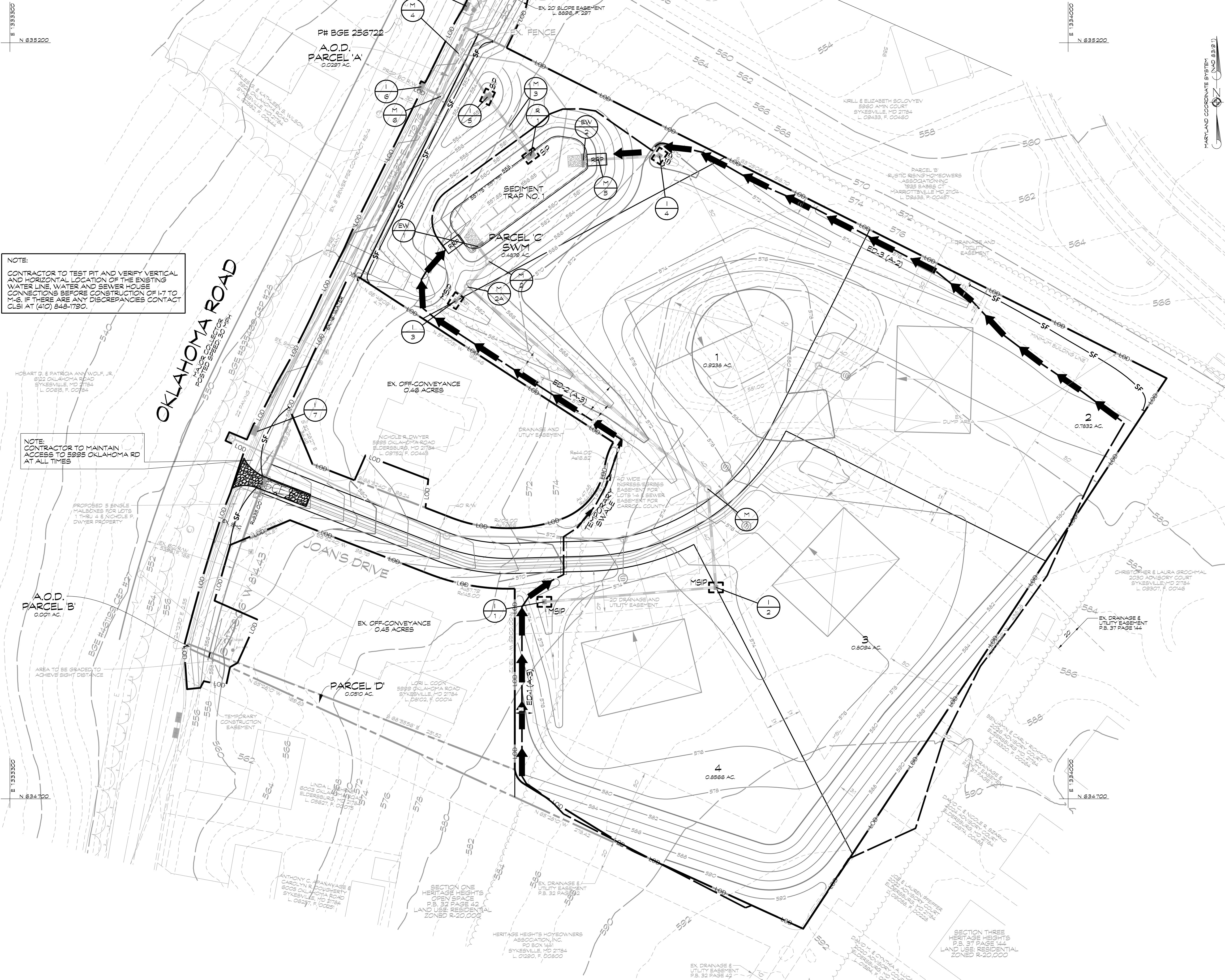


- ### ENGINEER'S "AS-BUILT" CERTIFICATION
- I/We hereby certify that the facility/facilities shown on this/these plan(s) was/were constructed as shown on the "As-Built" plans and meets the approved plans and specifications. I also certify that this/these facilities were inspected in accordance with Sections 151.095 and 151.096 of the Code of Public Local Laws and Ordinances of Carroll County and I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the state of Maryland.
- SIGNED _____ DATE _____
- LICENSE NO. _____ EXPIRATION DATE _____
-
- ### ENGINEER'S DESIGN CERTIFICATION
- I hereby certify that these plans have been designed according to Chapter 151 of the Code of Public Local Laws and Ordinances of Carroll County and I hereby certify that these documents were prepared or approved by me, and I am a duly licensed professional engineer under the laws of the state of Maryland.
- SIGNED  DATE 6/27/2025
- LICENSE NO. 51285 EXPIRATION DATE 12/7/2025

B.M.#1 N 634454.08, E 1333298.75, ELEV. 560.164'
C.C. MONUMENT BENNETT AZ1

B.M.#2 N 634978.0186, E 1334065.2031, ELEV. 574.18'
CLSI PT # LCRF15
STONE FOUND



NOTE:
CONTRACTOR TO TEST PIT AND VERIFY VERTICAL AND HORIZONTAL LOCATION OF THE EXISTING WATER LINE, WATER AND SEWER HOUSE CONNECTIONS BEFORE CONSTRUCTION OF I-7 TO M-6. IF THERE ARE ANY DISCREPANCIES CONTACT CLSI AT (410) 848-1790.

NOTE:
CONTRACTOR TO MAINTAIN ACCESS TO 5925 OKLAHOMA RD AT ALL TIMES

A.O.D. PARCEL 'B'
0.001 AC.

P# BGE 256722
A.O.D. PARCEL 'A'
0.0297 AC.

PARCEL C SWM
0.4575 AC.

PARCEL 'D'
0.0910 AC.

PIPE OUTLET SEDIMENT TRAP ST-1, TRAP NO. 1		
DRAINAGE AREA - INITIAL	3.4	ACRES
DRAINAGE AREA - INTERIM	3.4	ACRES
DRAINAGE AREA - FINAL	3.4	ACRES
TOTAL STORAGE REQUIRED	11,680	CF
TOTAL STORAGE PROVIDED	13,380	CF
WET STORAGE REQUIRED	5,940	CF
WET STORAGE PROVIDED	6,147	CF
DRY STORAGE REQUIRED	5,940	CF
DRY STORAGE PROVIDED	7,233	CF
TRAP BOTTOM ELEVATION	557.75	FT
TRAP BOTTOM DIMENSIONS	VARIABLES	FT x FT
RISER CREST (DRY STORAGE) ELEVATION	559.50	FT
OUTLET (WET STORAGE) ELEVATION	561.00	FT
CLEANOUT ELEVATION	558.75	FT
TOP OF EMBANKMENT ELEVATION	561.00	FT
SIDE SLOPE	3:1	H/V RATIO
EMBANKMENT TOP WIDTH	6	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL RISER)	CONCRETE	
RISER DIAMETER	48.5 x 78.5	IN
BARREL DIAMETER	15	IN
TRASH RACK DIAMETER	44 x 79	IN
TRASH RACK HEIGHT	22	IN
ANTI-SHEEP COLLAR DIMENSIONS	N/A	FT
OUTLET PROTECTION - LENGTH	N/A	FT
OUTLET PROTECTION - WIDTH	N/A	FT
OUTLET PROTECTION - DEPTH	N/A	IN

LEGEND

- SEDIMENT CONTROL DRAINAGE AREA
- PROPERTY BOUNDARY
- EXISTING TREELINE
- PROPOSED STORM DRAIN
- STANDARD INLET PROTECTION TYPE 'B'
- MSIP
- LIMIT OF DISTURBANCE
- SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE
- EARTH DIKE
- RIP-RAP INFLOW PROTECTION
- MOUNTABLE BERM

NOTE:
ALL STANDARD INLET PROTECTION FOR THIS PROJECT TO BE TYPE 'B' UNLESS OTHERWISE NOTED.

OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

SEDIMENT CONTROL PLAN
BYRON HILLS

5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355



PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 51283, EXPIRATION DATE: DECEMBER 7, 2025		
Date	Revisions	Drawn By: MM, JW, BH
11/2024	ADDRESS COMMENTS	Designed By:
3/2025	ADDRESS COMMENTS	Reviewed By:
4/2025	ADDRESS COMMENTS	Date: JAN., 2023
5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Scale: 1"=30'
6/2025	ADDRESS COMMENTS	Job No.: 2013044
		Sheet: 2 OF 19

SEDIMENT & EROSION CONTROL NOTES

1. All erosion/sediment control measures shall comply with the "Maryland Standards and Specifications for Soil Erosion and Sediment Control" by the Maryland Department of the Environment, Water Management Administration in association with the Natural Resources Conservation Service and Maryland Association of Soil Conservation Districts (referenced as the 2011 Standards and Specs's).
2. Areas that have been cleared and/or graded, but will not be constructed on or permanently vegetated for more than 5 days (3 days for sediment control measures (steep slopes) must be stabilized with mulch or temporary stabilization. Any areas that are in temporary vegetation for over 6 months will need to be permanently vegetated.
3. For specifications on permanent or temporary stabilization see B-4-4 and B-4-5.
4. Mulching can only be used on disturbed areas as a temporary cover where vegetation is not feasible or where seeding germination cannot be completed because of weather conditions. For specifications see B-4-3, A.1.B.
5. For specifications on the stabilization of cut and fill slopes greater than 3 horizontal to 1 vertical, see Incremental Stabilization B-4-1.
6. The existing topsoil from an on or off site that is used must meet the minimum specifications in B-4-2.
7. The required sequence of construction must be followed during site development. Any change in the sequence of construction must be approved by the Soil Conservation District.
8. Any revisions to the sediment control plan, not covered under the list of plan modifications that can be approved by the sediment control inspector, need to be submitted to the Soil Conservation District for approval.
9. No proposed slope that is seeded and/or mulched shall be greater than 2:1. Slopes greater than 2:1 shall require an engineered design for stabilization.
10. All sediment control structures will be inspected once a week and after each rainfall and will be repaired, as needed, so that the structure meets the minimum specifications as shown in the 2011 Standards and Specs's.
11. The contractor is responsible for maintaining all sediment and erosion control measures until the disturbed areas are permanently stabilized.
12. The district approval for this sediment control plan is good for 2 years. At the end of 2 years, if construction of the plan has not started, the plan will need to be resubmitted to the soil conservation district for review and re-approval. Any plans that are currently under construction after 2 years may be required to be re-submitted to the soil conservation district by the sediment control inspector.

DUST CONTROL SCHEDULE

May-October - All graded areas not being immediately stabilized as noted in the "Required Sequence of Construction" shall be watered on a continuing basis as necessary to provide for dust proofing. Contractor shall provide tank truck with spray bar on site at any time the disturbed area exceeds three (3) acres.

REQUIRED SEQUENCE OF CONSTRUCTION

1. NOTIFY THE CARROLL COUNTY BUREAU OF SEDIMENT CONTROL (410-386-2210) 24 HOURS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. ALL PROTECTION FENCING AND PERMANENT SIGNS REQUIRED UNDER THE CARROLL COUNTY CODE OF PUBLIC LAWS AND ORDINANCES, FOREST CONSERVATION (CHAPTER 150) AND WATER RESOURCE MANAGEMENT (CHAPTER 154) SHALL BE INSTALLED PRIOR TO THE PRE-CONSTRUCTION MEETING WITH THE CARROLL COUNTY SEDIMENT INSPECTOR.
2. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE PER PLAN.
3. INSTALL ALL SILT FENCE PER PLAN.
4. EXCAVATE SEDIMENT TRAP # 1.
5. CONSTRUCT STORM DRAIN M-3 TO EX I-25 AND POND OUTFALL FROM R-1 TO M-3. CONSTRUCT CONCRETE CRADLE FROM R-1 TO M-4.
6. CONSTRUCT EMBANKMENT, BACKFILL AND COMPACTION OF EMBANKMENT MUST CONFORM TO COMPACTION NOTES ON SHEET 9. SIMULTANEOUSLY WITH EMBANKMENT, INSTALL RISER R-1. SEE SHEET 11 FOR RISER DETAILS. CONSTRUCTION OF EMBANKMENT, RISER, BARREL, AND CRADLE MUST BE INSPECTED BY CERTIFYING PROFESSIONAL ENGINEER OR APPROVED REPRESENTATIVE.
7. CONSTRUCT MOUNTABLE BERM, AND ALL EARTH DIKES AND RIP-RAP INFLOWS.
8. GRADE SITE, INSTALL WATER, SEWER AND STORM DRAINS.
9. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE MOUNTABLE BERM.
10. GRADE AND PAVE USE-IN-COMMON DRIVEWAY. INSTALL WIDE SHOULDERS PER DETAILS ON SHEET 13 AND SEQUENCE OF CONSTRUCTION ON SHEET 9.
11. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR CONVERT SEDIMENT TRAP NO. 1 INTO THE EXTENDED DETENTION BASIN. SEE CONSTRUCTION SEQUENCE AND INSPECTION CHART ON SHEET 10.
12. WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL MEASURES. FINAL STABILIZE ALL DISTURBED AREAS.
13. CONSTRUCT INDIVIDUAL HOUSES AND DRYWELLS. WIDE SHOULDERS (LOTS 1 & 3) AND GRASS SWALES (LOTS 1 AND 4) ON LOTS TO BE INSTALLED PER DETAILS ON SHEETS 9 AND 13 AND SEQUENCES OF CONSTRUCTION ON SHEET 9 INDIVIDUAL LOTS TO BE CONSTRUCTED.

SITE ANALYSIS

1. TOTAL AREA OF SITE: 3.9427 AC.
2. AREA DISTURBED: 198,048 S.F.
3. TOTAL CUT: 33889 C.Y.
4. TOTAL FILL: 225 C.Y.

NOTE: EARTHWORK CUT AND FILL QUANTITIES INDICATED ON THIS PLAN ARE SHOWN FOR PURPOSES OF OBTAINING SEDIMENT CONTROL PLAN APPROVAL AND NOT TO BE USED FOR CONTRACTUAL OBLIGATIONS. CONTRACTOR IS RESPONSIBLE TO VERIFY QUANTITIES.

NOTE:
ALL SEDIMENT CONTROL MEASURES SHOWN HEREON ARE TEMPORARY UNLESS OTHERWISE NOTED.

NOTE:
ALL STOCKPILE AREAS SHALL BE CONFINED WITHIN PERIMETER CONTROLS. IN THE EVENT THAT STOCKPILE AREAS MUST BE LOCATED OUTSIDE OF DISTURBED AREAS, THE LOCATION SHALL BE AS DIRECTED BY THE INSPECTOR IN THE FIELD.

STABILIZATION SPECIFICATIONS

TEMPORARY SEEDING NOTES

Scope: Planting short term (no more than 6 Months) vegetation to temporarily stabilize any areas where soil disturbance has occurred, until the area can be permanently stabilized with vegetative or non-vegetative practices. Standards: The following notes shall conform to Section B-4 of the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, published jointly by the Maryland Department of Environment - Water Management Administration, the National Resource Conservation Service and the Maryland Association of Soil Conservation Districts.

1. The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See section B-4-2.

2. For temporary stabilization, fertilizer shall consist of a mixture of 10-20-20 and be applied at a rate of 436 lb. per acre (10 lb. per 1000 sq. ft.) and will meet the requirements in section B-4-2. Lime shall be applied at a rate of 2 tons per acre (80 lb. per sq. ft.) and shall meet the requirements in section B-4-2 and B-4-4.

3. Seed type and application shall meet the requirements in section B-4-3. Seed tags shall be made available to the inspector to verify the type and rate of seed used. Mulch type and its application will meet the requirements in section B-4-3 a, b and c and will be applied along with the seed or immediately after seeding.

4. Seeding mixtures shall be selected from or will be equal to those on Table B. 1 (page B. 20).

Temporary Seeding Summary
The seeding chart below will need to be placed on and filled in on the sediment control plan.

Hardness Zone (from Figure B. 3): 6B Seed Mixture (from Table B. 1):					Fertilizer Rate (10-20-20)	Lime Rate
No.	Species	Application Rate (lb/ao)	Seeding Dates	Seeding Depths		
1	Annual Ryegrass (Lolium perenne spp. multiflorum)	40 lb/ao	3/15 - 5/31 5/1 - 9/30	0.5'	436 lb/ao (10 lb/1000 sf)	2 tons/ao. (80 lb/1000 sf)
2	Perennial Millet (Seteria indica)	30 lb/ao	5/16 - 7/31	0.5'		

PERMANENT SEEDING NOTES

Scope: Planting permanent, long lived vegetative cover on graded and/or cleared areas and areas that have been in temporary vegetation for more than 6 months.

Standards: The following notes shall conform to Section B-4 of the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, published jointly by the Maryland Department of Environment - Water Management Administration, the National Resource Conservation Service and the Maryland Association of Soil Conservation Districts.

The seed bed shall be prepared by loosening the soil to a depth of 3 to 5 inches and incorporating the lime and fertilizer into this loosened layer of soil. See section B-4-2.

For sites over .5 ac., soil tests will be performed. Soil tests will be conducted by the University of Maryland or a recognized commercial laboratory. Minimum soil conditions shall meet the requirements of section B-4-2-A-2-a, otherwise soil amendments or topsoil will need to be applied. Topsoiling may occur when soil conditions meet the minimum requirements as stated in section B-4-2-B. Soil amendments must meet the requirements as set forth in section B-4-2-C and must be applied as indicated by the soils tests.

For sites of .5 ac. or less of disturbance, the following fertilizer and lime rates shall apply. Fertilizer shall consist of a mixture of 10-20-20 and be applied at the following rates: N = 45 lb. per acre (1 lb. per 1000 sq. ft.) P2O5 = 80 lb. per acre (2 lb. per 1000 sq. ft.) K2O = 90 lb. per acre (2 lb. per 1000 sq. ft.) Lime shall be applied at a rate of 2 tons per acre (80 lb. per 1000 sq. ft.)

Seed type, turfgrass or sod application shall meet the requirements in section B-4-5. Seed tags shall be made available to the inspector to verify the type and application rate of seed used. Mulch type and its application will meet the requirements in section B-4-3 a, b and c, and will be applied along with seed or immediately after seeding.

Seeding mixtures shall be selected from or will be equal to those on Table B-3. The seeding chart below will need to be placed on and filled in on the sediment control plan.

Hardness Zone (from Figure B. 3): 6B Seed Mixture (from Table B. 3):					Fertilizer Rate (10-20-20)			Lime Rate
No.	Species	Application Rate (lb/ao)	Seeding Dates	Seeding Depths	N	P ₂ O ₅	K ₂ O	
9	Improved Tall Fescue (Lolium arundinaceum)	60 lb/ao	3/1 - 5/15 5/1 - 10/15	1/4 - 1/2 in	4.5 pounds per acre (1.0 lb / 1000 sf)	80 lb/ao (2.0 lb / 1000 sf)	90 lb/ao (2.0 lb / 1000 sf)	2 tons/ao. (80 lb / 1000 sf)
	Improved Kentucky Bluegrass	40 lb/ao	3/1 - 5/15 5/1 - 10/15	1/4 - 1/2 in				
11	Improved Perennial Ryegrass	20 lb/ao	3/1 - 5/15 5/1 - 10/15	1/4 - 1/2 in	4.5 pounds per acre (1.0 lb / 1000 sf)	80 lb/ao (2.0 lb / 1000 sf)	90 lb/ao (2.0 lb / 1000 sf)	2 tons/ao. (80 lb / 1000 sf)
	Swain Grass (Stemum virginum)	10 lb/ao	3/1 - 5/15 5/16 - 6/15	1/4 - 1/2 in				
	Creeping Red Fescue (Festuca rubra)	15 lb/ao	3/1 - 5/15 5/16 - 6/15	1/4 - 1/2 in				
	Permitige Poo (Chamaelepta fascicular)	4 lb/ao	3/1 - 5/15 5/16 - 6/15	1/4 - 1/2 in				

9 -use 1 variety on the MD/DVA recommended list (TT-77)
11-use 2-4 varieties on the MD/DVA recommended list (TT-77)

Tracking note:

On areas where the slope is 3:1 or steeper and the height is 5' or greater, contractor shall track the slope using cleared dozer prior to placing asphalt binder. Dozer shall run up-and-down so that clear marks are horizontal. Where tracking is required, it shall be done from existing grade level to finished grade level within the limits established by the 5' height criteria.

UTILITY CONSTRUCTION NOTES

1. Place all excavated material on the high side of the trench.
2. Only do as much work as can be done in one day so backfilling, final grading, and permanent establishment can occur.
3. Any sediment control measures disturbed by the utility construction will be repaired the same day.

