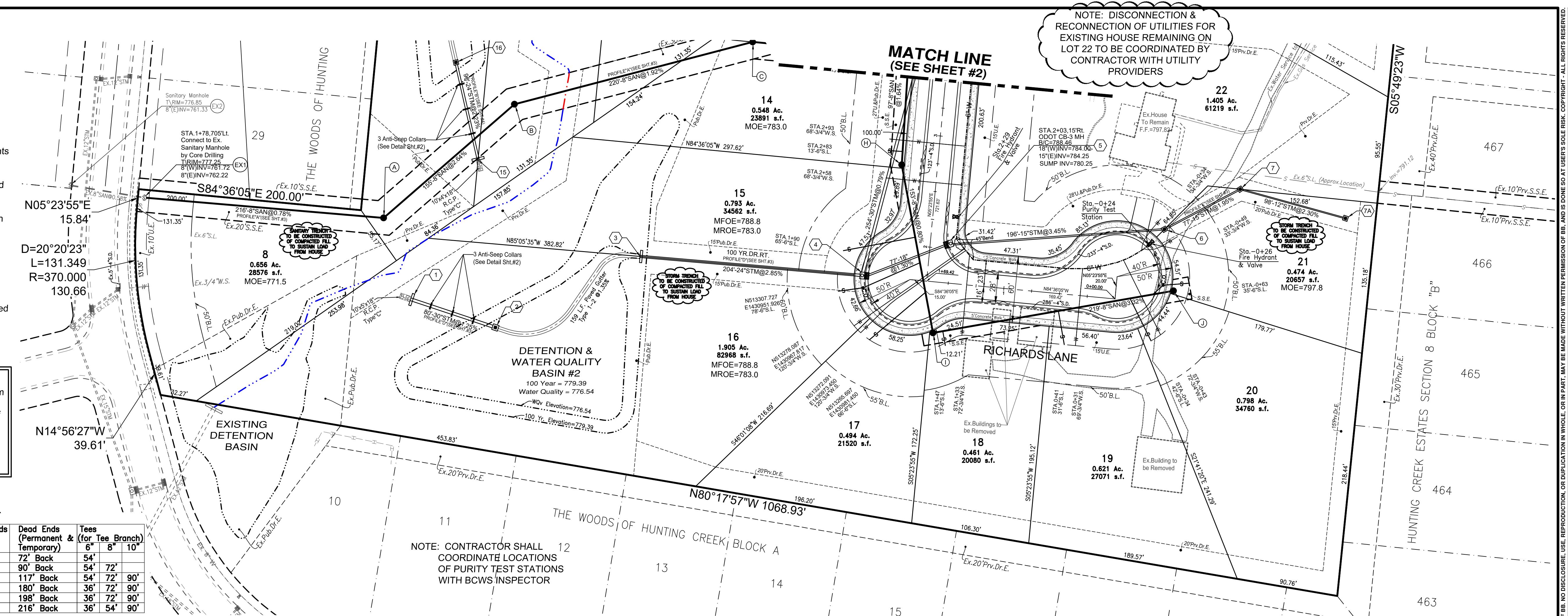
<b>THIS DOCUMENT AND ALL RELATED DETAIL DRAWINGS</b>	
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Drawn by:	TAC
Checked By:	XXX
Issue Date:	7-27-21
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Sheet:	<b>2/10</b>

NOTES:

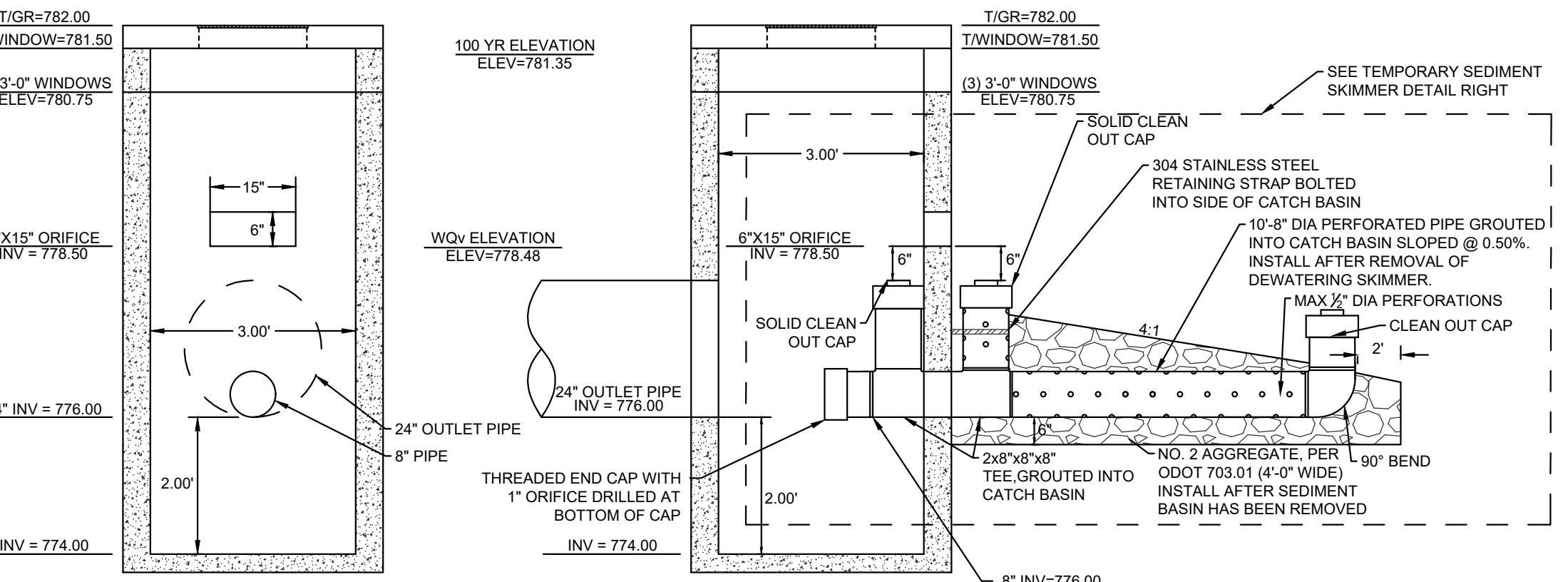
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6. Contractors to accept all quantities as correct prior to beginning construction.

**NOTE:**  
At Crossings, the water main shall have a minimum vertical distance of eighteen (18") inches from storm and sanitary sewers. Also, one full length of water main shall be located so the joints are as far from the storm and sanitary sewers as possible. Fittings, not joint deflection, must be used when water main is lowered at crossings.

