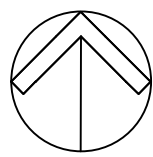


J:\2020\2400014\06 APOGEE TOWNHOMES - CLAY STREET\TOWN.dwg 2/20/2014 CONSTRUCTION BASE.dwg PLOTTED: 2/17/2023 1:46:35 PM



VICINITY MAP

SCALE: 1" =500'

ENGINEER'S NOTES

BALZER AND ASSOCIATES, INC. ASSUMES NO RESPONSIBILITY FOR ADEQUACY OF PLANS OR FOR INFORMATION ON PLANS UNTIL SUCH PLANS HAVE BEEN APPROVED BY THE REQUIRED PUBLIC AGENCIES.

ANY WORK COMMENCED ON A PROJECT PRIOR TO PLAN APPROVAL IS AT SOLE RISK OF THE OWNER/DEVELOPER.

BALZER AND ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR THE CONTRACTORS FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE PLANS OR WILL NOT BE RESPONSIBLE FOR ACTS OR OMISSIONS OF THE CONTRACTOR, SUBCONTRACTORS, OR THEIR AGENTS OR EMPLOYEES, OR OF ANY OTHER PERSONS PERFORMING PORTIONS OF THE WORK.

MATERIALS LIST

WATER

6" DUCTILE IRON WATERLINE	40 LF
8" DUCTILE IRON WATERLINE	1,005 LF
8" 11.25' BEND	4 EA.
8" 22.5' BEND	1 EA.
8" 45' BEND	2 EA.
8"x6"x8" TEE	2 EA.
8"x8"x8" TEE	2 EA.
8"x6" REDUCER	1 EA.
6" GATE VALVE	3 EA.
8" GATE VALVE	6 EA.
FIRE HYDRANT ASSEMBLY	30 EA.
3/4" SERVICE LATERAL	3 EA.
1" SERVICE LATERAL	2 EA.
8" WATER METER	34 EA.

EROSION CONTROL

CONSTRUCTION ENTRANCE	1 EA.
SILT FENCE	950 LF
DIVERSION	865 LF
RIGHT-OF-WAY DIVERSION	32 LF
STORM DRAIN INLET PROTECTION	9 EA.
CULVERT INLET PROTECTION	2 EA.
OUTLET PROTECTION	6 EA.
STORMWATER CONVEYANCE CHANNEL	315 LF
ROCK CHECK DAMS	3 EA.
TEMPORARY SEDIMENT TRAP	2 EA.
TOPSOILING	2.21 AC.
TEMPORARY SEEDING	4.10 AC.
PERMANENT SEEDING	2.21 AC.
MULCHING	4.10 AC.
BLANKET & MATTING	1,230 SQ. YD.

SEWER

8" PVC SEWER LINE	1,355 LF
48" DIA. SEWER MANHOLE	14 EA., 94 VF
MANHOLE FRAME & COVER	14 EA.
6" PVC SERVICE LATERAL	34 EA.
6" PVC CLEANOUT	34 EA.
TIE TO EX. SEWER LINE	1 EA.

SITE QUANTITIES

LIGHT DUTY ASPHALT PAVING:	4,400 SQ. YD.
HEAVY DUTY ASPHALT PAVING:	0 SQ. YD.

CG-2 CURB	340 LF
CG-6 CURB & GUTTER	550 LF
ROLLTOP CURB	970 LF
CONCRETE SIDEWALK:	330 SQ. YD.
CG-12 CURB RAMP	4 EA.

APPROXIMATE EARTHWORK:	7,495 CU. YD. CUT
	8,600 CU. YD. FILL

NET: 1,105 CU. YD. IMPORTED

NOTE: ALL QUANTITIES ARE ENGINEER'S ESTIMATES FOR TOWN BONDING PURPOSES ONLY. ALL QUANTITIES SHALL BE CONSIDERED PRELIMINARY UNTIL FINAL SITE PLAN APPROVAL.

EARTHWORK QUANTITIES MAY BE BASED ON AN EXISTING TOP OF GRADE TO PROPOSED TOP OF GRADE COMPARISON ONLY AND THIS ARE APPROXIMATE. ACTUAL EARTHWORK REQUIRED WILL VARY BASED ON THE PRESENCE OF UNSUITABLE SOILS, TOPSOIL DEPTH, COMPACTION RATE, BASE STONE DEPTH, UTILITY TRENCH EXCAVATION, AND OTHER ENVIRONMENTAL VARIABLES.

CONTRACTOR IS RESPONSIBLE FOR CONDUCTING THEIR OWN QUANTITIES TAKE OFF FOR BIDDING PURPOSES.

APOGEE TOWNHOMES

CLAY STREET & CHERRY LANE

MOUNT TABOR MAG. DISTRICT

MONTGOMERY COUNTY, VA

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LEGEND

---348--- EX. INTRMDT. CONTOUR

--345-- EX. INDEX CONTOUR

+35.55 EX. SPOT ELEVATION

---8" WL--- EX. WATER LINE

---8" SAN--- EX. SANITARY SEWER

---18"RCP--- EX. STORM PIPE

--- --- EX. EDGE OF PAVEMENT

--- --- EX. BUILDING

--- --- EX. CONCRETE

--- --- EX. PAVEMENT

--- --- EX. GRAVEL

////////// PAVEMENT REPLACEMENT

--- --- EX. POWER POLE

--- --- EX. SANITARY SEWER MANHOLE

--- --- EX. STORM SEWER MANHOLE

--- --- CLEANOUT

--- --- EX. LIGHT POLE

--- --- WATER LINE REDUCER

--- --- EX. TELEPHONE

---G--- EX. GAS LINE

---OHU--- EX. OVERHEAD CABLE

---X--- EX. FENCE

--- --- EX. TREE LINE

--- --- ADJOINING PROPERTY LINE

--- --- EXISTING ROAD MONUMENTS

--- --- WETLAND AREA

---RMA--- RESOURCE MANAGEMENT AREA

--- PROP. INTRMDT. CONTOUR

---1320--- PROP. INDEX CONTOUR

+35.55 35.05 PROP. SPOT ELEVATION

---8" WL--- PROP. WATER LINE

---8" SAN--- PROP. SANITARY SEWER

--- --- PROP. STORM PIPE

--- --- PROP. EDGE OF PAVEMENT

--- --- PROP. BUILDING

--- --- PROP. CONCRETE

--- --- PROP. ASPHALT PAVEMENT (STANDARD/HEAVY DUTY)

--- --- PROP. GRAVEL

--- --- PROP. PAVERS

--- --- PROP. POWER POLE

--- --- PROP. MANHOLE

--- --- SIGN

--- --- WATER METER

--- --- PROP. GATE VALVE

--- --- BLOW-OFF VALVE

--- --- BENCHMARK

---G--- PROP. GAS LINE

---OHU--- PROP. OVERHEAD CABLE

---P--- PROP. UNDERGRND POWER LINE

---X--- PROP. FENCE

--- --- PROP. TREE LINE

--- --- SITE PROPERTY LINE

--- --- INLET PROTECTION

---RPA--- RESOURCE PROTECTION AREA

ABBREVIATIONS

AHFH	ARROW HEAD TOP OF FIRE HYDRANT	EVCS	END VERT. CURVE STA.	RR	RAILROAD
APPROX	APPROXIMATE	EW	EXISTING	RYS	REAR YARD SETBACK
ASPH	ASPHALT	EXIST	EXISTING	SAN	SANITARY
BC	BACK OF CURB	FDN	FOUNDATION	SBL	SOUTH BOUND LANE
BIT	BITUMINOUS	FF	FINISHED FLOOR	SD	STORM DRAIN
BLDG	BUILDING	FG	FINISH GRADE	SECT	SECTION
BLK	BLOCK	GBE	GRADE BREAK ELEVATION	SE	SLOPE EASEMENT
BM	BENCHMARK	GBS	GRADE BREAK STATION	SS	SANITARY SEWER
BS	BOTTOM OF BOTTOM STEP	HOA	HOMEOWNERS ASSOCIATION	SSD	STOPPING SIGHT DISTANCE
BVCE	BEGIN VERT. CURVE ELEV.	HPT	HIGH POINT	SSE	SANITARY SEWER EASEMENT
BVCS	BEGIN VERT. CURVE STA.	HSD	HEADLIGHT SIGHT DISTANCE	STA	STATION
BW	BOTTOM OF WALL	INTX	INTERSECTION	STD	STANDARD
CB	CINDER BLOCK	INV	INVERT	STO	STORAGE
C&G	CURB & GUTTER	IP	IRON PIN	SYS	SIDE YARD SETBACK
CMP	CORRUGATED METAL PIPE	LT	LEFT	TBM	TEMPORARY BENCHMARK
CONC	CONCRETE	LVC	LENGTH OF VERTICAL CURVE	TBR	TO BE REMOVED
COR	CORNER	MH	MANHOLE	TC	TOP OF CURB
DBL	DOUBLE	MIN	MINIMUM	TEL	TELEPHONE
DEFL	DEFLECTION	MBL	MINIMUM BUILDING LINE	TRANS	TRANSFORMER
DI	DROP INLET	MON	MONUMENT	TS	TOP OF TOP STEP
DIA	DIAMETER	NBL	NORTH BOUND LANE	TW	TOP OF WALL
DE	DRAINAGE EASEMENT	PROP	PROPOSED	TYP	TYPICAL
ELEC	ELECTRIC	PUE	PUBLIC UTILITY EASEMENT	VDOT	VIRGINIA DEPARTMENT OF TRANSPORTATION
ELEV	ELEVATION	PVM	PAVEMENT	VERT	VERTICAL
ENTR	ENTRANCE	R	RADIUS	WBL	WEST BOUND LANE
EP	EDGE OF PAVEMENT	RT	RIGHT	YD	YARD
EVCE	END VERT. CURVE ELEV.	R.O.W.	RIGHT OF WAY		
		REQD	REQUIRED		

GENERAL NOTES

- SITE ADDRESS: CLAY STREET AND CHERRY LANE
BLACKSBURG, VIRGINIA 24060
MOUNT TABOR MAGISTERIAL DISTRICT/MONTGOMERY COUNTY, VIRGINIA
- OWNER: BLACKSBURG LLC
ADDRESS: 510 FLOYD STREET
BLACKSBURG, VA 24060
PHONE: 540-808-5920
CONTACT: RYAN HALL, DEVELOPER
AGENT: BALZER & ASSOCIATES, INC.
80 COLLEGE ST., SUITE H
CHRISTIANSBURG, VA 24073
PHONE: (540) 381-4290
FAX: (540) 381-4291
CONTACT: STEVE SEMONES
- TYPE OF CONSTRUCTION/USE: RESIDENTIAL
- ZONING: RM-1 MULTIPLE-FAMILY RESIDENTIAL
SETBACKS: FRONT: 25 FT
SIDE: 25 FT
BETWEEN BUILDINGS: 15 FT
REAR: 30 FT
- PARCEL I.D.: 031605 TAX MAP NO.: 041-3-1A
- LEGAL REFERENCE(S): D.B. 2018 PG. 005804
- SITE AREA: 217,978 SF / 5.004 AC
IMPERVIOUS AREA: 87,730 SF / 2.014 AC (40.25%)
PROP. BUILDING COVERAGE AREA: 35,621 SF / 0.818 AC (16.34%)
DISTURBED AREA: 178,775 SF / 4.104 AC
- WATER: TOWN OF BLACKSBURG
- SEWER: TOWN OF BLACKSBURG
- TOTAL BUILDINGS/DWELLING UNITS: 34
NUMBER OF FLOORS: 2
MAX. BUILDING HEIGHT PER ZONING: 35 FT
- PARKING REQUIRED: 85 SPACES
PARKING PROVIDED: 107 SPACES
- GREENSPACE / LANDSCAPE AREA:
PARKING LOT LANDSCAPE REQUIRED: 5% OF PARKING AREA = 645 SF
1 TREE/10 SPACES = 3 TREES
- PARKING LOT LANDSCAPE PROPOSED: GREENSPACE= 763 SF
1 TREE/10 SPACES = 3 TREES

- REQUIRED CANOPY COVER = 32,696 SF (10%)
TOTAL CANOPY COVER PROVIDED = 41,315 SF
OPEN SPACE REQUIRED = 20%
OPEN SPACE PROVIDED = 26%
13. ALL PARKING LOT AND ROAD DIMENSIONS ARE FROM FACE OF CURB. WHERE NO CURB EXISTS, DIMENSIONS ARE TO THE EDGE OF PAVEMENT.
14. ALL CURVE RADII ARE 5 FEET UNLESS OTHERWISE SPECIFIED.
15. THE PROPERTY IS LOCATED IN F.E.M.A. DEFINED ZONE X (UNSHADED) AS SHOWN ON PANEL #5112C0132C. (EFFECTIVE DATE SEPTEMBER 25, 2009). THIS DETERMINATION HAS BEEN MADE BY GRAPHIC METHODS ONLY AND NO ELEVATION STUDY HAS BEEN PERFORMED AS PART OF THIS PROJECT.

STANDARDS OF CONSTRUCTION

16. CONSTRUCTION SHALL BE IN ACCORDANCE WITH TOWN OF BLACKSBURG STANDARDS AND SPECIFICATIONS. INSTALLATION AND BACKFILL OF PUBLIC WATER, SEWER, AND OTHER PUBLIC UTILITY TRENCHES SHALL BE IN ACCORDANCE WITH THE TOWN OF BLACKSBURG WATER SPECIFICATIONS AND SEWER SPECIFICATIONS, LATEST EDITIONS.
17. ALL UTILITY LINES AND LATERALS, INCLUDING ELECTRIC, TELEPHONE, AND CATV, OR OTHER SIMILAR LINES SHALL BE INSTALLED UNDERGROUND. THIS SHALL APPLY TO LINES SERVING INDIVIDUAL SITES AS WELL AS TO UTILITY LINES WITHIN THE PROJECT. WATER AND SEWER CONNECTIONS SHALL CONFORM TO THE TOWN OF BLACKSBURG UTILITY STANDARDS AND SPECIFICATIONS AND THE INTERNATIONAL BUILDING CODE, LATEST EDITIONS.
18. THE CONTRACTOR SHALL PLUG WITH AN ANGLE WING NUT TEST PLUG THE CONNECTION OF PROPOSED TO EXISTING SANITARY SEWER PRIOR TO EXTENDING THE SANITARY SEWER. THE PLUG SHALL BE MAINTAINED IN PLACE UNTIL SUCH A TIME AS THE SEWER IS COMPLETED, INSPECTED, AND ACCEPTED BY THE TOWN.
19. TOWN WILL TAP EXISTING WATER LINES FOR LATERAL AT OWNER'S EXPENSE AND THE TOWN PROVIDES THE METER AT OWNER'S EXPENSE.
20. BACKFLOW PREVENTION DEVICES SHALL BE PROVIDED BY OWNER.
21. TRAFFIC BEARING COVER SHALL BE PROVIDED ON SANITARY CLEANOUTS WITHIN PAVEMENT.
22. ALL LOWEST FLOOR ELEVATIONS WILL BE SERVED BY GRAVITY SEWER.
23. ALL CONNECTIONS TO EXISTING TOWN SANITARY SEWER LINES OR MANHOLES SHALL BE OBSERVED BY TOWN PERSONNEL DURING INSTALLATION.
24. IT IS THE CONTRACTORS RESPONSIBILITY TO MEET COMPLIANCE REQUIREMENTS WITH 59.1-406 ET.SEQ., IF THE CODE OF VIRGINIA.
25. UNLESS SHOWN OR SPECIFIED OTHERWISE, METHODS AND MATERIALS SHALL BE IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS LATEST EDITION AND VDOT ROAD AND BRIDGE SPECIFICATIONS LATEST EDITION.
26. WHEREVER AN "APPROVED EQUAL" OR "APPROVED ALTERNATIVE" IS PROPOSED FOR USE, THE GC SHALL OBTAIN WRITTEN APPROVAL OF THE TOWN OF BLACKSBURG OR VDOT PRIOR TO INSTALLATION. SUCH REQUESTS SHALL INCLUDE THE MODEL NUMBER OR OTHER INFORMATION SUFFICIENT TO MAKE A DETERMINATION AS TO THE ACCEPTABILITY OF SAID ITEMS.
27. ALL PARKING SPACES TO BE MARKED WITH FOUR INCH (4") WIDE STRIPES (WHITE PAINT). DIRECTIONAL ARROWS SHALL BE ALSO PAINTED WHITE.
28. ALL PROPOSED SIDEWALKS TO BE 5 FEET IN WIDTH UNLESS OTHERWISE NOTED.

LIGHTING AND LANDSCAPING

29. LIGHT POLE LOCATIONS ARE PRELIMINARY. ALL PROPOSED LIGHT POLE LOCATIONS AND PHOTOMETRICS TO BE VERIFIED BY AN ELECTRICIAN/CONTRACTOR PRIOR TO INSTALLATION.
30. LIGHT SOURCES SHALL NOT CAST EXCESSIVE LIGHT UPON ADJACENT PROPERTY OR UPON A PUBLIC RIGHT OF WAY. THE MAINTAINED HORIZONTAL ILLUMINANCE AT GRADE AT ADJOINING STREETS SHALL NOT EXCEED 0.5 FOOT CANDLES, AND THE MAINTAINED HORIZONTAL ILLUMINANCE AT GRADE AT ADJOINING RESIDENTIAL PROPERTIES SHALL NOT EXCEED 0.1 FOOT CANDLES.
31. LIGHT TRESPASS MAY BE CONTROLLED OR REDUCED THROUGH THE USE OF PROPERLY DESIGNED LUMINAIRES SUITABLE FOR THE TASK; USE OF INTERNAL OR EXTERNAL REFLECTORS AND VISORS; OPTIMUM LOCATION OR PLACEMENT OF LUMINAIRES AND ADJUSTMENT OR PROPER SELECTION OF MOUNTING HEIGHT OF POST, POLE OR BUILDING MOUNTED LUMINAIRES, AND OTHER METHODS.
32. LIGHT DIFFUSERS AND AMBIENT LIGHT MAY BE VISIBLE FROM ADJACENT PROPERTY IF THE LIGHT DIFFUSERS SHIELD OR DIFFUSE THE LIGHT SOURCE.
33. THE APPROVED LANDSCAPE PLAN SHALL BE USED FOR THE FINAL PLANT QUANTITY, SPECIES, AND LAYOUT OF THE PROPOSED DEVELOPMENT. ANY CHANGES TO THE PLAN, INCLUDING SPECIES SUBSTITUTION, LOCATION, OR QUANTITY CHANGES MUST BE SUBMITTED TO THE COUNTY FOR REVIEW AND APPROVAL. ANY CHANGES MUST BE SUBMITTED ON A FULL SHEET FOR SIGNATURES, OR A RECORD DRAWING/AS-BUILT PLAN SHOWING APPROVED CHANGES MUST BE FURNISHED FOR SIGNATURES.
34. LANDSCAPE PLANTINGS AT ENTRANCES/EXITS WILL BE INSTALLED AND MAINTAINED SO AS NOT TO INTERFERE WITH SIGHT DISTANCE NEEDS OF DRIVERS IN THE PARKING AREA AND AT ENTRANCE/EXIT LOCATIONS.

PERMITS AND PRECONSTRUCTION REQUIREMENTS

35. STAKING OF PROPERTY LINES SHALL BE PROVIDED TO ASSURE DISTURBANCE IS MAINTAINED ON-SITE.
36. A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO BEGINNING CONSTRUCTION.
37. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES, INCLUDING THOSE UNDERGROUND, PRIOR TO BEGINNING WORK. THE LOCATION OF EXISTING UTILITIES ARE NOT NECESSARILY SHOWN ON THE PLANS AND WHERE SHOWN ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL ON HIS INITIATIVE AND AT NO EXTRA COST HAVE LOCATED ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY. NO CLAIMS FOR DAMAGES OR EXTRA COMPENSATION SHALL ACCRUE TO THE CONTRACTOR FROM THE PRESENCE OF SUCH PIPE OR OTHER OBSTRUCTIONS OR FROM ANY DELAY DUE TO REMOVAL OR REARRANGEMENT OF THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF ANY UTILITIES DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL CONTACT "MISS UTILITY" OF CENTRAL VA TOLL FREE AT 1-800-552-7001 AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EARTHWORK.
38. IT IS THE OWNER/DEVELOPER/DESIGN ENGINEER'S RESPONSIBILITY TO COORDINATE ANY RETAINING WALL DESIGN AND CONSTRUCTION WITH THE COUNTY BUILDING DEPARTMENT FOR PROFESSIONAL ENGINEERING SEALING AND BUILDING PERMIT REQUIREMENTS. PERMITS FOR RETAINING WALL CONSTRUCTION SHALL BE APPROVED AND ISSUED BY THE TOWN PRIOR TO ANY WALL CONSTRUCTION.
39. ANY ADDITIONAL PERMITS REQUIRED BY OTHER AGENCIES ARE THE RESPONSIBILITY OF THE OWNER TO OBTAIN.

INSPECTIONS, RECORD DRAWINGS, AND MAINTENANCE

40. UTILITIES SHALL BE VISUALLY INSPECTED BY THE TOWN'S INSPECTOR PRIOR TO BACKFILLING TRENCHES.
41. PAVEMENT WORK WITHIN THE RIGHT-OF-WAY REQUIRES INSPECTION OF SUBGRADE PRIOR TO PLACEMENT OF BASE STONE, BASE STONE PRIOR TO PLACEMENT OF PAVEMENT, AND PAVEMENT PRIOR TO SUBGRADE APPROVAL BY VDOT. CBR RESULTS MUST BE PROVIDED WITH THE APPROPRIATE PAVEMENT DESIGN TO THE VDOT ENGINEER PER VDOT PAVEMENT DESIGN GUIDELINES. CBR TESTING TO BE CONDUCTED ONE PER 400 FEET OF PROPOSED ROADWAY OR A MINIMUM OF THREE PER SUBDIVISION.
42. THE TOWN OF BLACKSBURG REQUIRES SURVEYED AND SEALED (BY A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR, OR LANDSCAPE ARCHITECT) RECORD DRAWINGS FOR ALL TOWN UTILITIES. THE DRAWINGS MUST BE APPROVED BY THE TOWN PRIOR TO ACCEPTANCE OF TOWN UTILITIES AND RELEASE OF THE PUBLIC INFRASTRUCTURE BONDS.
43. STORMWATER FACILITY AS-BUILT PLANS ARE REQUIRED. THE AS-BUILT MUST SHOW DESIGN SPECIFICATIONS FOR ALL STORMWATER MANAGEMENT FACILITIES AND BE CERTIFIED BY A PROFESSIONAL ENGINEER. CERTIFICATION SHALL INCLUDE INSPECTION OF ALL ASPECTS OF FACILITY CONSTRUCTION, INCLUDING SURFACE AS-BUILT SURVEYS, AS WELL AS GEOTECHNICAL INSPECTIONS DURING SUBSURFACE OR BACKFILLING AND RISER INSTALLATION. PERFORMANCE SECURITIES FOR STORMWATER MANAGEMENT WILL NOT BE RELEASED UNTIL ACCEPTANCE OF THE AS-BUILT AND FINAL INSPECTION BY THE COUNTY.
44. INSPECTION AND MAINTENANCE OF STORMWATER MANAGEMENT FACILITIES ARE THE RESPONSIBILITY OF THE OWNER AND IN ACCORDANCE WITH THE DECLARATION OF COVENANTS WITH MONTGOMERY COUNTY.
45. AN AGREEMENT SHALL BE PROVIDED BY THE PROPERTY OWNER FOR THE PARKING LOT AND STORMWATER MANAGEMENT FACILITIES WHICH CLEARLY INDICATES THE PARTY RESPONSIBLE FOR MAINTAINING THESE IMPROVEMENTS.
46. DUMPSTERS SHALL BE SCREENED FROM VIEW OF ADJACENT STREETS OR ADJACENT LAND IN ACCORDANCE WITH COUNTY CODE SECTION 10-28 (7)(a).
47. RIGHTS-OF-WAY, LOT LINES, AND EASEMENTS ARE DEDICATED ON PLATS SEPARATE FROM THESE PLANS.
48. WORK WITHIN THE VDOT RIGHT-OF-WAY IS SUBJECT TO VDOT LAND USE PERMIT #_____.

DEED OF EASEMENT REFERENCES	
EASEMENT	INSTRUMENT NUMBER
PUBLIC UTILITIES	
CROSS-ACCESS	
MULTI-USE TRAIL	
SIDEWALK	
STORM DRAINAGE (PVT.)	
STORMWATER MANAGEMENT (PVT.)	



BALZER & ASSOCIATES
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Christiansburg, VA 24073
540.381.4290



APOGEE TOWNHOMES

CLAY STREET AND CHERRY LANE

COVER

DRAWN BY	TKP
DESIGNED BY	TKP
CHECKED BY	SMS
DATE	01-18-2021
SCALE	AS NOTED
REVISIONS	
1. 5/5/21	
2. 11/21/22	
3. 2/20/23	

C1

PROJECT NO. 24200014.00

STANDARD DEMOLITION NOTES

- DEMOLITION SHALL INCLUDE, UNLESS OTHERWISE NOTED ON PLAN, THE REMOVAL OF EXISTING OBJECTS AND IMPROVEMENTS WITHIN THE LIMITS OF DISTURBANCE, WHETHER INDICATED ON THE DRAWINGS OR NOT, THAT WOULD, IN THE OPINION OF THE CONTRACTOR, PREVENT OR INTERFERE WITH THE PROGRESS OR COMPLETION OF THE PROPOSED WORK.
- PERMITS, FEES AND LICENSES SHALL BE SECURED AND PAID FOR BY THE CONTRACTOR, INCLUDING DISPOSAL CHARGES AS REQUIRED.
- WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE GOVERNING AUTHORITIES IN DEMOLITION OF EXISTING PAVEMENT, CURBS AND GUTTERS, DRAINAGE STRUCTURES AND UTILITIES AS MAY BE REQUIRED.
- ALL EXISTING UTILITY SERVICE LINES SHALL BE DISCONNECTED, PLUGGED, OR CAPPED PER TOWN OR UTILITY STANDARDS PRIOR TO REMOVAL.
- CONTRACTOR SHALL SAW-CUT ALL JOINTS WHERE EXISTING CURBING, PAVEMENT AND SIDEWALK IS TO BE DEMOLISHED AND NEW CONSTRUCTION JOINS THE EXISTING.
- CONTRACTOR SHALL COMPLETELY FILL BELOW GRADE AREAS AND VOIDS FROM DEMOLITION OR REMOVAL OF STRUCTURES (UNDERGROUND FUEL STORAGE TANK, BASEMENTS, WELLS, ETC.) USING APPROVED SELECT FILL MATERIAL.
- ALL EXISTING CURBING, CONCRETE SIDEWALK, ENTRANCES, BUILDING FOUNDATIONS AND TREES AND BRUSH THAT ARE DEMOLISHED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR. BUILDING DEBRIS, ETC. SHALL NOT BE USED AS FILL MATERIAL ON THE SITE.
- CONTRACTOR SHALL INSTALL SAFETY FENCE AROUND PERIMETER OF CONSTRUCTION AREA PRIOR TO BEGINNING WORK.
- CONTRACTOR SHALL ENSURE SUFFICIENT AREA IS RESERVED FOR BYPASSING VEHICULAR TRAFFIC WHEN WORKING WITHIN SHARED ACCESS DRIVES OR TOWN RIGHT-OF-WAY. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL MEASURES NECESSARY TO DIRECT TRAFFIC SAFELY AND EFFICIENTLY AROUND THE CONSTRUCTION AREA. ROADLANE CLOSURE & SAFETY PLANS ARE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE TO THE TOWN IF REQUIRED OR REQUESTED AT ANY POINT OF DEMOLITION OR CONSTRUCTION.
- WHERE INDICATED ON THE DRAWINGS, PAVEMENT MARKINGS SHALL BE REMOVED BY GRINDING, BLASTING, OR A COMBINATION THEREOF, OR OTHER METHODS, WITH THE APPROVAL OF THE ENGINEER IN ACCORDANCE WITH VDOT ROAD AND BRIDGE SPECIFICATION SECTION 512.03 (j). CARE SHALL BE EXERCISED DURING MARKING REMOVAL NOT TO SCAR, DISCOLOR OR OTHERWISE DAMAGE THE PAVEMENT SURFACE. OVERPAINTING OR OTHER METHODS OF COVERING MARKINGS IN LIEU OF REMOVAL SHALL NOT BE PERMITTED.

- CONTRACTOR SHALL PROVIDE THE FOLLOWINGS PROTECTIONS AT THE JOB SITE:
 - MAKE ARRANGEMENTS, BEFORE INITIATING DEMOLITION, FOR RELOCATING, DISCONNECTION, REROUTING, ABANDONING, OR SIMILAR ACTION AS MAY BE REQUIRED RELATIVE TO UTILITIES AND OTHER UNDERGROUND PIPING, TO PERMIT WORK TO PROCEED WITHOUT DELAY. ARRANGEMENTS SHALL BE MADE IN ACCORDANCE WITH REGULATIONS OF AUTHORITIES OF UTILITIES MENTIONED, SUCH AS OVERHEAD AND UNDERGROUND POWER AND TELEPHONE LINES AND EQUIPMENT, GAS PIPING, STORM SEWERS, SANITARY SEWERS, OR WATER PIPING. CONTRACTOR SHALL NOT USE WATER WHEN IT MAY CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS, SUCH AS ICE, FLOODING AND/ OR POLLUTION.
 - ENSURE SAFE PASSAGE OF PERSONS AROUND ALL AREAS OF DEMOLITION.
 - CONDUCT OPERATIONS TO PREVENT DAMAGE TO ADJACENT BUILDINGS, STRUCTURES, OTHER FACILITIES, OR INJURY TO PERSONS.
 - PROMPTLY REPAIR DAMAGES CAUSED TO ADJACENT FACILITIES BY DEMOLITION OPERATIONS AT NO COST TO THE OWNER.
 - MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN, KEEP IN SERVICE, AND PROTECT AGAINST DAMAGE DURING DEMOLITION OPERATIONS. PREVENT INTERRUPTION OF EXISTING UTILITIES SERVING OCCUPIED OR USED FACILITIES, EXCEPT WHEN AUTHORIZED IN WRITING BY AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES AS ACCEPTABLE TO GOVERNING AUTHORITIES.
 - USE WATER SPRINKLING AND OTHER SUITABLE METHODS TO LIMIT DUST AND DIRT RISING AND SCATTERING IN AIR TO LOWEST PRACTICAL LEVEL.
 - COMPLY WITH GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
- OWNER OR CONTRACTOR IS RESPONSIBLE FOR DETERMINING IF ANY STRUCTURES PROPOSED FOR REMOVAL CONTAIN ANY ENVIRONMENTAL HAZARDS SUCH AS ASBESTOS. ANY ABATEMENT REQUIRED SHALL BE THE RESPONSIBILITY OF THE OWNER.

SURVEY DATA

HORIZONTAL AND VERTICAL CONTROL SURVEYS WERE PERFORMED ON MONTH DAY, YEAR. ADJACENT PROPERTIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND NOT NECESSARILY THE RESULT OF A FIELD SURVEY.

HORIZONTAL DATUM: NAD83 (VIRGINIA SOUTH ZONE)
VERTICAL DATUM: NAVD88

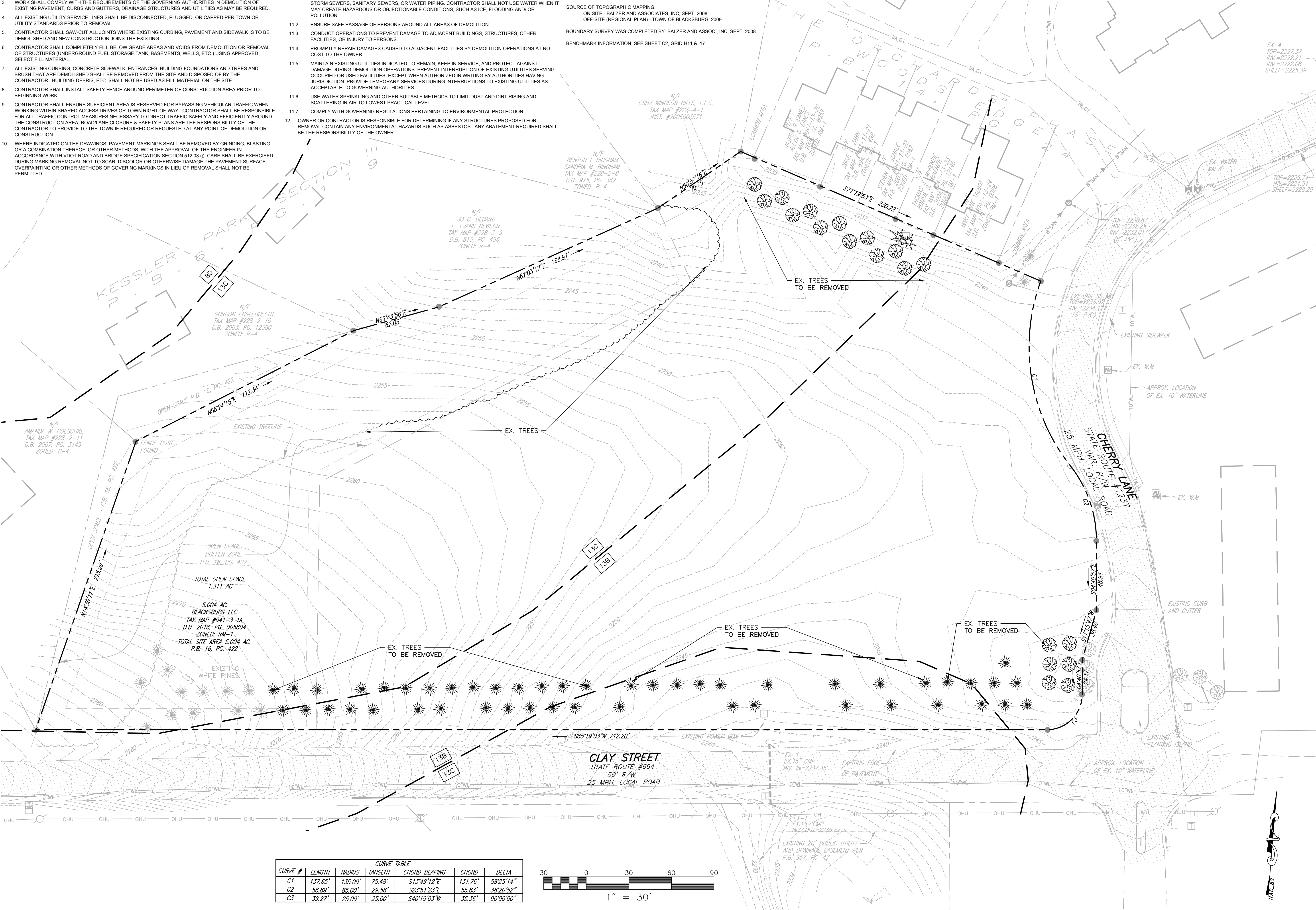
SOURCE OF TOPOGRAPHIC MAPPING:
ON SITE - BALZER AND ASSOCIATES, INC, SEPT. 2008
OFF-SITE (REGIONAL PLAN) - TOWN OF BLACKSBURG, 2009

BOUNDARY SURVEY WAS COMPLETED BY: BALZER AND ASSOC., INC, SEPT. 2008

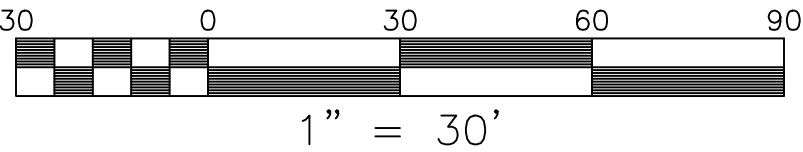
BENCHMARK INFORMATION: SEE SHEET C2, GRID H11 & I17

SOILS LEGEND

- 8D - CANEVILLE-OPEQUON-ROCK OUTCROP, 7 TO 25 PERCENT SLOPES (HYDROLOGIC SOIL GROUP B)
13B - FREDERICK & VERTREES GRAVELLY SILT LOAMS, 2 TO 7 PERCENT SLOPES (HYDROLOGIC SOIL GROUP B)
13C - FREDERICK & VERTREES GRAVELLY SILT LOAMS, 7 TO 15 PERCENT SLOPES (HYDROLOGIC SOIL GROUP B)



CURVE TABLE					
CURVE #	LENGTH	RADIUS	TANGENT	CHORD BEARING	CHORD
C1	137.65'	135.00'	75.48'	S13°49'12"E	131.76'
C2	56.89'	85.00'	29.56'	S23°51'23"E	55.83'
C3	39.27'	25.00'	25.00'	S40°19'03"W	35.36'



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APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
EXISTING CONDITIONS & DEMOLITION PLAN

DRAWN BY: TKP
DESIGNED BY: TKP
CHECKED BY: SMS
DATE: 01-18-2021
SCALE: 1" = 30'
REVISIONS:
1. 5/5/21
2. 11/21/22
3. 2/20/23

C2
PROJECT NO. 24200014.00

STANDARD UTILITIES NOTES

- G.C. SHALL COORDINATE THE EXACT SANITARY SEWER AND DOMESTIC WATER LATERAL BUILDING TIE IN LOCATIONS WITH THE ARCHITECTURAL PLANS.
- THE G.C. IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL CONDUIT ASSOCIATED WITH REQUIRED UTILITIES FOR THE PROPOSED BUILDING AND ANY NECESSARY UTILITIES ON-SITE SUCH AS LIGHTING, ELECTRICAL, ETC.
- THE G.C. SHALL COORDINATE TEMPORARY POWER FOR THE PROPOSED BUILDINGS.
- BACKFLOW PREVENTION ASSEMBLY FOR DOMESTIC WATER LINE SHALL MEET A.S.S.E. STANDARD 1024.
- PROPOSED BUILDINGS WILL NOT HAVE SPRINKLER SERVICE. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL DETAILS.
- ALL UTILITY CROSSINGS SHALL HAVE A MINIMUM OF 18" OF SEPARATION. WHERE 18" OF SEPARATION CANNOT BE ACHIEVED, UTILITIES SHALL BE ENCASED IN CONCRETE PER TOWN OF BLACKSBURG STANDARDS. WATER LINES PASSING UNDER SEWERS SHALL BE PROTECTED BY PROVIDING ADEQUATE STRUCTURAL SUPPORT FOR SEWERS TO PREVENT EXCESSIVE DEFLECTION OF THE JOINTS, AND THE LENGTH OF BOTH THE WATER LINE AND SEWER LINE SHALL BE CENTERED AT THE POINT OF CROSSING SO THAT JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER. REFER TO SECTION 1.54(1)(b)(2) OF TOWN OF BLACKSBURG WATER STANDARDS.

WATERLINE

- MINIMUM DEPTH OF COVER ON ALL WATERLINES SHALL BE 4'0".
- ALL 6"-16" WATER MAINS SHALL BE CLASS 50 DUCTILE IRON, WITH PUSH ON JOINTS. NEW 4" WATER MAINS SHALL BE CLASS 51 DUCTILE IRON. SERVICE LINES SHALL BE TYPE K COPPER OR ALTERNATIVE APPROVED BY THE TOWN OF BLACKSBURG.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF SERVICE LINES. ALL METERS AND METER BOXES SHALL BE SET BY TOWN PERSONNEL AT OWNER'S EXPENSE.
- CONNECTION TO EXISTING WATERLINE SHALL BE DONE BY TOWN OF BLACKSBURG AND AT OWNER'S EXPENSE.
- CONTRACTOR SHALL COORDINATE INSTALLATIONS AND REQUIRED LOCATIONS.
- THE TOWN SHALL BE NOTIFIED PRIOR TO BEGINNING WORK. ONLY TOWN PERSONNEL SHALL OPERATE EXISTING VALVES.
- PRESSURE TESTING SHALL BE PERFORMED IN ACCORDANCE WITH AWWA C600 BY CONTRACTOR. TOWN PERSONNEL WILL WITNESS AND SHALL BE PROVIDED WITH TEST RESULTS. TOWN SHALL PROVIDE TEST RESULT FORMS. FLUSHING AND DISINFECTION SHALL BE PERFORMED BY CONTRACTOR IN ACCORDANCE WITH LOCAL HEALTH DEPARTMENT REGULATIONS.
- EACH JOINT OF PIPE SHALL BE DEFLECTED TO MAINTAIN PROPER ALIGNMENT. DEFLECTION MUST STAY WITHIN MANUFACTURER'S RECOMMENDATIONS, OTHERWISE AN ELBOW AND THRUST BLOCK SHALL BE USED.

SANITARY SEWER

- MINIMUM DEPTH OF COVER ON ALL GRAVITY SEWER MAINS SHALL BE 3'0".
- ALL GRAVITY SEWER MAINS SHALL BE 8" SDR 35 PVC, OR EQUAL, UNLESS OTHERWISE NOTED.
- ALL GRAVITY SEWER MAINS SHALL BE WITHIN TOWN RIGHTS OF WAY OR EASEMENTS.
- CONTRACTOR SHALL CORE EXISTING MANHOLES, PROVIDE A WATERTIGHT FLEXIBLE BOOT, AND RESHAPE EXISTING MANHOLE INVERTS.
- SANITARY WASTE LINES FROM BUILDING SHALL BE A MINIMUM 4" PVC (MIN. SLOPE 2.08%) OR 6" PVC (MIN. SLOPE 1.04%). SEE ARCHITECTURALS. SANITARY SEWER LATERALS WITHIN PUBLIC EASEMENTS AND ROWS SHALL BE 6" PVC INSTALLED AT A MINIMUM SLOPE OF 2.08%.
- ALL LOWEST FLOOR ELEVATIONS WILL BE SERVED BY GRAVITY SEWER. SEE MINIMUM SEWERABLE ELEVATIONS BELOW.
- SANITARY SEWER LATERALS TO INCLUDE CLEANOUTS ON THE PUBLIC UTILITY EASEMENT LINE. SANITARY LATERALS THAT DIRECTLY TIE INTO A MANHOLE DO NOT REQUIRE CLEANOUTS.

STANDARD SITE PLAN NOTES

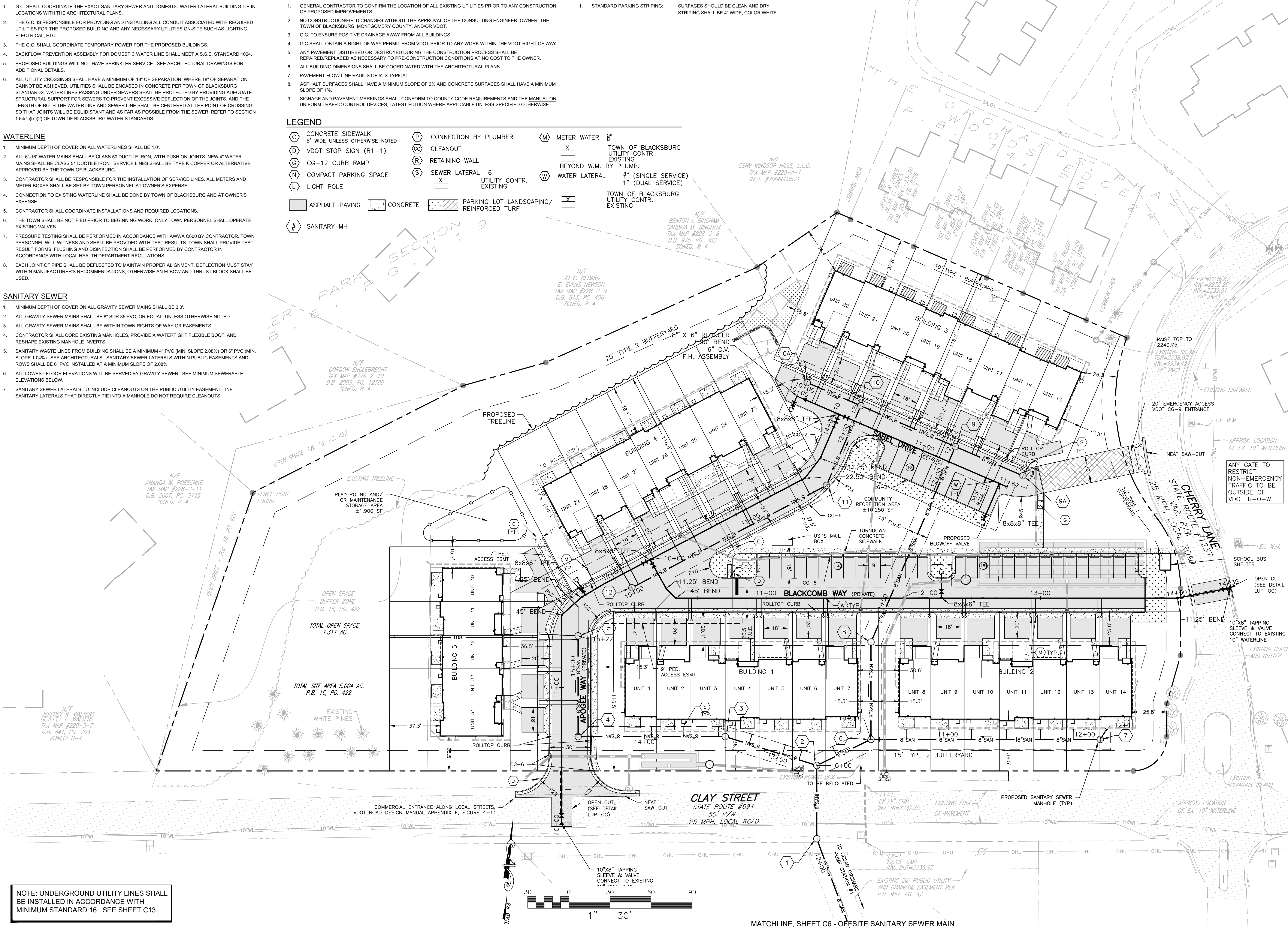
- GENERAL CONTRACTOR TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION OF PROPOSED IMPROVEMENTS.
- NO CONSTRUCTION/FIELD CHANGES WITHOUT THE APPROVAL OF THE CONSULTING ENGINEER, OWNER, THE TOWN OF BLACKSBURG, MONTGOMERY COUNTY, AND/OR VDOT.
- G.C. TO ENSURE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS.
- G.C. SHALL OBTAIN A RIGHT OF WAY PERMIT FROM VDOT PRIOR TO ANY WORK WITHIN THE VDOT RIGHT OF WAY.
- ANY PAVEMENT DISTURBED OR DESTROYED DURING THE CONSTRUCTION PROCESS SHALL BE REPAIRED/REPLACED AS NECESSARY TO PRE-CONSTRUCTION CONDITIONS AT NO COST TO THE OWNER.
- ALL BUILDING DIMENSIONS SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
- PAVEMENT FLOW LINE RADIUS OF 5' IS TYPICAL.
- ASPHALT SURFACES SHALL HAVE A MINIMUM SLOPE OF 2% AND CONCRETE SURFACES SHALL HAVE A MINIMUM SLOPE OF 1%.
- SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO COUNTY CODE REQUIREMENTS AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION WHERE APPLICABLE UNLESS SPECIFIED OTHERWISE.