STOCKPILE/TOPSOIL NOTES

1. Stockpiling will not be allowed on any impervious area.
2. All stockpiles left at the end of the day will need to be temporarily stabilized until they are again disturbed, unless they are within existing perimeter sediment controls.
3. All stockpile areas shall be confined within perimeter controls. In the event that stockpile areas must be located outside disturbed areas, the location shall be as directed by the inspector in the field.

OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

SEDIMENT CONTROL NOTES

BYRON HILLS

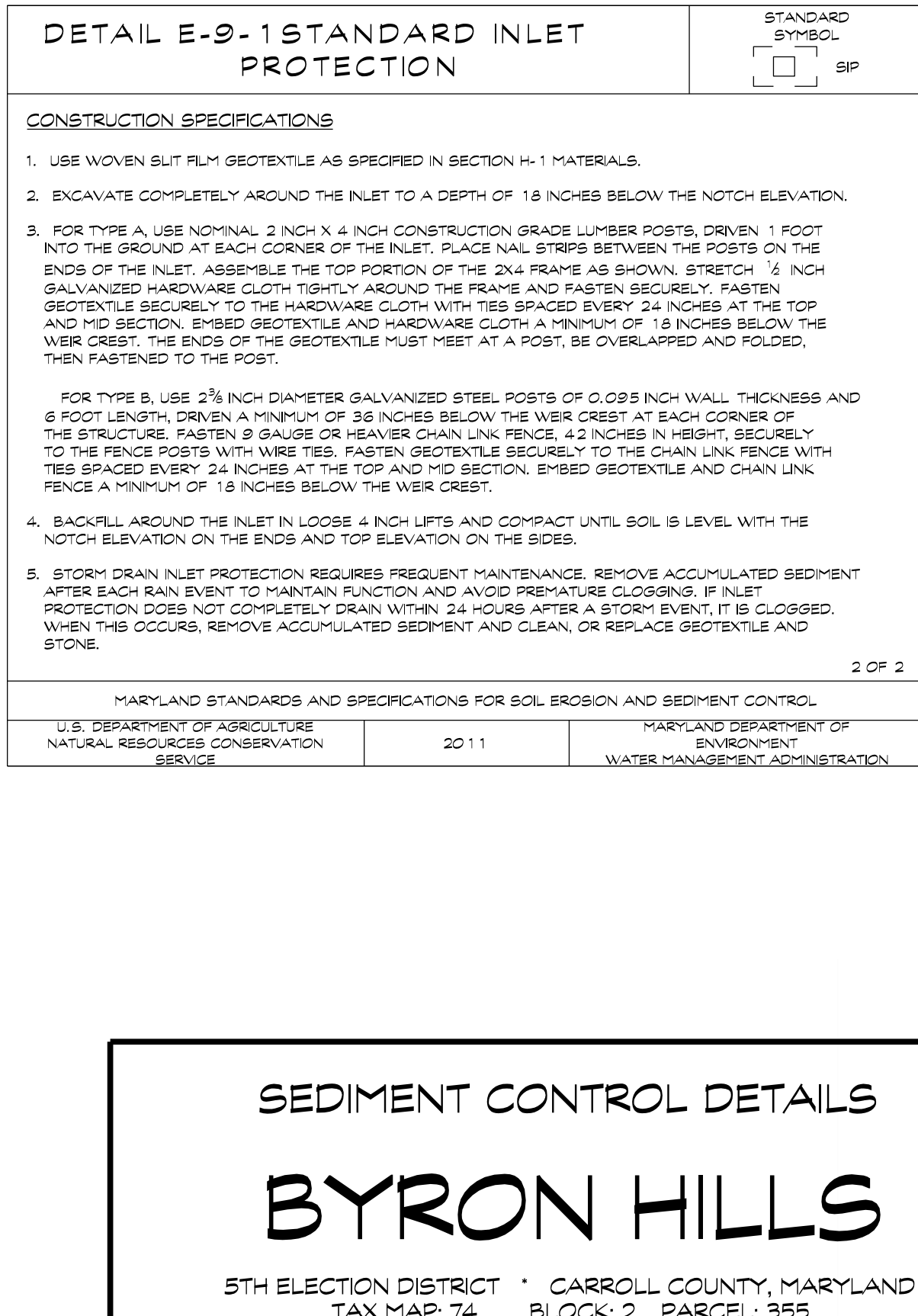
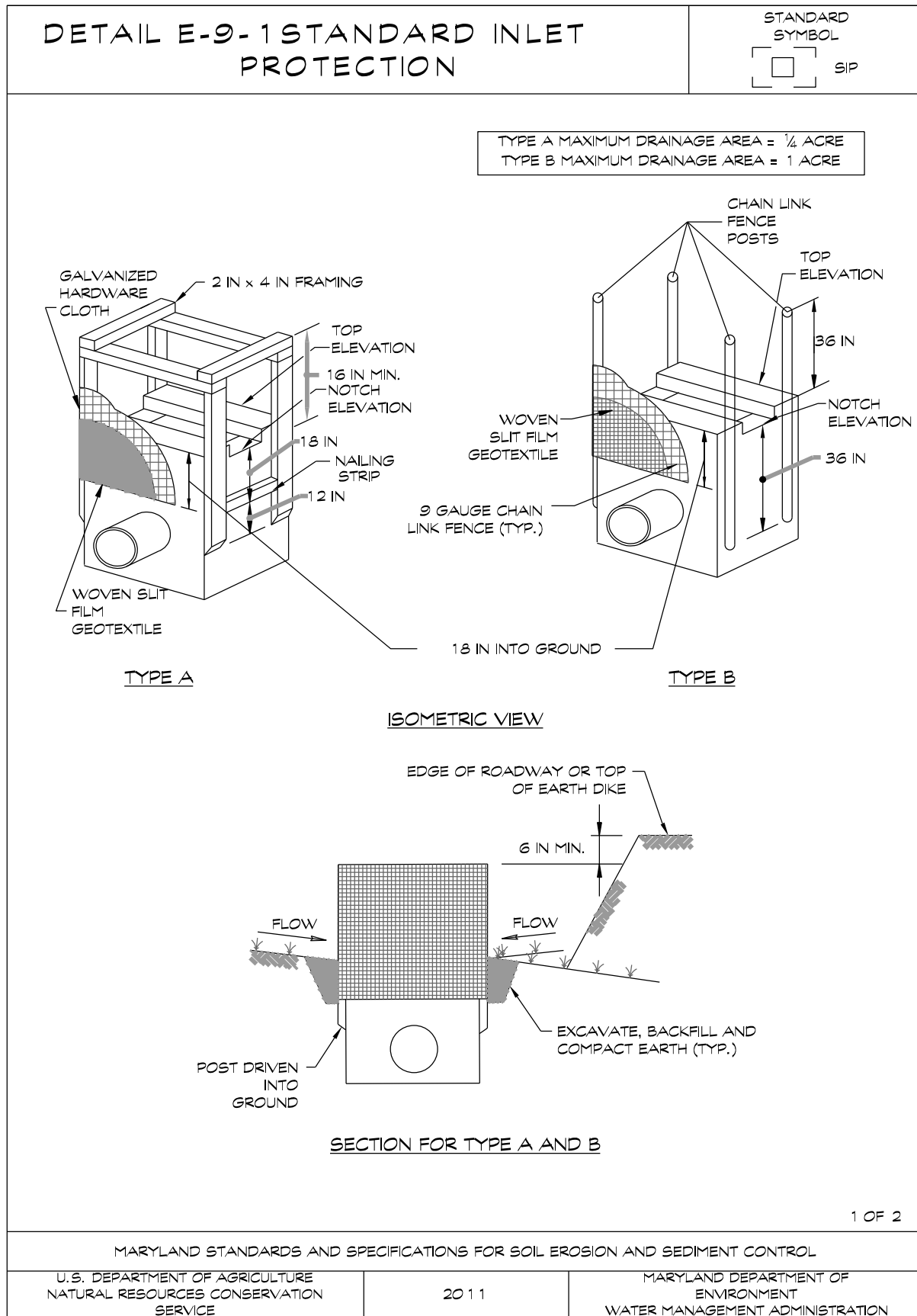
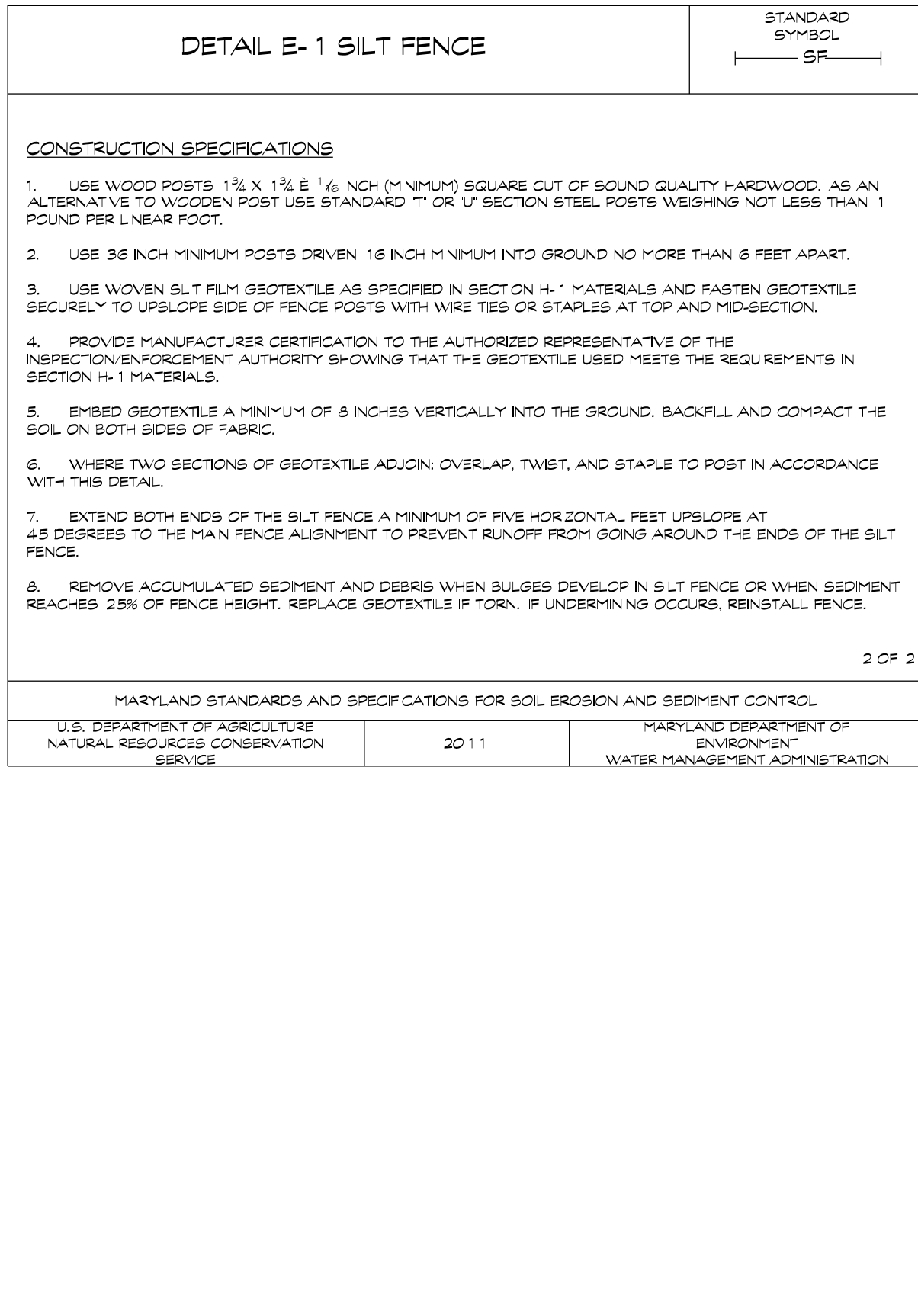
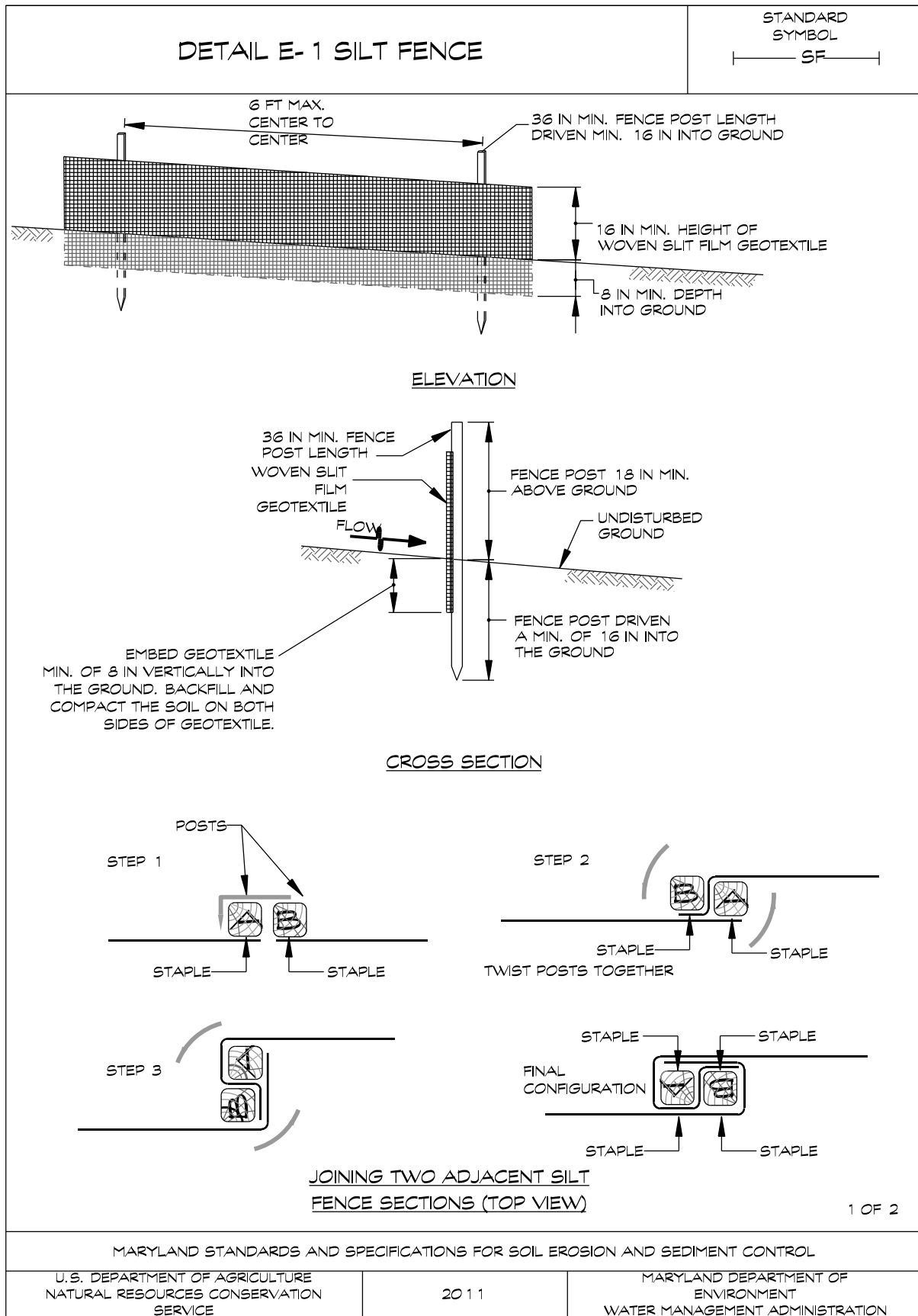
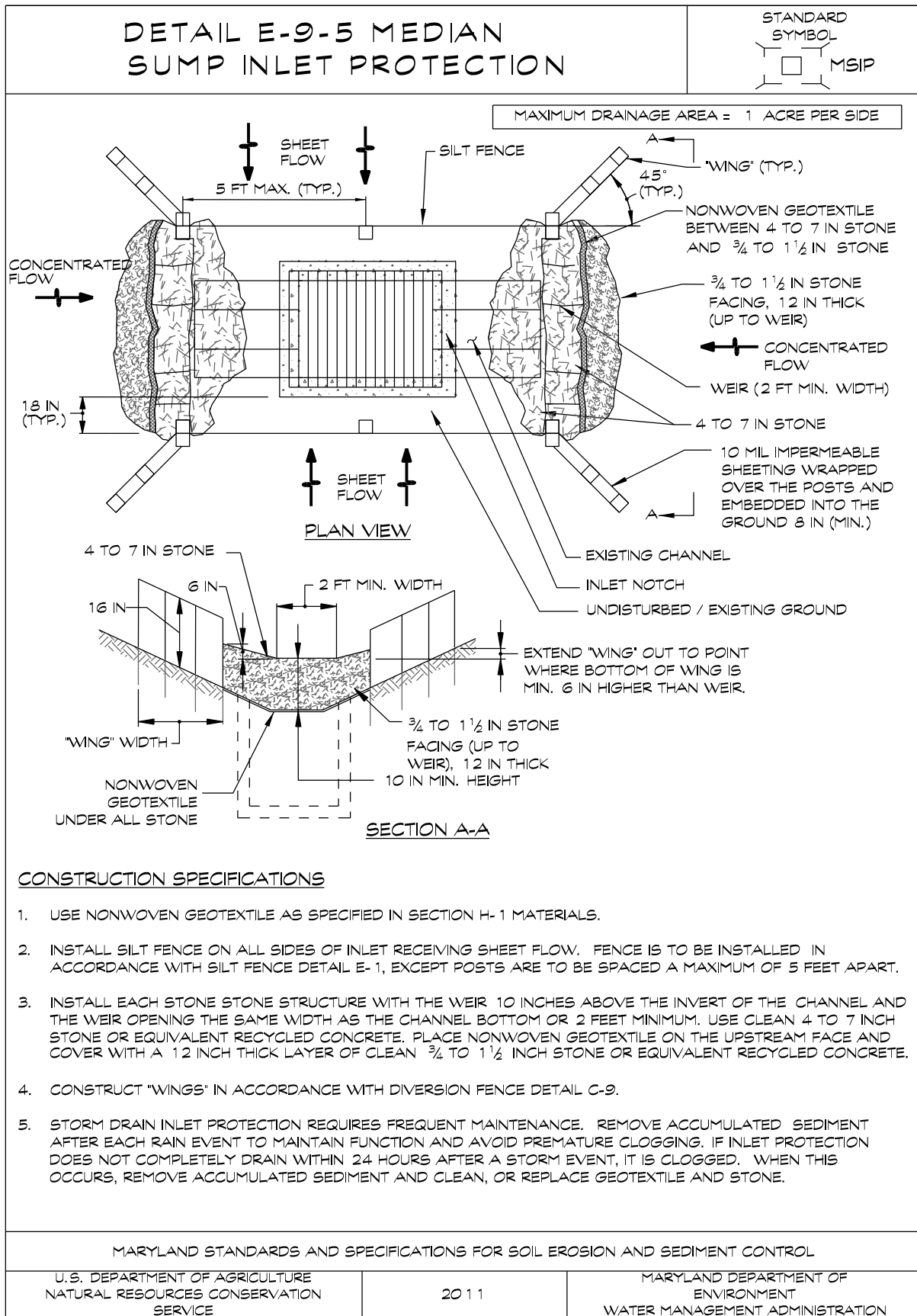
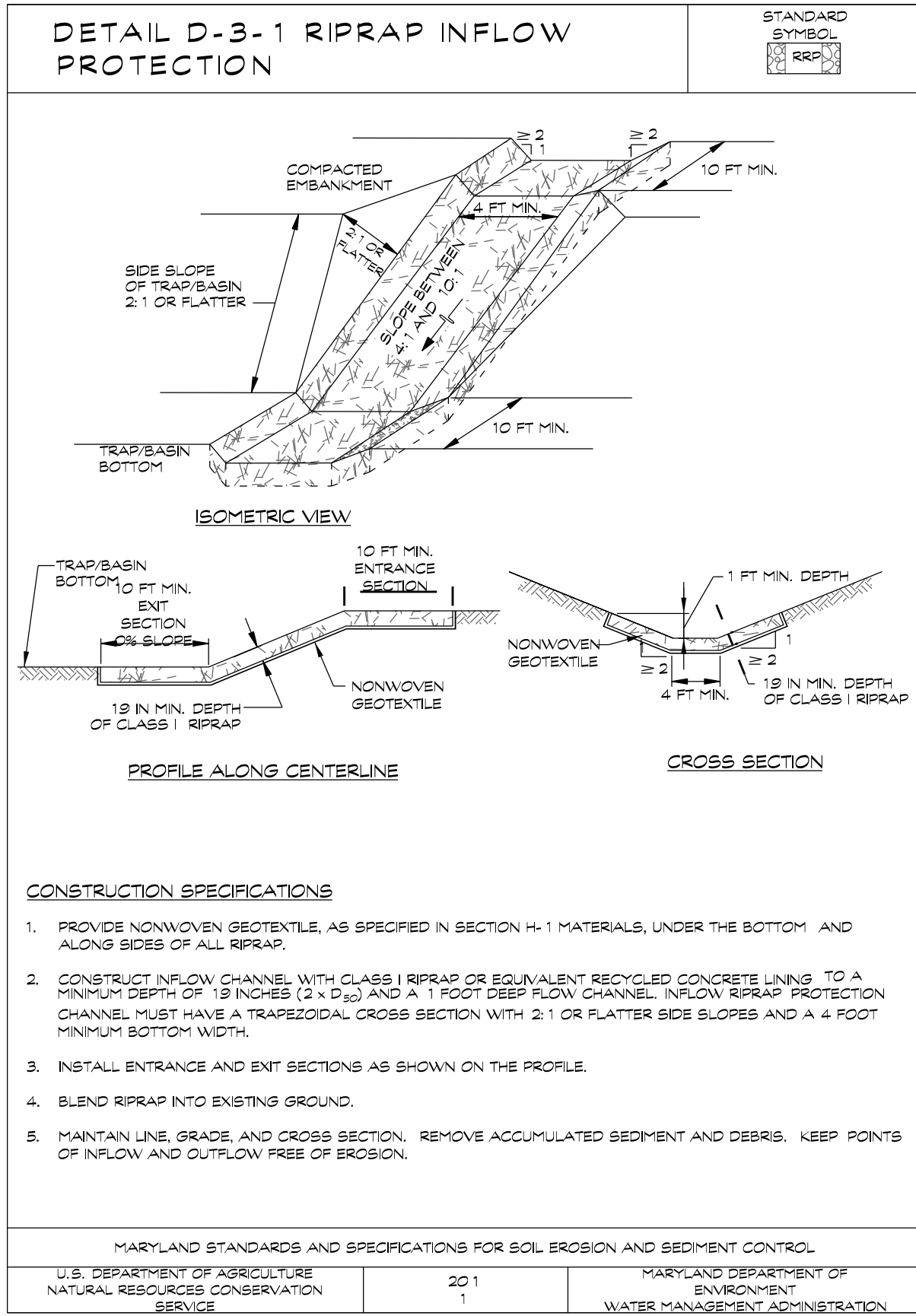
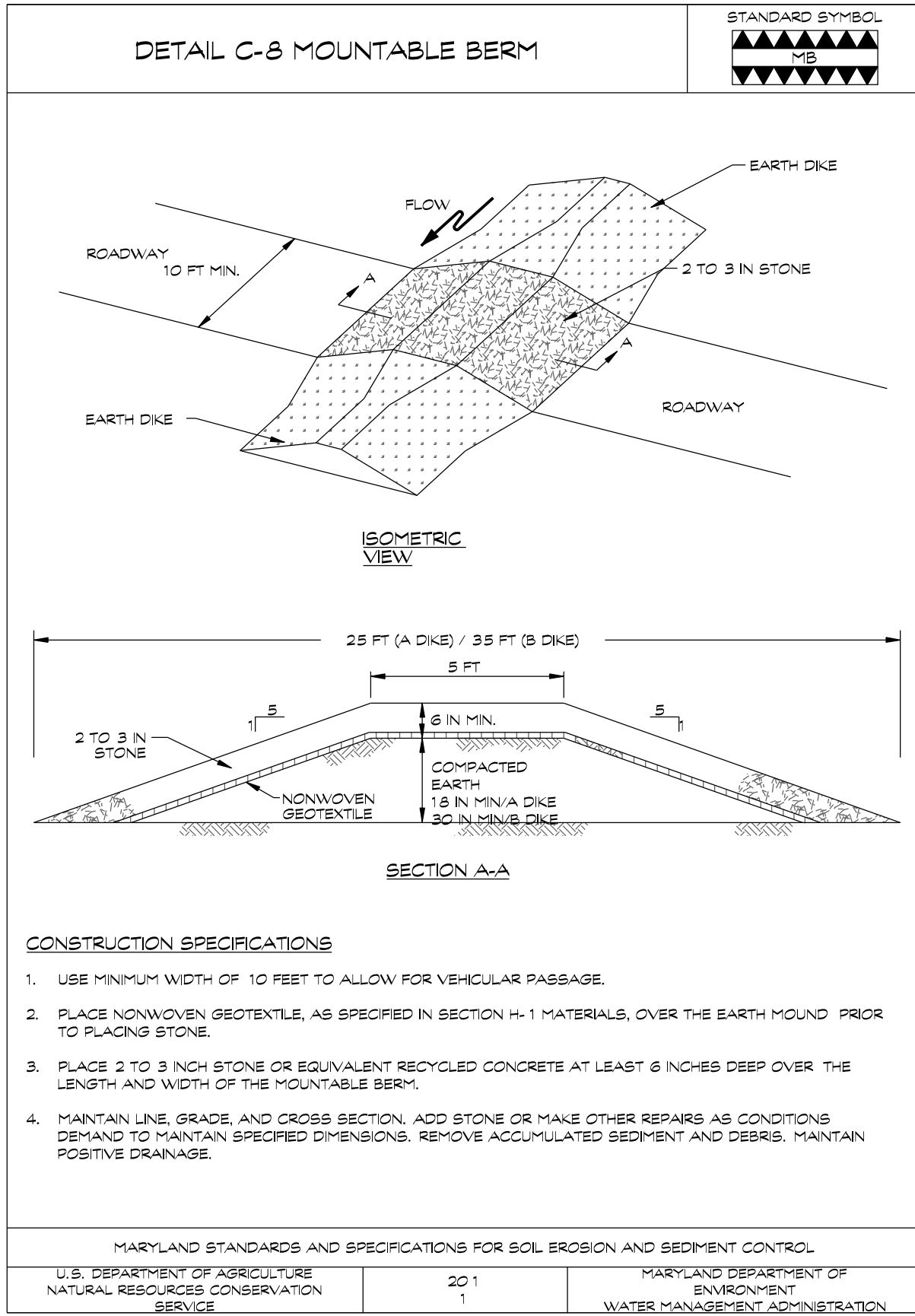
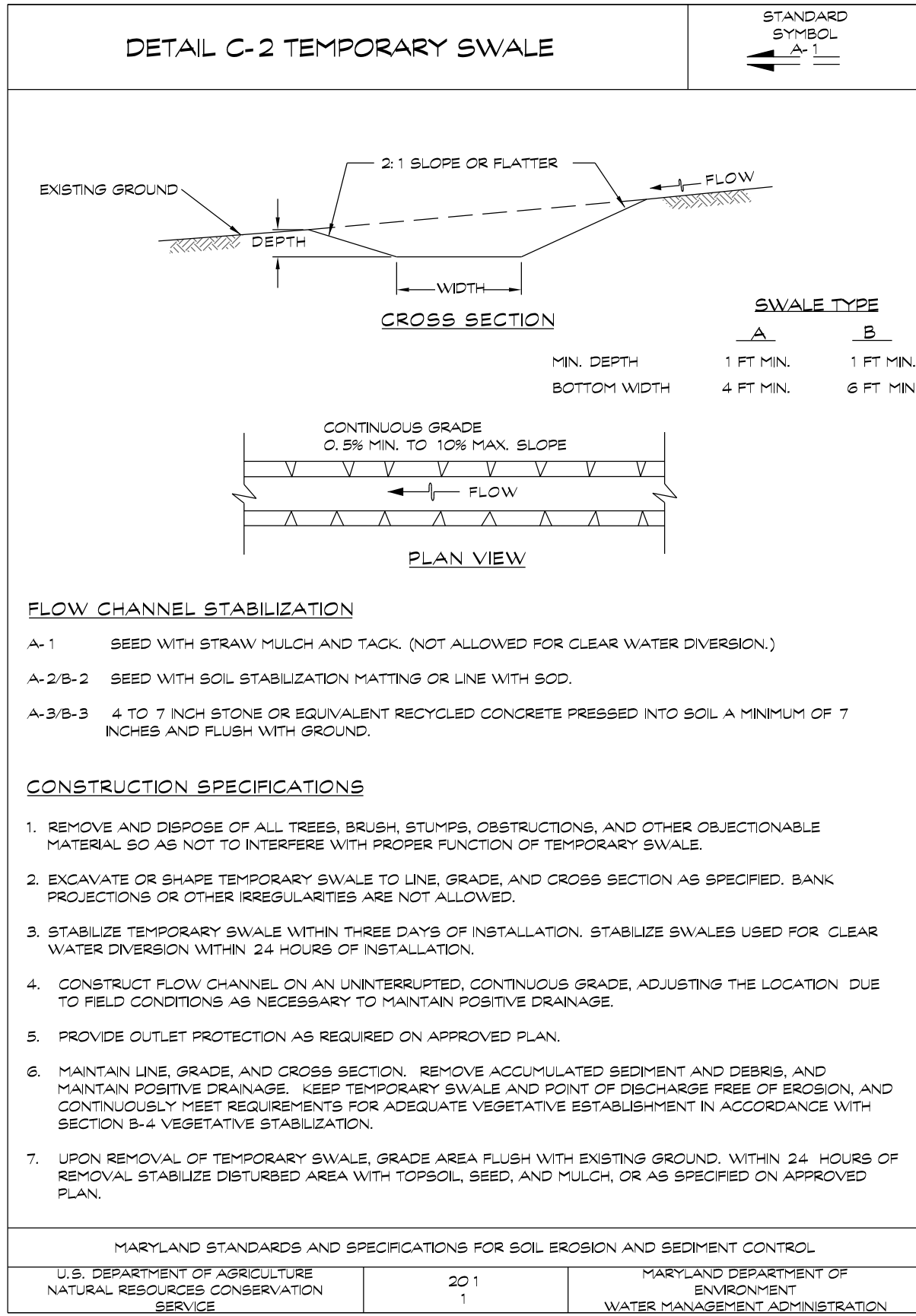
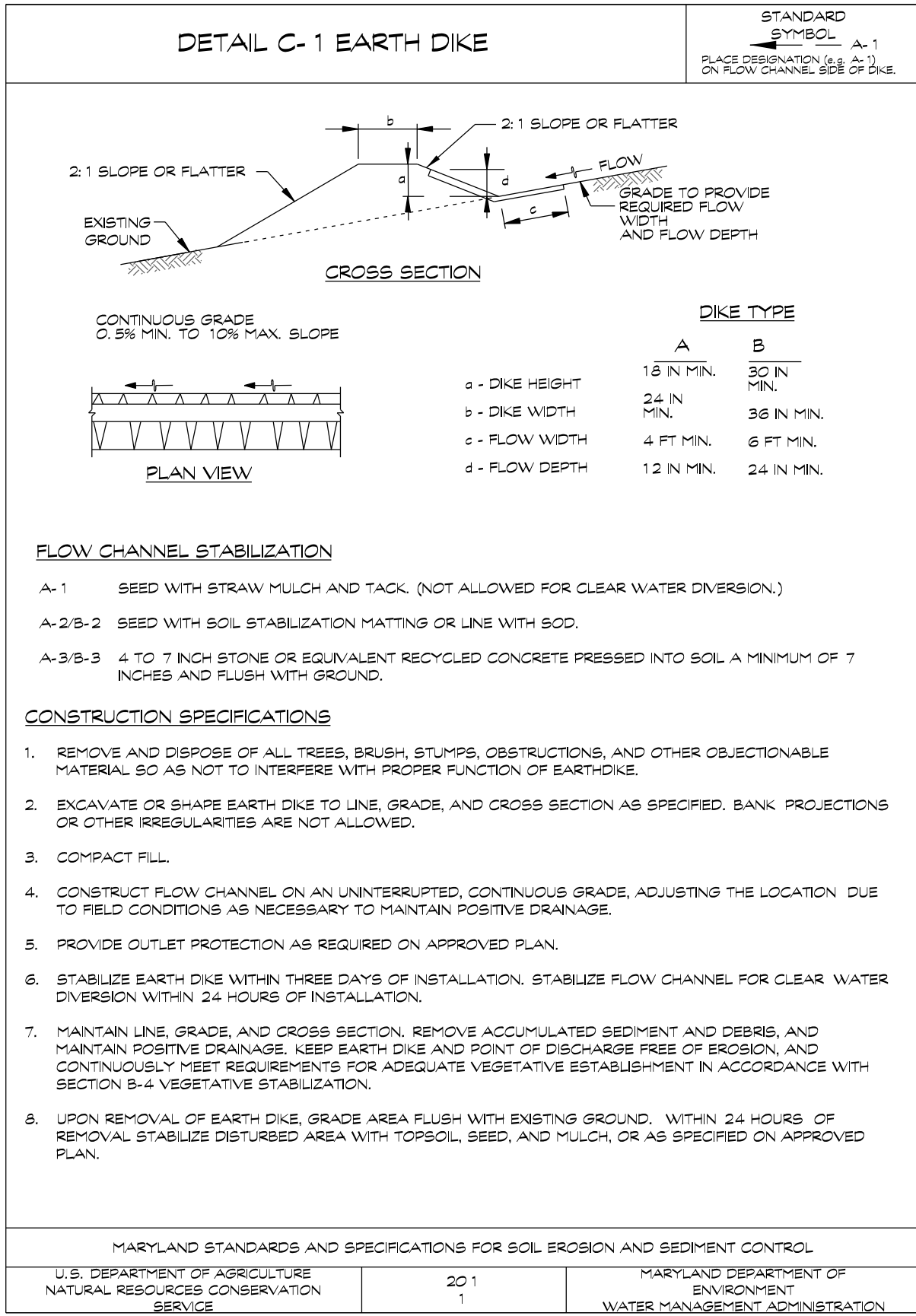
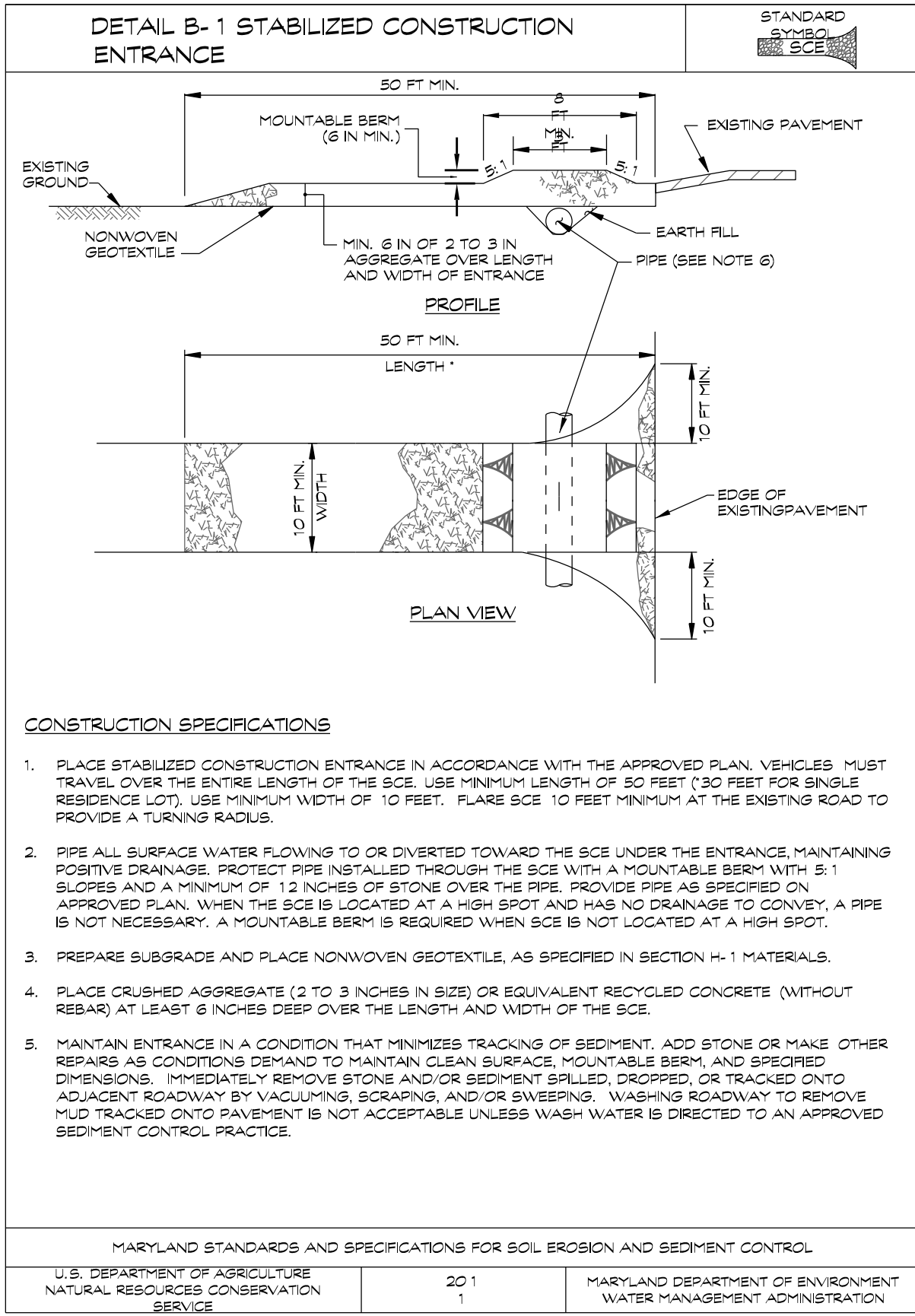
5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355