WATER MAIN RESTRAINT JOINT LOCATION CHART							
Water Main Dia.	Horizontal 45°Bends	Vertical 45°Bends Up (Lower Water Under...)	Vertical 45°Bends Down (Lower Water Under...)	Dead Ends (Permanent & Temporary)	Tees (for Tee Branch)		
					6"	8"	10"
6"	18' both sides	18' both sides	36' both sides	72' Back	54'		
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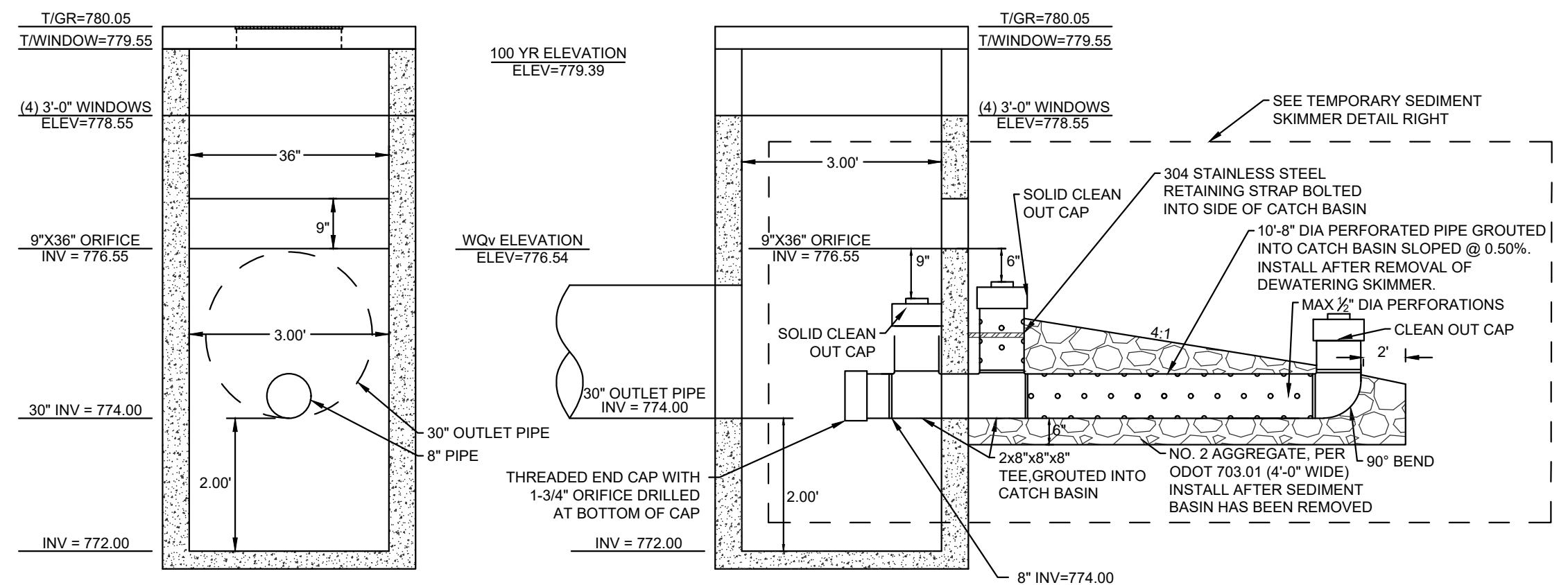






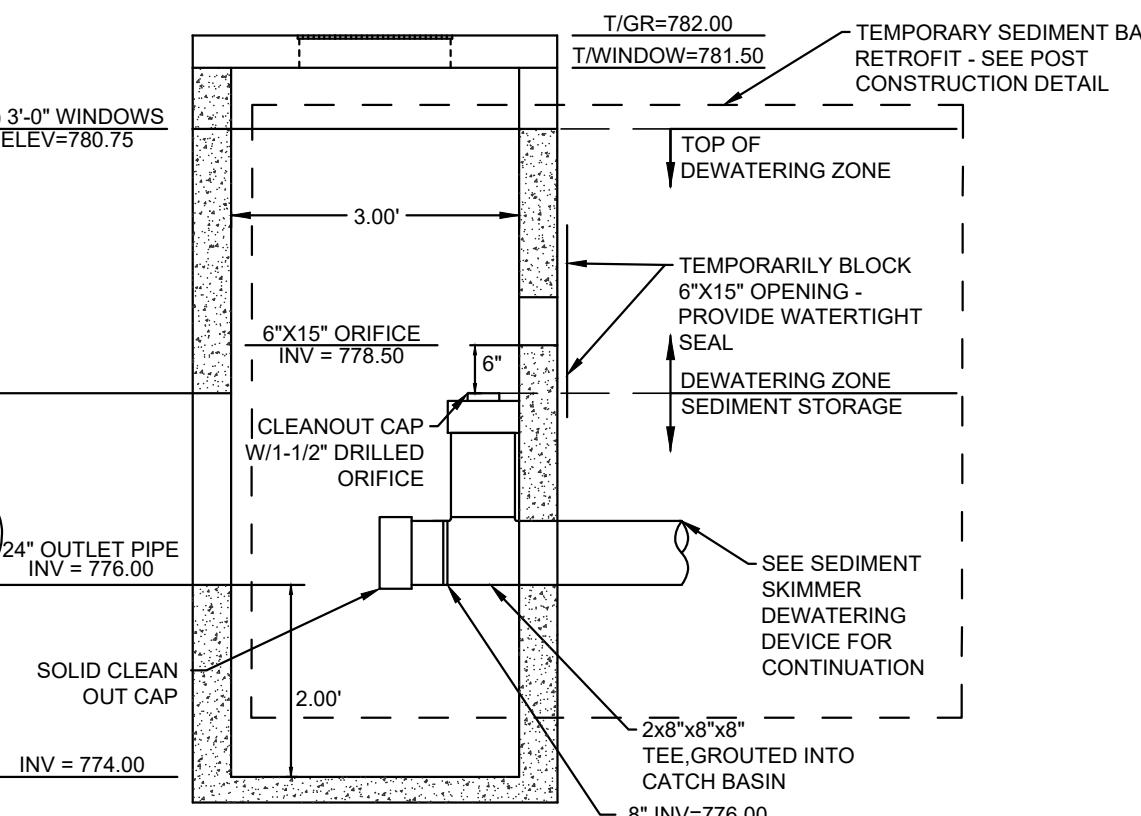
**STR 16 - MOD. ODOT CB2-3  
BASIN 1 POST-CONSTRUCTION  
DETENTION BASIN OUTLET STRUCTURE**

NOT TO SCALE



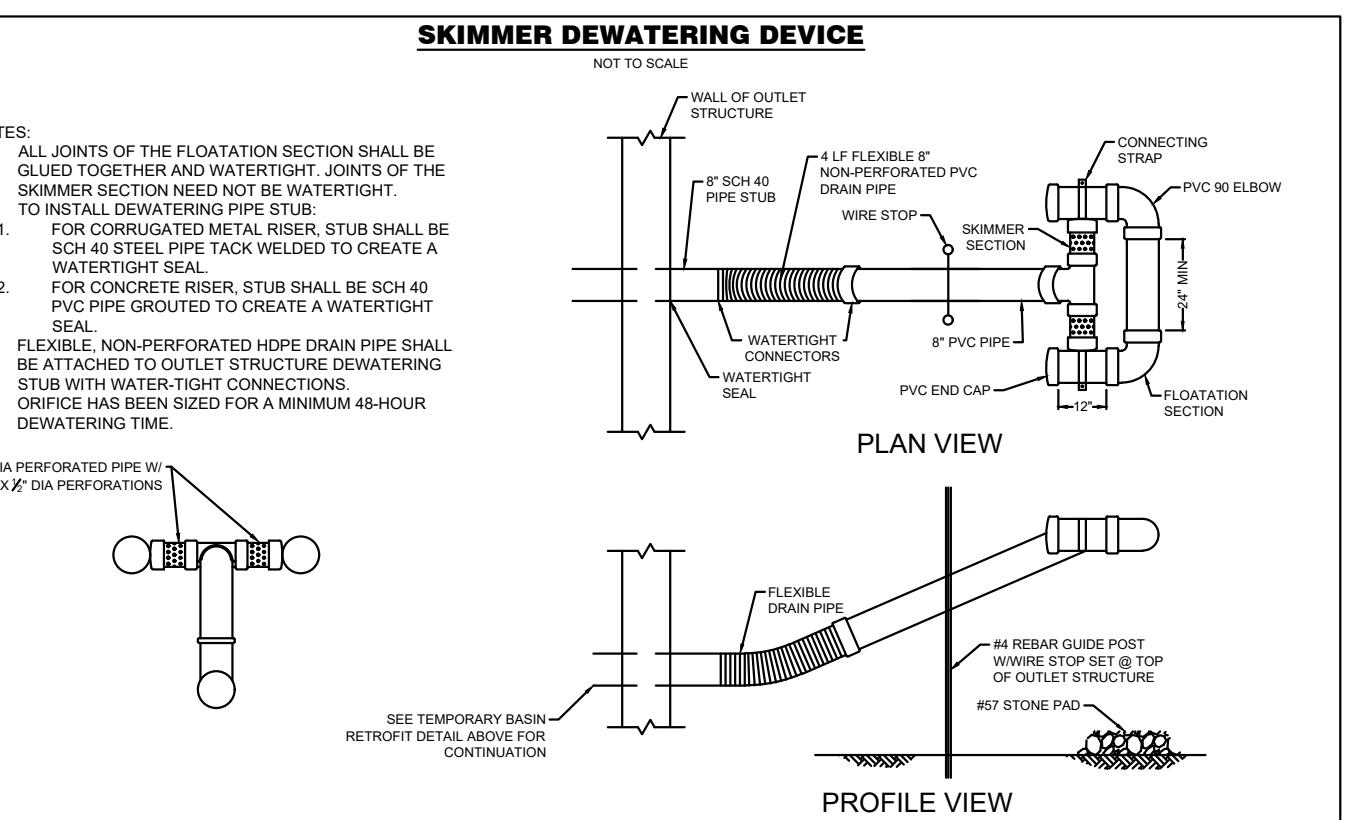
**STR 2 - MOD. ODOT CB2-3  
BASIN 2 POST-CONSTRUCTION  
DETENTION BASIN OUTLET STRUCTURE**