LEGEND

CONCRETE SIDEWALK 5' WIDE UNLESS OTHERWISE NOTED	CONNECTION BY PLUMBER	METER WATER 8"
VDOT STOP SIGN (R1-1)	CLEANOUT	TOWN OF BLACKSBURG UTILITY CONTR. EXISTING
CG-12 CURB RAMP	RETAINING WALL	BEYOND W.M. BY PLUMB.
COMPACT PARKING SPACE	SEWER LATERAL 6"	WATER LATERAL 3" (SINGLE SERVICE) 1" (DUAL SERVICE)
LIGHT POLE	UTILITY CONTR. EXISTING	TOWN OF BLACKSBURG UTILITY CONTR. EXISTING
ASPHALT PAVING	CONCRETE	PARKING LOT LANDSCAPING/ REINFORCED TURF
SANITARY MH		

PAVEMENT MARKING NOTES:

- STANDARD PARKING STRIPING: SURFACES SHOULD BE CLEAN AND DRY
STRIPING SHALL BE 4" WIDE, COLOR WHITE



NOTE: UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH MINIMUM STANDARD 16. SEE SHEET C13.



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APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
LAYOUT & UTILITY PLAN

DRAWN BY: TKP
DESIGNED BY: TKP
CHECKED BY: SMS
DATE: 01-18-2021
SCALE: 1" = 30'
REVISIONS:
1. 5/5/21
2. 11/21/22
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C3
PROJECT NO. 24200014.00

STANDARD GRADING NOTES

- CONTRACTOR TO ENSURE POSITIVE DRAINAGE AWAY FROM ALL STRUCTURES.
- REFER TO BUILDING PLANS FOR SUBGRADE AND UTILITY TRENCHES WITHIN 5' OF THE BUILDING ENVELOPE.
- REMOVE TREES, SHRUBS, GRASS, AND OTHER VEGETATION. IMPROVEMENTS OR OBSTRUCTIONS AS REQUIRED TO PERMIT INSTALLATION OF NEW CONSTRUCTION. REMOVE TREES AND OTHER VEGETATION, INCLUDING STUMPS AND ROOTS, COMPLETELY IN AREAS REQUIRED FOR SUBSEQUENT SEEDING. CUT OFF TREES AND STUMPS IN AREAS TO RECEIVE FILL MORE THAN THREE FEET IN DEPTH TO WITHIN EIGHT INCHES OF THE ORIGINAL GROUND SURFACE.
- BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS WORK AND OPERATE WARNING LIGHTS AS RECOMMENDED BY AUTHORITIES HAVING JURISDICTION.
- CUT SURFACE UNDER PAVEMENTS TO COMPLY WITH CROSS SECTIONS, ELEVATIONS, AND GRADES AS INDICATED.
- EXCAVATE TRENCHES TO UNIFORM WIDTH CONFORMING TO VDOT STANDARD PB-1 FOR STORM DRAINAGE PIPING.
- PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER FROM FLOWING INTO EXCAVATIONS AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. DO NOT ALLOW WATER TO ACCUMULATE IN EXCAVATIONS. REMOVE WATER TO PREVENT SOFTENING OF FOUNDATION BOTTOMS, UNDERCUTTING FOOTINGS, AND SOIL CHANGES DETRIMENTAL TO STABILITY OF SUBGRADES AND FOUNDATIONS. CONVEY WATER WHEN AT ATMOSPHERIC TEMPERATURE IS LESS THAN 35°F (1°C).
- BACKFILLING SHALL BE A SUITABLE MATERIAL THAT IS CAPABLE ACHIEVING THE REQUIRED COMPACTIONS INDICATED ON THE DETAILS PAGE.
- THE MINIMUM REQUIRED DENSITY FOR ALL COMPACTION, UNLESS NOTED OTHERWISE, SHALL BE 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN ±2% OF THE OPTIMUM MOISTURE CONTENT UNLESS DIRECTED OTHERWISE BY THE GEOTECHNICAL ENGINEER. LAWN AND UNPAVED AREAS OUTSIDE OF STRUCTURAL FILL MAY BE COMPACTED TO 90% OF THE STANDARD PROCTOR DENSITY WHEN DIRECTED BY THE GEOTECHNICAL ENGINEER.
- FINISH LAWN AREAS TO WITHIN ONE INCH ABOVE OR BELOW REQUIRED SUBGRADE ELEVATIONS. SHAPE SURFACE UNDER WALKS AND PAVEMENTS TO LINE, GRADE, AND CROSS SECTION, WITH NOT MORE THAN 1/2" ABOVE OR BELOW REQUIRED SUBGRADE ELEVATION.
- PROTECT GRADED AREAS FROM TRAFFIC AND EROSION. REPAIR AREAS WHICH HAVE SETTLED, ERODED, OR BECOME DAMAGED DUE TO CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO OWNER.
- SPREAD TOPSOIL TO A UNIFORM COMPACTED DEPTH OF 2" ON 3:1 OR STEEPER SLOPES AND 4" OVER ALL OTHER DISTURBED AREAS NOT RECEIVING WALKS, PAVEMENT, WALLS OR BUILDING, INCLUDING TRENCHES (SEE TABLE 3.30(A)). CARE SHALL BE TAKEN TO ENSURE PROPER BONDING AND NOT TO APPLY TOPSOIL TO SUBSOIL IF THE TWO SOILS HAVE CONTRASTING TEXTURES (CLAYEY VS. SANDY). TOPSOIL SHALL NOT BE PLACED WHILE IN A FROZEN OR MUDDY CONDITION. WHEN TOPSOIL OR SUBGRADE IS EXCESSIVELY WET, OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING OR PROPOSED SODDING OR SEEDING, IMMEDIATELY FOLLOWING PLACEMENT OF TOPSOIL, DISK THE ENTIRE TOPSOILED AREA AND RAKE FREE OF STONES AND DEBRIS OVER 1/2" IN ANY DIMENSION. PROVIDE A FINISHED SURFACE FREE OF DEPRESSIONS OR HIGH SPOTS. SEED IMMEDIATELY.
- YARD DRAINS SHALL BE INSTALLED WHEN POSITIVE DRAINAGE (5.0% MINIMUM SLOPE) AWAY FROM BUILDINGS CAN NOT BE ACHIEVED OR IS IN DOUBT. DRAINS TO OUTFALL INTO PROPOSED STORM SEWER. CONTRACTOR MAY ADD ADDITIONAL DRAINS IF SITE CONDITIONS ALLOW/REQUIRE AS NEEDED.
- ALL INDIVIDUAL ROOF DRAIN PIPES SHALL BE 4" HDPE AND ALL ROOF DRAIN CONNECTION PIPES SHALL BE 8" HDPE. ALL DRAIN PIPES SHALL HAVE A MINIMUM SLOPE OF 1% AND DISCHARGE INTO STORM SEWER.
- YARD DRAINS SHALL BE 12" NYLOPLAST INLINE DRAINS WITH STANDARD GRATE OR EQUIVALENT.
- MINIMUM COVER OVER COLLECTION PIPES SHALL CONFORM TO MANUFACTURER'S STANDARD.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF ANY DISCREPANCIES OR EXISTING UTILITIES ARE LOCATED DURING THE GRADING PROCESS FOR THE SITE.
- ALL STORM INLET/MANHOLE BOTTOMS SHALL HAVE INVERT SHAPING (IS-1) PER VDOT STANDARDS.
- HANDICAP PARKING AREA SHALL HAVE A MAXIMUM SLOPE OF 1:48 IN ANY DIRECTION.
- HANDICAP ACCESS ROUTE SHALL HAVE A MAXIMUM RUNNING SLOPE OF 1:20 AND A MAXIMUM CROSS SLOPE OF 1:48 IN ACCORDANCE WITH ADA GUIDELINES. RAMPS SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN, LATEST EDITION.

NOTE: UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH MINIMUM STANDARD 16. SEE SHEET C13.

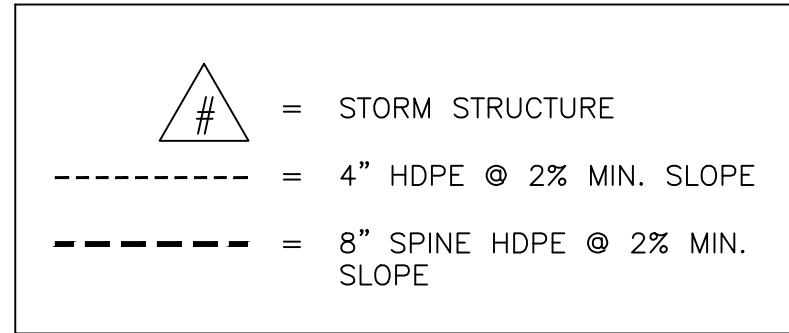
STRUCTURE SCHEDULE

- ES-1 WITH OUTLET PROTECTION
INV.=2238.00
SEE DETAIL SHEET C16
- 88.97 LF OF 15" TYPE 'S' HDPE @ 0.30%
INV. UPPER=2238.27 INV. LOWER=2238.00
- 24" NYLOPLAST DRAIN BASIN WITH SOLID COVER
TOP=2247.46 H=9.69' (INCL. 6" SUMP)
15" HDPE IN=2238.27
15" HDPE OUT=2238.27
- 48.05 LF OF 15" TYPE 'S' HDPE @ 0.42%
INV. UPPER=2238.47 INV. LOWER=2238.27
- 24" NYLOPLAST DRAIN BASIN WITH H=20 RATED SOLID COVER
TOP=2246.59 H=8.62' (INCL. 6" SUMP)
15" HDPE IN=2238.47
15" HDPE OUT=2238.47
- 40.27 LF OF 15" TYPE 'S' HDPE @ 0.47%
INV. UPPER=2238.70 INV. LOWER=2238.47
- MH-2 W/ 72" DIA. BASE, FLAT SLAB TOP & ST-1 OUTLET FLOW CONTROL STRUCTURE
SEE DETAIL SHEET C17-C18
TOP=2246.05 H=7.35'
36" PIPE IN=2239.40
15" HDPE OUT=2238.70
- 48" FULLY PERFORATED DETENTION PIPE (DET-1)
STORAGE VOLUME=12,874 CF
SEE DETAIL SHEETS C17-C18
- 37.25 LF OF 15" TYPE 'S' HDPE @ 1.15%
INV. UPPER=2241.40 INV. LOWER=2240.97
- 15" NYLOPLAST DRAIN BASIN WITH 2' X 3' ROLL CURB INLET
TOP (GRATE)=2245.84 H=4.94' (INCL. 6" SUMP)
12" HDPE IN=2241.40
15" HDPE OUT=2241.40
- 43.91 LF OF 12" TYPE 'S' HDPE @ 1.00%
INV. UPPER=2241.84 INV. LOWER=2241.40
- 24" NYLOPLAST DRAIN BASIN WITH SOLID COVER
TOP=2247.45 H=6.11' (INCL. 6" SUMP)
8" HDPE IN=2243.59
12" HDPE IN=2242.88
12" HDPE IN=2241.84
15" HDPE OUT=2241.84

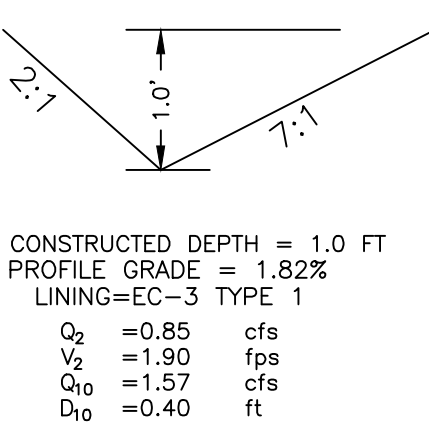
- 94.46 LF OF 12" TYPE 'S' HDPE @ 3.46%
INV. UPPER=2246.15 INV. LOWER=2242.88
- 15" NYLOPLAST DRAIN BASIN WITH SOLID COVER
TOP (GRATE)=2247.45 H=5.27' (INCL. 6" SUMP)
8" HDPE IN=2247.62
12" HDPE OUT=2246.15
- 46.82 LF OF 8" TYPE 'S' HDPE @ 3.59%
INV. UPPER=2249.30 INV. LOWER=2247.62
- 15" NYLOPLAST DRAIN BASIN WITH 2' X 3' ROLL CURB INLET
TOP (GRATE)=2252.13 H=3.33' (INCL. 6" SUMP)
8" HDPE OUT=2249.30
- 43.74 LF OF 8" TYPE 'S' HDPE @ 2.88%
INV. UPPER=2244.85 INV. LOWER=2243.59
- 15" NYLOPLAST DRAIN BASIN WITH 2' X 3' ROLL CURB INLET
TOP (GRATE)=2248.10 H=3.75' (INCL. 6" SUMP)
8" HDPE OUT=2244.85
- 81.33 LF OF 12" TYPE 'S' HDPE @ 1.00%
INV. UPPER=2242.65 INV. LOWER=2241.84
- 15" NYLOPLAST DRAIN BASIN WITH 2' X 2' CURB INLET
TOP (GRATE)=2246.79 H=4.64' (INCL. 6" SUMP)
12" HDPE OUT=2242.65
- 19.69 LF OF 12" TYPE 'S' HDPE @ 3.66%
INV. UPPER=2242.50 INV. LOWER=2241.78
- 15" NYLOPLAST DRAIN BASIN WITH 2' X 3' ROLL CURB INLET
TOP (GRATE)=2245.78 H=3.78' (INCL. 6" SUMP)
12" HDPE OUT=2242.50
- 30" NYLOPLAST INLINE DRAIN WITH 2' X 3' ROLL CURB INLET
TOP (GRATE)=2245.10 H=2.20'
CONNECT DIRECTLY TO UNDERGROUND DETENTION SYSTEM "DET-1"

- 53.33 LF OF 12" TYPE 'S' HDPE @ 1.00%
INV. UPPER=2240.95 INV. LOWER=2240.42
- 15" NYLOPLAST DRAIN BASIN WITH 2' X 3' ROLL CURB INLET
TOP (GRATE)=2245.05 H=4.60' (INCL. 6" SUMP)
12" HDPE OUT=2240.95
- ES-1 WITH OUTLET PROTECTION
INV.=2240.00
SEE DETAIL SHEET C16
- 58.49 LF OF 15" TYPE 'S' HDPE @ 2.56%
INV. UPPER=2241.50 INV. LOWER=2240.00
- MH-2 W/ 60" DIA. BASE, FLAT SLAB TOP & ST-1 OUTLET FLOW CONTROL STRUCTURE
SEE DETAIL SHEET C19
TOP=2249.01 H=6.81'
36" PIPE IN=2242.20
15" HDPE OUT=2241.50
- 48" FULLY PERFORATED DETENTION PIPE (DET-2)
STORAGE VOLUME=1,793 CF
SEE DETAIL SHEET C19
- 8.90 LF OF 15" TYPE 'S' HDPE @ 2.25%
INV. UPPER=2244.50 INV. LOWER=2240.30
- 30" NYLOPLAST DRAIN BASIN WITH SOLID COVER
TOP=2251.24 H=7.24' (INCL. 6" SUMP)
12" INV IN=2244.84
15" INV IN=2244.50
15" HDPE OUT=2244.50

- 57.81 LF OF 15" TYPE 'S' HDPE @ 5.19%
INV. UPPER=2247.50 INV. LOWER=2244.50
- 15" NYLOPLAST DRAIN BASIN WITH 2' X 2' CURB INLET
TOP (GRATE)=2255.10 H=8.10' (INCL. 6" SUMP)
15" INV IN=2249.20
15" HDPE OUT=2247.50
- 57.81 LF OF 15" TYPE 'S' HDPE @ 5.19%
INV. UPPER=2247.50 INV. LOWER=2244.50
- 15" NYLOPLAST DRAIN BASIN WITH STANDARD GRATE
TOP=2254.74 H=4.86' (INCL. 6" SUMP)
15" HDPE OUT=2250.38
- 23.54 LF OF 12" TYPE 'S' HDPE @ 2.00%
INV. UPPER=2245.31 INV. LOWER=2244.84
- DI-3B W/ ST-1
TOP=2249.41 H=4.1' L=6'
12" HDPE OUT=2245.31



D-1
DRAINAGE AREA=0.44 AC.



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APOGEE TOWNHOMES CLAY STREET AND CHERRY LANE GRADING PLAN

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DESIGNED BY TKP
CHECKED BY SMS
DATE 01-18-2021
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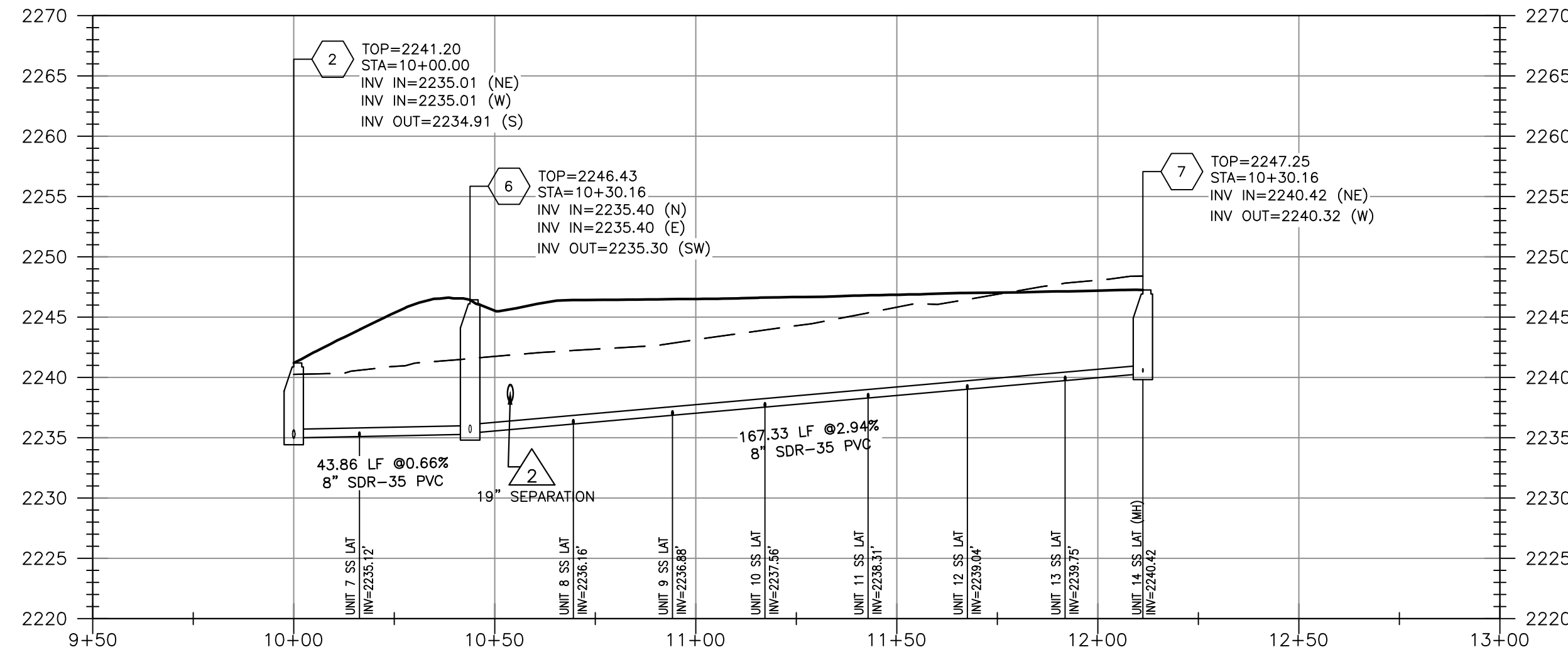
APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
SANITARY SEWER PROFILES

MOUNT TABOR MAGISTERIAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

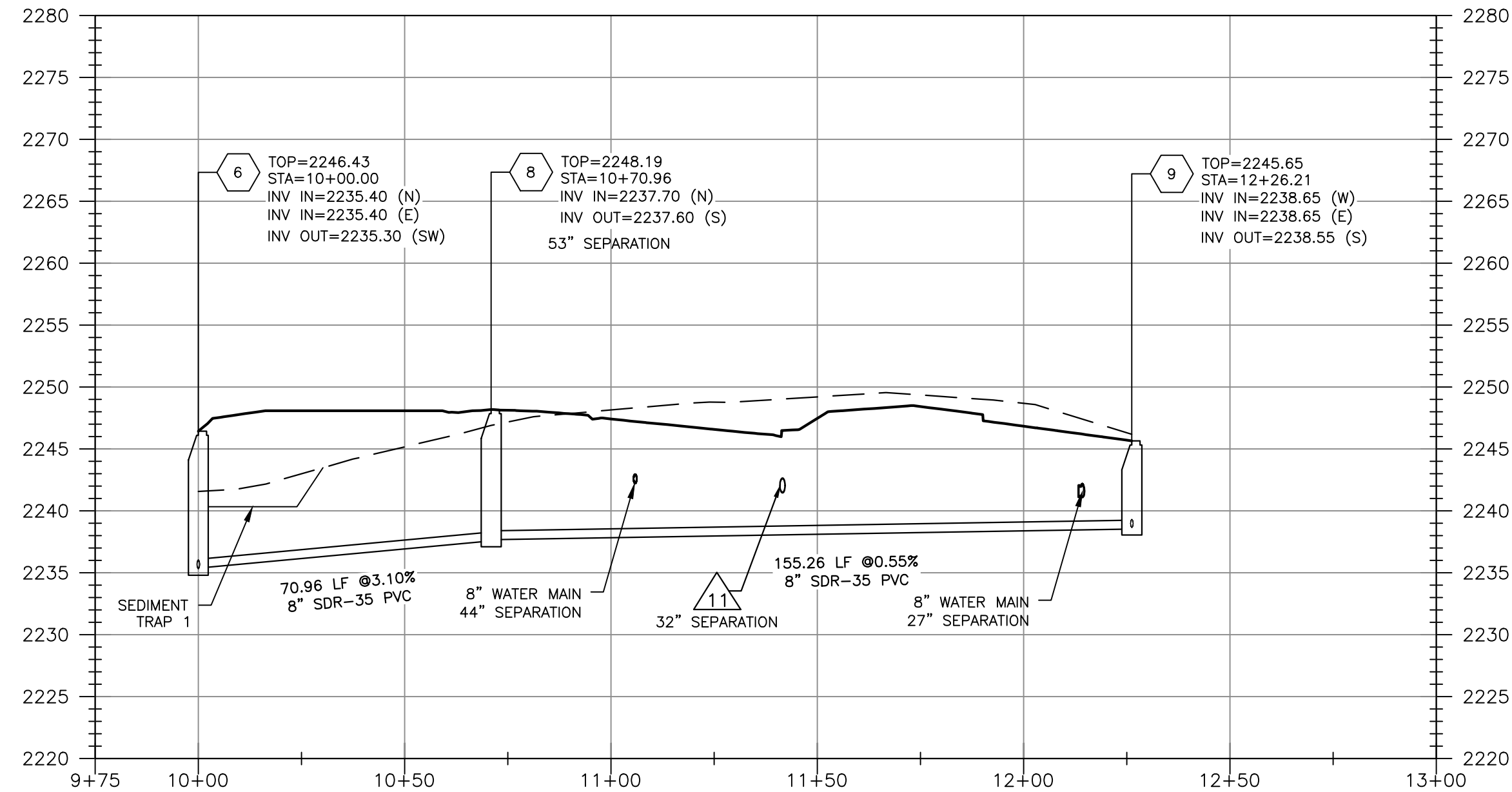
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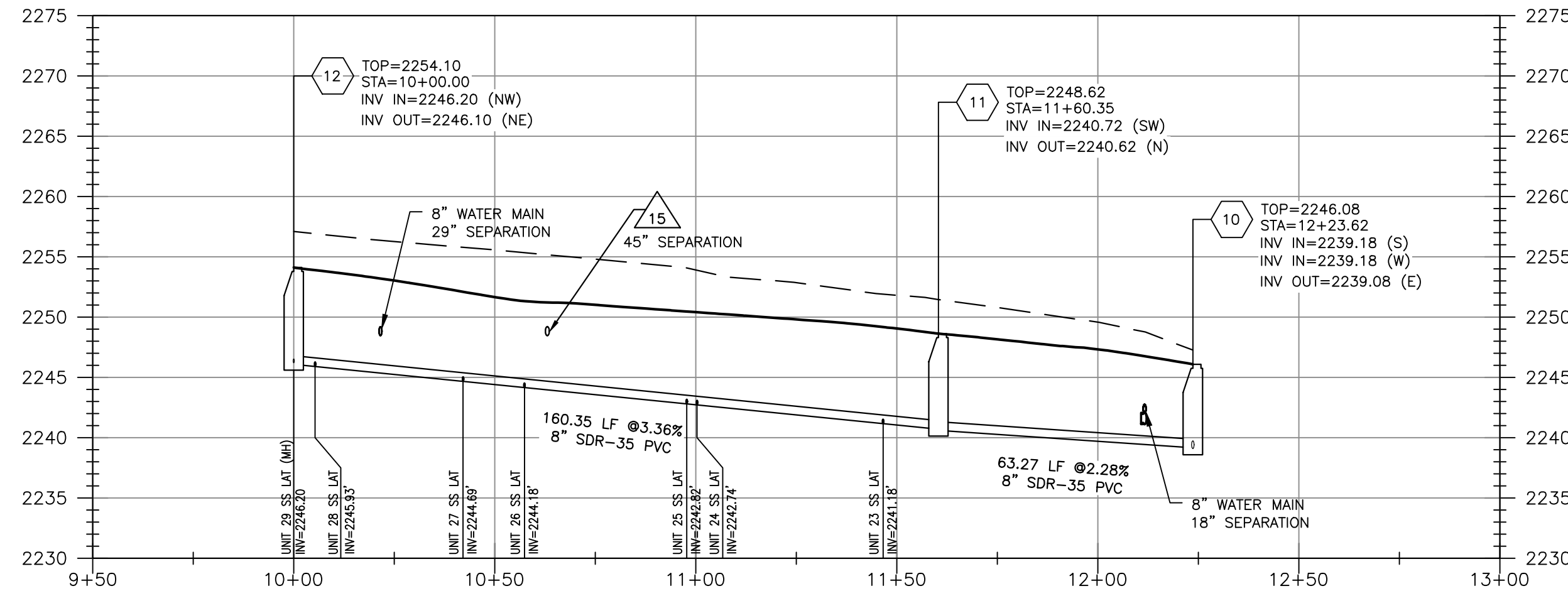
SANITARY SEWER MAIN (STR 2 - STR 7) PROFILE



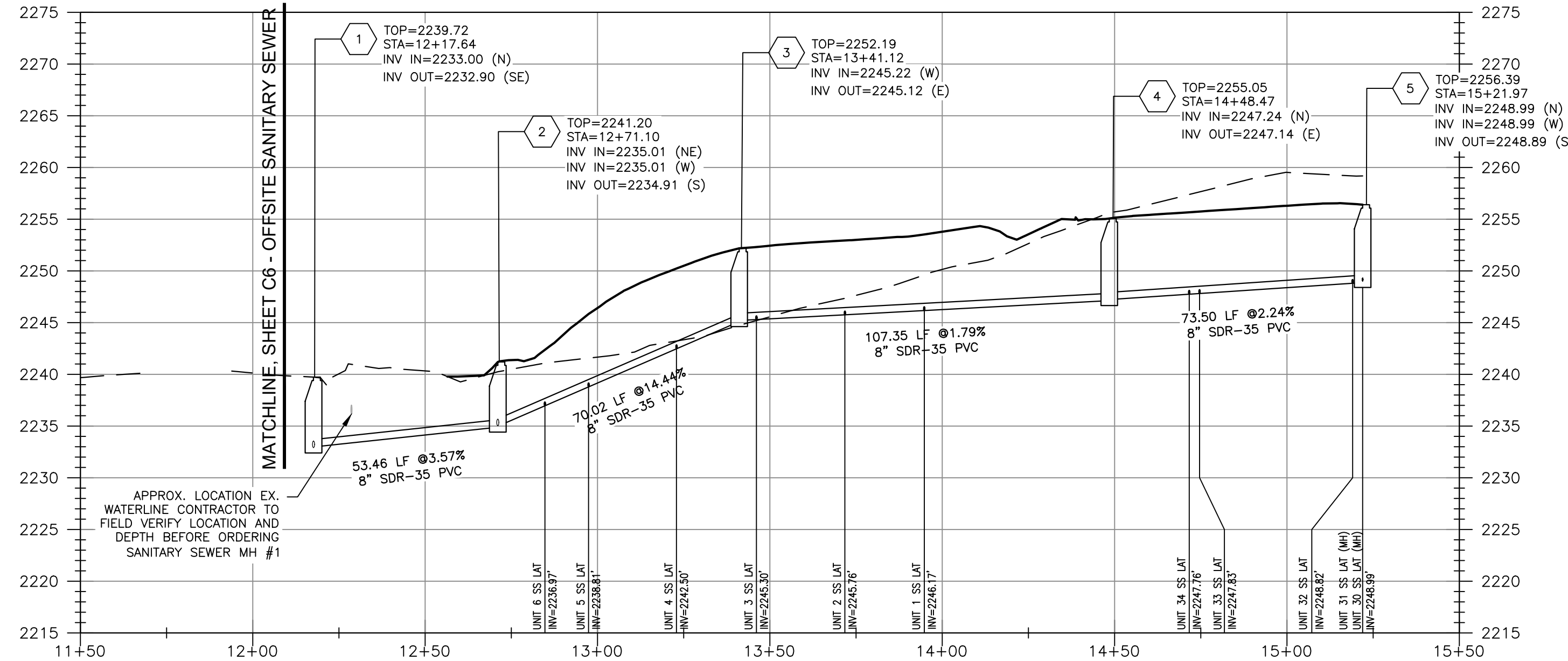
SANITARY SEWER MAIN (STR 6 - STR 9) PROFILE



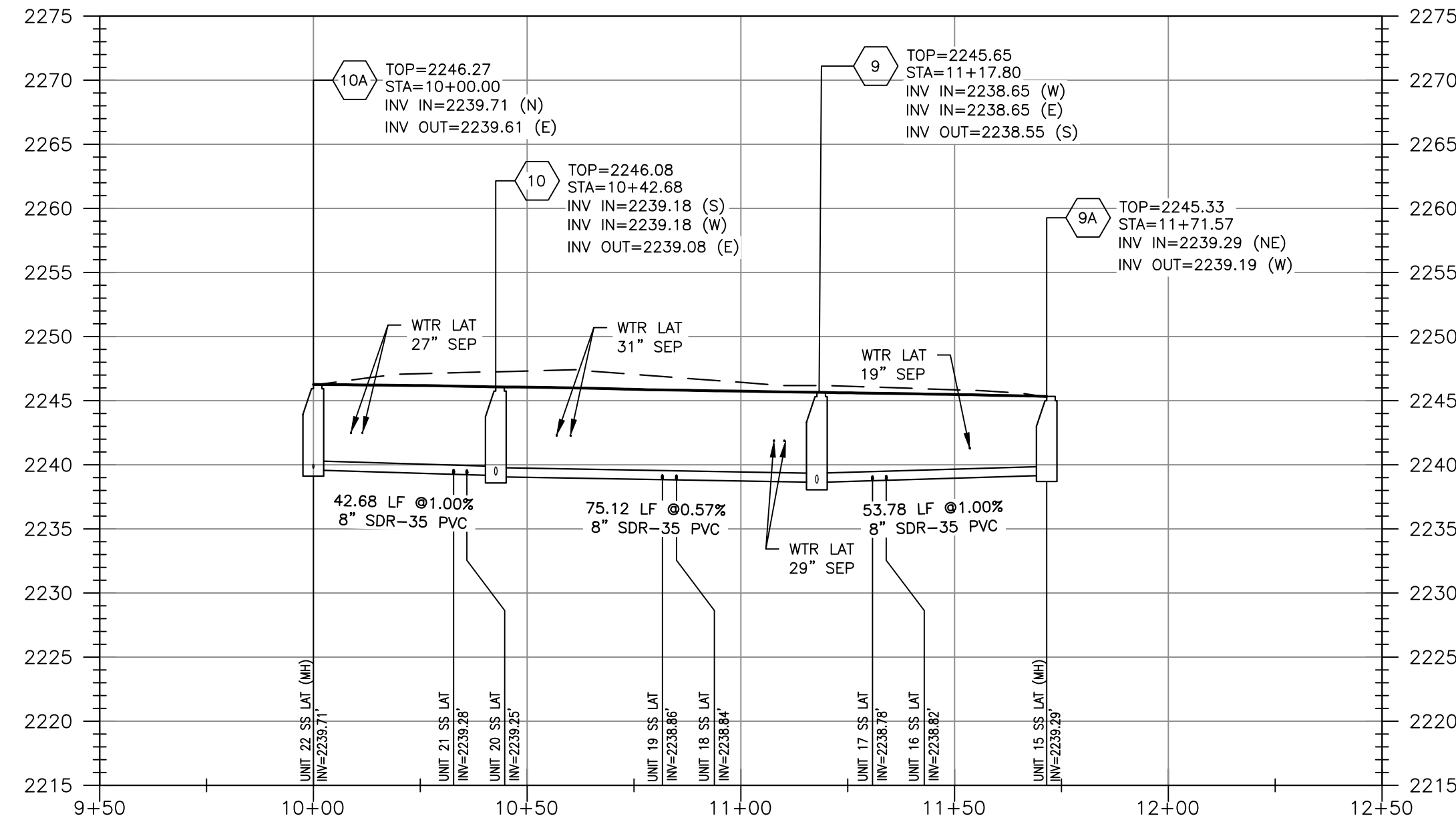
SANITARY SEWER MAIN (STR 10 - STR 12) PROFILE



SANITARY SEWER MAIN (STR 1 - STR 5) PROFILE



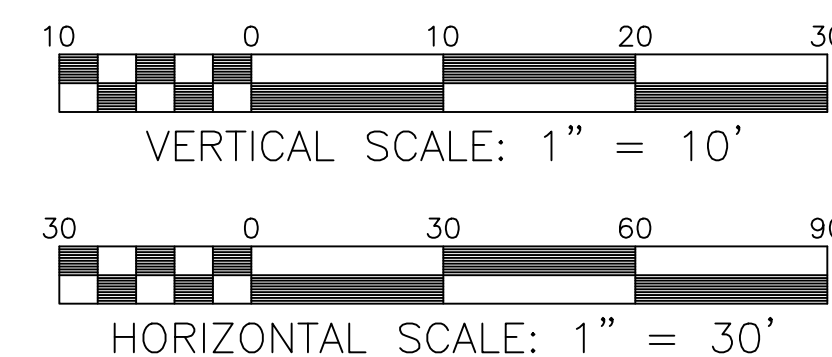
SANITARY SEWER MAIN (STR 9A - STR 10A) PROFILE



LEGEND

--- EXISTING GRADE
--- PROPOSED GRADE

NOTE: UNDERGROUND UTILITY LINES SHALL
BE INSTALLED IN ACCORDANCE WITH
MINIMUM STANDARD 16. SEE SHEET C13.



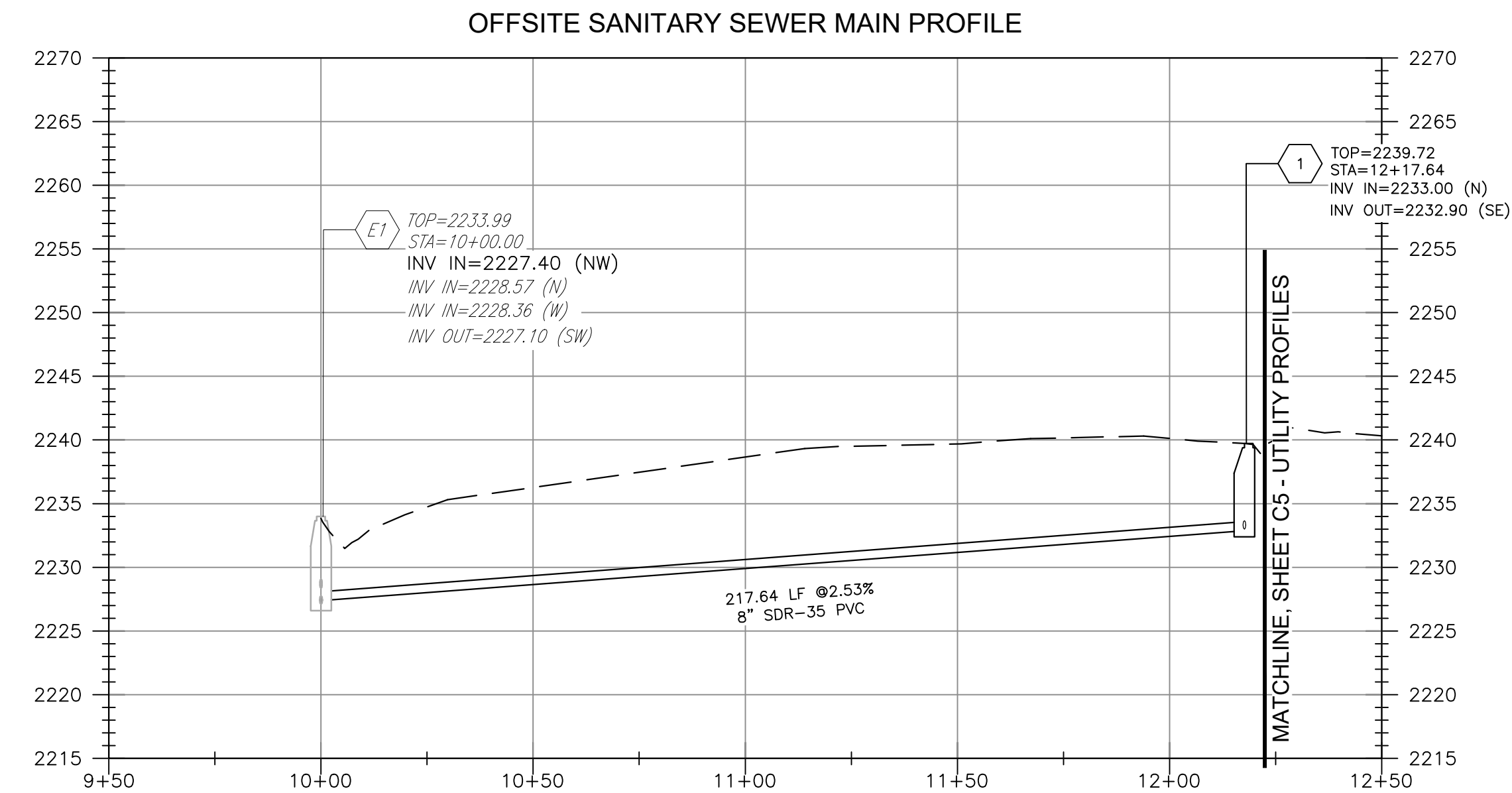
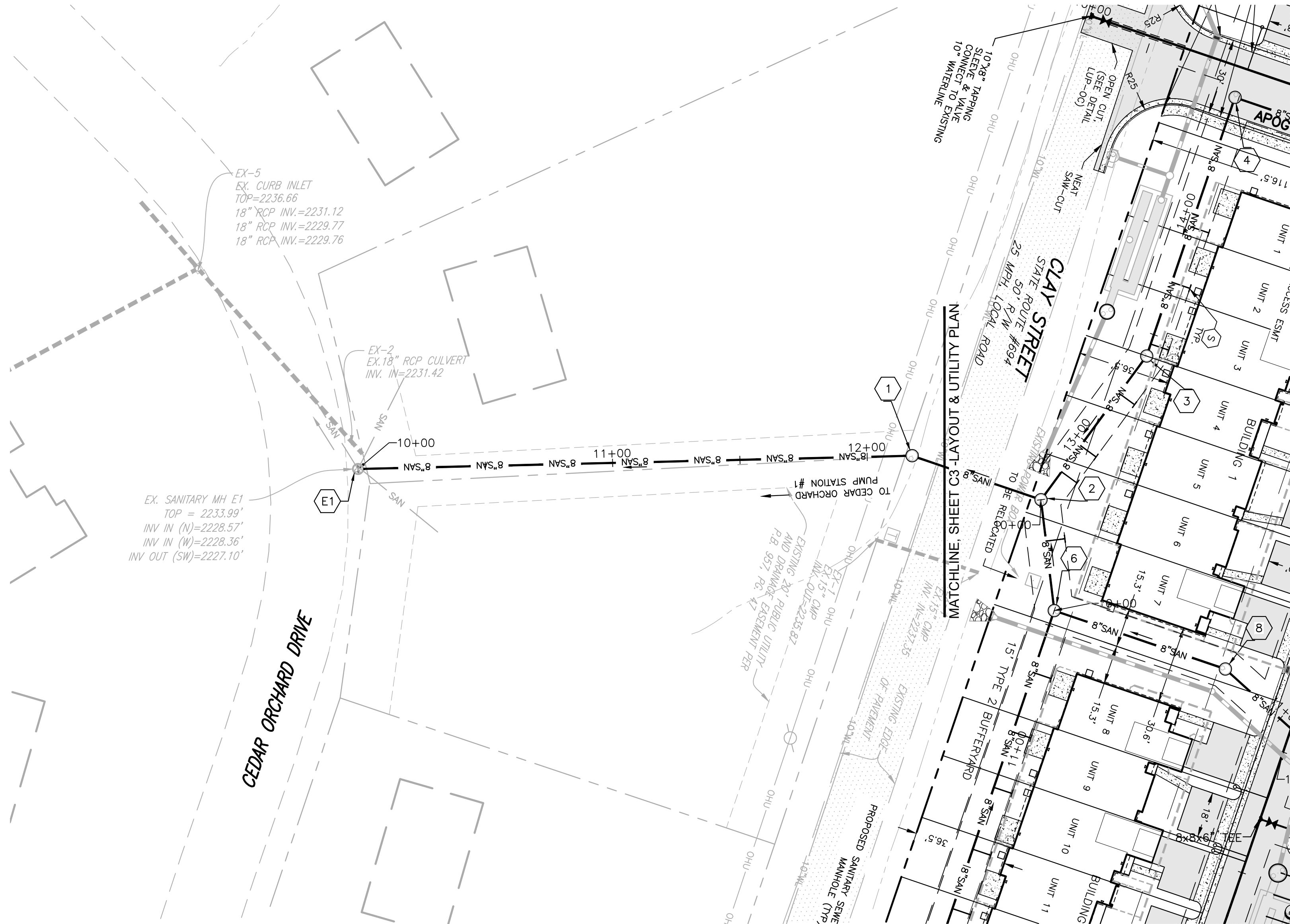
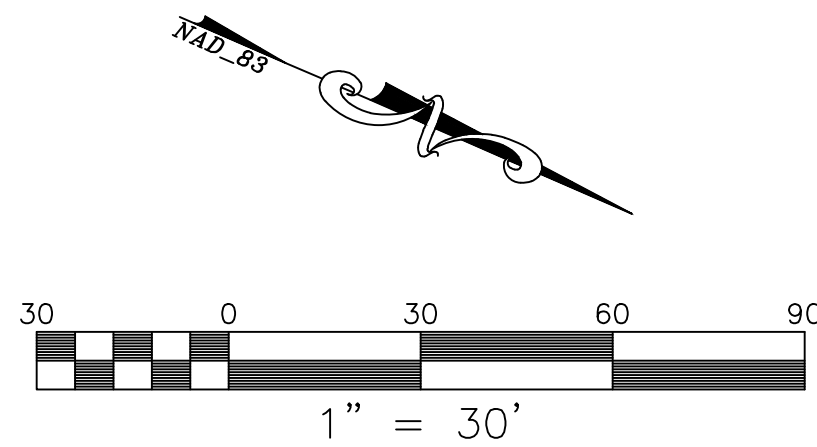
NOTES:

1. THE MINIMUM WATERMAIN DEPTH SHALL BE 4' AND MAXIMUM DEPTH SHALL BE 8' UNLESS OTHERWISE NOTED.
2. THE MINIMUM SEWER MAIN DEPTH SHALL BE 3' AND MAXIMUM DEPTH SHALL BE 12' UNLESS OTHERWISE NOTED.
3. MINIMUM VERTICAL SEPARATION BETWEEN WATER, SEWER AND STORM (INCLUDING LATERALS) SHALL BE 18", UNLESS OTHERWISE NOTED.
4. ALL PIPE SHOWN AS DUCTILE IRON (D.I.P.) SHALL BE PRESSURE TESTED AT 50 PSIG WITHOUT LEAKAGE.
5. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES.

J:\2020\24200014\09 APOGEE TOWNHOMES - CLAY STREET\DWG\24200014 CONSTRUCTION BASE.dwg PLOTTED: 2/1/2023 1:57:59 PM

NOTES:

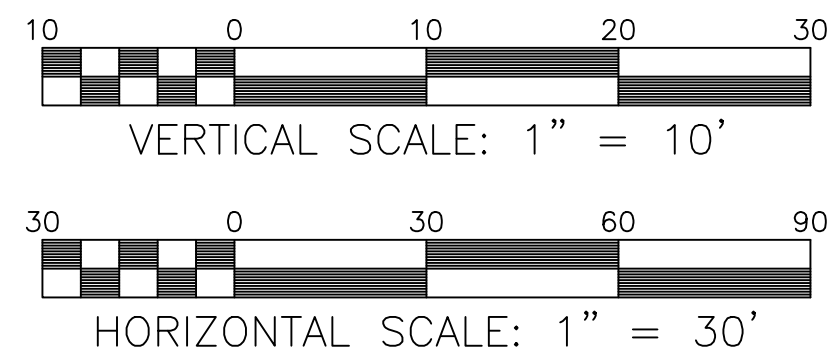
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2. THE MINIMUM SEWER MAIN DEPTH SHALL BE 3' AND MAXIMUM DEPTH SHALL BE 12' UNLESS OTHERWISE NOTED.
3. MINIMUM VERTICAL SEPARATION BETWEEN WATER, SEWER AND STORM (INCLUDING LATERALS) SHALL BE 18", UNLESS OTHERWISE NOTED.
4. ALL PIPE SHOWN AS DUCTILE IRON (D.I.P.) SHALL BE PRESSURE TESTED AT 50 PSIG WITHOUT LEAKAGE.
5. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES.



NOTE: UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH MINIMUM STANDARD 16. SEE SHEET C13.