439 East Main Street Westminster, MD 21157-5539
(410) 848-1790 FAX (410) 848-1791

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 51283, EXPIRATION DATE: DECEMBER 7, 2025

Date	Revisions	Drawn By: BH
11/2024	ADDRESS COMMENTS	Designed By: BH
3/2025	ADDRESS COMMENTS	Reviewed By:
4/2025	ADDRESS COMMENTS	Date: JAN., 2023
5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Scale: N/A
6/2025	ADDRESS COMMENTS	Job No.: 2013044
		Sheet: 3 OF 19



SEDIMENT CONTROL DETAILS

BYRON HILLS

5TH ELECTION DISTRICT • CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355



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		Sheet: 4 OF 19

OWNER/ DEVELOPER

BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221



PIPE DENOTED WITH A REFERENCE TO 'RCCP'
SHALL BE ASTM C-361 CLASS B-25 WATERTIGHT
REINFORCED CONCRETE PIPE.

UNLESS OTHERWISE SPECIFIED, STORM DRAIN PIPE
FOR THIS PROJECT SHALL BE CORRUGATED, SMOOTH
INTERIOR, HIGH-DENSITY POLYETHYLENE PIPE (HDPE),
NOTED AS 'D'. AASHTO M-294, ASTM F-2306. ALL PIPE,
FITTINGS, AND CONSTRUCTION TO BE IN ACCORDANCE
WITH MANUFACTURER'S SPECIFICATIONS.

OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

MASS GRADING PLAN

BYRON HILLS

5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355

NOT FOR CONSTRUCTION



8/27/2025



439 East Main Street Westminster, MD 21157-5539
(410) 848-1790 FAX (410) 848-1791

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5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Scale: 1"=30'
6/2025	ADDRESS COMMENTS	Job No.: 2013044
		Sheet: 5 OF 19



LEGEND

- PROPERTY BOUNDARY
- EXISTING TREELINE
- SOIL LINE

OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

FINAL GRADING PLAN
BYRON HILLS

5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355

NOT FOR CONSTRUCTION

STATE OF MARYLAND
BRISTOL D. MOORE, P.E.
PROFESSIONAL ENGINEER
151283
8/27/2025

Engineers • Surveyors
CLSI
Land Planning & Environmental Consultants
www.clsi-civileng.com

439 East Main Street Westminster, MD 21157-5539
(410) 848-1790 FAX (410) 848-1791

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5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Scale: 1"=30'
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		Sheet: 6 OF 19



SWM BASELINE CURVE DATA						
Ref #	Radius	Arc Length	Delta	Tangent Length	Chord Bearing	Chord Length
C1	5.00	5.33	61°02'23"	2.55	N 05°18'52" W	5.03
C2	5.00	5.98	28°31'09"	2.09	N 59°32'54" E	5.94

CURVE DESIGNATED THUS: (C)

LEGEND

- SAND FILTER AREA
- POND EMBANKMENT
- DRYWELL

OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

STORMWATER MANAGEMENT PLAN

BYRON HILLS

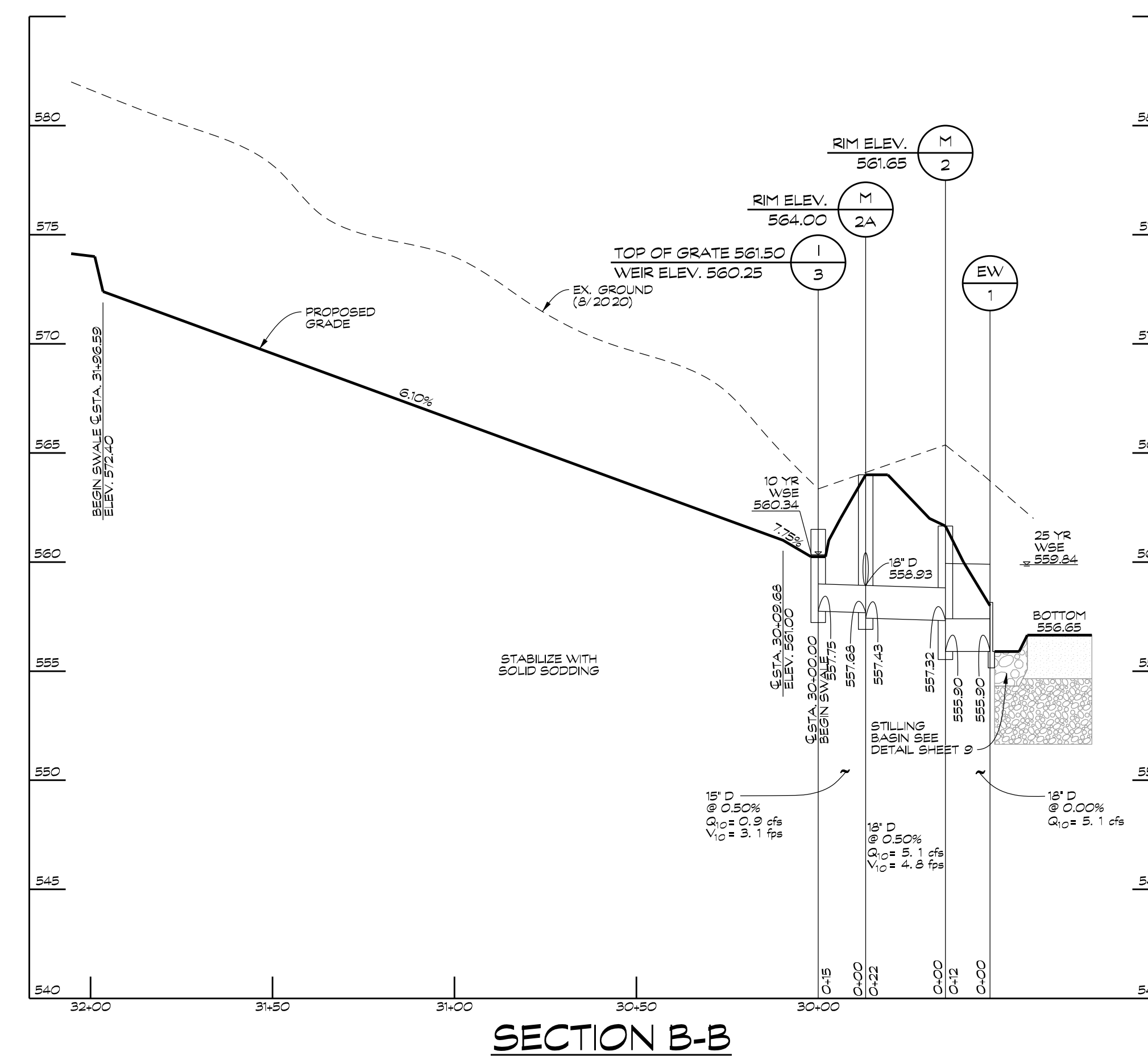
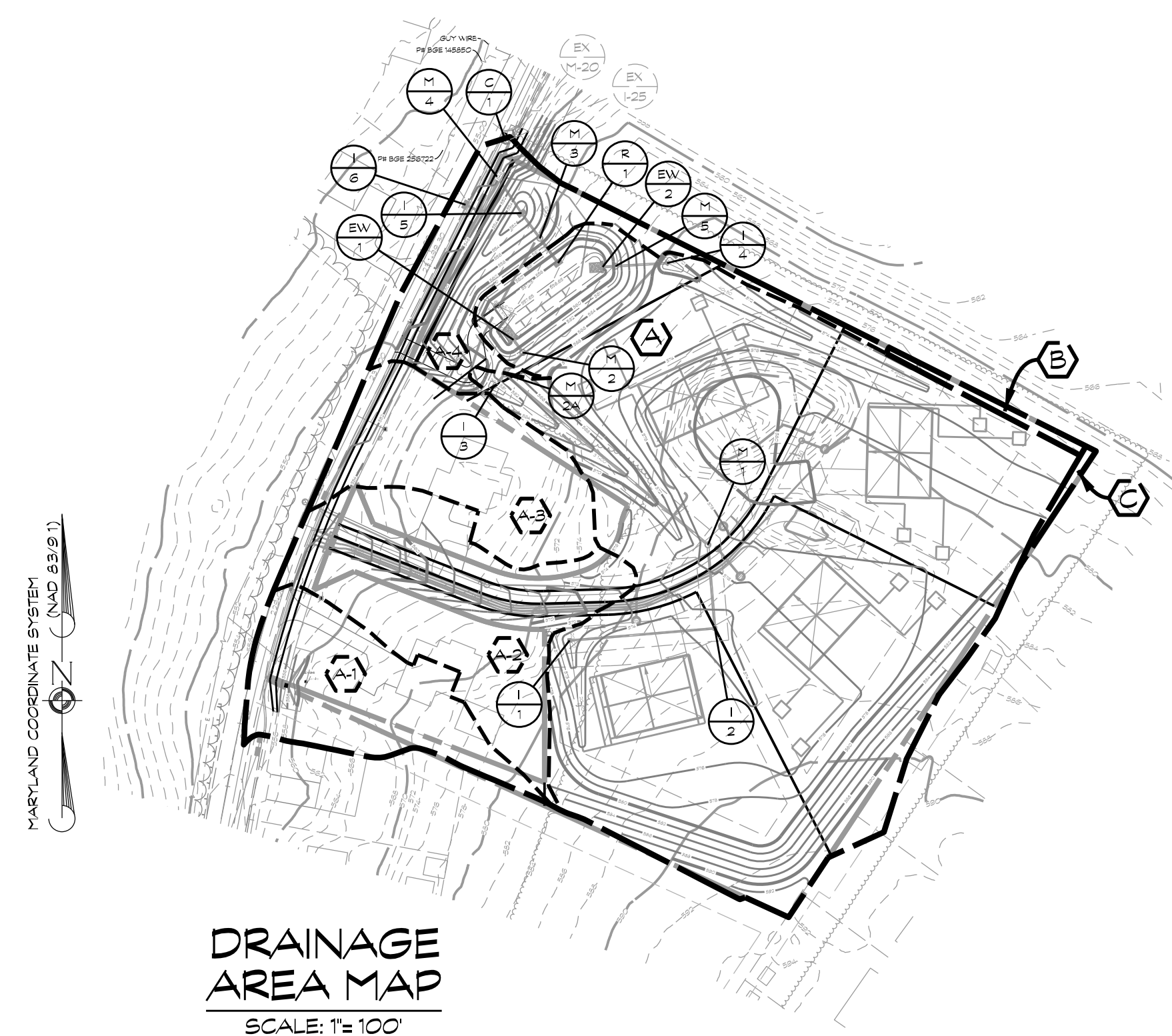
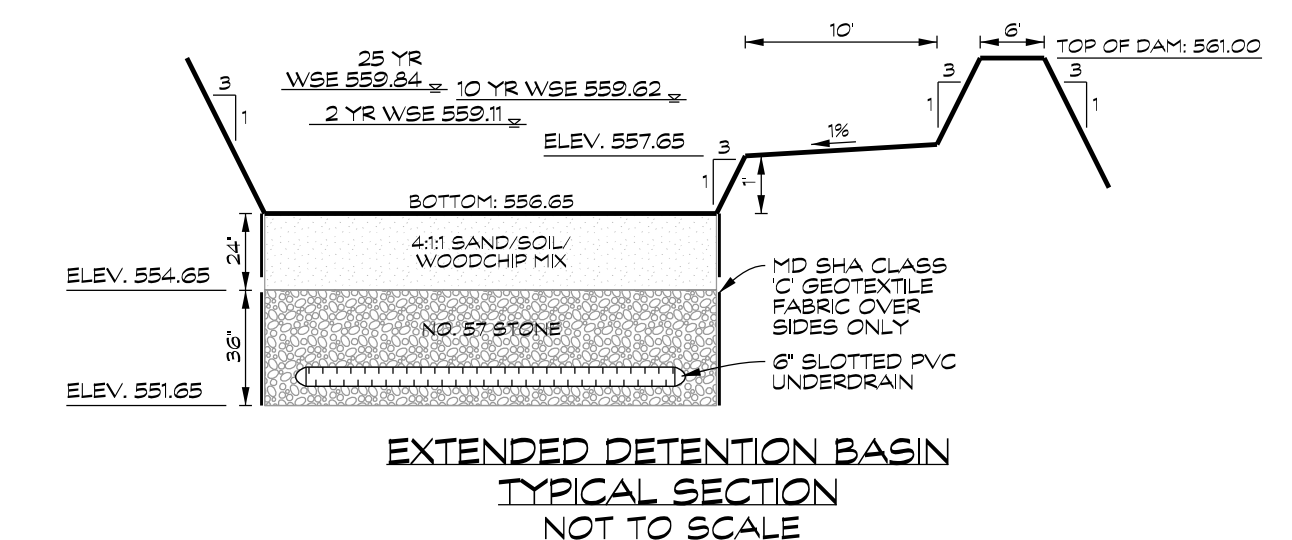
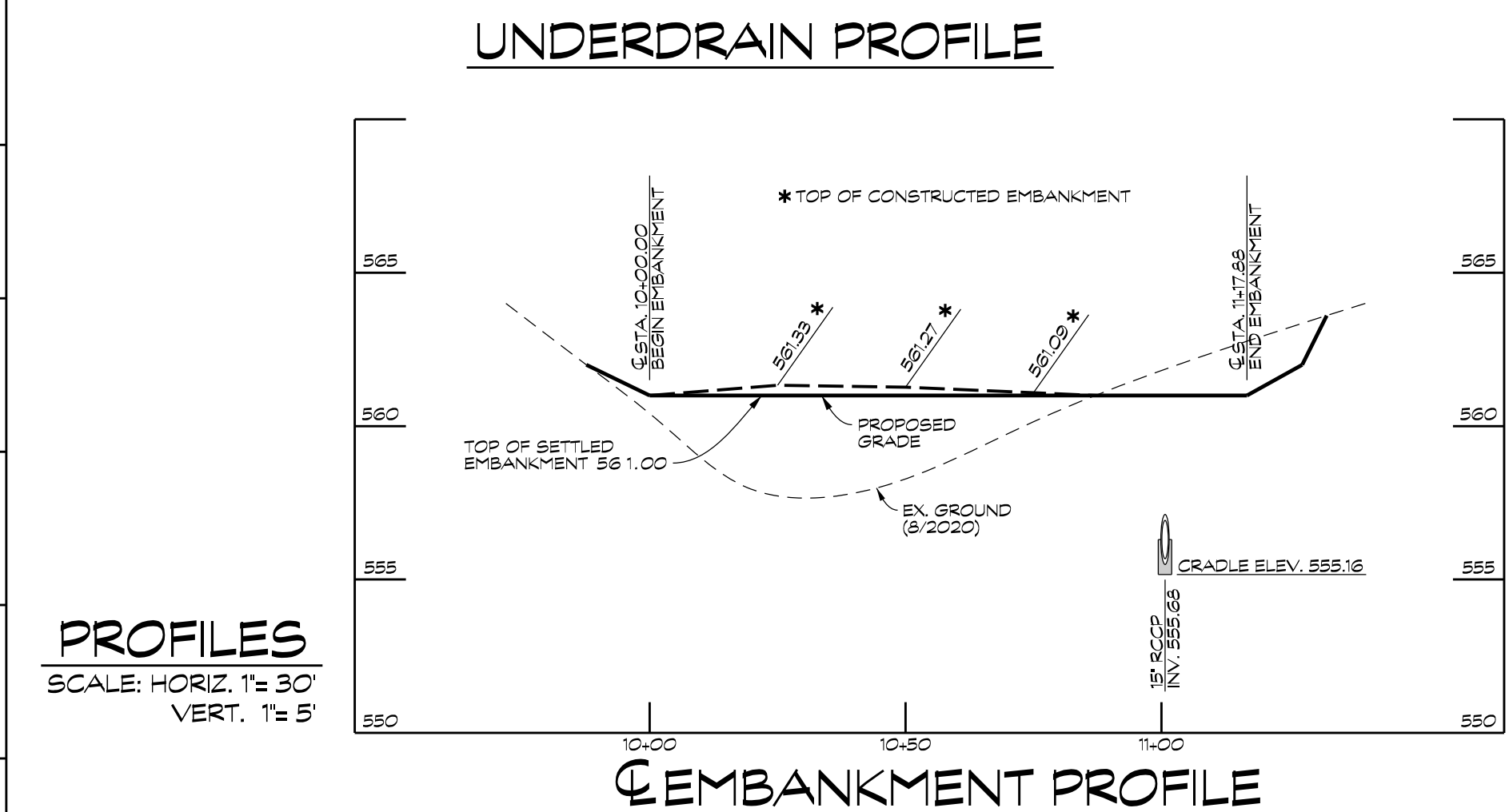
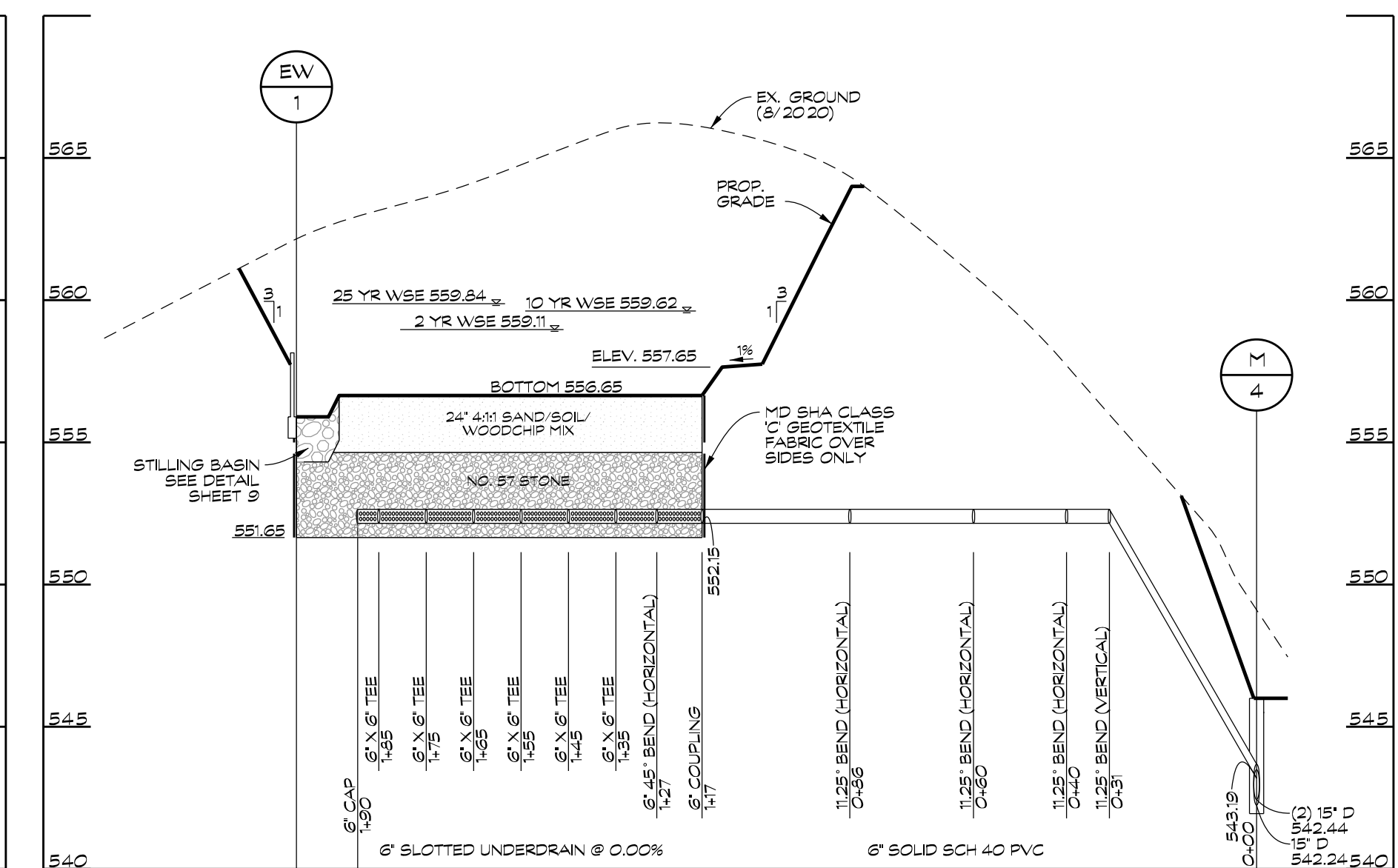
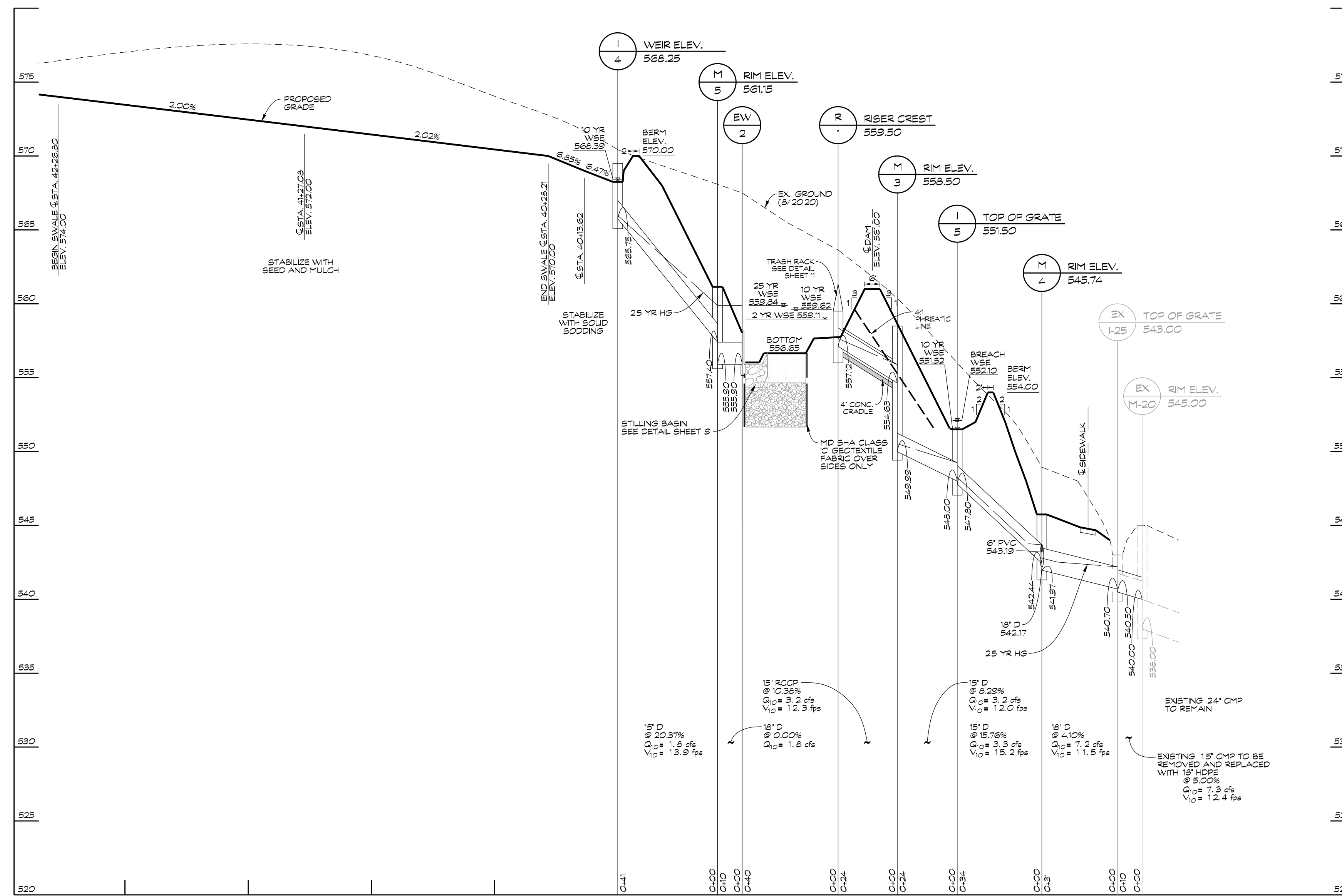
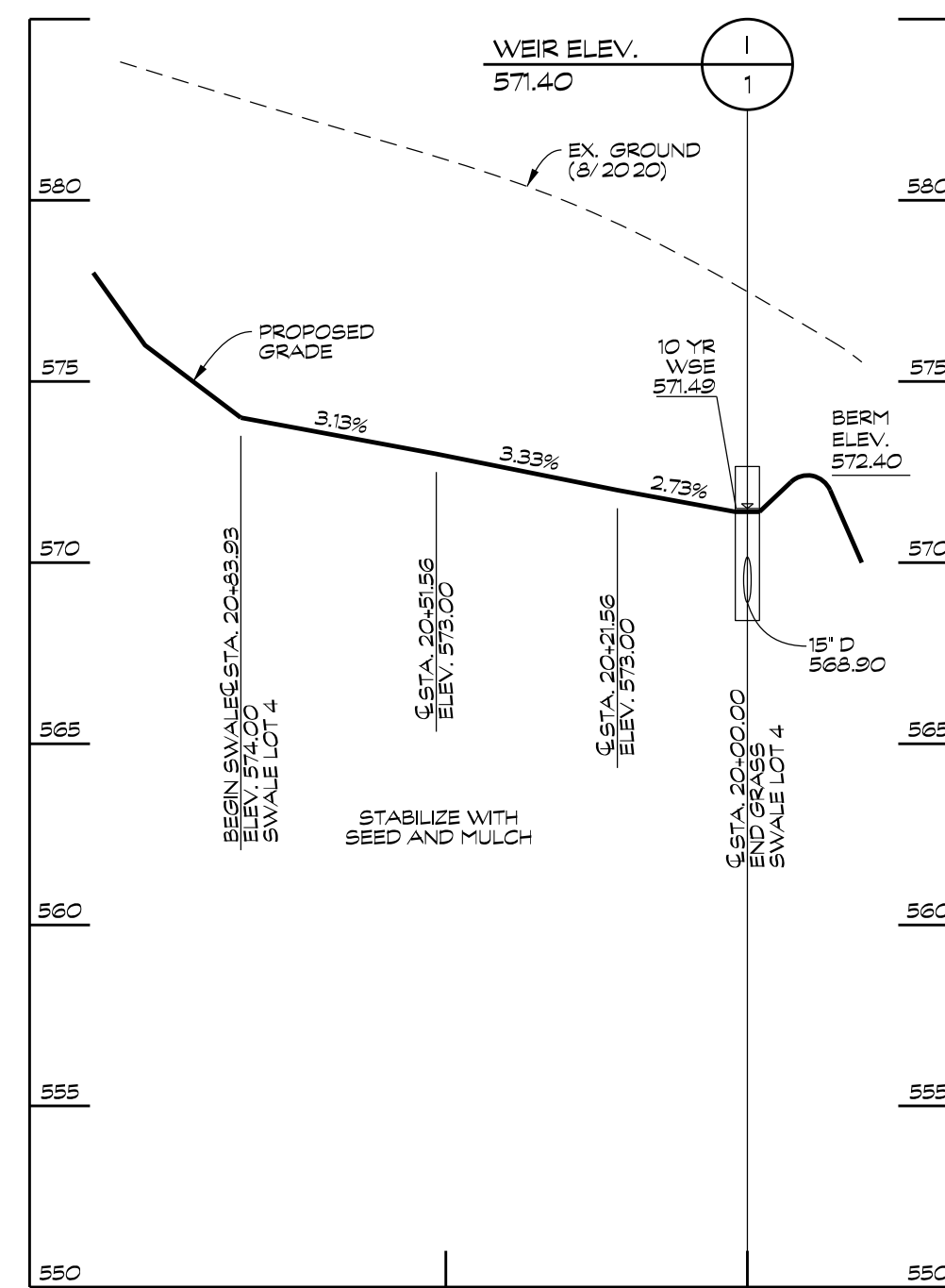
5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355



