TIMBERHILL
SECTION ONE
SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO
OCTOBER, 2022

REVISED
Eric Pottenger , 10/12/2022, 9:56:56 AM

REVISIONS CLOUDED IN RED
1) BASIN #1 NOW A POND OUTLET MODIFIED
2) VARIOUS STORM SEWER ADJUSTMENTS
3) ENTRY ISLAND IRRIGATION, INSIDE ISLAND UNDERDRAIN TO OUTSIDE CURB UNDERDRAIN
4) WHITEPINE CUL-DE-SAC GRADE ADJUSTMENT

Know what's **below.** **Call** before you dig.

INDEX TO SHEETS

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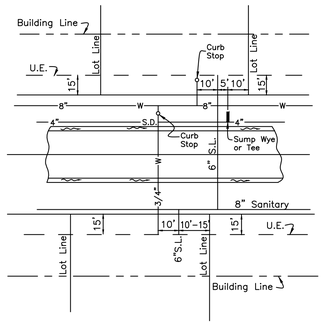
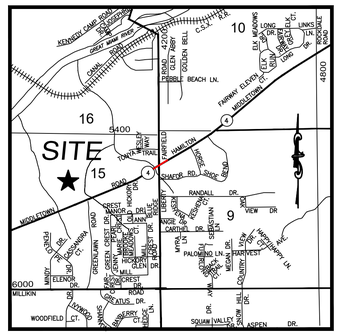
LEGEND

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



STANDARD SERVICE DETAIL



VICINITY MAP
NOT TO SCALE

OWNER & DEVELOPER

MI Homes of Cincinnati, LLC
9349 Waterstone Blvd., Suite 100
Cincinnati, OH 45249
513-248-5400

BENCHMARK

Mag Spike @ the Intersection of Foxglove Drive & Cumberland Drive
Elevation = 708.50

JOB LOG

DATE	COMMENT
3-7-22	Submitted to Butler County Planning
5-19-22	Resubmitted to BCWS & BCEO
10-11-22	Resubmitted to BCWS & BCEO

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS

C-1	
Std.MH-1A	
Std.HW-D	HW1.1 (O.D.O.T.)
CB-3	
CB-3(Mod.)	
CB-3A	
CB-3A(Mod.)	CB-2-4(O.D.O.T.)
CB-2-2-A(O.D.O.T.)	CB-2-3(O.D.O.T.)
Std.R-1	

CONSTRUCTION APPROVAL

	Date
Butler Co. Water & Sewer Dept.	6-8-22
Butler Co. Engineer's Office	6-28-22
Army Corps of Engineers/OEPA	
OEPA NPDES NOI # 1GC08747*AG	4-22-22

These plans are not for construction until ALL approval dates have been filled in.

GENERAL NOTES

1. 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.

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. All electrical transformers shall be located so that they do not interfere with the existing manholes or water main appurtenances.

8. Sump line conduits are to be SDR 35, Armco 2000, or equivalent.

9. 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.

E. For Fairfield Township projects, Fire Hydrants shall be installed with 5" Stortz fittings instead of threaded connection on the steamer fitting.

10. 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 between 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–overflow (non–sealed manhole cover) upstream of any treatment facility of wastewater pumping facility 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, Duracrete 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 days after they are complete. Butler County Engineer or his designated representative will determine what 15% shall be tested. If any storm sewer in the original 15% is found out of compliance, deflection tests will be required on 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 manner acceptable to the Butler County Engineer or his designated representative. The testing will be accomplished from manhole to manhole or catchbasin to catchbasin, following the complete flushing of the line. 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 rerounded 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 STD. 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.

13. Roof drains, foundation drains, and other clean water connections to the sanitary sewer system are prohibited.

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 sedimentation 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 the 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 #14.

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. Contractor shall coordinate the disconnection and removal of all existing utility services to existing houses on site with corresponding utility providers. Permits shall be required by Butler County Board of Health before any abandonment of existing septic systems or private water wells can take place.

24. Proposed development is in a lift station drainage area and is subject to additional lift station fees (per lot).

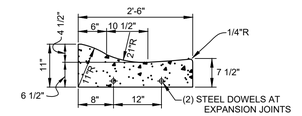
25. Sidewalk was waived along S.R.#4 by Planning Commission on July, 26, 2021.

26. Existing Zoning: R–PUD

	SINGLE FAMILY	RANCH DUPLEX
Frontage:	62'	41.5'
Lot Area:	8,680 s.f. (Min.)	5,810 s.f. (Min.)
Setbacks:	(Unless otherwise noted on plan)	
Front	30'	30'
Side	5'Min., 10'Total	5', 0' on shared duplex lot line
Rear	30'	30'

27. Total Acreage: 36.5810 Acres

28. Total # Lots: 87



STANDARD ROLL TYPE CURB & GUTTER C-1

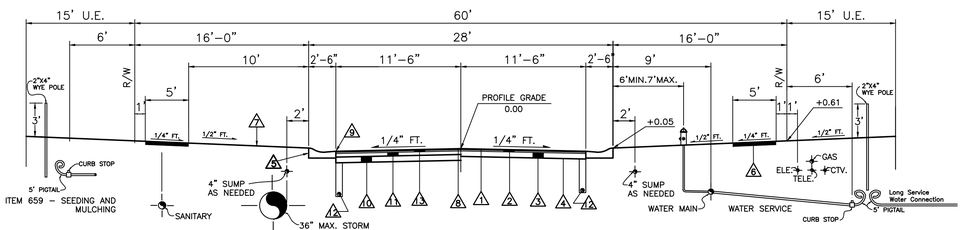
MODIFIED ROLL TYPE CURB & GUTTER C-1 FOR ISLAND

CURB RAMP SPECIFICATIONS

1. **Curb ramps shall be design A or design B per ODOT Drawing BP–7.1, sheets 1 through 3.**
2. **Truncated domes are to meet the specifications of ODOT drawing BP–7.1, sheet 3, and span the entire width of the sidewalk.**

8' HIKER/BIKER TRAIL SPECIFICATIONS

1. **The trail along the east side of Timberhill Drive shall be constructed in accordance with Butler County specifications for sidewalk.**
2. **The trail shall be constructed on the east side of Timberhill Drive from approximate Sta.8+25 to Sta.24+76.**
3. **Where the trail crosses through the driveway aprons, it shall be constructed at a thickness of 6".**
4. **It shall be the responsibility of the homebuilder for each individual lot to install the 8' wide trail as shown on the plan.**



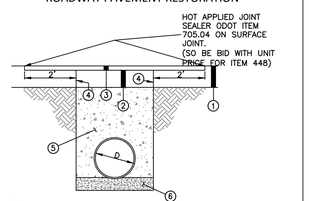
ITEM	DEPTH TOP OF PIPE
Underdrain	18"
Sumplines	24" – 30"
Gas	24" – 30"
Water	48" – 54"
Electric	36" – 40"
Telephone	36" – 40"
Cable TV	36" – 40"

*SURFACE COURSE (ITEM 448) AND TACK COAT (ITEM 407) ARE TO BE APPLIED NO SOONER THAN TWELVE (12) 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.

TYPICAL SECTION

1. 1" ITEM SURFACE COURSE – 448 ASPHALTIC CONCRETE SEE * NOTE
2. 2 1/2" LEVELING COURSE – ITEM 448 ASPHALTIC CONCRETE
3. 6" BASE COURSE – ITEM 301 BITUMINOUS AGGREGATE BASE
4. COMPACTED SUBGRADE – ITEM 204
5. ROLL TYPE CURB & GUTTER – ITEM 609 (BUTLER COUNTY STANDARD C–1)
6. FOUR INCH THICK CLASS "C" CONCRETE SIDEWALK, FOUR FEET WIDE ITEM 608 WALK TO BE 1/2" HIGHER THAN SOD.
7. SEEDING & MULCHING – ITEM 659
8. TACK COAT – ITEM 407 – TO BE APPLIED AT A RATE OF 0.05 GAL. PER SQUARE YARD, SEE * NOTE
9. TACK COAT – ITEM 407 – TO BE APPLIED TO FRONT FACE OF CURB PRIOR TO INSTALLATION OF 301 BITUMINOUS AGGREGATE BASE. ALSO TO BE APPLIED TO CURB JOINT AFTER THE INSTALLATION OF 448 LEVELING COURSE.
10. 6" BASE COURSE – ITEM 304 AGGREGATE BASE
11. 5" BASE COURSE – ITEM 301 BITUMINOUS AGGREGATE BASE
12. 4" UNDERDRAIN – ITEM 605. CONNECT UNDERDRAIN TO CENTERLINE OF CURB AND GUTTER. CONNECT TO SIDEWALL OF NEAREST CATCH BASIN
13. 1 1/2" LEVELING COURSE – ITEM 448 ASPHALTIC CONCRETE

BUTLER COUNTY ENGINEER'S OFFICE
STANDARD DETAIL FOR
ROADWAY PAVEMENT RESTORATION



1. EXISTING PAVEMENT
2. 8" ITEM 301 BITUMINOUS AGGREGATE BASE IN TWO 4" LIFTS
3. 2" ITEM 448 ASPHALT CONCRETE SURFACE COURSE MIN. 2' EACH SIDE OF CUT
4. ITEM 407 TACK COAT APPLIED AT 0.10 GAL/SY
5. LOW STRENGTH MORTAR BACKFILL MATERIAL CLASS LSM 50
6. MIN. 6" GRANULAR PIPE BEDDING (OPTION – USE GRANULAR BEDDING EXTENDED 12" ABOVE PIPE FOR FULL WIDTH OF TRENCH)

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, CONSTRUCT TEMPORARY SILT TRAPS WHERE SHOWN.

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

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.

Item	Revision Description	Date	Drawn	Chk
1	Revised as per BCWS & BCEO	5-19-22	JMV	TAC
2	Revised White Pine Lane cul-de-sac grading, utilities, lot #'s, etc. as per Developer	10-11-22	TAC	
3				
4				
5				
6				
7				
8				
9				

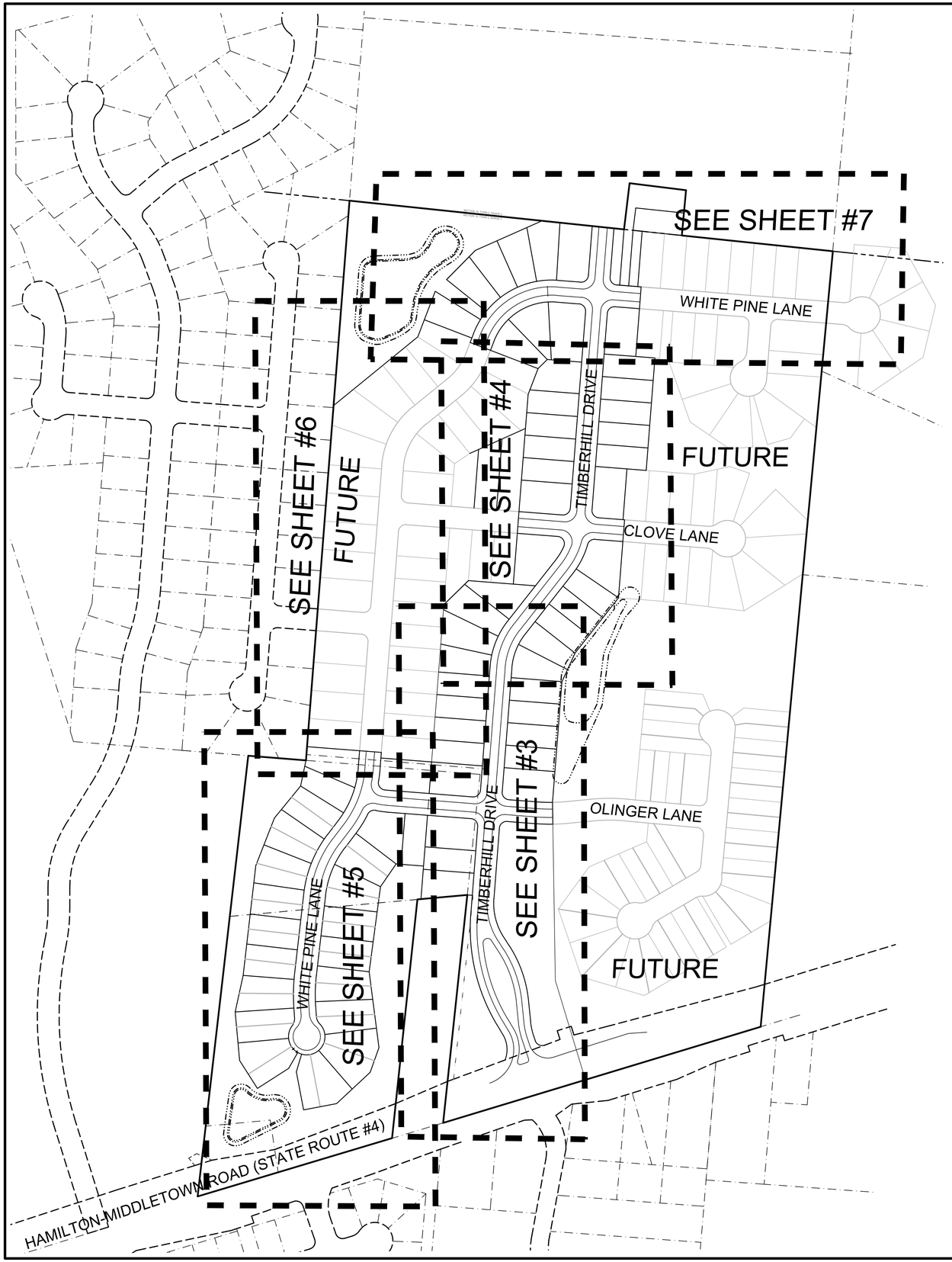
STATE OF OHIO
REGISTERED
PROFESSIONAL ENGINEER
10-11-22

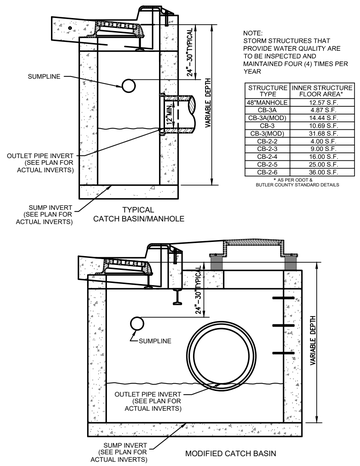
TIMBERHILL SECTION ONE
SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO
TITLE SHEET

bayer becker
www.bayerbecker.com
6925 Hillside Road, Suite A
Mason, OH 45040 • 513.336.6600

Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22
Sheet: **1/17**

Plot time: Oct 11, 2022 - 12:32pm
Drawing name: J:\2017\17-0090\CIVIL\DWG\17-0090 CD.dwg - Layout Tab: 1TLT





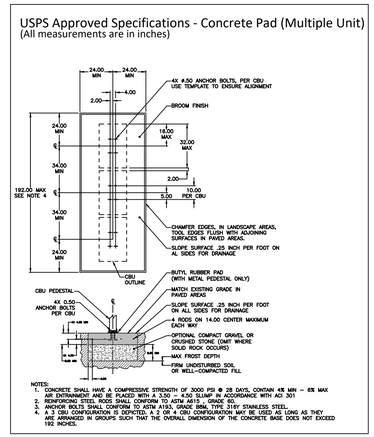
NOTE:
STORM STRUCTURES THAT PROVIDE WATER QUALITY ARE TO BE INSPECTED AND MAINTAINED FOUR (4) TIMES PER YEAR

STRUCTURE TYPE	INNER STRUCTURE FLOOR AREA*
48"MANHOLE	12.57 S.F.
CB-3A	4.87 S.F.
CB-3A(MOD)	14.44 S.F.
CB-3	10.69 S.F.
CB-3(MOD)	31.68 S.F.
CB-2-2	4.00 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 ODOT & BUTLER COUNTY STANDARD DETAILS

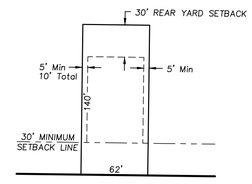
STORM WATER QUALITY STRUCTURE DETAILS

(Not to Scale)



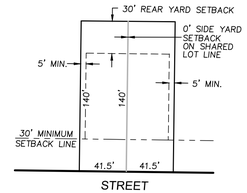
CLUSTER MAILBOX PAD DETAIL

NOT TO SCALE



TYPICAL LOT

8,680 S.F.(Min.)



RANCH DUPLEX TYPICAL LOT

5,810 S.F.(Min.)

Basis of Bearing:
State Plane NAD83 (2011)

0 150 225

SCALE: 1" = 150'

STATE OF OHIO
REGISTERED
PROFESSIONAL ENGINEER
10-11-22

Item	Revision Description	Date	Drwn	Chk
1				
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5				
6				
7				
8				
9				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

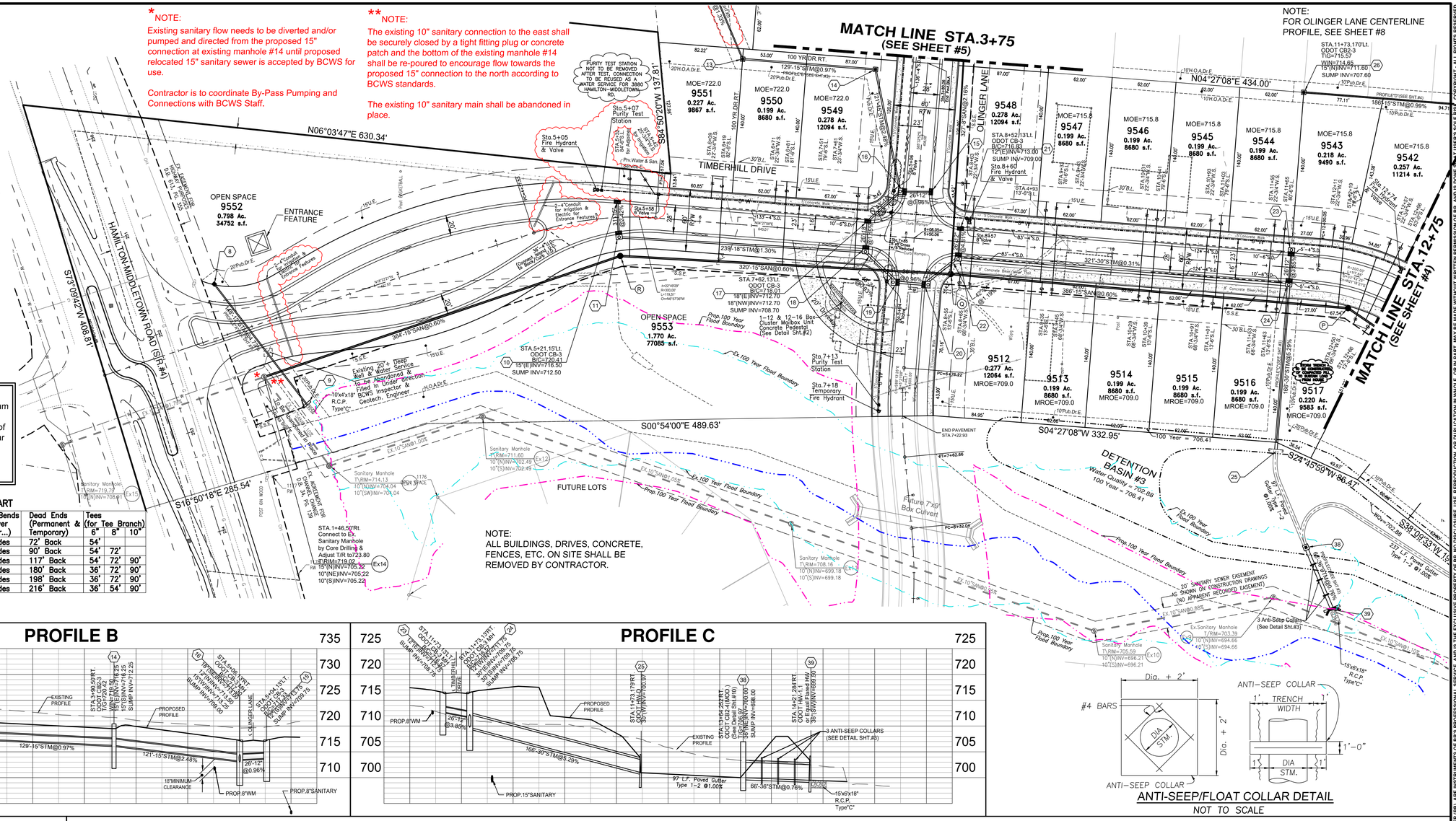
OVERALL PLAN

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22

Sheet: 2/17

Plot time: Oct 11, 2022 - 12:32pm
Drawing name: J:\2017\17-0090\CVIDWG\17-0090 CD.dwg - Layout Tab: 2OVL



REGULATED WATERWAY OF UNITED STATES

LOWER WATER MAIN UNDER STORM

NOTE: CONTRACTOR SHALL COORDINATE LOCATIONS OF PURITY TEST STATIONS WITH BCWS INSPECTOR

NOTES:
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.

* NOTE:
Existing sanitary flow needs to be diverted and/or pumped and directed from the proposed 15" connection at existing manhole #14 until proposed relocated 15" sanitary sewer is accepted by BCWS for use.

Contractor is to coordinate By-Pass Pumping and Connections with BCWS Staff.

** NOTE:
The existing 10" sanitary connection to the east shall be securely closed by a tight fitting plug or concrete patch and the bottom of the existing manhole #14 shall be re-poured to encourage flow towards the proposed 15" connection to the north according to BCWS standards.

The existing 10" sanitary main shall be abandoned in place.

NOTE:
FOR OLINGER LANE CENTERLINE PROFILE, SEE SHEET #8

NOTE:
ALL BUILDINGS, DRIVES, CONCRETE, FENCES, ETC. ON SITE SHALL BE REMOVED BY CONTRACTOR.

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'		
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'

PROFILE B

PROFILE C

ANTI-SEEP/FLOAT COLLAR DETAIL

NOT TO SCALE

PROFILE A

TIMBERHILL DRIVE

Basis of Bearing:
State Plane NAD83 (2011)

0 50 75

SCALE: 1" = 50'

10-11-22

Item	Revision Description	Date	Drwn:	Chk:
1	Revised as per BCWS & BCEO	5-19-22	JMW	TAC
2	Updated HW labels	7-25-22	TAC	
3	Added water service for entrance feature & conduits in island for irrigation & electric	10-11-22	TAC	
4				
5				
6				
7				
8				
9				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

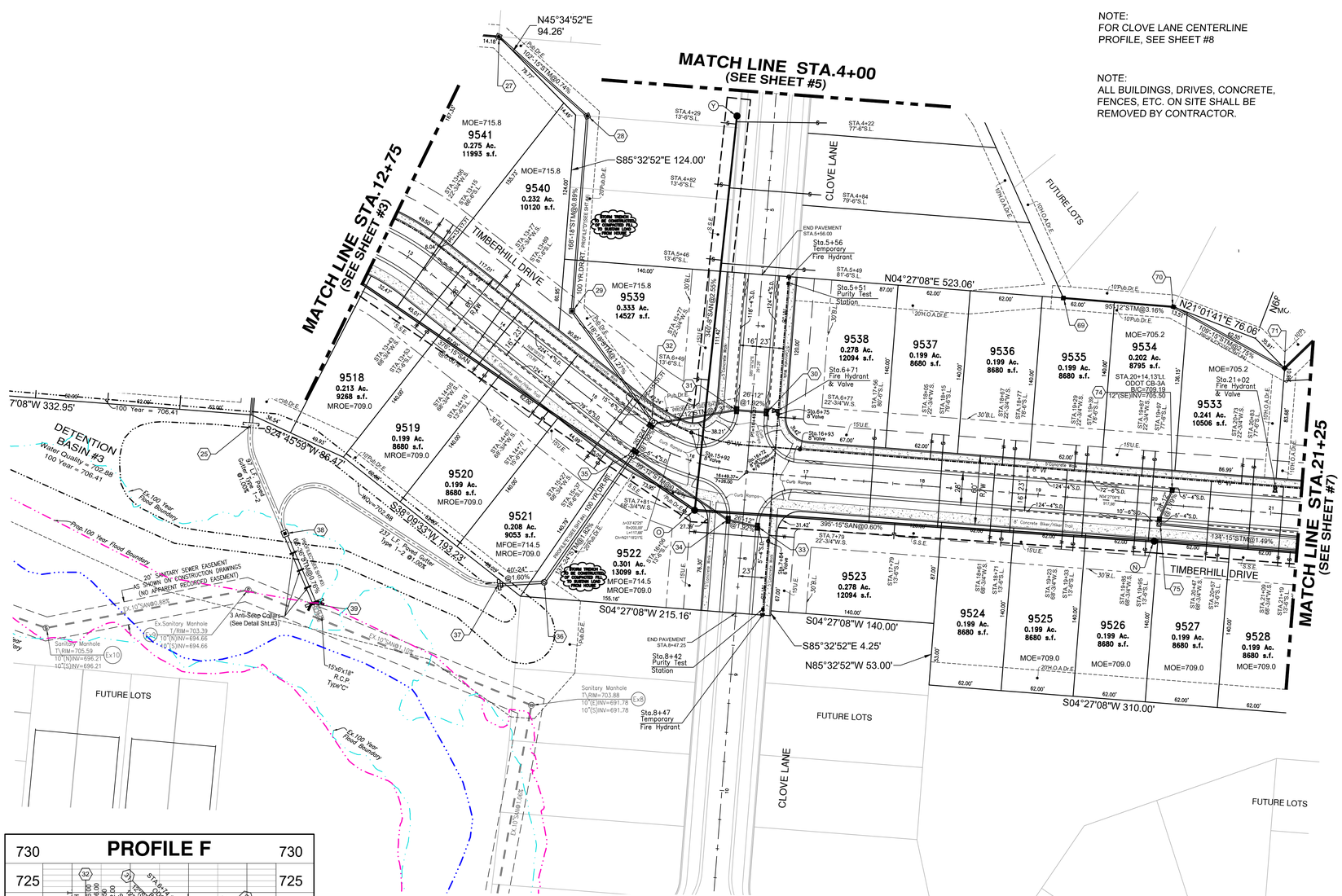
PLAN & PROFILE

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22

Sheet:
3/17

Plot time: Oct 11, 2022 - 12:33pm
Drawing name: J:\2017\17-0090\CIVIL\DWG\17-0090 CD.dwg - Layout Tab: 3PP



REGULATED WATERWAY OF UNITED STATES

LOWER WATER MAIN UNDER STORM

NOTE: CONTRACTOR SHALL COORDINATE LOCATIONS OF PURITY TEST STATIONS WITH BCWS INSPECTOR

NOTES:

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 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'		
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 CLOVE LANE CENTERLINE PROFILE, SEE SHEET #8

NOTE:
ALL BUILDINGS, DRIVES, CONCRETE, FENCES, ETC. ON SITE SHALL BE REMOVED BY CONTRACTOR.