LEGEND

- EXISTING GRADE
- PROPOSED GRADE



APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
OFFSITE SANITARY SEWER MAIN
PLAN & PROFILE

DRAWN BY TKP
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DATE 01-18-2021
SCALE AS NOTED
REVISIONS
1. 5/5/21
2. 11/21/22
3. 2/20/23

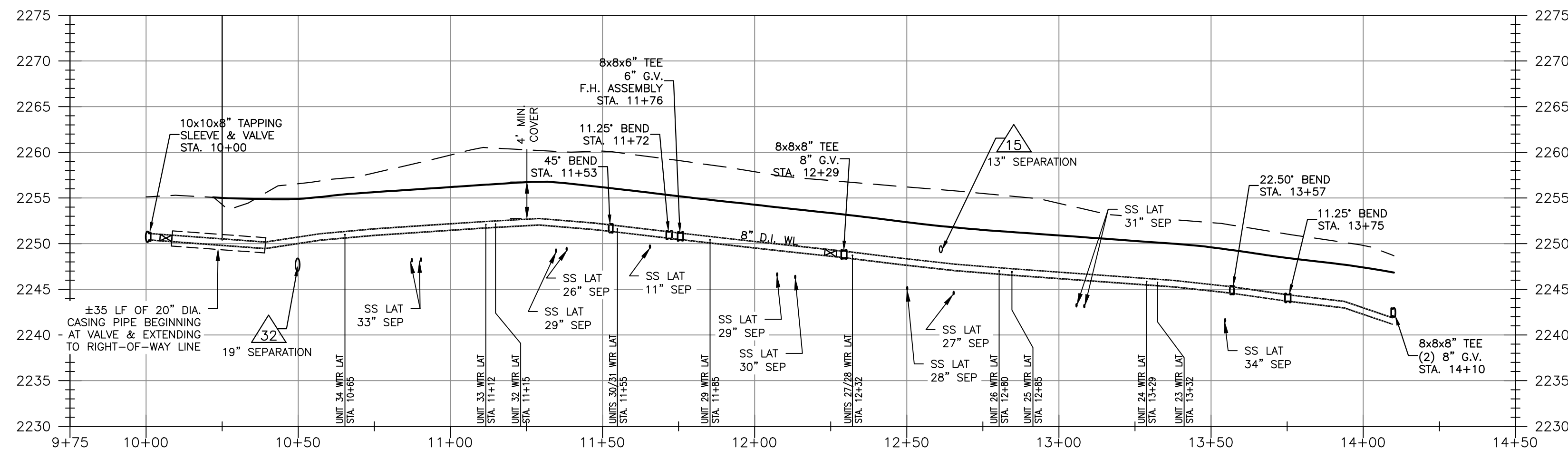
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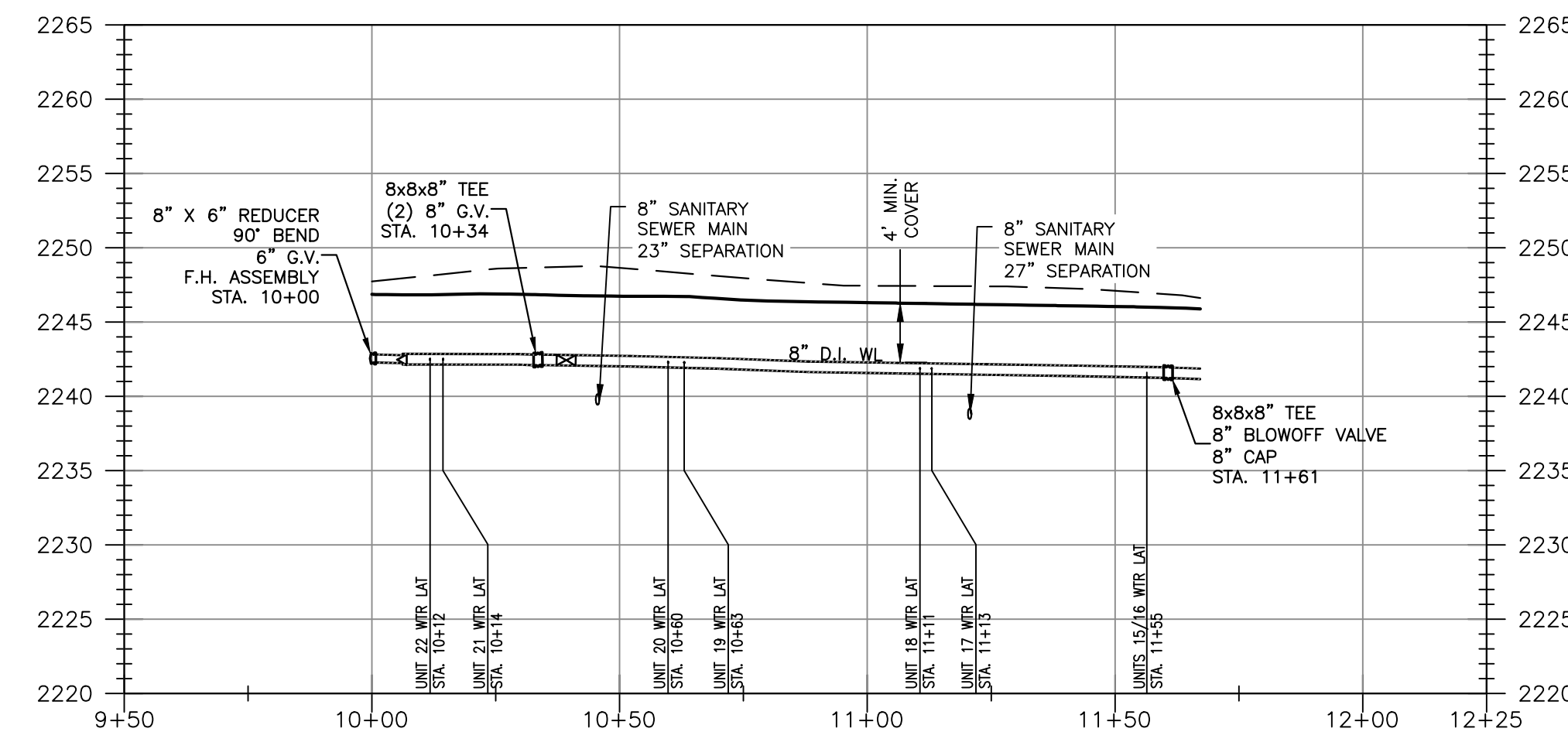
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COMMONWEALTH OF VIRGINIA
GRETCHEN LEE MERIX
Lic. No. 63588
2/20/23
PROFESSIONAL ENGINEER

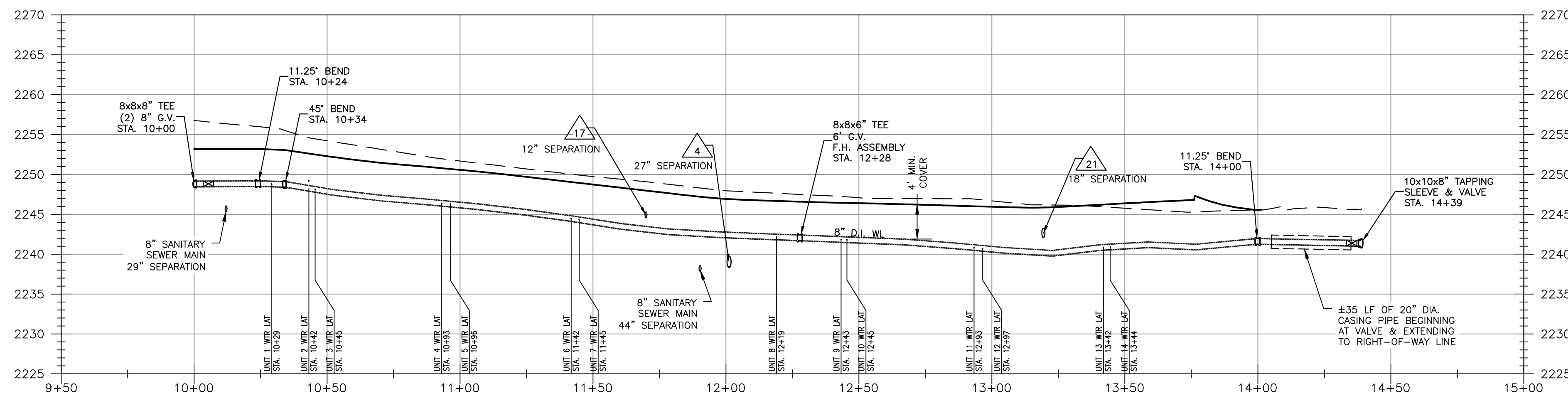
WATERLINE (UNITS 23 TO 34) PROFILE



WATERLINE (UNITS 15 TO 22) PROFILE



WATERLINE (UNITS 1 TO 14) PROFILE



NOTES:

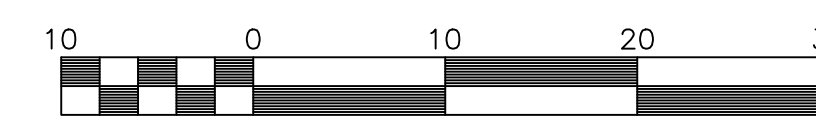
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LEGEND

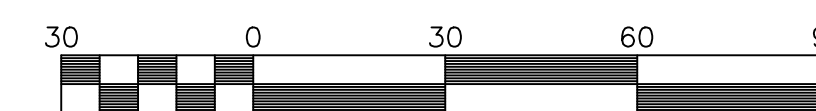
— — — — — EXISTING GRADE

 PROPOSED GRADE

NOTE: UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH MINIMUM STANDARD 16. SEE SHEET C13.



VERTICAL SCALE: 1" = 10'



HORIZONTAL SCALE: 1" = 30'



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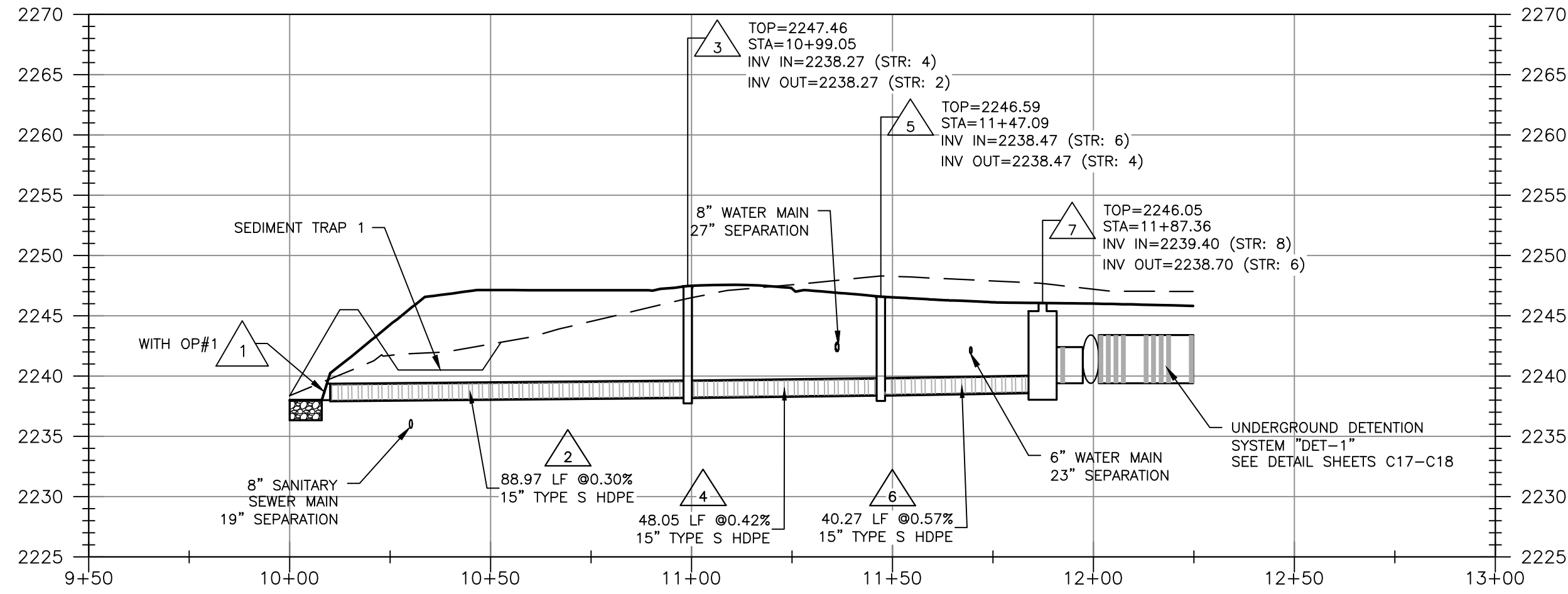
APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
STORM SEWER PROFILES

MOUNT TABOR MAGISTERIAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

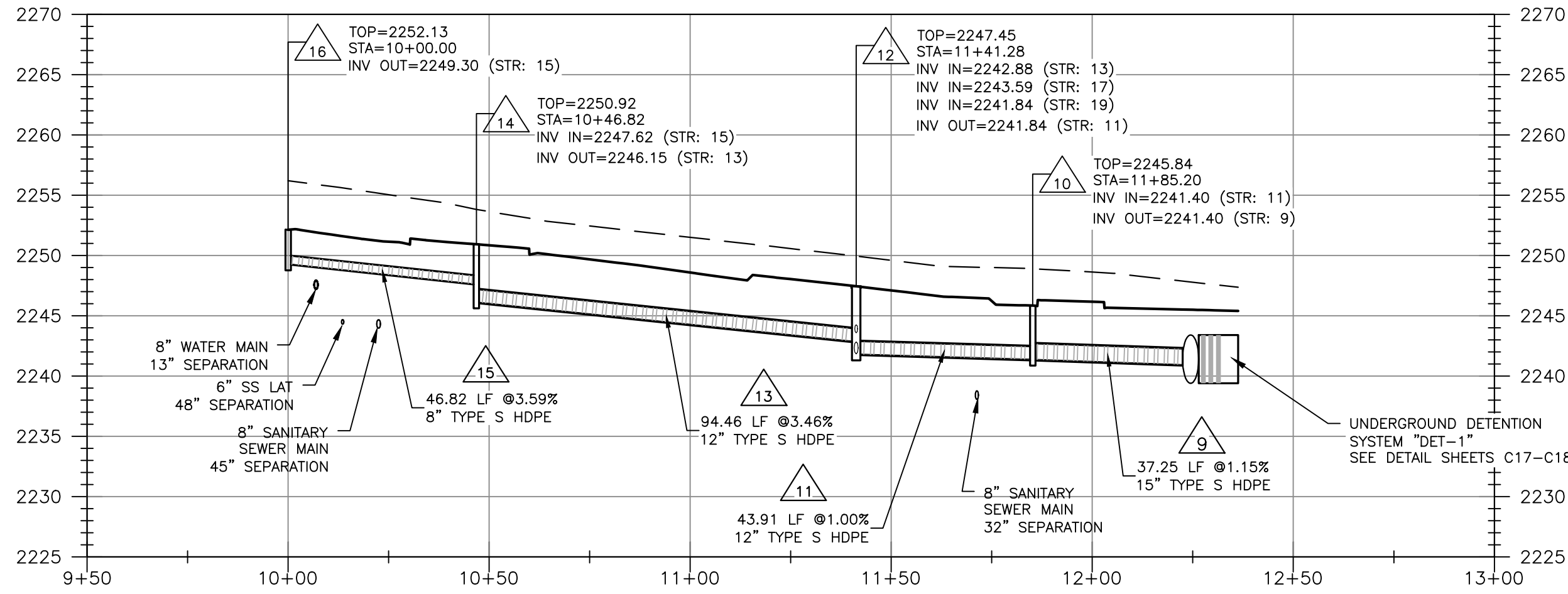
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PROJECT NO. 24200014.00

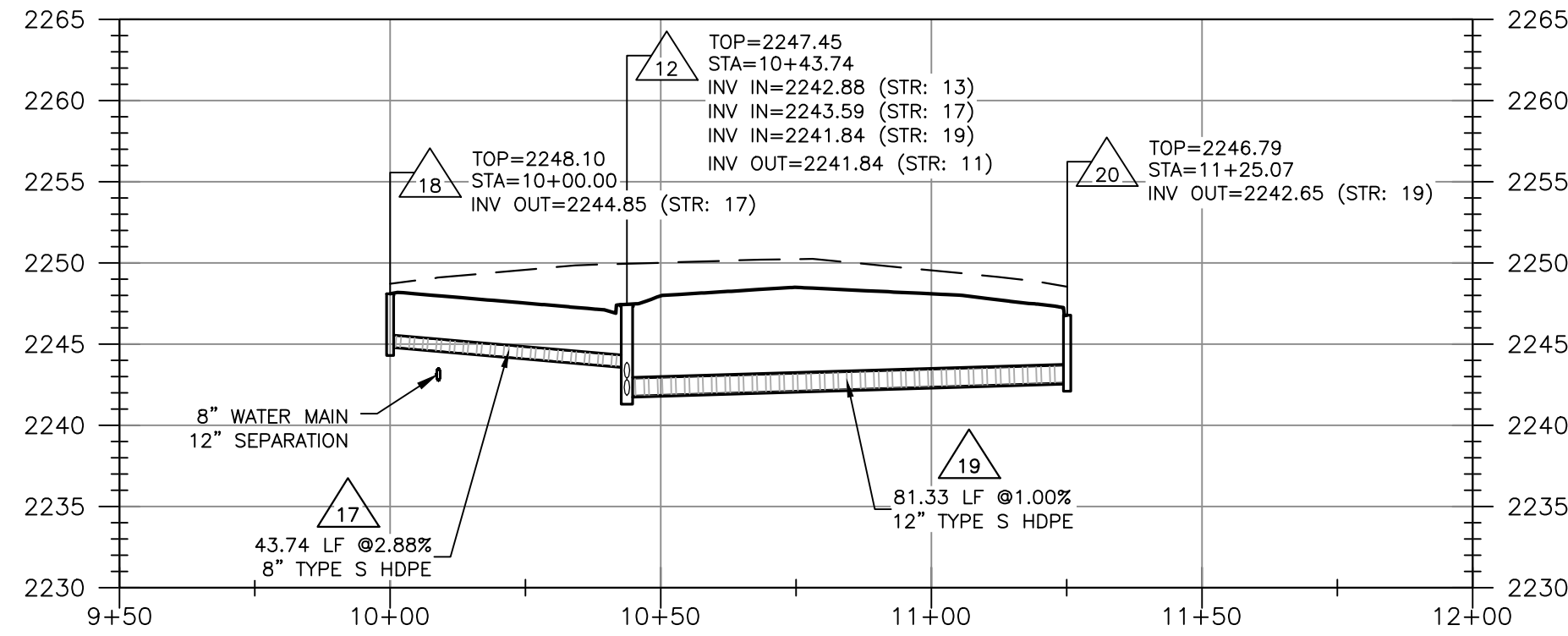
STORM SEWER MAIN A (STR 1-7) PROFILE



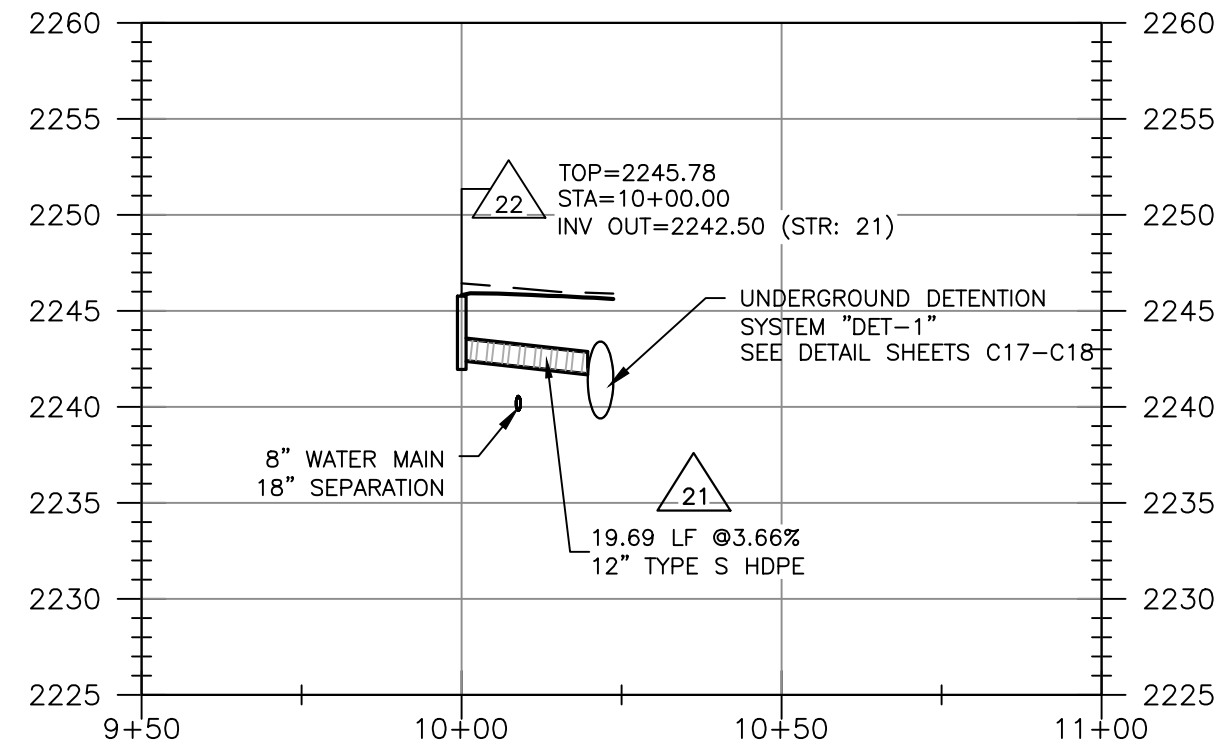
STORM SEWER MAIN B (STR 9-16) PROFILE



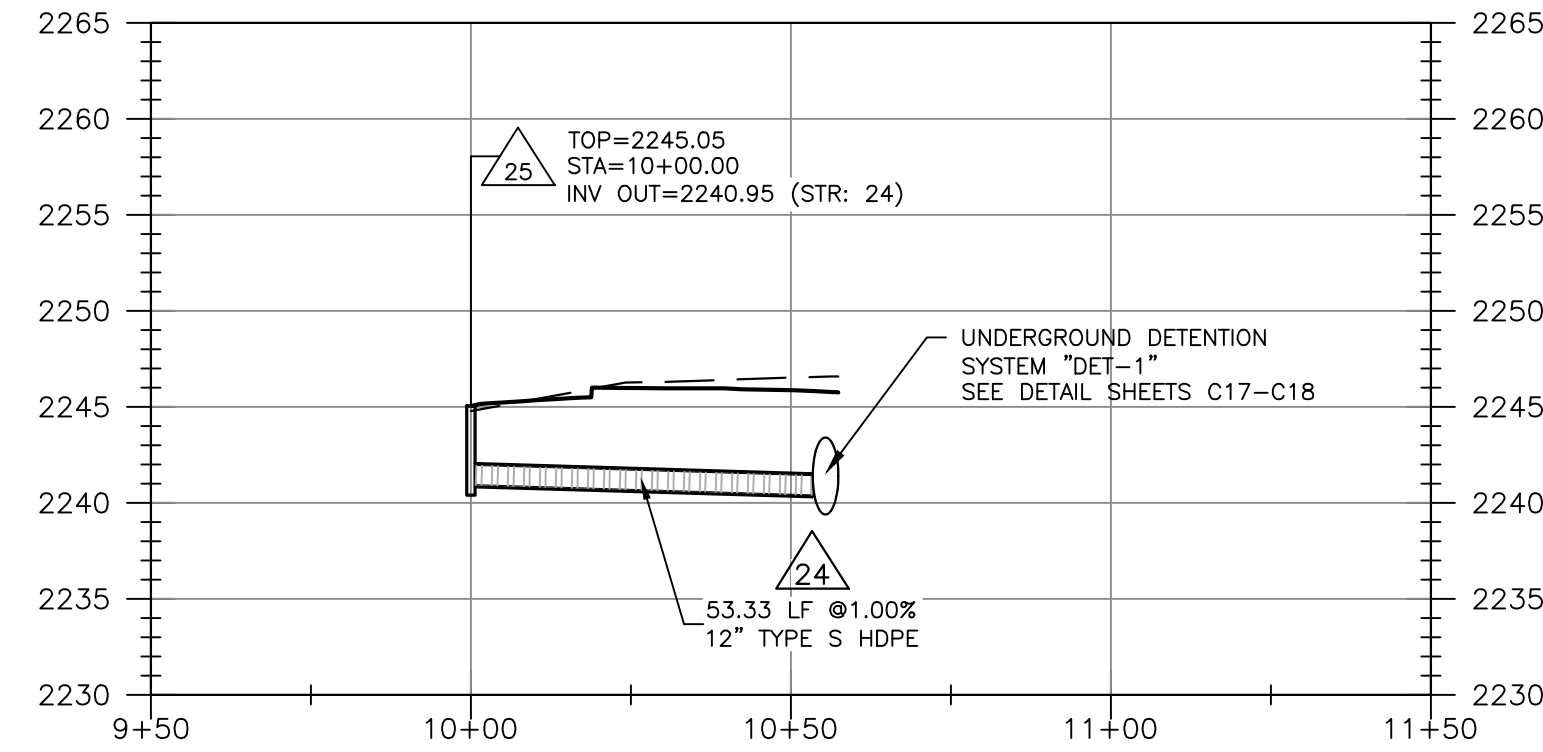
STORM SEWER MAIN C (STR 17-20) PROFILE



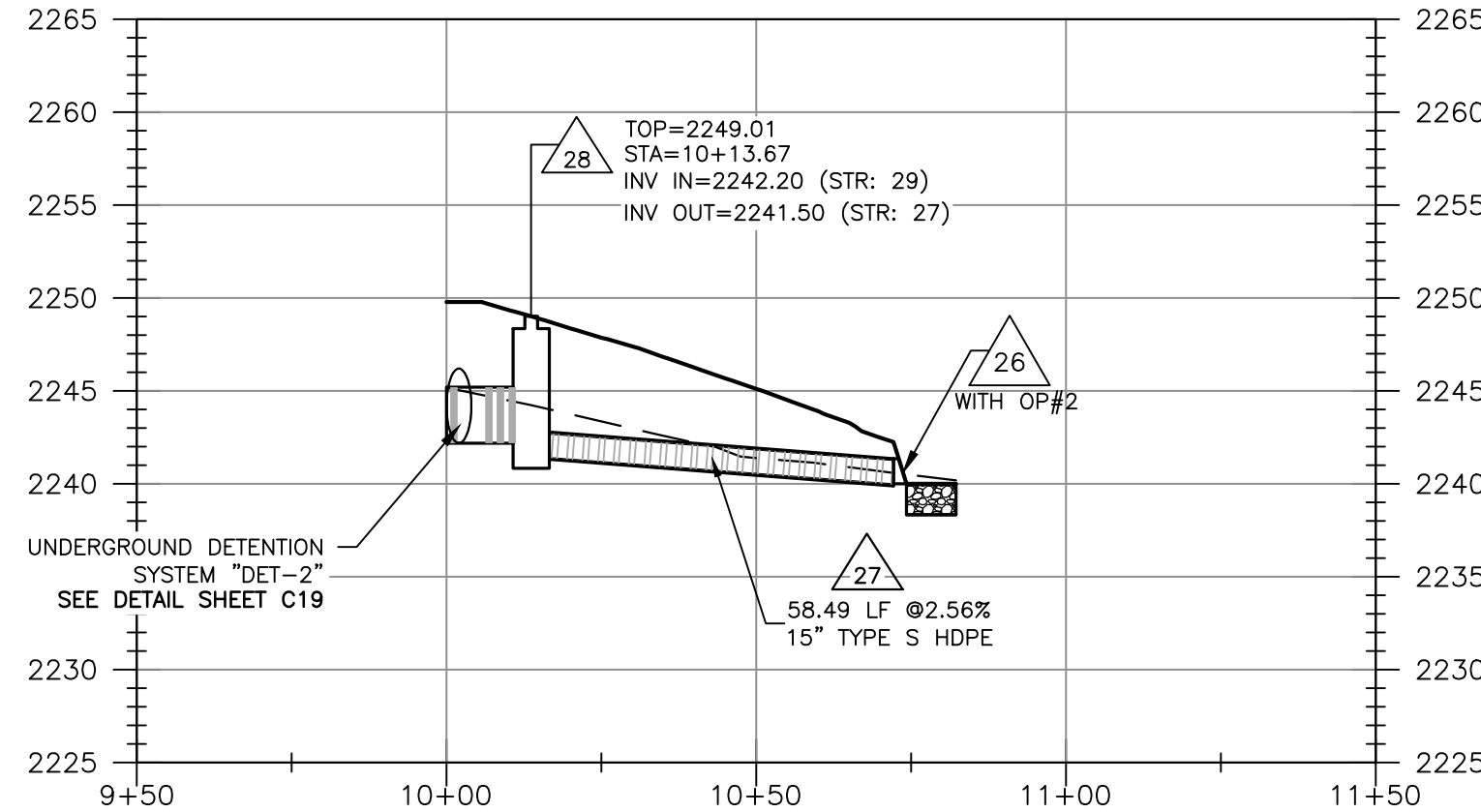
STORM SEWER MAIN D (STR 20-21) PROFILE



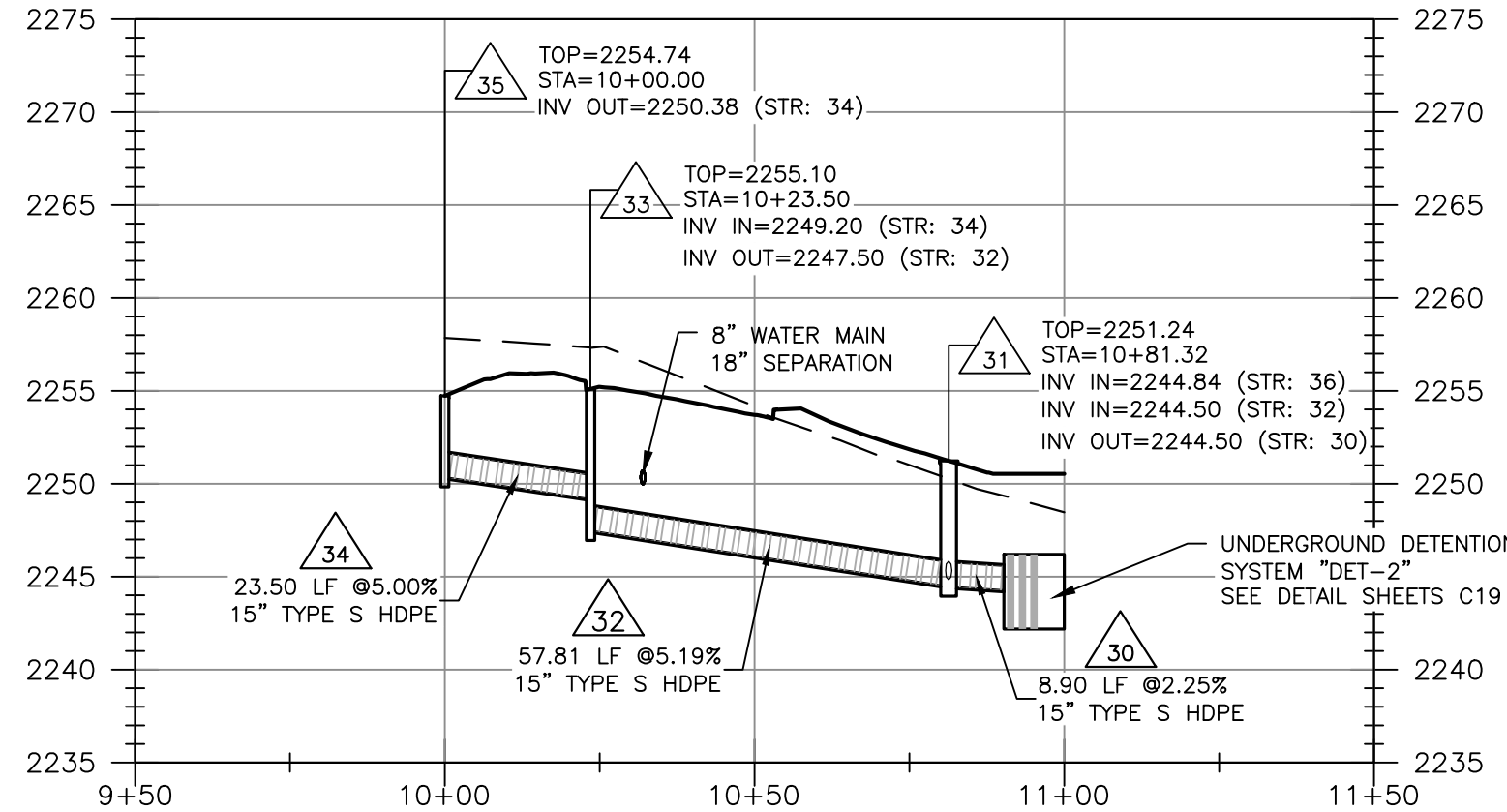
STORM SEWER MAIN E (STR 24-25) PROFILE



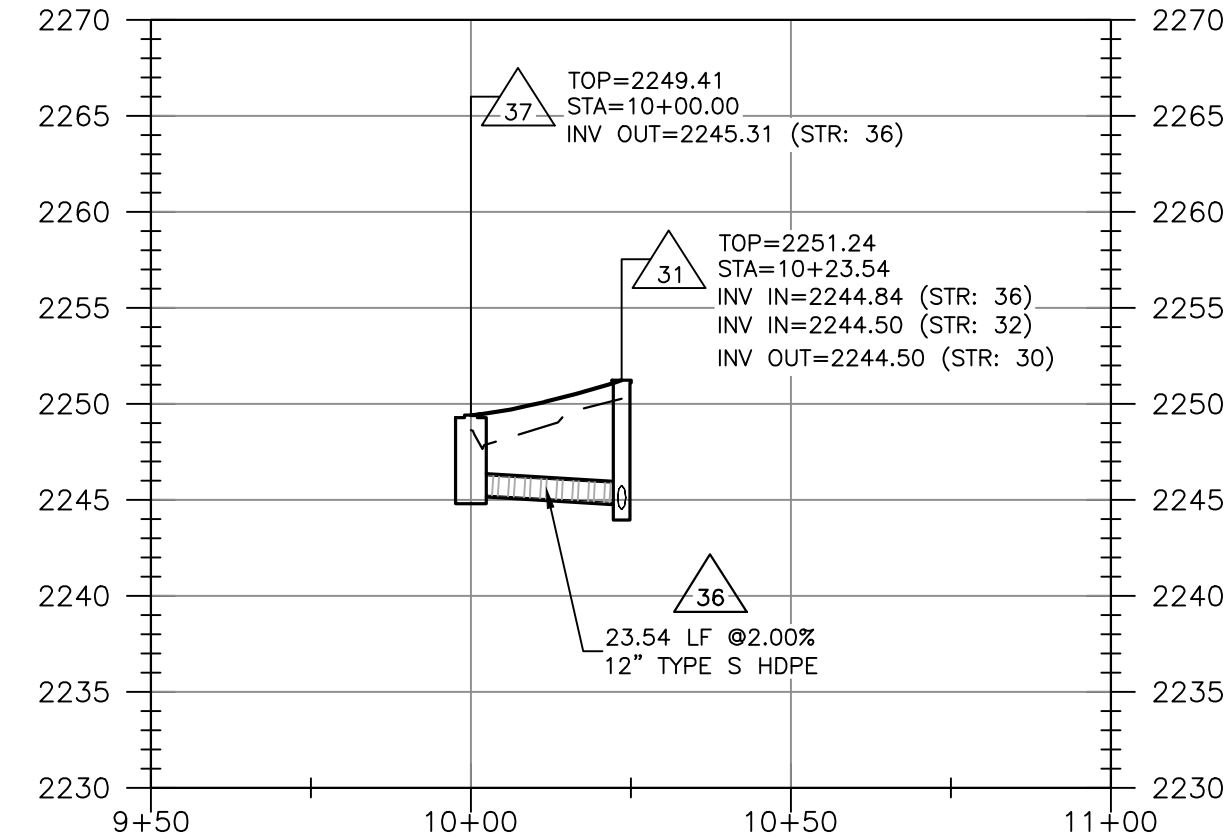
STORM SEWER MAIN F (STR 26-28) PROFILE



STORM SEWER MAIN G (STR 30-35) PROFILE



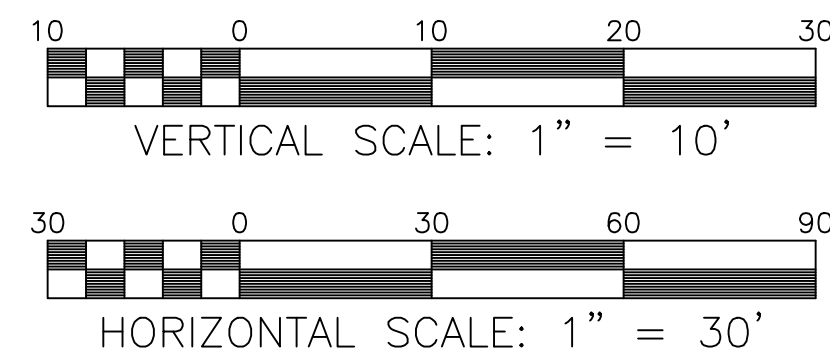
STORM SEWER MAIN H (STR 36-37) PROFILE



LEGEND

--- EXISTING GRADE
--- PROPOSED GRADE

NOTE: UNDERGROUND UTILITY LINES SHALL
BE INSTALLED IN ACCORDANCE WITH
MINIMUM STANDARD 16. SEE SHEET C13.



NOTES:

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5. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES.



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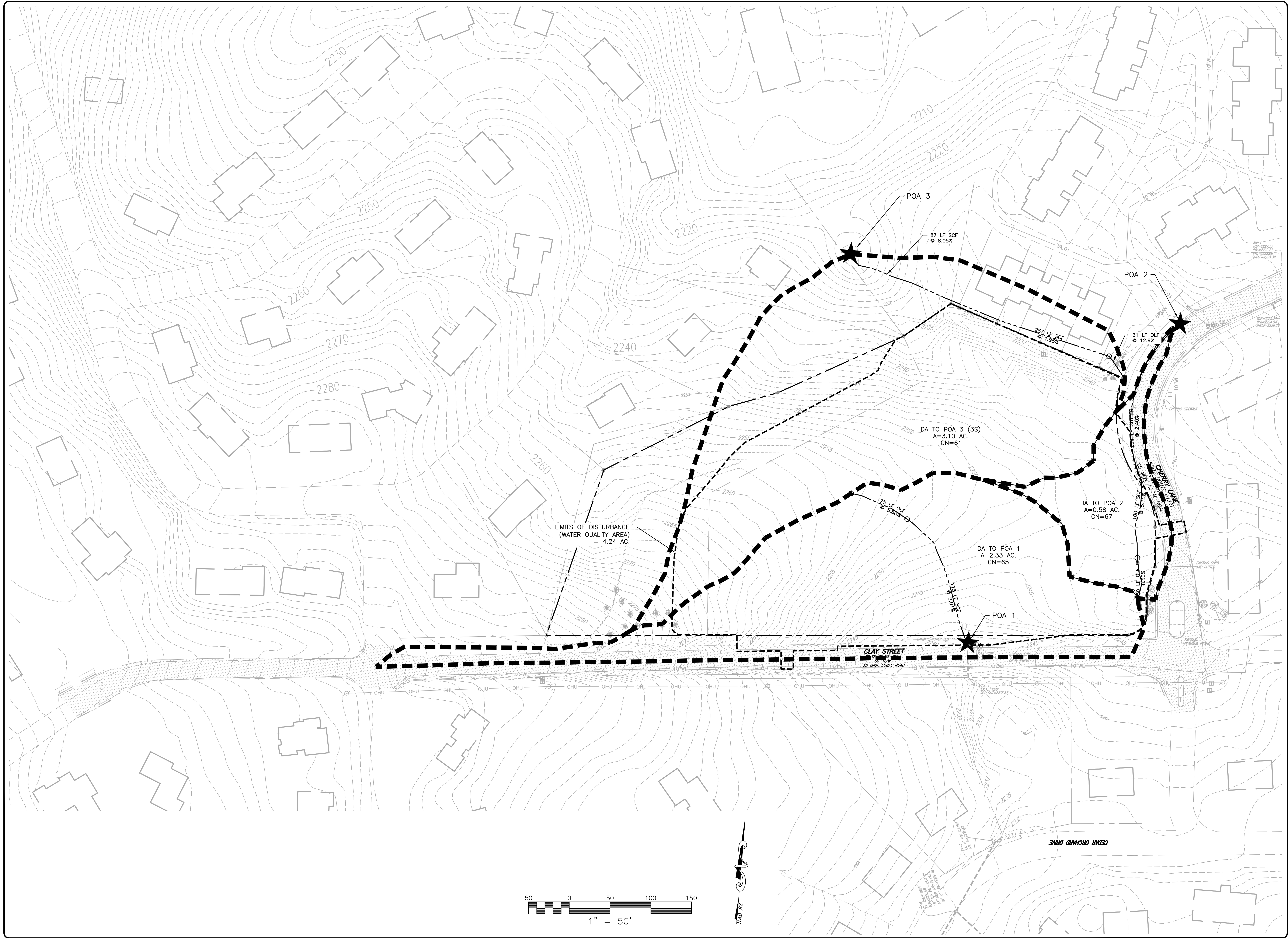


AFUGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
PRE-DEVELOPMENT DRAINAGE MAP

MOUNT LABOR MAGISTERIAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

AWN BY	TKP
DESIGNED BY	TKP
CHECKED BY	SMS
DATE	01-18-2021
SCALE	1" = 50'
REVISIONS	
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PROJECT NO. **C9**
24200014.00





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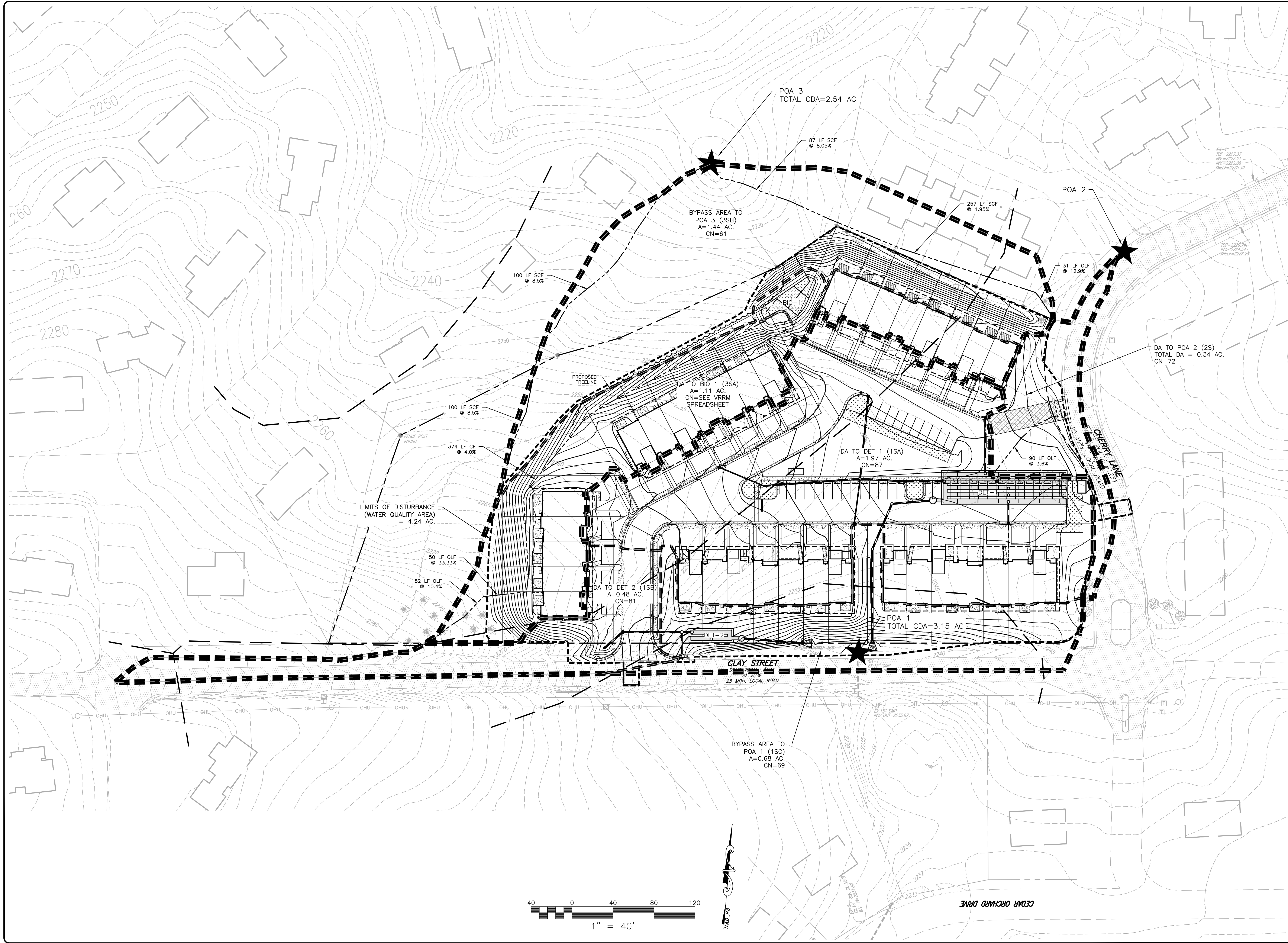
APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
POST-DEVELOPMENT DRAINAGE MAP

MOUNT TABOR MAGISTRAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

DRAWN BY	TKP
DESIGNED BY	TKP
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SCALE	1" = 50'
REVISIONS	
1. 5/5/21	
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3. 2/20/23	

C10

PROJECT NO. 24200014.00



1. PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DENUDED (UNCOVERED) FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
2. THE COUNTY ENGINEER AND OTHER INTERESTED AGENCIES SHALL MAKE A CONTINUING REVIEW AND EVALUATION OF THE METHODS USED FOR THE OVERALL EFFECTIVENESS OF THE EROSION CONTROL PROGRAM. AN APPROVED EROSION AND SEDIMENT CONTROL PLAN MAY BE AMENDED BY THE PLAN APPROVING AUTHORITY IF, ON THE BASIS OF EVIDENCE THAT THE APPROVED CONTROL MEASURES ARE NOT EFFECTIVE IN CONTROLLING EROSION AND SEDIMENTATION, OR IF BECAUSE OF CHANGED CIRCUMSTANCES, THE APPROVED PLAN CANNOT BE CARRIED OUT.
3. ANY/ALL OFF-SITE DRAINAGE EASEMENTS MUST BE RECORDED PRIOR TO ISSUANCE OF A LAND DIVISIONS PERMIT FOR THIS PROJECT.
4. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OR PROVISION OF A SEPARATE EROSION CONTROL PLAN REQUIRED FOR EXCAVATED MATERIAL REMOVED FROM THE SITE AND DEPOSITED AT AN OFF-SITE LOCATION. THE CONTRACTOR SHALL GAIN COUNTY APPROVAL OF THESE LOCATIONS PRIOR TO STOCKPILING MATERIAL.
5. STABILIZATION BLANKETS AND MATTING SHALL BE INSTALLED ON ALL CUT OR FILL SLOPES STEEPER THAN 3:1.
6. ALL CUT AND FILL SLOPES & CHANNEL SIDE SLOPES WHICH ARE NOT TO BE PAVED SHALL BE SEEDED UNTIL A GOOD STAND OF GRASS IS OBTAINED IN ACCORDANCE WITH VESCH STANDARDS AND SPECIFICATIONS 3.30, 3.31, 3.32 3.35 AND 3.36.
7. PROPERTIES AND RIGHTS-OF-WAYS ADJOINING THE SITE SHALL BE KEPT CLEAR OF MUD OR SILT CARRIED FROM THE SITE BY VEHICULAR TRAFFIC OR RUNOFF.
8. EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE MAINTAINED SO THAT SEDIMENT CARRYING RUNOFF FROM THE SITE WILL NOT ENTER STORMWATER DRAINAGE FACILITIES.
9. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARDS, SPECIFICATIONS AND DETAILS OF THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH) BY THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION (DCR).
10. THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY COUNTY STAFF.
11. IN ADDITION TO THE APPROVED PLAN, A SEPARATE EROSION AND SEDIMENT CONTROL PERMIT IS REQUIRED BEFORE ANY LAND DISTURBING ACTIVITIES CAN COMMENCE. THIS PERMIT WILL BE ISSUED AT THE FIRST PRE-CONSTRUCTION MEETING UPON SUBMITTAL OF THE CONSTRUCTION INSPECTION FEE AND THE EROSION AND SEDIMENT CONTROL SECURITY.
12. A SECOND PRE-CONSTRUCTION MEETING SHALL OCCUR ON THE SITE UPON COMPLETION OF THE INITIAL EROSION AND SEDIMENT CONTROL MEASURES AND FENCING OF AREAS TO BE DISTURBED, PRIOR TO ANY ADDITIONAL SITE DISTURBANCE. THE DESIGN PROFESSIONAL, OWNER'S REPRESENTATIVE, GENERAL CONTRACTOR, RESPONSIBLE LAND DISTURBER, AND THE ADMINISTRATOR SHALL BE PRESENT AT THIS MEETING AND THE ADEQUACY OF THE INITIAL MEASURES SHALL BE ASSESSED.