NOT TO SCALE



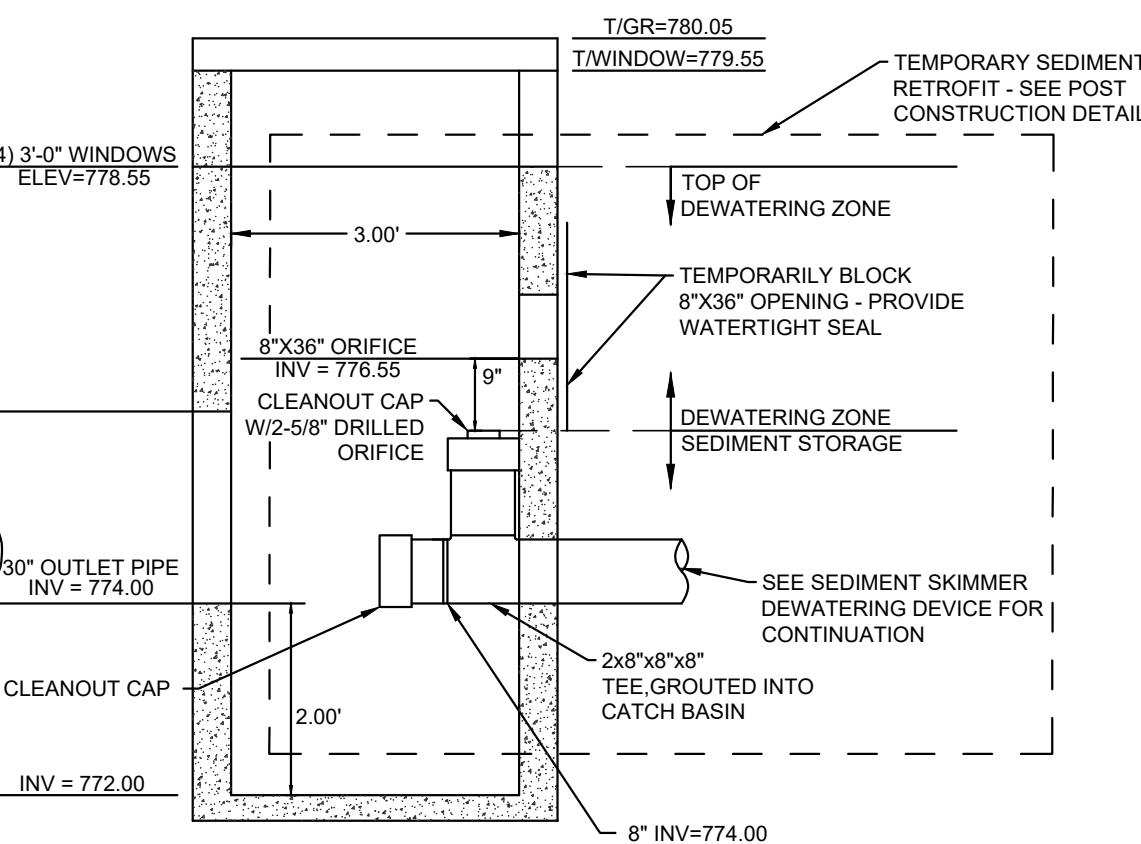
**BASIN 1 TEMPORARY SEDIMENT  
BASIN OUTLET DETAIL**

NOT TO SCALE



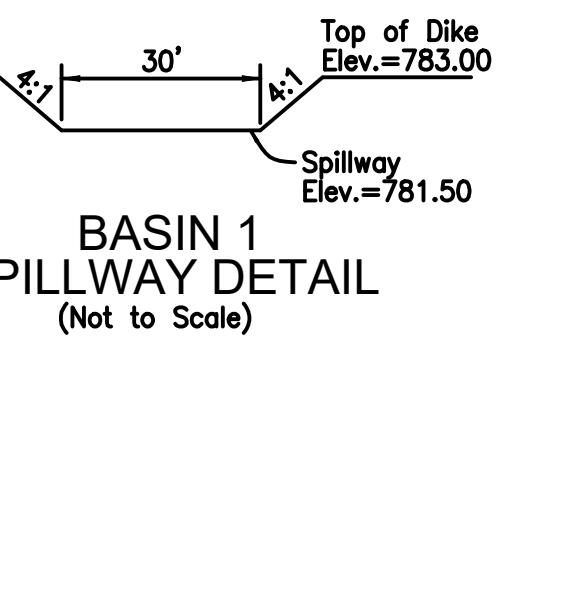
**SKIMMER DEWATERING DEVICE**

NOT TO SCALE



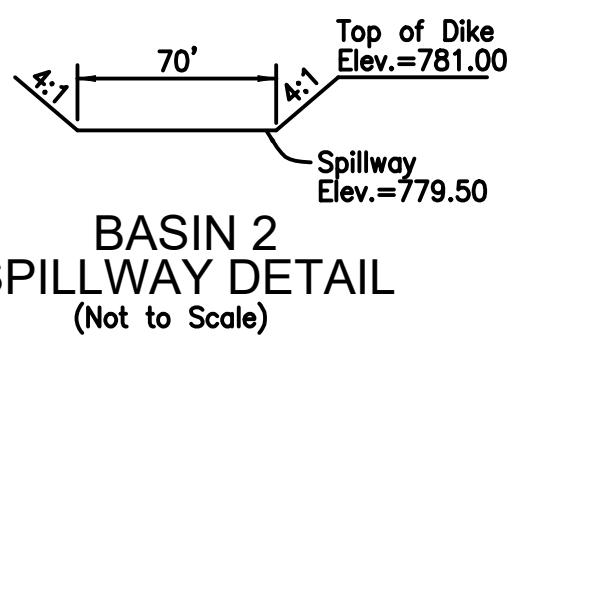
**BASIN 2 TEMPORARY SEDIMENT  
BASIN OUTLET DETAIL**

NOT TO SCALE



**BASIN 1  
SPILLWAY DETAIL**

(Not to Scale)



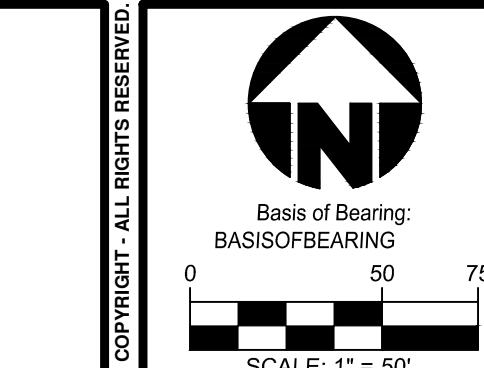
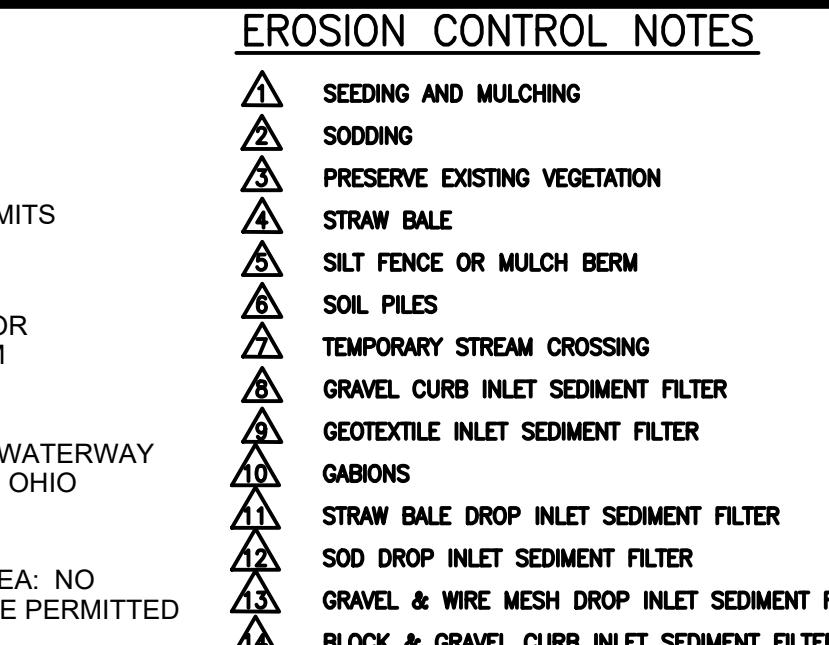
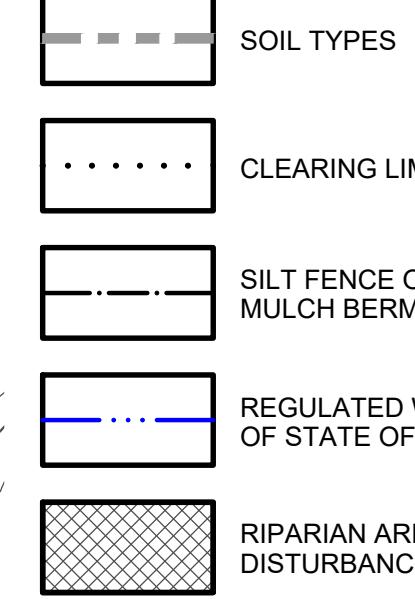
**BASIN 2  
SPILLWAY DETAIL**