PROFILE K

PROFILE E

PROFILE F

PROFILE D

TIMBERHILL DRIVE

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Basis of Bearing:
State Plane NAD83 (2011)
0 50 75
SCALE: 1" = 50'

10-11-22

Item	Revision Description	Date	Drwn:	Chk:
1	Revised as per BCWS & BCEO	5-19-22	JMW	TAC
2	Revised lot numbers	10-11-22	TAC	
3				
4				
5				
6				
7				
8				
9				

TIMBERHILL
SECTION ONE

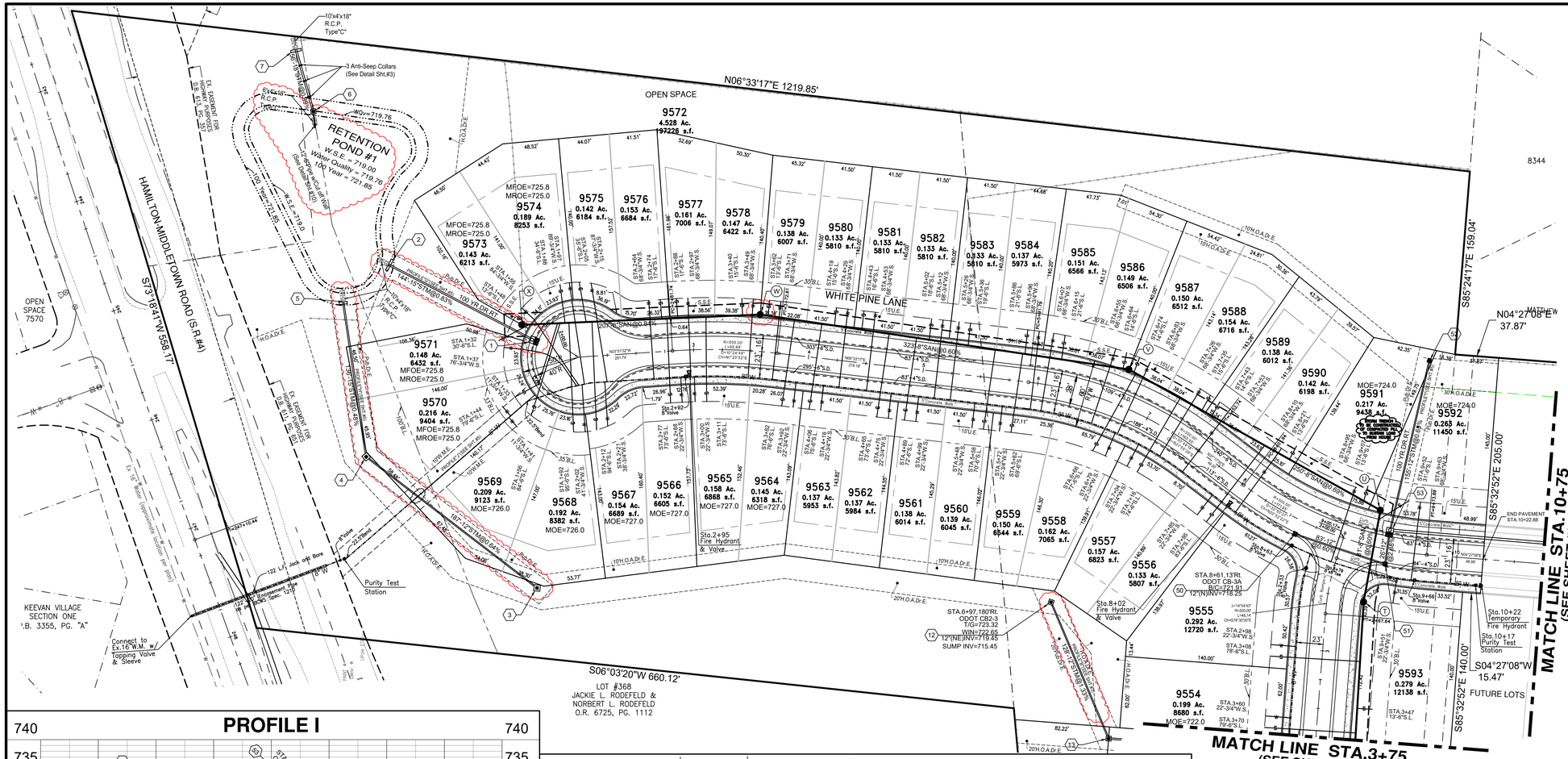
SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

PLAN & PROFILE

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

Drawing:	17-0090 CD
Drawn by:	TAC
Checked By:	XXX
Issue Date:	3-7-22
Sheet:	4/17

Plot time: Oct 11, 2022 - 12:54pm
Drawing name: J:\2017\17-0090\CD\DWG\17-0090 CD.dwg - Layout Tab: 4PP


LOWER WATER MAIN UNDER STORM
NOTE: FOR OLINGER LANE CENTERLINE PROFILE, SEE SHEET #8
NOTE: ALL BUILDINGS, DRIVES, CONCRETE, FENCES, ETC. ON SITE SHALL BE REMOVED BY CONTRACTOR.
NOTE: CONTRACTOR SHALL COORDINATE LOCATIONS OF PURITY TEST STATIONS WITH BCWS INSPECTOR
NOTES:
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.
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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°
8" | 18° 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°
PROFILE I
PROFILE J
PROFILE H
PROFILE G
WHITE PINE LANE
MATCH LINE STA.10+75 (SEE SHEET #6)
MATCH LINE STA.3+75 (SEE SHEET #3)
Basis of Bearing: State Plane NAD83 (2011)
SCALE: 1" = 50'
TIMBERHILL SECTION ONE
SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO
PLAN & PROFILE
bayer becker
www.bayerbecker.com
6925 Hillside Court, Suite A
Mason, OH 45040 · 513.336.6600
Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22
Sheet: 5/17
Item | Revision Description | Date | Drwn | Chk
1 | Revised as per BCWS | 5-16-22 | JMW | TAC
2 | Revised outlet pipe dimensions on structure 6 | 5-25-22 | JMW |
3 | Revised White Pine Lane profile and utilities, changed Basin #1 to wet pond | 10-11-22 | TAC |
Plot time: Oct 11, 2022 - 12:36pm
Drawing name: J:\2017\17-0090\CIVIL\DWG\17-0090 CD.dwg - Layout Tab: 5PP
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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"
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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'

REGULATED WATERWAY OF UNITED STATES

LOWER WATER MAIN UNDER STORM

NOTE: CONTRACTOR SHALL COORDINATE LOCATIONS OF PURITY TEST STATIONS WITH BCWS INSPECTOR

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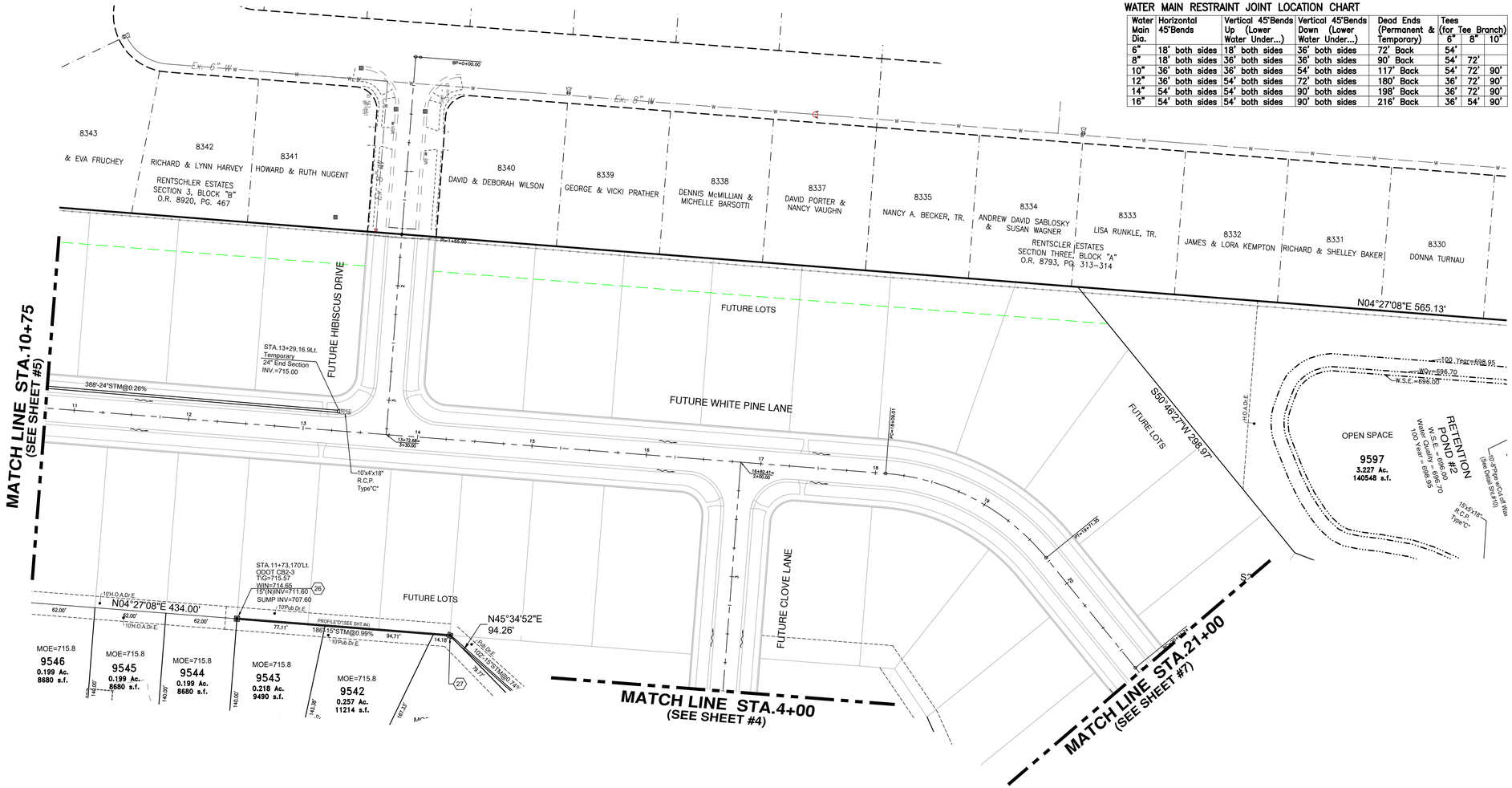

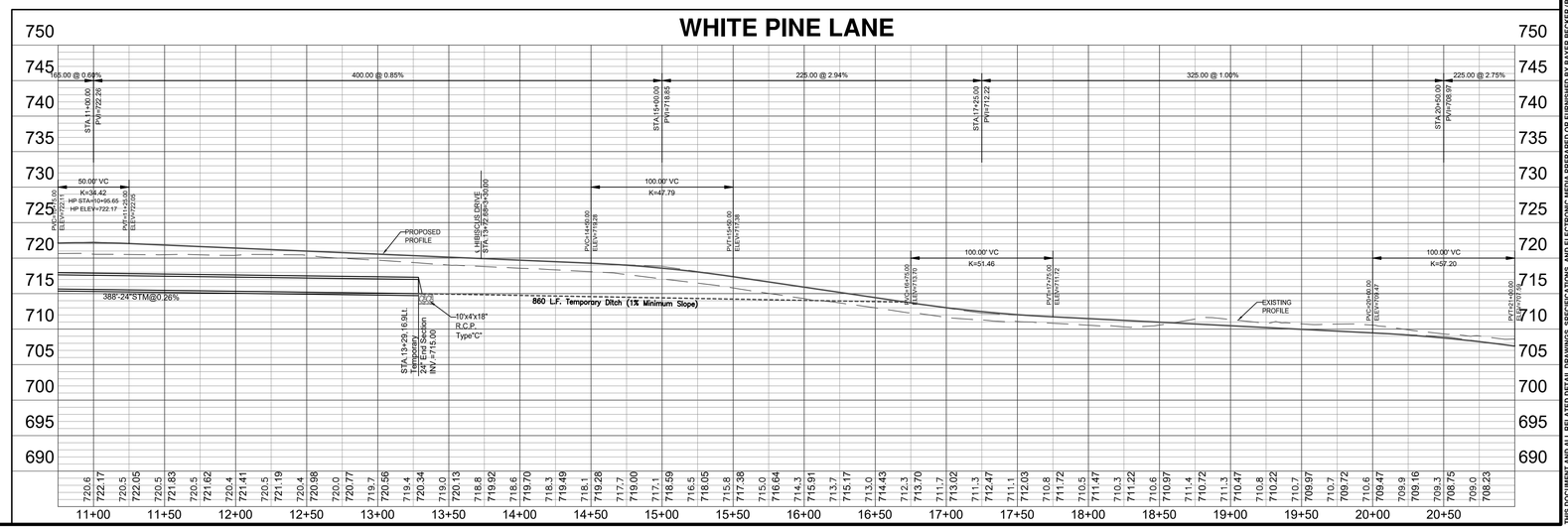

Basis of Bearing: State Plane NAD83 (2011)
0 50 75
SCALE: 1" = 50'

STATE OF OHIO — REGISTERED PROFESSIONAL ENGINEER — 10-11-22

Item	Revision Description	Date	Drwn.	Chk.
1				
2				
3				
4				
5				
6				
7				
8				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

PLAN & PROFILE

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Mason, OH 45040 - 513.336.6600

Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22
Sheet: 6/17

Plot time: Oct 11, 2022 - 12:39pm
Drawing name: J:\2017\17-0090\CIVIL\DWG\17-0090 CD.dwg - Layout Tab: 6PP

REGULATED WATERWAY OF UNITED STATES

LOWER WATER MAIN UNDER STORM

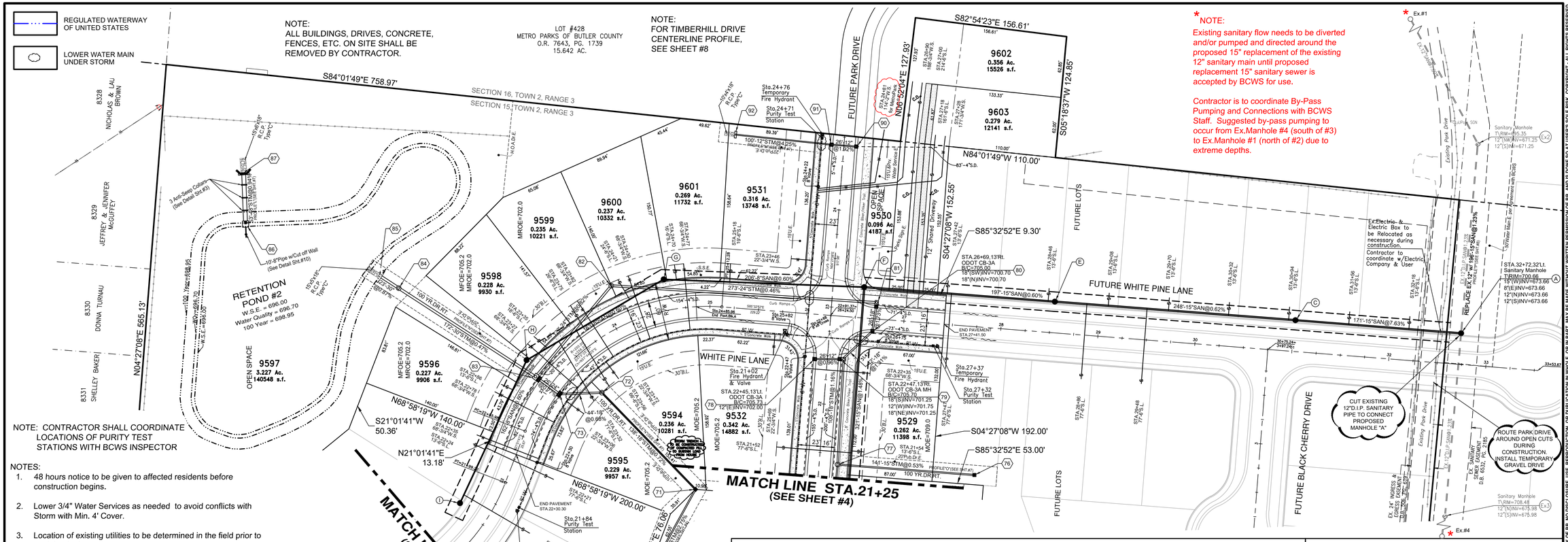
NOTE:
ALL BUILDINGS, DRIVES, CONCRETE, FENCES, ETC. ON SITE SHALL BE REMOVED BY CONTRACTOR.

LOT #428
METRO PARKS OF BUTLER COUNTY
O.R. 7643, PG. 1739
15.642 AC.

NOTE:
FOR TIMBERHILL DRIVE CENTERLINE PROFILE, SEE SHEET #8

*NOTE:
Existing sanitary flow needs to be diverted and/or pumped and directed around the proposed 15" replacement of the existing 12" sanitary main until proposed replacement 15" sanitary sewer is accepted by BCWS for use.

Contractor is to coordinate By-Pass Pumping and Connections with BCWS Staff. Suggested by-pass pumping to occur from Ex.Manhole #4 (south of #3) to Ex.Manhole #1 (north of #2) due to extreme depths.



NOTE: CONTRACTOR SHALL COORDINATE LOCATIONS OF PURITY TEST STATIONS WITH BCWS INSPECTOR

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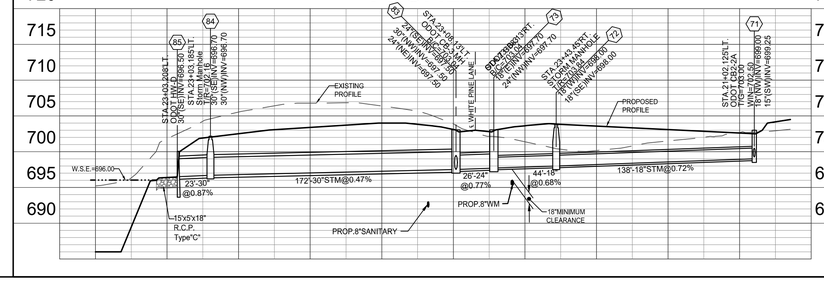
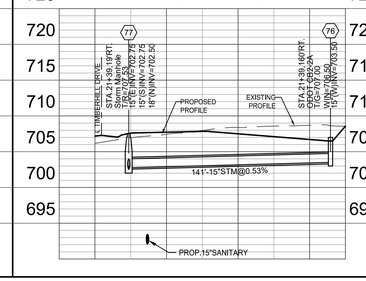
12"	36' both sides	54' both sides	72' both sides	180' Back	36'	72'	90'
14"	54' both sides	54' both sides	90' both sides	198' Back	36'	72'	90'
16"	54' both sides	54' both sides	90' both sides	216' Back	36'	54'	90'

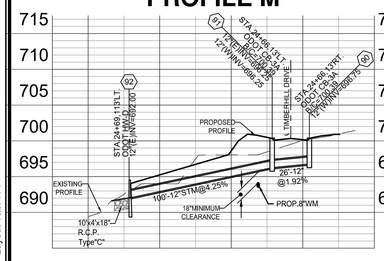
PROFILE N



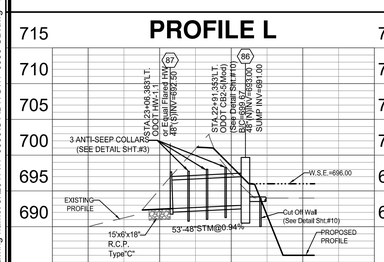
PROFILE O



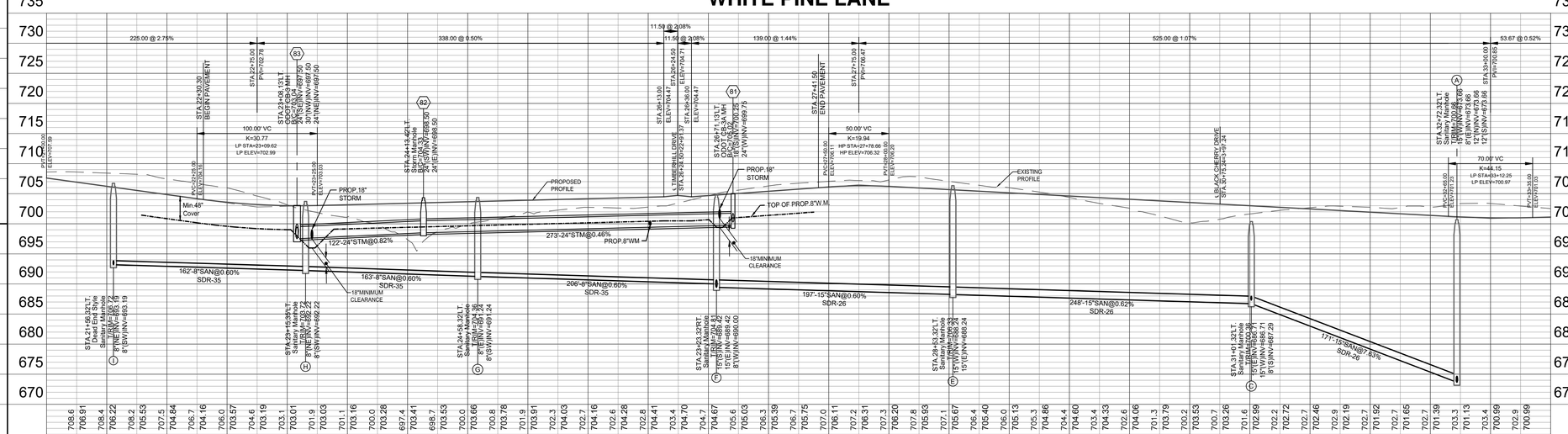
PROFILE M



PROFILE L



WHITE PINE LANE



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Item	Revision Description	Date	Drawn	Chk
1	Revised as per BCWS	5-16-22	JMV	TAC
2	Updated HW labels	5-25-22	JMV	
3	Added water service for MetroParks & revised lot numbers	10-11-22	TAC	
4				
5				
6				
7				
8				
9				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

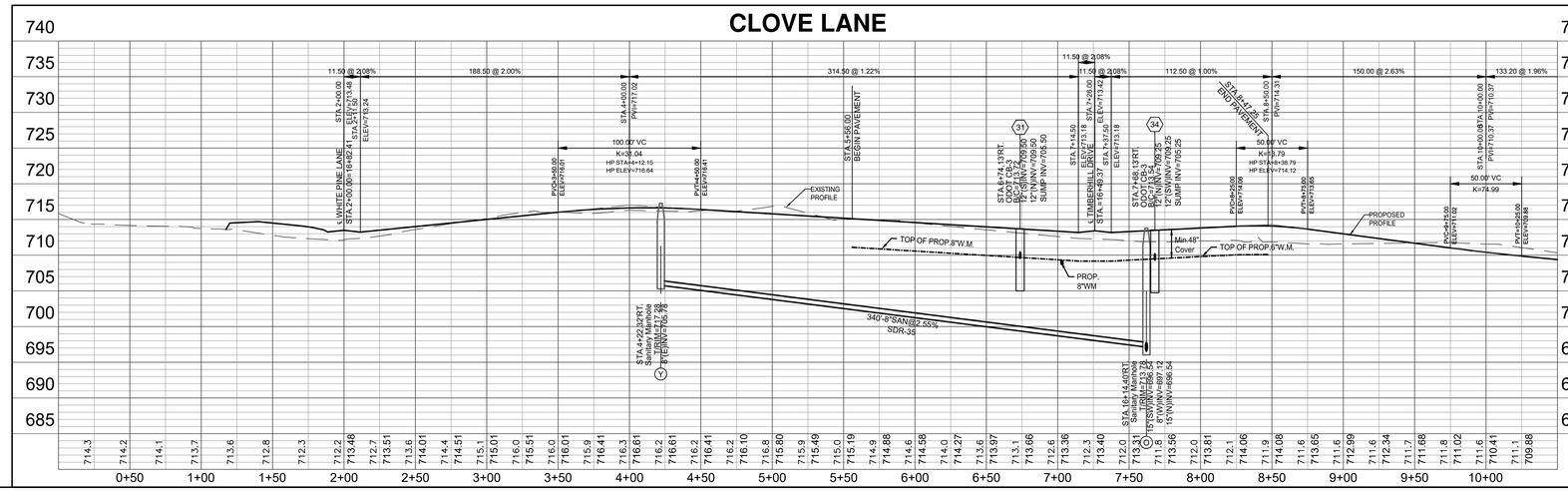
PLAN & PROFILE

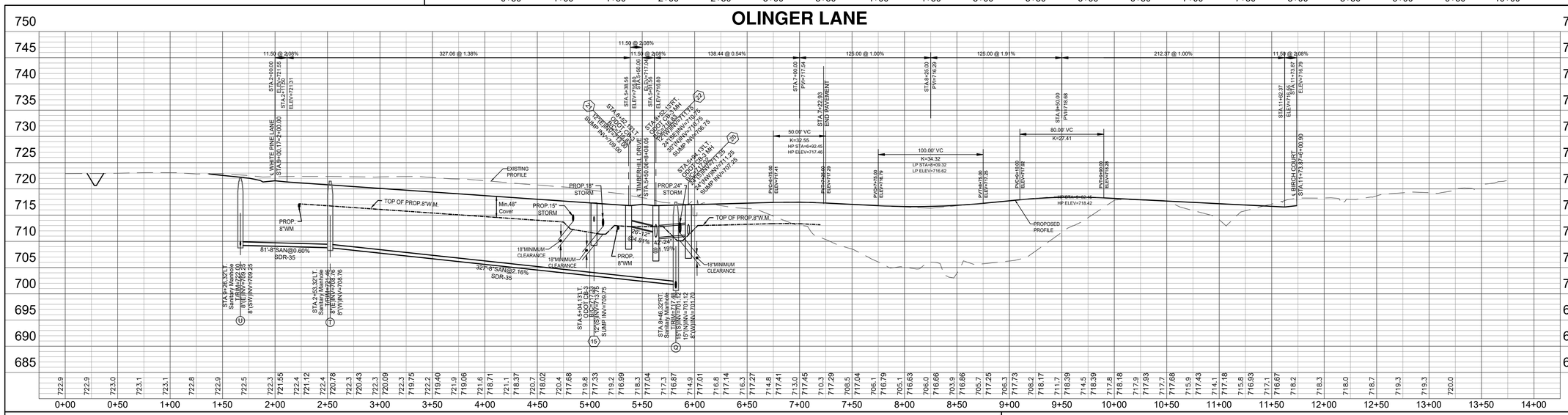
bayer becker
www.bayerbecker.com
6070 Hamilton Blvd. Suite A
Mason, OH 45040 513.336.6600

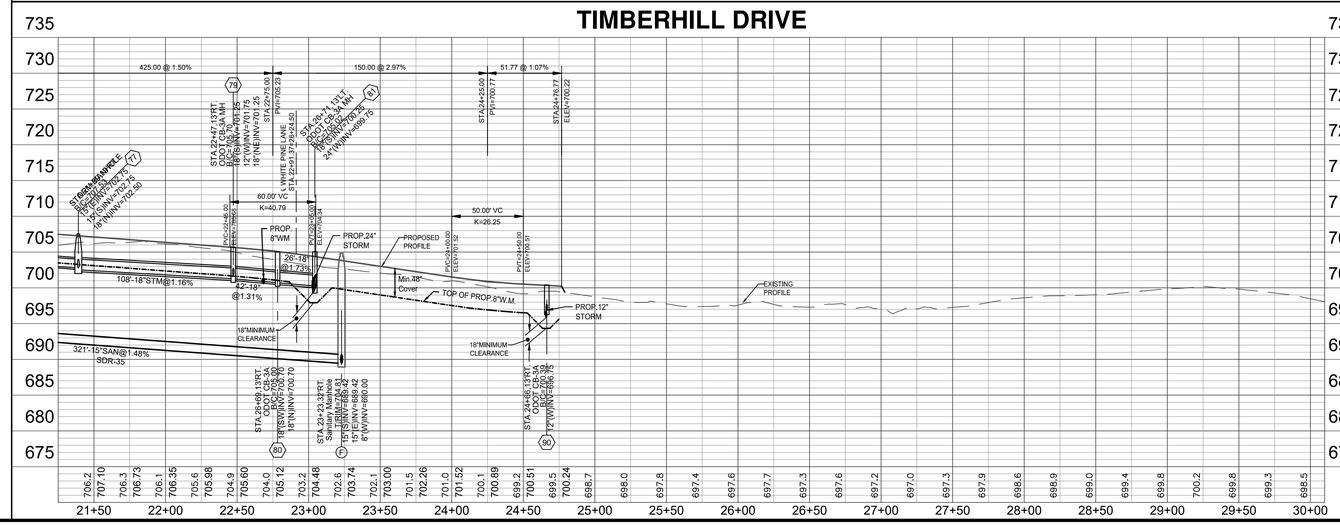
Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22