1. CONSTRUCTION ENTRANCE(S) SHALL BE PERIODICALLY CHECKED AND MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANSOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT.
2. TEMPORARY AND PERMANENT ROADS AND PARKING AREAS MAY REQUIRE PERIODIC TOP DRESSING WITH NEW GRAVEL. SEEDED AREAS ADJACENT TO ROADWAYS AND PARKING AREAS SHOULD BE CHECKED PERIODICALLY TO ENSURE THAT A VIGOROUS STAND OF VEGETATION IS MAINTAINED. ROADSIDE DITCHES AND OTHER DRAINAGE STRUCTURES SHOULD BE CHECKED REGULARLY TO ENSURE THAT THEY DO NOT BECOME CLOGGED WITH SILT OR OTHER DEBRIS.
3. THE SILT FENCE BARRIER WILL BE CHECKED IMMEDIATELY AFTER EACH RAINFALL PRODUCING EVENT AND DAILY DURING PROLONGED RAIN EVENTS FOR UNDERMINING OR DETEIORATION OF THE FABRIC. SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES HALF WAY TO THE TOP OF THE BARRIER.
4. THE STORM DRAIN INLET PROTECTION AND CULVERT INLET PROTECTION MEASURES WILL BE CHECKED AFTER EACH RAINFALL PRODUCING EVENT FOR SEDIMENT BUILDUP, WHICH WILL PREVENT DRAINAGE. AGGREGATE SHALL BE REPLACED OR CLEANED WHEN INSPECTION REVEALS THAT CLOGGED VOIDS ARE CAUSING FLOWING PROBLEMS. SEDIMENT SHALL BE REMOVED FROM THE ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE AREA AROUND THE INLET AS NECESSARY TO ALLOW FOR ADEQUATE PONDING. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS.
5. ALL DIVERSIONS SHALL BE INSPECTED AFTER EVERY STORM AND REPAIRS MADE AS NECESSARY. IF A STORM EVER TWO TIMES SHALL A STORM EVENT HAS OCCURRED OR NOT, EACH MEASURE SHALL BE INSPECTED AND REPAIRS MADE AS NEEDED. DAMAGES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF EACH WORKING DAY.
6. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN HEIGHT OF THE STONE. SEDIMENT SHALL BE REMOVED TO THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA, AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS. FILTER STONE SHALL BE REGULARLY CHECKED TO ENSURE THAT FILTRATION PERFORMANCE IS MAINTAINED. STONE CHOKED WITH SEDIMENT SHALL BE REMOVED AND CLEANED OR REPLACED. THE STRUCTURE SHALL BE CHECKED REGULARLY TO INSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE HEIGHT OF THE STONE OUTLET SHOULD BE CHECKED TO ENSURE THAT ITS CENTER IS AT LEAST ONE FOOT BELOW THE TOP OF THE EMBANKMENT.
7. CHECK DAMS SHALL BE CHECKED FOR SEDIMENT ACCUMULATION AFTER EACH RAINFALL PRODUCING EVENT. TWO TIMES SEDIMENT SHALL BE REMOVED WHEN IT REACHES ONE-HALF OF THE ORIGINAL HEIGHT OF THE MEASURE. REGULAR INSPECTIONS SHALL BE MADE TO ENSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES. EROSION CAUSED BY HIGH FLOWS AROUND THE EDGES OF THE DAM SHOULD BE CORRECTED IMMEDIATELY.
8. DURING INITIAL ESTABLISHMENT OF STORMWATER CONVEYANCE CHANNELS, GRASS LINING CHANNELS SHALL BE REPAIRED IMMEDIATELY AND GRASS RE-ESTABLISHED AS NECESSARY. AFTER GRASS HAS BECOME ESTABLISHED, THE CHANNEL SHALL BE CHECKED PERIODICALLY TO DETERMINE IF THE GRASS IF WITHSTANDING FLOW VELOCITIES WITHOUT DAMAGE. IF THE CHANNEL IS TO BE MOWED, IT SHOULD BE DONE IN A MANNER THAT WILL NOT DAMAGE THE GRASS.
9. SEEDD AREAS WHICH FAIL TO ESTABLISH A VEGETATIVE COVER SHALL BE RESEEDD AS NECESSARY. THE SEEDD AREAS WILL BE CHECKED MONTHLY TO ENSURE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEEDD AS NECESSARY.
10. ALL SOIL STABILIZATION BLANKETS AND MATTING SHOULD BE INSPECTED PERIODICALLY FOLLOWING INSTALLATION, PARTICULARLY AFTER RAINSTORMS TO CHECK FOR EROSION AND UNDERMINING. ANY DISLOCATION OR FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUTS OR BREAKAGE OCCURS, REINSTALL THE MATTING AFTER A GOOD STAND IS MAINTAINED. INSPECTIONS WILL CONTINUE TO MONITOR THESE AREAS UNTIL WHICH TIME THEY BECOME PERMANENTLY STABILIZED; AT THAT TIME AN ANNUAL INSPECTION SHOULD BE ADEQUATE.

MU TO PS DC
APPLY TO ALL
DISTURBED
AREAS

(B/M) (SR) (TO) (PS)
APPLY TO ALL SLOPE
GRADES 3:1 OR
STEEPER

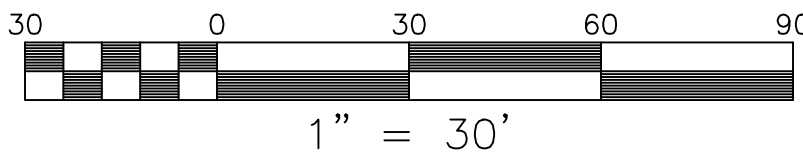
1. AS THE FIRST STEP IN IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL (ESC) PLAN, IT IS THE GENERAL CONTRACTOR'S (GC) RESPONSIBILITY TO REVIEW ALL PHASES OF THE ESC PLANS IN DETAIL AS WELL AS FAMILIARIZE THEMSELVES WITH THE SITE PRIOR TO COMMENCING ANY WORK. ADDITIONALLY, IT IS THE GC'S RESPONSIBILITY TO READ AND ADHERE TO THE STORMWATER POLLUTION PREVENTION PLAN.
2. PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES, A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER/DEVELOPER, CONTRACTOR, ENGINEER, COUNTY STAFF, AND ANY OTHER NECESSARY AGENCIES IN ATTENDANCE.
3. CONTRACTOR SHALL COORDINATE WITH ENGINEER TO HAVE LIMITS OF DISTURBANCE AND PROPERTY CORNERS CLEARLY MARKED WITH FLAGGING OR PILES.
4. INSTALL GRAVEL CONSTRUCTION ENTRANCE WITH RIGHT OF WAY DIVERSION (RDW) AS SHOWN ON PLAN. ALL CONSTRUCTION TRAFFIC SHALL ENTER AND EXIT THE SITE VIA THE CONSTRUCTION ENTRANCE ONLY. DURING WET WEATHER CONDITIONS, DRIVERS OF CONSTRUCTION VEHICLES SHALL BE REQUIRED TO WASH THEIR WHEELS AS NECESSARY BEFORE ENTERING PUBLIC RIGHT OF WAY.
5. INSTALL CULVERT INLET PROTECTION ON PIPE EX-1 AS SHOWN.
6. INSTALL SILT FENCE ALONG CHERRY LANE AS SHOWN.
7. COORDINATE RELOCATION OF EXISTING POWER BOX WITH UTILITY OWNER.
8. INSTALL DW#1, DW#2, AND ST #1 AS SHOWN ON PLAN. AS THE TRAP IS INSTALLED, INSTALL STUB FOR STORM PIPE #2 WITH CIP.
9. INSTALL DW#3, FD#1, AND ST #2 AS SHOWN ON PLAN.
10. MOVE TO PHASE II OF CONSTRUCTION.

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.05	SILT FENCE	SF
3.08	CULVERT INLET PROTECTION	CIP
3.10	TEMPORARY FILL DIVERSION	FD
3.11	TEMPORARY RIGHT-OF-WAY DIVERSION	RWD
3.12	DIVERSION	DV
3.13	TEMPORARY SEDIMENT TRAP	ST
3.30	TOPSOILING	TO
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU

THE FOLLOWING AREAS ARE IDENTIFIED AS CRITICAL EROSION AREAS AND SHALL BE STABILIZED AND MONITORED DURING CONSTRUCTION PER THE EROSION AND SEDIMENT CONTROL PRACTICES SPECIFIED ON THE PLAN. PARTICULAR CARE SHALL BE EXERCISED IN THESE AREAS TO PREVENT DAMAGE TO DOWNSTREAM PROPERTIES:

1. ANY SLOPE EXCEEDING 15% FOR 75 FEET OR MORE IN LENGTH.
2. AREAS ADJACENT TO INLETS: PREVENT SEDIMENT DISCHARGE TO SWM FACILITIES
3. PUBLIC RIGHT-OF-WAY: PREVENT MUD TRACKING ONTO PUBLIC STREETS

10' WIDE OUTLET
LINE WITH RIPRAP
AND DISCHARGE ONTO
UNDISTURBED SOIL



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APOGEE TOWNHOMES

CLAY STREET AND CHERRY LANE

EROSION & SEDIMENT CONTROL - PHASE I PLAN

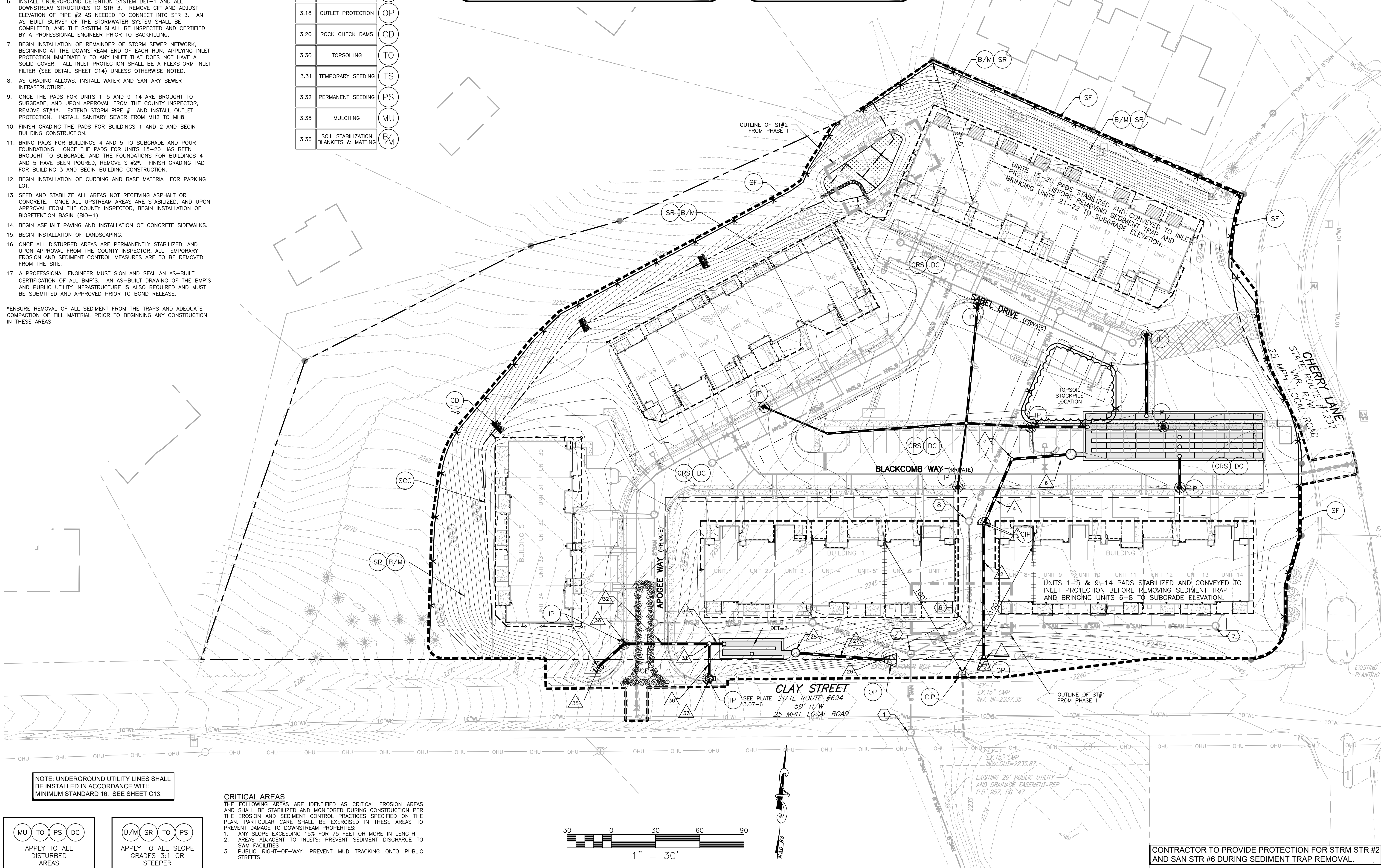
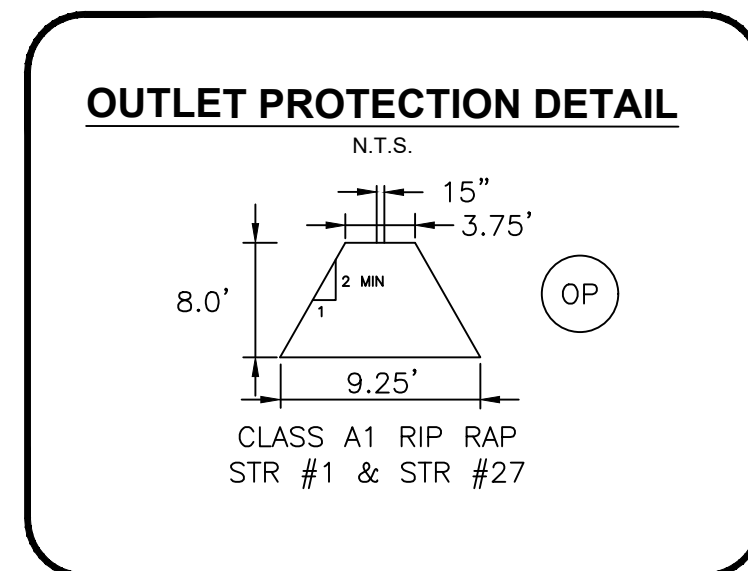
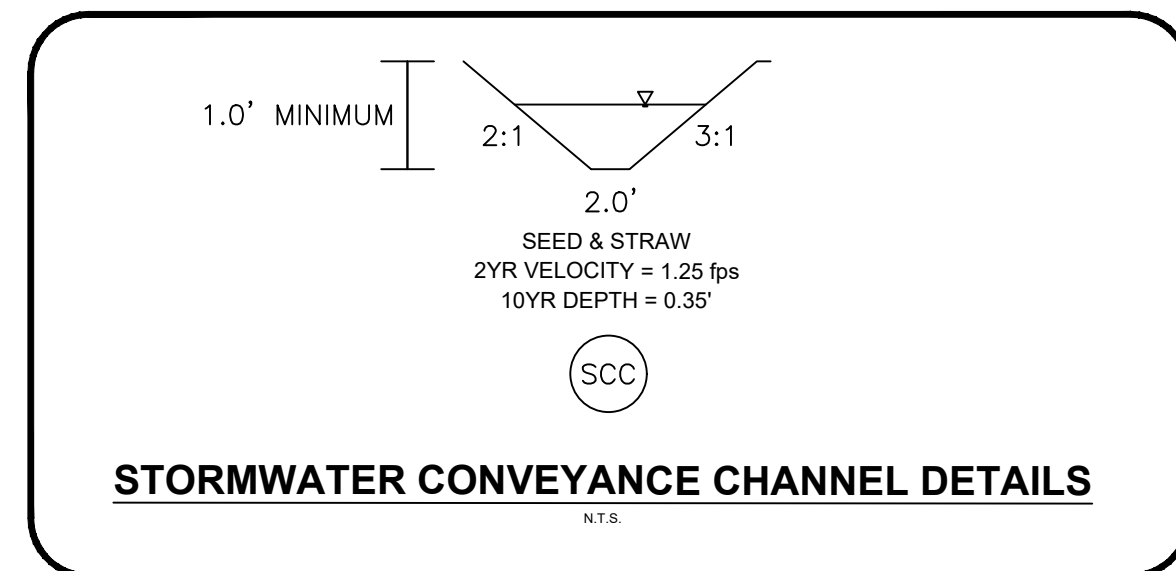
MOUNT TABOR MAGISTERIAL DISTRICT
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C11
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1. ENSURE ALL CONTROLS FROM PHASE I ARE IN PLACE AND FUNCTIONING PROPERLY.
2. COMMENCE CLEARING AND GRADING. SEED EXPOSED AREAS PROMPTLY. BLANKET AND MATTING REQUIRED TO STABILIZE STEEP SLOPES DESIGNATED ON PLAN. EXCESS SOIL IS TO BE PLACED WITHIN THE STOCKPILE AREA AND STABILIZED IMMEDIATELY OR TRANSPORTED TO AN APPROVED EROSION CONTROL SITE.
3. INSTALL STORMWATER CONVEYANCE CHANNEL AND CHECK DAMS AS SHOWN ON PLAN. APPLY PERMANENT SEEDING IMMEDIATELY.
4. INSTALL UNDERGROUND DETENTION SYSTEM DET-2, OUTLET STRUCTURE, OUTLET PIPE, AND FLARED END SECTION WITH OUTLET PROTECTION. AN AS-BUILT SURVEY OF THE STORMWATER SYSTEM SHALL BE COMPLETELY DONE. THE SYSTEM SHALL BE INSPECTED AND CERTIFIED BY A PROFESSIONAL ENGINEER PRIOR TO BACKFILLING.
5. AS PARKING LOT IS BROUGHT TO SUBGRADE, APPLY CONSTRUCTION ROAD STABILIZATION.
6. INSTALL UNDERGROUND DETENTION SYSTEM DET-1 AND ALL DOWNSTREAM STRUCTURES TO STR 3. REMOVE CIP AND ADJUST ELEVATION OF PIPE #2 AS NEEDED TO CONNECT INTO STR 3. AN AS-BUILT SURVEY OF THE STORMWATER SYSTEM SHALL BE COMPLETELY DONE. THE SYSTEM SHALL BE INSPECTED AND CERTIFIED BY A PROFESSIONAL ENGINEER PRIOR TO BACKFILLING.
7. BEGIN INSTALLATION OF REMAINDER OF STORM SEWER NETWORK, BEGINNING AT THE DOWNSTREAM END OF EACH RUN, APPLYING INLET PROTECTION IMMEDIATELY TO ANY INLET THAT DOES NOT HAVE A SOLID COVER. ALL INLET PROTECTION SHALL BE A FLEXSTORM INLET FILTER (SEE DETAIL SHEET C14) UNLESS OTHERWISE NOTED.
8. AS GRADING ALLOWS, INSTALL WATER AND SANITARY SEWER INFRASTRUCTURE.
9. ONCE THE PADS FOR UNITS 1-5 AND 9-14 ARE BROUGHT TO SUBGRADE AND UPON APPROVAL FROM THE COUNTY INSPECTOR, REMOVE ST#1*. EXTEND STORM PIPE #1 AND INSTALL OUTLET PROTECTION. INSTALL SANITARY SEWER FROM MH2 TO MH8.
10. FINISH GRADING THE PADS FOR BUILDINGS 1 AND 2 BEGIN BUILDING CONSTRUCTION.
11. BRING PADS FOR BUILDINGS 4 AND 5 TO SUBGRADE AND POUR FOUNDATIONS. ONCE THE PADS FOR UNITS 15-20 HAVE BEEN BROUGHT TO SUBGRADE, AND THE FOUNDATIONS FOR BUILDINGS 4 AND 5 HAVE BEEN POURED, REMOVE ST#2*. FINISH GRADING PAD FOR BUILDING 3 AND BEGIN BUILDING CONSTRUCTION.
12. BEGIN INSTALLATION OF CURBING AND BASE MATERIAL FOR PARKING LOT.
13. SEED AND STABILIZE ALL AREAS NOT RECEIVING ASPHALT OR CONCRETE. ONCE ALL UPSTREAM AREAS ARE STABILIZED, AND UPON APPROVAL FROM THE COUNTY INSPECTOR, BEGIN INSTALLATION OF BIORETENTION BASIN (BIO-1).
14. BEGIN ASPHALT PAVING AND INSTALLATION OF CONCRETE SIDEWALKS.
15. BEGIN INSTALLATION OF LANDSCAPING.
16. ONCE ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED, AND UPON APPROVAL FROM THE COUNTY INSPECTOR, ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE REMOVED FROM THE SITE.
17. PROFESSIONAL ENGINEER MUST SIGN AND SEAL AN AS-BUILT CERTIFICATE OF ALL BMP'S. AN AS-BUILT DRAWING OF THE BMP'S AND PUBLIC UTILITY INFRASTRUCTURE IS ALSO REQUIRED AND MUST BE SUBMITTED AND APPROVED PRIOR TO BOND RELEASE.

3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE
3.03	CONSTRUCTION ROAD STABILIZATION	CRS
3.05	SILT FENCE	SF
3.07	INLET PROTECTION	IP
3.08	CULVERT INLET PROTECTION	CIP
3.17	STORMWATER CONVEYANCE CHANNEL	SCC
3.18	OUTLET PROTECTION	OP
3.20	ROCK CHECK DAMS	CD
3.30	TOPSOILING	TO
3.31	TEMPORARY SEEDING	TS
3.32	PERMANENT SEEDING	PS
3.35	MULCHING	MU
3.36	SOIL STABILIZATION BLANKETS & MATTING	B/M



CONTRACTOR TO PROVIDE PROTECTION FOR STRM STR #2
AND SAN STR #6 DURING SEDIMENT TRAP REMOVAL.



Roanoke / Richmond
New River Valley / Staunton
Harrisonburg / Lynchburg
www.balzer.cc
80 College Street
Suite H
Christiansburg, VA 24073
540.381.4290



APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
EROSION & SEDIMENT CONTROL - PHASE II PLAN

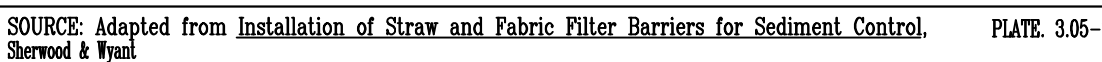
MOUNT TABOR MAGISTERIAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

DRAWN BY TKF
DESIGNED BY TKF
CHECKED BY SMS
DATE 01-18-2021
SCALE 1" = 30'
REVISIONS
1. 5/5/21
2. 11/21/22
3. 2/20/23

PROJECT NO. 24200014.00

C12

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)



SHALLOW SLOPE

ON SHALLOW SLOPES, STRIPS OF NETTING PROTECTIVE COVERINGS MAY BE APPLIED ACROSS THE SLOPE.

WHERE THERE IS A BERM AT THE TOP OF THE SLOPE, BRING THE MATERIAL OVER THE BERM AND ANCHOR IT BEHIND THE BERM.

BERM

STEEP SLOPE

ON STEEP SLOPES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW AND ANCHOR SECURELY.

BRING MATERIAL DOWN TO A LEVEL AREA BEFORE TERMINATING THE INSTALLATION. TURN THE END UNDER 4" AND STAPLE AT 12" INTERVALS.

4' 12'

DITCH

FLOW

IN DITCHES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. USE CHECK SLOTS AS REQUIRED, AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE.

PLATE: 3.36-1

The image contains four technical drawings of a trench drain system:

- SIDE ELEVATION:** Shows the profile of the trench. It includes a 70" MIN. length, a 6" MIN. width, and a 5:1 slope. Labels include "FILTER CLOTH", "A", "EXISTING PAVEMENT", and "MOUNTABLE BERM (OPTIONAL)".
- PLAN VIEW:** Shows the top-down view of the trench. It includes a 70" MIN. length, a 12" MIN. width, and a 10" MIN. depth. Labels include "WASHBACK (OPTIONAL)", "POSITIVE DRAINAGE TO SEDIMENT TRAPPING DEVICE", "EXISTING PAVEMENT", and "V-BOX #1 COURSE AGGREGATE".
- SECTION A-A:** A cross-section showing the trench profile with a 12" MIN. width and a 3" MIN. depth. It includes a "FILTER CLOTH" and a "DRAIN SPACE".
- SECTION B-B:** A cross-section showing the trench profile with a 6"-7" width and a 3" MIN. depth. It includes a "REINFORCED CONCRETE" base and a "DRAIN SPACE".

*** MUST EXTEND FULL WIDTH OF INGRESS AND EGRESS OPERATION**

Plate 3.02-1

NOTE:
APPROXIMATELY 200 STAPLES REQUIRED
PER 100 SQ. YDS. OF MATERIAL ROLL.
ANCHOR SLOTS, JUNCTION SLOTS &
CHECK SLOTS MUST BE BURIED 6" TO 12".

12" MAX. 4:1 OR FLATTER
6" MAX. STEEPER THAN 4:1

ANCHOR SLOT

JUNCTION SLOT

CHECK SLOT *

TERMINAL FOLD

LAP JOINT 2" MIN.
(JUTE MESH ONLY)

TAMP FIRMLY

2"

6" TO 12"

5' MAX. 4:1 OR FLATTER
3' MAX. STEEPER THAN 4:1

EDGE AND END JOINTS
TO BE SNICELY ABUTTED
(JUTE MESH WILL HAVE
STAPLED LAP JOINT IN
LIEU OF EDGE JOINT)

*CHECK SLOT

1" TO 2"

6" TO 8" MIN.

VAR. VAR.

PLAN VIEW

STAPLING DIAGRAM

STAPLE FORMED FROM NO.11 STEEL WIRE.
50" C-C INTERVAL
8" STAPLE MIN. LENGTH FOR SANDY SOIL.
6" STAPLE MIN. LENGTH FOR OTHER SOIL.

*CHECK SLOTS AT MAX.
50" C-C INTERVAL
NOT REQ'D WITH A
"COMBINATION" BLANKET

JUNCTION SLOT

TAMP FIRMLY

2"

12"

6" TO 12"

TERMINAL FOLD

TAMP FIRMLY

4"

2"

PLATE: 3.36-2

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 9VAC25-840 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT, ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

FERTILIZER & LIME	
<ul style="list-style-type: none"> ● Apply 10-20-10 fertilizer at a rate of 500 lbs. / acre (or 12 lbs. / 1,000 sq. ft.) ● Apply Pulverized Agricultural Limestone at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.) 	
NOTE: <ul style="list-style-type: none"> - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site. - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means. - When applying Slowly available Nitrogen, use rates available in <u>Erosion & Sediment Control Technical Bulletin # 4</u>, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/es/s&ss.html#pubs 	

DUST CONTROL PROCEDURES

1. VEGETATIVE COVER: PHASE CLEARING AND GRADING OPERATIONS AND UTILIZE TEMPORARY SEEDING IN ACCORDANCE WITH MS #1.
2. IRRIGATION: SPRAY UNTIL SURFACE IS WET; OFFERS FAST PROTECTION.
3. STONE: EFFECTIVE TO STABILIZE ROADS USING CRUSHED STONE OR COARSE GRAVEL.
4. MULCH: NOT RECOMMENDED FOR AREAS WITHIN HEAVY TRAFFIC PATHWAYS. BINDERS OR TACKIFIERS SHOULD BE USED TO TACK ORGANIC MULCHES.

MINIMUM STANDARDS

- PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.
2. DURING CONSTRUCTION OF A PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.
3. A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
4. SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS, AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPLOUSE LAND DISTURBANCE TAKES PLACE.
5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES, AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.
6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.
- A. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.
- B. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS BEING UTILIZED.
7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND THE RECEIVING CHANNEL.
12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENDOCRANCHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE. DURING CONSTRUCTION, NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED ON NONERODIBLE MATERIAL SHALL BE PROVIDED.
14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.
16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
- A. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
- B. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
- C. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
- D. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
- E. RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE
- 2)(a) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.
- 2)(b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
- 2)(c) PIPES AND STORM SEWER CONVEYANCE SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
- IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
- 1) IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL BED OR BANKS; OR
- 2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES; OR
- 3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR
- 4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
- D. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
- E. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT OF THE SUBJECT PROJECT.
- F. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.
- G. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PROVIDED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.
- H. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.
- I. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTFLET, ADEQUATE CHANNEL, PIPE, OR PIPE SYSTEM, OR TO A DETENTION FACILITY.
- J. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.
- K. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL, AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS, AND OTHER WATERS OF THE STATE.
- L. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (I) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (II) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE FOREPEAK INFILTRAL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (III) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 82-1-44.15.54 OR 82-1-44.15.65 OF THE ACT.
- M. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 82-1-44.15.52 OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUALITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 82-1-44.15.24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 9VAC25-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSPM) REGULATIONS.
- N. COMPLIANCE WITH THE WATER QUALITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSPM) REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF SUBDIVISION 19 OF THIS SUBSECTION.

TABLE 3.35—A

N. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMF) REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF SUBDIVISION 19 OF THIS SUBSECTION.

Test	Recommended Application of Agricultural Limestone	Depth (inches)	Per 1,000 Square Feet	Per Acre
4.2	3 tons per acre	1	3.1	
5.2	2 tons per acre	2	6.2	
		3	9.3	
5	1 ton per acre	4	12.4	
		5	15.5	
		6	18.6	

Source: Va. DSWC

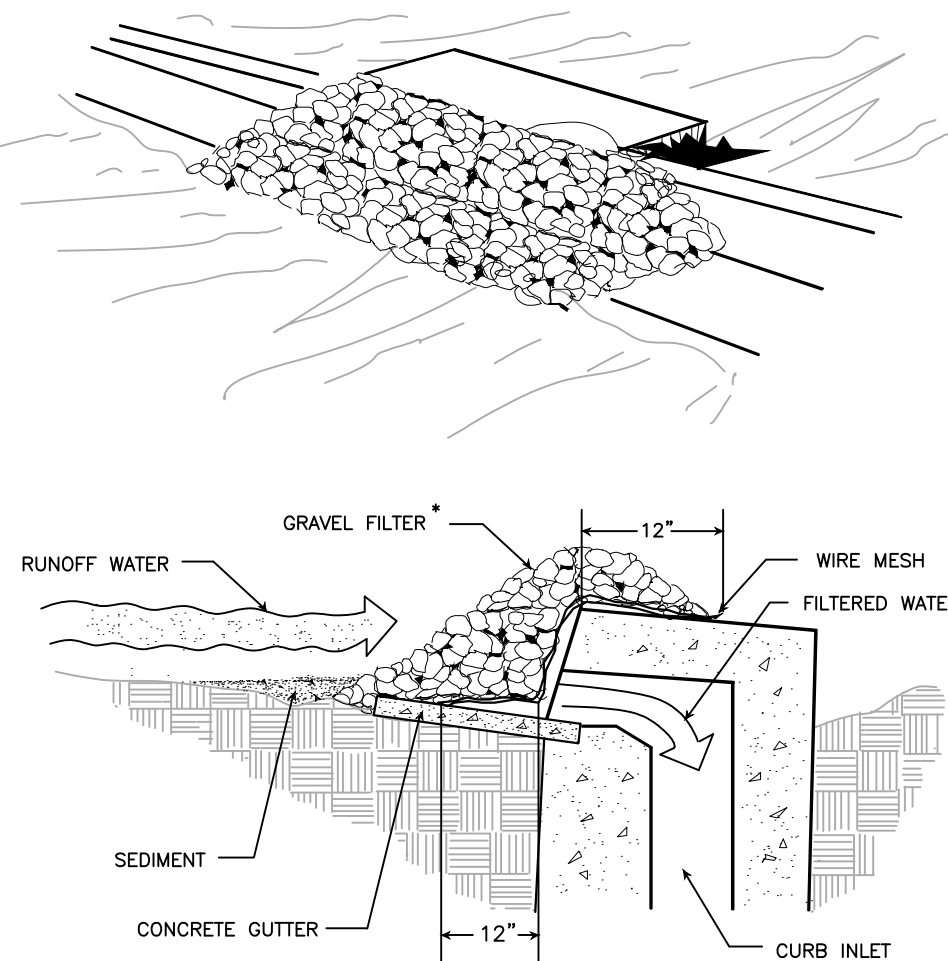
Source: Va. DSWC

3. 2/20/23

PROJECT NO. 24200014.0

C13

GRAVEL CURB INLET SEDIMENT FILTER



SPECIFIC APPLICATION

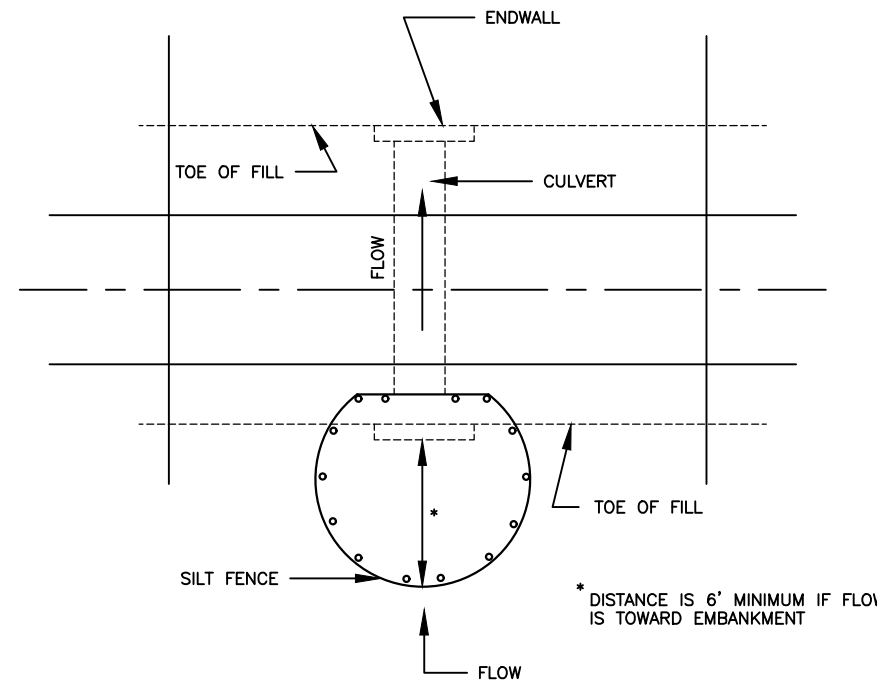
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

* GRAVEL SHALL BE VDOT #3, #357 OR 5 COARSE AGGREGATE.

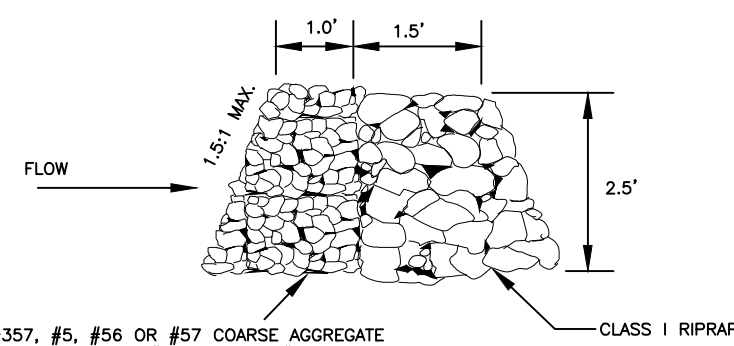
SOURCE: VA. DSWC

PLATE 3.07-6

SILT FENCE CULVERT INLET PROTECTION



OPTIONAL STONE COMBINATION **

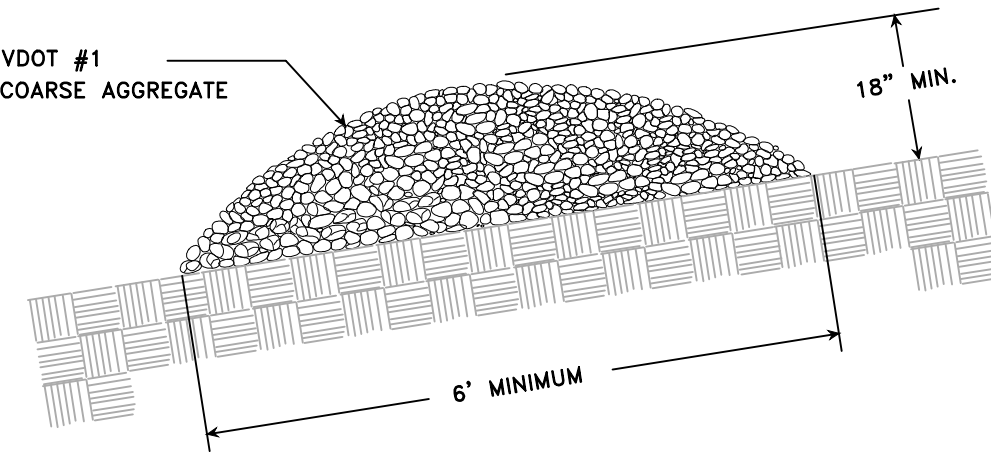


** VDOT #3, #357, #5, #56 OR #57 COARSE AGGREGATE TO REPLACE SILT FENCE IN 4' HORSESHOE - WIDEN HIGH VELOCITY OF FLOW IS EXPECTED

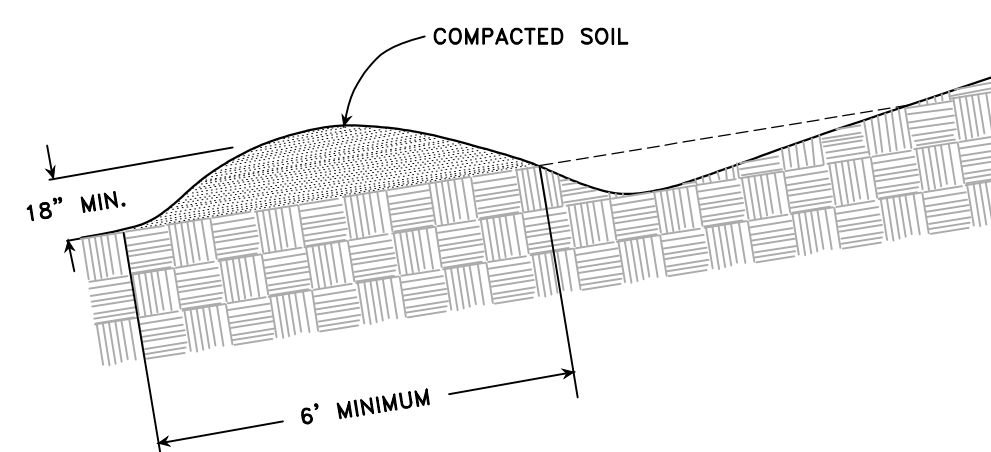
SOURCE: ADAPTED FROM VDOT Standard Sheets and Va. DSWC

PLATE 3.08-1

TEMPORARY RIGHT-OF-WAY DIVERSIONS



TYPICAL GRAVEL STRUCTURE

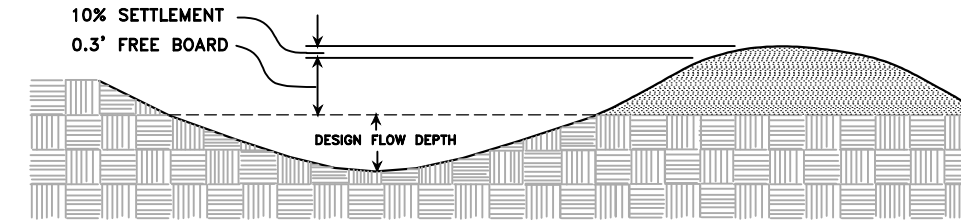


TYPICAL EARTHEN STRUCTURE

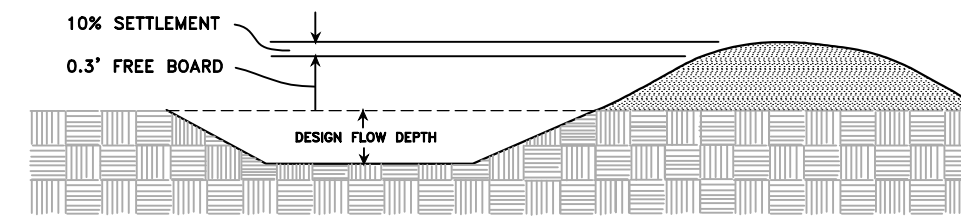
SOURCE: Va. SWCC

Plate 3.11-1

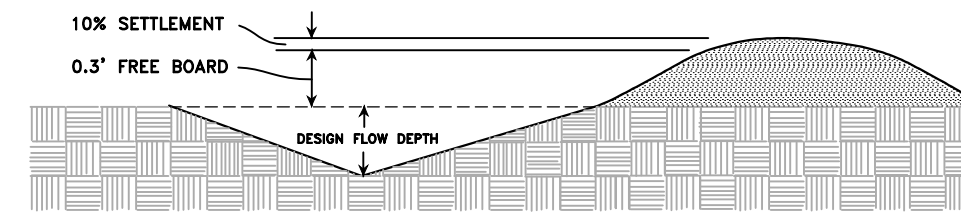
DIVERSIONS



TYPICAL PARABOLIC DIVERSION



TYPICAL TRAPEZOIDAL DIVERSION



TYPICAL VEE-SHAPED DIVERSION

SOURCE: VA. DSWC

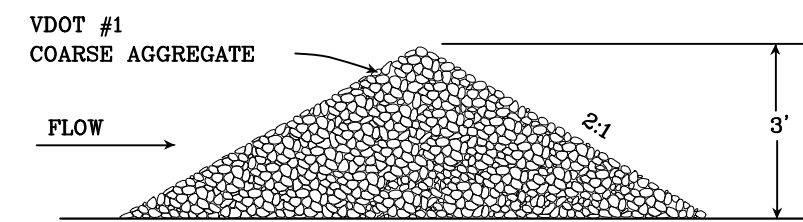
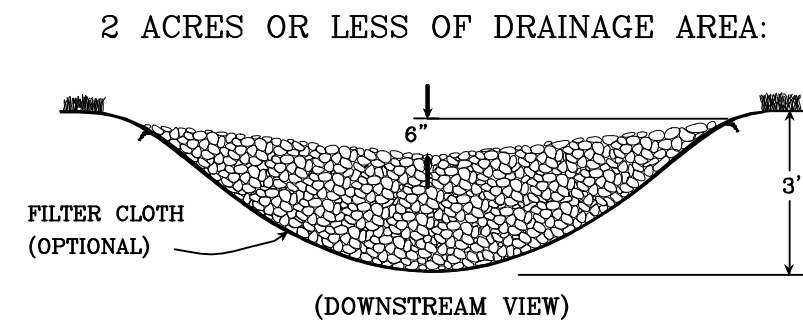
Plate 3.12-1

DV #1:
3H:1V SIDE SLOPES
2' FLAT BOTTOM
DESIGN FLOW DEPTH = 0.17'
MIN. TOTAL DEPTH = 1.0'

DV #2:
3H:1V SIDE SLOPES
2' FLAT BOTTOM
DESIGN FLOW DEPTH = 0.10'
MIN. TOTAL DEPTH = 1.0'

DV #3:
3H:1V SIDE SLOPES
2' FLAT BOTTOM
DESIGN FLOW DEPTH = 0.39'
MIN. TOTAL DEPTH = 1.0'

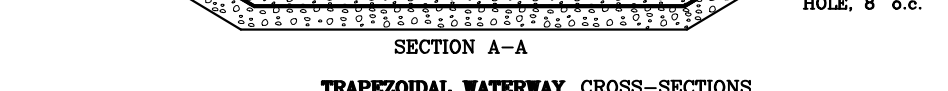
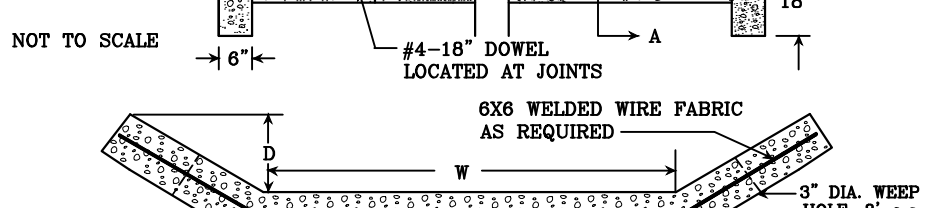
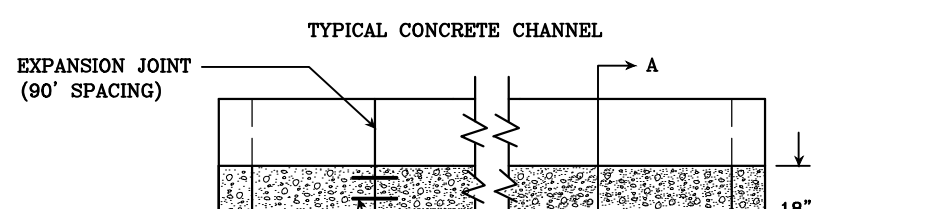
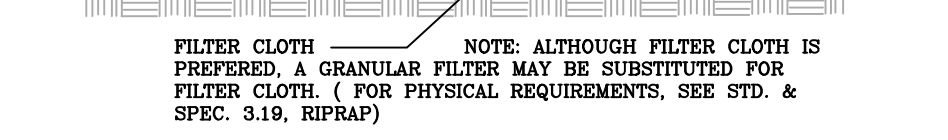
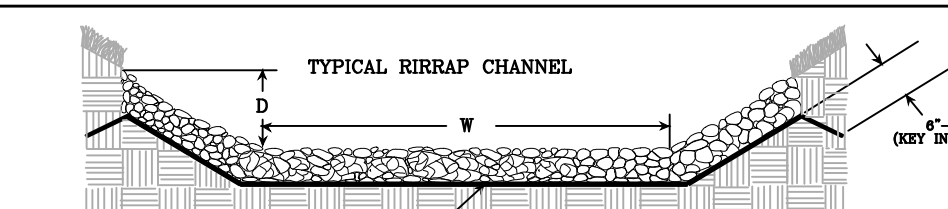
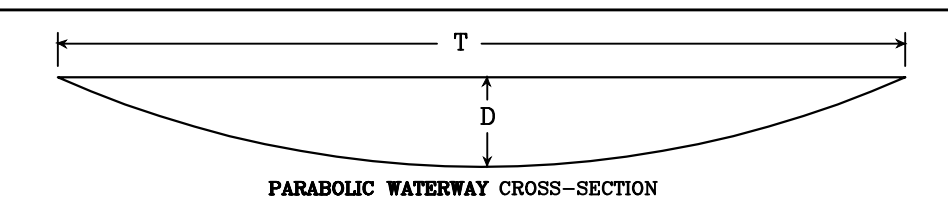
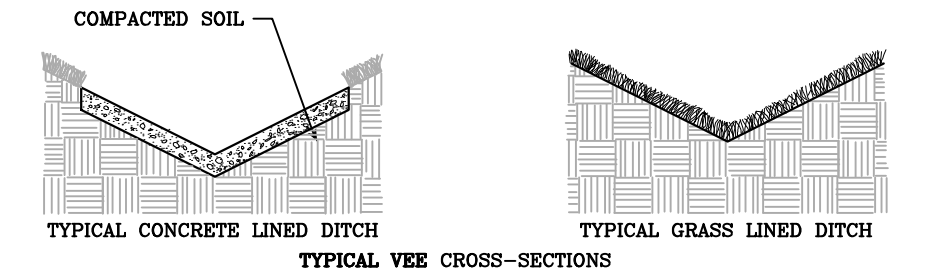
ROCK CHECK DAM