(Not to Scale)

PROJECT DATA		
Total Area -----	20.24 Ac.	
Sediment Basin Calculations:	<u>Basin #1</u>	<u>Basin #2</u>
Drainage Area -----	6.20 Ac.	16.70 Ac.
Disturbed Tributary Area -----	2.86 Ac.	6.39 Ac.
Required Sediment Storage -----	0.07 Ac./Ft.	0.15 Ac./Ft.
Required Dewatering Storage -----	0.26 Ac/Ft	0.69 Ac/Ft
Water Quality Volume Required -----	0.11 Ac./Ft.	0.35 Ac./Ft.
Pre-Developed Runoff Coefficient -----	0.32	
Post-Developed Runoff Coefficient -----	0.50	
Estimated Proposed Impervious Area -----	3.68 Ac.(18.2%)	
Immediate Receiving Waters -----	Unnamed Tributary to Gregory Creek	
Subsequent Receiving Waters -----	Gregory Creek	
SOIL TYPES		
Symbol	Name	Type
FcA	Fincastle silt loam, 0 to 2 percent slopes	C
FcB	Fincastle silt loam, 2 to 6 percent slopes	C
MsC2	Miamian-Russell silt loams 6 to 12 percent slopes, moderately eroded	C
RdA	Raub silt loam, 0 to 2 percent slopes	C
RwB	Russell-Miamian silt loams, bedrock substratum 2 to 6 percent slopes, moderately eroded	B
XeB	Xenia silt loam, 2 to 6 percent slopes	B
XeB2	Xenia silt loam, 2 to 6 percent slopes, moderately eroded	B

- \* NOTE: STREAM BANK MAY NEED ROCK CHANNEL PROTECTION TO ALLEVIATE EROSION. GEOTECHNICAL ENGINEER TO DETERMINE NEED IN FIELD DURING CONSTRUCTION.

*Note: All ditches constructed by the Developer shall be sodded or hydra-seeded.*



## SHEET

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# construction. **GRADING NOTES**

1. LOCATION OF EXISTING UTILITIES TO BE DETERMINED IN THE FIELD PRIOR TO BEGINNING WORK.
2. CONTRACTOR SHALL OBTAIN A COPY OF THE COMPLETE GEOTECHNICAL REPORT PRIOR TO BIDDING THE PROJECT.
3. CONTRACTORS SHALL SET UP AN ONSITE PRE-CONSTRUCTION MEETING WITH THE BUTLER COUNTY STORM WATER DISTRICT/BCEO, DEVELOPER, PROJECT GEOTECHNICAL ENGINEER, EARTHWORK CONTRACTOR, AND SITE CIVIL ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
4. CONTRACTOR SHALL ASSUME THE TOP 8" OF EXISTING GROUND IS TOPSOIL. TOPSOIL REMOVED TO DEPTHS GREATER THAN 8" SHALL BE DONE ONLY AFTER CONSULTATION WITH THE PROJECT GEOTECHNICAL ENGINEER AND APPROVAL OF THE DEVELOPER.
5. ALL EARTHWORK AND CONSTRUCTION ACTIVITY SHALL BE PERFORMED PER THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEER AS DESCRIBED IN THE GEOTECHNICAL EXPLORATION REPORT AND ALL ADDENDUMS.
6. CONTRACTOR SHALL VERIFY ALL EARTHWORK QUANTITIES PRIOR TO AWARD OF CONTRACT. PAY QUANTITIES ARE FINAL EXCEPT FOR DOCUMENTED UNDERCUT APPROVED BY DEVELOPER PRIOR TO COMPLETION OF THE EXTRA WORK. UPON REQUEST, CONTRACTORS MAY HAVE ACCESS TO THE SITE TO FIELD CHECK TOPOGRAPHY.
7. THE AREAS LABELED DENSE VEGETATION ARE WHERE THE EXISTING GROUND WAS OBSCURED FROM VIEW BY EXISTING VEGETATION. THE EXISTING CONTOURS SHOWN IN THIS AREA MAY VARY.