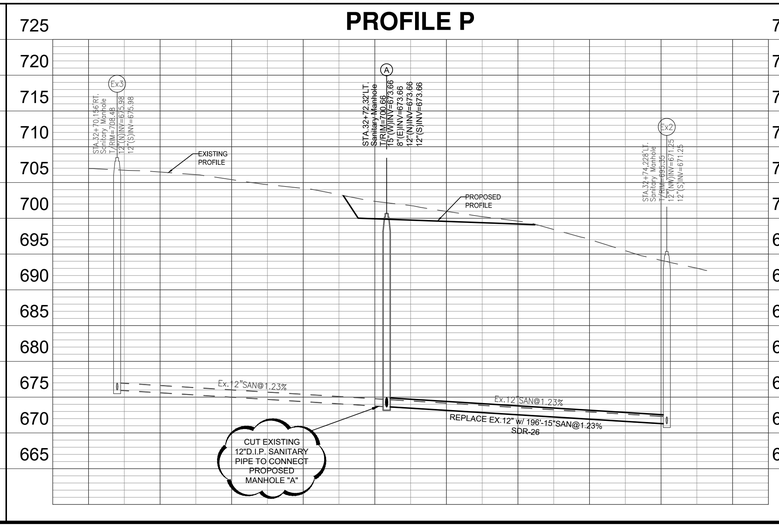
Sheet: 7/17

Plot time: Oct 11, 2022 - 12:53pm
Drawing name: J:\2017\17-0090\CIVIL\DWG\17-0090 CD.dwg - Layout Tab: 7PP









Basis of Bearing:
State Plane NAD83 (2011)

0 50 75

SCALE: 1" = 50'

STATE OF OHIO
TIMOTHY A. BECKER
REGISTERED
PROFESSIONAL ENGINEER
10-11-22

Item	Revision Description	Date	Drawn	Chk
1	Revised as per BC/VS	5-16-22	JMW	TAC
2				
3				
4				
5				
6				
7				
8				
9				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

PROFILES

bayer becker
www.bayerbecker.com
6600 Lyons Road, Suite A
Mason, OH 45040 513.338.6600

Drawing:	17-0090 CD
Drawn by:	TAC
Checked By:	XXX
Issue Date:	3-7-22
Sheet:	8/17

Plot time: Oct 11, 2022 - 12:41pm
Drawing name: J:\2017\17-0090\CIV\DWG\17-0090 CD.dwg - Layout Tab: 8PP

Basis of Bearing:
State Plane NAD83 (2011)

0 30 45

SCALE: 1" = 30'

STATE OF OHIO
REGISTERED
PROFESSIONAL ENGINEER
10-11-22

Item	Revision Description	Date	Drwn	Chk
1	Revised as per BCEO	5-16-22	TAC	
2	Revised White Pine Lane cul-de-sac detail	10-1-22	TAC	
3				
4				
5				
6				
7				
8				
9				

TIMBERHILL SECTION ONE

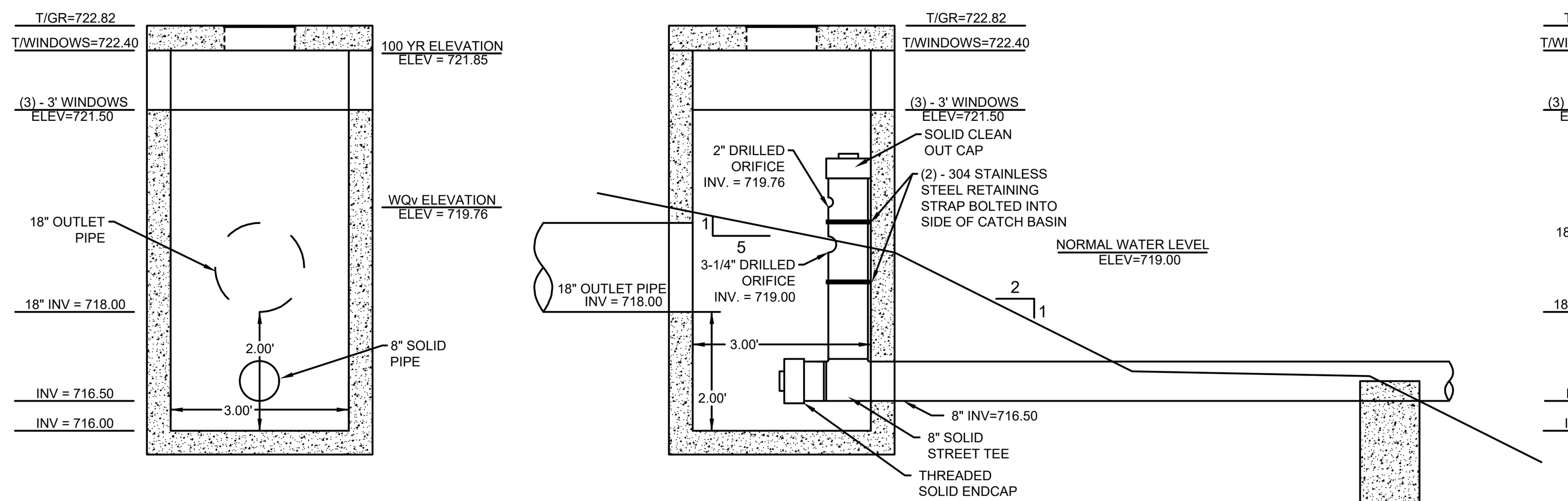
SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

INTERSECTION DETAILS

bayer becker
www.bayerbecker.com
6070 Hamilton Blvd. Suite A
Mason, OH 45040 · 513.338.6600

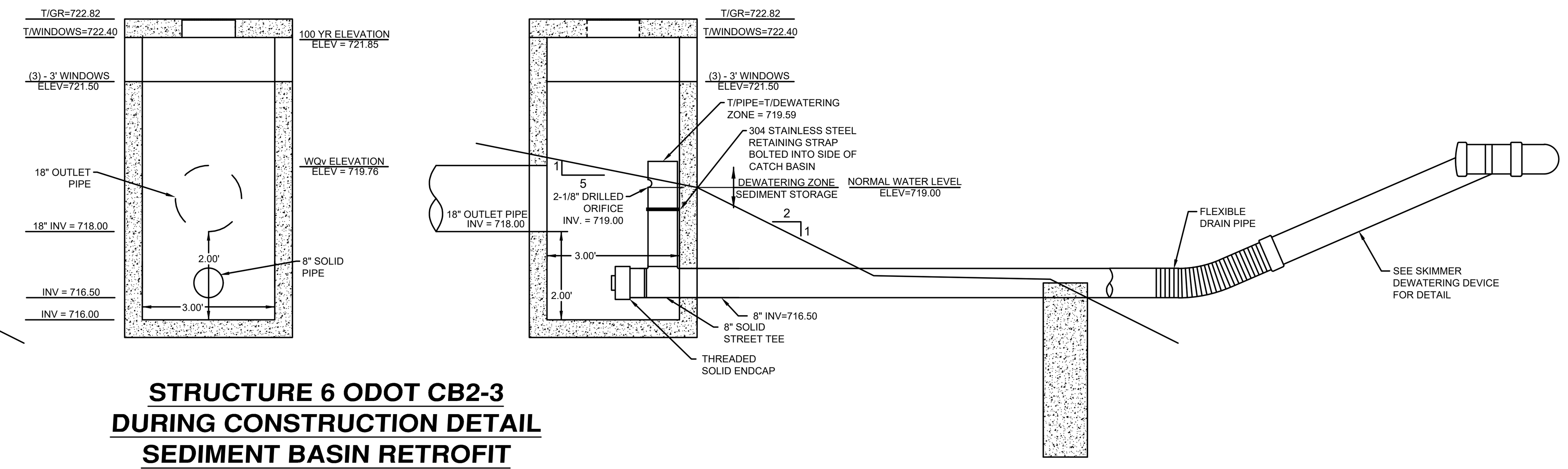
Drawing:	17-0090 CD
Drawn by:	TAC
Checked By:	XXX
Issue Date:	3-7-22
Sheet:	9/17

Plot time: Oct 11, 2022 - 12:45pm
Drawing name: J:\2017\17-0090\CIV\DWG\17-0090 CD.dwg - Layout Tab: 9INT



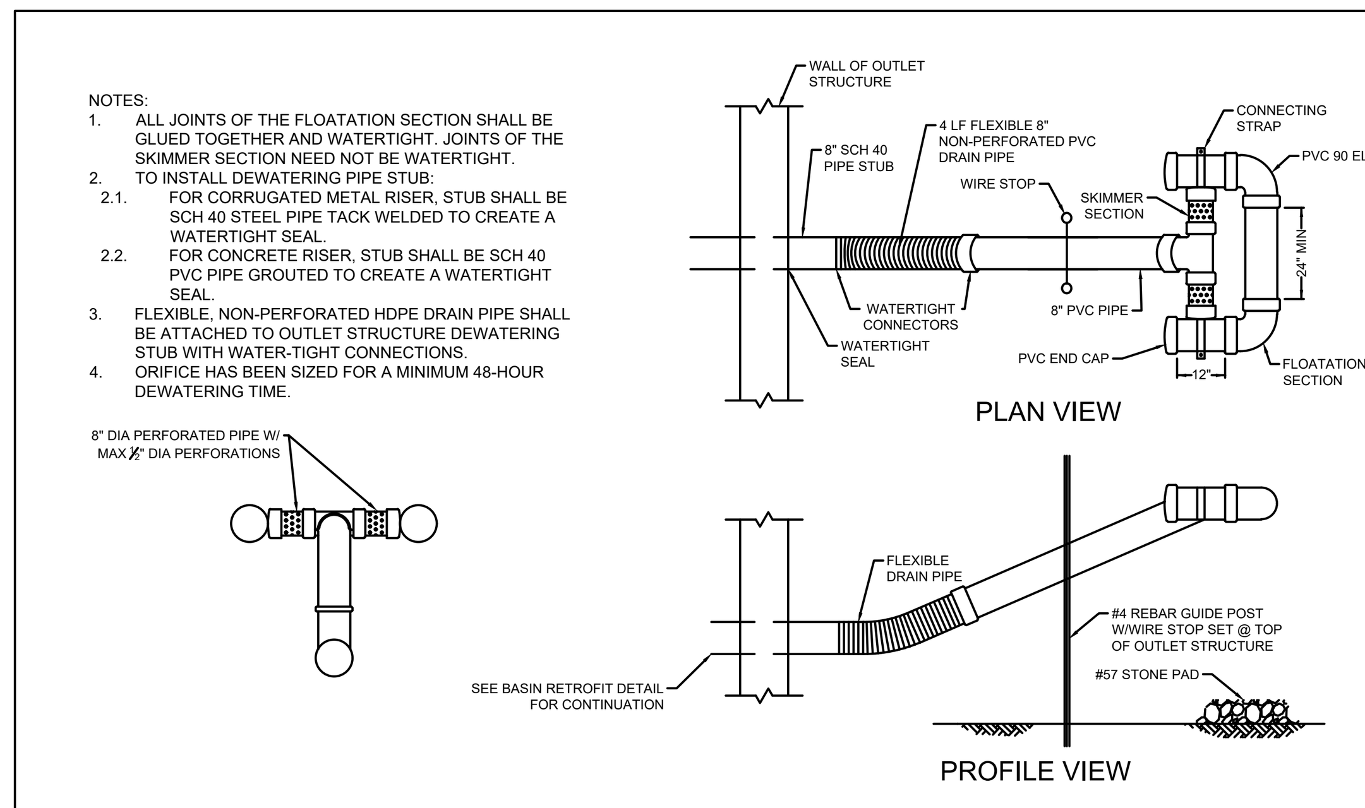
STRUCTURE 6 ODOT CB2-3 POST CONSTRUCTION DETAIL

NOT TO SCALE



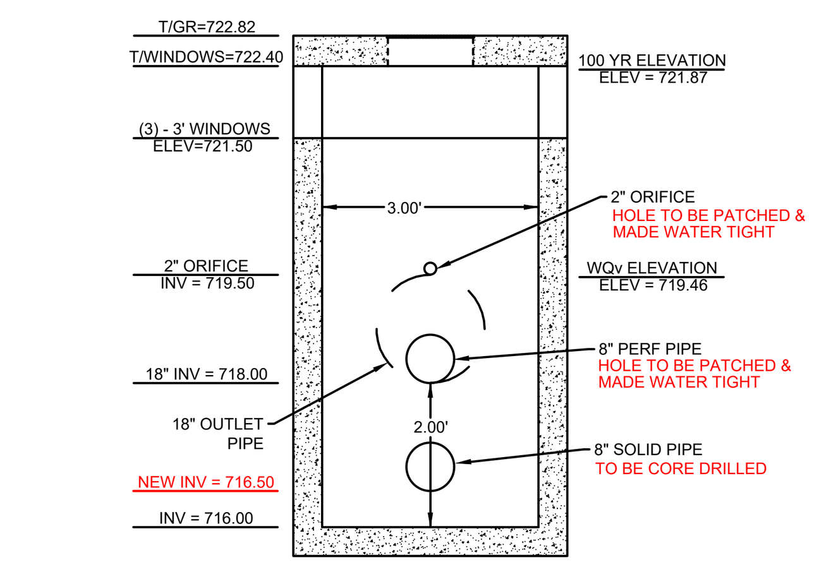
STRUCTURE 6 ODOT CB2-3 DURING CONSTRUCTION DETAIL SEDIMENT BASIN RETROFIT

NOT TO SCALE



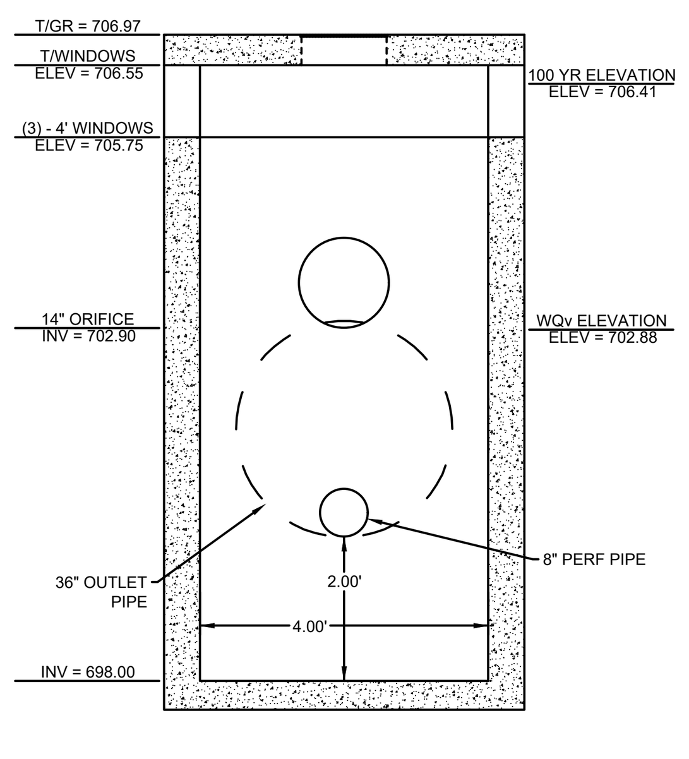
SKIMMER DEWATERING DEVICE

NOT TO SCALE



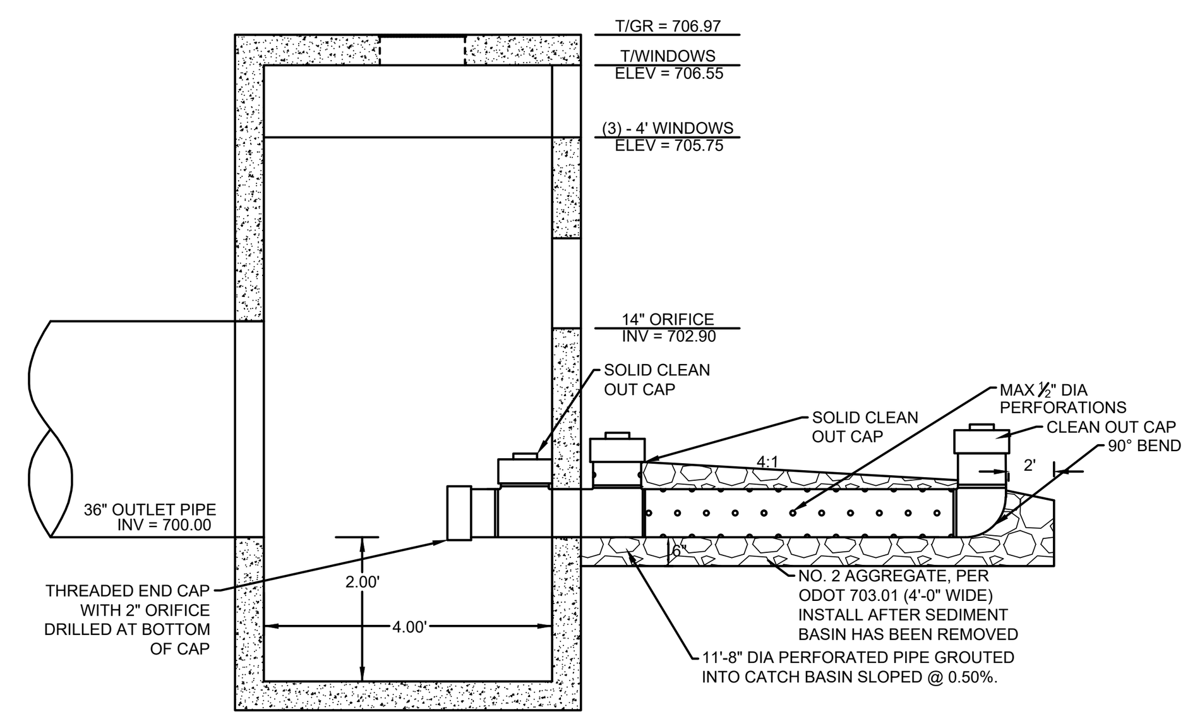
ORIGINAL CAST STRUCTURE 6 ODOT CB2-3 ALTERATIONS

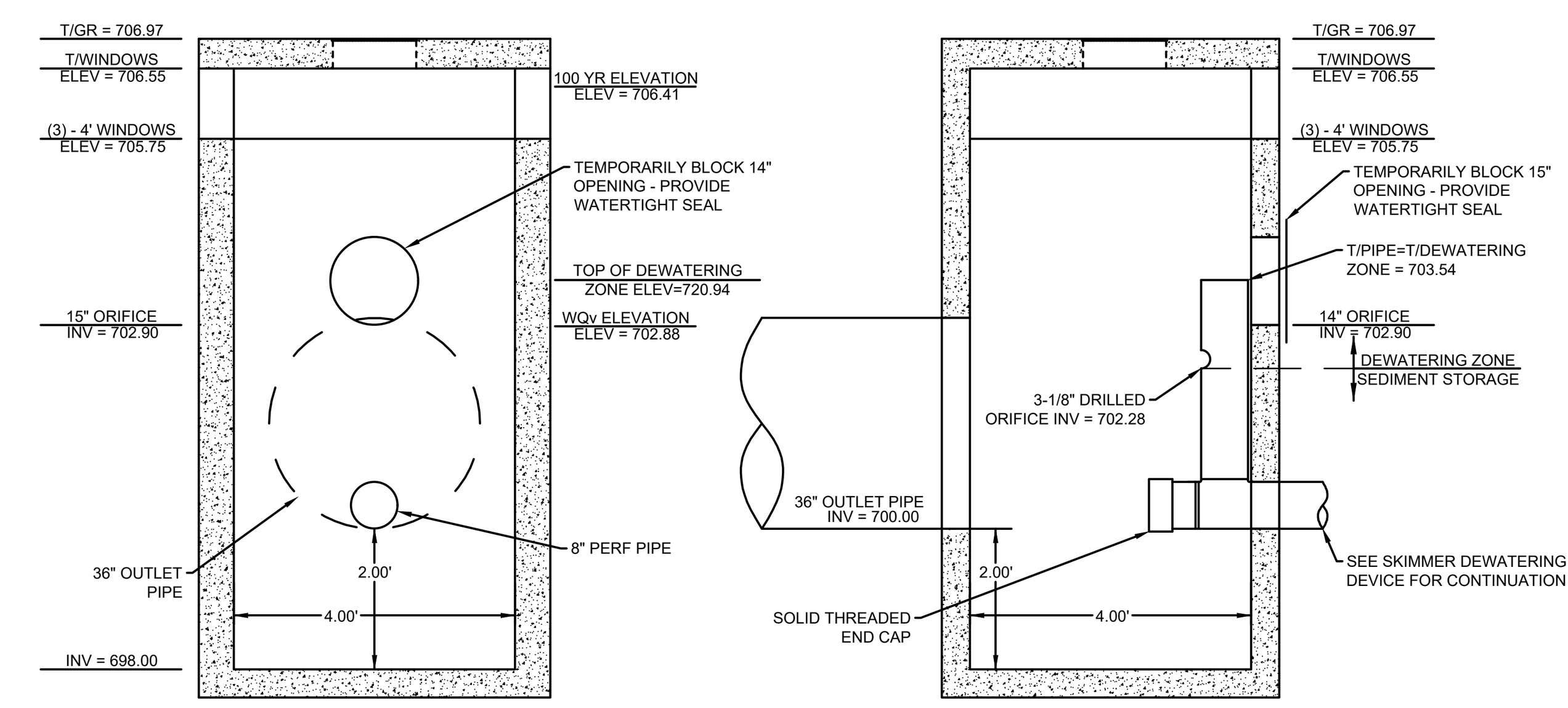
NOT TO SCALE



STRUCTURE 38 ODOT CB2-4 POST CONSTRUCTION DETAIL

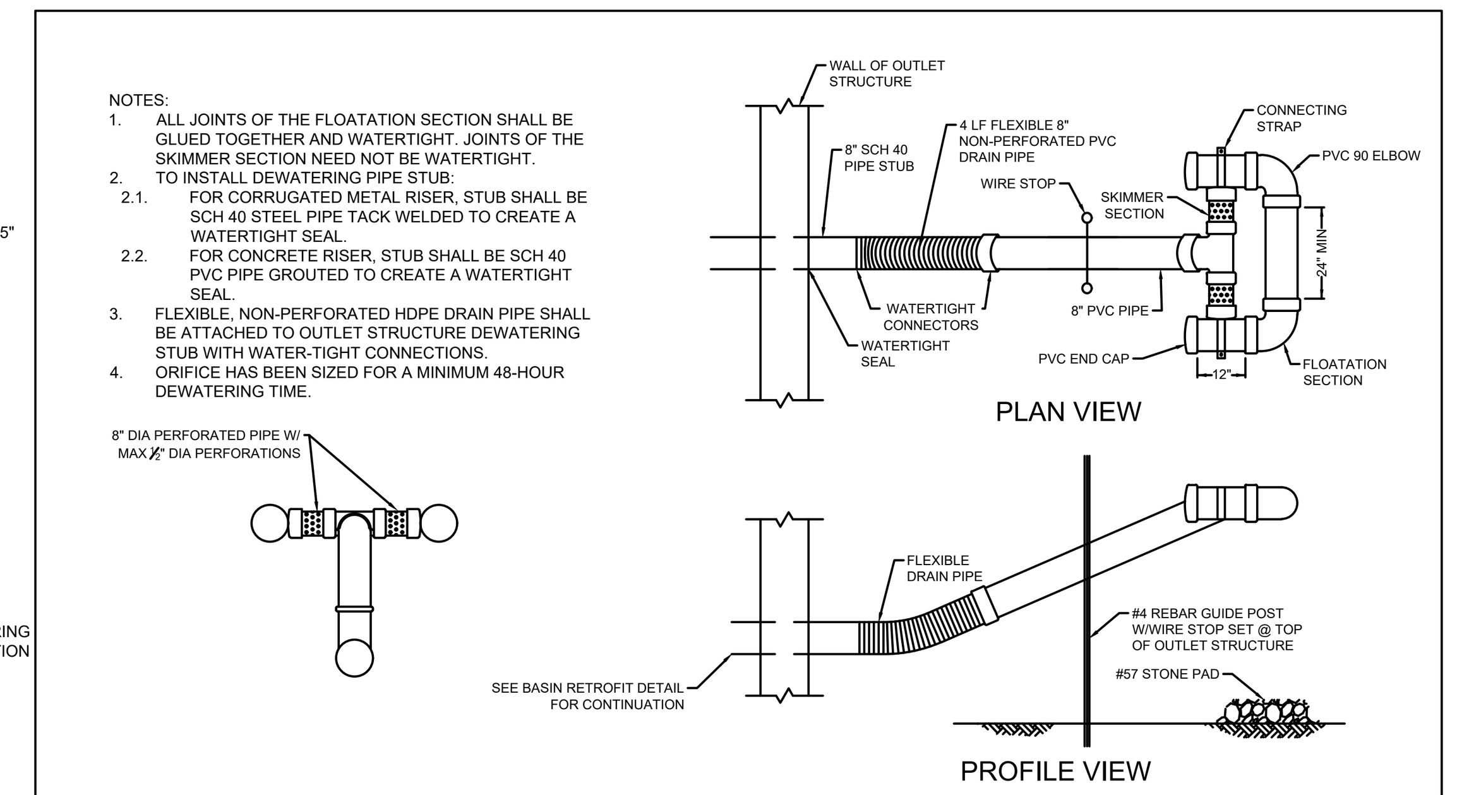
NOT TO SCALE





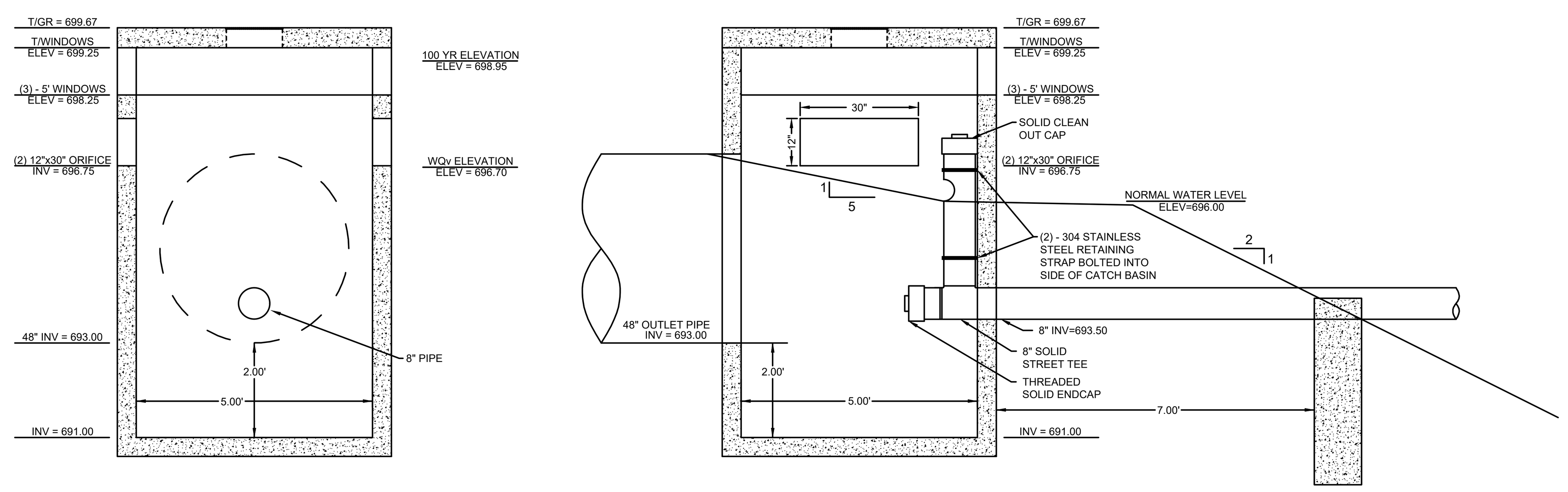
STRUCTURE 38 ODOT CB2-4 DURING CONSTRUCTION DETAIL SEDIMENT BASIN RETROFIT

NOT TO SCALE



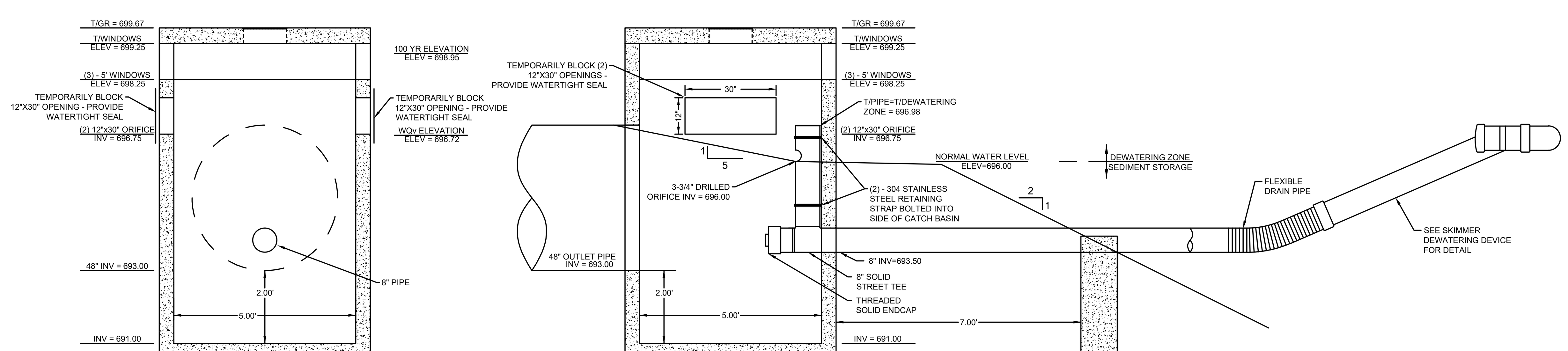
SKIMMER DEWATERING DEVICE

NOT TO SCALE



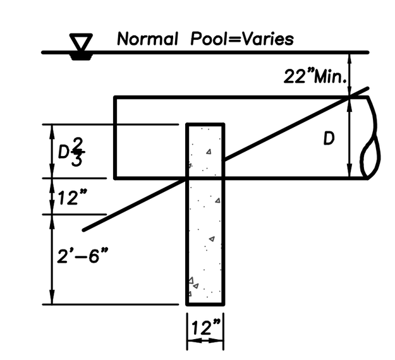
STRUCTURE 86 ODOT CB2-5 POST CONSTRUCTION DETAIL