SOURCE: VA. DSWC

PLATE 3.20-1

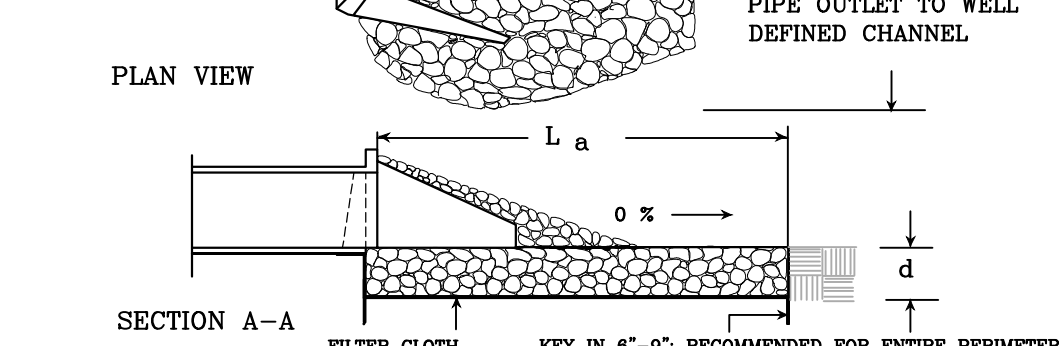
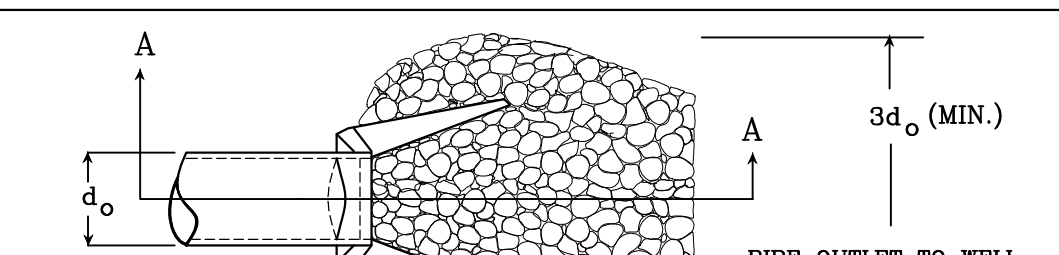
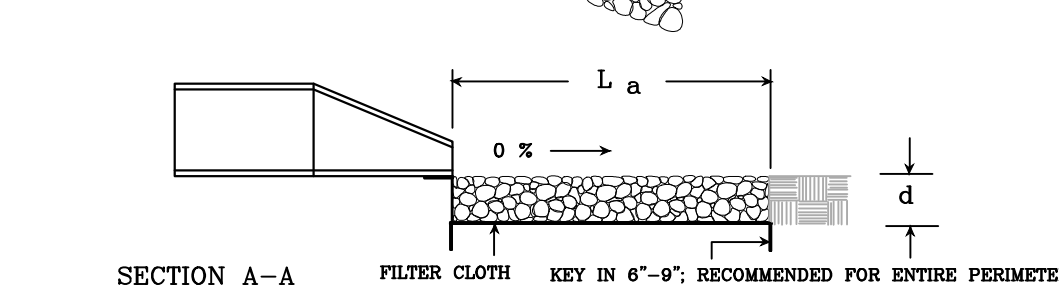
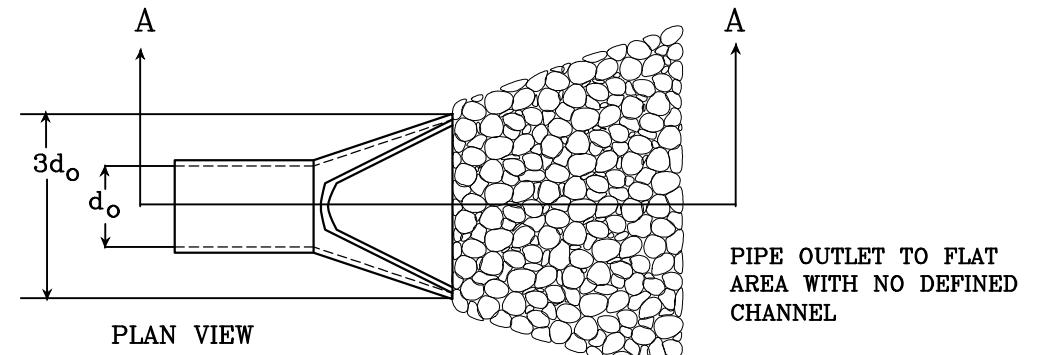
TYPICAL WATERWAY CROSS-SECTIONS



SOURCE: VA. DSWC

PLATE 3.17-1

PIPE OUTLET CONDITIONS

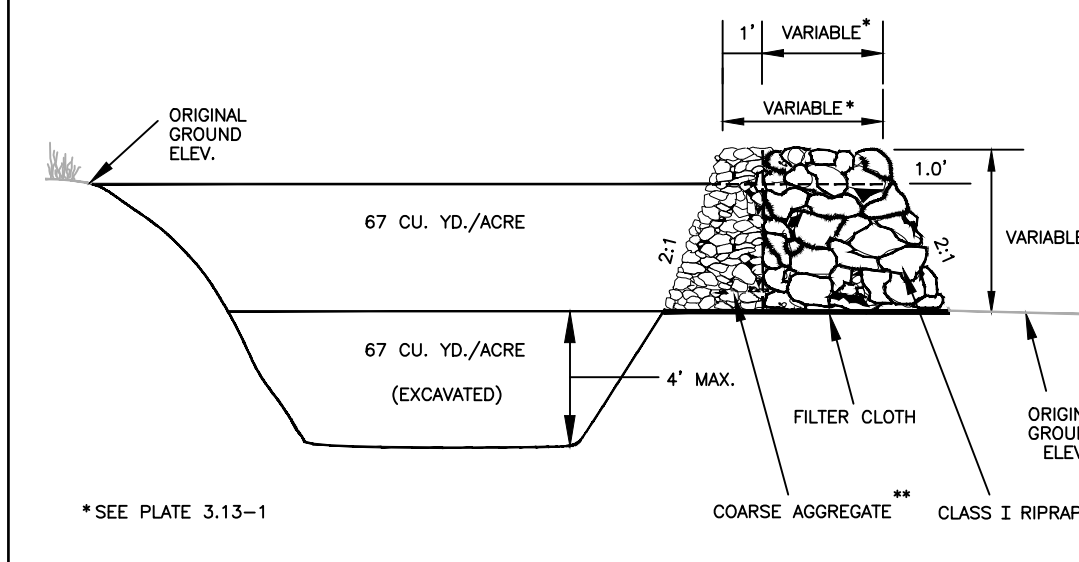


NOTES: 1. APRON LINING MAY BE RIPPAP, GROUTED RIPPAP, GABION BASKET, OR CONCRETE.
2. L_a IS THE LENGTH OF THE RIPPAP APRON AS CALCULATED USING PLATES 3.18-3 AND 3.18-4.
3. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER, BUT NOT LESS THAN 6 INCHES.

SOURCE: VA. DSWC

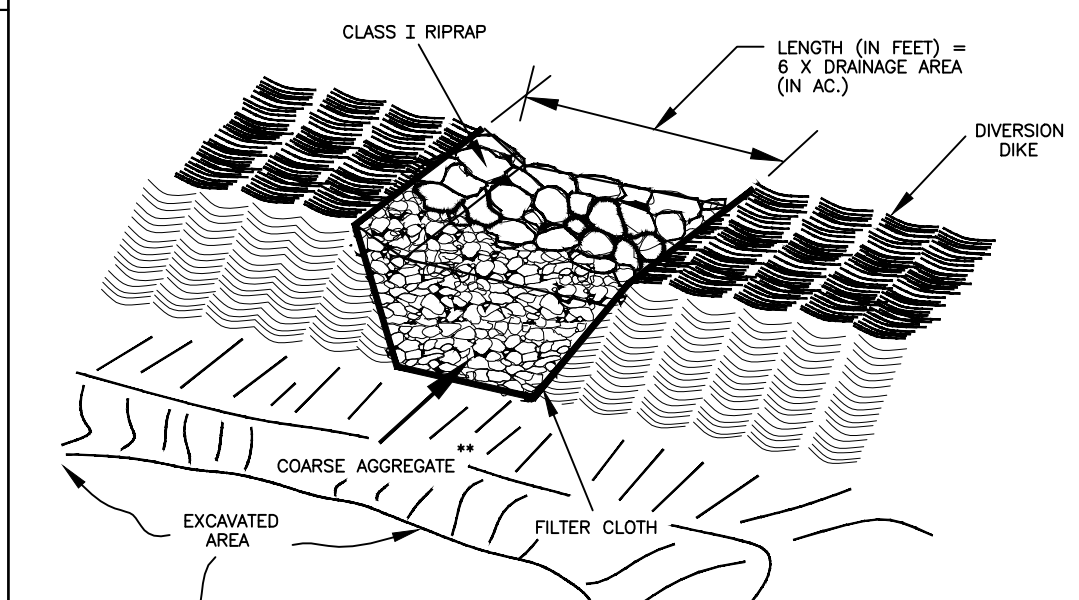
Plate 3.18-1

TEMPORARY SEDIMENT TRAP



*SEE PAGE 3.13-1

CROSS SECTION OF OUTLET



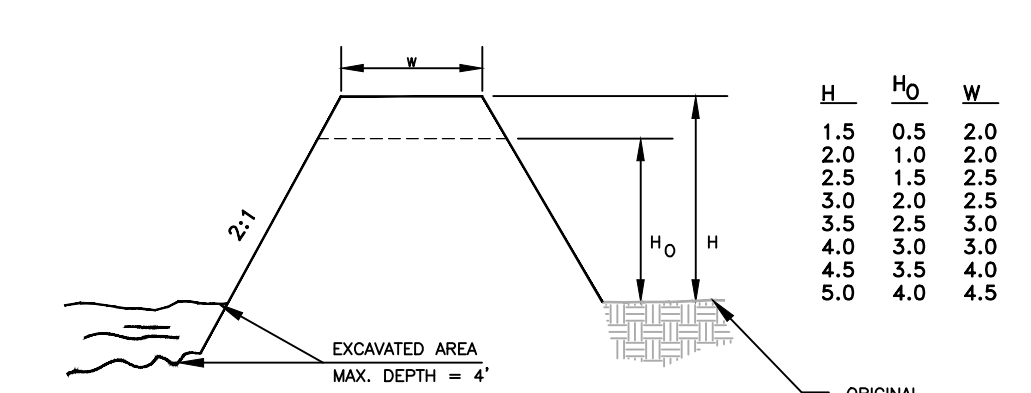
**COARSE AGGREGATE SHALL BE VDOT #3, #357 OR #5

OUTLET (PERSPECTIVE VIEW)

SOURCE: VA. DSWC

PLATE 3.13-2

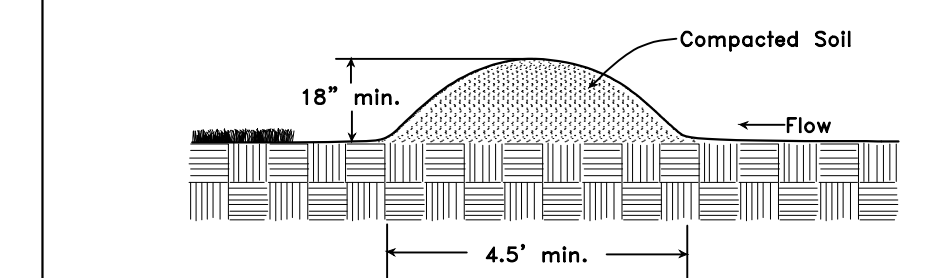
MINIMUM TOP WIDTH (W) REQUIRED FOR SEDIMENT TRAP EMBANKMENTS ACCORDING TO HEIGHT OF EMBANKMENT (FEET)



SOURCE: VA. DSWC

PLATE 3.13-1

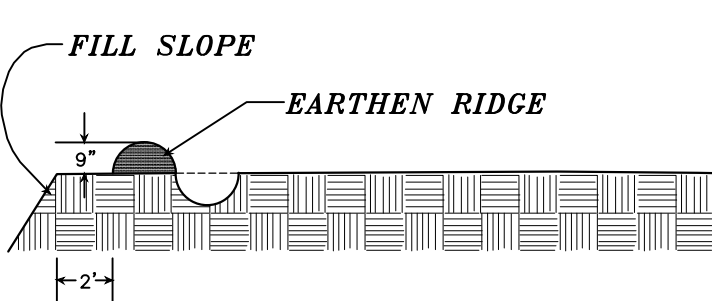
TEMPORARY DIVERSION DIKE



SOURCE: VA. DSWC

PLATE 3.09-1

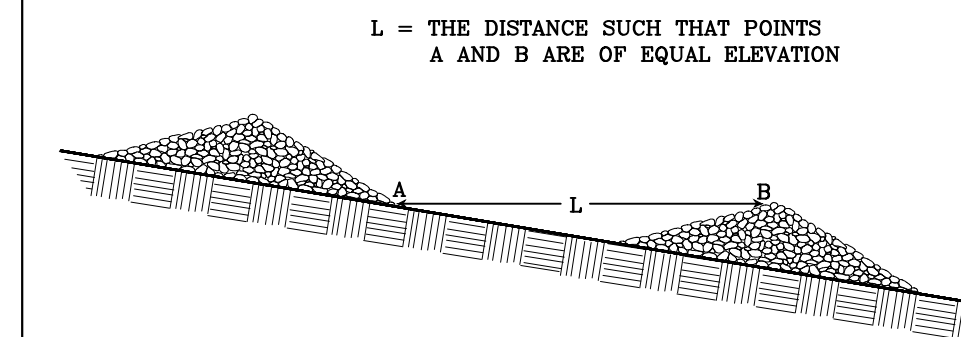
TEMPORARY FILL DIVERSION



SOURCE: VA. DSWC

PLATE 3.10-1

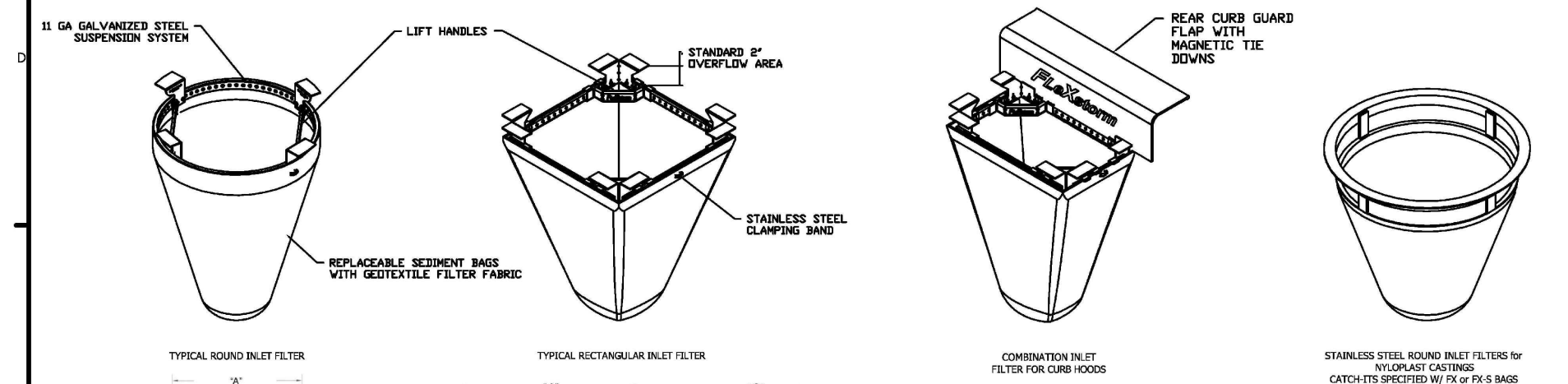
SPACING BETWEEN CHECK DAMS



SOURCE: VA. DSWC

PLATE 3.20-2

FLEXSTORM CATCH-IT FILTERS FOR TEMPORARY INLET PROTECTION PRODUCT SELECTION AND SPECIFICATION DRAWING

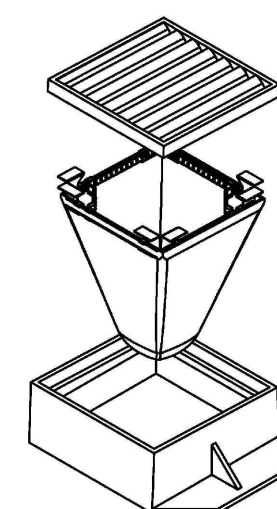


NOTES:

- ALL FRAMING IS CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED) FOR 7 YEAR MINIMUM SERVICE LIFE.
- UPON ORDERING CONFIRMATION OF THE DOT CALLOUT, PRECAST OR CASTING MAKE AND MODEL, OR DETAILED DIMENSIONAL FORMS MUST BE PROVIDED TO CONFIGURE AND ASSEMBLE YOUR CUSTOMIZED FLEXSTORM INLET FILTER. PART NUMBER ALONE IS NOT SUFFICIENT.
- FOR WRITTEN SPECIFICATIONS AND MAINTENANCE GUIDELINES VISIT WWW.INLETFILTERS.COM

INSTALLATION:

- REMOVE GRATE
- DROP FLEXSTORM INLET FILTER ONTO LOAD BEARING LIP OF CASTING OR CONCRETE STRUCTURE
- REPLACE GRATE



APOGEE TOWNHOMES

CLAY STREET AND CHERRY LANE

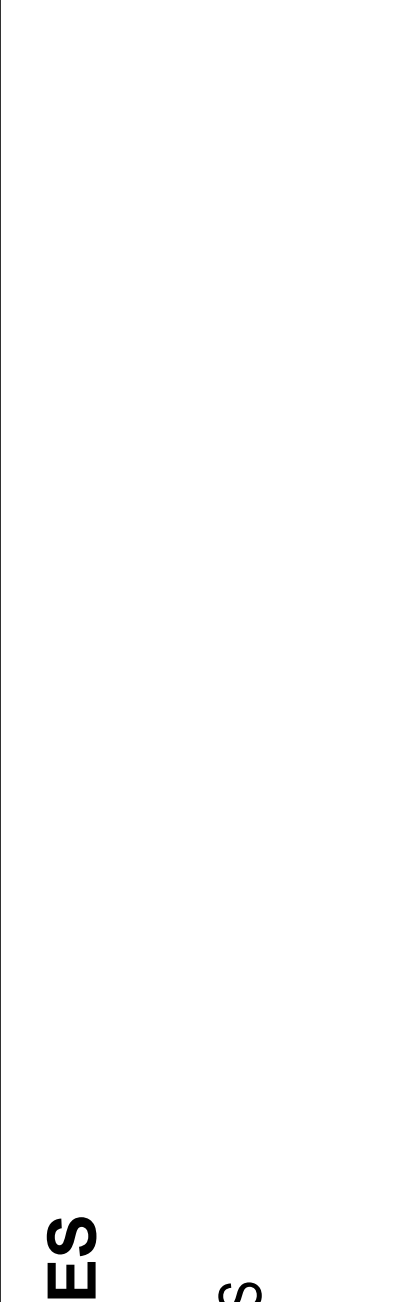
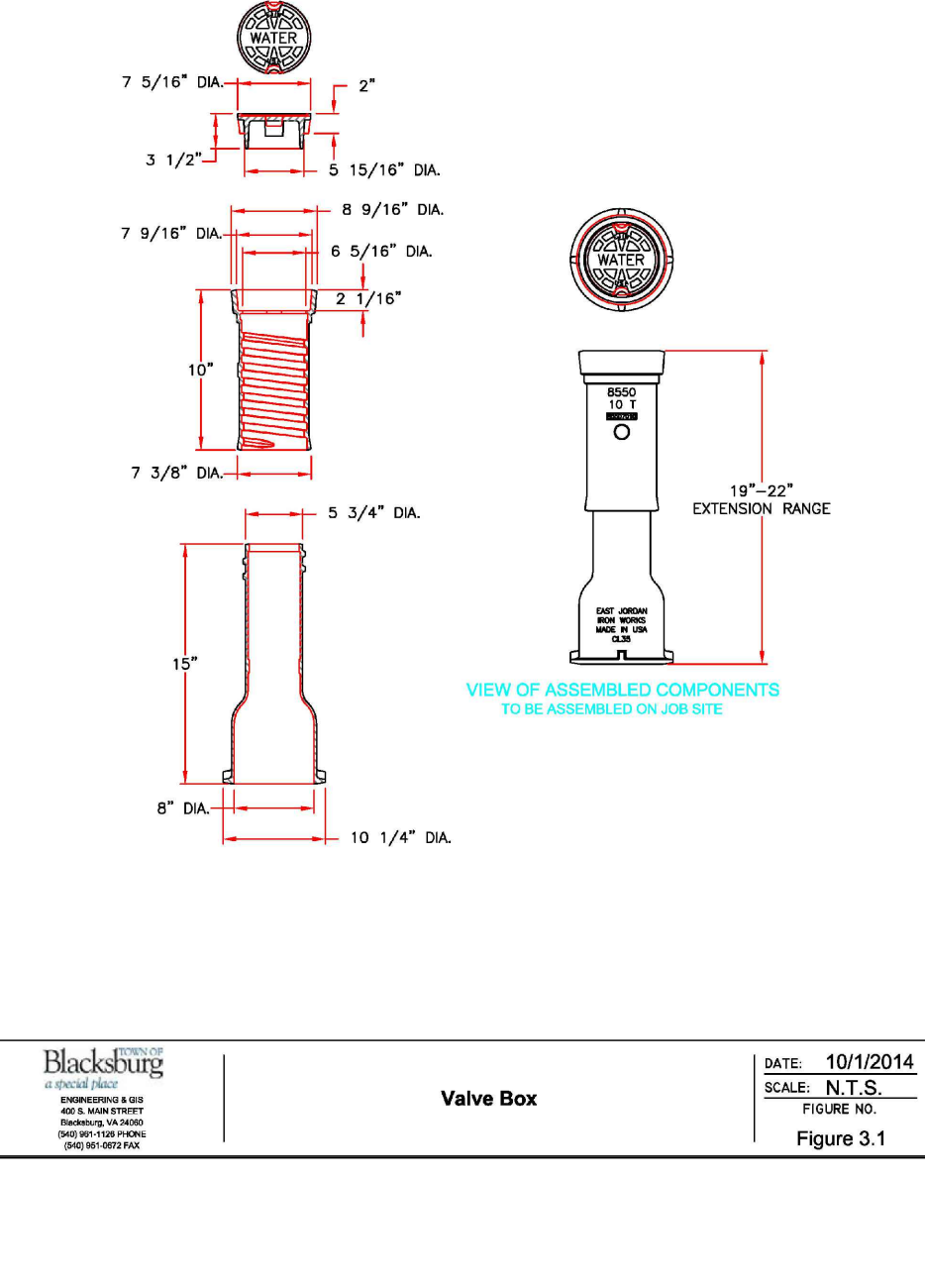
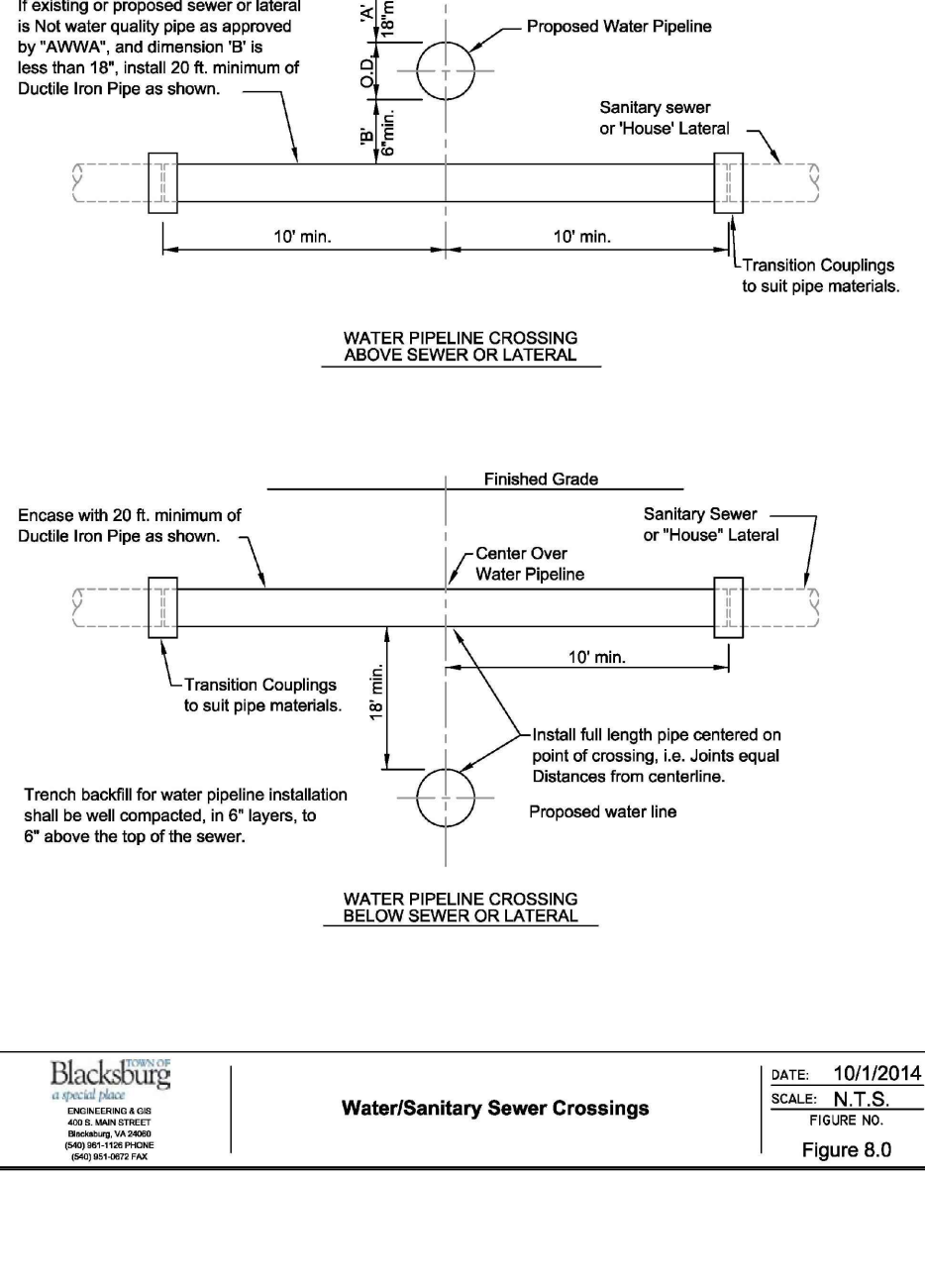
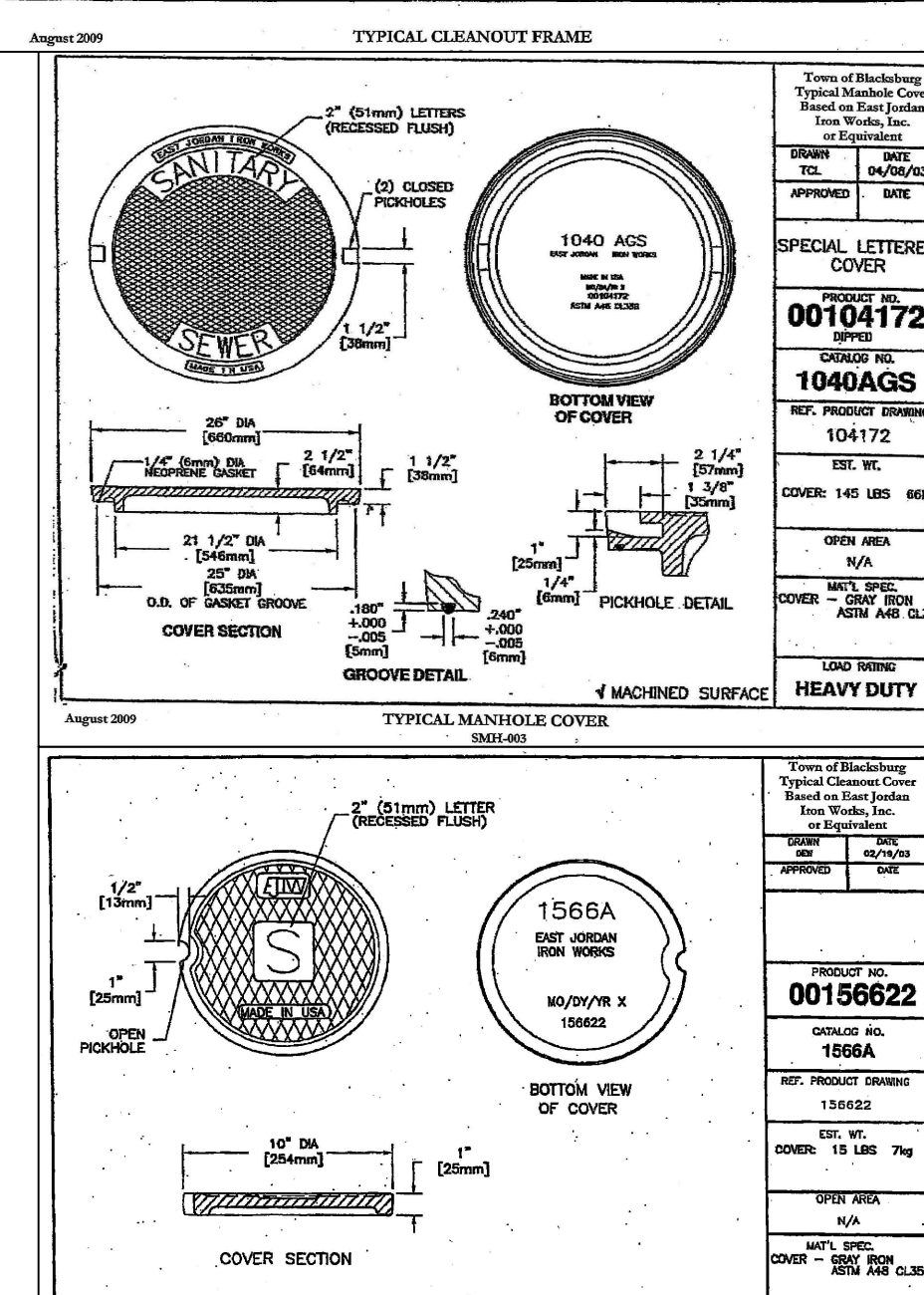
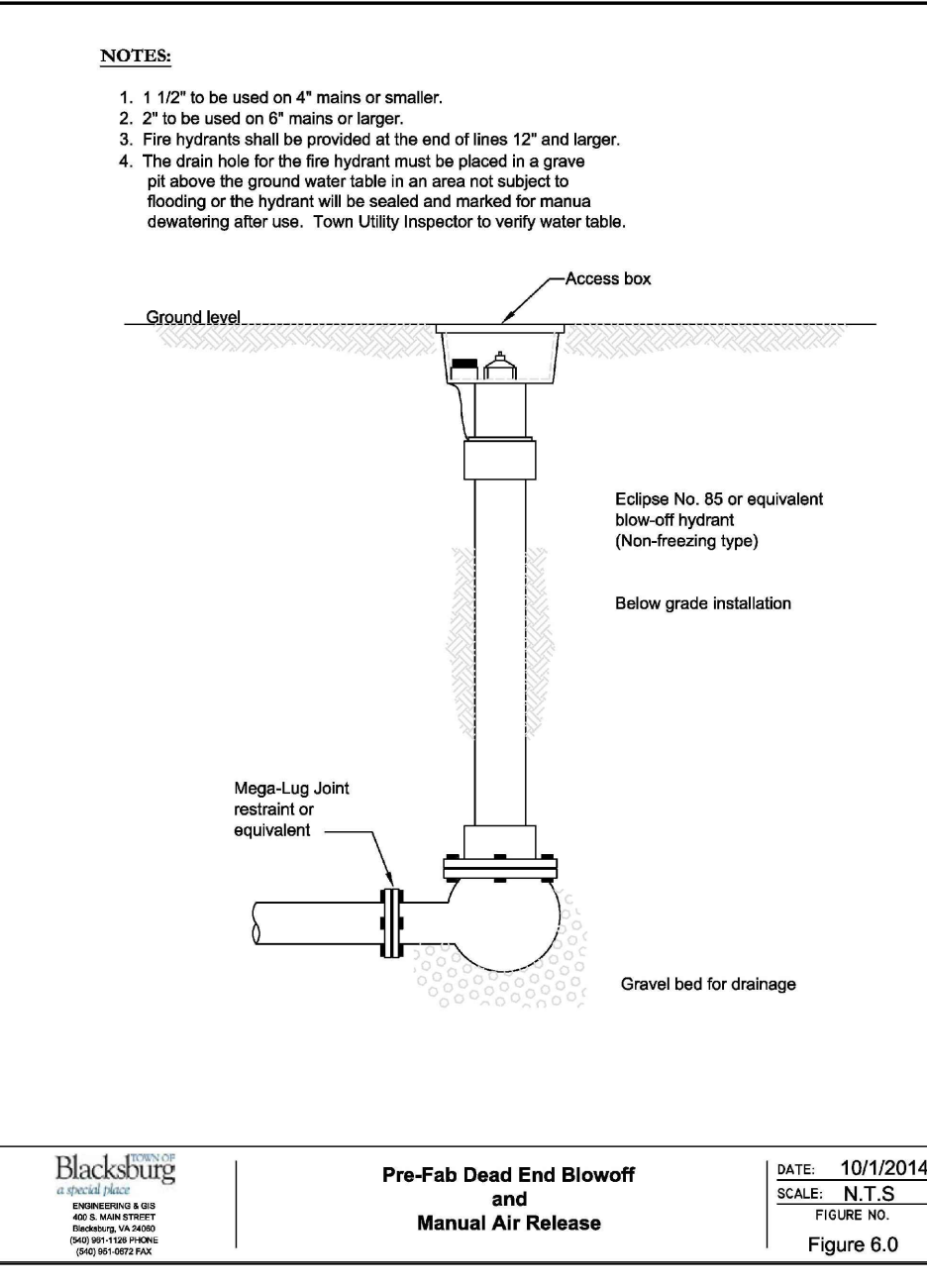
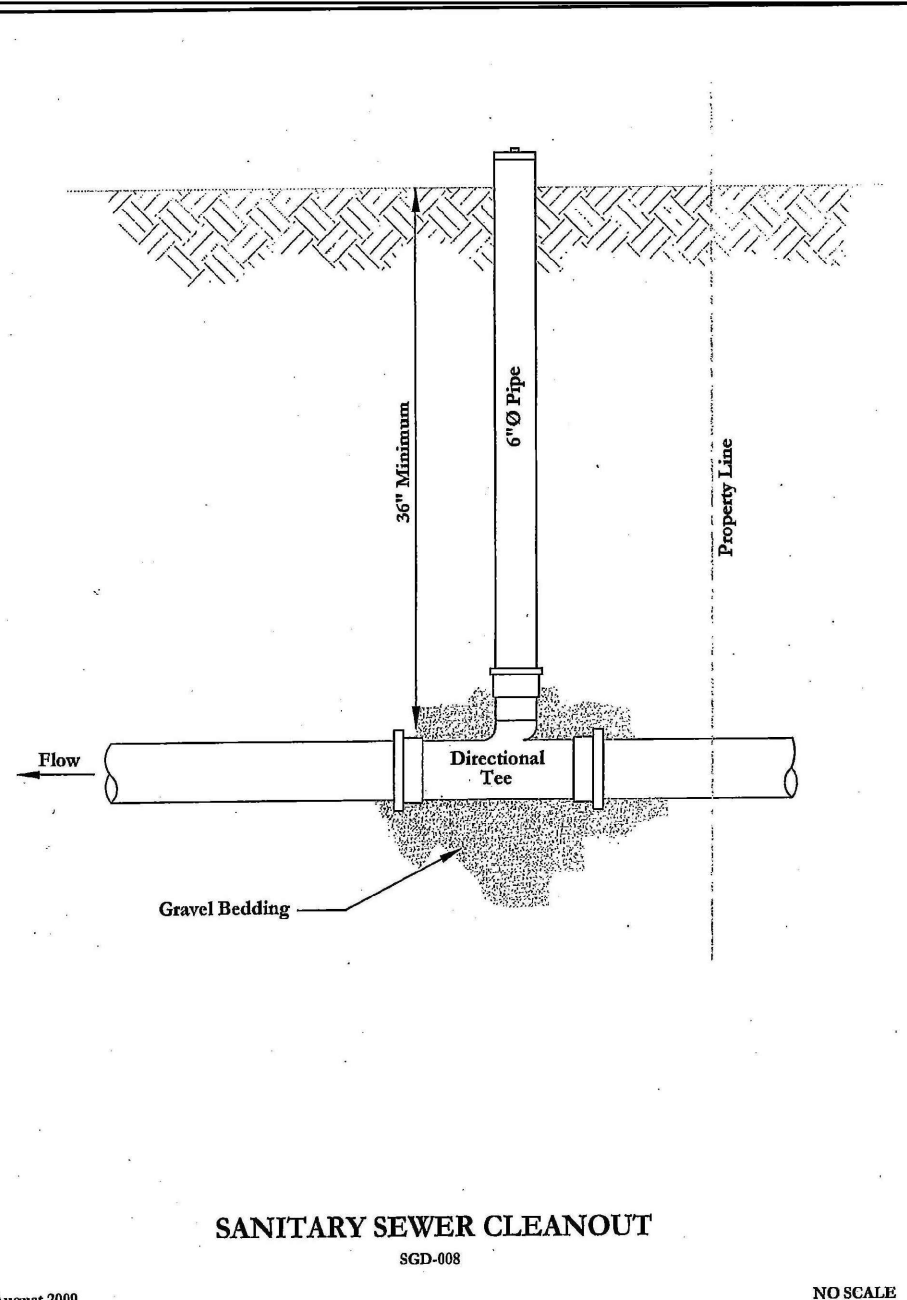
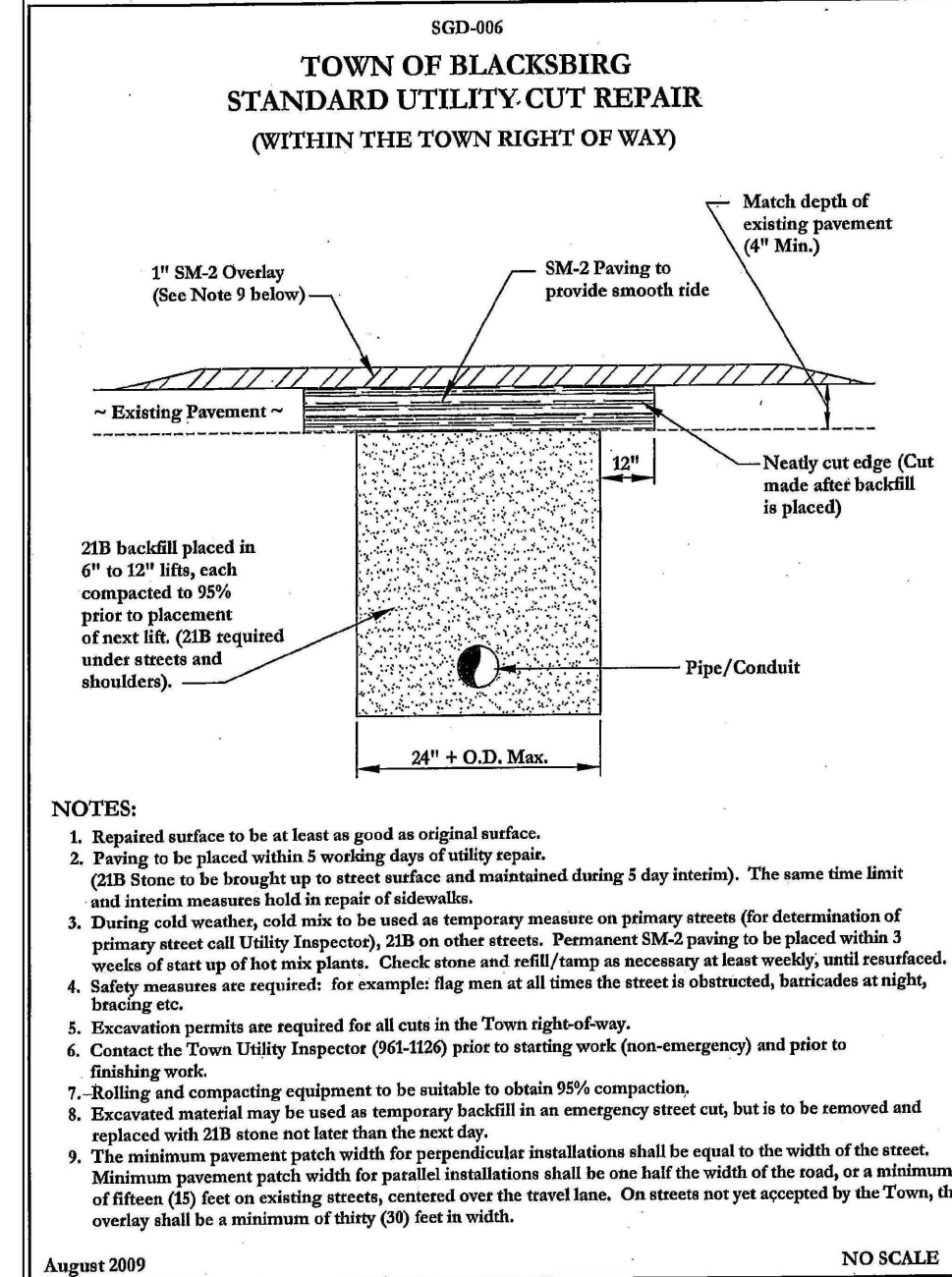
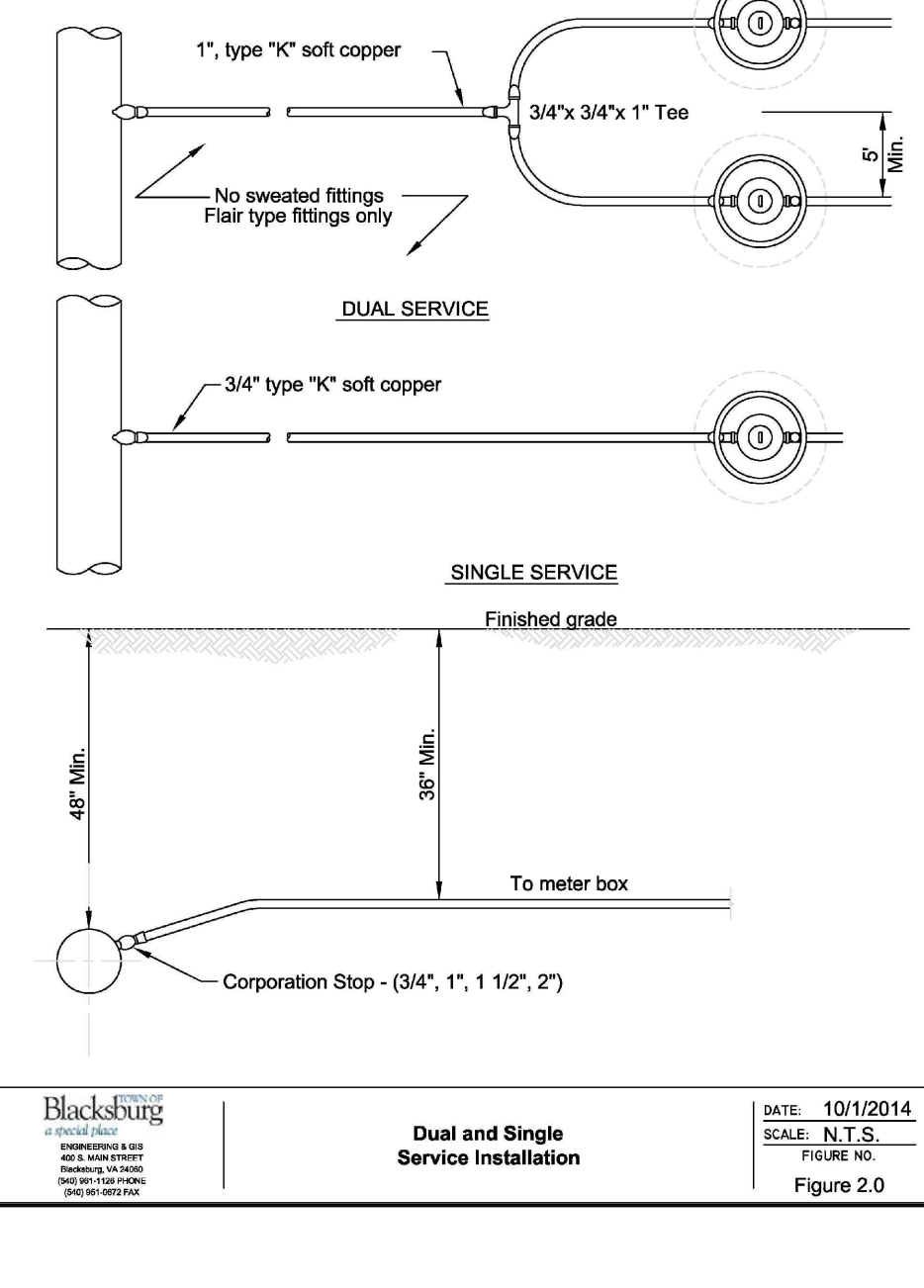
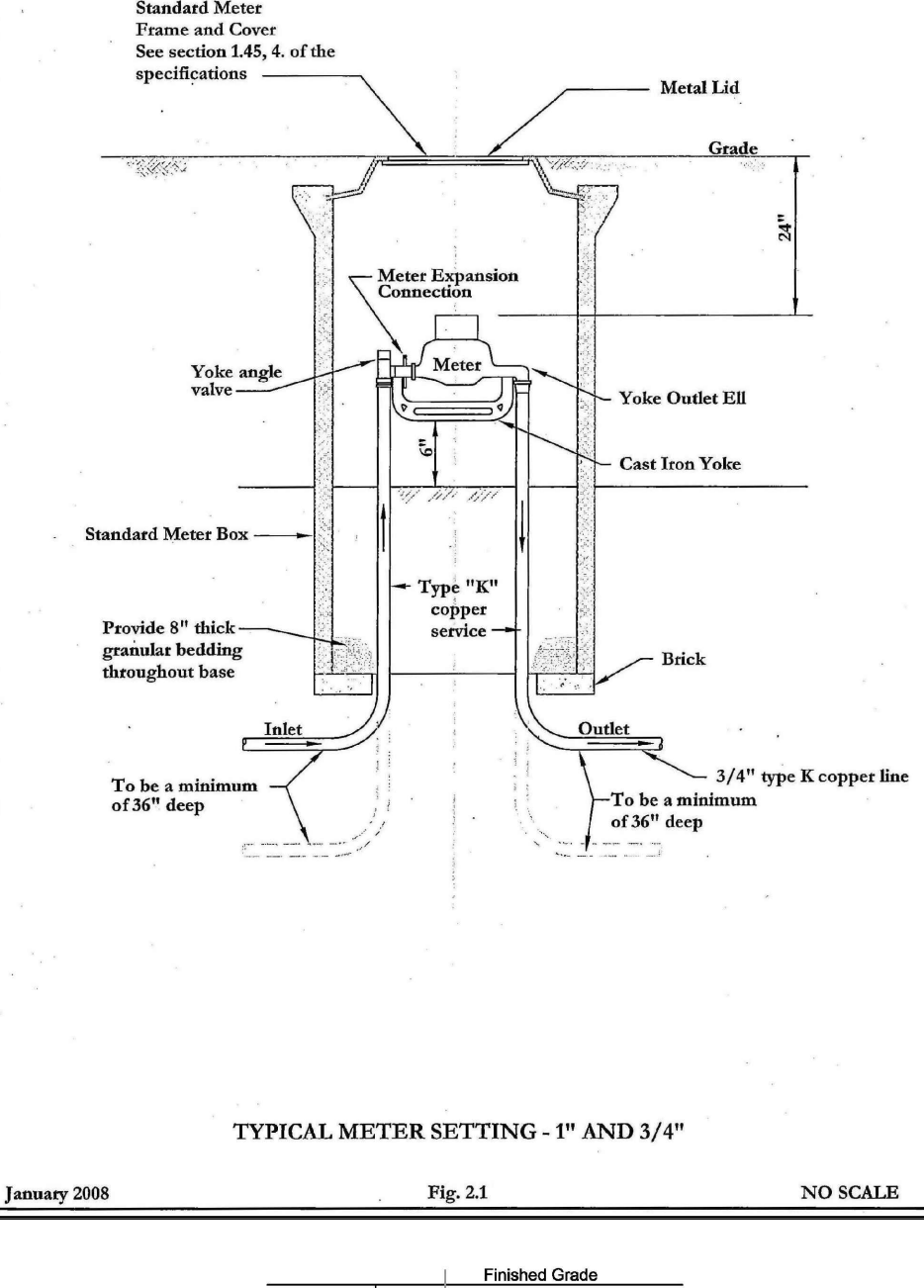
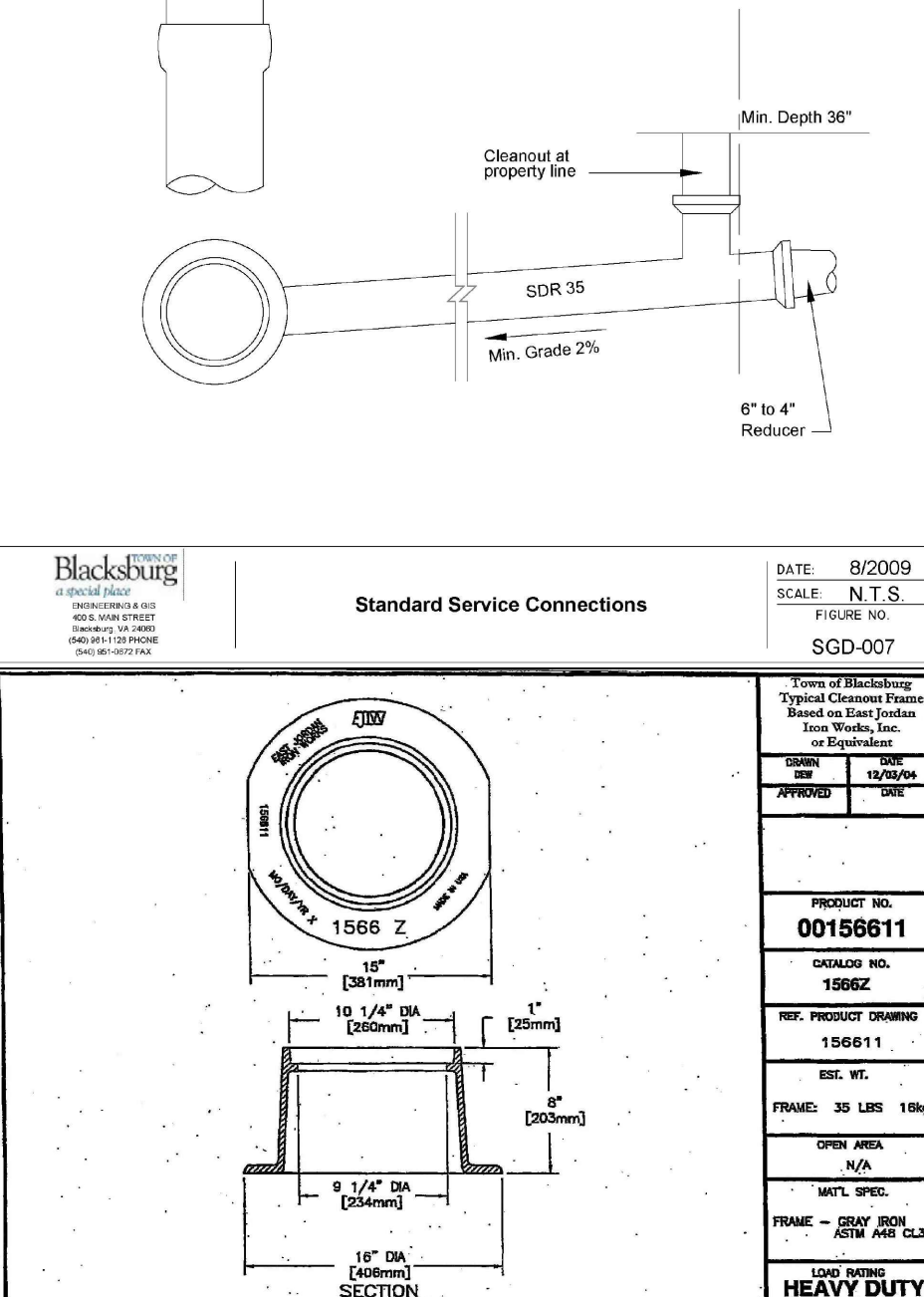
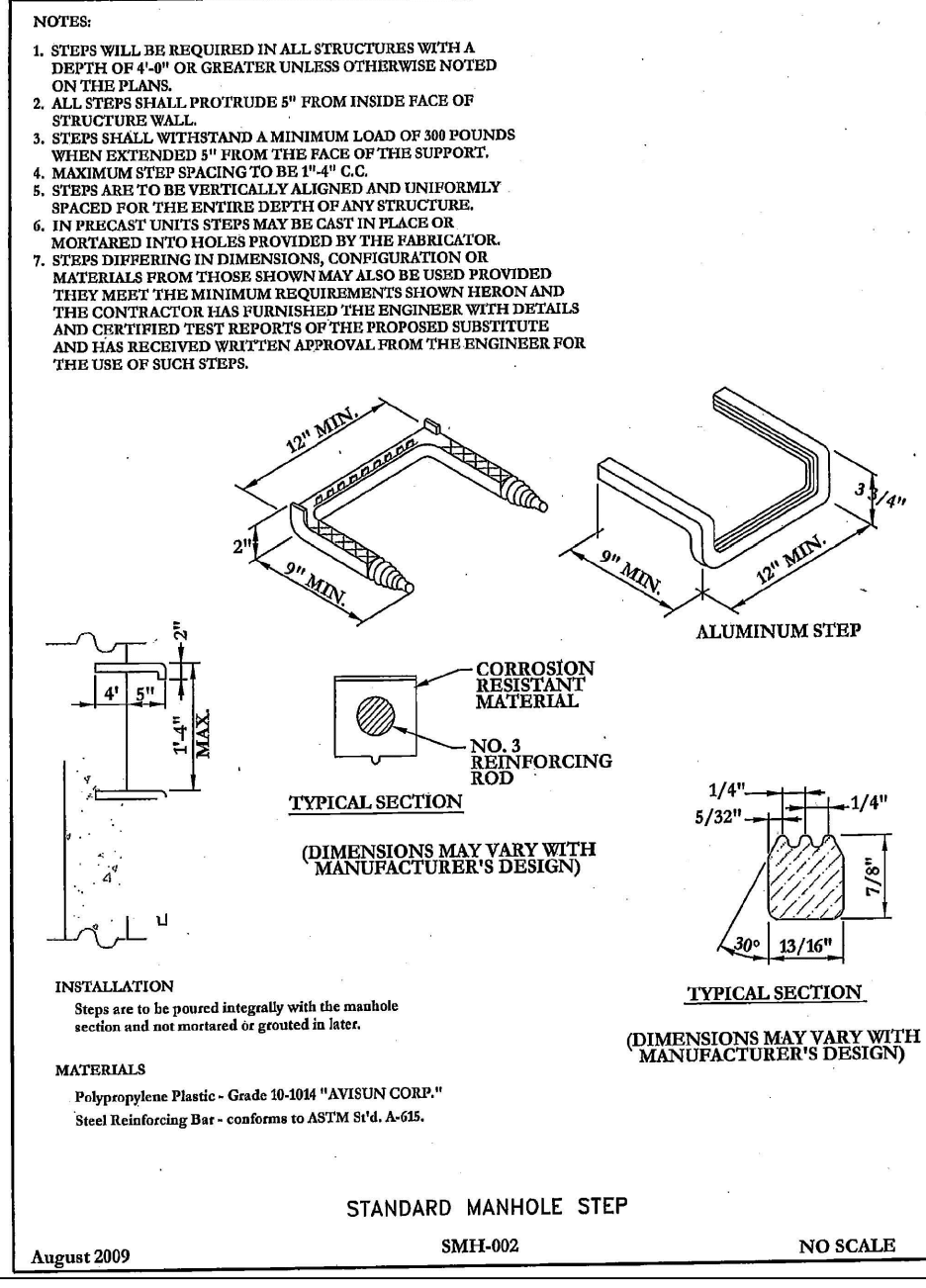
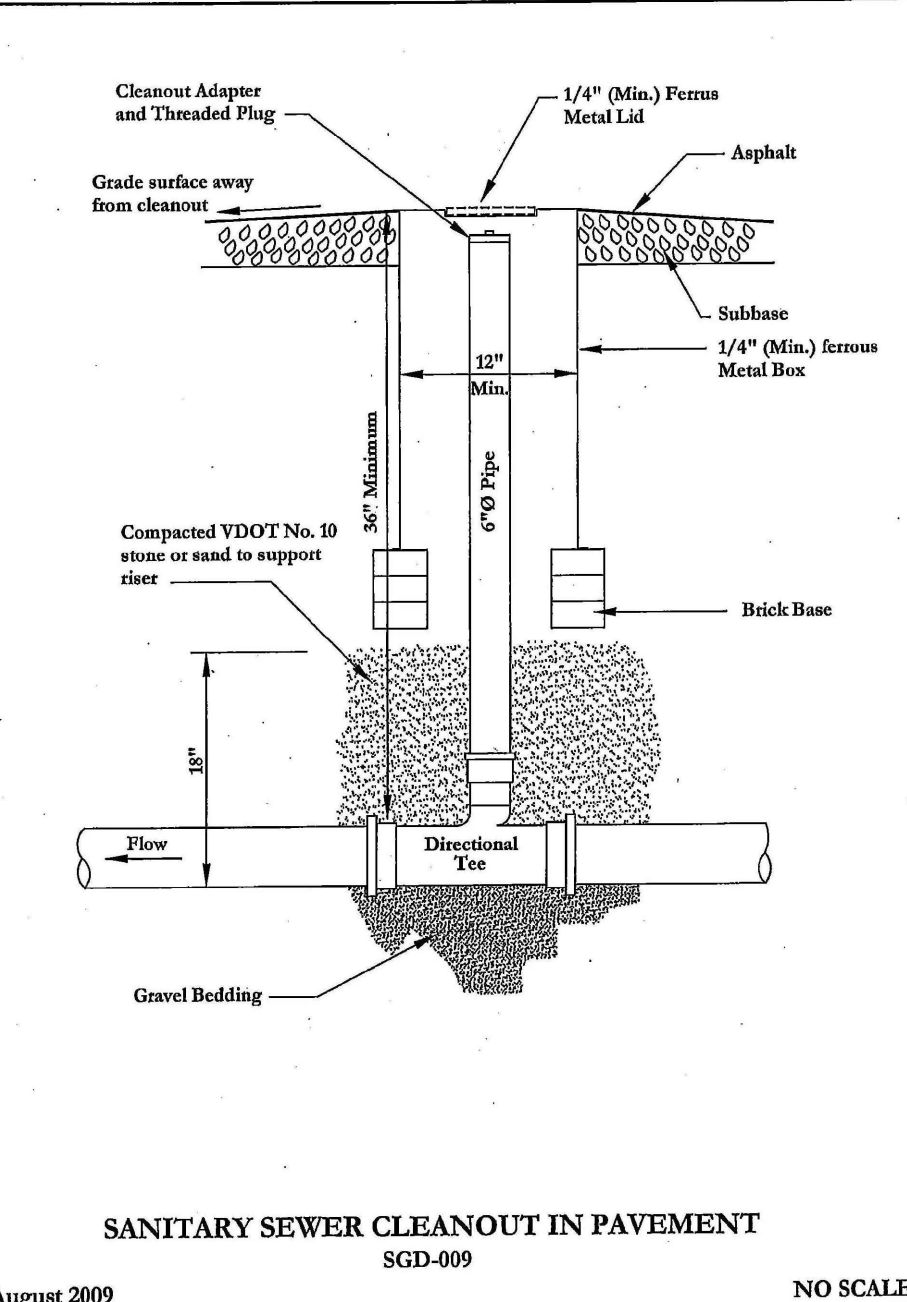
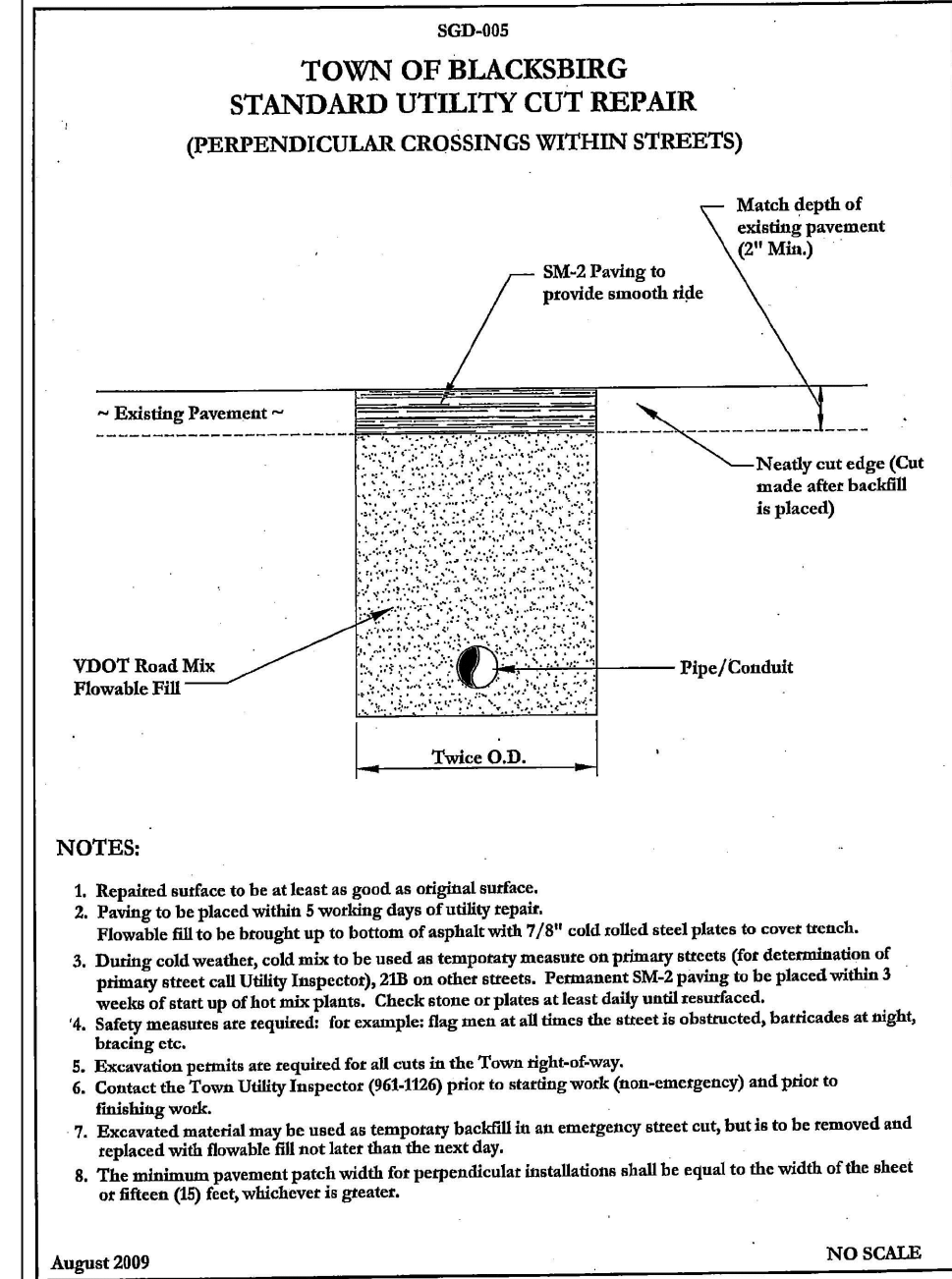
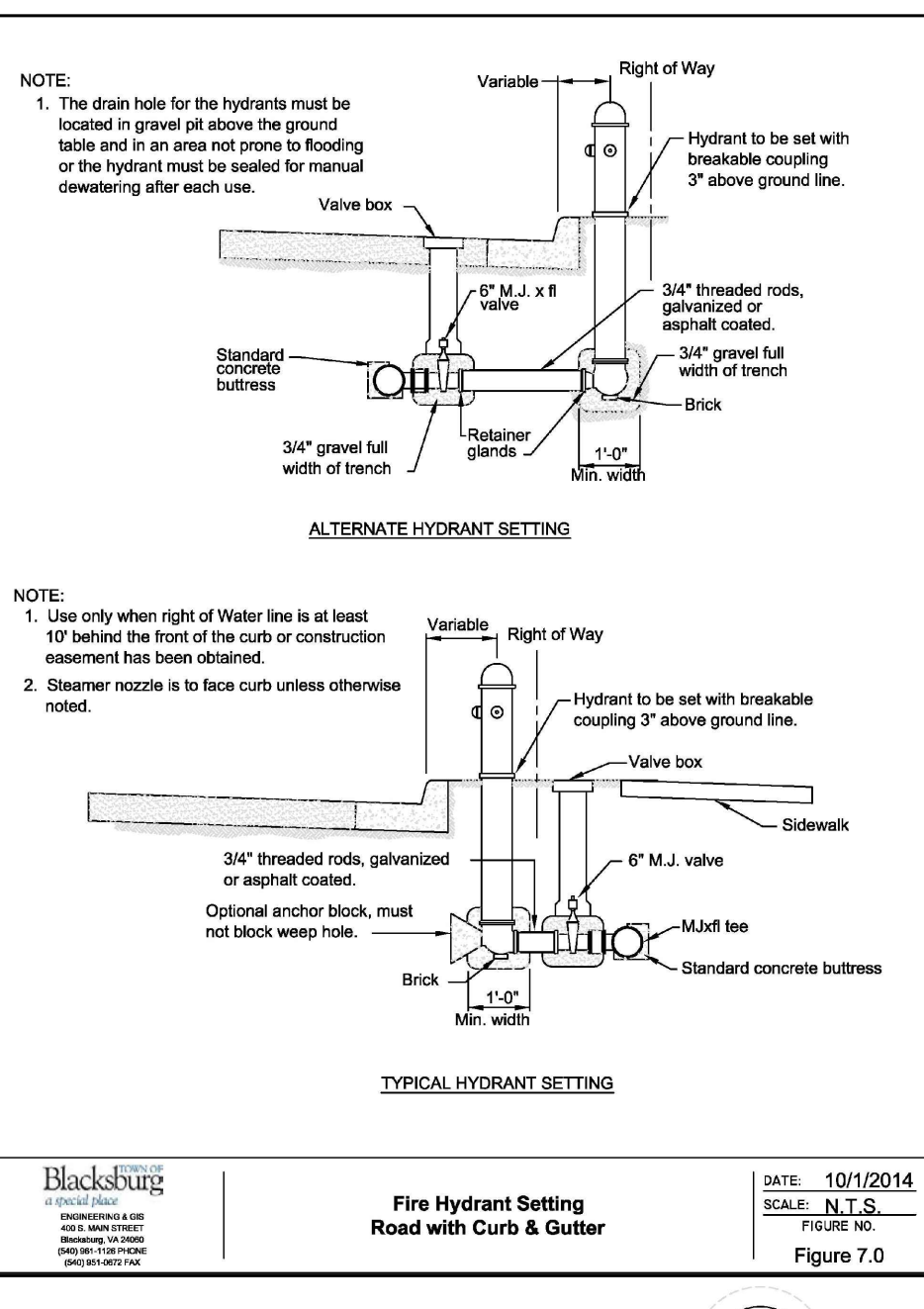
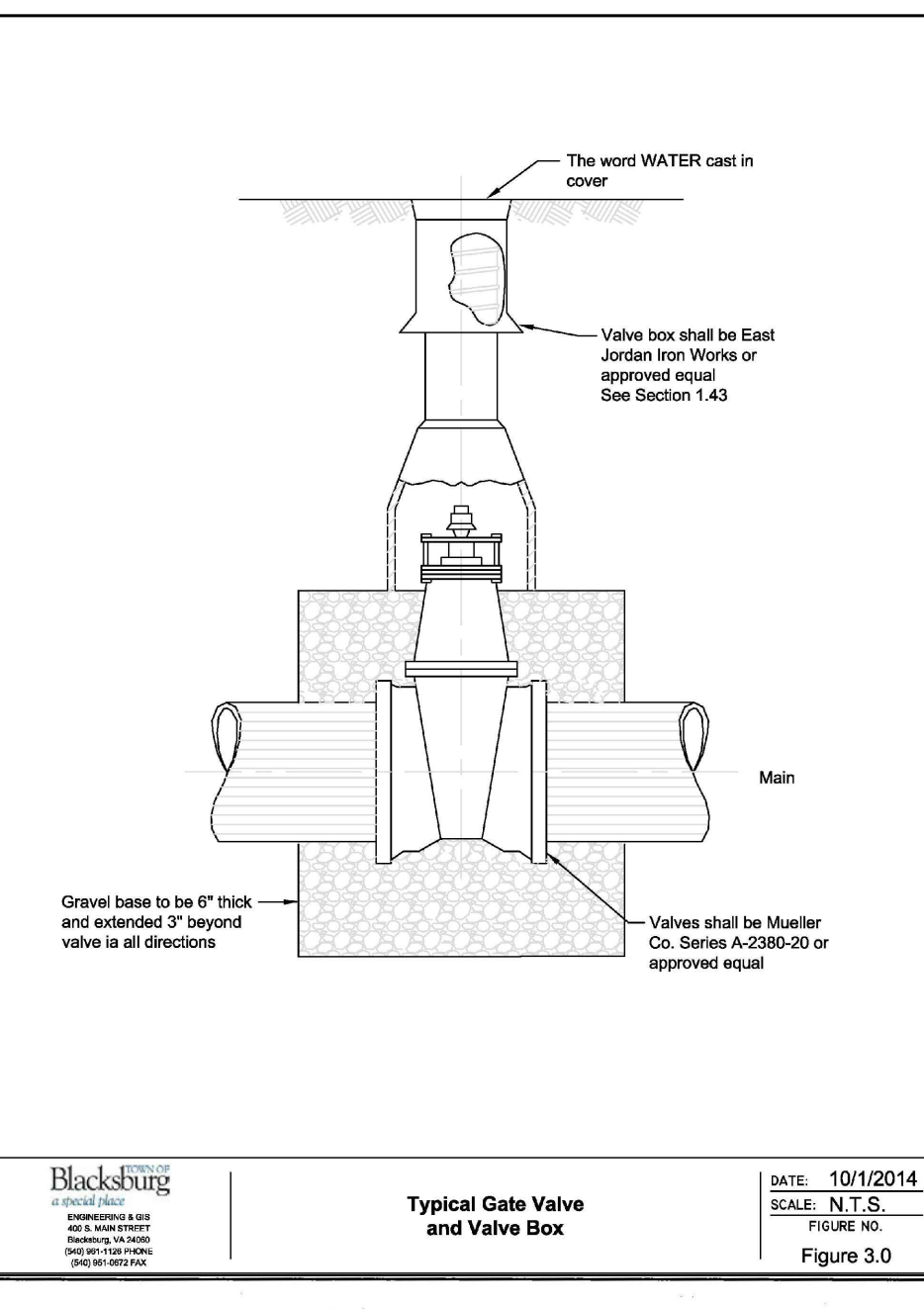
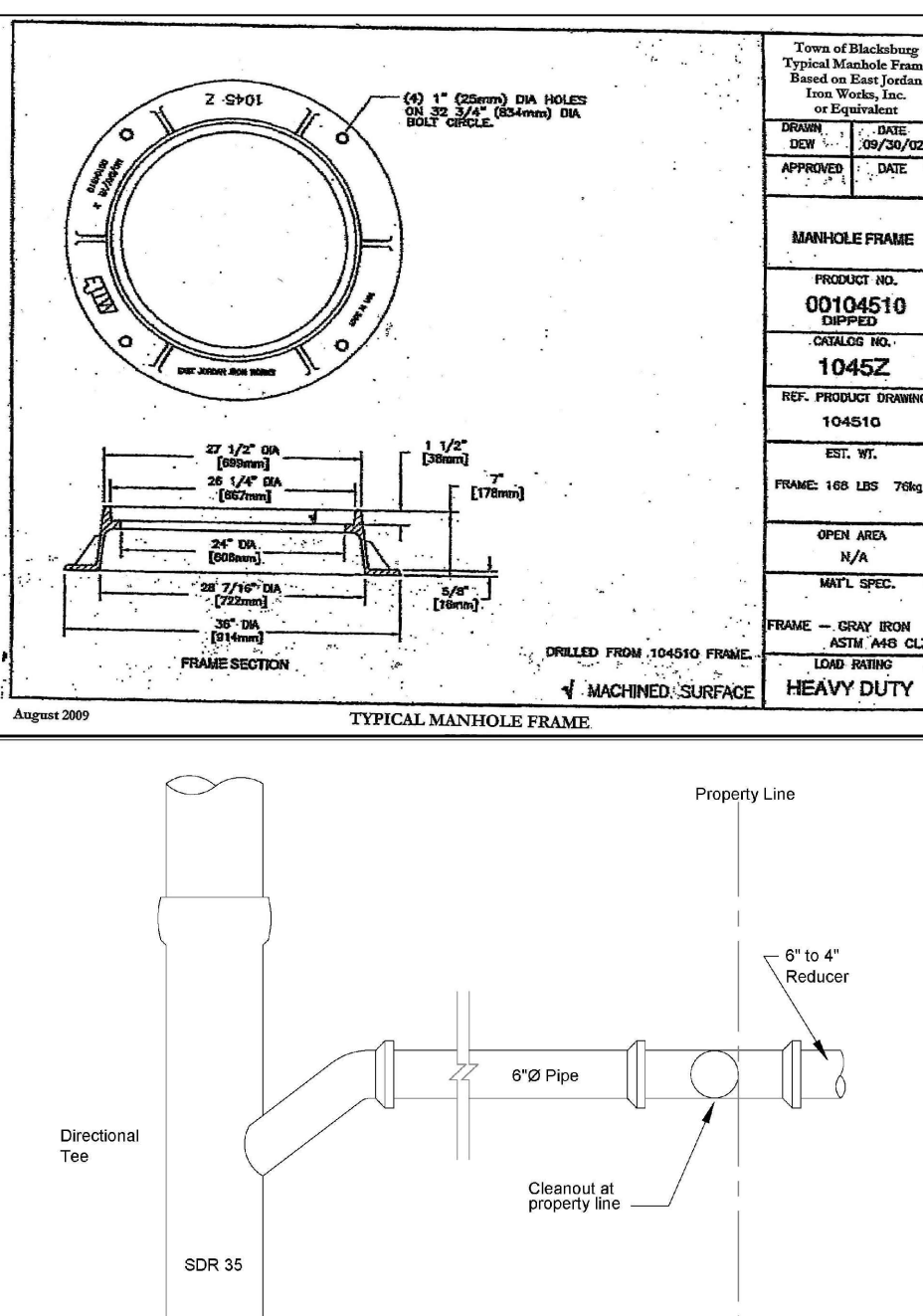
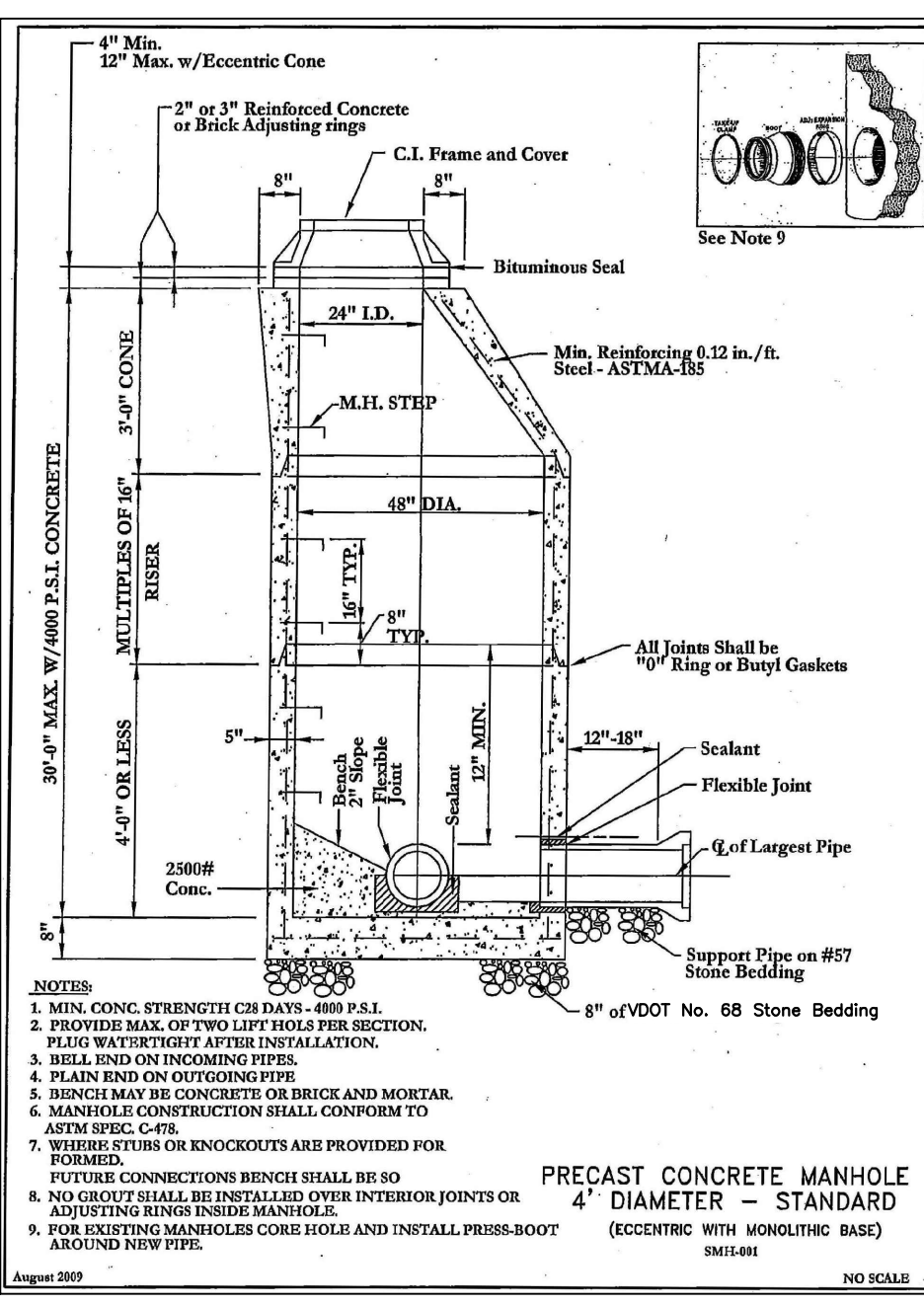
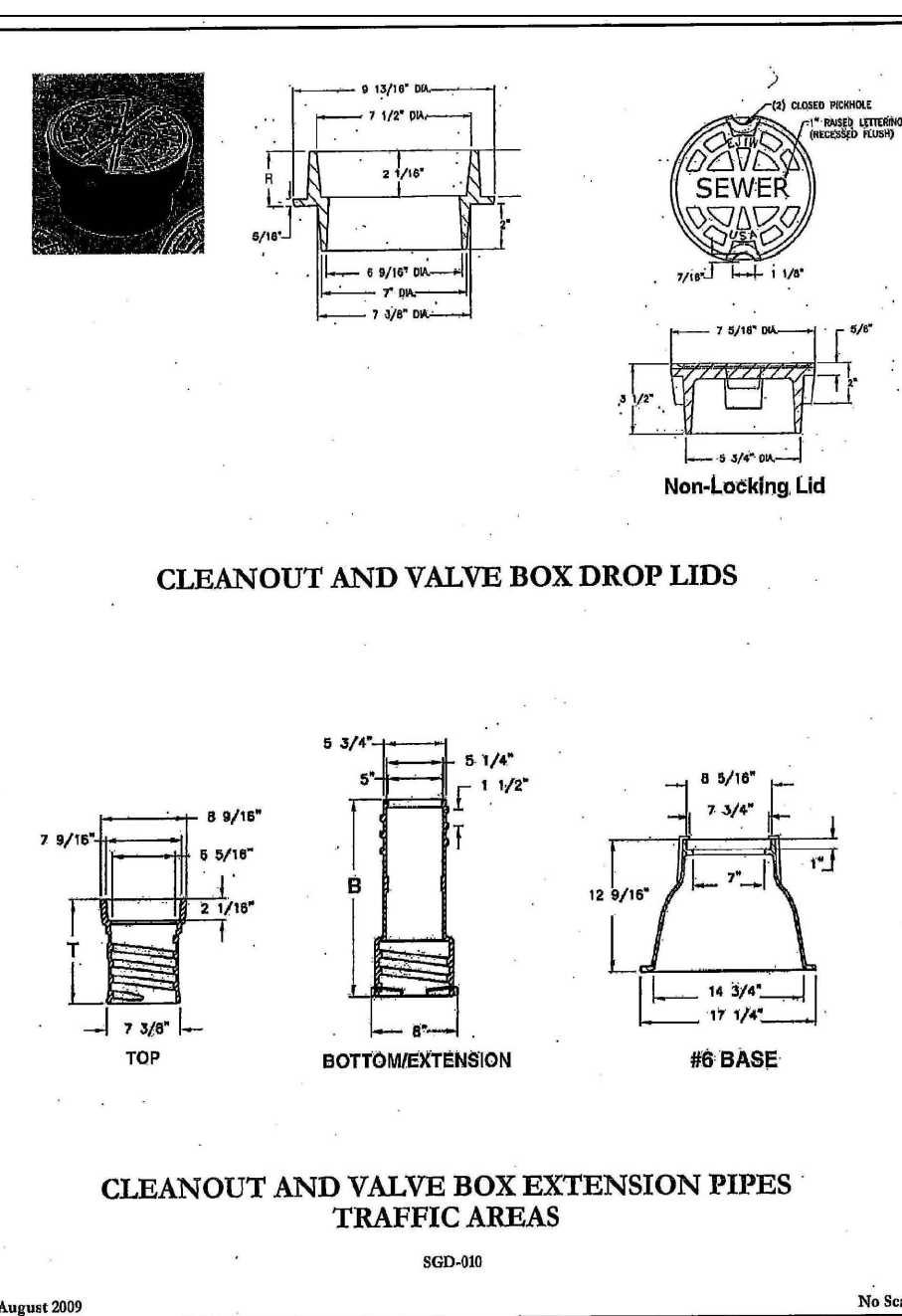
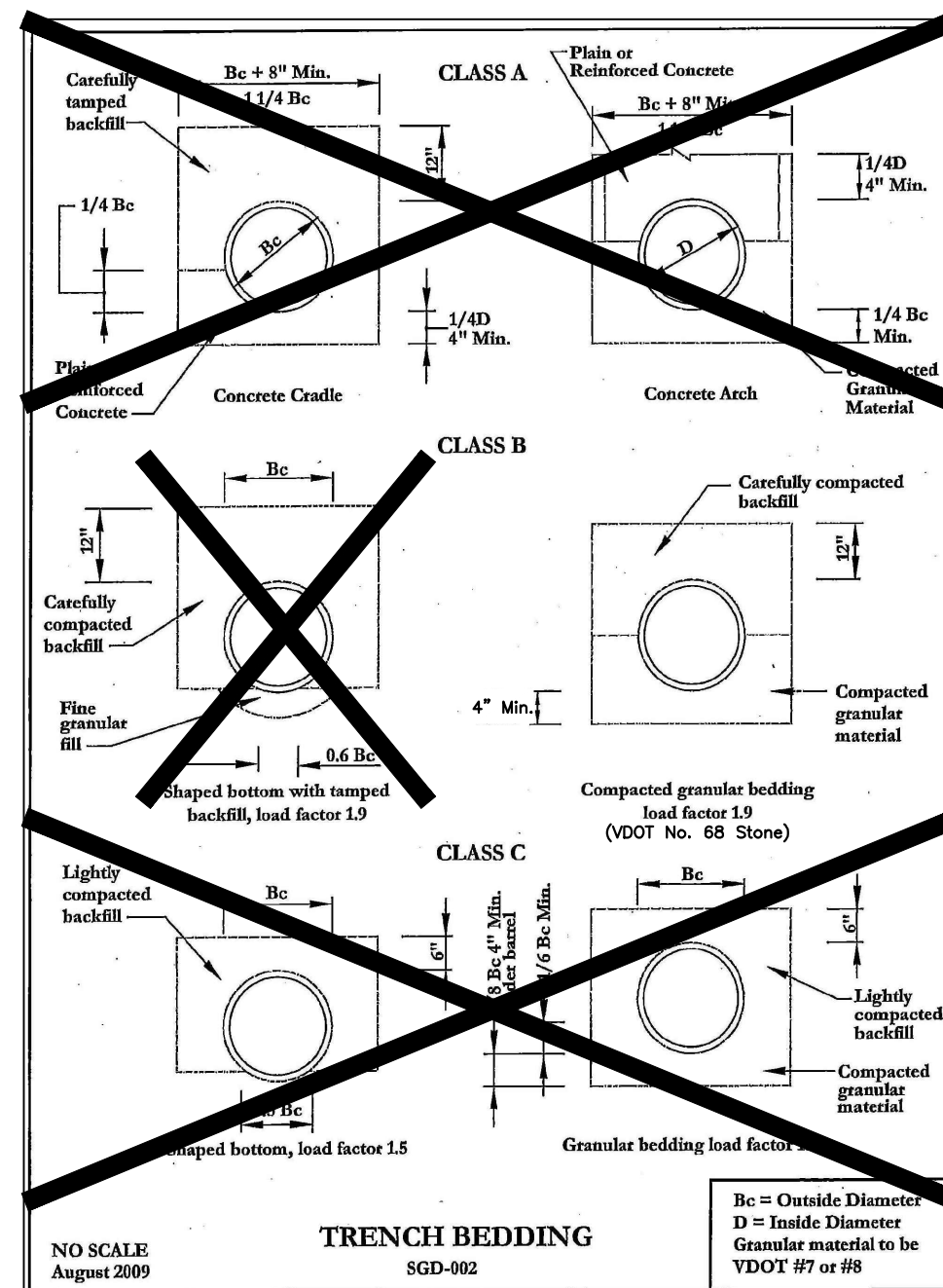
ESC NOTES & DETAILS

MOUNT TABOR MAGISTERIAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

DRAWN BY TKP
DESIGNED BY TKP
CHECKED BY SMS
DATE 01-18-2021
SCALE AS NOTED
REVISIONS
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2. 11/21/22
3. 2/20/23

C14

PROJECT NO. 24200014.00

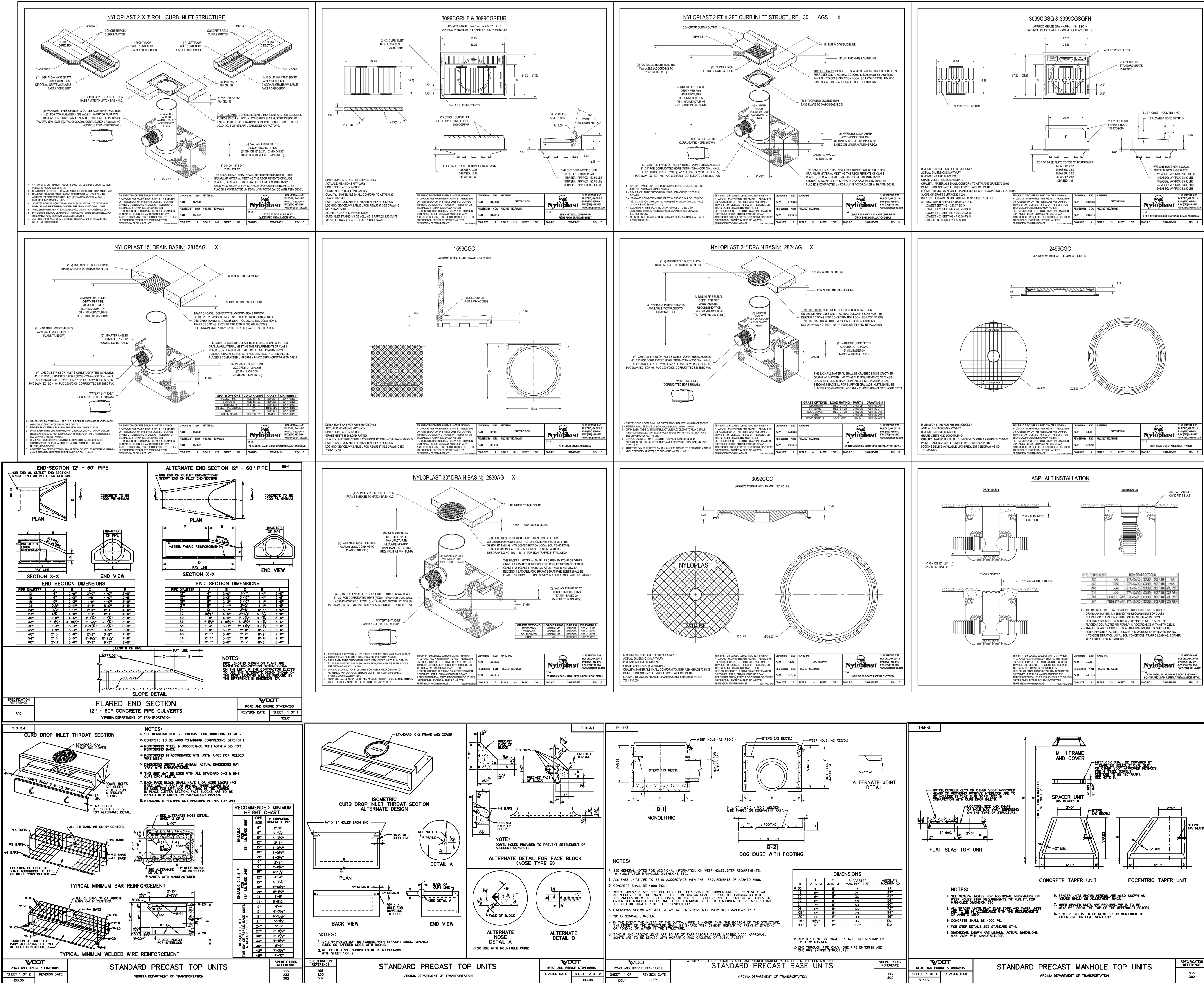


APOGEE TOWNHOMES

CLAY STREET AND CHERRY LANE

UTILITY NOTES AND DETAILS

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3. 2/20/23



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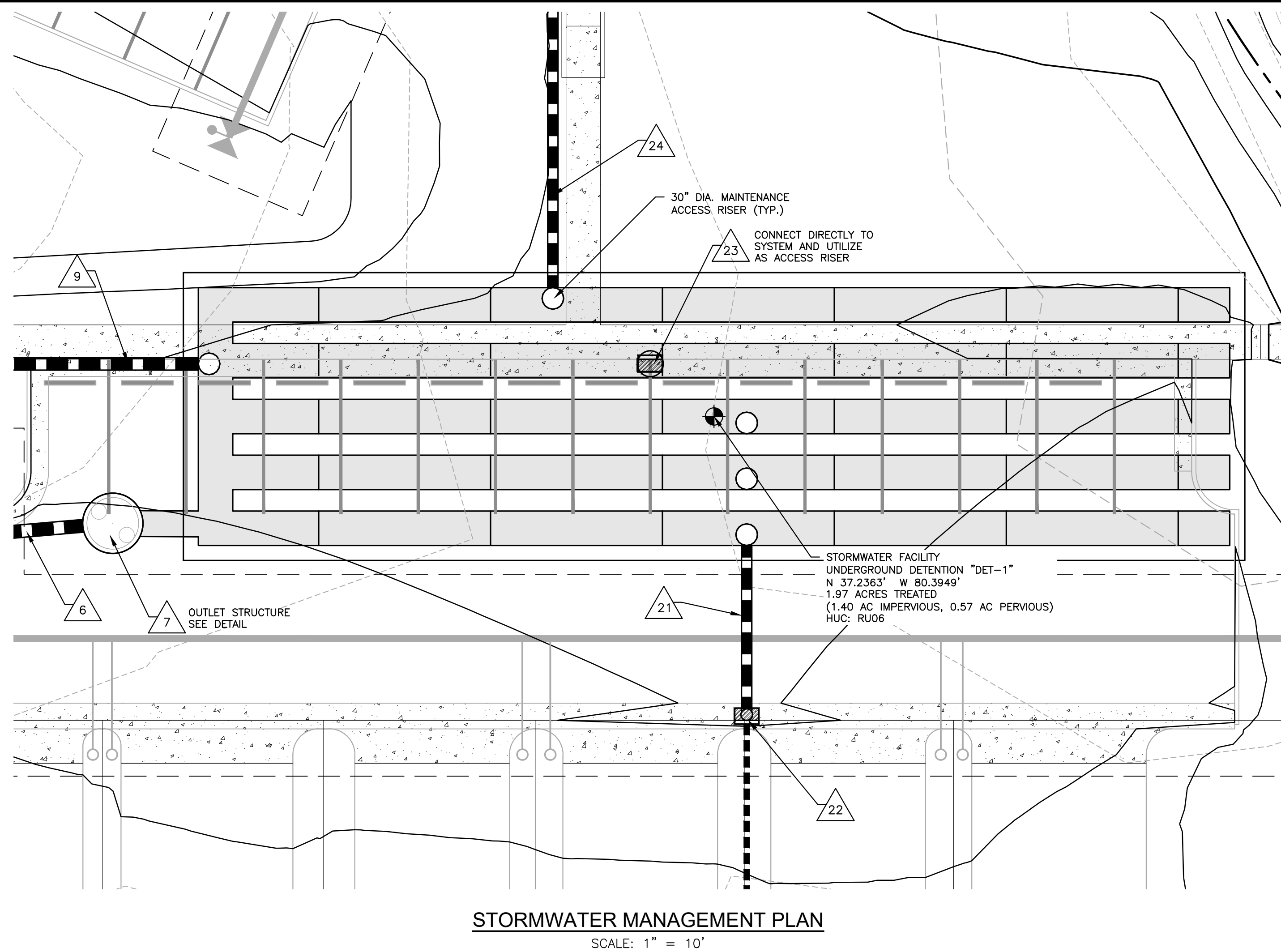
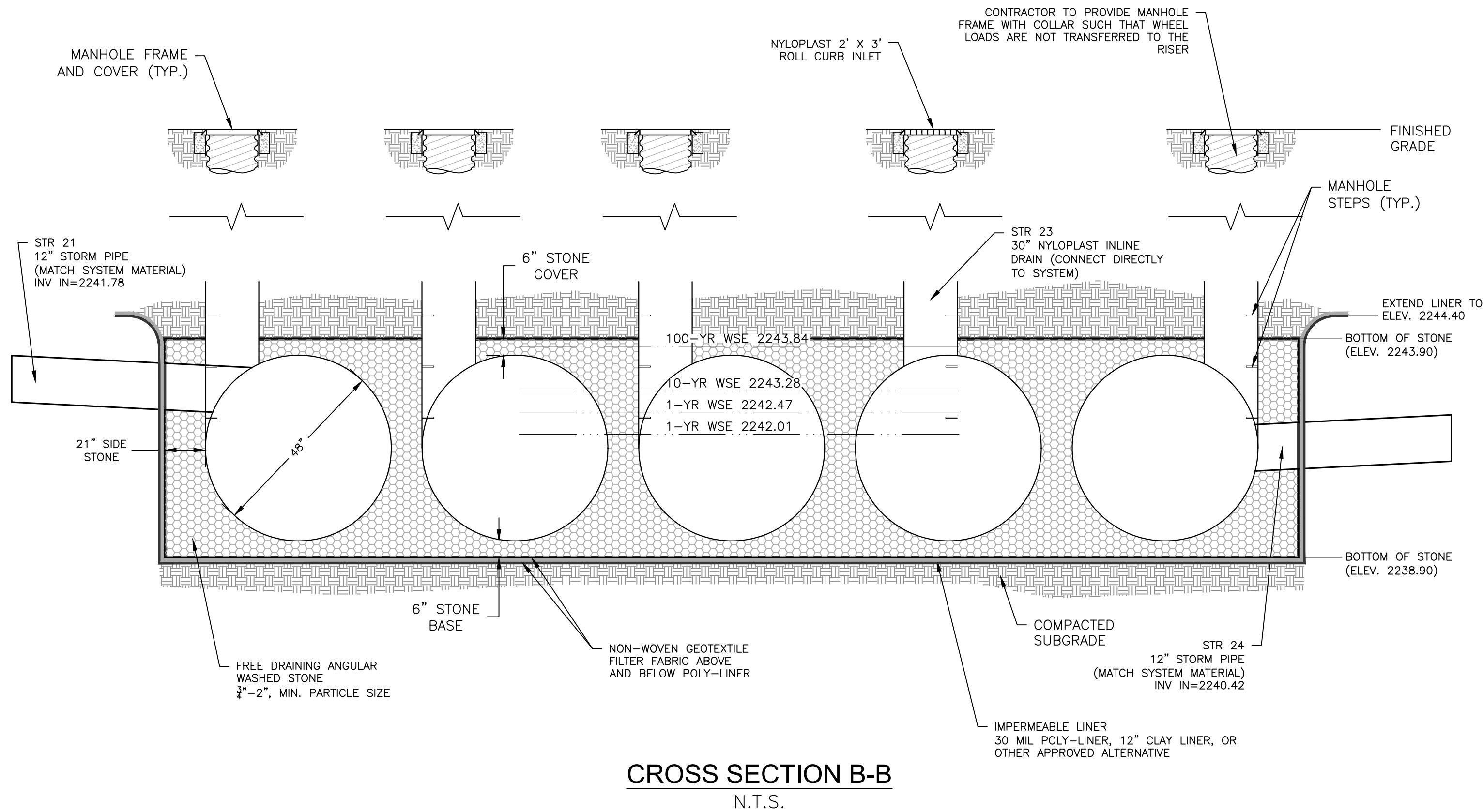


APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
STORMWATER NOTES AND DETAILS

MOUNT TABOR MAGISTRAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

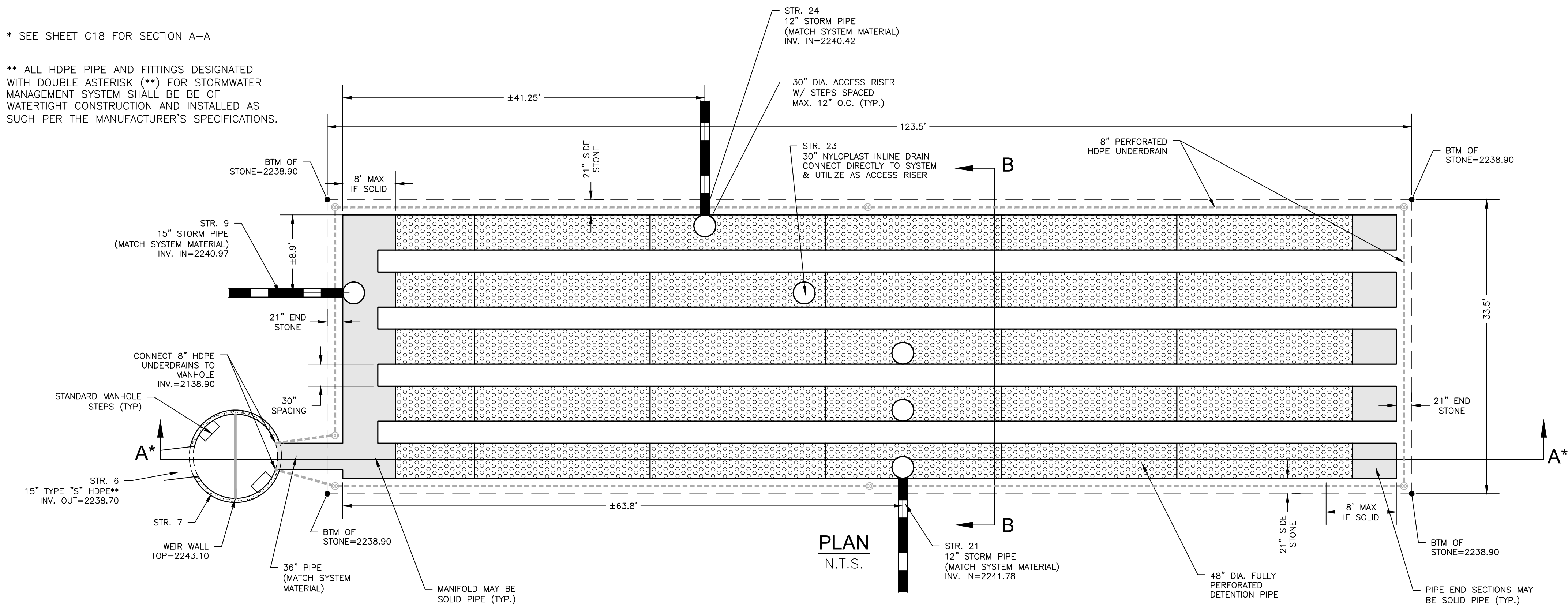
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3. 2/20/23

C16
PROJECT NO. 24200014.00



* SEE SHEET C18 FOR SECTION A-A

** ALL HDPE PIPE AND FITTINGS DESIGNATED WITH DOUBLE ASTERISK (**) FOR STORMWATER MANAGEMENT SYSTEM SHALL BE OF WATERTIGHT CONSTRUCTION AND INSTALLED AS SUCH PER THE MANUFACTURER'S SPECIFICATIONS.



NOTE

SHOP DRAWINGS SHALL BE PROVIDED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION OF THE UNDERGROUND SYSTEM. DRAWINGS SHALL INCLUDE ALL PERTINENT INFORMATION REQUIRED FOR THE INSTALLATION OF THE STORMWATER MANAGEMENT FACILITIES INCLUDING, BUT NOT LIMITED TO, MATERIALS AND STRUCTURAL DETAILS FOR THE PIPE END SECTIONS.

NOTE

ALL STORMWATER MANAGEMENT UNDERDRAIN PIPING SHALL BE PERFORATED RIGID DOUBLE WALL HDPE (AASHTO CLASS II PERFORATION PATTERN) OR PERFORATED SCHEDULE 40 PVC (ASTM F758 / AASHTO M278 PERFORATION PATTERN). FLEXIBLE LANDSCAPING PIPING SHALL NOT BE CONSIDERED AN ALTERNATIVE.

UNDERGROUND DETENTION FACILITY GENERAL NOTES

1. GROUNDWATER NOTE: IF GROUNDWATER, KARST FEATURES, OR OTHER SUBSURFACE HAZARDS ARE ENCOUNTERED, THE DESIGN ENGINEER AND TOWN ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR FURTHER EVALUATION.
2. KARST RISK FOR THE SUBJECT AREA IS CLASSIFIED AS LOW ASSUMING THE FULL RECOMMENDATIONS OF THE GEOTECHNICAL REPORT ARE FOLLOWED. WATERTIGHT FITTINGS OR IMPERMEABLE LINERS (AS SPECIFIED ON THE STORMWATER MANAGEMENT PLAN) SHALL BE USED FOR ALL DETENTION FACILITIES AND CONNECTING PIPES WHERE SPECIFIED. INSTALLATION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK AND/OR THE MANUFACTURER'S SPECIFICATIONS.
3. SHOP DRAWINGS PROVIDED TO THE OWNER/DEVELOPER SHALL IDENTIFY THE SYSTEM COMPONENTS' MATERIAL AND COATINGS (IF APPLICABLE) AND THEIR PROJECTED SERVICE LIFE BASED ON THE ON-SITE SOILS. MATERIALS WITH A PROJECTED SERVICE LIFE OF LESS THAN 50 YEARS ARE NOT RECOMMENDED. ALL END SECTIONS, BULKHEADS, REDUCERS, MANIFOLDS, RISERS, LADDERS, AND ANY OTHER STRUCTURAL COMPONENTS SHALL BE ENGINEERED AND FABRICATED BY THE DETENTION SYSTEM MANUFACTURER.
4. AS-BUILTS SHALL BE PERFORMED PRIOR TO BACKFILLING AROUND SYSTEM TO BE SURE THE SYSTEM IS INSTALLED CORRECTLY. ANY REVISIONS SHALL BE MADE IMMEDIATELY TO ENSURE PROPER FUNCTIONING. PROVIDE AS-BUILT STORM FACILITY PLANS TO THE TOWN OF BLACKSBURG PRIOR TO BOND RELEASE.
5. CONFINED SPACE TRAINING AS REQUIRED BY THE OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION (OSHA) SHALL BE REQUIRED FOR ANY PERSON PERFORMING MAINTENANCE/INSPECTION ACTIVITIES WITHIN THE FACILITY.
6. THE PROPERTY OWNER SHALL MAINTAIN RESPONSIBILITY FOR THE ON-SITE STORM WATER MANAGEMENT FACILITIES.

3. ANY IMPERMEABLE LINER SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.
2. IF A 30 MIL POLY LINER IS USED, THE DESIGN PROFESSIONAL SHALL BE PROVIDED SUBMITTAL DATA SHOWING THAT THE LINER MEETS THE MINIMUM THICKNESS REQUIREMENT PRIOR TO INSTALLATION.
3. THE SIDES AND BOTTOM OF THE BASIN EXCAVATION SHOULD BE SMOOTH AND ROCK-FREE WHETHER A POLY-LINER OR CLAY LAYER IS USED. FOR POLY-LINER INSTALLATIONS, IF A GEOTECHNICAL ENGINEER OR OTHER DESIGN PROFESSIONAL IS PROVIDED THE OPPORTUNITY TO VERIFY THAT THE SUBGRADES AND SIDEWALLS ARE FREE OF ROCK, A NON-WOVEN 8oz GEOTEXTILE WILL NOT BE REQUIRED ON THE OUTSIDE OF THE IMPERMEABLE POLY-LINER. OTHERWISE, THE GEOTEXTILE IS REQUIRED. THE MANUFACTURER WILL BE ABLE TO PROVIDE APPROPRIATE DETAILS AND/OR INSTRUCTIONS IF PENETRATIONS TO THE POLY-LINER SHOULD OCCUR.
4. A NON-WOVEN 8oz GEOTEXTILE SHALL BE PLACED ON THE INSIDE SURFACE OF THE IMPERMEABLE POLY-LINER TO PREVENT PUNCTURES DURING PLACEMENT OF THE OPEN-GRADED BEDDING STONE AND PIPE.
5. A 12" THICK IMPERMEABLE CLAY LINER CERTIFIED BY A GEOTECHNICAL ENGINEER MAY BE USED INSTEAD OF A 30 MIL POLY-LINER. IF A CLAY LINER IS USED THE OWNER OR GC SHALL PROVIDE THE DESIGN PROFESSIONAL WITH A CERTIFICATION FROM A GEOTECHNICAL ENGINEER STATING THAT THE LINER MEETS THE REQUIREMENTS OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK PRIOR TO PLACEMENT OF STONE BACKFILL. THE LINER SHALL MEET THE REQUIREMENTS OF THE VSMH TABLE 14.4.

THE FOLLOWING CRITERIA SHALL APPLY:

1. IF PRECAST STRUCTURES ARE USED FOR THE OUTLET CONTROL STRUCTURE, EACH SECTION OF THE PRECAST STRUCTURE SHALL BE ANCHORED TOGETHER FOR STABILITY AND ANTI-FLOTATION REQUIREMENTS. MANHOLE SECTION JOINTS SHALL BE WATERTIGHT IN ACCORDANCE WITH ASTM C-443. WEEP HOLES SHALL NOT BE PROVIDED. ANY LIFT HOLES SHALL BE SEALED WATERTIGHT WHERE SPECIFIED, WATERTIGHT RESILIENT CONNECTORS BETWEEN MANHOLE STRUCTURES AND PIPES SHALL BE IN ACCORDANCE WITH ASTM C-923.
2. PRECAST STRUCTURE SUPPLIER SHALL FURNISH SHOP DRAWINGS FOR OUTLET STRUCTURES TO GC AND DESIGN PROFESSIONAL FOR REVIEW. SEE PLAN VIEW FOR EXACT LOCATIONS OF MANHOLE AND DROP INLET TOPS. LOCATIONS FOR OPENINGS IN THE TOPS OF THE PRECAST BASE/RISER UNITS SHALL BE COORDINATED WITH THE PLAN VIEW TO ENSURE PROPER ALIGNMENT WITH MANHOLE AND DROP INLET TOPS.
3. ORIFICE OPENING DIMENSIONS ARE CRITICAL ELEMENTS OF THE STRUCTURE AND OFTEN CANNOT BE ACCURATELY CONSTRUCTED AS A FORMED OR SAWCUT CONCRETE HOLE. METAL ORIFICE PLATES ARE RECOMMENDED AND MAY BE REQUIRED AS A RETROFIT IF CORRECT ORIFICE DIMENSIONS ARE NOT PROVIDED.
4. OPENINGS FOR TRASH GUARDS SHALL BE NO LARGER THAN ONE-HALF THE MINIMUM OPENING DIMENSION AND PROVIDE A TOTAL OPEN AREA GREATER THAN THAT OF THE ORIFICE. TRASH GUARD SHALL BE FABRICATED TO FIT THE SHAPE/DIAMETER OF THE RISER STRUCTURE. FLAT GRATES FOR TRASH RACKS ARE NOT ACCEPTABLE. METAL TRASH RACKS AND HARDWARE SHALL BE CONSTRUCTED OF GALVANIZED OR STAINLESS STEEL METAL.

GENERALLY

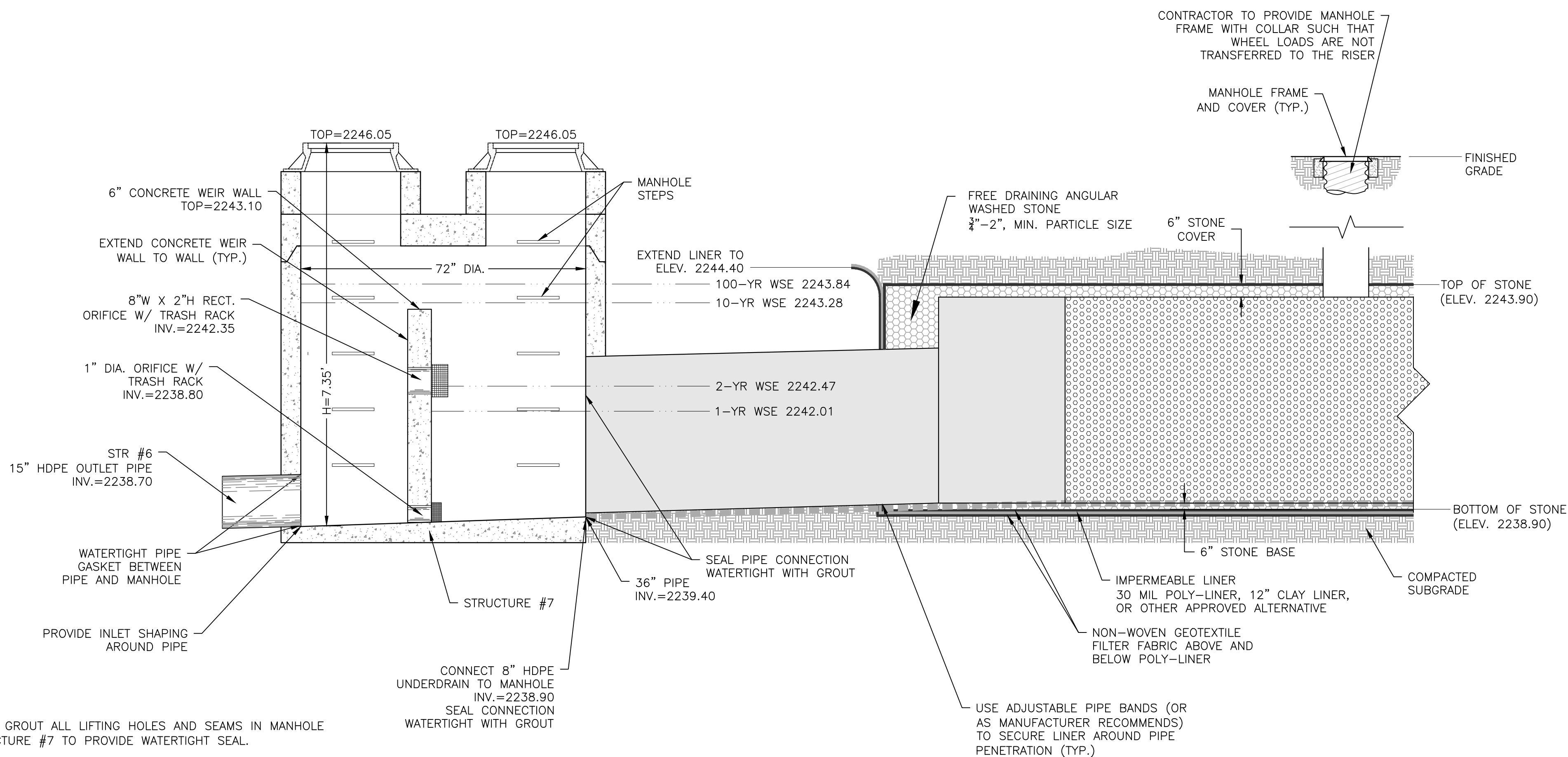
1. THE OWNER IS RESPONSIBLE FOR PROVIDING OR COORDINATING ALL FACILITY INSPECTIONS AND ANY REQUIRED MAINTENANCE THAT MAY RESULT FROM SUCH INSPECTIONS.
2. REQUIREMENTS LISTED HERE ARE TO BE TAKEN AS A MINIMUM AND DO NOT REPRESENT THE LIMIT OF RESPONSIBILITY.
3. ANY STANDING WATER PUMPED DURING THE MAINTENANCE OPERATION MUST BE DISPOSED OF PER THE VESCH, 1992 EDITION AND ANY LOCAL REQUIREMENTS.

REQUIRED ACTION

UNDERGROUND DETENTION FACILITY:

1. EVERY (12) TWELVE MONTHS THE RESPONSIBLE PARTY SHALL COMPLETE AND DOCUMENT A VISUAL INSPECTION OF THE UNDERGROUND FACILITY AND IT'S COMPONENTS AND MAKE ANY REPAIRS NECESSARY TO AREAS OF FAILURE/CONCERN DISCOVERED DURING INSPECTION. TYPICAL MAINTENANCE TASKS INCLUDE:
 - 1.1. CLEANOUT OF ANY DEBRIS OR SEDIMENT ACCUMULATED IN THE STRUCTURE THAT REDUCES THE STORAGE VOLUME OR OTHERWISE HINDERS THE PERFORMANCE OF THE FACILITY.
 - 1.2. VISUAL INSPECTION FOR STRUCTURAL DETERIORATION, SPALLING, OR CRACKING OF THE STRUCTURAL COMPONENTS.
2. THE FLOW CONTROL MANHOLES SHALL BE INSPECTED AFTER EACH RUNOFF PRODUCING STORM EVENT TO CHECK FOR DEBRIS AND/OR SEDIMENT ACCUMULATION THAT MAY COMPROMISE THE PERFORMANCE OF THE STRUCTURE. SUCH DEBRIS AND SEDIMENTS SHALL BE REMOVED IMMEDIATELY.

UNDERGROUND STORMWATER DETENTION FACILITY OPERATION & MAINTENANCE		
REQUIRED ACTION	MAINTENANCE OBJECTIVE	FREQUENCY OF ACTION
INSPECTIONS	INSPECT CONDITION OF STORAGE FACILITY, OUTLET STRUCTURE, AND PRESENCE OF SEDIMENT OR DEBRIS	SEMIANNUALLY
DEBRIS AND LITTER CONTROL	REMOVE DEBRIS AND LITTER	AS NEEDED BASED ON OBSERVATIONS DURING SEMIANNUAL INSPECTION
SEDIMENT AND POLLUTANT REMOVAL	REMOVE ACCUMULATED SEDIMENTS AND DISPOSE OF THEM IN ACCORDANCE WITH THE VESCH	VARIES, DEPENDING ON THE EFFECTIVENESS OF THE PRETREATMENT DEVICE
COMPLETE SYSTEM RINSE	SYSTEMS ARE TO BE RINSED, INCLUDING ABOVE THE SPRING LINE, TO REMOVE WINTER SALTING AGENTS	ANNUALLY, SOON AFTER THE SPRING THAW (CORRUGATED METAL SYSTEMS ONLY)
COMPONENT REPAIR AND REPLACEMENT	REPLACE FAILED PIPE, STORAGE CHAMBERS OR OTHER COMPONENTS	RARE



CROSS SECTION A-A
N.T.S.

SHOP DRAWINGS SHALL BE PROVIDED TO THE DESIGN ENGINEER PRIOR TO CONSTRUCTION OF THE UNDERGROUND SYSTEM. DRAWINGS SHALL INCLUDE ALL PERTINENT INFORMATION REQUIRED FOR THE INSTALLATION OF THE STORMWATER MANAGEMENT FACILITIES INCLUDING, BUT NOT LIMITED TO, MATERIALS AND STRUCTURAL DETAILS FOR THE PIPE END SECTIONS.

ALL STORMWATER MANAGEMENT UNDERDRAIN PIPING SHALL BE PERFORATED RIGID DOUBLE WALL HDPE (AASHTO CLASS II PERFORMANCE PATTERN) OR PERFORATED SCHEDULE 40 PVC (ASTM F758 / AASHTO M278 PERFORMANCE PATTERN). FLEXIBLE LANDSCAPING PIPING SHALL NOT BE CONSIDERED AN ALTERNATIVE.



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APOGEE TOWNHOMES

CLAY STREET AND CHERRY LANE

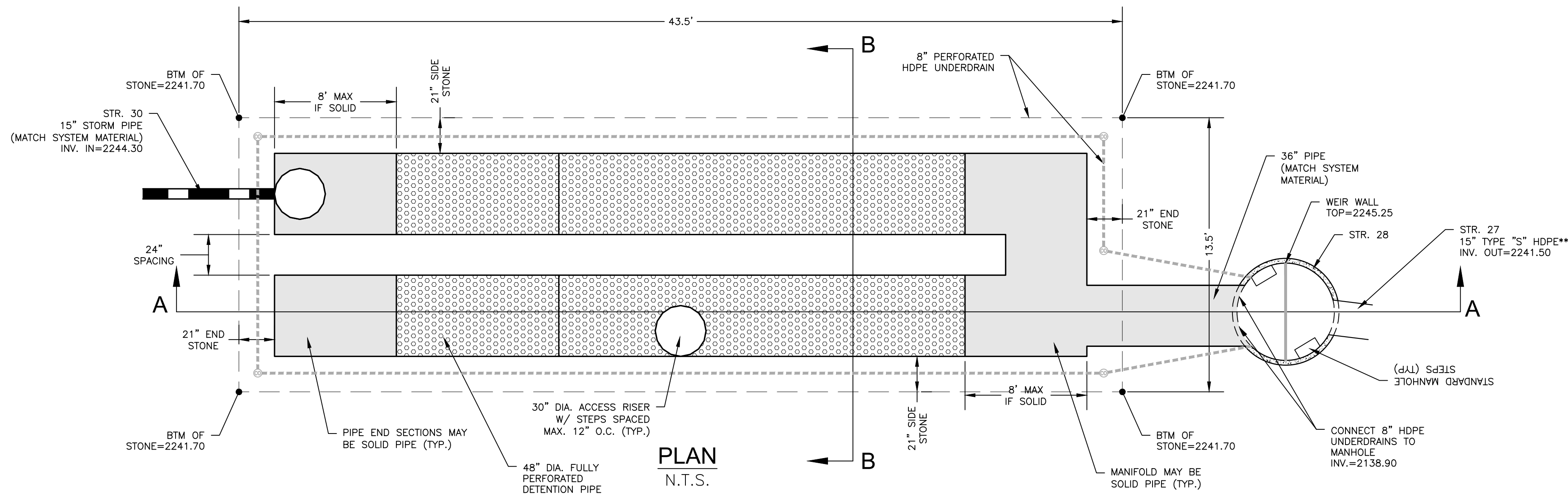
STORMWATER MANAGEMENT PLAN & NOTES
UNDERGROUND DETENTION SYSTEM ("DET-1")

MOUNT TABOR MAGISTERIAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

DRAWN BY	TKP
DESIGNED BY	TKP
CHECKED BY	SMS
DATE	01-18-2021
SCALE	AS NOTED
REVISIONS	
1. 5/5/21	
2. 11/21/22	
3. 2/20/23	

PROJECT NO. **C18**
24200014.00

** ALL HDPE PIPE AND FITTINGS DESIGNATED WITH DOUBLE ASTERISK (**) FOR STORMWATER MANAGEMENT SYSTEM SHALL BE OF WATERTIGHT CONSTRUCTION AND INSTALLED AS SUCH PER THE MANUFACTURER'S SPECIFICATIONS.

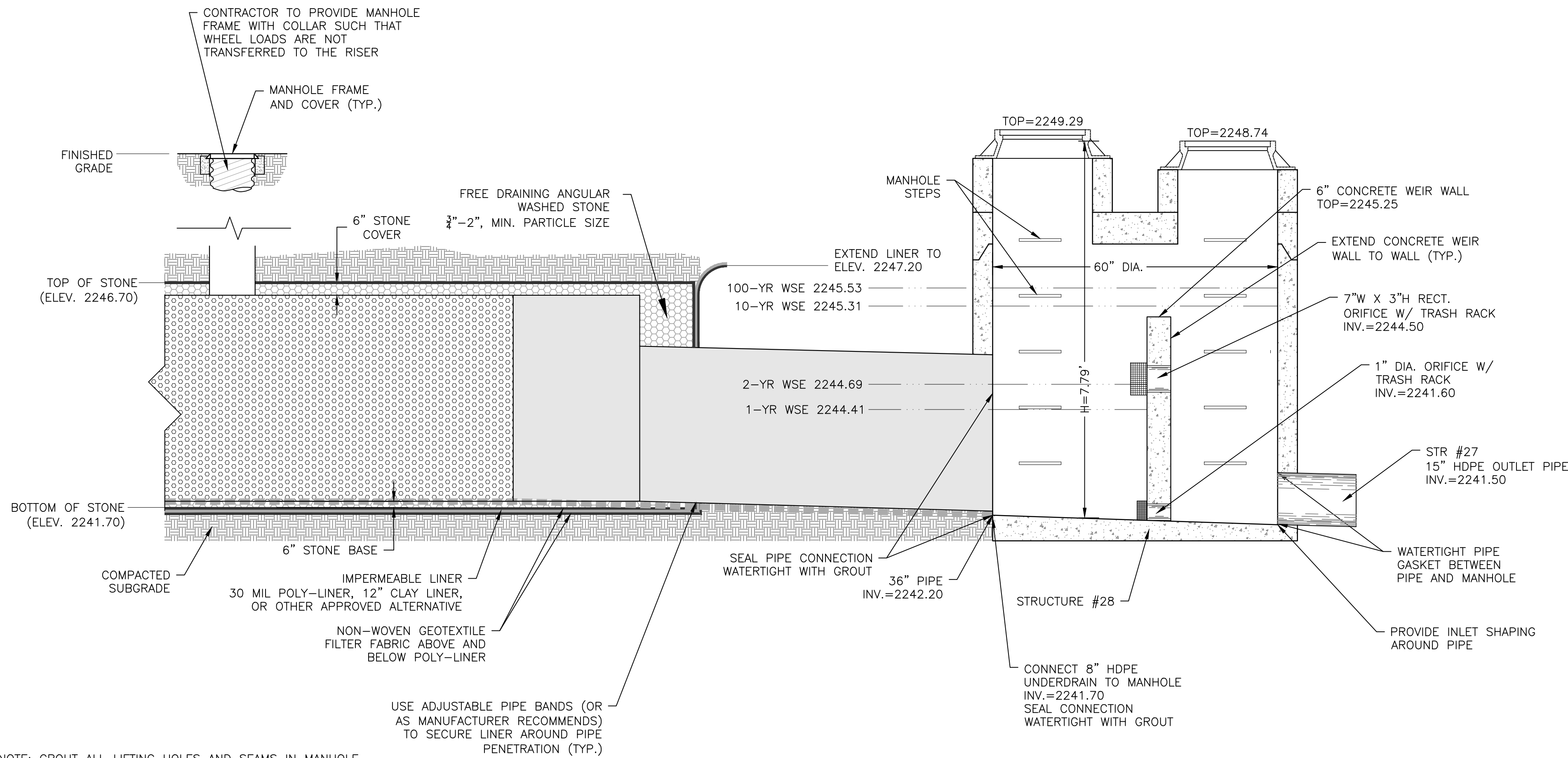


NOTE

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NOTE

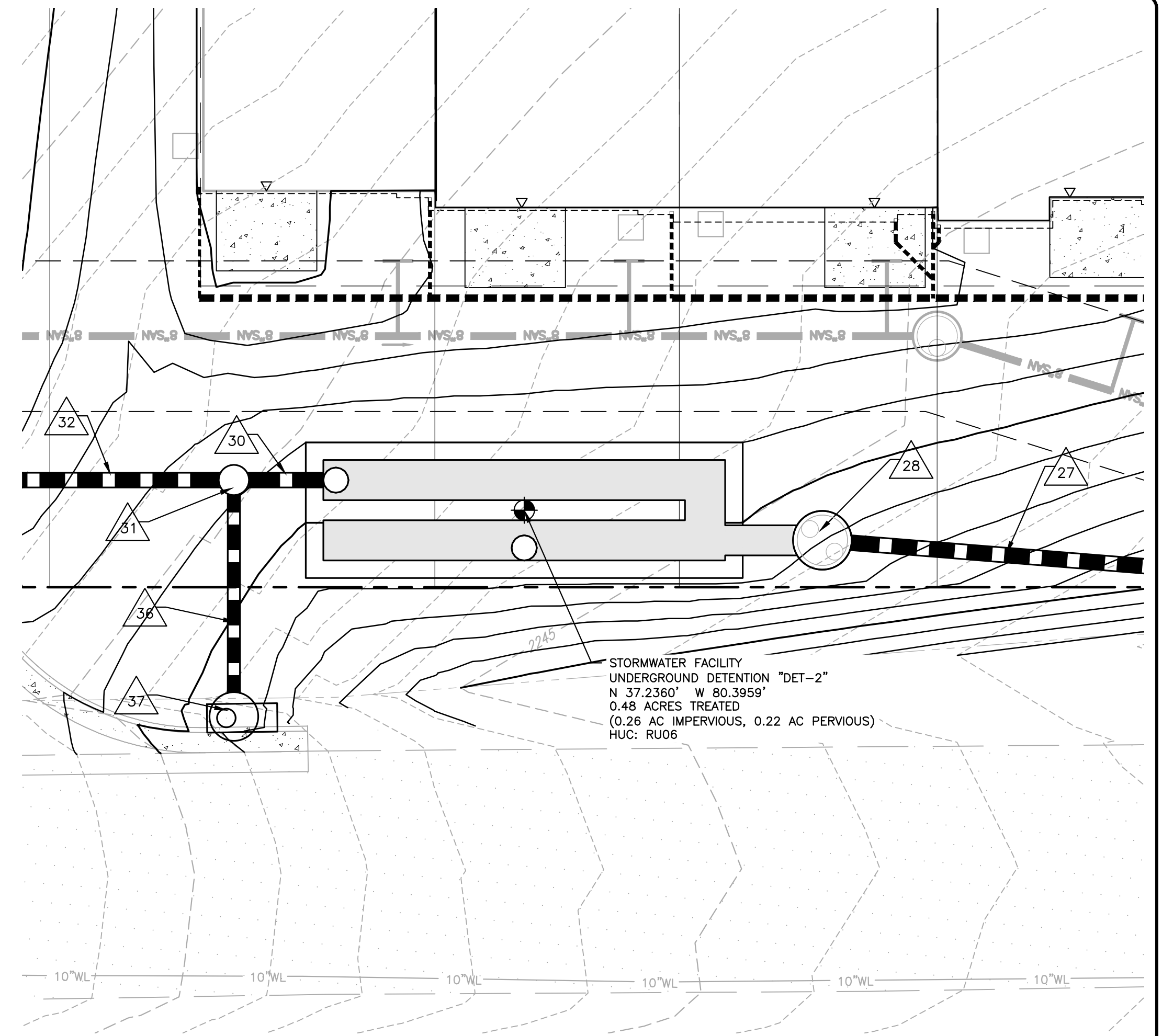
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NOTE: GROUT ALL LIFTING HOLES AND SEAMS IN MANHOLE STRUCTURE #28 TO PROVIDE WATERTIGHT SEAL.

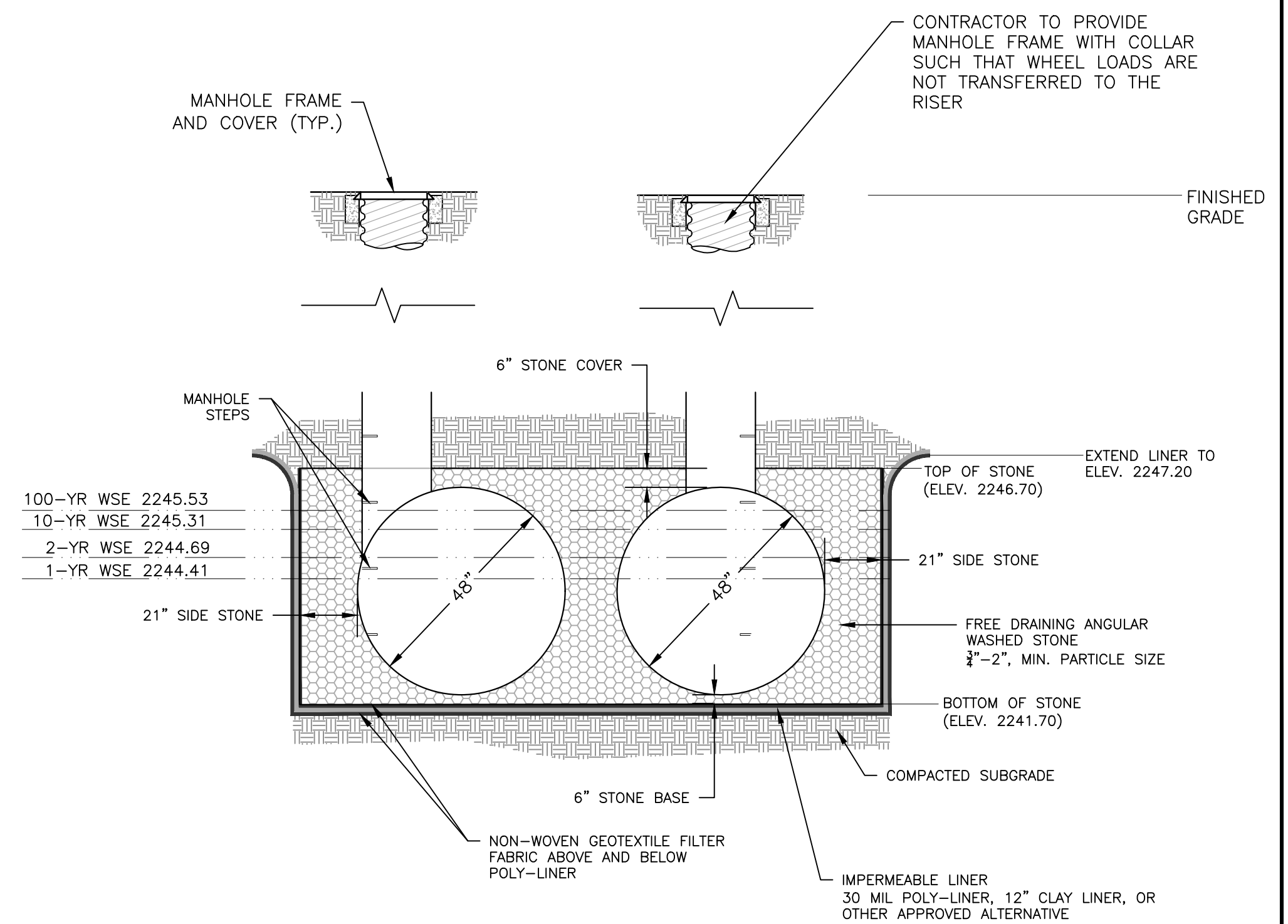
** ALL HDPE PIPE AND FITTINGS DESIGNATED WITH DOUBLE ASTERISK (**) FOR STORMWATER MANAGEMENT SYSTEM SHALL BE OF WATERTIGHT CONSTRUCTION AND INSTALLED AS SUCH PER THE MANUFACTURER'S SPECIFICATIONS.

CROSS SECTION A-A
N.T.S.



STORMWATER MANAGEMENT PLAN

SCALE: 1" = 10'

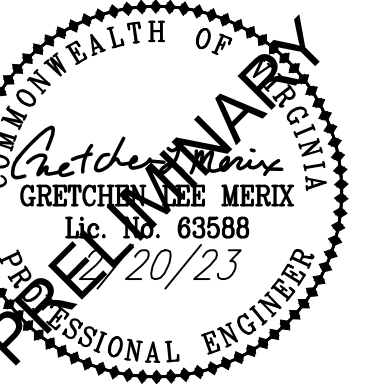


CROSS SECTION B-B
N.T.S.



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APOGEE TOWNHOMES

CLAY STREET AND CHERRY LANE

**STORMWATER MANAGEMENT PLAN
UNDERGROUND DETENTION SYSTEM ("DET-2")**

MOUNT TABOR MAGISTERIAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

DRAWN BY TPK
DESIGNED BY TPK
CHECKED BY SMS
DATE 01-18-2021
SCALE AS NOTED
REVISIONS
1. 5/5/21
2. 11/21/22
3. 2/20/23

C19

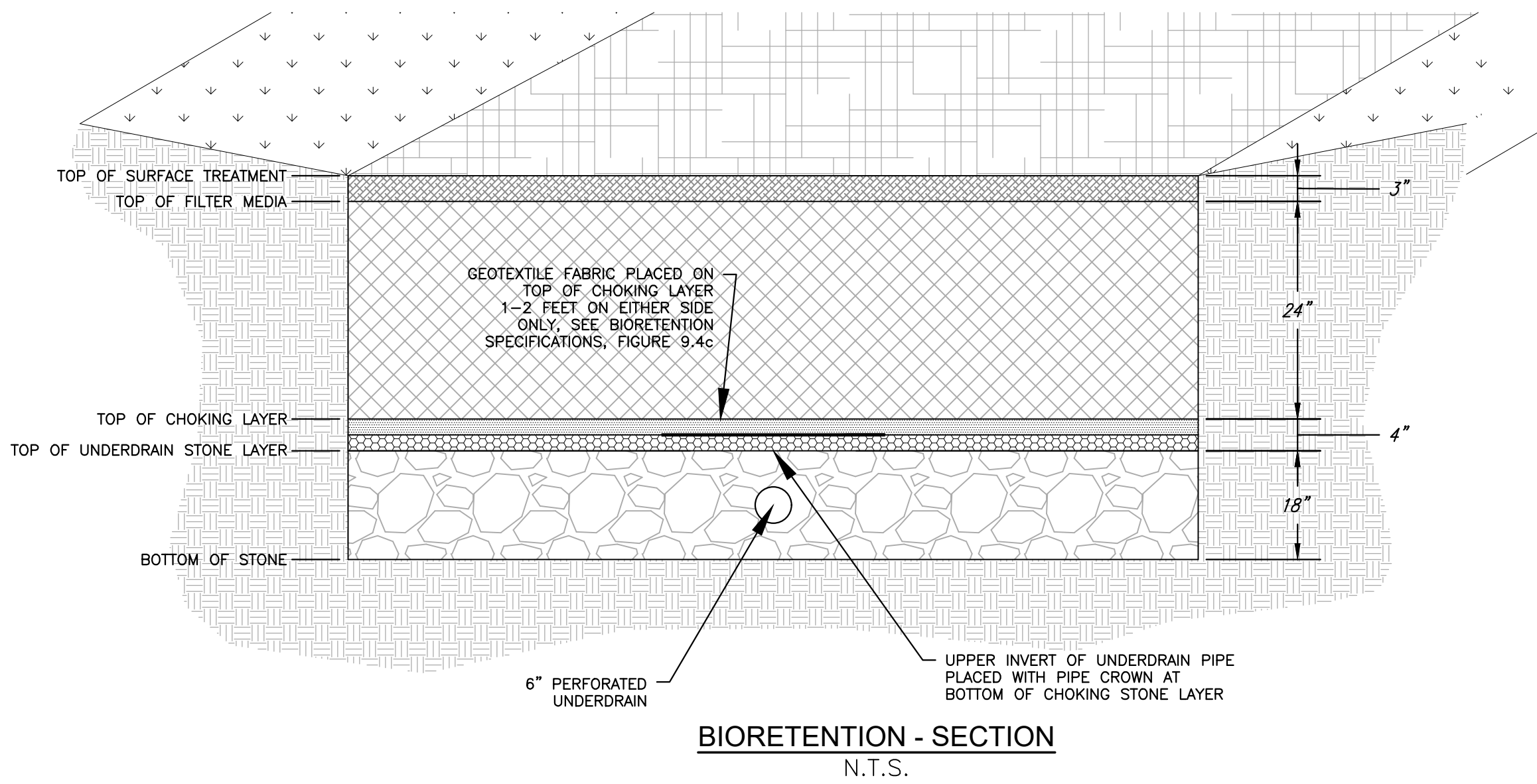
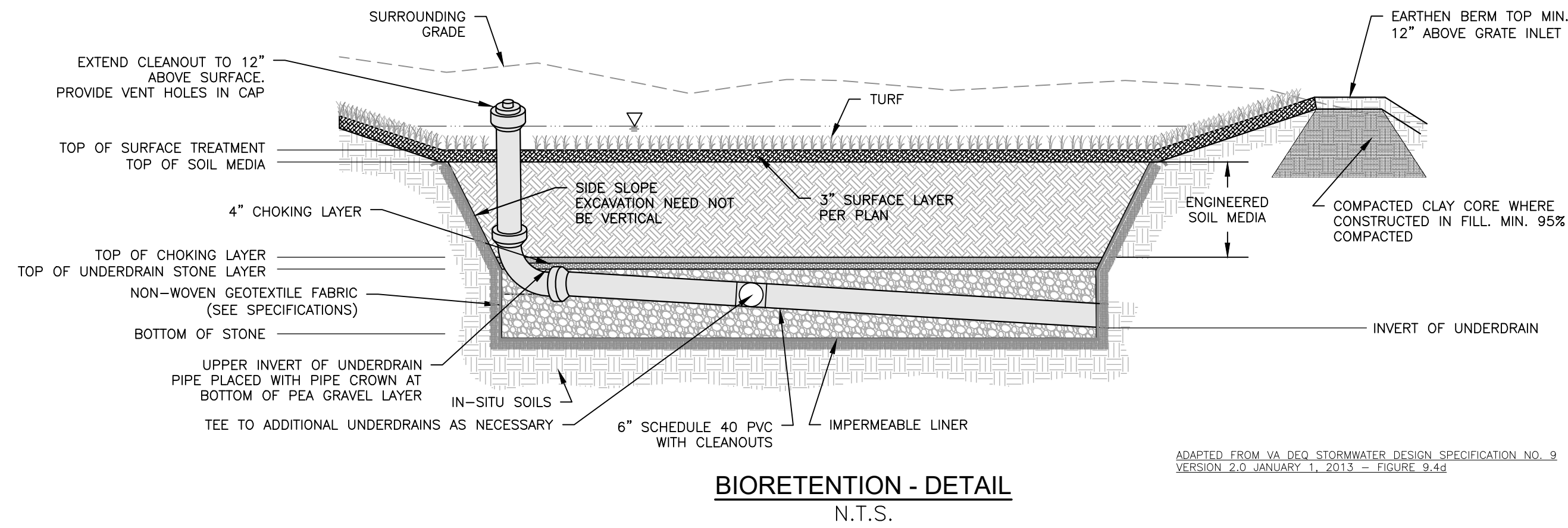
PROJECT NO. 24200014.00

BIORETENTION INSTALLATION SEQUENCE

- CONSTRUCTION OF THE BIORETENTION AREA MAY ONLY BEGIN AFTER THE ENTIRE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED WITH VEGETATION. IT MAY BE NECESSARY TO BLOCK CERTAIN CURB OR OTHER INLETS WHILE THE BIORETENTION AREA IS BEING CONSTRUCTED. THE PROPOSED SITE SHALL BE CHECKED FOR EXISTING UTILITIES PRIOR TO ANY EXCAVATION.
- THE DESIGNER AND THE INSTALLER SHALL HAVE A PRECONSTRUCTION MEETING. CHECKING THE BOUNDARIES OF THE CONTRIBUTING DRAINAGE AREA AND THE ACTUAL INLET ELEVATIONS TO ENSURE THEY CONFORM TO ORIGINAL DESIGN. SINCE OTHER CONTRACTORS MAY BE RESPONSIBLE FOR CONSTRUCTING PORTIONS OF THE SITE, IT IS QUITE COMMON TO FIND SUBTLE DIFFERENCES IN SITE GRADING. THE PLANTING ELEVATIONS THAT CAN PRODUCE HYDRAULICALLY IMPORTANT DIFFERENCES FOR THE PROPOSED BIORETENTION AREA. THE DESIGNER SHALL CLEARLY COMMUNICATE, IN WRITING, ANY PROJECT CHANGES DETERMINED DURING THE PRECONSTRUCTION MEETING TO THE INSTALLER AND THE PLAN REVIEW/INSPECTION AUTHORITY.
- TEMPORARY E&S CONTROLS ARE NEEDED DURING CONSTRUCTION OF THE BIORETENTION AREA TO DIVERT STORMWATER AWAY FROM THE BIORETENTION AREA UNTIL IT IS COMPLETED. SPECIAL PROTECTION MEASURES SUCH AS EROSION CONTROL FABRICS MAY BE NEEDED TO PROTECT VULNERABLE SIDE SLOPES FROM EROSION DURING THE CONSTRUCTION PROCESS.
- ANY PRE-TREATMENT CELLS SHALL BE EXCAVATED FIRST AND THEN SEALED TO TRAP SEDIMENTS.
- EXCAVATORS OR BACKHOES SHALL WORK FROM THE REACH TO EXCAVATE THE BIORETENTION AREA TO ITS APPROPRIATE DESIGN DEPTH AND DIMENSIONS. EXCAVATING EQUIPMENT SHALL HAVE SCOOPS WITH ADEQUATE REACH SO THEY DO NOT HAVE TO SIT INSIDE THE FOOTPRINT OF THE BIORETENTION AREA.
- IN COORDINATION WITH THE GEOTECHNICAL ENGINEER, COMPLETE THE INSTALLATION OF THE IMPERMEABLE CLAY LINER.
- PLACE GEOTEXTILE FABRIC ON THE SIDES OF THE BIORETENTION AREA WITH A 6 INCH OVERLAP ON THE SIDES. IF A STONE STORAGE LAYER WILL BE USED, PLACE THE APPROPRIATE DEPTH OF #57 STONE ON THE BOTTOM. INSTALL THE PERFORATED UNDERDRAIN PIPE. PACK #57 STONE TO 3 INCHES ABOVE THE UNDERDRAIN PIPE, AND ADD APPROXIMATELY 3 INCHES OF CHOKER STONE/PEA GRAVEL AS A FILTER BETWEEN THE UNDERDRAIN AND THE SOIL MEDIA LAYER. IF NO STONE STORAGE LAYER IS USED, START WITH 6 INCHES OF #57 STONE ON THE BOTTOM, AND PROCEED WITH THE LAYERING AS DESCRIBED ABOVE.
- DELIVER THE SOIL MEDIA FROM AN APPROVED VENDOR, AND STORE IT ON AN ADJACENT IMPERVIOUS AREA OR PLASTIC SHEETING. APPLY THE MEDIA IN 12-INCH LIFTS UNTIL THE DESIRED TOP ELEVATION OF THE BIORETENTION AREA IS ACHIEVED. WAIT A FEW DAYS TO CHECK FOR SETTLEMENT, AND ADD ADDITIONAL MEDIA, AS NEEDED, TO ACHIEVE THE DESIGN ELEVATION.
- PREPARE PLANTING HOLES FOR ANY TREES AND SHRUBS. INSTALL THE VEGETATION, AND WATER ACCORDINGLY. INSTALL ANY TEMPORARY IRRIGATION.
- PLACE THE SURFACE COVER IN BOTH CELLS (MULCH, RIVER STONE OR TURF), DEPENDING ON THE DESIGN. IF COIR OR LITE MATTING WILL BE USED IN LIEU OF MULCH, THE MATTING WILL NEED TO BE INSTALLED PRIOR TO PLANTING (STEP 9), AND HOLES OR SLITS WILL HAVE TO BE CUT IN THE MATTING TO INSTALL THE PLANTS.
- INSTALL THE PLANT MATERIALS AS SHOWN IN THE LANDSCAPING PLAN, AND WATER THEM DURING WEEKS OF NO RAIN FOR THE FIRST TWO MONTHS. PLANT SUBSTITUTIONS MAY ONLY BE MADE USING THE PLANTS LISTED IN TABLE 9.4 OF DEQ STORMWATER DESIGN SPECIFICATION NO. 9 UNLESS APPROVED BY THE DESIGN PROFESSIONAL AND THE AUTHORITY HAVING JURISDICTION.
- CONDUCT THE FINAL CONSTRUCTION INSPECTION (CONSULT THE AUTHORITY HAVING JURISDICTION), THEN LOG THE GPS COORDINATES FOR EACH BIORETENTION FACILITY AND SUBMIT THEM FOR ENTRY INTO THE LOCAL MAINTENANCE TRACKING DATABASE.