Revisions			Drawn By:	MM, JW, BH
Date	Revisions		Designed By:	
11/2024	ADDRESS COMMENTS		Reviewed By:	
3/2025	ADDRESS COMMENTS		Date:	JAN., 2023
4/2025	ADDRESS COMMENTS		Scale:	1"=30'
5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD		Job No.:	2013044
6/2025	ADDRESS COMMENTS		Sheet:	7 OF 19

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 51283, EXPIRATION DATE: DECEMBER 7, 2025

8/27/2025
439 East Main Street Westminster, MD 21157-5539
(410) 848-1790 FAX (410) 848-1791



OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

STORMWATER MANAGEMENT PROFILES

BYRON HILLS

5TH ELECTION DISTRICT • CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355

NOT FOR CONSTRUCTION



6/27/2025
Braten D. Moore, P.E.
439 East Main Street Westminster, MD 21157-5539
(410) 848-1790 FAX (410) 848-1791

PROFESSIONAL CERTIFICATION: HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR APPROVED BY A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT IN COMPLIANCE WITH THE ENGINEERING OR ARCHITECTURAL ACTS OF THE STATE OF MARYLAND. LICENSE NO. 51265, EXPIRATION DATE: DECEMBER 7, 2025		
Date	Revisions	Drawn By: BH
11/20/24	ADDRESS COMMENTS	Designed By: BH
3/2025	ADDRESS COMMENTS	Reviewed By:
4/2025	ADDRESS COMMENTS	Date: JAN., 2023
5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Scale: AS SHOWN
6/2025	ADDRESS COMMENTS	Job No.: 2013044
		Sheet: 8 OF 19

GENERAL

All construction materials, procedures, standards, and specifications shall be in accordance with the "Site Water Management Pond Design Manual" published by the Maryland Association of Soil Conservation Districts on June 27th, 1978.

Construction shall be in accordance with the Maryland Association of Soil Conservation Districts' "Site Water Management Pond Design Manual" and shall apply to permanent storm water management ponds and to temporary sediment basins.

Where storm water management ponds are being used as sediment basins during construction contractors attention is directed to the following: 1. The sediment basins shall be constructed in accordance with the design and when sediment accumulates in the pond or basin up to the clean-out level, the sediment shall be removed. 2. The sediment basins shall be removed. Sediment shall be placed in non critical areas and spread out. The sediment must be placed in an area which is protected by sediment basins.

Construction and "Pond Design Manual" which specify procedures for the construction of sediment basins to a permanent storm water management pond.

3. Connections: All connections with pipes must be closely matched. The drain pipe or barrel leading to the riser and be welded all around when the pipe and riser are new. Anti-sealant shall be applied to the joint between the pipe and riser. All connections shall be completely watertight. Pipe drains are not considered to be watertight. All connections shall use a rubber or neoprene gasket. The ends of each pipe shall be secured with a minimum of an adequate number of corrugations to accommodate the buldowm.

4. The following pipe connections are acceptable for pipes less than 18 inches in diameter: a. 18 inch diameter pipe connected to a 12 inch or 36 inch 36 inch I.D. closed cell neoprene gasket, pre-punched to the size of the pipe. b. 18 inch diameter pipe connected to a 12 inch or 36 inch wide standard lap neoprene band with 12-inch wide by 36-inch high closed cell circular neoprene gasket and a 12-inch wide hugger.

5. Connections for pipes greater than 18 inches in diameter shall be made in accordance with the following: a. Connections for pipes greater than the corrugation depth. Pipes 24 inches in diameter shall be connected to a 36 inch I.D. closed cell neoprene gasket and a 36 inch wide standard lap neoprene band using a minimum of 4 (four) rods and 2, a 2 inch connecting

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

[illegible]

It shall be free of roots, crumps, wrinkles, ripples, seams, greater than $\frac{1}{8}$ " (3.2 mm) in diameter, or other objectionable materials. All material for the center of the embankment, and our off trench shall conform to Unified Soil Classification (G.C., G.M., or C.U.) and must have at least 5% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

The pipe are filed. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the centerline.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-soil collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe

conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe, couplings and fittings shall conform to the following: 4", 10" both ends shall meet the

Fill material shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

5. Other details (anti-slip channels, valves, etc.) must be as shown on the drawings.

not be less than 95% of maximum dry density with a moisture content within $\pm 2\%$ of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

excavation shall be excavated to the bottom of the trench along a parallel to the centerline as shown on the drawings. The bottom width of the trench shall be governed by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The trench shall be backfilled and compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height of the core shall be to at least the top of the embankment. The core shall be compacted to a minimum of 95% relative compaction on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

The following are the minimum standards for the excavation of the pipe. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tamps or other manually directed excavation equipment. The excavation shall be backfilled with the same material under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall the excavation be backfilled with any material other than the same material excavated. The removal of water from the excavation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and allow satisfactory performance of all construction operations. During the placing and compacting of the backfill, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require dewatering.

over the structure of RPE.	Stabilization
Structure and function of the available fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 μm 28 day unconfined compressive strength. The available fill shall be a minimum of 100-200 μm and a maximum of 250-300 μm. Material shall be placed in a minimum of 6" (measured perpendicular to the outside of	All borrow areas shall be surfaced to provide proper drainage and left open to the weather. All exposed surfaces shall be erosion, sediment, silt and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting ("D-342") or as shown on the accompanying drawings.

conditions. Average slump of the fill shall be 7" to ensure favorability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe from the trench. The trench shall be backfilled with a minimum compacted fill. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manual directed compaction equipment. The material shall completely fill all voids adjacent to the waste fill zone. As no erosion shall be permitted, the trench operation shall be driven by the adjacent erosion and local loss concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

SWM FACILITY DATA:

1. **STORMWATER MANAGEMENT FACILITY SHOWN ON THESE PLANS IS PUBLIC. THEREFORE SHALL BE CONSTRUCTED BY THE DEVELOPER AND MAINTAINED BY CARROLL COUNTY.**
2. **POND TYPE: EXTENDED DETENTION FACILITY**

1. Materials - (Polymer Coated Steel pipe) - Steel pipes with polymeric coatings shall have a minimum coating thickness of .001 inch (.001 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coating bonds or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its

2. FACILITY PROVIDES:

6. EMANKMENT HEIGHT = 5.84 FT.
TOP WIDTH OF EMANKMENT = 6.0

5. FACILITY DISCHARGES INTO AN UNNAMED TRIBUTARY TO SNOWDENS RUN USE I-P DRAINAGE BASIN.

Q2:130907

STRUCTURE HYDRAULIC PERFORMANCE SUMMARY			
STORM	Q OUT CFS	WATER SURFACE FT	STORAGE (AC-FT)
0.000	0.000	0.000	0.000

conform to the requirements of AASHTO Specification M-198 or M-217 when utilizing coating grades or fillers and sand. The paint, when used with Flakex fill or when salt and/or water conditions warrant for increased durability, shall be fully continuous coated per requirements of AASHTO Specification M-190 Type A. Aluminum surfaces that are to be in contact with concrete shall be painted with a coat of zinc chromate primer or two coats of zinc chromate dip galvanized bolts may be used for connections. The pit of the

7. CENTROID:
N = 630830
E = 1333640

DRAINAGE AREA A

100000.0 50000.0 0.0 50000.0 100000.0

composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

10-YR	5.81 CFS	5.80 CFS
-------	----------	----------

STORMWATER	
1.	FACILITY
2.	GRASS
3.	13.75% 13.75%

STORMWATER MANAGEMENT SUMMARY DATA
FOR: LOT 2, DRYWELL D

- 1. FACILITY TO BE PRIVATELY OWNED AND MAINTAINED
- 2. DRYWELL: M-5
- 3. 875 S.F. DRAINAGE AREA (100% IMPERVIOUS)
- 4. WATERHEADED: LIBERTY RESERVOIR, C/O 130307, USE II-P
- 5. STONE RESERVOIR: 3' X 8' X 6'
- 6. ESDV PROVIDED: 174 S.F.
- 7. COORDINATES: N 834-889, E 133394-5

STORMWATER MANAGEMENT SUMMARY DATA
FOR: LOT 3, DRYWELL B

- 1. FACILITY TO BE PRIVATELY OWNED AND MAINTAINED
- 2. DRYWELL: M-5
- 3. 875 S.F. DRAINAGE AREA (100% IMPERVIOUS)
- 4. WATERHEADED: LIBERTY RESERVOIR, C/O 130307, USE II-P
- 5. STONE RESERVOIR: 3' X 8' X 6'
- 6. ESDV PROVIDED: 174 S.F.
- 7. COORDINATES: N 834-882, E 133394-0

STORMWATER MANAGEMENT SUMMARY DATA
FOR: LOT 3, DRYWELL D

- 1. FACILITY TO BE PRIVATELY OWNED AND MAINTAINED
- 2. DRYWELL: M-5
- 3. 875 S.F. DRAINAGE AREA (100% IMPERVIOUS)
- 4. WATERHEADED: LIBERTY RESERVOIR, C/O 130307, USE II-P
- 5. STONE RESERVOIR: 3' X 8' X 6'

7. COORDINATES: N 834747; E 1333834

A

[illegible]

TENANCE SCHEDULE WALE

Remove all trash and debris and dispose in an acceptable manner.
Under all openings.
Mow grass to maintain a height of 4 to 6 inches.
Remove clippings.
Re-vegetate with topsoil, seed, and mulching.
Remove or cut back vegetation around inlets, weirs, and culvert structure.
AD 2 AFTER A MAJOR STORM
Remedial Action
Remove top three inches of soil and replace with soil material as per plan specifications.
Follow up inspections must confirm adequate dewatering.
If the facility does not function as intended after the above action, the entire system including the underdrain may need refurbishing.
Re-grading may be required when concentrated flow causes rills or erosion through the facility.
Grass, vegetable, and/or armor to provide stable conveyance in accordance with approved plans.
Re-grade and mulch to topsoil, seed and mulching. Provide stone at downstream toe.
When sediment accumulates to 1 inch depth, remove sediment.
Remove sediment from clogged openings.
Dispose of all sediment in an acceptable location.
Repair any broken or faulty piping.
Clear out blockages.

INSPECTION	
	Remedial Action
	Prevent excessive vegetative growth, erosion, and

tion, p	Repair to good condition according to specifications on the approved plans.
are	Repair to good condition according to specifications on the approved plans.

www.clsi-civileng.com

and Planning & Environmental Consultants

Main Street Westminster, MD 21157-5533
(301) 848-1790 FAX (410) 848-1791

THAT THIS DOCUMENT WAS PREPARED OR APPROVED BY
A PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF
MARYLAND, DATE: DECEMBER 7, 2025

MENTS	Designed By:
MENTS	Reviewed By: BH
MENTS	Date: JAN., 2023
ONG OKLAHOMA RD	Scale: AS SHOWN
MENTS	Job No.: 2013044

Sheet: 10 OF 19

	DESCRIPTION	DATE	ENGINEER
1.	CONTACT HES UTILITY AT LEAST 3 DAYS AND UTILITIES AT LEAST 5 DAYS PRIOR TO BEGINNING WORK. NOTIFY CARROLL COUNTY SEDIMENT CONTROL 24 HOURS PRIOR TO BEGINNING WORK AT 410-386-2200 FOR A PRE-CONSTRUCTION MEETING.		C.S.I
2.	EXCAVATE SEDIMENT TRAP PER GRADING SHEET ON SHEET 3. INSTALL CAST IN PLACE RISER (R-1).		C.S.I
3.	CONSTRUCT FACILITY EMBANKMENT AND RISER BARREL. PER DETAILS ON SHEETS 8 AND 11. EMBANKMENT AND TRENCH FOR RISER BARREL TO BE COMPACTED TO SPECIFICATIONS SHOWN ON CONTRACT DETAILS ON SHEETS 8 AND 9.		C.S.I
4.	INSTALL CONCRETE CRADLE FOR 18" RCP BARREL. PER DETAILS ON SHEET 11.		C.S.I
STAGE 2 - EXTENDED DETENTION BASIN			
5.	ONCE ALL PAVEMENT IS CONSTRUCTED AND A 2' STAND OF DENSE GRASS IS ESTABLISHED, CONVERSION OF SEDIMENT TRAP TO STORMWATER FACILITY CAN BEGIN.		C.S.I
6.	CONSTRUCT SEDIMENT TRAP AND UNDERDRAIN TRENCH. UNDERDRAIN TRENCH TO FOLLOW A LINE OF 2' STAND OF DENSE GRASS. PROCEEDING AND CONVERSION TO CONVERT SEDIMENT TRAP INTO THE EXTENDED DETENTION BASIN.		C.S.I
7.	EXCAVATE BOTTOM OF POND AND SUBGRADE TRENCH FOR STONE UNDER SAND FILTER.		C.S.I
8.	INSTALL FILTER FABRIC ON SIDES ONLY. NO. 57 STONE AND UNDERDRAIN PER PLAN. UNDERDRAIN MUST BE INSPECTED PRIOR TO BACKFILL.		C.S.I
9.	INSTALL 4"11 SAND/SOIL/WOODCHIP MIX AND ALL STILLING BASINS PER PLAN.		C.S.I
10.	INSTALL STORMDRAIN AND FINE GRADE AROUND ENDWALLS EW-1 AND EW-2.		C.S.I
11.	STABILIZE ALL REMAINING DISTURBED AREAS.		C.S.I
12.	WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR, REMOVE PERIMETER SEDIMENT CONTROL MEASURES.		C.S.I
13.	FORWARD SIGNER INSPECTION CHART TO C.S.I. WITHIN 30 DAYS OF RECEIVING SIGNED INSPECTION CHART. C.S.I WILL PREPARE AND SUBMIT PAPER AS-BUILT PRINTS TO THE STORMWATER DIVISION TO BE SUBMITTED TO THE STORMWATER DIVISION.		C.S.I

MONTHLY INSPECTION		
Inspection Item Vegetative Cover and Erosion	Inspection Requirements Check overflow area for churning/zing and bare spots.	Remedial Action Re-seed or replant in accordance with approved landscaping plans. Re-grade if concentrated flow is causing rills or gulthing over the facility.
SEASONAL INSPECTION AND AFTER A MAJOR STORM		
Inspection Item Leaves and Debris	Inspection Requirements Check that gutters and downspouts are clear of leaves and debris.	Remedial Action Clean out gutters and downspouts and dispose of leaves and debris in an acceptable manner. Provide grade drain filters in high flood areas.
Inflow and Overflow	Inspection Requirements Check for misalignments, broken pipes, and blockages. Inlet pipe and sewer-barge overflow pipe must be in good condition.	Remedial Action Repair any broken or faulty piping. Clear out any blockages.
Dewatering	Inspection Requirements Check observation wells for water level. Water stored in media must be replaced within 48 hours of rainfall. Noticeable odors or the presence of algae or stained water are indicators of anaerobic conditions and inadequate dewatering of the facility.	Remedial Action Excavate, remove, clean, and replace media in accordance with approved plans.
ANNUAL INSPECTION		
Inspection Item Maintenance	Inspection Requirements Check for accessibility to facility.	Remedial Action Prevent excessive vegetative growth, erosion, and obstructions on access ways.
Overall Function of Facility	Inspection Requirements Check that flow conveyance is operating as designed	Remedial Action Report to good condition according to specifications on the approved plans.

MONTHLY INSPECTION		
Inspection Item	Inspection Requirements	Remedial Action
Debris and Trash	Check for trash and debris in conveyance including inlets, outlets, convenience systems, and area around facility.	Remove all trash and debris and dispose in an acceptable manner.
Vegetative Cover	Check grass. Check for chamelezard, erosion, and bare spots. Check for vegetation blocking inlets, weirs, and outlet.	Mow grass to maintain a height of 4 to 6 inches. Remove clippings. Re-seed with topsoil, seed, and multing. Remove or cut back vegetation around inlets, weirs, and outlet structure.
SEASONAL INSPECTION AND AFTER A MAJOR STORM		
Inspection Item	Inspection Requirements	Remedial Action
Dewatering	Facility dewater device within 48 hours of rainfall. Noticeable odors, stained water on the filter surface or at the outlet, or the presence of algae or aquatic vegetation are indicators of anaerobic conditions and inadequate dewatering of the facility.	Inspect for three inches of soil and replace with soil material as per plan specifications. Followup up inspections must confirm adequate dewatering. If the facility does not function as intended after the above action, the entire system including the underdrain may need refurbishing.
Erosion	Check inlets, channel, outlet, and side slopes for evidence of erosion, rills, gullies, and runoff channelization.	Re-grading may be required when concentrated flow causes rills or gully through the facility. Grades and side slopes must be reworked to provide stable conveyance in accordance with approved plans.
Check Dams	Check for evidence of flow cutting around the structure and evidence of erosion at the downstream toe.	Re-grade and repair with topsoil, seed and multing. Provide stone at downstream toe.
Sediment Accumulation	Check for accumulated sediment in conveyance systems and in swale.	When sediment accumulates to 1 inch depth, remove sediment.