NOT TO SCALE



STRUCTURE 86 ODOT CB2-5 DURING CONSTRUCTION DETAIL SEDIMENT BASIN RETROFIT

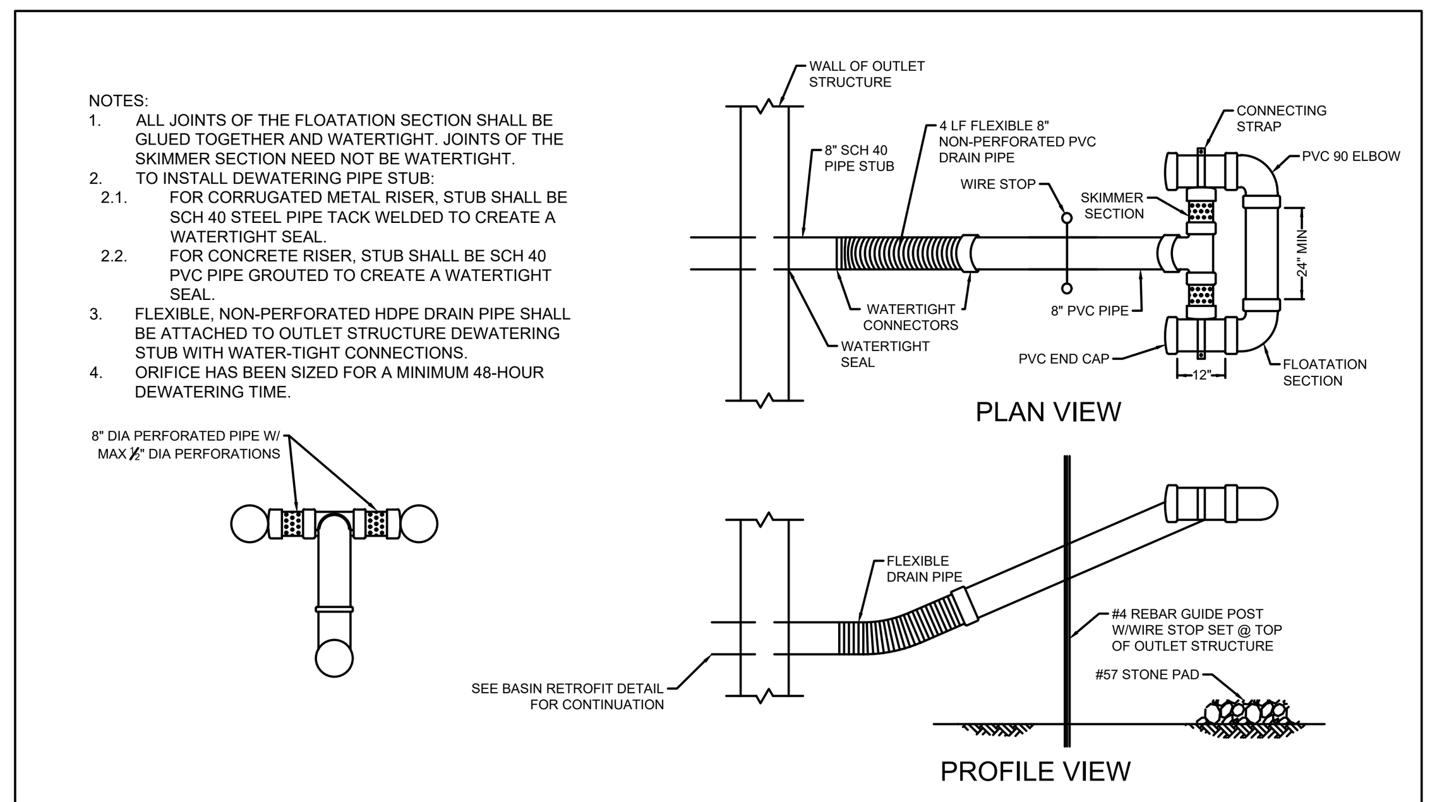
NOT TO SCALE



PIPE SIZE	WIDTH	PIPE SIZE	WIDTH
3"	1'0"	27"	4'6"
6"	1'0"	30"	5'0"
8"	2'0"	33"	5'6"
12"	2'0"	36"	6'0"
15"	2'6"	39"	6'6"
18"	3'0"	42"	7'0"
24"	4'0"	48"	8'0"

CUT-OFF WALL DETAIL

NOT TO SCALE



SKIMMER DEWATERING DEVICE

NOT TO SCALE

Basis of Bearing: State Plane NAD83 (2011)

SCALE: 1" = 30'

Item	Revision Description	Date	Drwn:	Chk:
1	Revised as per BCWS	5-19-22	AMB	
2	Revised outlet pipe dimensions on structure 6	7-25-22	TAC	
3	Revised outlet structure 6 as per regrade	10-11-22	TAC	
4				
5				
6				
7				
8				
9				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

DRAINAGE STRUCTURE DETAILS

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22
Sheet: 10/17

Plot time: Oct 11, 2022 - 12:45pm
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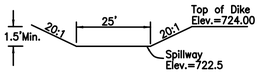

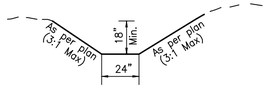

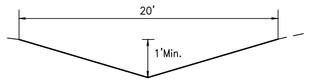

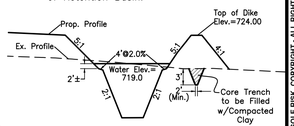

SOIL TYPES

CLEARING LIMITS

SILT FENCE OR MULCH BERM

REGULATED WATERWAY OF STATE OF OHIO

RIPARIAN AREA: NO DISTURBANCE PERMITTED

CORE TRENCH (SEE DETAIL SHEET #11)

EROSION CONTROL NOTES

1. SEEDING AND MULCHING
2. SODDING
3. PRESERVE EXISTING VEGETATION
4. STRAW BALE
5. SILT FENCE OR MULCH BERM
6. SOIL PILES
7. TEMPORARY STREAM CROSSING
8. GRAVEL CURB INLET SEDIMENT FILTER
9. GEOTEXTILE INLET SEDIMENT FILTER
10. GABIONS
11. STRAW BALE DROP INLET SEDIMENT FILTER
12. SOD DROP INLET SEDIMENT FILTER
13. GRAVEL & WIRE MESH DROP INLET SEDIMENT FILTER
14. BLOCK & GRAVEL CURB INLET SEDIMENT FILTER
15. TEMPORARY SEDIMENT TRAPS & DAMS
16. DIKES & SLOPE PROTECTION
17. ROLLED GRAVEL CURB INLET SEDIMENT FILTER
18. CHECK DAM
19. TEMPORARY DETENTION SEDIMENT FILTER/BASIN
20. DANDY BAG/BEAVER DAM® OR EQUAL
21. CONSTRUCTION ENTRANCE
22. CONCRETE WASHOUT AREA

SEE SOIL EROSION & SEDIMENTATION CONTROL DETAIL SHEET (Page #17)

DETENTION BASIN #1 SPILLWAY DETAIL

(Not to Scale)

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

TYPICAL DITCH SECTION

TYPICAL DRAINAGE ROUTE SECTION

NOTE:
ALL BUILDINGS, DRIVES, CONCRETE, FENCES, ETC. ON SITE SHALL BE REMOVED BY CONTRACTOR.

NOTE:
Geotechnical Engineer to be on site during construction of Retention Basin.

RETENTION POND #1 DAM TYPICAL SECTION

(Not to Scale)

NOTES:

1. Regular inspection and maintenance will be provided for all erosion and sediment control practices. Permanent records of maintenance and inspections must be kept throughout the construction period. Inspections must be made a minimum of once every seven (7) days and immediately after storm events greater than 0.5 inches of rain in a 24 hour period. Provided will be name of inspector, major observations, date of inspection and corrective measures taken.
2. All erosion and sediment control practices must conform to the specifications of Rainwater and Land Development, Ohio's standards for storm water management, land development and urban stream protection.
3. Perimeter Sedimentation control and basins/traps shall be implemented as the first step of grading and within seven (7) days of initial grubbing or grading and shall continue to function until upland areas are stabilized.
4. Disturbed areas which will remain unworked for a period of fourteen (14) days or more, shall be stabilized with seeding and mulching or other approved means within seven (7) days. All disturbed areas within fifty (50) feet of an intermittent or solid blue line stream shall be stabilized within two (2) days. All areas of a site which are at final grade shall be stabilized with seeding and mulching or other approved means within seven (7) days.
5. Quantities for Erosion Control may vary between detailed plans and field conditions during construction. Plan quantities are a minimum; more erosion control may be necessary due to environmental conditions.
6. Sedimentation control and ditch swales are subject to change upon completion of entire set of construction drawings.
7. No solid or liquid waste shall be discharged into storm water runoff.
8. Home builders are responsible for erosion control on each individual lot.
9. Contractors to accept all quantities as correct prior to beginning construction.

Plot time: Oct 11, 2022 - 12:47pm
Drawing name: J:\2017\17-0090\CV\DWG\17-0090 CD.dwg - Layout Tab: 11GR

Basis of Bearing:
State Plane NAD83 (2011)

0 50 75
SCALE: 1" = 50'

10-11-22

Item	Revision Description	Date	Drwn:	Chk:
1	Revised as per BCWS	5-19-22	TAC	
2	Revised outlet pipe dimensions on structure 6	7-25-22	TAC	
3	Revised rear yard swale and clearing limits on lots 9558 & 9559	8-10-22	TAC	
4	Revised grading on White Pine Lane cul-de-sac & changed Basin #1 to wet pond	10-11-22	TAC	
5				
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7				
8				
9				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

GRADING PLAN

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22
Sheet: 11/17

Legend	
(grey dashed line)	SOIL TYPES
(dotted line)	CLEARING LIMITS
(dash-dot line)	SILT FENCE OR MULCH BERM
(blue dash-dot line)	REGULATED WATERWAY OF STATE OF OHIO
(cross-hatched area)	RIPARIAN AREA: NO DISTURBANCE PERMITTED

EROSION CONTROL NOTES

1. SEEDING AND MULCHING
2. SODDING
3. PRESERVE EXISTING VEGETATION
4. STRAW BALE
5. SILT FENCE OR MULCH BERM
6. SOIL PILES
7. TEMPORARY STREAM CROSSING
8. GRAVEL CURB INLET SEDIMENT FILTER
9. GEOTEXTILE INLET SEDIMENT FILTER
10. GABIONS
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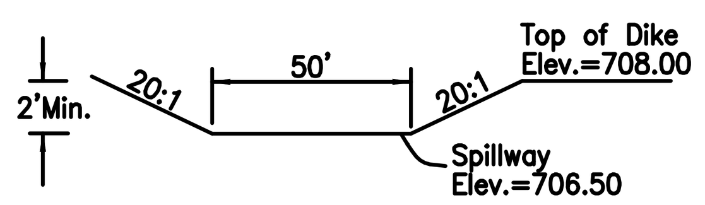
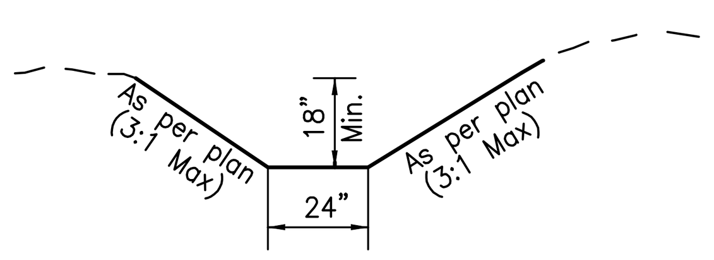
16. DIKES & SLOPE PROTECTION
17. ROLLED GRAVEL CURB INLET SEDIMENT FILTER
18. CHECK DAM
19. TEMPORARY DETENTION SEDIMENT FILTER/BASIN
20. DANDY BAG/BEAVER DAM® OR EQUAL
21. CONSTRUCTION ENTRANCE
22. CONCRETE WASHOUT AREA

SEE SOIL EROSION & SEDIMENTATION CONTROL DETAIL SHEET (Page #17)

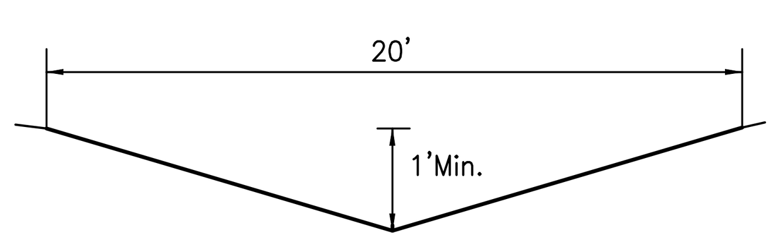


DETENTION BASIN #3
SPILLWAY DETAIL
(Not to Scale)

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



TYPICAL DITCH SECTION



TYPICAL DRAINAGE ROUTE SECTION

PROJECT DATA			
Total Site Area	36.58 Ac.		
Sediment Basin Calculations:	Basin #1	Basin #2	Basin #3
Drainage Area	4.82 Ac.	20.52 Ac.	18.18 Ac.
Disturbed Tributary Area	4.35 Ac.	20.52 Ac.	16.01 Ac.
Required Sediment Storage	0.10 Ac./Ft.	0.49 Ac./Ft.	0.37 Ac./Ft.
Required Dewatering Storage	0.21 Ac/Ft	0.87 Ac/Ft	0.75 Ac/Ft
Water Quality Volume Required	0.20 Ac./Ft.	0.56 Ac./Ft.	0.50 Ac./Ft.
Estimated Proposed Impervious Area	2.17 Ac.(45%)	7.18 Ac.(35%)	6.20 Ac.(34%)
Pre-Developed Runoff Coefficient	0.32		
Post-Developed Runoff Coefficient	0.50		
Immediate Receiving Waters	Unnamed Tributary to Great Miami River		
Subsequent Receiving Waters	Great Miami River		

SOIL TYPES

Symbol	Name	Type
EcE2	Eden silty clay loam, 15 to 25 percent slopes, moderately eroded	D
FcA	Fincastle silt loam, 0 to 2 percent slopes	C
Gn	Genesee loam	B
MsD2	Miamian-Russell silt loams 12 to 18 percent slopes, moderately eroded	C
RwB2	Russell-Miamian silt loams, bedrock substratum 2 to 6 percent slopes, moderately eroded	B
WyC2	Wynn silt loam, 6 to 12 percent slopes, moderately eroded	B
XeB2	Xenia silt loam, 2 to 6 percent slopes, moderately eroded	B

NOTE:
The Temporary Sediment Basins are to be cleaned out in accordance with the Rainwater and Land Development Manual and Butler County standards.

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 7" OF EXISTING GROUND IS TOPSOIL. TOPSOIL REMOVED TO DEPTHS GREATER THAN 7" 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.

NOTE:
ALL BUILDINGS, DRIVES, CONCRETE, FENCES, ETC. ON SITE SHALL BE REMOVED BY CONTRACTOR.

NOTES:

1. Regular inspection and maintenance will be provided for all erosion and sediment control practices. Permanent records of maintenance and inspections must be kept throughout the construction period. Inspections must be made a minimum of once every seven (7) days and immediately after storm events greater than 0.5 inches of rain in a 24 hour period. Provided will be name of inspector, major observations, date of inspection and corrective measures taken.
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8. Home builders are responsible for erosion control on each individual lot.
9. Contractors to accept all quantities as correct prior to beginning construction.

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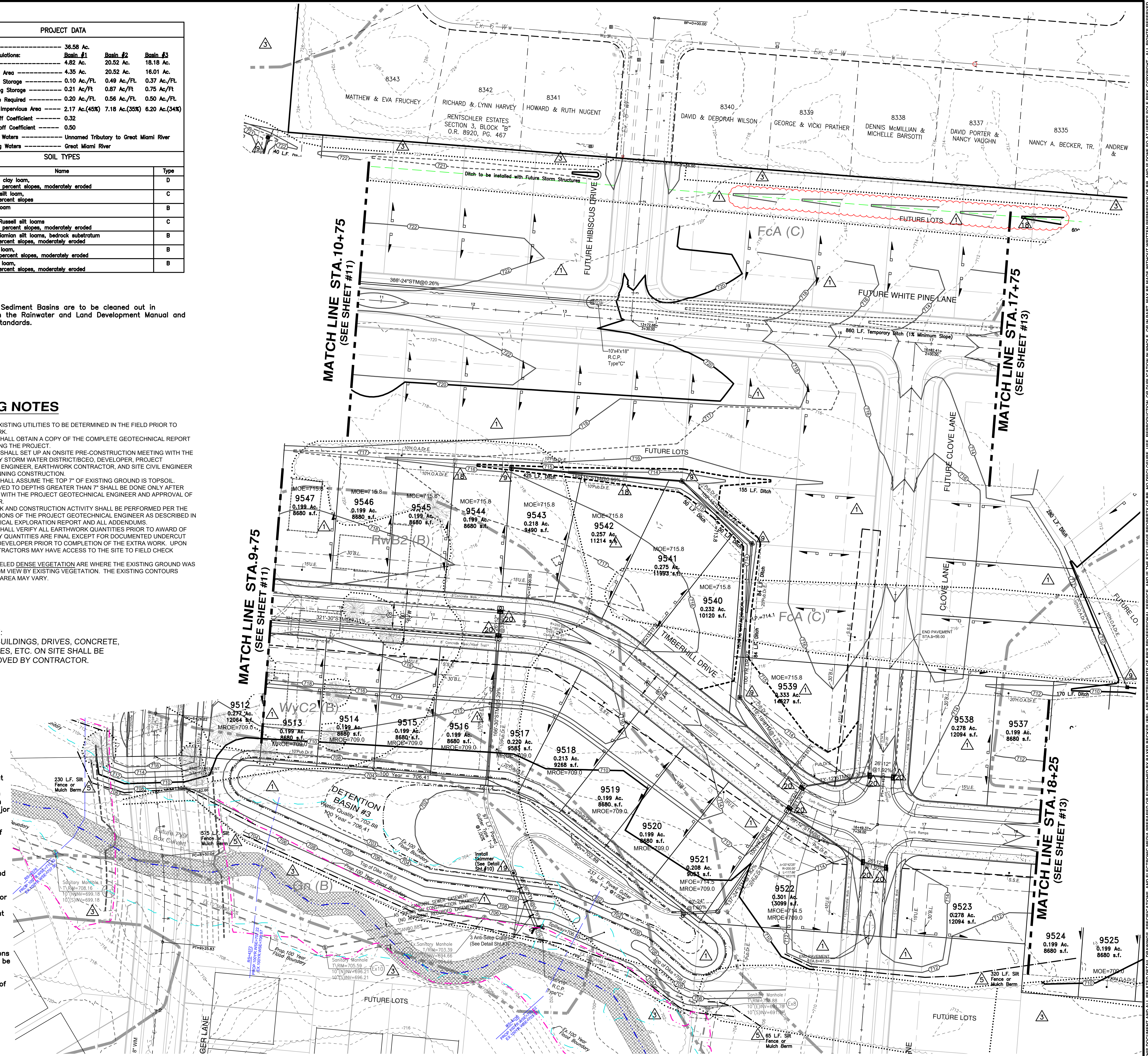

Basis of Bearing:
State Plane NAD83 (2011)

SCALE: 1" = 50'

10-11-22

Item	Revision Description	Date	Drwn:	Chk:
1	Revised as per BCEO	5-19-22	TAC	
2	Revised rear yard swale on future White Pine Lane lots & lot numbers	10-11-22	TAC	
3				
4				
5				
6				
7				
8				
9				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

GRADING PLAN

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

Drawing:	17-0090 CD
Drawn by:	TAC
Checked By:	XXX
Issue Date:	3-7-22
Sheet:	12/17

SOIL TYPES	
CLEARING LIMITS	
SILT FENCE OR MULCH BERM	
REGULATED WATERWAY OF STATE OF OHIO	
RIPARIAN AREA: NO DISTURBANCE PERMITTED	
CORE TRENCH (SEE DETAIL SHEET #13)	

NOTE:
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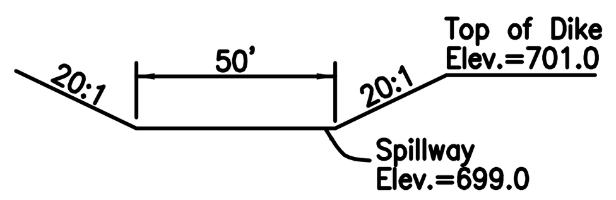
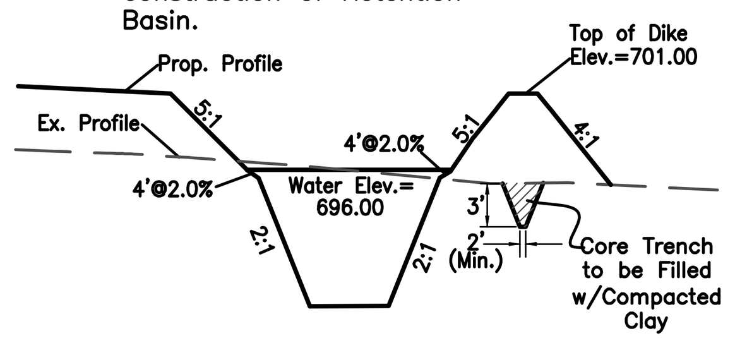


RETENTION POND #2
SPILLWAY DETAIL
(Not to Scale)

NOTE:
Geotechnical Engineer to be on site during construction of Retention Basin.