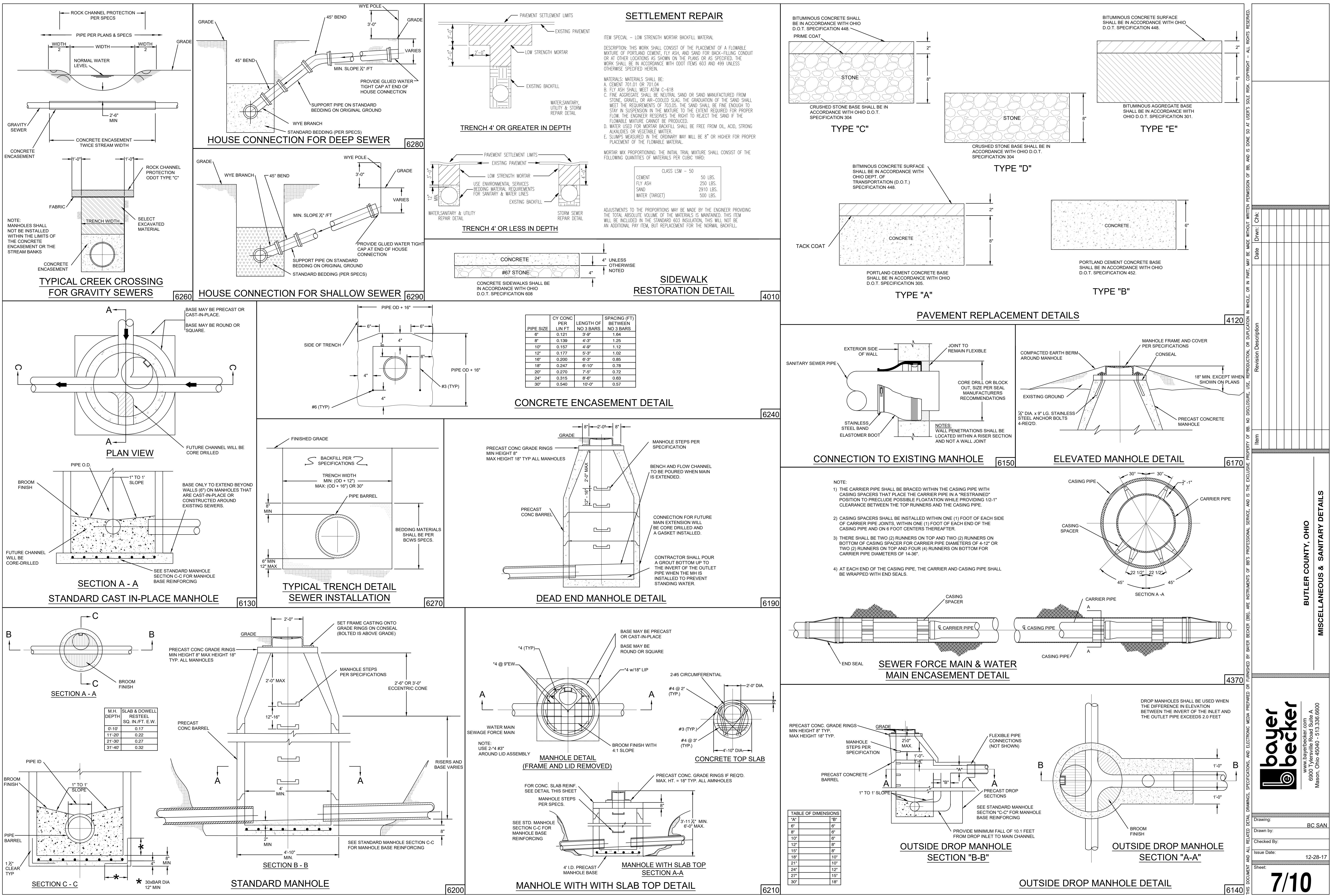
## STREAM CROSSING DETAILS

The Ohio E.P.A. has concerns about any sanitary sewer which cross or run parallel to any flowing streams. For streams which drain one square mile or greater, communities are required to implement control practices in these areas as much as possible. For streams with less than one square mile of drainage, communities must implement control practices as much as practical. The area of concern include 2.5 times the full bank width of the stream on both sides of the stream (riparian area). For these stream crossings or other areas where the sewers are in this riparian area, the entity should specify the means for mitigating any impacts on these streams which could result from this activity. These factors would include the following:

- a. The construction easements for the clearing activities should be as narrow as possible or practical depending on the size of the stream. A maximum of a 20 foot clearing limit is all that will be allowed in the riparian area. For all sanitary sewers running proposed along a stream, the clearing limit should be shifted as far from the stream as possible.
- b. The construction of the stream crossing should be completed as soon as possible but should not exceed more than one day.
- c. The material removed from the trench excavation should be stored outside of the riparian area. This area should be enclosed by a siltation fence.
- d. Trees within the riparian area should be avoided as much as possible. Older trees along the stream should be given the greatest level of protection possible. In the event that a tree must be removed so that the sewers can be constructed, the tree should be either cut at the ground or 1 or 2 feet above the ground so that the root mass is maintained and that the tree may regrow after the project. All other vegetation in the riparian area should be cut at the ground surface. intended for trench water.
- e. Cofferdams should be used to bypass the trench excavation during the construction of the stream crossing.
- f. Final bank stabilization should be completed immediately after completion of the stream crossing. The banks shall be stabilized with seeding and mulching as soon as disturbance of the area is complete. In the event that a stream bank is severely steep, jute matting may be utilized to provide bank stabilization. In most cases, the stream bank should be stabilized within one day of completion of the stream crossing.
- g. The stockpile location for the materials used for the pipe bedding material and the backfill material should be shown on the detailed plans. This area should be located outside of the riparian area. (See plans for stockpile location)
- h. Any locations where equipment will cross the stream should have a temporary stream crossing constructed. Construction equipment crossings should only be used when there is no other feasible method such as constructing sewers from both sides of the stream. For situations where this may not be practical, two common ways to construct a stream crossing are using tree trunks removed from other locations of the project laid lengthwise in the stream or constructing a culvert in the stream with back fill placed on top of it. The temporary stream culverts should be designed in accordance to the Ohio Department of Natural Resources, Division of Soil and Water Conservation's "Rainwater and Land Development" manual.
- i. All trench dewatering shall be passed through a sediment impoundment structure. Adequate outlet protection must be provided for each impoundment. If any groundwater dewatering should occur, the contractor shall contact the Ohio Department of Natural Resources, Division of Water, to assure proper well installation and abandonment of wells. The contractor shall not direct the groundwater to the impoundment intended for trench water.

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## GENERAL NOTES

### EROSION AND SEDIMENT CONTROLS

#### Vegetative practices

Such practices may include: temporary seeding, permanent seeding, mulching, mowing, sod stabilization, vegetative bank strips, physical removal of debris, and use of reseeders. These shall initiate appropriate vegetative practices on all disturbed areas within seven (7) days if they are to remain dormant (undisturbed) for more than fourteen (14) days. Permanent or temporary soil stabilization shall be applied to disturbed areas within seven (7) days after final grade is reached on any portion of the site.

#### Structural Practices

Structural practices shall be used to control erosion and trap sediment from all sites remaining disturbed for more than fourteen (14) days.

#### Timing

Sediment control structures shall be functional throughout earth disturbing activity. Sediment ponds and perimeter sediment barriers shall be implemented as the first step of grading and within seven days from the start of grubbing. They shall continue to function until the uplope development area is stabilized.

#### Sediment Barriers

Sheet flow runoff from denuded areas shall be intercepted by sediment barriers. Sediment barriers, such as sediment fences or diversions, direction runoff to settling facilities, shall protect adjacent areas and reduce sediment losses from sediment transported sheet flow.

Erosion and sediment control practices used to satisfy the conditions of this plan shall meet the standards and specifications in the current edition of Water Management and Sediment Control in Urbanized Areas (Soil Conservation Service.)

#### Waste Disposal

No solid or liquid waste, including building materials, shall be discharged or stored in surface waters. All waste tracking of sediment shall be minimized. The plan shall ensure and demonstrate compliance and applicable State of local waste disposal, sanitary sewer or septic system regulations.

#### Maintenance

All temporary and permanent control practices shall be maintained and repaired as needed to assure continued performance of their intended function.

#### Dormant Seedings

1. Seedings shall not be planted from October 1 through November 20. During this period the seeds are likely to germinate but probably will not be able to survive the winter.

2. The following methods may be used for "Dormant Seeding":

From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20 and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.

From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mix, mulch and anchor. Increase the seeding rates by 50% for this type of seeding.

Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder, or hydro-seeder (slurry may include seed and fertilizer) on a firm, moist seedbed.

Where feasible, except when a cultipacker type seeder is used, the seedbed should be firmed following seeding operations with a cultipacker, roller, or light drag. On sloping land, seeding operations should be on the contour where feasible.

**REVERTATION**  
Seed, sod or mulch bare soil as soon as possible

#### SEEDING AND MULCHING

Spread 4 to 6 inches of topsoil. Fertilize according to soil test (or apply 10lb./1000 sq. ft. of 20-10-10 or 10-10-10 fertilizer.)

Seed with an appropriate mix for the site (see table.) Rake lightly to cover seed with 1/4" of soil. Roll lightly. Mulch with straw (70-90 lb. or one bale per 1000 sq. ft.) Anchor mulch by punching 2 inches into the soil with a dull, weighted disk or by using needle or other measure on steep slopes, or windy areas. Water daily every day or two to keep soil moist. Less watering is needed once grass is 2 inches tall.

#### SODDING

Spread 4 to 6 inches of topsoil. Fertilize according to soil test (or apply 10lb./1000 sq. ft. of 20-10-10 or 10-10-10 fertilizer.) Lightly water the soil. Lay sod. Tamp or roll lightly. On slopes, lay sod starting at the bottom and work toward the top. Place sod on a flat surface. Sod should be at least 6 inches deep (or until water stands 1 inch deep in a straight-sided container.) Then water lightly every day or two for 2 weeks. If construction is completed after October 31, seeding or sodding may be delayed. Applying mulch or temporary seed (such as rye or winter wheat) is recommended if weather permits. Sod bale or silt fences must be maintained until final seeding or sodding is completed in spring March 15- May 31.

#### INSTALLATION NOTES AND SPECIFICATIONS FOR MULCH BERM:

1. Mulch berm should be placed along a level contour so that it will not channel runoff and create concentrated flows.

2. Use drop inlet limitations (sheet flow).

3. Design Criteria:

-particle sizes (99% passing 1 inch sieve etc.)