MONTHLY INSPECTION		
Inspection Item	Inspection Requirements	Remedial Action
Debris and Trash	Check for trash and debris in facility including inlets, outlets, conveyance systems, and area around facility.	Remove all trash and debris and dispose in an acceptable manner. Unclog all openings.
Vegetative Cover	Check grass. Check for channelizing, erosion, and bare spots. Check for vegetation blocking inlets, weirs, and outlet.	Mow grass to maintain a height of 4 to 5 inches. Remove all clippings. Re-vegetate with topsoil, seed, and matting. Remove or cut back vegetation around inlets, weirs, and outlet structure.

Structures	Check observation well for water levels.	Check for any obstructions.
ANNUAL INSPECTION		
Inspection Item	Inspection Requirements	Remedial Action
Maintenance Access	Check for accessibility to facility.	Prevent excessive vegetative growth, erosion, and obstructions on access way.
Structural Components	Check for evidence of structural deterioration, spalling, or cracking. Inlet and outlet structures as well as riprap	Repair in good condition according to specifications on the approved plans.

BURKARD HOMES, LL

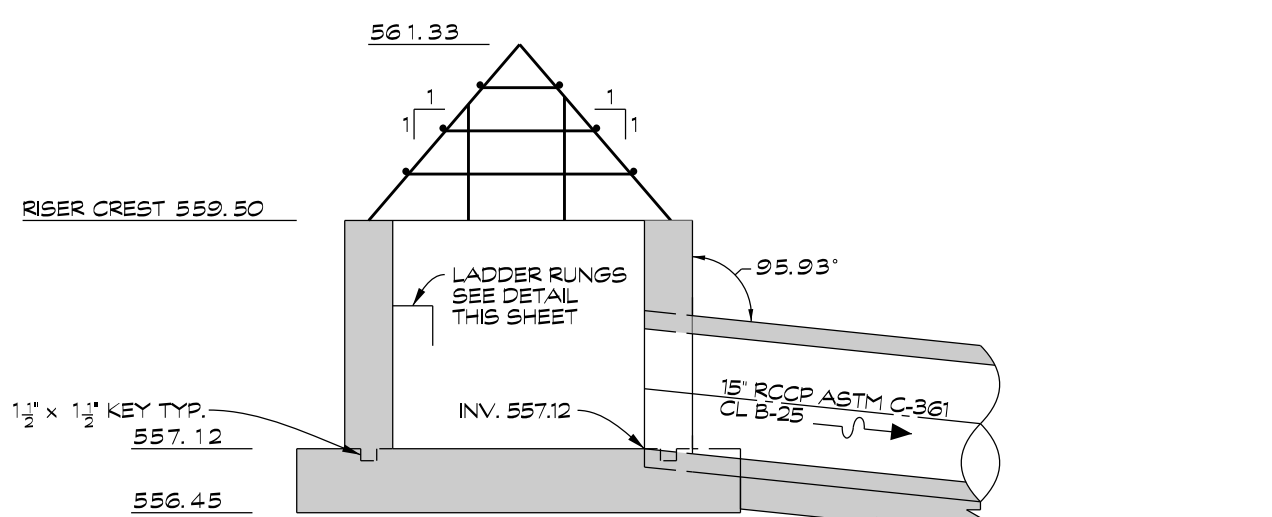
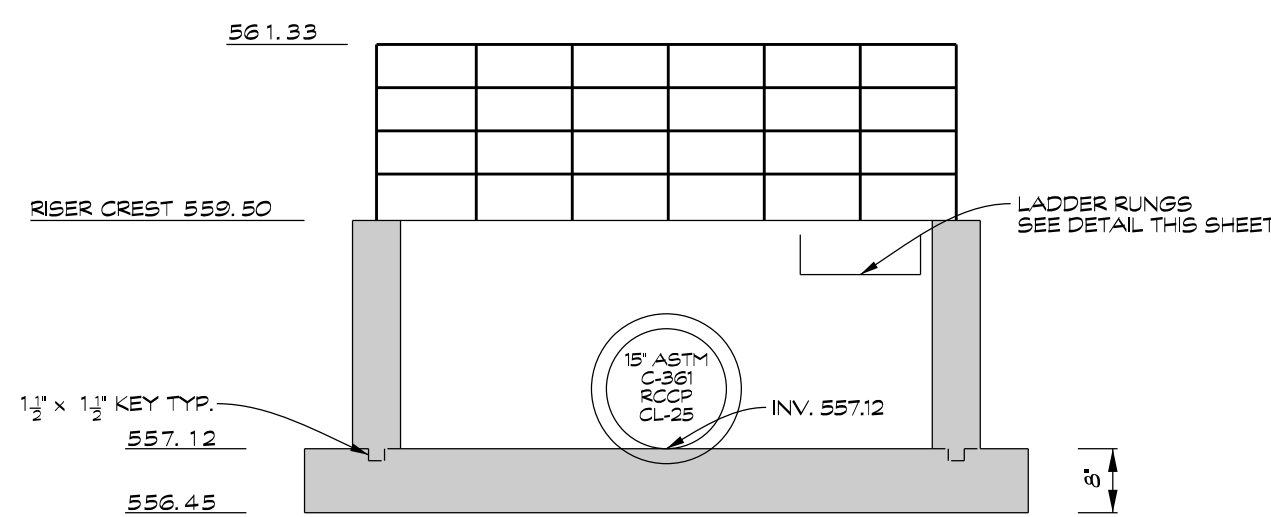
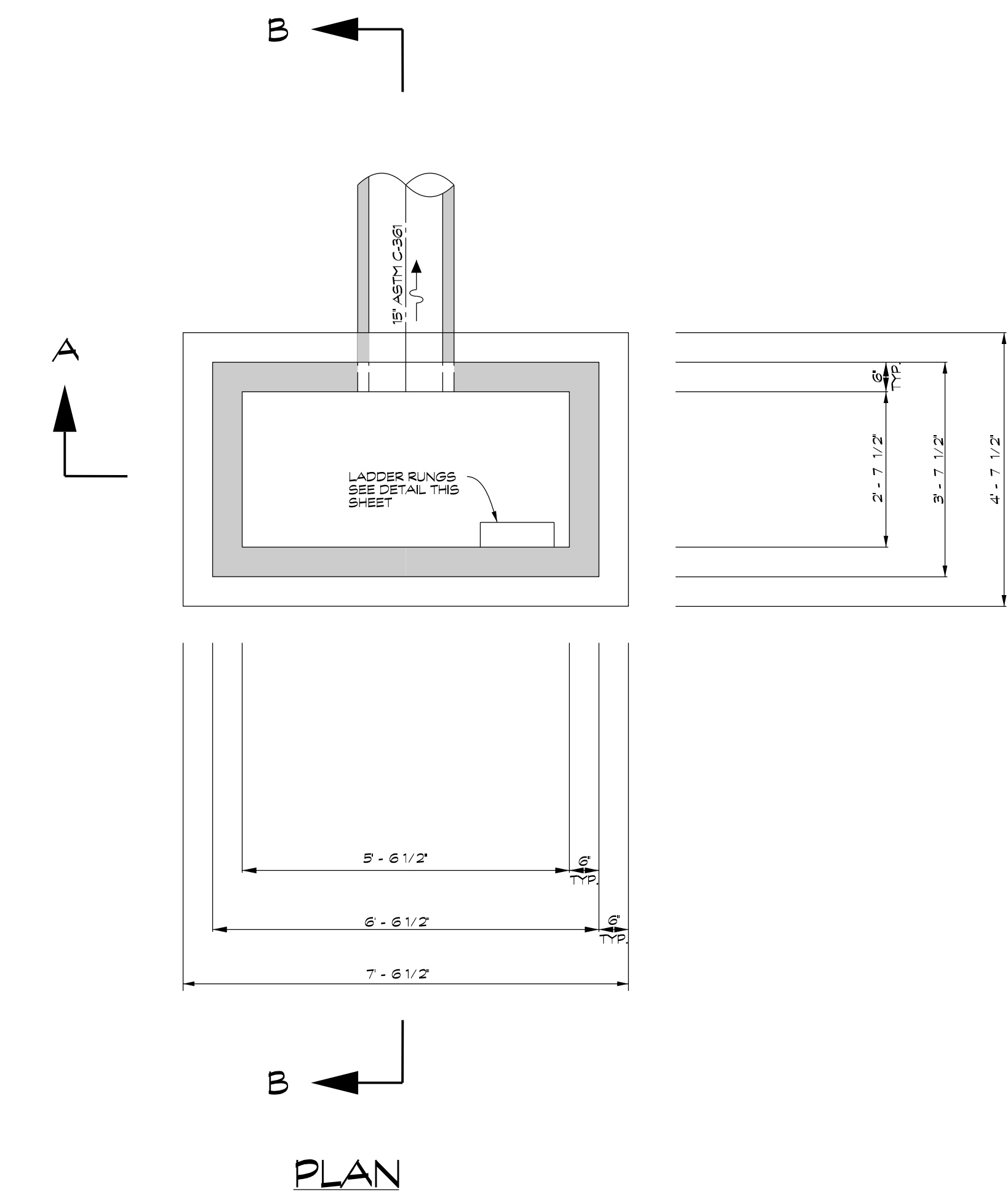
612 THIRD STREET

SUITE 4C

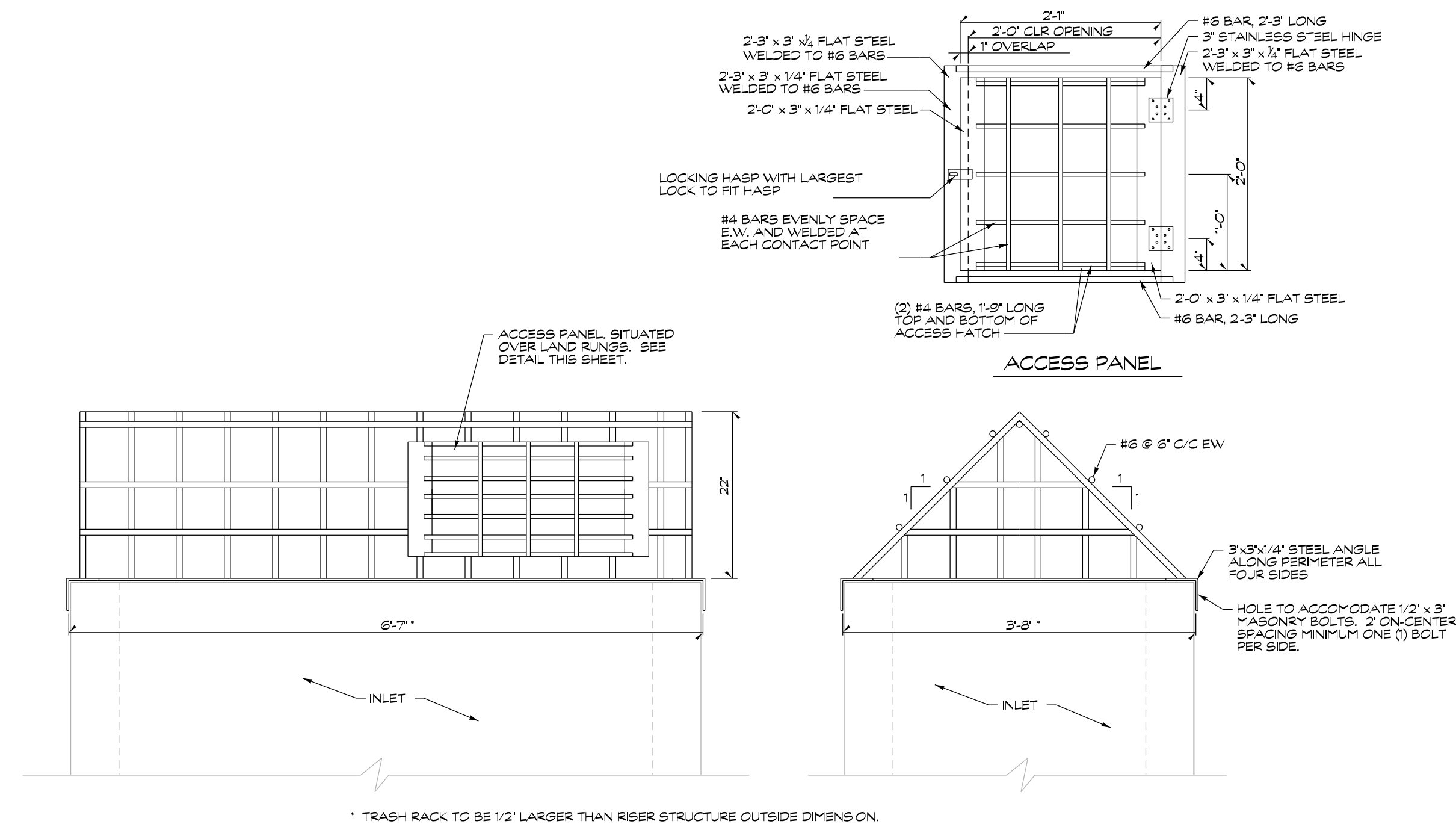
ANNAPOLIS, MD 21403
410-222-2221

410-992-2221

County File No. FX-22-0003

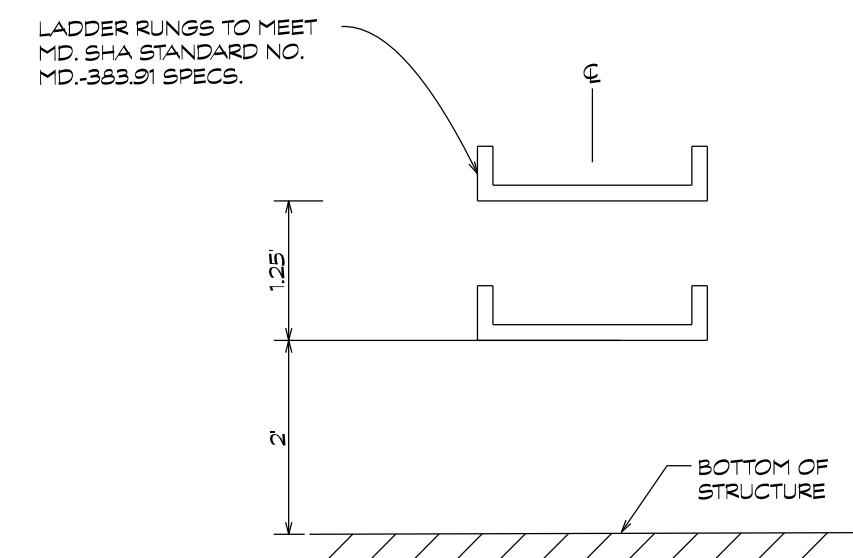


RISER R-1 DETAILS
1/2" = 1'-0"

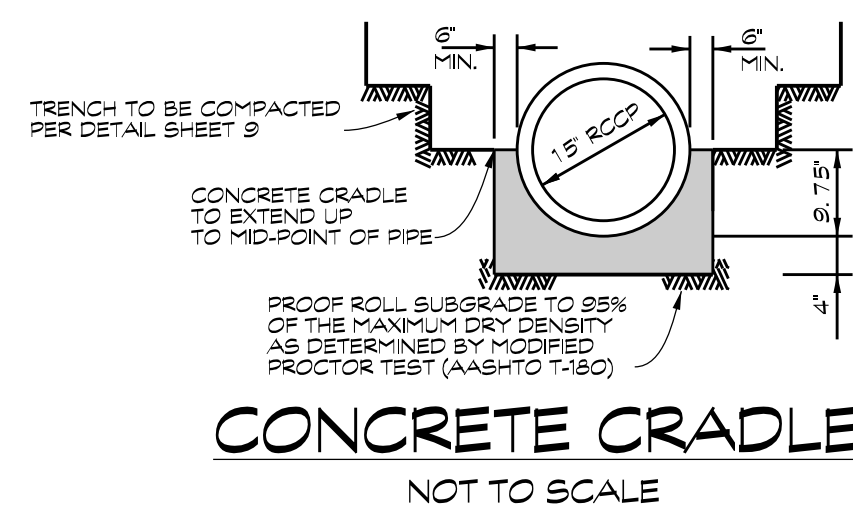


NOTES:
1. AFTER FABRICATION, ENTIRE TRASH RACK TO BE HOT DIP GALVANIZED.
2. GALVANIZED TRASH RACKS ARE NOT TO BE CUT IN THE FIELD AND PAINTED.
3. CONTRACTOR TO MEASURE INLET TO VERIFY DIMENSIONS PRIOR TO FABRICATION.
4. MAXIMUM TRASH RACK OPENING TO BE NO GREATER THAN 6" ANY DIRECTION.
5. ANGLE TO BE DRILLED TO ACCOMMODATE 1/2" MASONRY BOLTS TO ANK TRASH RACK TO RISER AT MAXIMUM SPACING 2' ON CENTER.
TRASH RACK TO BE 1/2" LARGER THAN RISER STRUCTURE OUTSIDE DIMENSION.
TRASH RACK DETAIL
NOT TO SCALE

- RISER STRUCTURE NOTES:
1. RISER STRUCTURE IS TO BE CAST IN PLACE.
 2. CONCRETE SHALL MEET CURRENT SHA-MIX NO. 3 SPECIFICATIONS. ALL CONCRETE SHALL BE AIR ENTRAINED AND HAVE 28 DAY COMPRESSION STRENGTH OF 3000 P.S.I. (PC) & SHALL BE CAST IN PLACE. CONTRACTOR SHALL BE RESPONSIBLE FOR CONCRETE TESTING, AND FOR PROVIDING TEST RESULTS TO THE CERTIFYING "AS BUILT" ENGINEER.
 3. ALL ANGLES & BARS USED FOR TRASH RACK TO BE HOT DIP GALVANIZED AFTER FABRICATION & PAINTED WITH 2 COATS OF RUST COLORED ENAMEL.
 4. BACKFILL SHALL BE COMPACTED TO 95% OF T-99. SOIL BEARING CAPACITY TO BE FIELD VERIFIED MINIMUM 2200 PSF.
 5. CONCRETE WORK SHALL COMPLY WITH THE LATEST ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.
 6. STEM AND FOOTING REINFORCEMENT IS PLAIN STEEL U.N.C. ALL REINFORCING IS ASTM A-615 GRADE 60.
 7. ALL PIPE CONNECTIONS TO BE SEALED WITH WATERSTOPPING FOLLOWING MANUFACTURERS SPECIFICATIONS. USE WB-ADHESIVE TO SECURE TO PIPES.
 8. ALL PIPES TO BE CAST INTO RISER WITH A PIPE JOINT WITHIN 4' OF RISER.