RETENTION POND #2
DAM TYPICAL SECTION
(Not to Scale)

EROSION CONTROL NOTES

1. SEEDING AND MULCHING
2. SODDING
3. PRESERVE EXISTING VEGETATION
4. STRAW BALE
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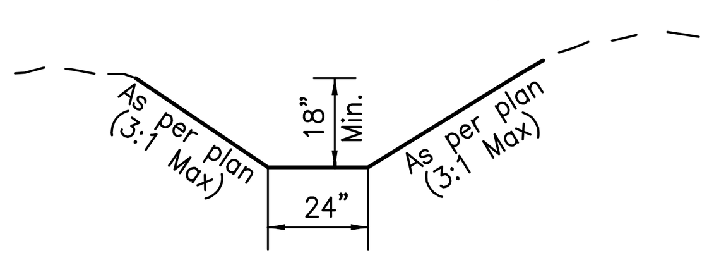
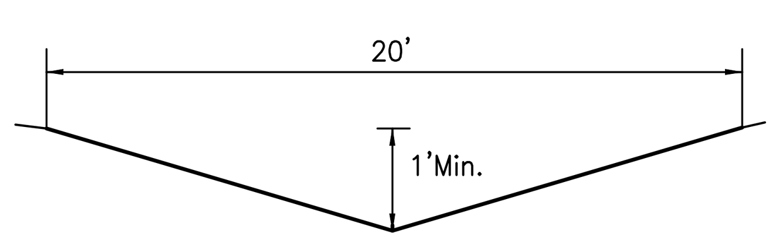
22. CONCRETE WASHOUT AREA

SEE SOIL EROSION & SEDIMENTATION CONTROL DETAIL SHEET (Page #17)

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



TYPICAL DITCH SECTION



TYPICAL DRAINAGE ROUTE SECTION

NOTES:
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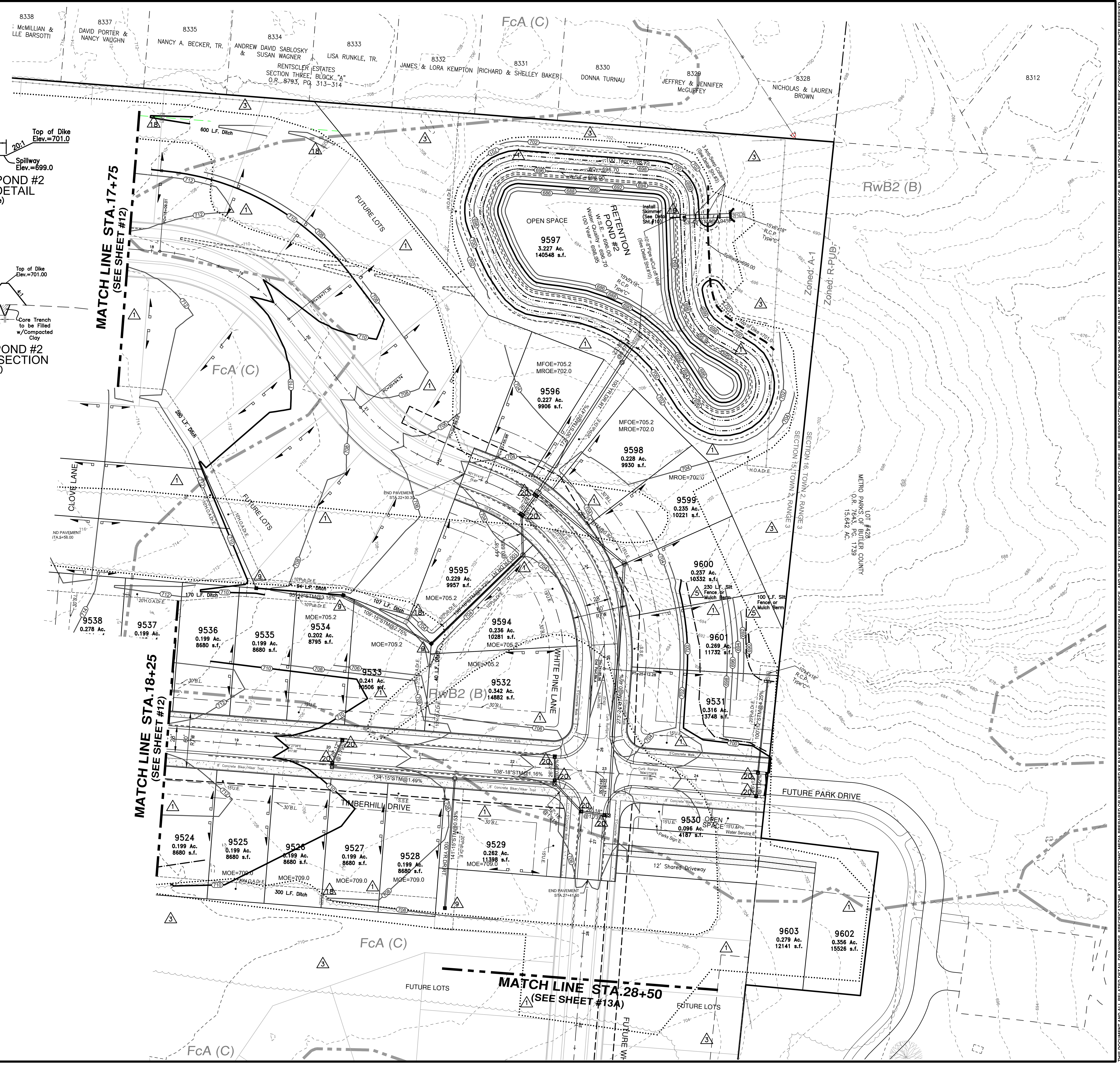

Basis of Bearing: State Plane NAD83 (2011)
SCALE: 1" = 50'

Item	Revision Description	Date	Drawn	Chk.
1	Revised as per BCEO	5-19-22	TAC	
2	Revised rear yard swale and clearing limits	8-10-22	TAC	
3	Added Core Trench & Detail & Revised lot numbers	10-11-22	TAC	
4				
5				
6				
7				
8				
9				

TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

GRADING PLAN

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22
Sheet: 13/17

Plot time: Oct 11, 2022 - 12:52pm
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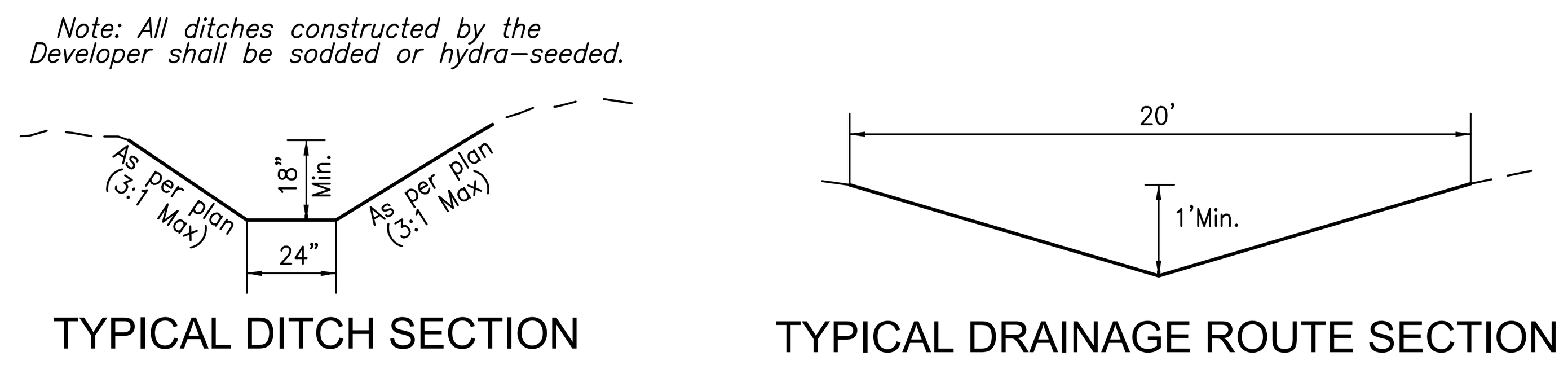

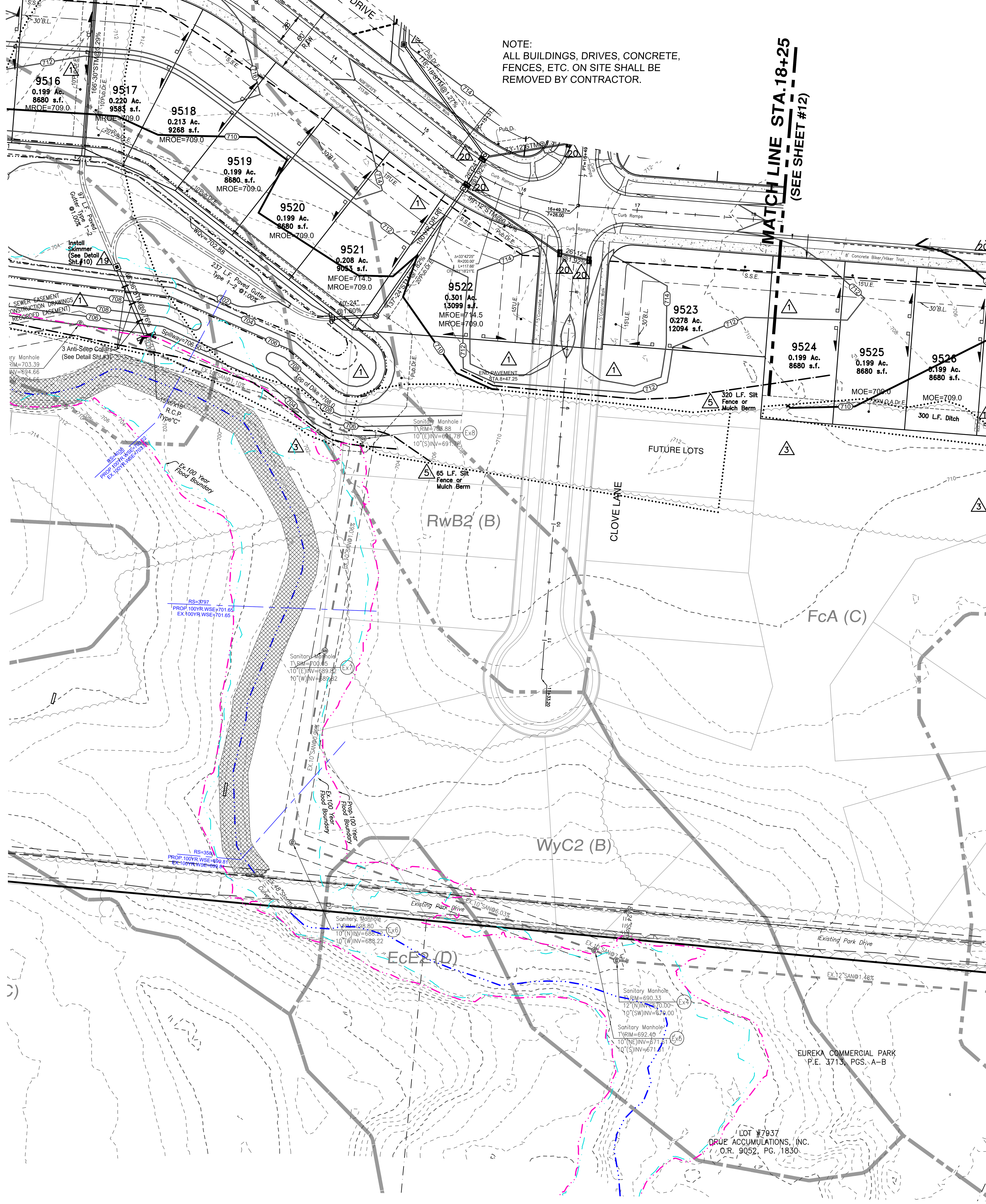

NOTES:

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EROSION CONTROL NOTES

1. SEEDING AND MULCHING
2. SODDING
3. PRESERVE EXISTING VEGETATION
4. STRAW BALE
5. SILT FENCE OR MULCH BERM
6. SOIL PILES
7. TEMPORARY STREAM CROSSING
8. GRAVEL CURB INLET SEDIMENT FILTER
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17. ROLLED GRAVEL CURB INLET SEDIMENT FILTER
18. CHECK DAM
19. TEMPORARY DETENTION SEDIMENT FILTER/BASIN
20. DANDY BAG/BEAVER DAM® OR EQUAL
21. CONSTRUCTION ENTRANCE
22. CONCRETE WASHOUT AREA

SEE SOIL EROSION & SEDIMENTATION CONTROL DETAIL SHEET (Page #17)

Legend	
(gray dashed line)	SOIL TYPES
(dotted line)	CLEARING LIMITS
(dash-dot line)	SILT FENCE OR MULCH BERM
(blue dash-dot line)	REGULATED WATERWAY OF STATE OF OHIO
(cross-hatched)	RIPARIAN AREA: NO DISTURBANCE PERMITTED

Basis of Bearing: State Plane NAD83 (2011)

0 50 75

SCALE: 1" = 50'

10-11-22

Item	Revision Description	Date	Drwn:	Chk:
1	Added as per BCEO	5-19-22	TAC	
2	Revised lot numbers	10-11-22	TAC	
3				
4				
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TIMBERHILL SECTION ONE

SECTION 15, TOWN 2, RANGE 3
FAIRFIELD TOWNSHIP, BUTLER COUNTY, OHIO

GRADING PLAN

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6900 Tylersville Road, Suite A
Mason, OH 45040 - 513.336.6600

Drawing: 17-0090 CD
Drawn by: TAC
Checked By: XXX
Issue Date: 3-7-22
Sheet: 13A/17

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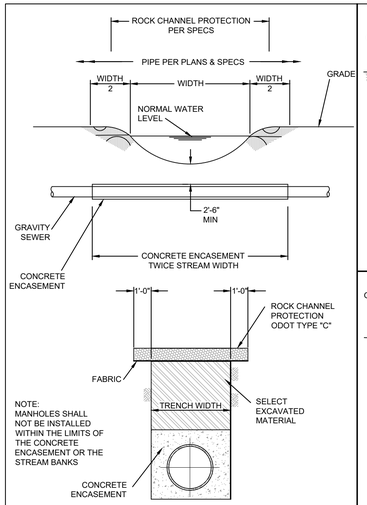
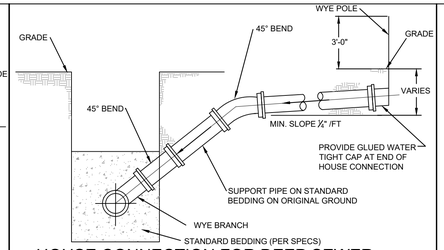


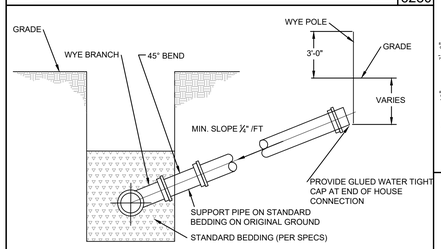
TYPICAL CREEK CROSSING FOR GRAVITY SEWERS

6260



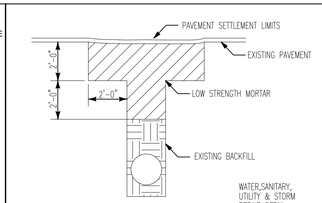
HOUSE CONNECTION FOR DEEP SEWER

6280

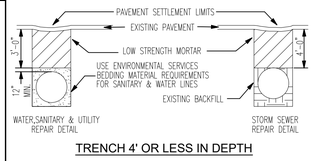


HOUSE CONNECTION FOR SHALLOW SEWER

6290



TRENCH 4' OR GREATER IN DEPTH



TRENCH 4' OR LESS IN DEPTH

SETTLEMENT REPAIR

ITEM SPECIAL – LOW STRENGTH MORTAR BACKFILL MATERIAL

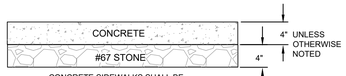
DESCRIPTION: THIS WORK SHALL CONSIST OF THE PLACEMENT OF A FLOWABLE MIXTURE OF PORTLAND CEMENT, FLY ASH, AND SAND FOR BACK-FILLING CONDUIT OR AT OTHER LOCATIONS AS SHOWN ON THE PLANS OR AS SPECIFIED. THE WORK SHALL BE IN ACCORDANCE WITH ODOT ITEMS 603 AND 499 UNLESS OTHERWISE SPECIFIED HEREIN.

MATERIALS: MATERIALS SHALL BE:
A. CEMENT 701.01 OR 701.04
B. FLY ASH SHALL MEET ASTM C-618.
C. FINE AGGREGATE SHALL BE NEUTRAL SAND OR SAND MANUFACTURED FROM STONE, GRAVEL, OR AIR-COOLED SLAG. THE GRADUATION OF THE SAND SHALL MEET THE REQUIREMENTS OF 703.05. THE SAND SHALL BE FINE ENOUGH TO STAY IN SUSPENSION IN THE MIXTURE TO THE EXTENT REQUIRED FOR PROPER FLOW. THE ENGINEER RESERVES THE RIGHT TO REJECT THE SAND IF THE FLOWABLE MIXTURE CANNOT BE PRODUCED.
D. WATER USED FOR MORTAR BACKFILL SHALL BE FREE FROM OIL, ACID, STRONG ALKALIDES OR VEGETABLE MATTER.
E. SLUMPS MEASURED IN THE ORDINARY WAY WILL BE 8" OR HIGHER FOR PROPER PLACEMENT OF THE FLOWABLE MATERIAL.

MORTAR MIX PROPORTIONING: THE INITIAL TRIAL MIXTURE SHALL CONSIST OF THE FOLLOWING QUANTITIES OF MATERIALS PER CUBIC YARD:

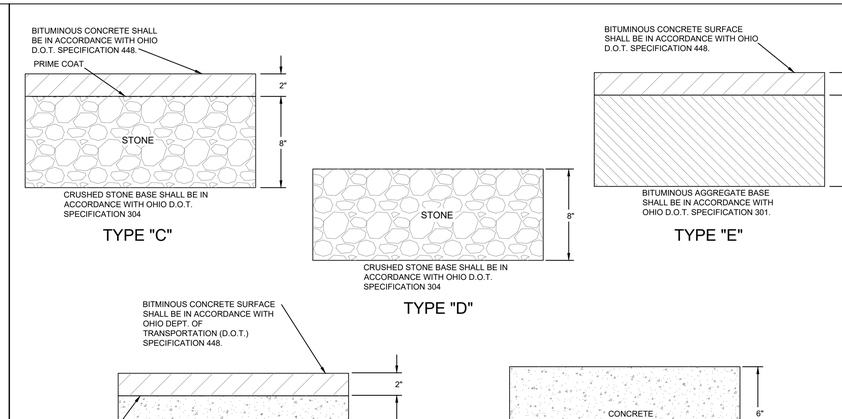
CLASS LSM – 50	
CEMENT	50 LBS.
FLY ASH	250 LBS.
SAND	2910 LBS.
WATER (TARGET)	500 LBS.

ADJUSTMENTS TO THE PROPORTIONS MAY BE MADE BY THE ENGINEER PROVIDING THE TOTAL ABSOLUTE VOLUME OF THE MATERIALS IS MAINTAINED. THIS ITEM WILL BE INCLUDED IN THE STANDARD 603 INSULATION, THIS WILL NOT BE AN ADDITIONAL PAY ITEM, BUT REPLACEMENT FOR THE NORMAL BACKFILL.



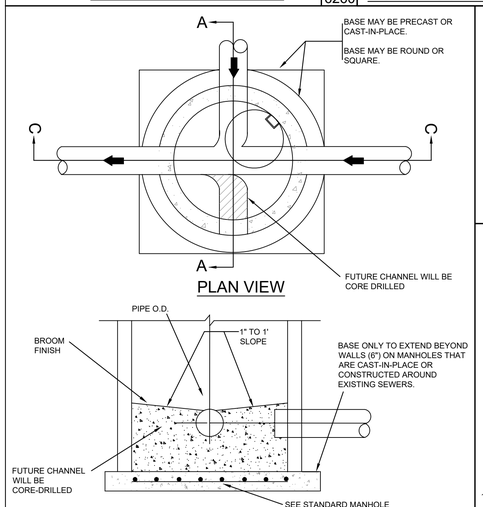
SIDEWALK RESTORATION DETAIL

4010

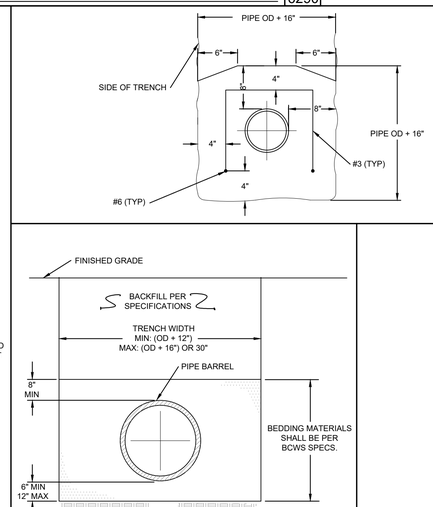


PAVEMENT REPLACEMENT DETAILS

4120



6130

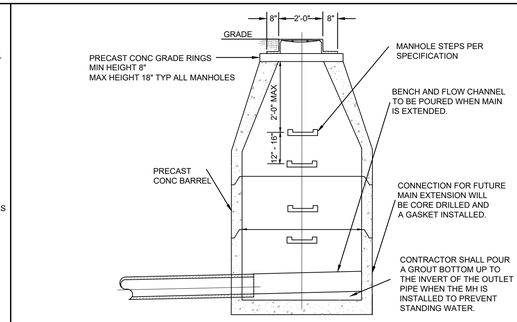


6270

PIPE SIZE	CY CONC PER LIN FT	LENGTH OF NO 3 BARS	SPACING (FT) BETWEEN NO 3 BARS
6"	0.121	3'-9"	1.64
8"	0.139	4'-3"	1.25
10"	0.157	4'-9"	1.12
12"	0.177	5'-3"	1.02
16"	0.200	6'-3"	0.85
18"	0.247	6'-10"	0.78
20"	0.270	7'-5"	0.72
24"	0.315	8'-6"	0.63
30"	0.540	10'-0"	0.57

CONCRETE ENCASEMENT DETAIL

6240



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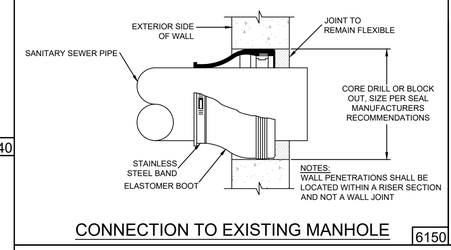

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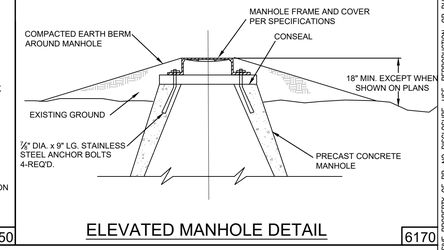

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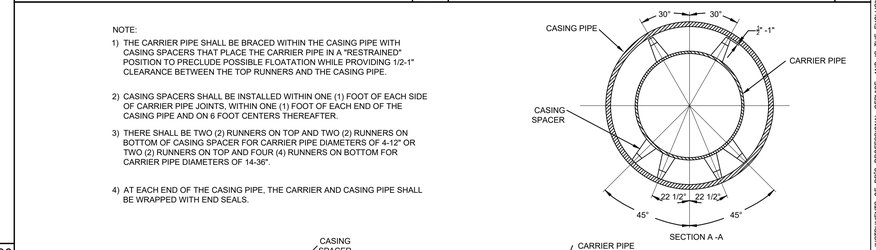

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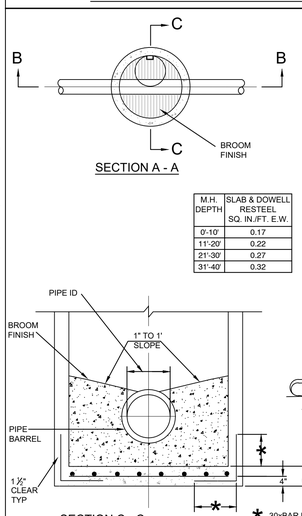
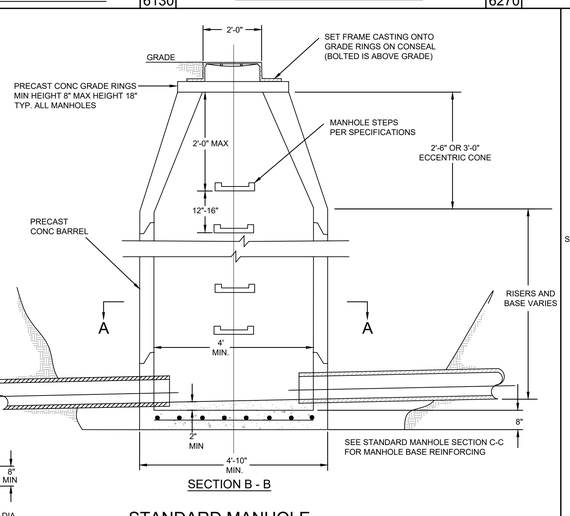
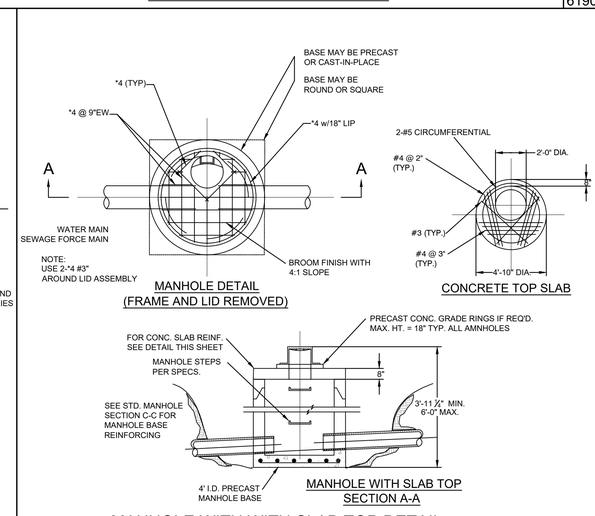


M.H. DEPTH	SLAB & DOWELL RESTEEL SQ. IN./FT. E.W.
0'-10'	0.17
11'-20'	0.22
21'-30'	0.27
31'-40'	0.32



6200



6210

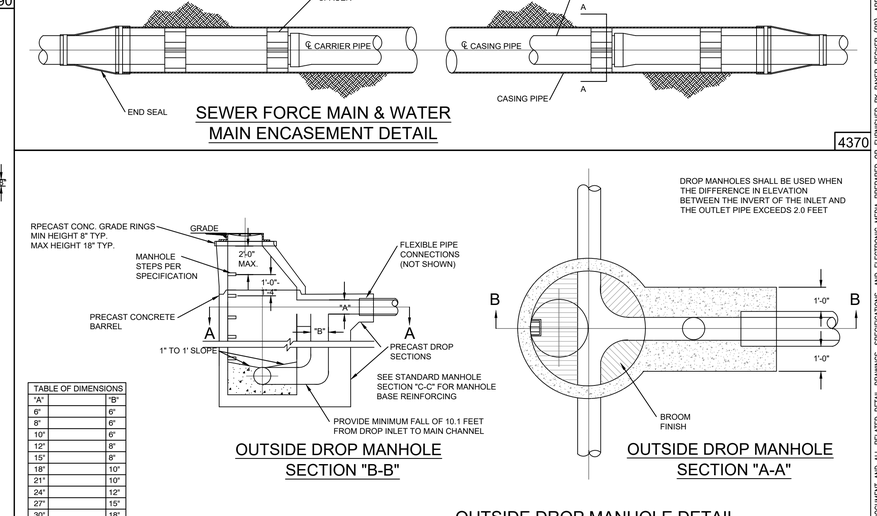


TABLE OF DIMENSIONS	
"A"	"B"
6"	6"
8"	6"
10"	6"
12"	8"
15"	8"
18"	10"
21"	10"
24"	12"
27"	15"
30"	18"

OUTSIDE DROP MANHOLE DETAIL

6140

Item	Revision Description	Date	Drawn:	Chk:

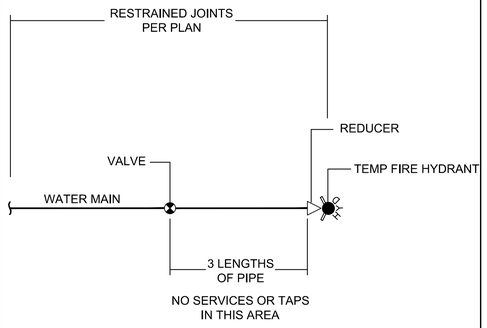
BUTLER COUNTY, OHIO

MISCELLANEOUS & SANITARY DETAILS

bayer becker
www.bayerbecker.com
6070 Hamilton Blvd. Suite A
Mason, Ohio 45040 513.336.6600

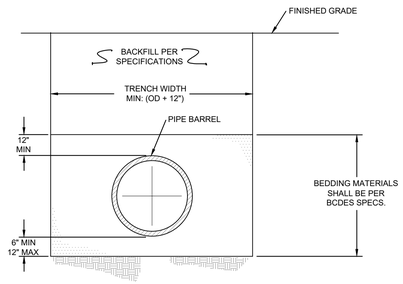
Drawing: BC SAN
Drawn by:
Checked By:
Issue Date: 12-28-17
Sheet: 14/17

Plot time: Mar 08, 2022 – 11:12am
Drawing name: K:\OLD-K\Mason\~FF\BLOCKS\DETAILS\BUTLER\BC SAN.dwg – Layout Tab: SAN



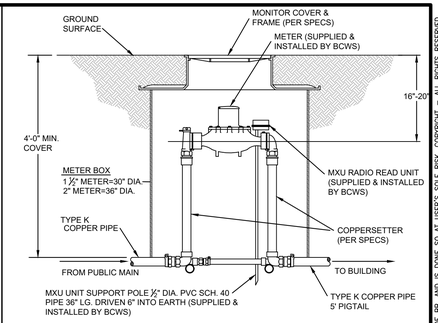
DEAD END DETAIL
WITH TEMPORARY FIRE HYDRANT

5140



TYPICAL TRENCH DETAIL
WATER MAIN INSTALLATION

5280



METER TYPE	LAYING LENGTH
1 ½" C2 OMNI	13"
1 ½" T2 OMNI	13"
2" C2 OMNI AS SUPPLIED BY BUTLER COUNTY SEE NOTE 3	17"
2" C2 OMNI FACTORY ORDERED	15 ½"
2" T2 OMNI	17"

NOTE:
1) FOR METERS 3" AND LARGER, REFER TO THE STD. INSTALLATION FOR 3" AND LARGER WATER METERS.