-moisture content (not less than 70% organdies)

4. Planning considerations: most effective when combined with vegetated buffer.

**MULCH BERM**  
5. Put up before any other work is done. Install on down slope side(s) of site with ends extended up sideslopes a short distance. Place parallel to the contour of the land to allow water to pond behind fence. En trench 4 inches deep (see back page.) Stake (2 stakes per bale OR 1 stake every 3 feet for silt fence.) Leave no gaps between bales or silt fence. Inspect and repair once a week and after every 1/2 inch rain. Remove sediment if deposits reach half the fence or straw bale height. Maintain until a lawn is established.

#### SOIL PILES

6. Located away from any down slope street, driveway, stream, lake, wetland, ditch or drainageway. Temporary sheet as annual rye is recommended for topsoil piles. Surround with straw bales or silt fence.

**GRAVEL DRIVE**  
Install a single access drive using 3 to 5 inch aggregate over a geotextile material. Lay gravel 6 inches deep and 10 feet wide from the foundation to the street. Use to prevent tracking dirt onto the road by all vehicles. Maintain throughout construction until driveway is paved. Park all construction vehicles on the street and off of the driveway.

#### SEDIMENT CLEANUP

By the end of each work day, sweep or scrape up soil tracked onto the road. By the end of the next work day after a storm, clean up soil washed off-site, and check straw bales and silt fence for damage or sediment buildup. Remove any debris or CCR.

Not required, but highly recommended. Install as soon as gutters and downspouts are completed. Route water to a grassed or paved area. Maintain until a lawn is established.