LADDER RUNG LOCATION DETAIL
NOT TO SCALE



CONCRETE CRADLE
NOT TO SCALE

OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

STORMWATER MANAGEMENT
RISER DETAILS

BYRON HILLS

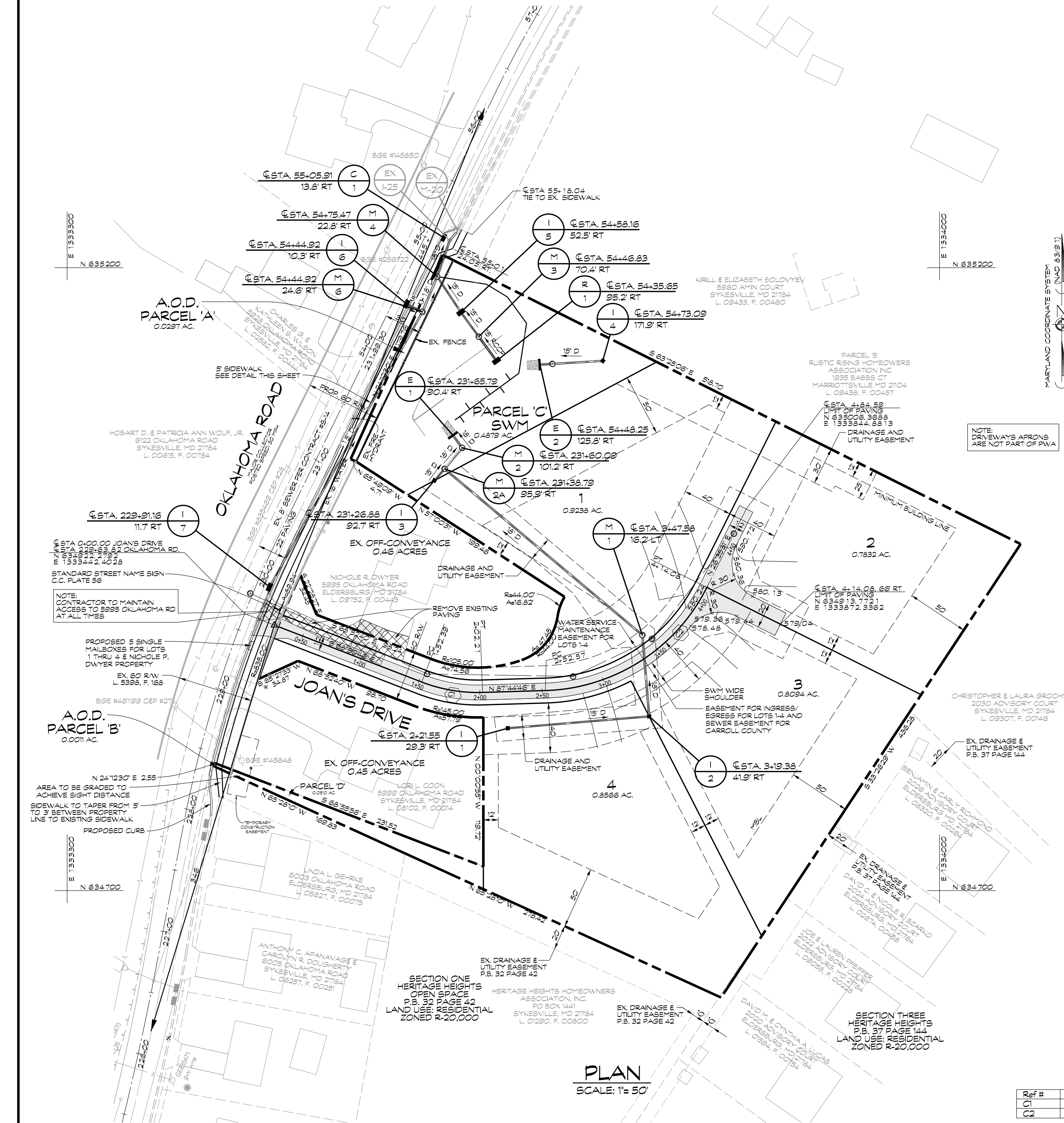
5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355



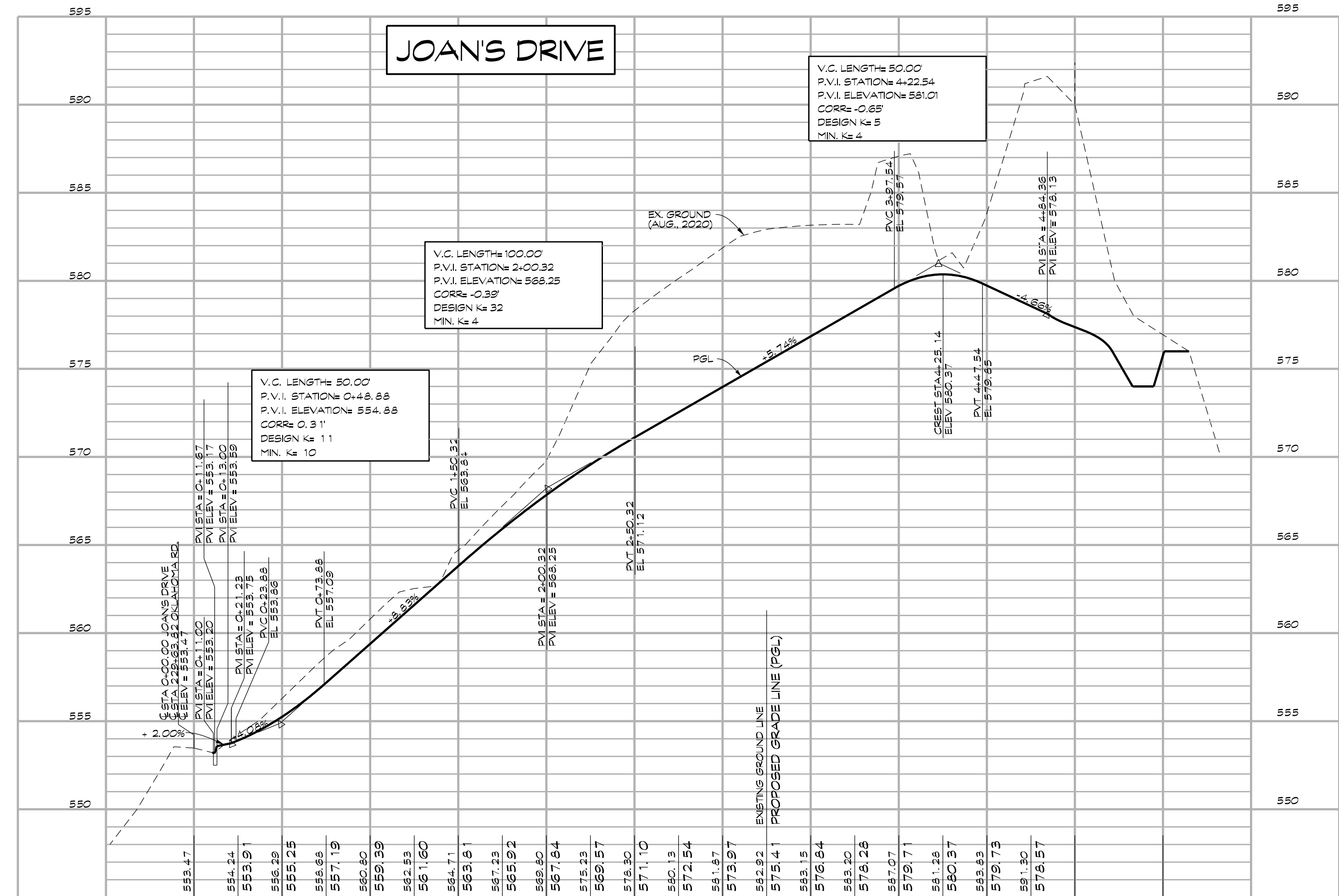
439 East Main Street Westminster, MD 21157-5539
(410) 848-1790 FAX (410) 848-1791

STRUCTURAL ENGINEER

Date	Revisions	Drawn By:	BH
11/2024	ADDRESS COMMENTS	Designed By:	BH
3/2025	ADDRESS COMMENTS	Reviewed By:	
4/2025	ADDRESS COMMENTS	Date:	JAN. 2023
5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Scale:	AS SHOWN
6/2025	ADDRESS COMMENTS	Job No.:	2013044
		Sheet:	11 OF 19



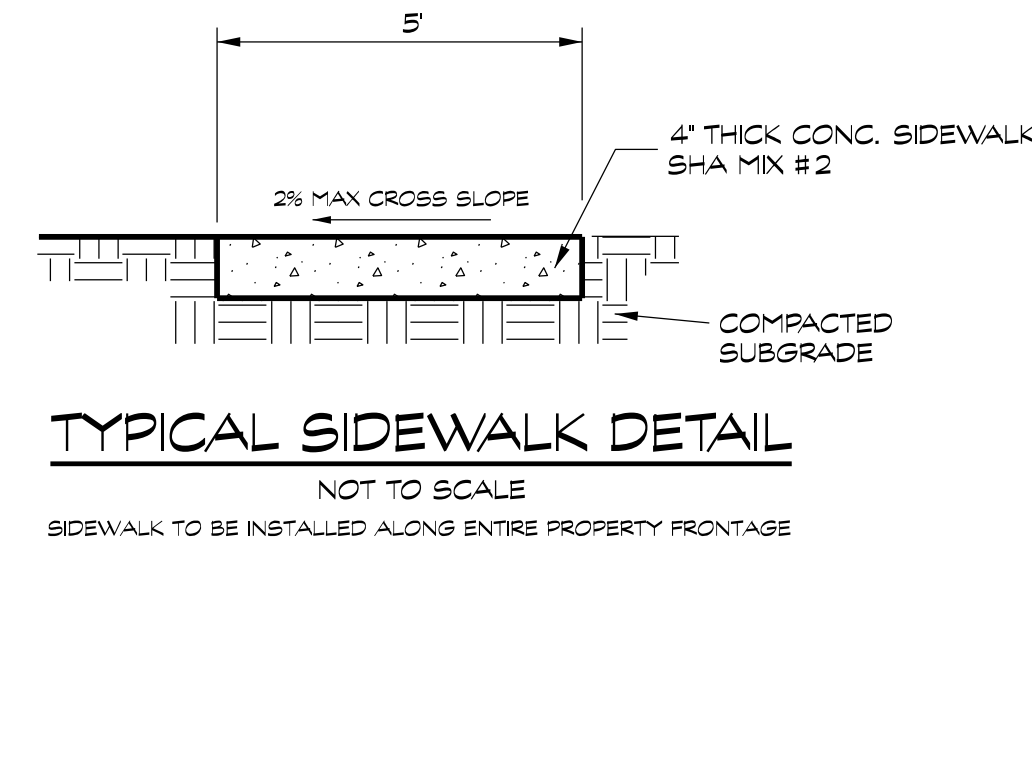
PLAN
SCALE: 1"= 50'



PROFILE
SCALE: HORIZ. 1"= 50'
VERT. 1"= 5'

SEE SHEET 13 FOR
TYPICAL SECTIONS
AND DETAILS

SEE SHEET 14
FOR CROSS SECTIONS



TYPICAL SIDEWALK DETAIL
NOT TO SCALE

SIDEWALK TO BE INSTALLED ALONG ENTIRE PROPERTY FRONTAGE

PIPE DENOTED WITH A REFERENCE TO 'RCCP'
SHALL BE ASTM C-361 CLASS B-25 WATERTIGHT
REINFORCED CONCRETE PIPE.

UNLESS OTHERWISE SPECIFIED, STORM DRAIN PIPE
FOR THIS PROJECT SHALL BE CORRUGATED, SMOOTH
INTERIOR, HIGH-DENSITY POLYETHYLENE PIPE (HDPE),
NOTED AS 'D'. AASHTO M-294, ASTM F-2306. ALL PIPE,
FITTINGS, AND CONSTRUCTION TO BE IN ACCORDANCE
WITH MANUFACTURER'S SPECIFICATIONS.

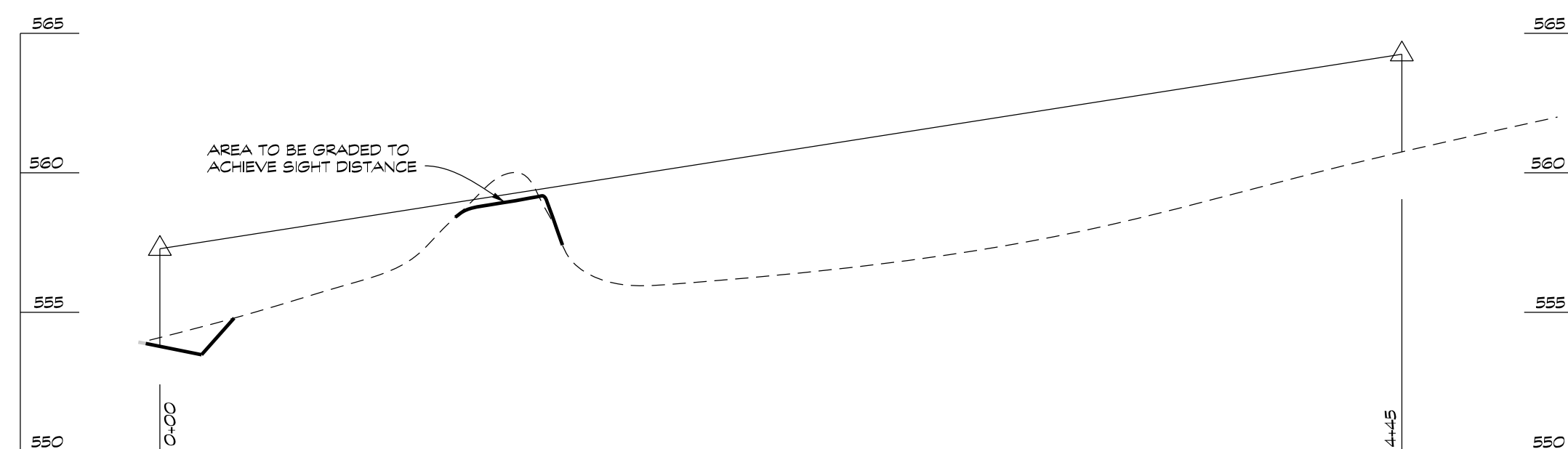
OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

SIDEWALK TYPICAL SECTION
SCALE: NOT TO SCALE

CENTERLINE CURVE DATA

Ref #	Radius	Arc Length	Delta	Tangent Length	Chord Bearing	Chord Length
C1	125.00	51.07	23°24'28"	25.63	S 80°33'00" E	50.71
C2	150.00	160.10	61°03'15"	66.63	N 57°10'03" E	152.61

CURVE DESIGNATED THUS: (C)

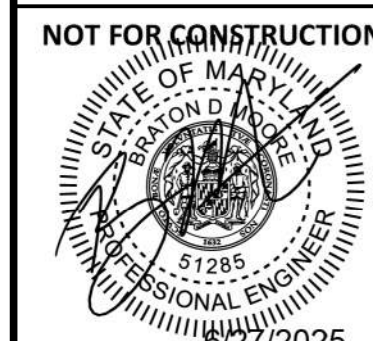


SIGHT DISTANCE PROFILE
SCALE: HORIZ. 1"= 50'
VERT. 1"= 5'

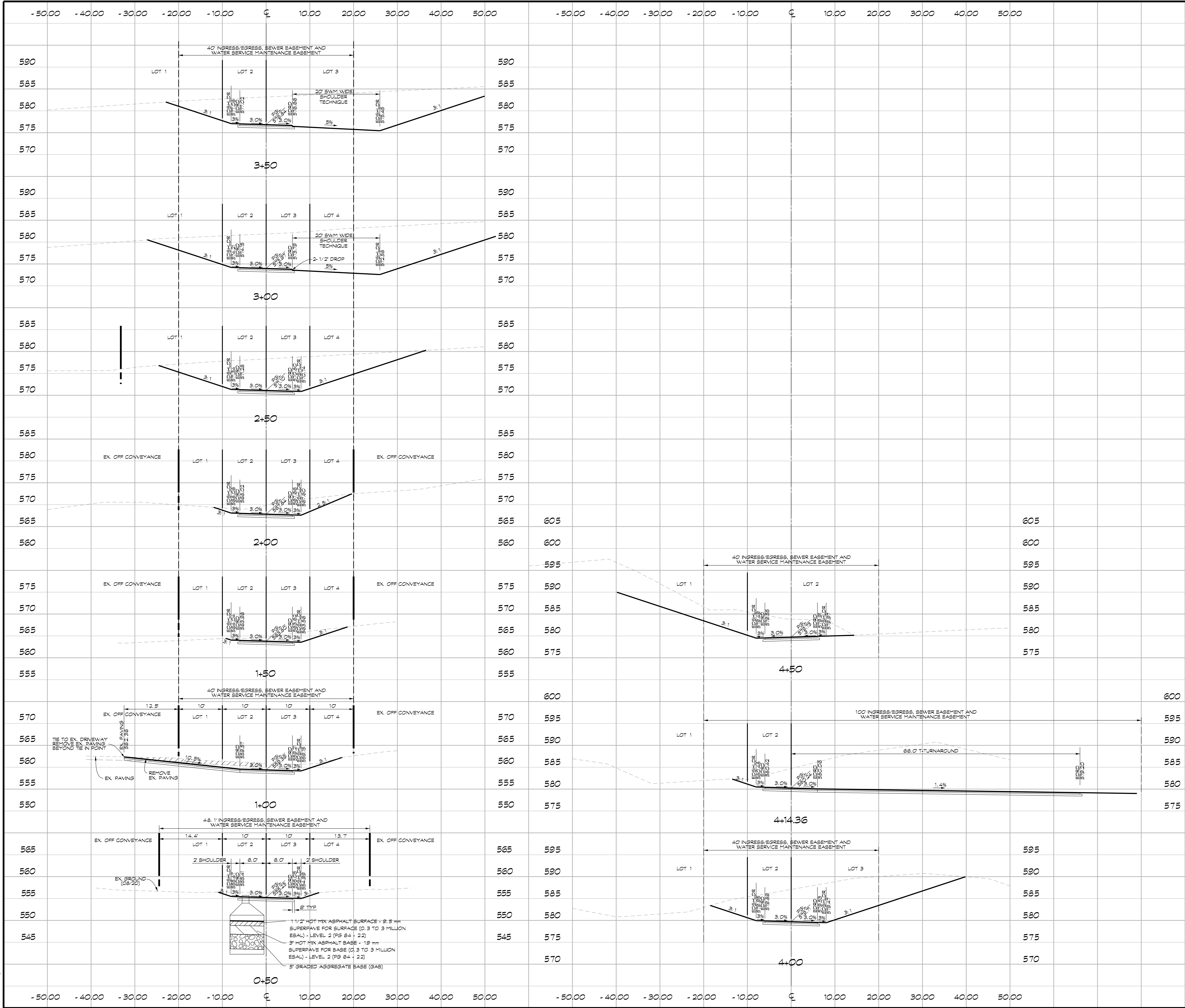
ROAD PLAN AND PROFILE

BYRON HILLS

5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355



NOT FOR CONSTRUCTION		
8/27/2025		
439 East Main Street Westminster, MD 21157-5539 (410) 848-1790 FAX (410) 848-1791		
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 51283, EXPIRATION DATE: DECEMBER 7, 2025		
Date	Revisions	Drawn By: JW
11/2024	ADDRESS COMMENTS	Designed By: JW
3/2025	ADDRESS COMMENTS	Reviewed By:
4/2025	ADDRESS COMMENTS	Date: JAN. 2023
5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Scale: AS SHOWN
6/2025	ADDRESS COMMENTS	Job No.: 2013044
		Sheet: 12 OF 19



OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

CROSS SECTIONS - UIC DRIVE
☐ STA. 0+50 TO ☐ STA. 4+50
BYRON HILLS
5TH ELECTION DISTRICT • CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355