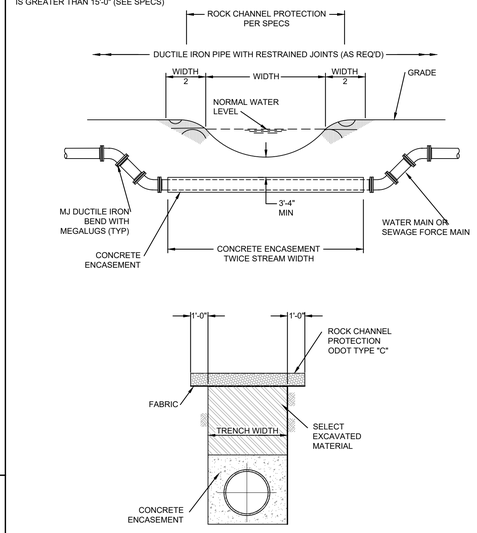
2) ALL DOMESTIC WATER METERS SHALL BE SENSUS OMNI C2 TYPES FOR SIZES OF 1 1/2" AND LARGER. NON-DOMESTIC , (IE; DEDUCT, IRRIGATION), MAY BE EITHER SENSUS OMNI T2 OR C2 TYPES FOR SIZES OF 1 1/2" AND LARGER.

3) BUTLER COUNTY ORDERS 2" C2 OMNI METERS WITH A 17" LAYING LENGTH TO ACCOMODATE THE STANDARD COPPERSETTER. IF THE FACTORY ORDERED SIZE IS UTILIZED AN ADAPTER FLANGE PLATE WILL BE REQUIRED.

STANDARD INSTALLATION FOR
1-1/2" & 2" WATER METER SETTINGS

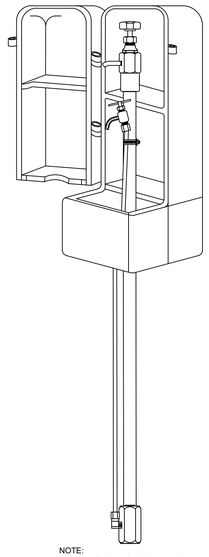
5170

NOTE:
FOR WATER MAINS ONLY:
MODIFICATIONS FROM THIS DETAIL
MAY BE NECCESSARY IF WATER WIDTH
IS GREATER THAN 15'-0" (SEE SPECS)



TYPICAL CREEK CROSSING &
TRENCH DETAIL FOR WATER &
SEWER FORCE MAINS

4170



STATION SHALL BE ENCLOSED IN A LOCKABLE, NON-REMOVABLE ALUMINUM BOX WITH HINGED OPENINGS.

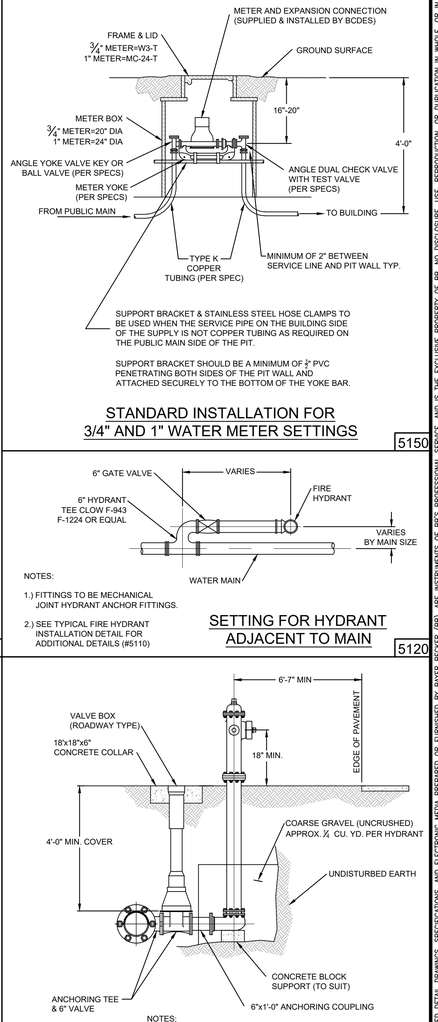
ALL WORKING PARTS SHALL BE OF STAINLESS STEEL AND SERVICABLE FROM ABOVE GROUND WITH NO DIGGING OR REPLACEMENT NEEDED.

THE STATION SHALL BE MODEL #88-SS AS MANUFACTURED BY THE KUPFERLE FOUNDARY, ST. LOUIS MO. OR APPROVED EQUAL.

NOTE:
SAMPLING STATIONS SHALL BE
INSTALLED PER BCWS SPECS.

PERMANENT LAB SAMPLING STATION

5270



STANDARD INSTALLATION FOR
3/4" AND 1" WATER METER SETTINGS

5150

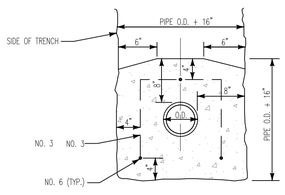
NOTES:

1.) FITTINGS TO BE MECHANICAL JOINT HYDRANT ANCHOR FITTINGS.

2.) SEE TYPICAL FIRE HYDRANT INSTALLATION DETAIL FOR ADDITIONAL DETAILS (#5110)

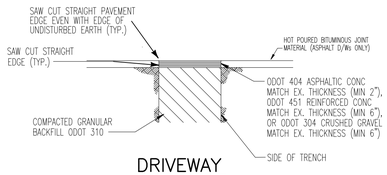
SETTING FOR HYDRANT
ADJACENT TO MAIN

5120

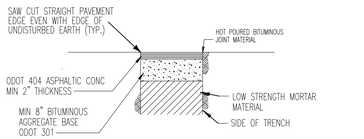


PIPE SIZE	C.Y. CONC. PER LIN. FT.	LENGTH OF NO. 3 BARS	SPACING (FT) BETWEEN NO. 3 BARS
6"	0.121	3'-9"	1.64
8"	0.139	4'-3"	1.25
10"	0.157	4'-9"	1.12
12"	0.177	5'-3"	1.02
16"	0.200	6'-3"	0.85
18"	0.247	6'-10"	0.78
20"	0.270	7'-5"	0.72
24"	0.315	8'-6"	0.63
30"	0.540	10'-0"	0.57

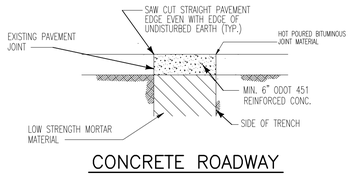
CONCRETE ENCASEMENT



DRIVEWAY

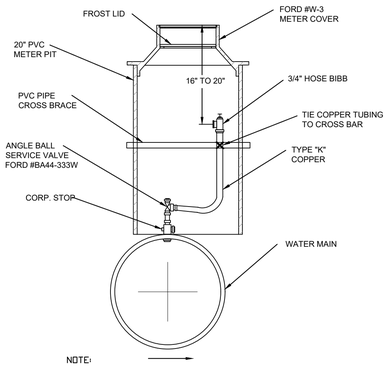


ASPHALTIC CONCRETE ROADWAY



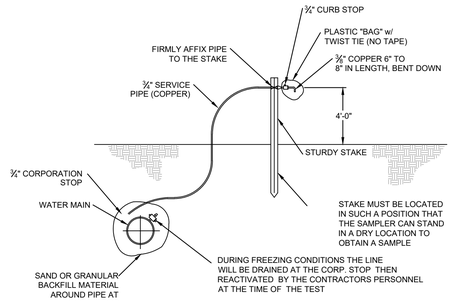
CONCRETE ROADWAY

PAVEMENT REPLACEMENT DETAILS



AIR RELEASE VALVE DETAIL

5290



TEMPORARY PURITY TEST STATION

5260

NOTES:

1.) VERIFY LOCATION OF F.H. RELATIVE TO WATER MAIN ON PLANS.

2.) CHECK STREET DETAILS FOR RELATIONSHIP BETWEEN MAIN, STREET AND F.H.

TYPICAL FIRE
HYDRANT INSTALLATION

5110

Item	Revision Description	Date	Drawn:	Chk:

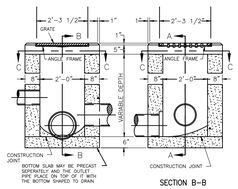
BUTLER COUNTY, OHIO

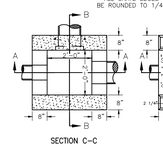
WATER DETAILS

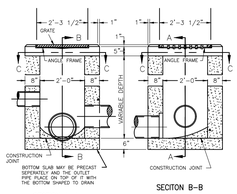
bayer becker
www.bayerbecker.com
6900 Tylersville Road Suite A
Mason, Ohio 45040 - 513.336.6600

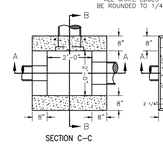
Drawing: BC WAT
Drawn by:
Checked By:
Issue Date: 2019
Sheet: 15/17

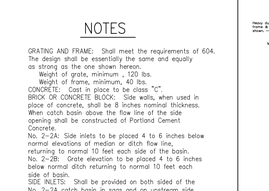
Plot time: Mar 08, 2022 – 11:13am
Drawing name: K:\OLD-K\Wason\~FF\BLOCKS\DETAILS\BUTLER\BC WAT.DWG – Layout Tab: WAT

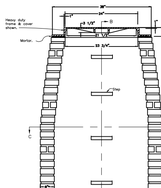


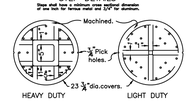


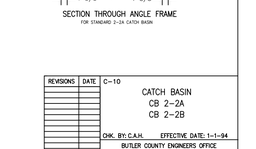


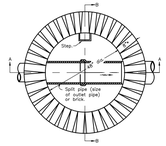


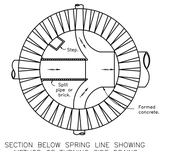


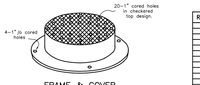


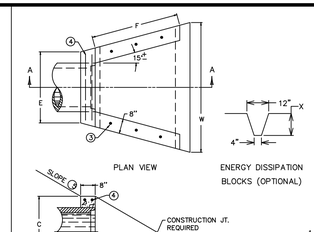


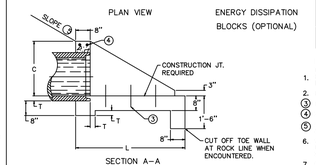


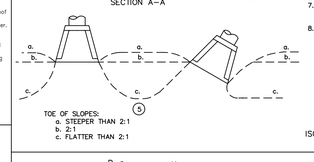


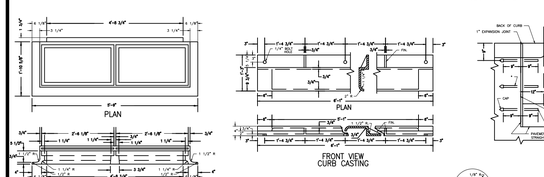












STANDARD 2-2A CATCH BASIN

STANDARD NO. 2-2B CATCH BASIN

NOTES

GRATING AND FRAME: Shall meet the requirements of 604. The design shall be essentially the same and equally as strong as the one shown hereon.
Weight of grate, minimum , 120 lbs.
Weight of frame, minimum, 40 lbs.
CONCRETE: Cast in place to be class "C".
BRICK OR CONCRETE BLOCK: Side walls, when used in place of concrete, shall be 8 inches nominal thickness. When catch basin above the flow line of the side opening shall be constructed of Portland Cement Concrete.
No. 2-2A: Side inlets to be placed 4 to 6 inches below normal elevations of median or ditch flow line, returning to normal 10 feet each side of the basin.
No. 2-2B: Grate elevation to be placed 4 to 6 inches below normal ditch returning to normal 10 feet each side of basin.
SIDE INLETS: Shall be provided on both sided of the No. 2-2A catch basin in sags and on upstream side only where the ditch has a continuous down grade past the catch basin.
MAXIMUM PIPE SIZE IS 21".
MAXIMUM DEPTH IS 4 FEET.
STEPS: Steps are to be installed in storm structures over 4' in depth and shall meet the requirements of drawing MH-1.

SECTION THROUGH ANGLE FRAME
FOR STANDARD 2-2A CATCH BASIN

REVISIONS	DATE	C-10
		CATCH BASIN CB 2-2A CB 2-2B
		CHK. BY: C.A.H. EFFECTIVE DATE: 1-1-94
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011

STEP DETAILS

HEAVY DUTY COVERS ~ BOTTOM VIEW LIGHT DUTY

SECTION C-C

SECTION BELOW SPRING LINE SHOWING METHOD OF TURNING SIDE DRAINS

FRAME & COVER

NOTES

CONSTRUCTION: No.1 manhole is for sewers 30" diameter or less. The design shown is for brick construction with every sixth course a stretcher course. The 6" bottom may be precast or cast in place concrete. The bottom channel sections shall be built with concrete and lined with split pipe or brick except curved channels may be formed in the concrete.
Precast solid concrete radial blocks or cast in place concrete reinforced with No.4 bars on 12" centers both vertically and horizontally, may be used with a wall thickness of 6" or greater. Precast manholes detailed on MH-3 or MH-5 may be used in lieu of the design shown hereon unless otherwise required by the plans.
FRAME AND COVERS shall be of heavy design (475 lbs. min. total weight) when the manhole is placed within the limits of the pavement or shoulder, otherwise the light design shall be finished smooth and fitted so as to provide a firm and even seat to all portions of the cover in the frame. Each cover shall seat in its frame without rocking and shall be marked as a matched frame and cover before delivery to the project. The base of the frame shall be set in a full bed of Portland cement mortar, and so adjusted to conform to the finished pavement or shoulder elevation and slope. Castings meeting Item 604 requirements and designed essentially the same and equally as strong those shown hereon shall be provided.
STEPS shall conform to the material requirements of specification 604. All steps shall have a depressed tread or a 1/2" minimum cleat height at the ends. Steps installed in fresh concrete shall be embedded to minimum depth of 4". Steps installed in mortar joints shall be embedded to a minimum depth of 7". Friction-fit steps meeting the requirements of 711.31 with a 1/2" diameter rebar may be used in precast manholes. The receiving holes for friction-fit steps shall not penetrate the manhole wall.
The Engineer may require the contractor to test load a maximum of one step per manhole to a proof load of 400 lbs. in direct pull. The equipment and method used shall meet the approval of the Engineer. If the selected step fails the pullout test, the remaining steps in that manhole shall also be tested. All steps not passing the pullout test shall be removed and a new step installed and tested to the satisfaction of the Engineer. Cost of testing shall be incidental to the unit price bid for the manhole.
DROP PIPE, when specified on the plans, shall be constructed as shown on MH-2.
SANITARY SEWER COVERS shall be without the pick and vent holes shown hereon and shall include a sealing gasket affixed to the bearing surface. Bolt-down covers shall not be used unless specified in the plans.

REVISIONS	DATE	
		TYPICAL MANHOLE DETAIL MH-1
		CHK. BY: C.A.H. EFFECTIVE DATE: 1-1-94
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011

PLAN VIEW

ENERGY DISSIPATION BLOCKS (OPTIONAL)

SECTION A-A

TOE OF SLOPES:
a. STEEPER THAN 2:1
b. 2:1
c. FLATTER THAN 2:1

PIPE DIA. OR EQUIV. DIA.	SHAPE ⑨	DIMENSIONS C	E	F	L	W	T	X	CLASS A CONC C. Y.	REINF STEEL LBS.
12"	○	1'-9"	2'-6"	2'-3"	3'-6"	4'-0"	2"	12"	0.58	7
15"	○	2'-0"	2'-9"	2'-9"	4'-0"	4'-9"	21/4"	131/2"	0.75	
	⬭	1'-9"	3'-0"	2'-6"	3'-6"	4'-9"			0.68	8
18"	○	2'-3"	3'-0"	3'-6"	4'-6"	5'-3"	21/2"	15"	0.93	
	⬭ ⬯	2'-0"	3'-6"	3'-0"	4'-0"	5'-6"	23/4"		0.89	
21"	○	2'-6"	3'-3"	4'-0"	5'-0"	6'-0"			1.14	
	⬭	2'-3"	3'-0"	3'-6"	4'-6"	6'-0"			1.07	9
24"	○	2'-9"	3'-6"	4'-6"	5'-6"	6'-6"	3"	18"	1.35	8
	⬭ ⬯	2'-6"	4'-0"	4'-0"	5'-0"	6'-9"	31/4"		1.30	9
27"	○	3'-0"	3'-9"	5'-0"	6'-0"	7'-0"			1.57	
	⬯	2'-9"	4'-6"	4'-3"	5'-3"	7'-3"	31/2"		1.51	10

NOTES
1. DIMENSIONS AND QUANTITIES ARE BASED ON CONCRETE PIPE AND WILL VARY INSIGNIFICANTLY FOR CORRUGATED METAL PIPE.
2. REINFORCING STEEL : MINIMUM GRADE 40, BARS EVENLY SPACED.
③ 6 – NO. 4 x 1'-0" DOWEL BARS.
④ 2 – NO. 4 x (E DIMENSION MINUS 4").
⑤ SLOPES SHALL BE WARPED TO FIT HEADWALL WHEN PIPE IS SKEWED AND/OR NORMAL SLOPE VARIES FROM 2:1.
6. VOLUME DISPLACED BY PIPE COMPUTED USING INSIDE DIAMETER OF PIPE.
7. WING ANGLES AND/OR DIMENSIONS MAY BE ALTERED DURING CONSTRUCTION TO ACCOMMODATE FLOW OF WATER.
8. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE. FRONT FACE OF HEADWALL SHALL REMAIN VERTICAL.

ISOMETRIC VIEW

REVISIONS	DATE	C-13A
		12" – 27" SLOPE/HILLSIDE
		CHK. BY: EJP EFFECTIVE DATE: 1-1-2010
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011 SHEET 1 OF 6

NOTES
①NUMBER OF BARS IN ONE HEADWALL.
2 DIMENSIONS ARE O. TO O. OF BARS.
3 ALL BARS ARE STRAIGHT EXCEPT THOSE SHOWN BELOW.
BENT BAR SHAPES

PLAN VIEW

SECTION A-A

WING SECTION
30" TO 60" CIRCULAR PIPE
30" TO 72" NON-CIRCULAR PIPE

FRONT ELEVATION

SECTION B-B

WING SECTION
66" TO 108" CIRCULAR PIPE

ENERGY DISSIPATION BLOCKS (OPTIONAL)

DIA.	30"	36"	42"	48"	54"	60"
Y	21"	24"	27"	30"	33"	36"

(LAYOUT AND STEEL PATTERN)

① DIAMETER OF CIRCULAR PIPE OR SPAN OF NON-CIRCULAR PIPE
② DIAMETER OF CIRCULAR PIPE OR RISE OF NON-CIRCULAR PIPE
3. ▭ APPLIES TO 66" DIAMETER AND GREATER. (CIRCULAR PIPE)
4. SEE CURRENT STANDARD DRAWINGS FOR DIMENSIONS, QUANTITIES, AND BILL OF REINFORCEMENT.
5. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" CLEAR DISTANCE.
6. ENCIRCLED LETTERS, ◯, INDICATE STEEL BAR LOCATIONS
7. BARS Ⓑ, Ⓒ, Ⓖ, Ⓟ, Ⓜ, Ⓥ ARE SPACED 1'-0" O.C. ALL OTHER BARS SHALL BE EVENLY SPACED.
8. BARS Ⓑ AND Ⓥ ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE END OF EACH WING.
9. BARS Ⓒ ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE TOP OF EACH WING.
10. HEADWALLS LOCATED AT EDGE OF SHOULDER SHALL BE PARALLEL TO CENTERLINE OF THE ROAD.
11. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE. FRONT FACE OF HEADWALL AND ENDS OF WINGS SHALL REMAIN VERTICAL.

REVISIONS	DATE	
		PIPE CULVERT HEADWALLS 0 SKEW 30" – 66"
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011 SHEET 2 OF 6

DIMENSION	DIAMETER OF PIPE 30"	36"	42"	48"	54"	60"	66"	DIMENSION
A	3'-9"	4'-4"	4'-11"	5'-6"	6'-1"	6'-8"	7'-5"	A
B	1'-3"	1'-6"	1'-9"	2'-0"	2'-3"	2'-6"	2'-9"	B
C	3'-6"	4'-0"	4'-7"	5'-1"	5'-8"	6'-2"	7'-0"	C
E	3'-1"	3'-8"	4'-3"	4'-10"	5'-5"	6'-0"	6'-7"	E
F	4'-4"	5'-0"	5'-8"	6'-4"	7'-0"	7'-8"	8'-7"	F
H	7'-6"	8'-8"	10'-0"	11'-2"	12'-6"	13'-8"	15'-2"	H
J	3'-9"	4'-4"	5'-0"	5'-7"	6'-3"	6'-10"	7'-7"	J
M	0'-5"						0'-6"	M
T	0'-3.5"	0'-4.0"	0'-4.5"	0'-5.0"	0'-5.5"	0'-6.0"	0'-6.5"	T
V	0'-8"						1'-0"	V
W	0'-8"						0'-10"	W
X	----						2'-0"	X
Y	2'-0"						2'-6"	Y
Z	----						1'-3"	Z
CU.YDS.CONC. 2 HEADWALLS	3.36	4.30	5.35	6.53	7.82	9.22	18.76	CU.YDS.CONC. 2 HEADWALLS
LBS.STEEL 2 HEADWALLS	281	363	430	496	583	687	1320	LBS.STEEL 2 HEADWALLS

DIMENSIONS AND QUANTITIES ARE BASED ON CONCRETE PIPE AND WILL VARY SLIGHTLY FOR CORRUGATED METAL PIPE.

USE WITH SHEET 2 OF 6

REVISIONS	DATE	
		DIMENSIONS & QUANTITIES 30"-66" HEADWALLS CIRCULAR PIPE, 0 SKEW
		CHK. BY: EJP EFFECTIVE DATE: 1-1-2010
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011 SHEET 3 OF 6

NOTE:
FOR ADDITIONAL SPECIFICATIONS ON SIZING AND BILL OF REINFORCEMENT FOR NON-CIRCULAR PIPES, SEE COMPLETE 6 PAGE DETAIL C-13A IN APPENDIX C OF THE BUTLER COUNTY SUBDIVISION REGULATIONS

REVISIONS	DATE	C-13A
		FULL HEIGHT HEADWALLS
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011

SECTION A-A

SECTION B-B WITH CURB AND GUTTER

SECTION B-B

NOTES

GRATES:
STANDARD GRATE AS SHOWN IN THE PLAN VIEW SHALL BE PROVIDED UNLESS THE PLANS SPECIFICALLY REQUIRE GRATE "V". PLACE GRATE SO THE DIAGONAL BARS DIRECT DRAINAGE FLOW TOWARD THE CURB. ALL BAR EDGES TO BE ROUNDED 1/8" RADIUS.
CASTINGS:
THE DESIGN SHALL BE ESSENTIALLY THE SAME AND EQUALLY AS STRONG AS THOSE SHOWN HERON. MINIMUM WEIGHTS ARE: CURB CASTING 305 LBS., TWO GRATES 254LBS., FRAME 590 LBS., AND TWO "V" GRATES 210 LBS. BEARING AREAS OF FRAME AND GRATE SHALL BE SO FITTED AND FINISHED, WITHOUT PROJECTIONS, AS TO PROVIDE A FIRM AND EVEN SEAT FOR ALL PORTIONS OF THE GRATE IN THE FRAME WITHOUT ROCKING.
DOWELS: FOUR 1" x 18" ARE REQUIRED FOR CONCRETE PAVEMENT OF GUTTER BLOCKOUT. SEE ODOT BP-4 FOR DOWEL DETAILS.
BRICK OR CONCRETE BLOCK: SIDE WALLS WHEN USED IN PLACE OF CONCRETE, SHALL BE 8" NOMINAL THICKNESS.
BLOCKOUT: SHALL BE PAVED WITH CLASS C CONCRETE IN PCC PAVEMENT OR GUTTER AND PAID FOR AS PART OF THE PAVEMENT OR GUTTER WITH NO DEDUCTION IN PAVEMENT, CURB OR GUTTER QUANTITIES BECAUSE OF CASTINGS. A CLASS C CONCRETE APRON THE SIZE OF THE 2' GUTTER BLOCKOUT SHALL BE CAST IN PLACE IN ASPHALT PAVEMENT (NO DOWELS REQUIRED) WITH THE COST INCLUDED IN THE CATCH BASIN BID PRICE. NO DEDUCTIN TO BE MADE IN CURB QUANTITIES.
PRECAST: CONSTRUCTION IS PERMITTED, EXCEPT FOR APRON, AND CONCRETE SHALL MEET REQUIREMENTS OF 706.13 WITH 6± 2% AIR VOID CONTENT IN THE HARDENED CONCRETE. PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 6" AND REINFORCING SHALL BE SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.
STEPS: STEPS ARE TO BE INSTALLED IN STORM STRUCTURES OVER 4' IN DEPTH AND SHALL MEET THE REQUIREMENTS OF DRAWINGS MH-1.

PLAN

FRONT VIEW CURB CASTING

BACK VIEW

PLAN OF CATCH BASIN AND PAVEMENT JOINTS
* DOWEL LOCATION FOR CURB AND GUTTER

FRONT VIEW FRAME

END FRAME VIEW

PLAN GRATE "V" (VANE GRATE)

SECTION D-D

SECTION C-C
GRATE SIZE 2'-5 1/2 x 1'-4 3/8" x 2" (2 REQUIRED)
STANDARD GRATE

REVISIONS	DATE	C-6
		CATCH BASIN NO. 3
		CHK. BY: C.A.H. EFFECTIVE DATE: 1-1-94
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011

SECTION A-A

SECTION B-B WITH CURB & GUTTER

SECTION B-B

SLAB DETAIL SECTION C-C

PLAN OF CATCH BASIN AND PAVEMENT JOINTS
* DOWEL LOCATION FOR CURB AND GUTTER

PIPE SIZE	dim. "A"
12" – 21"	80"
24" – 27"	89"
30" – 36"	99"

REVISIONS	DATE	C-7
SLAB REBAR	12/29/11	CATCH BASIN NO. 3 MODIFIED
SEC. C	01/06/12	
SEC. BB	01/06/12	
		CHK. BY: C.A.H. EFFECTIVE DATE: 1-1-94
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011

STANDARD

HILLSIDE

NOTES
REINFORCING STEEL PROVIDED FOR ON THIS DRAWING SHALL BE 1/2" ROUND BARS OR BARS OF EQUIVLENT AREA.
CONCRETE FOR HEADWALLS SHALL BE CLASS "C".