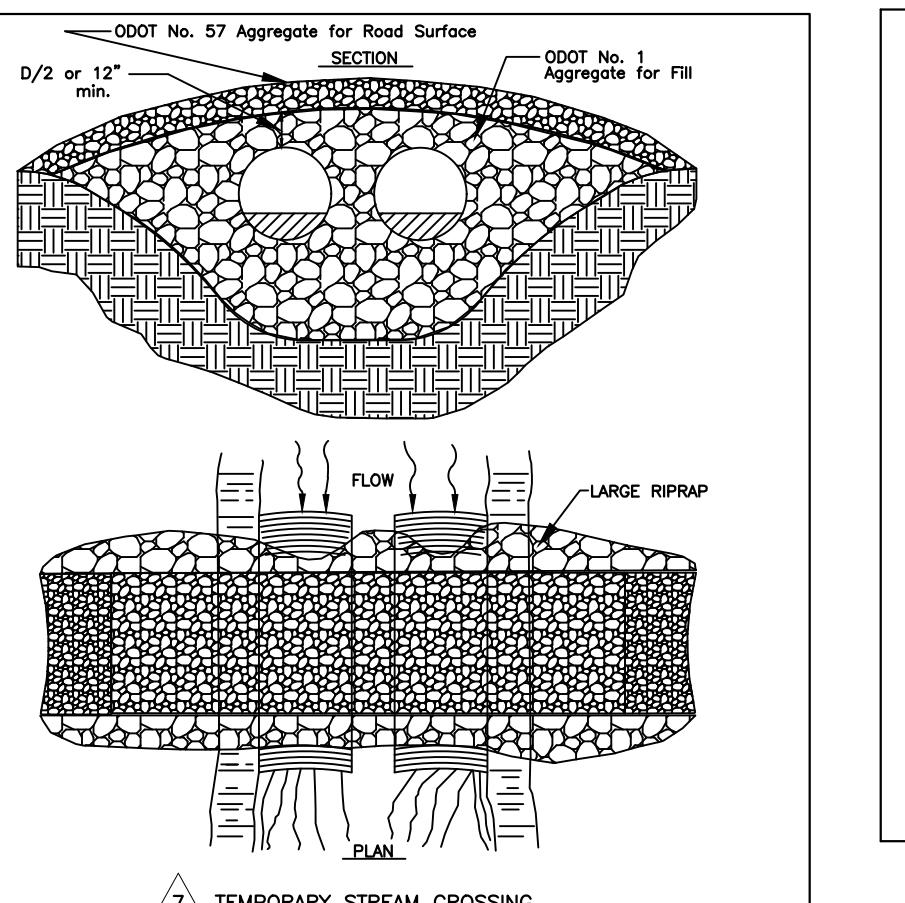
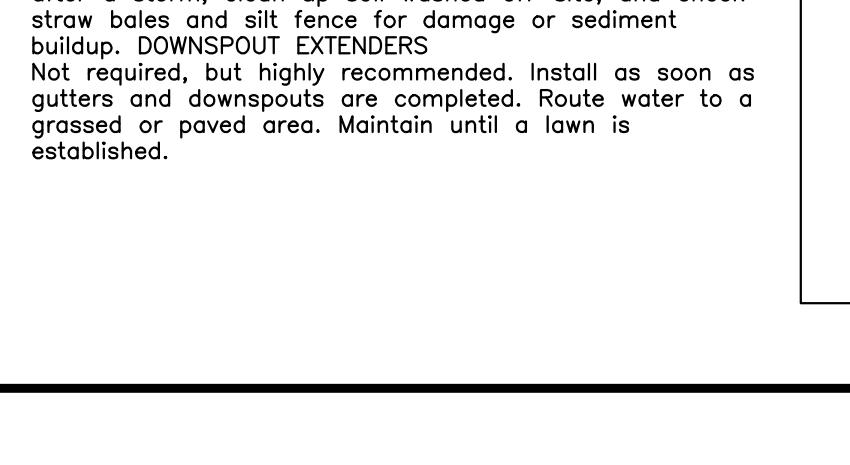
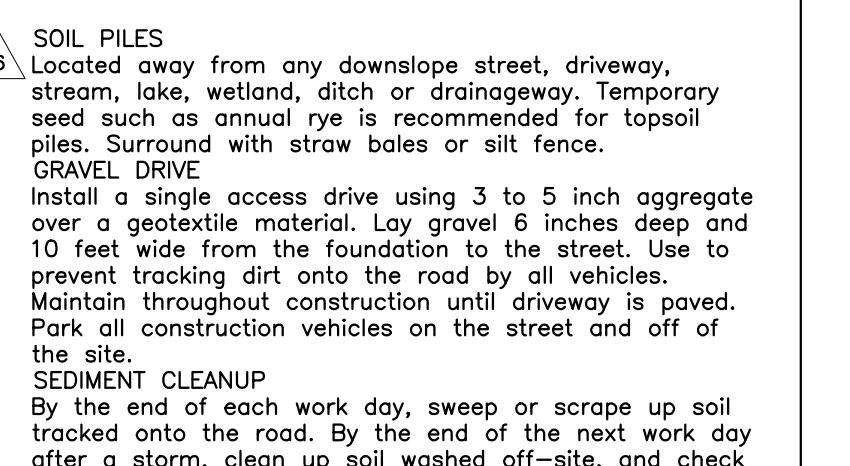
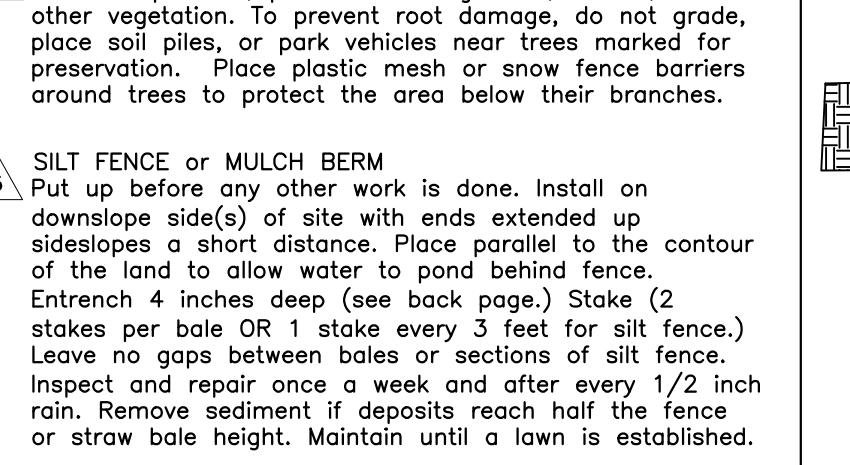
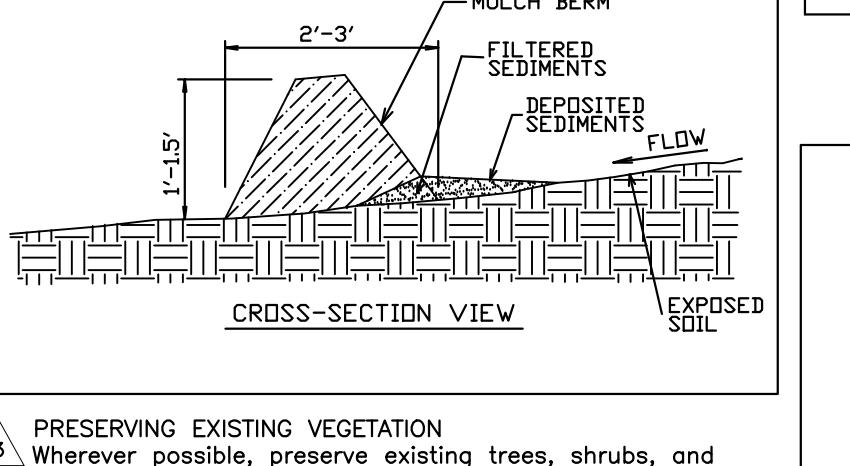
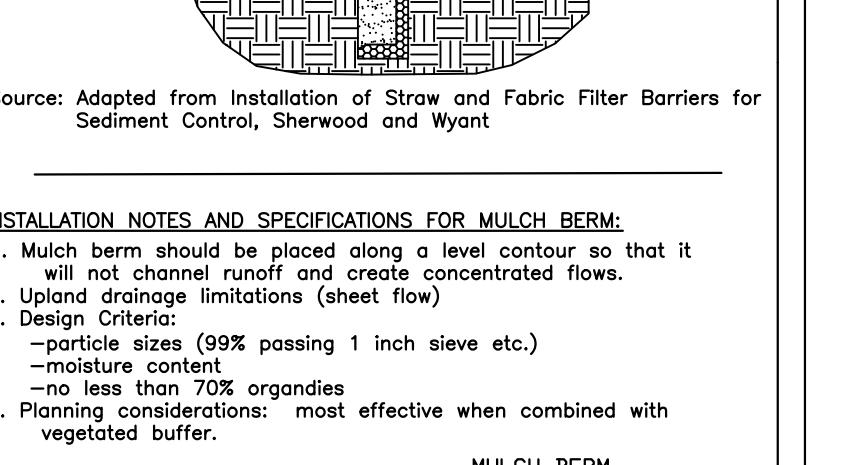
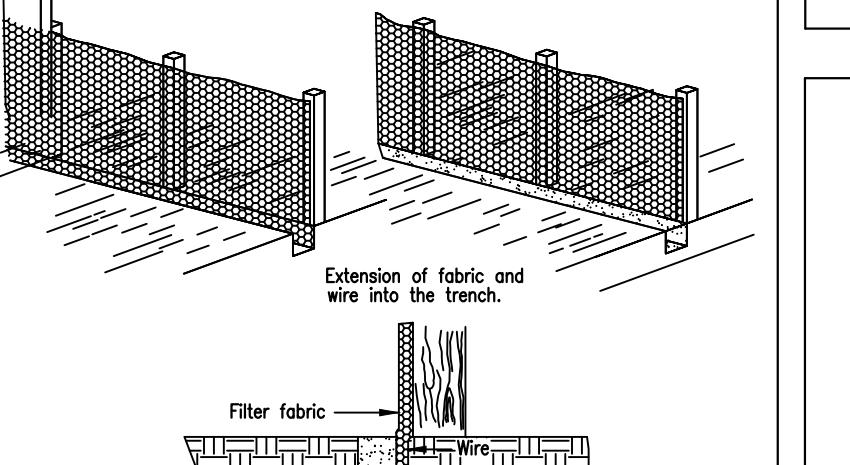
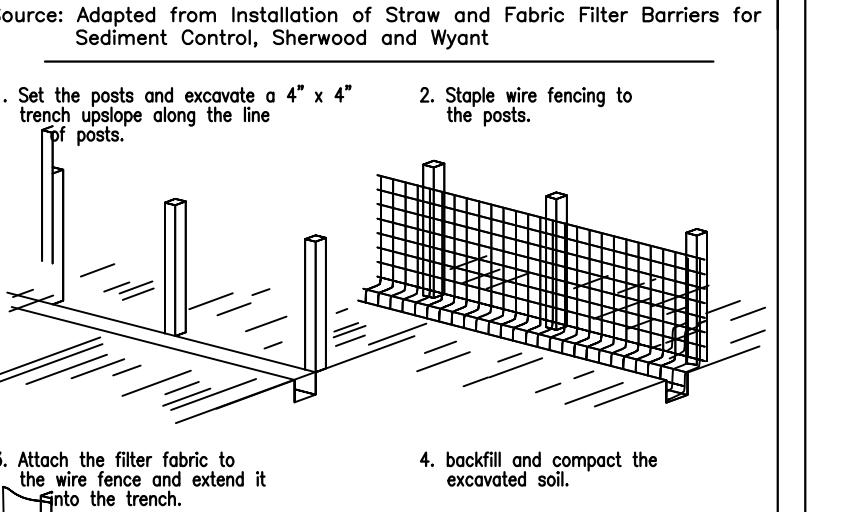
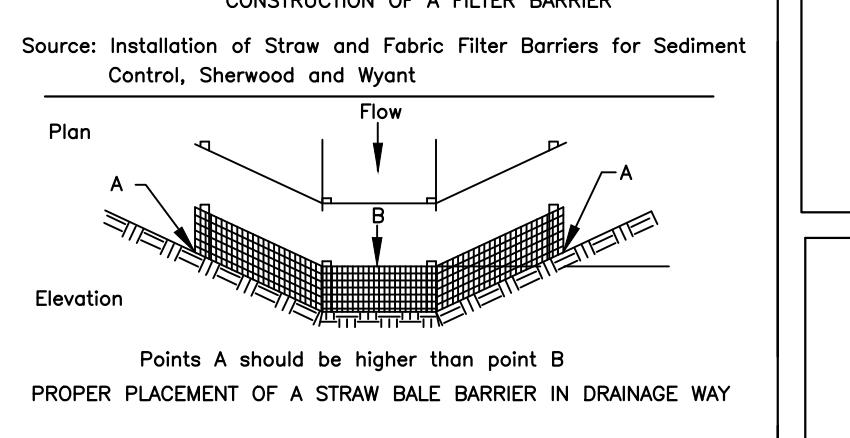
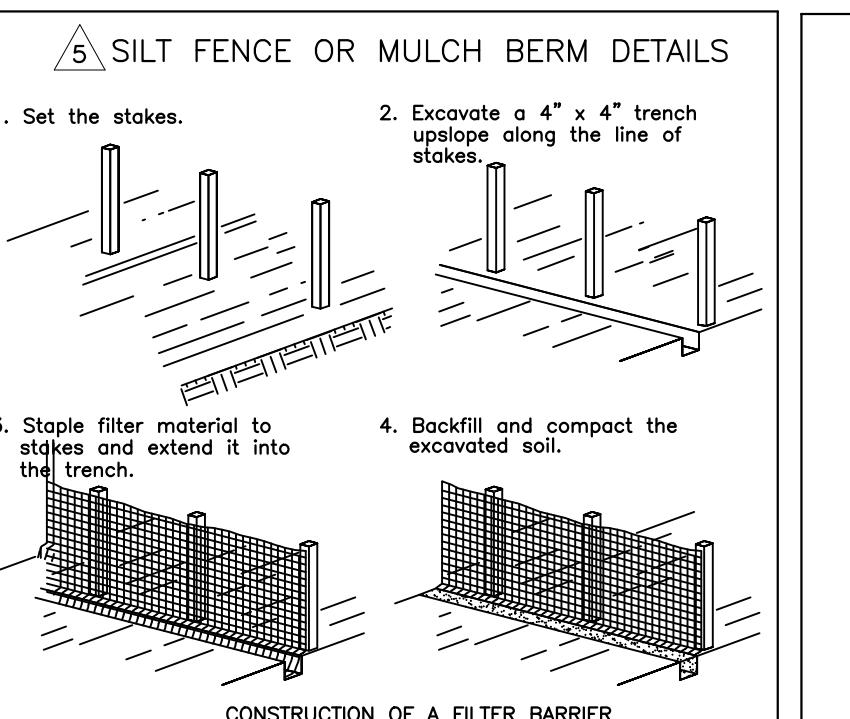
#### GEOTEXTILE INLET PROTECTION IN SWALES, DITCH LINES OR YARD INLETS

8. Geotextile inlet protection shall be installed in the inlet in compacted 2-in. layers until the earth is even with notch elevation.