NOT FOR CONSTRUCTION

STATE OF MARYLAND
BRETT D. MOORE
PROFESSIONAL ENGINEER
51283
8/27/2025

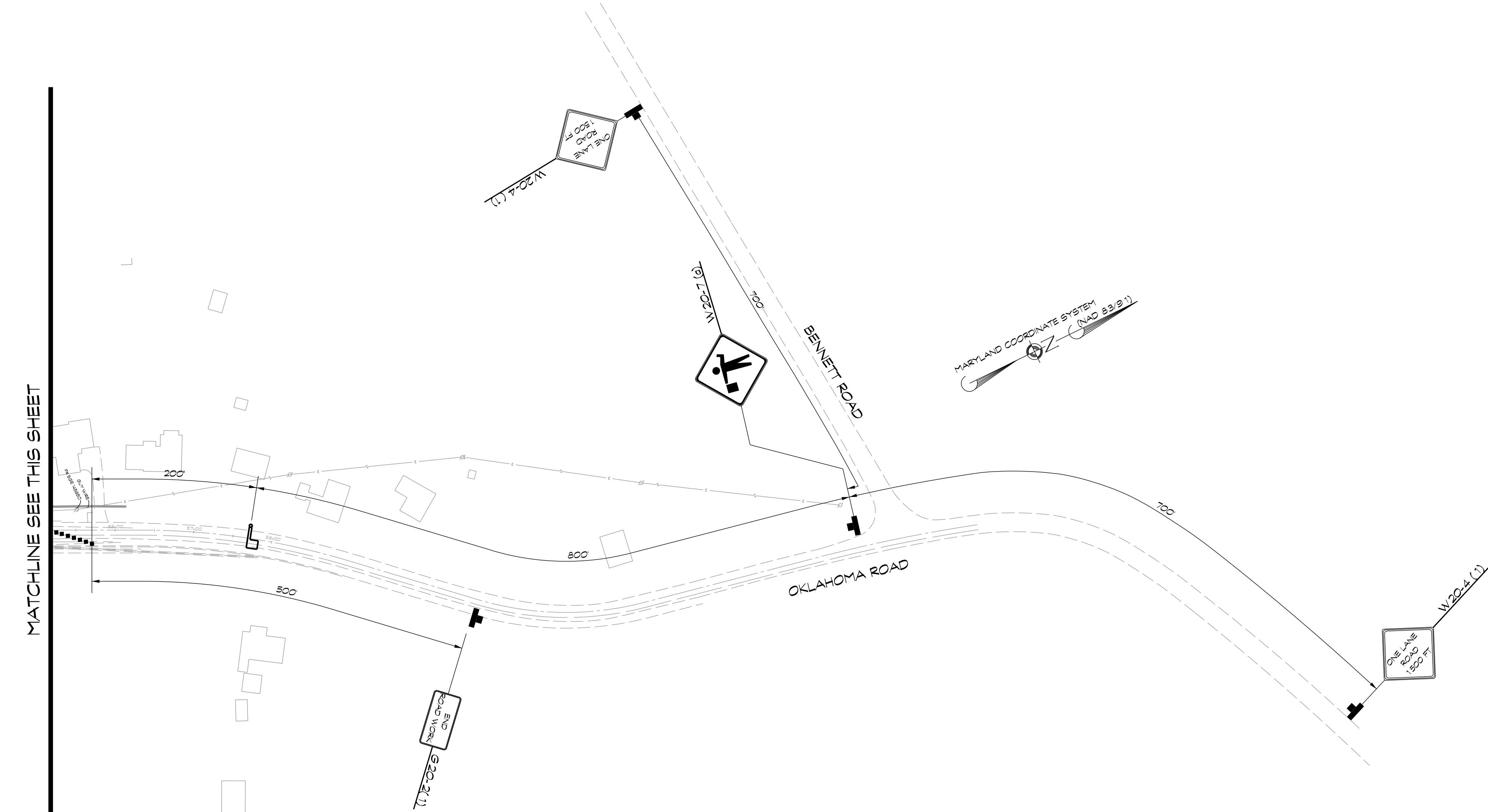
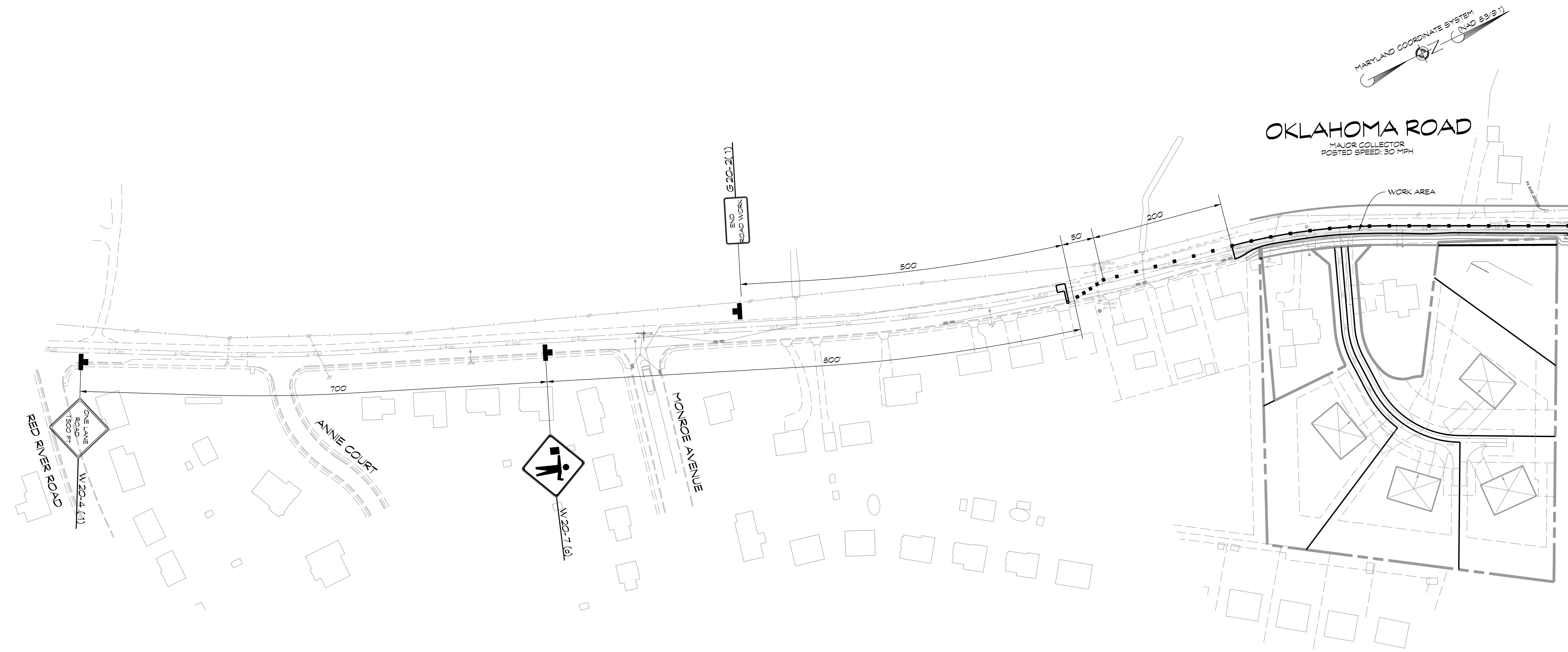
Engineers • Surveyors
CLSI
Land Planning & Environmental Consultants
www.clsi-civileng.com

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(410) 848-1790 FAX (410) 848-1791

Bretton D. Moore, P.E.

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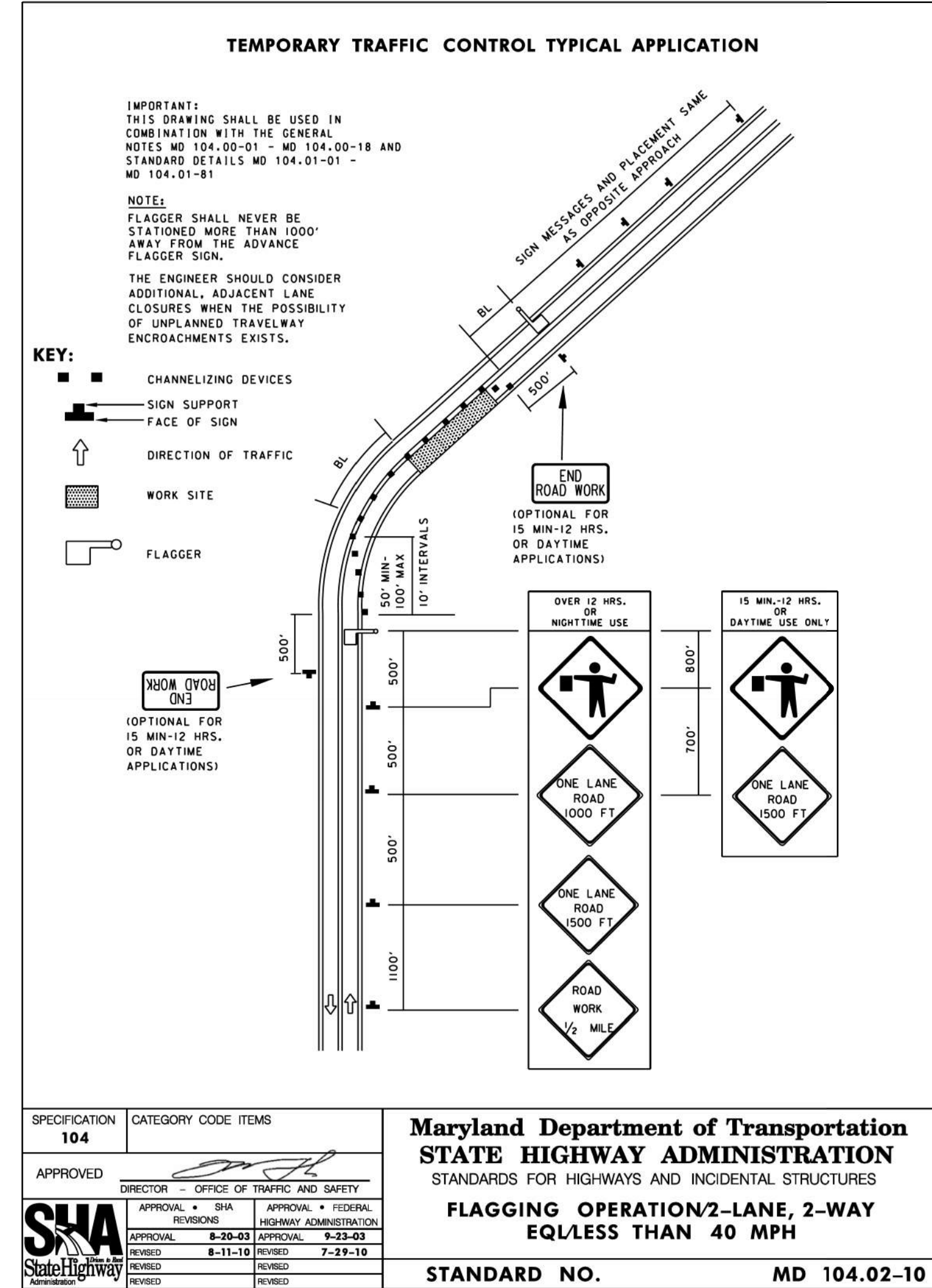
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6/2025	ADDRESS COMMENTS	Scale: 1" = 10'
		Job No.: 2013044
		Sheet: 14 OF 19



TEMPORARY TRAFFIC CONTROL GENERAL NOTES

1. It is the responsibility of the Contractor performing the work on or adjacent to a public road to provide, install and maintain appropriate traffic control devices in accordance with the latest edition of the Maryland Manual on Uniform Traffic Control Devices (MD MUTCD) for the traveling public, pedestrians, bicyclists, road workers, etc. at all times.
2. The Contractor shall notify the Department of Public Works (DPW) Construction Inspection Division at 410-386-2157 three (3) working days in advance of any construction on or adjacent to a county road, including installation of traffic control devices. If DPW Construction Inspection Division is not notified they can stop all work until they are comfortable it is safe for the contractor to proceed.
3. All standard regulatory and warning signs, barricades and other traffic control devices shall be in accordance with the latest edition of the MD MUTCD, Maryland State Highway Administration Standard Specifications for Construction and Materials, the NCHRP 350 and approved by the DPW Construction Inspection Division.
4. The Contractor shall follow the latest standards in accordance with the MDSHA Book of Standard for Highways Incidental Structures and the approved Maryland State Highway Administration products list. The standards can be found at www.roads.maryland.gov / Book of Standards - for Highway and Incidental Structures / Category 1 - Preliminary.
5. Work shall not be performed until all applicable traffic control devices are in place. Traffic control devices must be in place any time work is on or adjacent to a public road is in progress.
6. Traffic control devices shall be removed when work is not in progress. If approved by the DPW Construction Inspection Division signs may be covered so that the message is not visible to drivers.
7. Locations of devices may be modified as directed by the DPW Construction Inspection Division to accommodate field conditions.
8. The Contractor shall be responsible for maintaining all traffic control devices and immediately replace any which are missing or determined by the DPW Construction Inspection Division to be unsuitable for use.
9. All signs that are to be part of a work zone for more than three (3) days shall be placed on posts.
10. Collector or higher classification county roadways work hours are 9:00 AM and 3:00 PM Monday through Friday, unless approved otherwise by DPW.
11. Access to driveways shall be maintained at all times unless other arrangements are made.
12. Channelizing devices shall be extended to a point where they are visible to approaching traffic. A full length taper shall always be provided in advance of curves.
13. If flaggers are not able to see each other two-way radio communications shall be used.
14. Warning signs shall be mounted in accordance with SHA Standard No. MD 104.01-17A through D or as directed by DPW.
15. When pavement drop offs are present the Contractor shall place temporary traffic control devices, including signs, channelizing devices and barriers, as well as slope fillet wedges in accordance with SHA Standard No. MD 104.06-15 through 104.06-19. The engineer may recommend alternative methods to protect the pavement edge; considering factors such as pedestrians, bicycles, traffic volumes, vehicle speeds, size of the work zone, duration of work, etc.
16. Portable variable message signs may be required by DPW Construction Inspection Division's discretion.
17. Any corrections, modifications or additions to this plan must be approved by the Bureau of Development Review, Engineering Review, through the red-line revision process.

Revised 01/11/2019



Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES
FLAGGING OPERATION/2-LANE, 2-WAY
EQL/LESS THAN 40 MPH
STANDARD NO. MD 104.02-10

TRAFFIC CONTROL SEQUENCE

1. CONTACT THE CONSTRUCTION INSPECTION DIVISION AT (410) 386-2157, 72 HOURS BEFORE COMMENCING WORK ON COUNTY ROADS.
2. PLACE TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.) AND MARYLAND S.H.A. TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS (TTCTA) STANDARD NO. 104. SET UP FLAGGING OPERATION/2-LANE, 2-WAY EQL/LESS THAN 40 MPH, STANDARD 104.02-02.
3. TRAFFIC CONTROL DEVICES MUST BE LEFT IN PLACE UNTIL APPROVAL FOR REMOVAL IS GIVEN BY THE INSPECTOR IN THE FIELD.
4. CONTRACTOR SHALL PROVIDE UNINTERRUPTED ACCESS TO ALL PRIVATE AND COMMERCIAL DRIVEWAY ENTRANCES DURING CONSTRUCTION AND REPAIR THOSE DRIVEWAYS AS NECESSARY.
5. IF MODIFICATION BECOMES NECESSARY IN FIELD, TRAFFIC CONTROL DEVICES AND PROCEDURES SHALL MEET THE MINIMUM REQUIREMENTS OF S.H.A. TTCTA STANDARD NO. 104.02-02 FOR FLAGGING OPERATION/2-LANE, 2-WAY EQL/LESS THAN 40 MPH.

OWNER/ DEVELOPER
BURKARD HOMES, LLC.
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TRAFFIC CONTROL PLAN

BYRON HILLS

5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355



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(410) 848-1790 FAX (410) 848-1791

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11/2024	ADDRESS COMMENTS	JW
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4/2025	ADDRESS COMMENTS	Reviewed By:
5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Date: JAN. 2023
6/2025	ADDRESS COMMENTS	Scale: 1"=100'
		Job No.: 2013044
		Sheet: 15 OF 19



OWNER/ DEVELOPER
BURKARD HOMES, LLC.
612 THIRD STREET
SUITE 4C
ANNAPOLIS, MD 21403
410-992-2221

STORM DRAIN DRAINAGE AREA MAP BYRON HILLS

5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
TAX MAP: 74 BLOCK: 2 PARCEL: 355



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5/2025	ADDED CURB AND GUTTER ALONG OKLAHOMA RD	Scale: 1" = 30'
6/2025	ADDRESS COMMENTS	Job No.: 2013044
		Sheet: 16 OF 19

STORM DRAIN TABULATIONS

STRUCTURE		CONTRIBUTING AREA				RUNOFF					PIPE										REMARKS
FROM	TO	C AREA NO.	A AREA (ACRES)	RUNOFF COEF.	Δ CA	I.A	I.CA	T TIME OF CONC. (MIN.)	IF RAINFALL INTENS. (IN/HR.)	Q QUANT. (CFS)	SIZE IN.	TYPE	n MANNING'S COEF.	Ss SLOPE %	L LENGTH FT.	Vs VEL. FT./SEC.	TIME IN PIPE MIN.	CAPAC. FULL (CFS)			
I-1	I-2	A	0.39	0.36	0.14	0.39	0.14	5.00	7.00	1.0	15	HDPE	0.012	0.50	114	3.2	0.6	5.0			
I-2	M-1	A,B	1.40	0.35	0.49	1.79	0.63	5.60	6.86	4.3	15	HDPE	0.012	0.51	65	4.7	0.2	6.7			
M-1	M-2A	A,B	-	-	-	1.79	0.63	5.60	6.81	4.3	15	HDPE	0.012	4.16	207	10.0	0.4	23.2			
I-3	M-2A	C	0.44	0.30	0.13	0.44	0.13	5.00	7.00	0.9	15	HDPE	0.012	0.50	13	3.1	0.1	5.0			
M-2A	M-2	A-C	-	-	-	2.23	0.76	6.20	6.72	5.1	15	HDPE	0.012	0.50	22	4.8	0.1	6.1			
M-2	EW-1	A-C	-	-	-	2.23	0.76	6.30	6.70	5.1	15	HDPE	0.012	0.00	23	3.3	0.1	5.1			
I-4	M-5	D	0.76	0.34	0.26	0.76	0.26	5.00	7.00	1.8	15	HDPE	0.012	20.37	41	13.9	0.1	31.6			
M-5	EW-2	D	-	-	-	0.76	0.26	5.10	6.98	1.8	15	HDPE	0.012	0.00	10	1.3	0.1	2.0			
R-1	M-3	-	-	-	-	-	-	-	-	3.2*	15	RCCP	0.013	10.36	24	12.3	0.0	22.6	*Q ₁₀ FROM SWM TR-20 ANALYSIS		
M-3	I-5	-	-	-	-	-	-	-	-	3.2*	15	HDPE	0.012	8.29	24	12.0	0.0	20.2	*Q ₁₀ FROM SWM TR-20 ANALYSIS		
I-5	M-4	E	0.09	0.21	0.02	-	-	5.00	7.00	3.3*	15	HDPE	0.012	15.76	34	15.2	0.0	27.8	*Q ₁₀ = 3.2 CFS + 0.1 CFS		
I-7	M-6	H	1.04	0.43	0.45	-	-	11.40	5.64	2.5	15	HDPE	0.012	2.61	253	7.4	0.6	11.3			
I-6	M-6	F	0.61	0.39	0.24	-	-	5.00	7.00	1.7	15	HDPE	0.012	0.54	13	3.8	0.1	5.1			
M-6	M-4	H,F	-	-	-	1.74	0.71	12.00	5.54	3.9	15	HDPE	0.012	0.50	30	4.5	0.1	6.1			
M-4	EX I-25	H,F, SWM	-	-	-	1.74	0.71	12.10	5.52	*7.2	15	HDPE	0.012	4.10	31	11.5	0.0	23.0	*Q ₁₀ = 3.3 CFS + 3.3 CFS		
C-1	EX I-25	G	0.04	0.50	0.02	-	-	5.00	7.00	0.1											
EX I-25	EX M-20	H,F,G, SWM	-	-	-	1.75	0.73	12.10	5.52	*7.3	15	HDPE	0.012	5.00	10	12.4	0.0	25.4	*Q ₁₀ = 4.0 CFS + 3.3 CFS		

STORM STRUCTURE SCHEDULE

STRUCT. NO.	TYPE	PLATE	INVERT IN ELEV.	INVERT IN ELEV.	INVERT IN ELEV.	INVERT OUT ELEV.	TOP ELEV.	NORTH COORD.	EAST COORD.	REMARKS
M-1	48" DIAMETER PRECAST MANHOLE	CC 94	567.75	-	-	567.55	576.56	634905	1333762	
M-2	48" DIAMETER PRECAST MANHOLE	CC 94	557.40	557.40	-	555.90	561.00	635055	1333617	
M-2A	48" DIAMETER PRECAST MANHOLE	CC 94	556.93	557.68	-	557.43	564.00	635039	1333603	
M-3	48" DIAMETER PRECAST MANHOLE	CC 94	554.63	-	-	549.99	556.50	635145	1333630	
M-4	48" DIAMETER PRECAST MANHOLE	CC 94	542.44	542.44	543.19	542.24	545.94	635193	1333597	
M-5	48" DIAMETER PRECAST MANHOLE	CC 94	557.40	-	-	555.90	561.15	635123	1333669	
M-6	48" DIAMETER PRECAST MANHOLE	CC 94	542.57	-	-	542.32	546.84	635165	1333585	
I-1	K INLET	CC 61	-	-	-	568.90	572.65	634630	1333654	WEIR ELEVATION 571.40
I-2	K INLET	CC 61	568.33	-	-	568.08	573.75	634640	1333767	WEIR ELEVATION 572.50
I-3	K INLET	CC 61	-	-	-	557.75	561.50	635029	1333595	WEIR ELEVATION 560.25
I-4	K INLET	CC 61	-	-	-	565.75	569.50	635125	1333730	WEIR ELEVATION 568.25
I-5	PRECAST STANDARD TYPE S DOUBLE GRATE TANDEM	CC 66	546.00	-	-	547.80	551.50	635164	1333616	
I-6	PRECAST STANDARD TYPE S DOUBLE GRATE TANDEM	CC 66	-	-	-	542.64	546.14	635171	1333572	
I-7	PRECAST STANDARD TYPE S DOUBLE GRATE TANDEM	CC 66	-	-	-	549.17	552.67	634943	1333464	
R-1	-	-	-	-	-	557.12	559.50	635125	1333644	SEE SHEET 11 FOR RISER DETAILS
EW-1	STANDARD TYPE C ENDWALL	CC 79	-	-	-	555.90	-	635065	1333610	
EW-2	STANDARD TYPE C ENDWALL	CC 79	-	-	-	555.90	-	635122	1333679	
C-1	PRECAST COG OPENING	SHA MD 374.66	-	-	-	-	-	635224	1333602	

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STORM DRAIN TABULATIONS, DETAILS
& STRUCTURE SCHEDULES

BYRON HILLS

5TH ELECTION DISTRICT * CARROLL COUNTY, MARYLAND
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