REINFORCED CONCRETE HEADWALL

SIDE ROAD

REVISIONS	DATE	
		HEADWALLS HW-D
		CHK. BY: C.A.H. EFFECTIVE DATE: 1-1-94
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011

SECTION A-A

SECTION B-B WITH CURB & GUTTER

SECTION B-B

NOTES

GRATES:
STANDARD GRATE AS SHOWN IN THE PLAN VIEW SHALL BE PROVIDED UNLESS THE PLANS SPECIFICALLY REQUIRE GRATE "V". PLACE GRATE SO THE DIAGONAL BARS DIRECT DRAINAGE FLOW TOWARD THE CURB. ALL BAR EDGES TO BE ROUNDED 1/8" RADIUS.
CASTINGS:
THE DESIGN SHALL BE ESSENTIALLY THE SAME AND EQUALLY AS STRONG AS THOSE SHOWN HERON. MINIMUM WEIGHTS ARE: CURB CASTING 170 LBS., STANDARD GRATE 127 LBS., FRAME 320 LBS., AND "V" GRATE 105 LBS. BEARING AREAS OF FRAME AND GRATE SHALL BE SO FITTED AND FINISHED AS TO PROVIDE A FIRM AND EVEN SEAT FOR ALL PORTIONS OF THE GRATE IN THE FRAME NO PROJECTIONS SHALL EXIST ON BEARING AREAS OF EITHER CASTING AND THE GRATE WITHOUT ROCKING.
DOWELS: FOUR 1" x 18" ARE REQUIRED FOR CONCRETE PAVEMENT OF GUTTER BLOCKOUT. SEE ODOT BP-4 FOR DOWEL DETAILS.
BRICK OR CONCRETE BLOCK SIDE WALLS WHEN USED IN PLACE OF CONCRETE, SHALL BE 8" NOMINAL THICKNESS.
BLOCKOUT SHALL BE PAVED WITH CLASS C CONCRETE IN PCC PAVEMENT OR GUTTER AND PAID FOR AS PART OF THE PAVEMENT OR GUTTER WITH NO DEDUCTION IN PAVEMENT, CURB OR GUTTER QUANTITIES BECAUSE OF CASTINGS. A CLASS C CONCRETE APRON THE SIZE OF THE 2' GUTTER BLOCKOUT SHALL BE CAST IN PLACE IN ASPHALT PAVEMENT (NO DOWELS REQUIRED) WITH THE COST INCLUDED IN THE CATCH BASIN BID PRICE. NO DEDUCTIN TO BE MADE IN CURB QUANTITIES.
PRECAST CONSTRUCTION IS PERMITTED, EXCEPT FOR APRON, AND CONCRETE SHALL MEET REQUIREMENTS OF 706.13 WITH 6± 2% AIR VOID CONTENT IN THE HARDENED CONCRETE. PRECAST WALLS SHALL HAVE A MINIMUM THICKNESS OF 6" AND REINFORCING SHALL BE SUFFICIENT TO PERMIT SHIPPING AND PLACEMENT WITHOUT DAMAGE.
STEPS STEPS ARE TO BE INSTALLED IN STORM STRUCTURES OVER 4' IN DEPTH AND SHALL MEET THE REQUIREMENTS OF DRAWING MH-1.

PLAN

BACK VIEW

FRONT VIEW CURB CASTING

SECTION C-C
GRATE SIZE 2'-5 1/2 x 1'-4 3/8" x 2" (2 REQUIRED)
STANDARD GRATE

PLAN OF CATCH BASIN AND PAVEMENT JOINTS
* DOWEL LOCATION FOR CURB AND GUTTER

FRONT VIEW FRAME

END VIEW FRAME

PLAN GRATE "V"

REVISIONS	DATE	C-8
		CATCH BASIN NO. 3A
		CHK. BY: C.A.H. EFFECTIVE DATE: 1-1-94
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011

SECTION A-A

SECTION B-B WITH CURB & GUTTER

SECTION B-B

SLAB DETAIL SECTION C-C

PIPE SIZE	dim. "A"
12" – 21"	80"
24" – 27"	89"
30" – 36"	99"

PLAN OF CATCH BASIN AND PAVEMENT JOINTS
* DOWEL LOCATION FOR CURB AND GUTTER

REVISIONS	DATE	C-9
SLAB REBAR	12/29/11	CATCH BASIN NO. 3A-MOD.
SEC. C	01/06/12	
SEC. BB	01/06/12	
		CHK. BY: G.J.W. EFFECTIVE DATE: 1-1-94
		BUTLER COUNTY ENGINEERS OFFICE AND OPERATIONS FACILITY 1921 FAIRGROVE AVENUE – HAMILTON, OHIO PHONE 867-5744 45011

Plot time: Mar 08, 2022 11:14am
Drawing name: K:\OLD-K\Mason\-FF\BLOCKS\DETAILS\BUTLER\BC STM.dwg – Layout Tab: STM

Item	Revision Description	Date	Drwn:	Chk:

BUTLER COUNTY, OHIO
STORM DETAILS

bayer becker
www.bayerbecker.com
6900 Tylersville Road, Suite A
Mason, OH 45040 • 513.336.6600

Drawing:	BC STM
Drawn by:	
Checked By:	
Issue Date:	8-13-12
Sheet:	16/17

GENERAL NOTES

EROSION AND SEDIMENT CONTROLS

Vegetative practices
Such practices may include: temporary seeding, permanent seeding, mulching, matting, sod stabilization, vegetative buffer strips, phasing and protection of trees. The contractor 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 upslope development area is restabilized.

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 properties and water resources from sediment transported by 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 in storm water runoff. Off–site vehicle tracking of sediments 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":

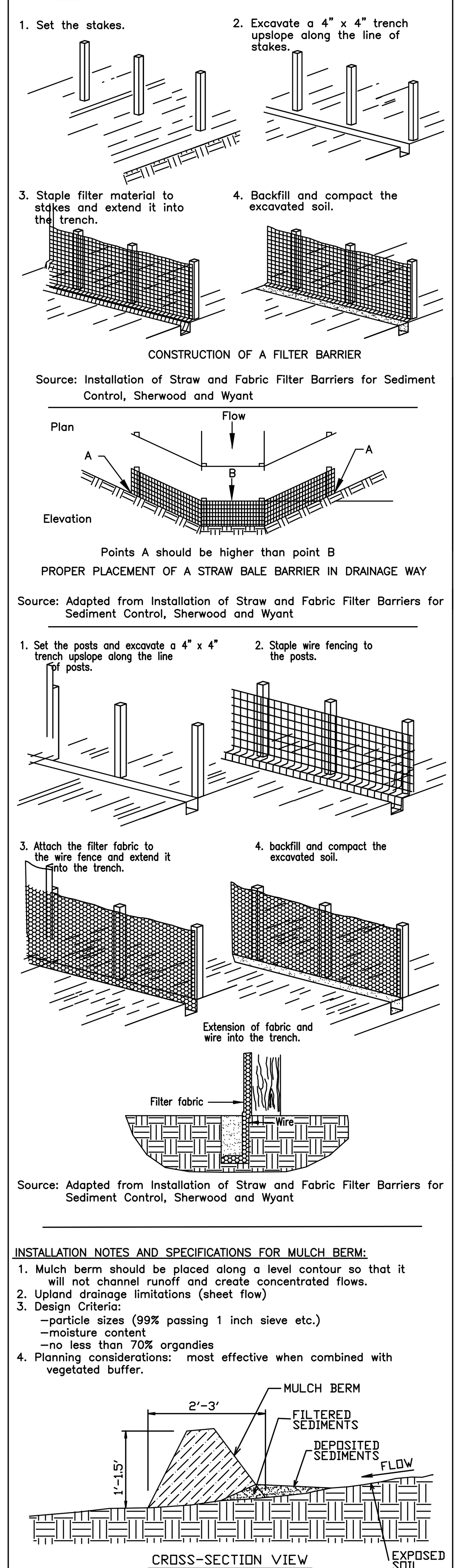
From October 1 through November 20, prepare the seedbed, add the required amounts of lime and fertilizer, then mulch and anchor. After November 20 and before March 15, broadcast the selected seed mixture. Increase the seeding rates by 50% for this type of seeding.

From November 20 through March 15, when soil conditions permit, prepare the seedbed, lime and fertilize, apply the selected seed mixture, 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.

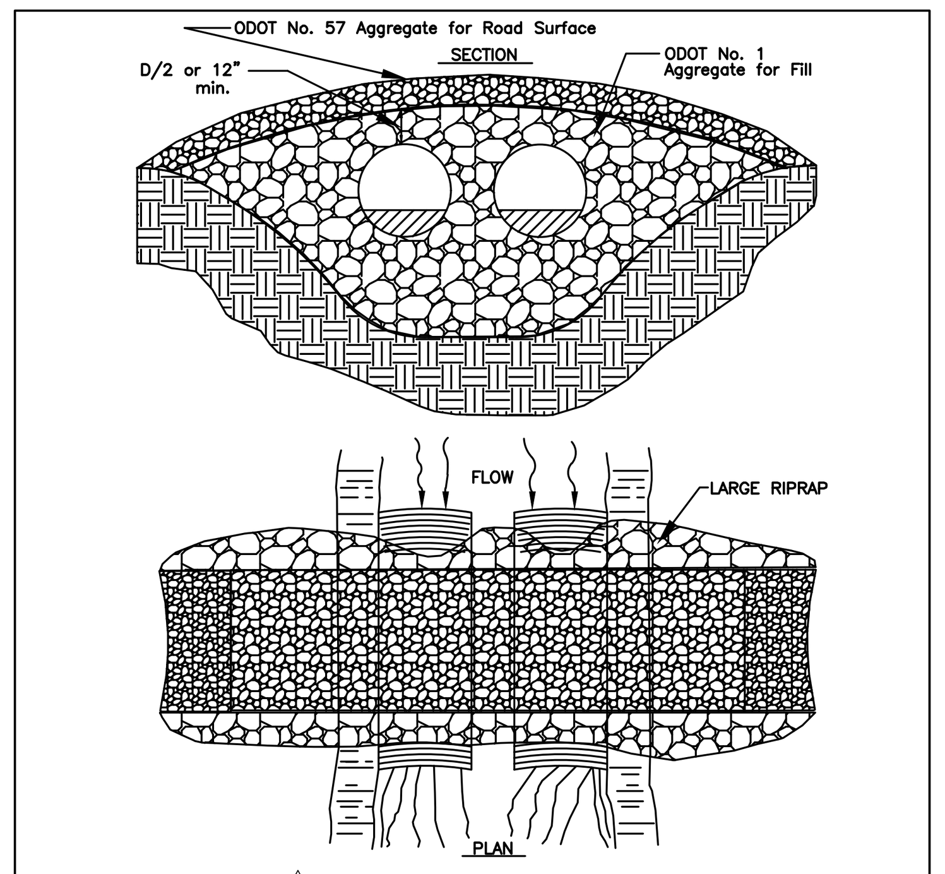
(1) REVEGETATION
Seed, sod or mulch bare soil as soon as possible
SEEDING AND MULCHING
Spread 4 to 6 inches of topsoil. Fertilize according to soil test (or apply 10 lb./1000 sq. ft. of 20–10–10 or 10–10–10 fertilizer.) Seed with an appropriate mix for the site (see table.) Rake lightly to cover seed 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 netting or other measures on steep slopes, or windy areas. Water gently every day or two to keep soil moist. Less watering is needed once grass is 2 inches tall.
SODDING
(2) 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. Peg each piece down in several places. Initial watering should wet soil 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. Straw bale or silt fences must be maintained until final seeding or sodding is completed in spring March 15– May 31.



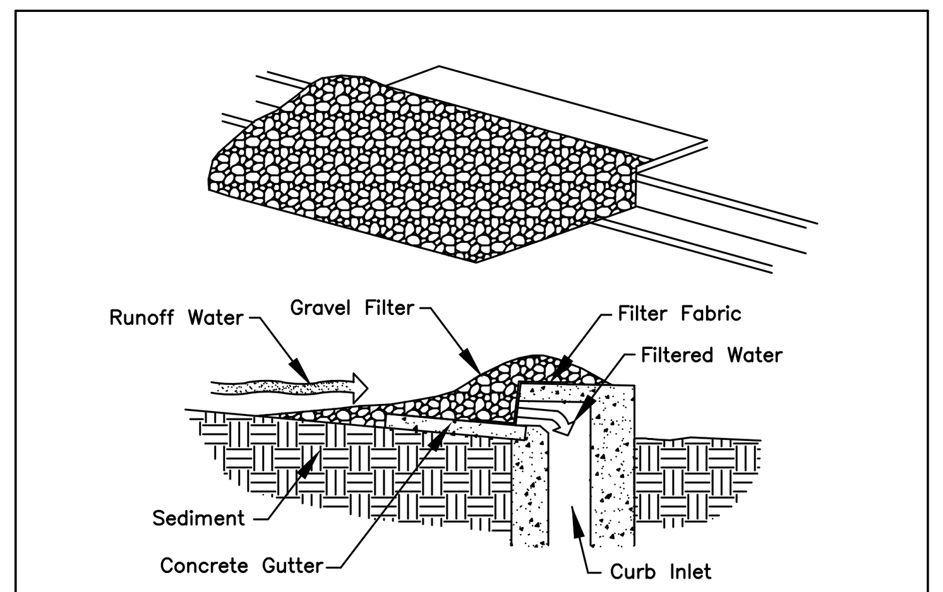
(3) PRESERVING EXISTING VEGETATION
Wherever possible, preserve existing trees, shrubs, and other vegetation. To prevent root damage, do not grade, place soil piles, or park vehicles near trees marked for preservation. Place plastic mesh or snow fence barriers around trees to protect the area below their branches.

(5) SILT FENCE or MULCH BERM
Put up before any other work is done. Install on downslope 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. Entrench 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 sections of 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.

(6) SOIL PILES
Located away from any downslope street, driveway, stream, lake, wetland, ditch or drainageway. Temporary seed such 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 site.
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. DOWNSPOUT EXTENDERS
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.

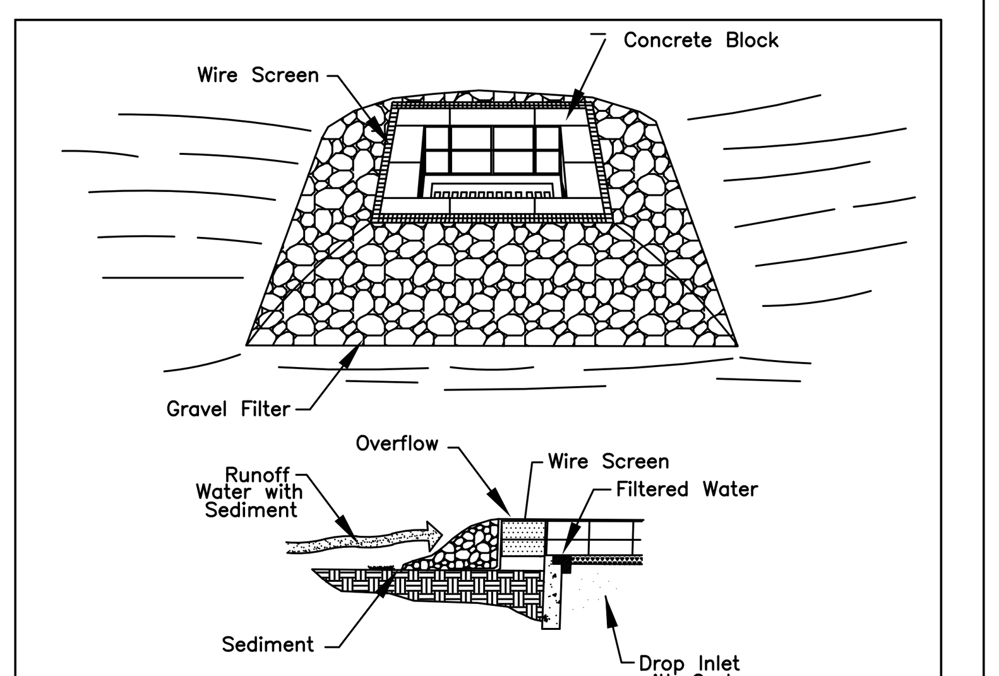


(7) TEMPORARY STREAM CROSSING



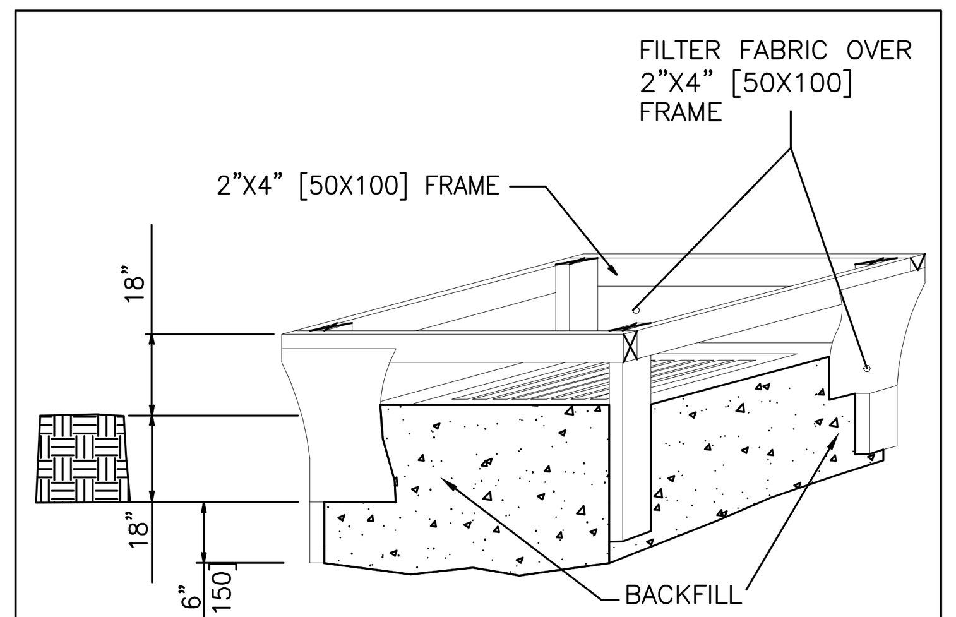
SPECIFIC APPLICATION
This method of inlet protection is applicable at curb inlets where ponding in front of the structure is not likely to cause inconvenience or damage to adjacent structures and unprotected areas.

(8) GRAVEL CURB INLET SEDIMENT FILTER



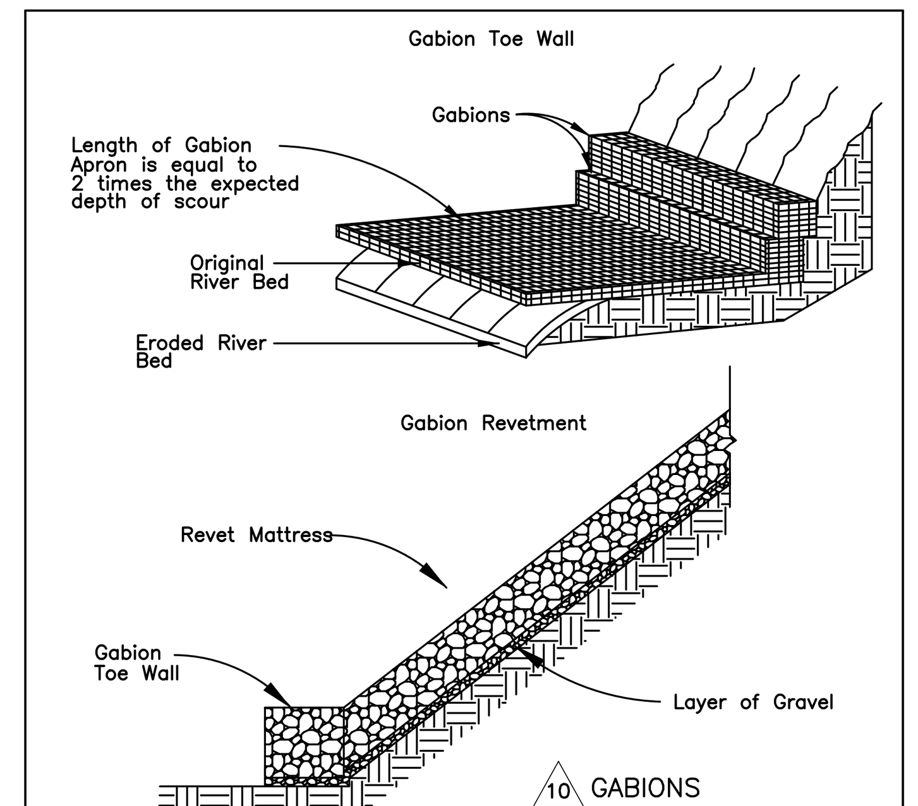
SPECIFIC APPLICATION
This method of inlet protection is applicable where heavy flows are expected and where an overflow capacity is necessary to prevent excessive ponding around the structure.

(9) BLOCK AND DROP INLET SEDIMENT FILTER

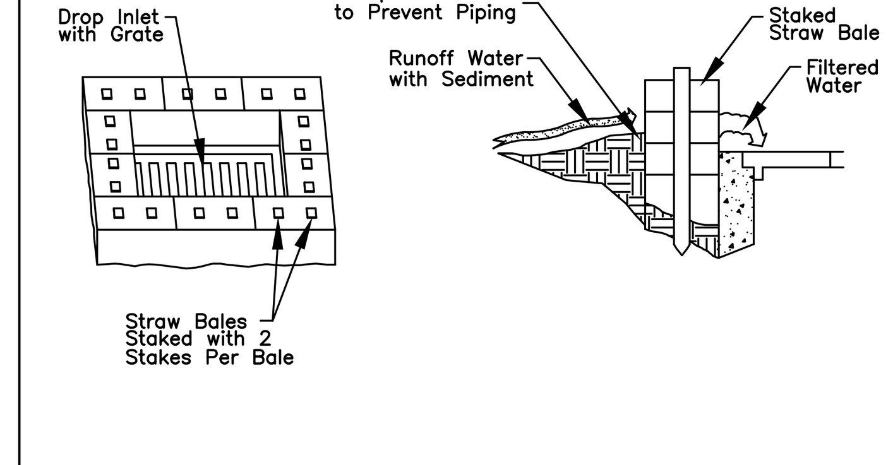


1. Inlet protection shall be constructed either before upslope land disturbance begins of before the storm drain becomes operational.
2. The Earth around the inlet shal be excavated completely to a depth at least 18 in.
3. The wooden frame shall be constructed of 2–by–4–in. constuction–grade lumber. the 2–by–4in. Posts shall be driven 1 ft. into the ground at four corners of the inlet and the top portion of the 2–by–4–in. frame assembled using the overlap joint shown. The top of the frame shall be at least 6–in. below adjacent roadsif ponded water pose a safety hazard to traffic.
4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.
5. Geotextile shall have an equivalent opening size of 20–40 sieve and be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 in. below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.
6. Backfill shall be placed around the inlet in compacted 6–in. layers until the earth is even with notch elevation on ends and top elevation on sides.
7. A compacte 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.

(9) GEOTEXTILE INLET PROTECTION IN SWALES, DITCH LINES OR YARD INLETS

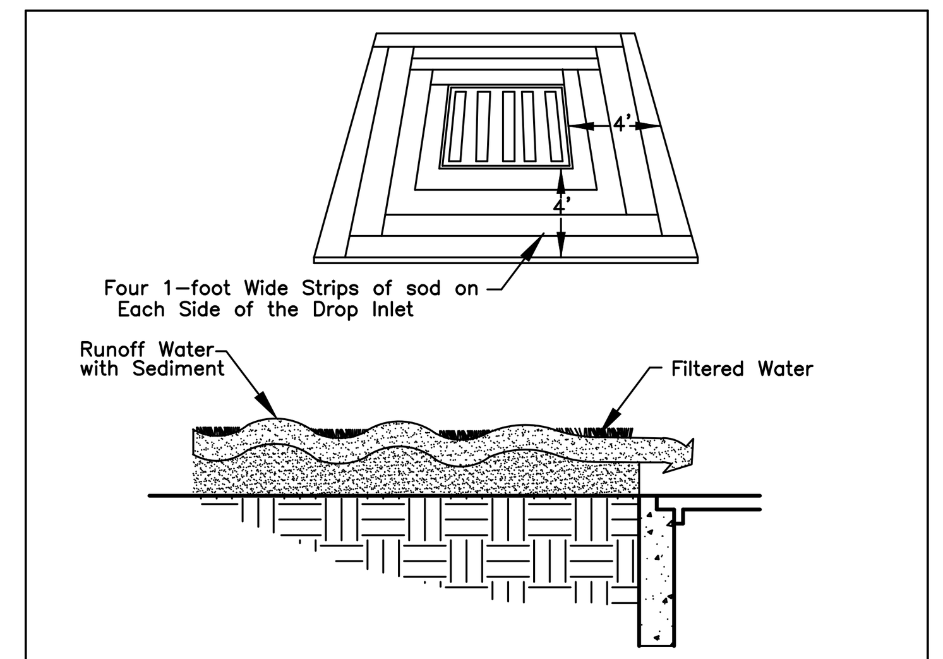


(10) GABIONS
Source: Adapted from product literature of Bekaert Gabions.



SPECIFIC APPLICATION
This method of inlet protection is applicable where the inlet drains a relatively flat area (slope no greater than 5 percent) where sheet or overland flows not exceeding 0.5 cfs) are typical.

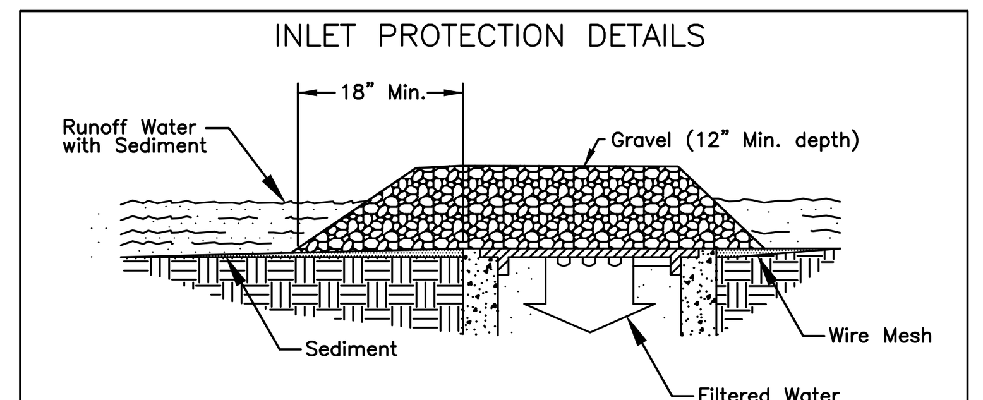
(11) STRAW BALE DROP INLET SEDIMENT FILTER



SPECIFIC APPLICATION
This method of inlet protection is applicable only at the time of permanent seeding, to protect the inlet from sediment and mulch materials until permanent vegetation has become established.