7. A compacted earth dike or a check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression and if runoff bypassing the inlet will not flow to a settling pond. The top of earth dikes shall be at least 6 in. higher than the top of the frame.

#### GEOTEXTILE INLET PROTECTION IN SWALES, DITCH LINES OR YARD INLETS

9. Geotextile inlet protection shall be installed in the inlet in compacted 2-in. layers until the earth is even with notch elevation.



Source: Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

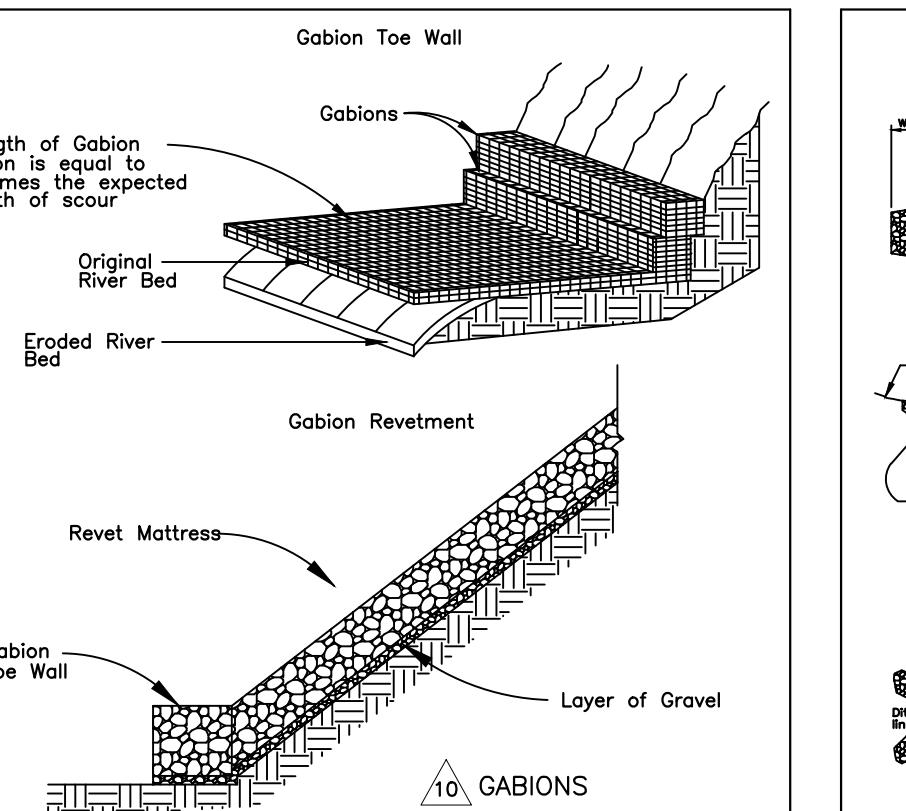
7. TEMPORARY STREAM CROSSING

8. GRAVEL CURB INLET SEDIMENT FILTER

9. BLOCK AND DROP INLET SEDIMENT FILTER

10. BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER

11. GEOTEXTILE INLET PROTECTION IN SWALES, DITCH LINES OR YARD INLETS



Source: Adapted from product literature of Bekert Gabions.

10. GABIONS

11. GEOTEXTILE INLET PROTECTION IN SWALES, DITCH LINES OR YARD INLETS

12. SOD DROP INLET SEDIMENT FILTER

13. GABION AND WIRE MESH DRAIN INLET SEDIMENT FILTER

14. BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER

15. GEOTEXTILE INLET PROTECTION IN SWALES, DITCH LINES OR YARD INLETS

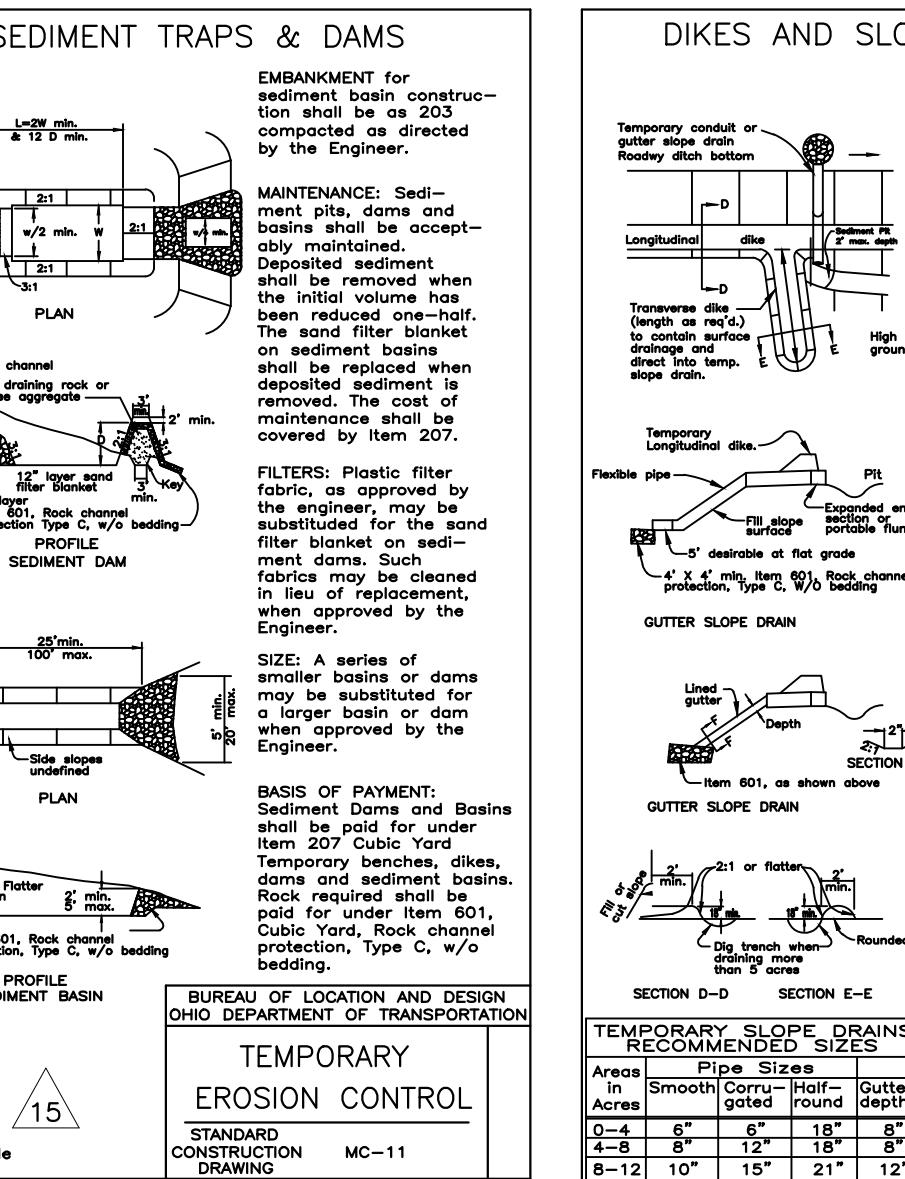
16. CONCRETE WASHOUT SIGN DETAIL WITH STRAW BALES

17. WRAPPED GRATE, ROLLED GRAVEL CURB INLET FILTER

18. CHECK DAM DETAILS

19. TEMPORARY DETENTION SEDIMENT FILTER

20. DANDY BAG®/BEAVER DAM



Source: Adapted from product literature of Bekert Gabions.

21. CONSTRUCTION ENTRANCE

22. CONCRETE WASHOUT AREA

23. CONCRETE WASTE MANAGEMENT

24. EROSION CONTROL FOR INDIVIDUAL LOTS & SMALL SITES

25. EROSION CONTROL PLAN LEGEND

26. EROSION CONTROL PLAN FOR SITES OF ONE ACRE OR LESS

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