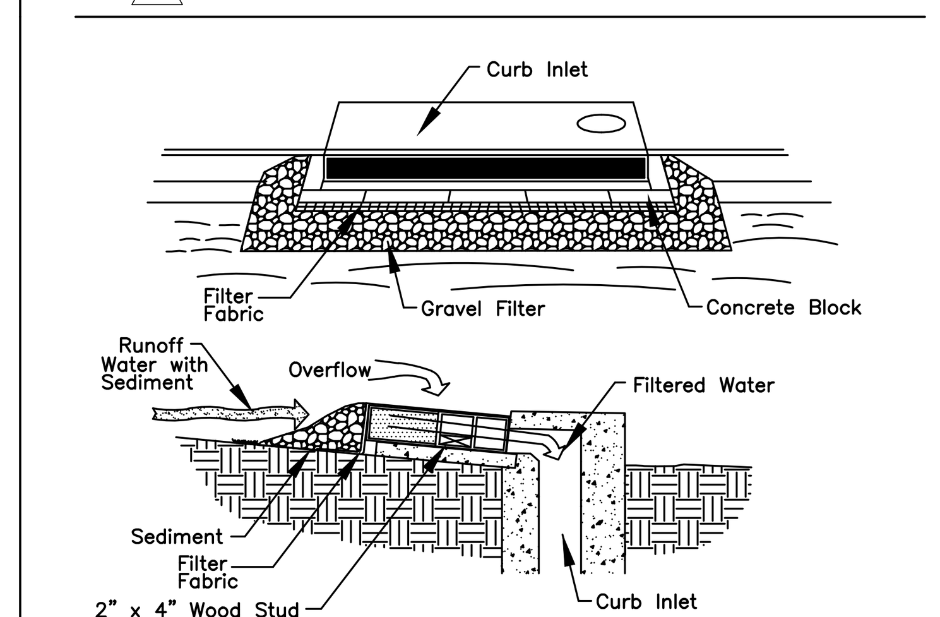
(12) SOD DROP INLET SEDIMENT FILTER

INLET PROTECTION DETAILS



Specific Application
This method of inlet protection is applicable where heavy concentrated flows are expected, but not where ponding around the structure might cause excessive inconvenience or damage to adjacent structures and unprotected areas.

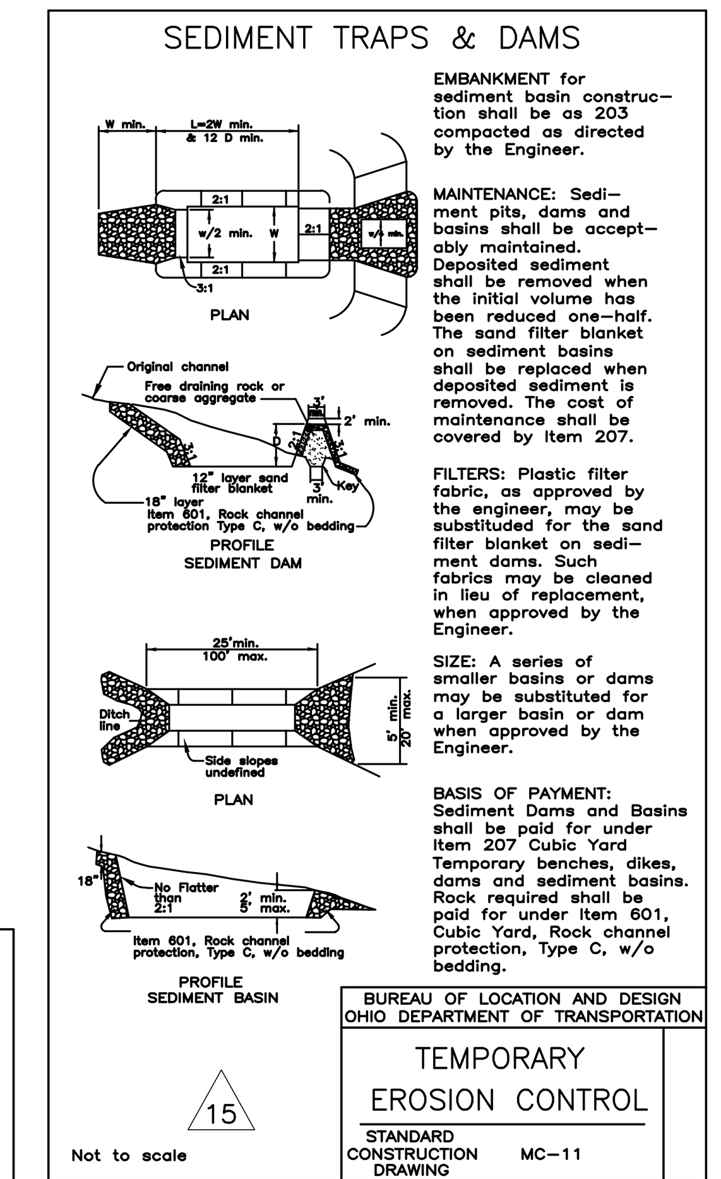
(13) GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER



SPECIFIC APPLICATION
This method of inlet protection is applicable at curb inlets where an overflow capability is necessary to prevent excessive ponding in front of the structure.

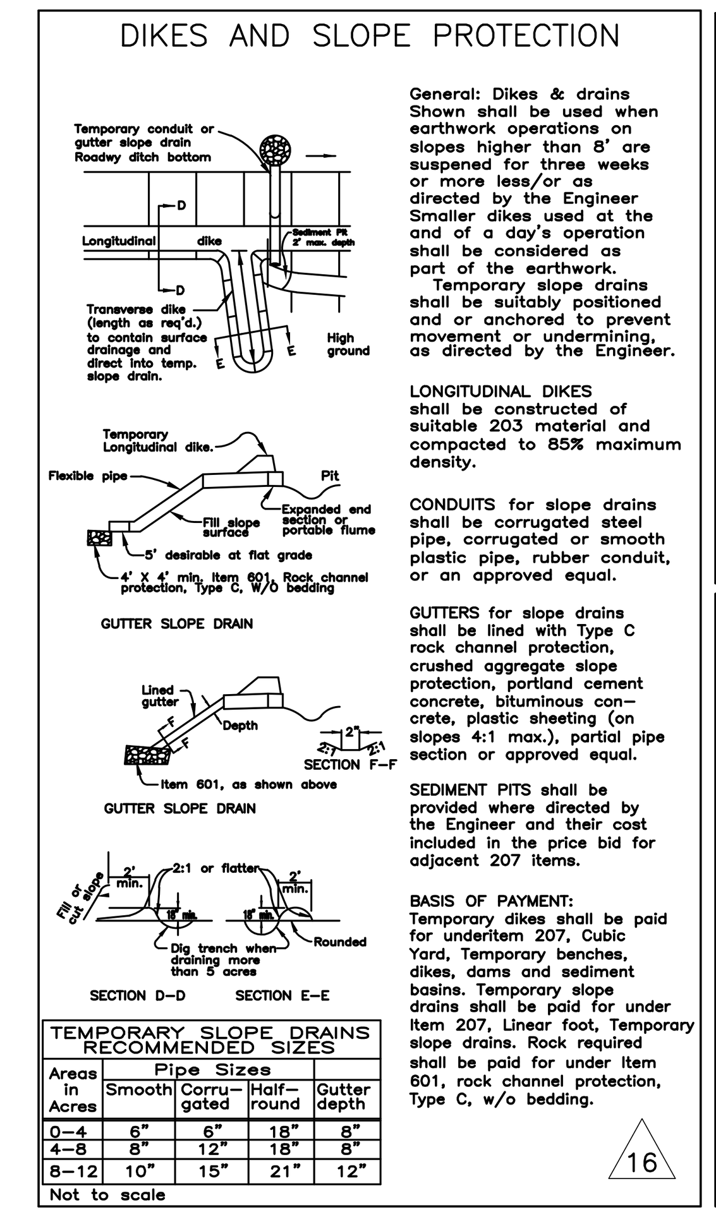
(14) BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER

SEDIMENT TRAPS & DAMS

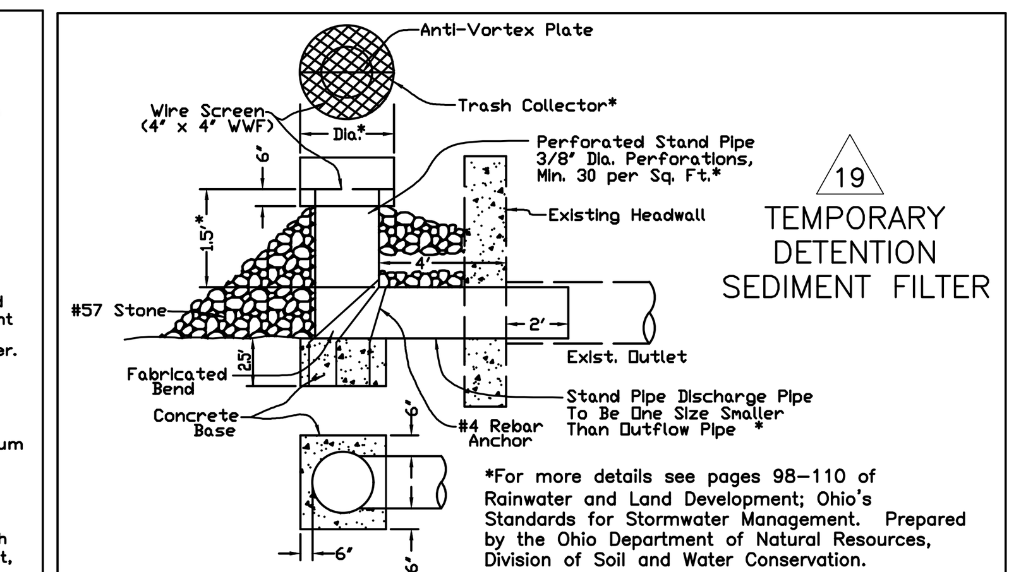


(15)

DIKES AND SLOPE PROTECTION



(16)



(19) TEMPORARY DETENTION SEDIMENT FILTER

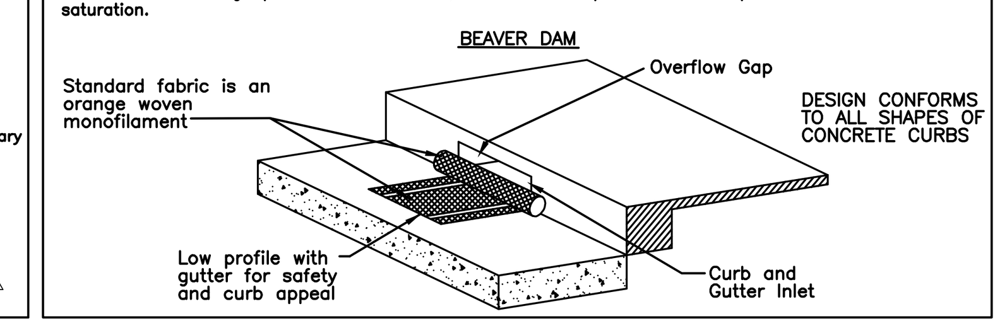
*For more details see pages 98–110 of Rainwater and Land Development; Ohio's Standards for Stormwater Management. Prepared by the Ohio Department of Natural Resources, Division of Soil and Water Conservation.

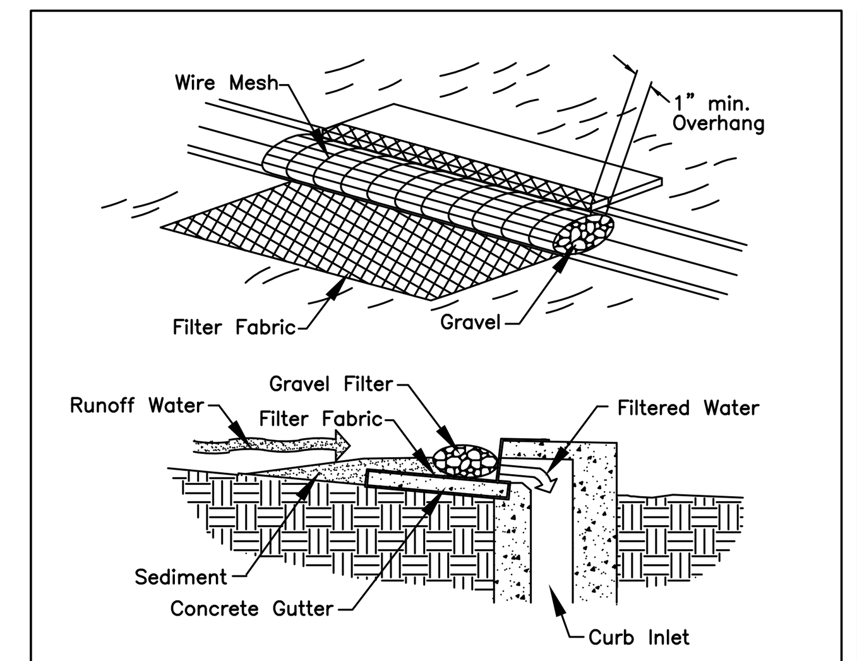
(20) DANDY BAG® /BEAVER DAM

Installation and Maintenance Guidelines

Installation: The empty Beaver Dam should be placed over the grate as the grate stands on end. If using optional oil absorbents; place absorbent pillow on pouch, on the bottom (below–grade side) of the unit. Attach absorbent pillow to tether loop. Tuck the enclosure flap inside to completely enclose the grate. Holding the lifting devices (do not rely on lifting devices to support the entire weight of the grate), place the grate into its frame (street side first), then lower back edge with dam into place. The Beaver Dam should be partially blocking the curb hood when installed properly.

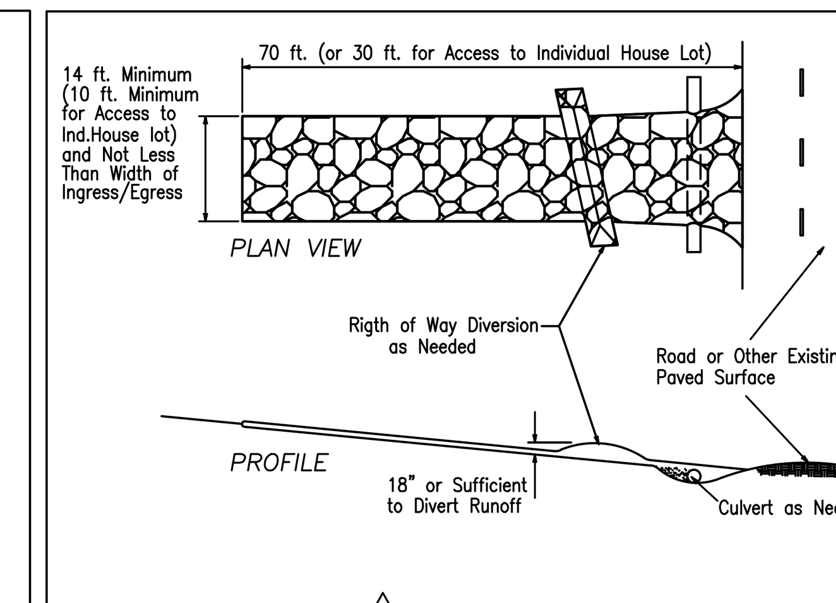
Maintenance: Remove all accumulated sediment and debris from surface and vicinity of unit after each storm event. Remove sediment that has accumulated within the containment area of the Beaver Dam as needed. If using optional oil absorbents; remove and replace absorbent pillow when near saturation.





Specific Application
This method of inlet protection is applicable at curb inlets where ponding in front of the structure is not likely to cause inconvenience or damage to adjacent structures and unprotected areas.

(17) WRAPPED GRATE, ROLLED GRAVEL CURB INLET FILTER



(21) CONSTRUCTION ENTRANCE

1. Stone Size – ODOT #2 (1.5–2.5 inch) stone shall be used, or recycled concrete equivalent.

2. Length – The construction entrance shall be as long as required to stabilize high traffic areas but not less than 70 ft. (exception: apply 30 ft. minimum to single residence lots)

3. Thickness – The stone layer shall be at least 6 inches thick for light duty entrance or at least 10 inches for heavy duty use.

4. Width – The entrance shall be at least 14 ft. wide, (10 ft. wide for access to individual house lots) but not less than the full width at points where ingress or egress occurs.

5. Geotextile – A geotextile shall be laid over the entire area prior to placing stone. Is shall be composed of strong rot–proof polymeric fibers and meet the specifications of 7.4.1 of the OEPA Rainwater & Land Development Manual.

6. Timing – The construction entrance shall be installed as soon as is practicable before major grading activities.

7. Culvert – A pipe or culvert shall be constructed under the entrance if needed to prevent surface water flowing across the entrance or to prevent runoff from being directed out onto paved surfaces.

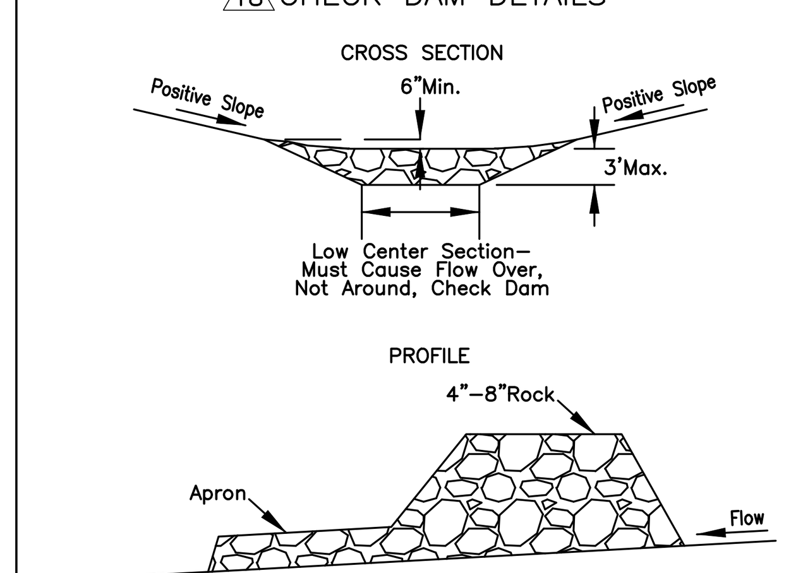
8. Water Bar – A water bar shall be constructed as part of the construction entrance if needed to prevent surface runoff from flowing the length of the construction entrance and out onto paved surfaces.

9. Maintenance – Top dressing of additional stone shall be applied as conditions demand. Mud spilled, dropped, washed or tracked onto public roads, or any surface where runoff is not checked by sediment controls, shall be removed immediately. Removal shall be accomplished by scraping or sweeping.

10. Construction entrances shall not be relied upon to remove mud from vehicles and prevent off–site tracking. Vehicles that enter and leave the construction site shall be restricted from muddy areas.

11. Removal – The entrance shall remain in place until the disturbed area is stabilized or replaced with a permanent roadway of entrance.

(18) CHECK DAM DETAILS



Check Dam Spacing				
Dam Height (ft.)	Channel Slope			
	< 5%	5–10%	10–15%	15–20%
1	65 ft.	30 ft.	20 ft.	15 ft.
2	130 ft.	65 ft.	40 ft.	30 ft.
3	200 ft.	100 ft.	65 ft.	50 ft.

CHECK DAMS
1. The check dam shall be constructed of 4 to 8 inch diameter stone, placed so that it completely covers the width of the channel.

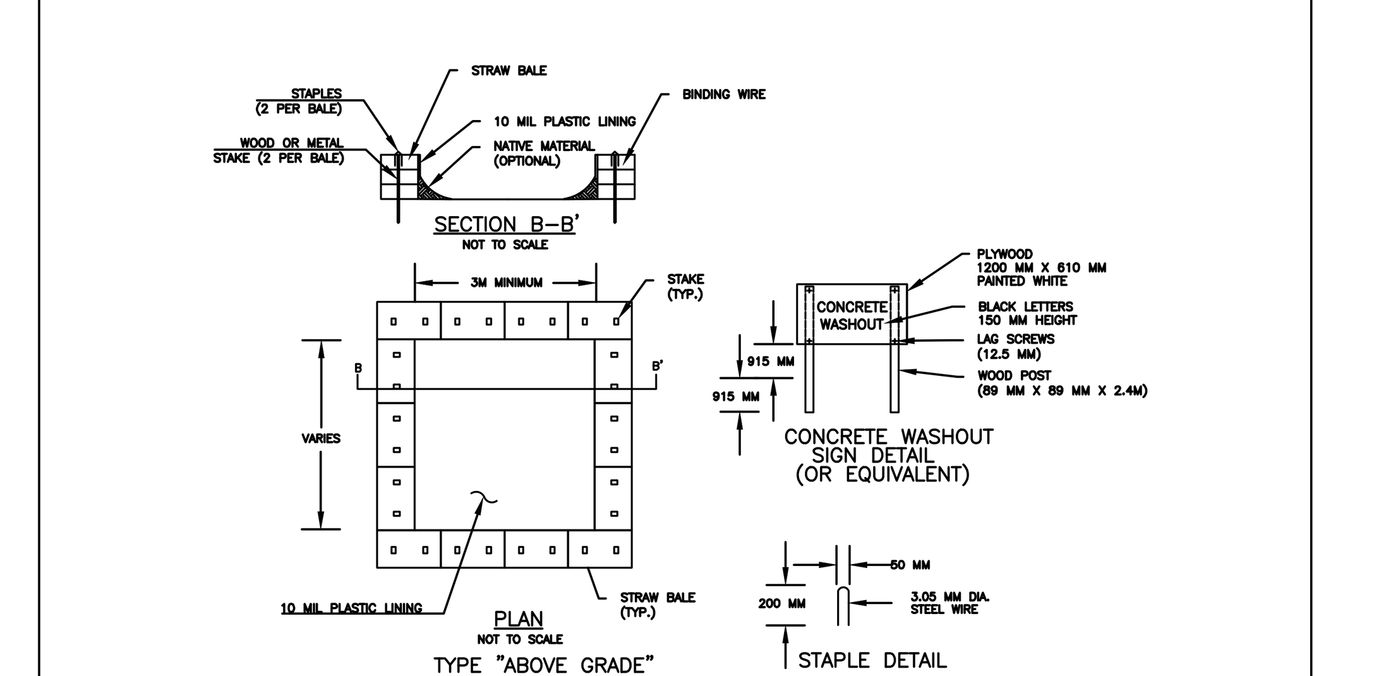
2. The top of the check dam shall be constructed so that the center is approximately 6 inches lower than the outer edges so water will flow across the center and not around the ends.

3. The maximum height of the check dam at the center of the weir shall not exceed 3 ft.

4. Spacing between dams shall be as shown by the check dam spacing table.

DESCRIPTION
Check dams are small rock dams constructed in swales, grassed waterways or diversions. They reduce the velocity of concentrated flows, thereby reducing erosion within the swale or waterway. While this practice often traps some sediment, its trapping efficiency is extremely poor, thus, it should not be used as a sediment trapping practice.
CONDITIONS
This practice is limited to use in small open channels where it is necessary to slow the velocity of flows in order to prevent erosion. Applications include temporary swales which, because of their short length of service, are not practical to receive a nonerodible lining or swales which need protection during the establishment of grass linings, See specifications for rock check and gravel riffle for larger channels and streams.
DESIGN LIMITS
Check dams must not be relied upon to remove sediment from runoff flowing through a channel but rather are used to reduce erosion of the channel itself. However, innovative applications may produce effective ponding areas behind check dam or silt fence structures adequate to trap sediment from sites with very little slope and very little drainage area, less than 2 % slope and less than 2 ac. drainage area.
SPLASH APRON
Where check dams are expected to be in use for an extended period of time, a stone apron may be constructed immediately downstream of the check dam to prevent flows from undercutting the structure. The apron should be 6 inches thick and its length two times the height of the dam.

CONCRETE WASTE MANAGEMENT



NOTES:
1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. THE CONCRETE WASHOUT SIGN (SEE FIGURE ABOVE) SHALL BE INSTALLED WITHIN 10 M OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. CONCRETE WASH WATER SHOULD NOT BE ALLOWED TO FLOW TO STREAMS, DITCHES, STORM DRAINS OR ANY OTHER WATER CONVEYANCE. A SUMP OF PIT WITH NO POTENTIAL FOR DISCHARGE SHALL BE CONSTRUCTED IF NEEDED TO CONTAIN CONCRETE WASH WATER.

(22) CONCRETE WASHOUT AREA

EROSION CONTROL FOR INDIVIDUAL LOTS & SMALL SITES

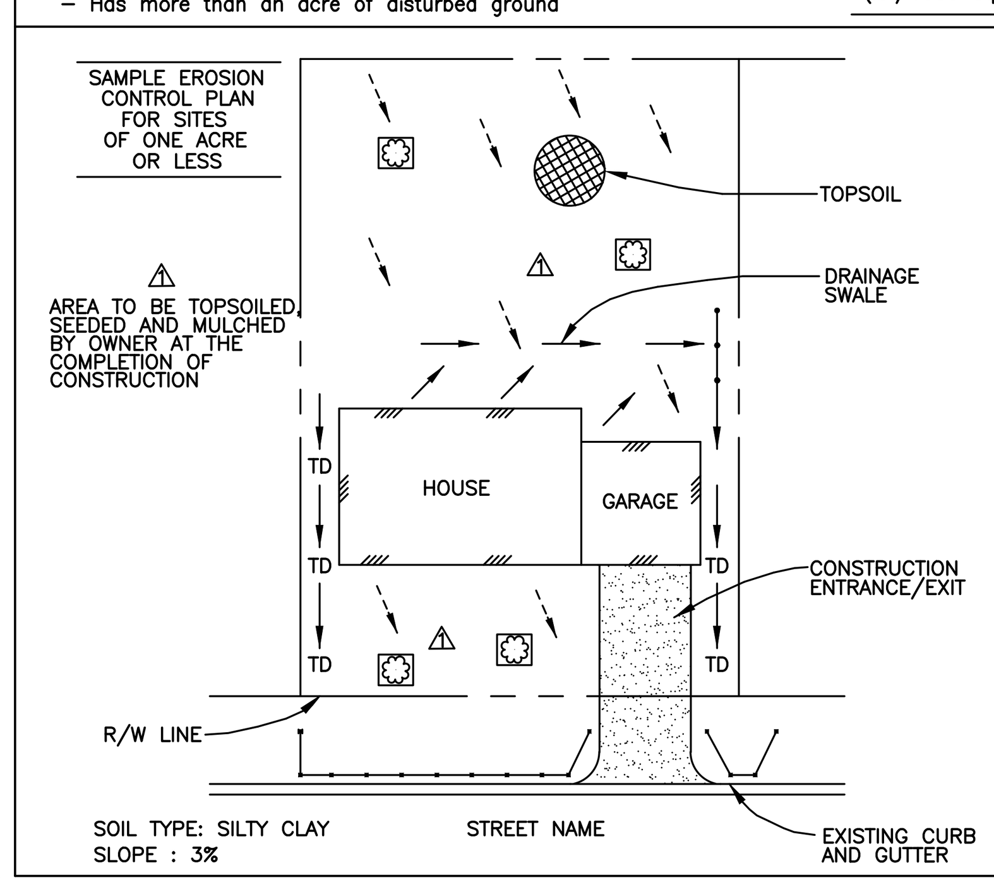
WARNING! Extra measures may be needed if your site:

- Is within 300 feet of a stream or wetland
- Is within 1000 feet of a lake
- Is steep (slopes of 12% or more)
- Receives runoff from 10,000 sq. ft. or more of adjacent land
- Has more than an acre of disturbed ground

Typical Lawn Seed Mixtures

Grass	Sunny Site	Shady Site
Kentucky bluegrass	65%	15%
Fine fescue	20%	70%
Perennial ryegrass	15%	15%
Seeding rate (lb./1000 sq. ft.)	3–4	4–5

SAMPLE EROSION CONTROL PLAN FOR SITES OF ONE ACRE OR LESS



EROSION CONTROL PLAN LEGEND
- PROPERTY LINE
- EXISTING DRAINAGE
- TD TEMPORARY DIVERSION
- FINISHED DRAINAGE
- *SILT FENCE
- STRAW BALES
- GRAVEL
- VEGETATION SPECIFICATION AREA
- TREE PRESERVATION
- STOCKPILED TOPSOIL

*Silt Fence to be positioned accordingly to intercept all sheet flow from upland drainage to prevent from leaving site.

Item	Revision Description	Date	Drwn:	Chk:

EROSION & SEDIMENT CONTROLS

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Checked By:
Issue Date: 3-4-2022
Sheet: 17/17