BIORETENTION MATERIAL SPECIFICATIONS		
MATERIAL	SPECIFICATION	NOTES
FILTER MEDIA COMPOSITION	FILTER MEDIA TO CONTAIN: - 85%-88% SAND - 8%-12% SOIL FINES - 3%-5% ORGANIC MATTER IN THE FORM OF LEAF COMPOST	THE VOLUME OF FILTER MEDIA BASED ON 110% OF THE PLAN VOLUME, TO ACCOUNT FOR SETTLING OR COMPACTION. A MORE ORGANIC FILTER MEDIA IS RECOMMENDED WITHIN PLANTING HOLES FOR TREES, COMPOSED OF 50% SAND, 30% TOPSOIL, AND 20% LEAF COMPOST.
FILTER MEDIA TESTING	P-INDEX RANGE = 10-30, OR BETWEEN 7 AND 21 MG/KG OF P IN THE SOIL MEDIA. CECS GREATER THAN 10	FOR LEVEL 2 DESIGN THE MEDIA MUST BE PROCURED FROM APPROVED FILTER MEDIA VENDORS.
SURFACE LAYER	USE AGED, SHREDDED HARDWOOD BARK MULCH, RIVER STONE OR PEA GRAVEL, COIR AND JUTE MATTING, OR TURF (PER PLANTING PLAN)	LAY A 2 TO 3 INCH LAYER ON THE SURFACE OF THE FILTER BED.
TOP SOIL FOR TURF COVER	LOAMY SAND OR SANDY LOAM TEXTURE, WITH LESS THAN 5% CLAY CONTENT, PH CORRECTED TO BETWEEN 6 AND 7, AND AN ORGANIC MATTER CONTENT OF AT LEAST 2%.	
GEOTEXTILE FABRIC	USE A NON-WOVEN GEOTEXTILE FABRIC WITH A FLOW RATE OF > 110 GAL./MIN./SQ. FT. (E.G., GEOTEX 351 OR EQUIVALENT)	APPLY ONLY TO THE SIDES AND ABOVE THE UNDERDRAIN. FOR HOTSPOTS AND CERTAIN KARST SITES ONLY, CONSULT THE DESIGN ENGINEER.
IMPERMEABLE LINER	CLAY LINER MEETING THE SPECIFICATIONS OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK	EXTEND LINER FROM PRETREATMENT MEASURE TO EDGE OF SOIL MEDIA TO PREVENT SHORT-CIRCUITING
CHOKING LAYER	LAY A 2 TO 4 INCH LAYER OF SAND OVER A 2 INCH LAYER OF CHOKER STONE (TYPICALLY #8 OR #89 WASHED GRAVEL), WHICH IS LAID OVER THE UNDERDRAIN STONE.	
STONE JACKET FOR UNDERDRAIN AND/OR STORAGE LAYER	1 INCH STONE SHOULD BE DOUBLE-WASHED AND CLEAN AND FREE OF ALL FINES (E.G., VDOT #57 STONE).	DEPTH VARIES, SEE PLAN
UNDERDRAINS	USE 6 INCH RIGID SCHEDULE 40 PVC PIPE WITH 3/8-INCH PERFORATIONS AT 6 INCHES ON CENTER; SLOPE UNDERDRAIN TO OUTLET AND SPACE NO MORE THAN 20 FEET FROM THE NEXT PIPE.	LAY THE PERFORATED PIPE UNDER THE LENGTH OF THE BIORETENTION CELL, AND INSTALL NONPERFORATED PIPE AS NEEDED TO CONNECT WITH THE STORM DRAIN SYSTEM. INSTALL T'S AND Y'S AS NEEDED, DEPENDING ON THE UNDERDRAIN CONFIGURATION. EXTEND CLEANOUT PIPES TO THE SURFACE WITH VENTED CAPS AT THE TS AND YS.

NOTE: AN IMPERMEABLE CLAY LINER PER THE SPECIFICATIONS SHALL BE REQUIRED AROUND THE SIDES AND BOTTOM OF EACH BIORETENTION FACILITY.

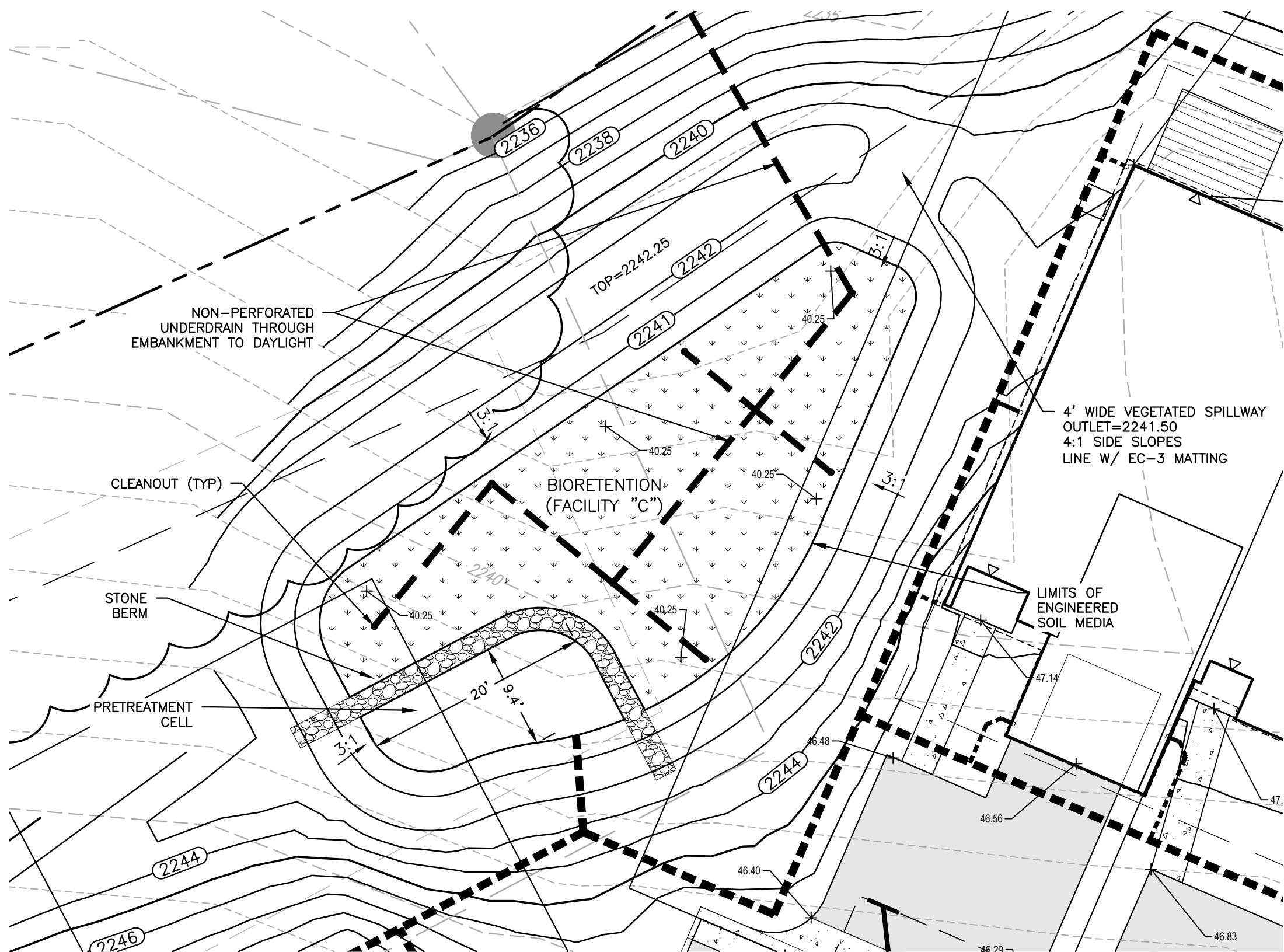


BIORETENTION - SUMMARY OF ELEVATIONS											
STR ID	BMP DESIGN LEVEL	TOP OF GRATE/INVERT OF WEIR OUTLET	TOP OF SURFACE TREATMENT	TOP OF FILTER MEDIA	TOP OF STONE CHOKING LAYER	TOP OF STONE LAYER	UNDERDRAIN INV. (AT OUTLET STR.)	OUTLET PIPE INV. (AT OUTLET STR.)	LOWEST ELEV. OF UNDERDRAIN	BOTTOM OF STONE	SURFACE AREA PROVIDED (SF)
BIORETENTION (FACILITY "C")	LEVEL 1	2141.50	2140.25	2140.00	2138.00	2137.67	N/A	N/A	2136.67	2136.17	1,028

TABLE 14.4 VSMH - Clay Liner Specifications		
Property	Test Method (or equal)	Specification
Permeability	ASTM D-2434	1x10 ⁻⁶ CM/SEC
Plasticity Index of Clay	ASTM D-423 & D-424	Not less than 15%
Liquid Limit of Clay	ASTM D-2216	Not less than 30%
Clay Particles Passing	ASTM D-422	Not less than 30%
Clay Compaction	ASTM D-2216	95% Std. Proctor

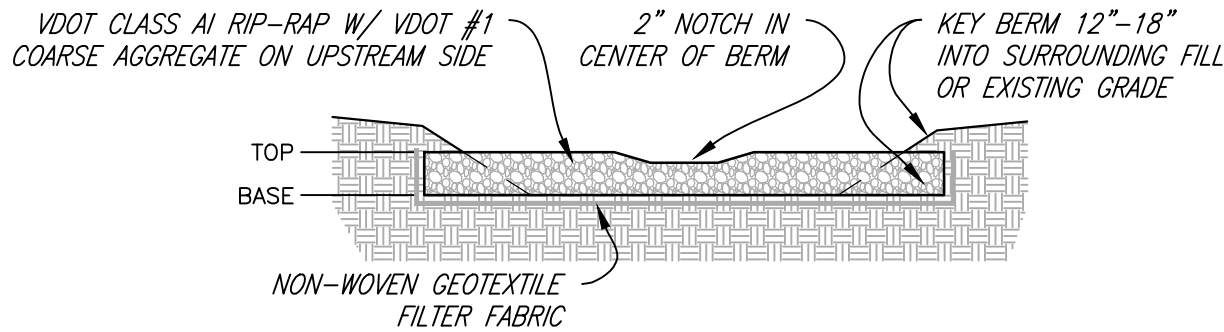
IMPERMEABLE LINER INSTALLATION NOTES (BIORETENTION)

- BIORETENTION FACILITY SHALL HAVE AN IMPERMEABLE LINER PER THE SPECIFICATIONS AND DETAILS ON THIS SHEET.
- IF A CLAY LINER IS USED, IT SHALL MEET THE REQUIREMENTS OF VSMH TABLE 14.4.
- CLAY LINERS SHALL BE INSTALLED UNDER THE MONITORING, TESTING, AND SUPERVISION OF THE GEOTECHNICAL ENGINEER.
- ANY ROCK ENCOUNTERED IN THE FACILITY EXCAVATION SHALL BE OVER-EXCAVATED AS REQUIRED TO ACCOMMODATE THE INSTALLATION OF THE FULL 24" THICK CLAY LINER AS SPECIFIED.

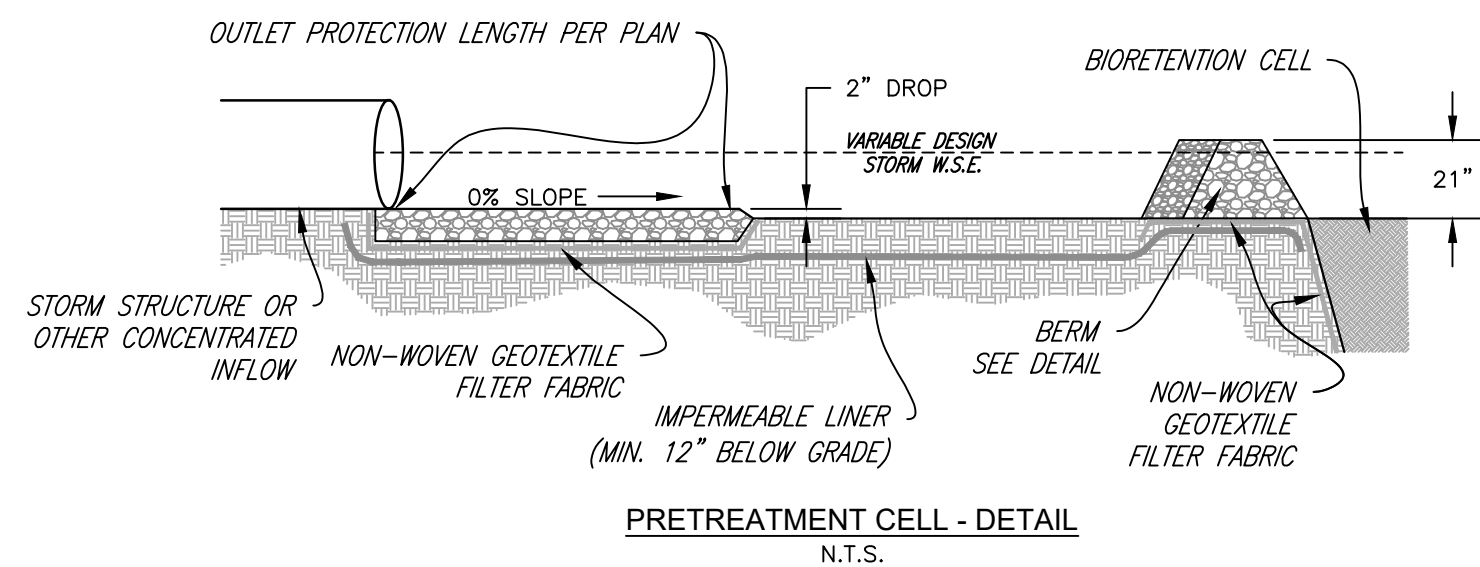


BIORETENTION DETAIL LAYOUT
SCALE: 1"=10'

BERM CROSS SECTION - NTS



PROFILE - NTS



BIORETENTION PRETREATMENT MEASURES

STORMWATER MANAGEMENT FACILITIES MAINTENANCE PLAN

GENERALLY

- THE HOMEOWNERS ASSOCIATION IS RESPONSIBLE FOR PROVIDING OR COORDINATING ALL FACILITY INSPECTIONS AND ANY REQUIRED MAINTENANCE THAT MAY RESULT FROM SUCH INSPECTIONS.
- REQUIREMENTS LISTED HERE ARE TO BE TAKEN AS A MINIMUM AND DO NOT REPRESENT THE LIMIT OF RESPONSIBILITY.
- ANY STANDING WATER PUMPED DURING THE MAINTENANCE OPERATION MUST BE DISPOSED OF PER THE VESCH, 1992 EDITION AND ANY LOCAL REQUIREMENTS.

REQUIRED ACTION

SEDIMENT FOREBAYS:

- SEDIMENT SHALL BE REMOVED FROM THE FOREBAY EVERY 3-5 YEARS OR WHEN 50% OF THE FOREBAY VOLUME HAS BEEN FILLED, WHICHEVER COMES FIRST. TO CLEAN THE FOREBAY, DRAINING OR PUMPING AND A POSSIBLE TEMPORARY PARTIAL DRAWDOWN OF THE POOL MAY BE REQUIRED. REFER TO THE VESCH, 1992 EDITION FOR PROPER DEWATERING METHODS. REMOVAL OF SEDIMENT FROM THE FOREBAY IS ESSENTIAL TO MAINTAIN THE FUNCTION AND PERFORMANCE OF THE STORMWATER MANAGEMENT POND.
- SEDIMENT EXCAVATED FROM THE POND IS USUALLY NOT CONSIDERED TOXIC OR HAZARDOUS. ALL MATERIAL REMOVED FROM THE SEDIMENT FOREBAY MUST BE DISPOSED OF OR USED IN AN APPROPRIATE MANNER.

BIORETENTION FILTERS:

- EVERY (12) TWELVE MONTHS THE RESPONSIBLE PARTY SHALL COMPLETE THE 'BIORETENTION PRACTICES O&M CHECKLIST' PROVIDED IN APPENDIX 9C OF THE VIRGINIA STORMWATER MANAGEMENT HANDBOOK (VSMH) AND MAKE ANY REPAIRS NECESSARY TO AREAS OF FAILURE/CONCERN DISCOVERED DURING INSPECTION. TYPICAL MAINTENANCE TASKS INCLUDE:
 - CHECK TO SEE IF 75% TO 90% COVER (MULCH PLUS VEGETATIVE COVER) HAS BEEN ACHIEVED IN THE BED, AND MEASURE THE DEPTH OF THE REMAINING MULCH.
 - CHECK FOR SEDIMENT BUILDUP AT CURB CUTS, GRAVEL DIAPHRAGMS OR PAVEMENT EDGES THAT PREVENTS FLOW FROM GETTING INTO THE BED, AND CHECK FOR OTHER SIGNS OF BYPASSING.
 - CHECK FOR ANY WINTER, OR SALT-KILLED VEGETATION, AND REPLACE IT WITH HARDIER SPECIES.
 - NOTE PRESENCE OF ACCUMULATED SAND, SEDIMENT AND TRASH IN THE PRE-TREATMENT CELL OR FILTER BEDS, AND REMOVE IT.
 - INSPECT BIORETENTION SIDE SLOPES AND GRASS FILTER STRIPS FOR EVIDENCE OF ANY RILL OR GULLY EROSION, AND REPAIR IT.
 - CHECK THE BIORETENTION BED FOR EVIDENCE OF MULCH FLOTATION, EXCESSIVE PONDING, DEAD PLANTS OR CONCENTRATED FLOWS, AND TAKE APPROPRIATE REMEDIAL ACTION.
 - CHECK INFLOW POINTS FOR CLOGGING, AND REMOVE ANY SEDIMENT.
 - LOOK FOR ANY BARE SOIL OR SEDIMENT SOURCES IN THE CONTRIBUTING DRAINAGE AREA, AND STABILIZE THEM IMMEDIATELY.
 - CHECK FOR CLOGGED OR SLOW-DRAINING SOIL MEDIA, A CRUST FORMED ON THE TOP LAYER, INAPPROPRIATE SOIL MEDIA, OR OTHER CAUSES OF INSUFFICIENT FILTERING TIME, AND RESTORE PROPER FILTRATION CHARACTERISTICS.
- EVERY (6) MONTHS AND AFTER EACH MAJOR RUNOFF PRODUCING STORM EVENT, THE FOLLOWING MAINTENANCE TASKS SHALL BE PERFORMED:
 - INSPECT CONDITION OF GRATE INLET RISER FOR EVIDENCE OF CLOGGING, LEAKAGE, DEBRIS ACCUMULATION, ETC. THAT MAY COMPROMISE THE PERFORMANCE OF THE STRUCTURE. SUCH DEBRIS OR SEDIMENTS SHALL BE REMOVED IMMEDIATELY.
 - GRASSSED AREAS SHALL BE MAINTAINED SO AS TO PROMOTE SOIL STABILIZATION OF BASIN SIDE SLOPES AND PROPER FUNCTIONING OF OUTFALL STRUCTURES. THE BASIN SIDE SLOPES SHALL BE MOWED A MINIMUM OF TWICE A YEAR TO DISCOURAGE WOODY GROWTH.

STANDARD (DRY) DETENTION PONDS:

- EVERY (12) TWELVE MONTHS THE RESPONSIBLE PARTY SHALL COMPLETE AND DOCUMENT A VISUAL INSPECTION OF THE ACCESS ROAD, DETENTION POND FACILITY, AND ITS OUTLET STRUCTURE AND MAKE ANY REPAIRS NECESSARY TO AREAS OF FAILURE/CONCERN DISCOVERED DURING INSPECTION. TYPICAL MAINTENANCE TASKS INCLUDE:
 - INSPECT POND OUTFALL CHANNEL FOR EROSION, UNDERCUTTING, RIP-RAP DISPLACEMENT, WOODY GROWTH, ETC.
 - INSPECT CONDITION OF PRINCIPAL SPILLWAY AND RISER FOR EVIDENCE OF SPALLING, JOINT FAILURE, LEAKAGE, CORROSION, ETC.
 - INSPECT INTERNAL AND EXTERNAL SIDE SLOPES OF THE POND FOR EVIDENCE OF SPARSE VEGETATIVE COVER, EROSION, OR SLUMPING, AND MAKE NEEDED REPAIRS IMMEDIATELY.
 - GRASSSED AREAS SHALL BE MAINTAINED SO AS TO PROMOTE SOIL STABILIZATION OF POND BANKS AND PROPER FUNCTIONING OF OUTFALL STRUCTURES. THE POND BANKS SHALL BE MOWED A MINIMUM OF TWICE A YEAR TO DISCOURAGE WOODY GROWTH.
- EVERY (6) MONTHS AND AFTER EACH MAJOR RUNOFF PRODUCING STORM EVENT, THE FOLLOWING MAINTENANCE TASKS SHALL BE PERFORMED:
 - INSPECT THE CONDITION OF THE ACCESS ROAD FOR ANY ISSUES INCLUDING STANDING WATER OR EROSION OF THE SURFACE COURSE. A SURFACE COURSE OF 2 TO 3 INCHES OF COMPACTED CRUSHER RUN SHALL BE MAINTAINED AT ALL TIMES. RUTTING, POTHOLES, OR DETERIORATION OF THE SURFACE COURSE SHALL BE REPAIRED IMMEDIATELY.
 - INSPECT CONDITION OF ALL OPENINGS AND TRASH RACKS FOR EVIDENCE OF CLOGGING, LEAKAGE, DEBRIS ACCUMULATION, ETC. THAT MAY COMPROMISE THE PERFORMANCE OF THE STRUCTURE. SUCH DEBRIS OR SEDIMENTS SHALL BE REMOVED IMMEDIATELY.

GRASSSED CHANNELS:

- GRASSSED CHANNELS SHOULD BE MOVED TO MAINTAIN A DENSE, HEALTHY GRASS COVER AND PREVENT THE ESTABLISHMENT OF WOODY VEGETATION.
- EVERY (12) TWELVE MONTHS, PREFERABLY IN THE SPRING, THE GRASSSED CHANNELS SHOULD BE INSPECTED FOR EVIDENCE OF SALT-KILLED VEGETATION, EROSION, UNDERCUTTING, TRASH, OR PONDING OF WATER.
- IF NECESSARY DUE TO FINDINGS:
 - LOOK FOR ANY BARE SOIL OR SEDIMENT SOURCES IN THE CONTRIBUTING DRAINAGE AREA AND STABILIZE IMMEDIATELY.
 - ADD REINFORCEMENT PLANTING TO MAINTAIN 90% TURF COVER.
 - REMOVE ANY ACCUMULATED SAND OR SEDIMENT DEPOSITS.
 - REMOVE TRASH OR BLOCKAGES.

MANUFACTURED TREATMENT DEVICES (MTDS):

- THE MAINTENANCE AND INSPECTION OF ALL MANUFACTURED TREATMENT DEVICES (MTDS) SHALL BE IN ACCORDANCE WITH THE SYSTEM MANUFACTURER'S GUIDELINES AT AN INTERVAL NOT TO EXCEED EVERY (12) TWELVE MONTHS. ANY REPAIRS NECESSARY TO AREAS OF FAILURE/CONCERN DISCOVERED DURING INSPECTION SHALL BE COMPLETED PROMPTLY BY THE RESPONSIBLE PARTY.
- UP-TO-DATE MAINTENANCE AND INSPECTION REQUIREMENTS CAN BE FOUND BY CONTACTING THE FOLLOWING MANUFACTURERS:
 - CASCADE SEPARATOR: CONTECH ENGINEERED SOLUTIONS
1-800-338-1122
www.conteches.com



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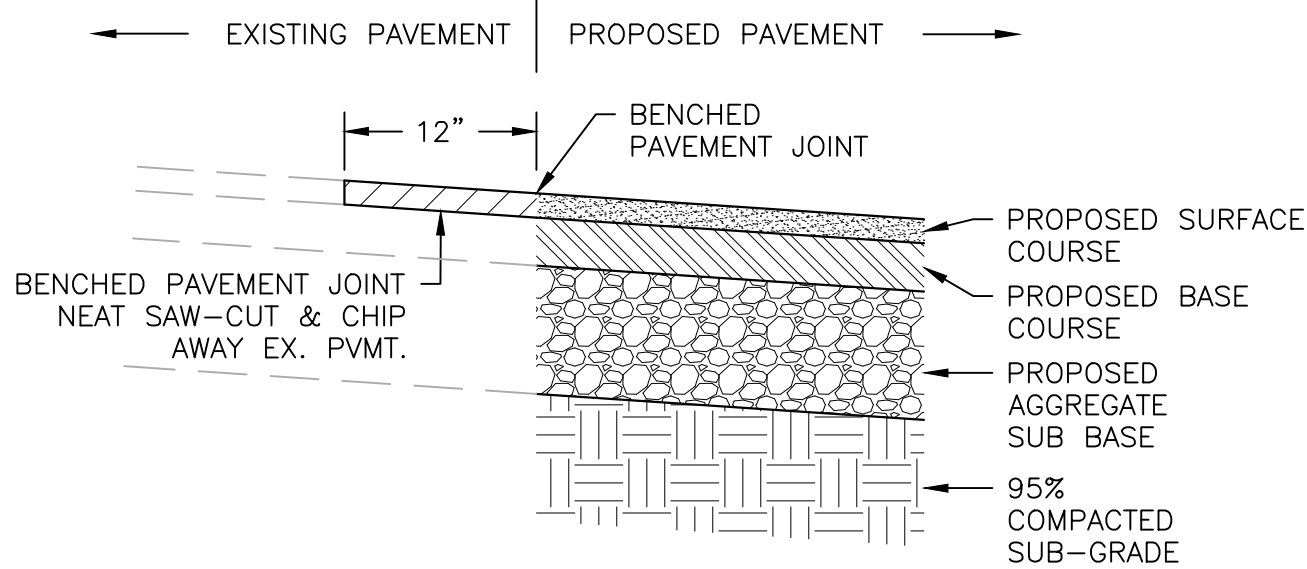
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APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
STORMWATER MANAGEMENT PLAN
BIORETENTION BASIN ("BIO-1")

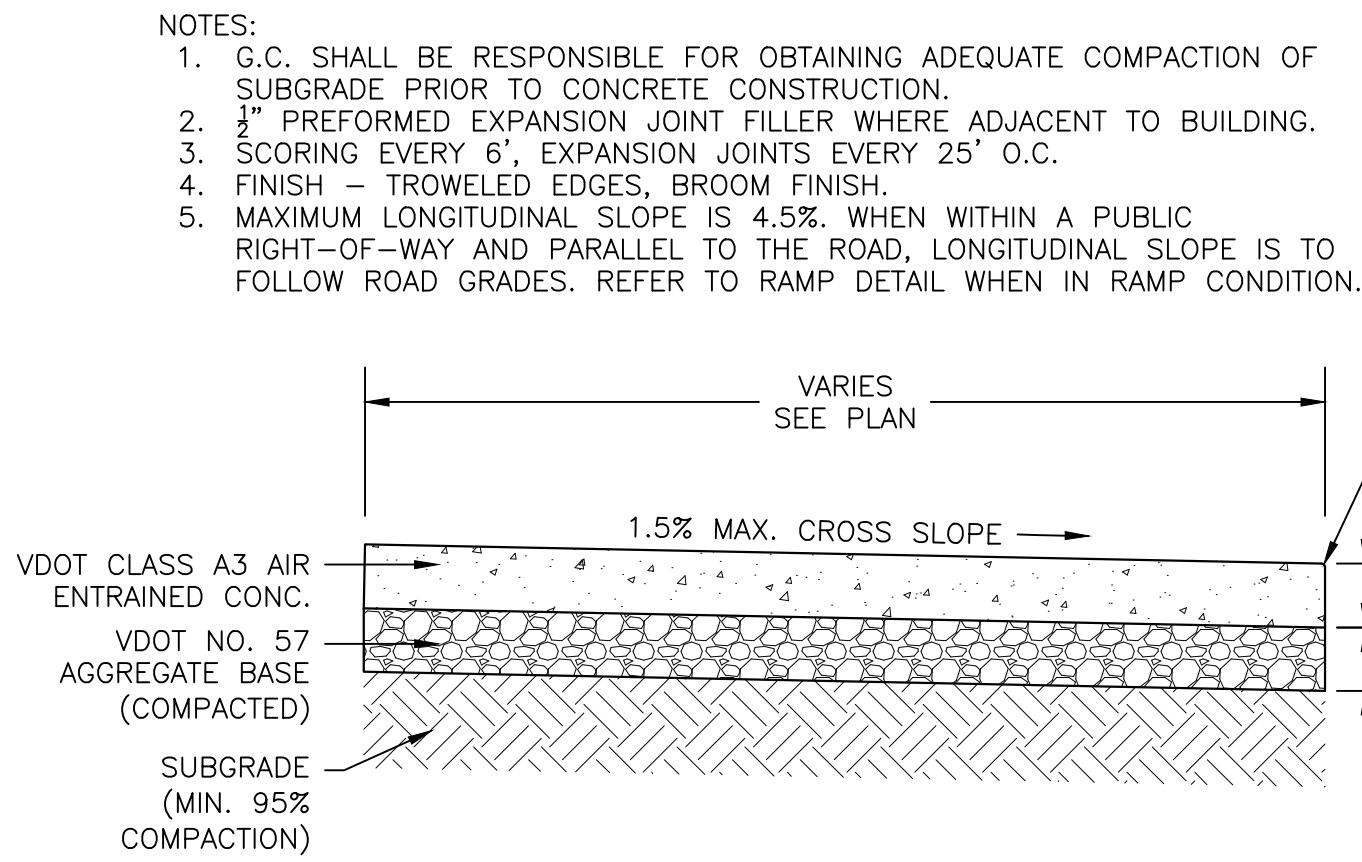
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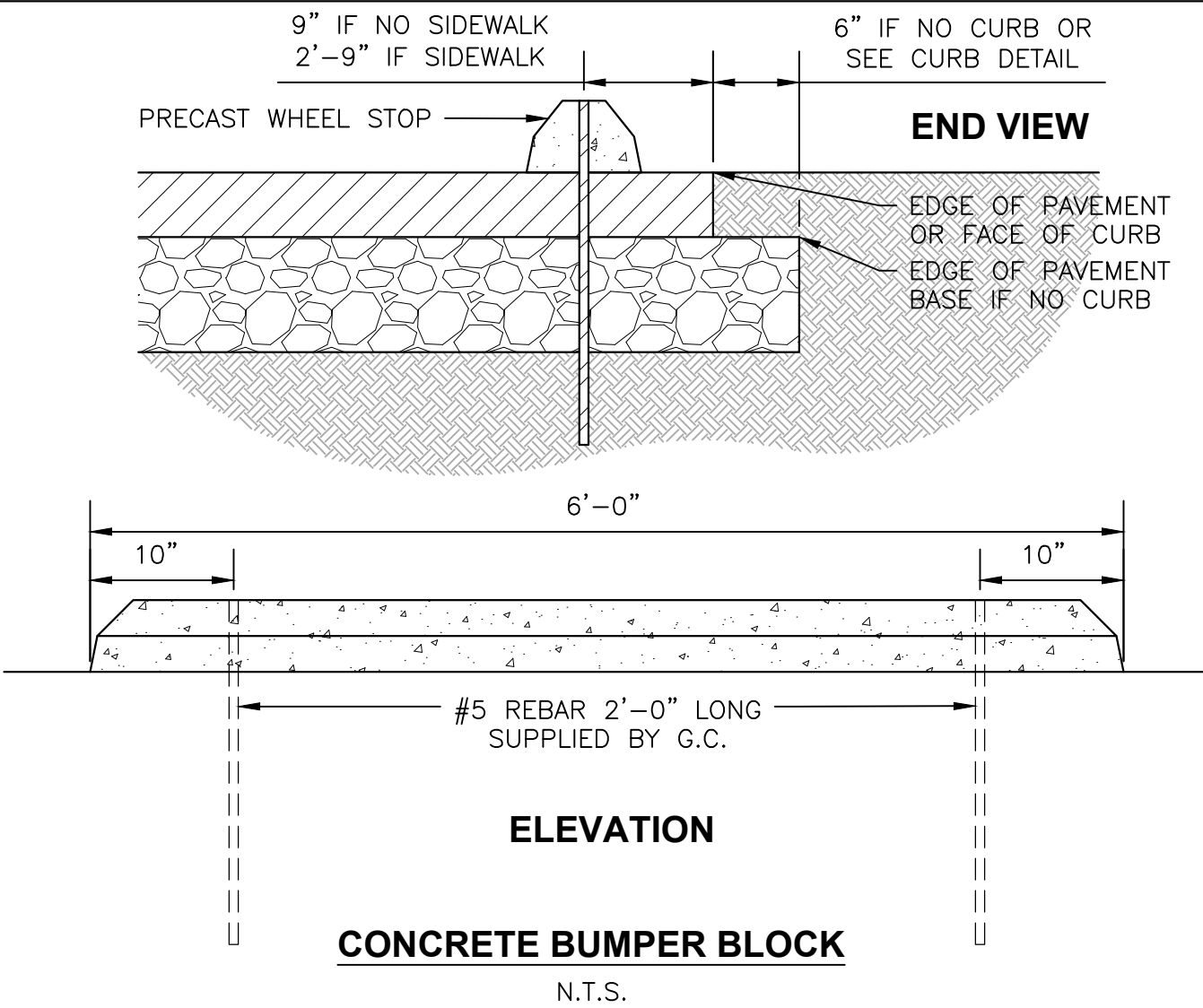


- NOTES:
1. G.C. TO ENSURE SOIL SUBGRADE IS COMPACTED TO 95% STANDARD PROCTOR DRY DENSITY PRIOR TO STONE/ASPHALT PLACEMENT.
 2. STONE BASE MUST BE PLACED IN LIFTS OF NO MORE THAN 4" EACH.
 3. A TACK COAT SHALL BE APPLIED BETWEEN ASPHALT PAVEMENT LAYERS.

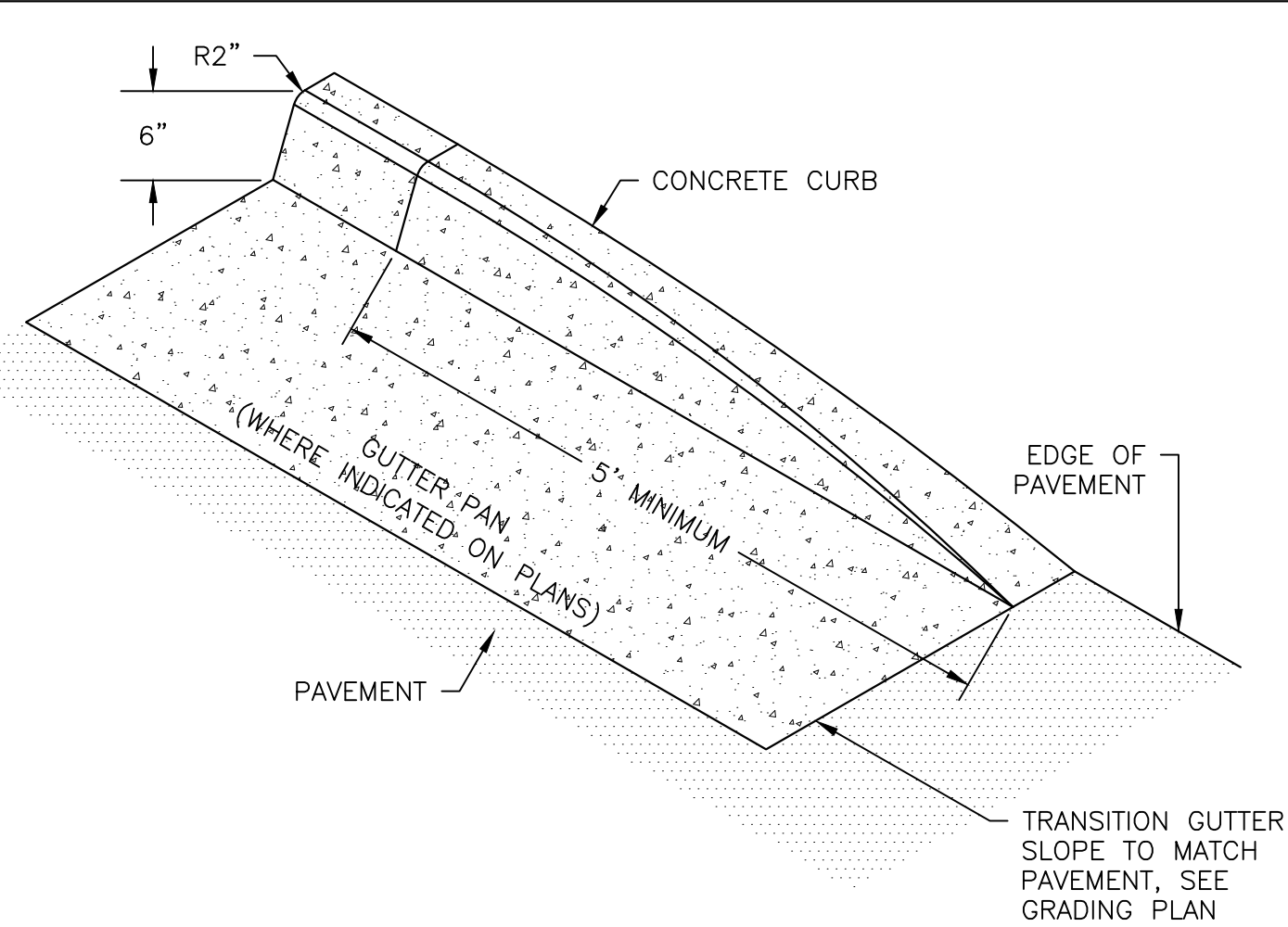
PAVEMENT JOINT DETAIL
N.T.S.



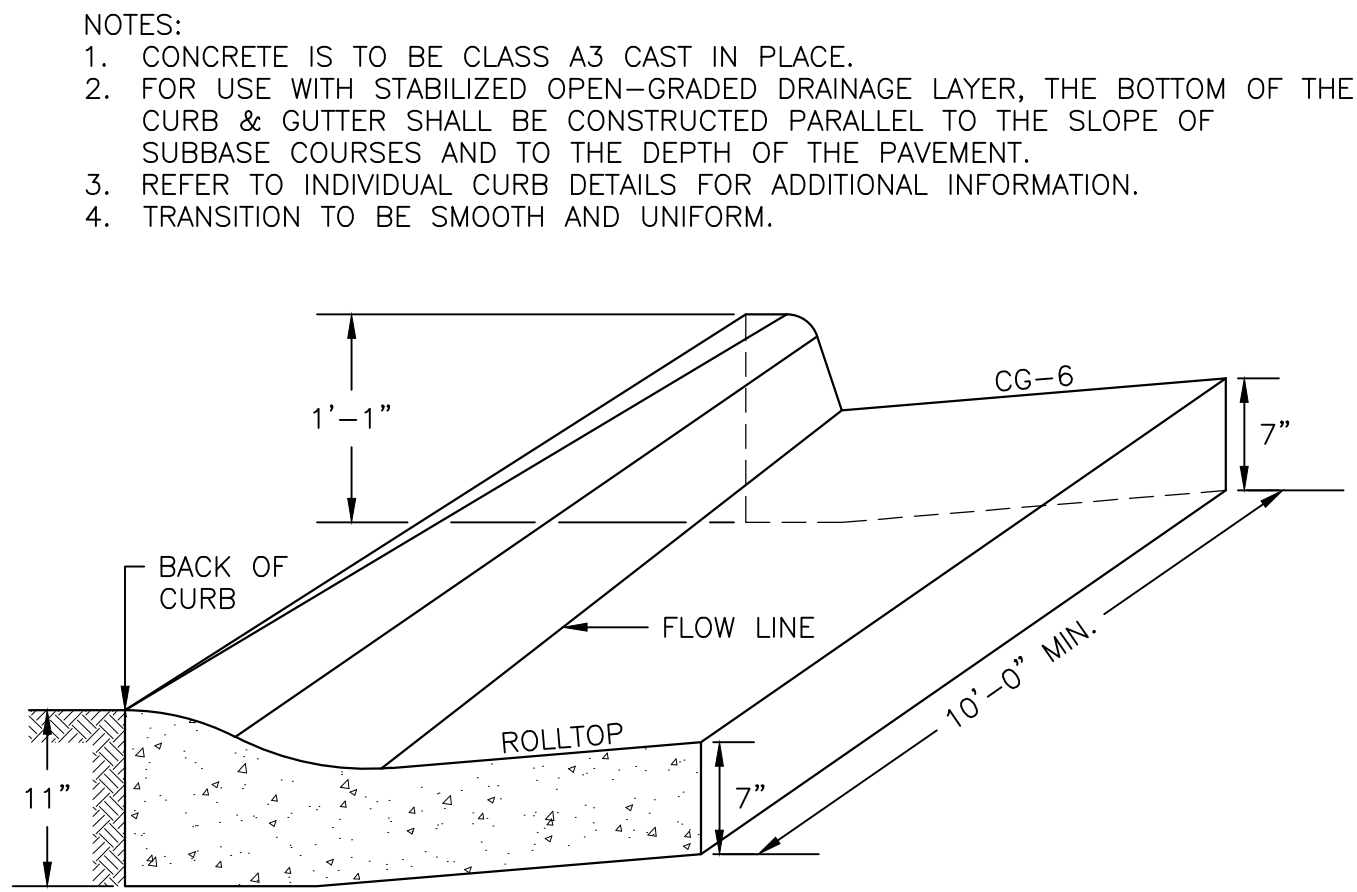
CONCRETE SIDEWALK
N.T.S.



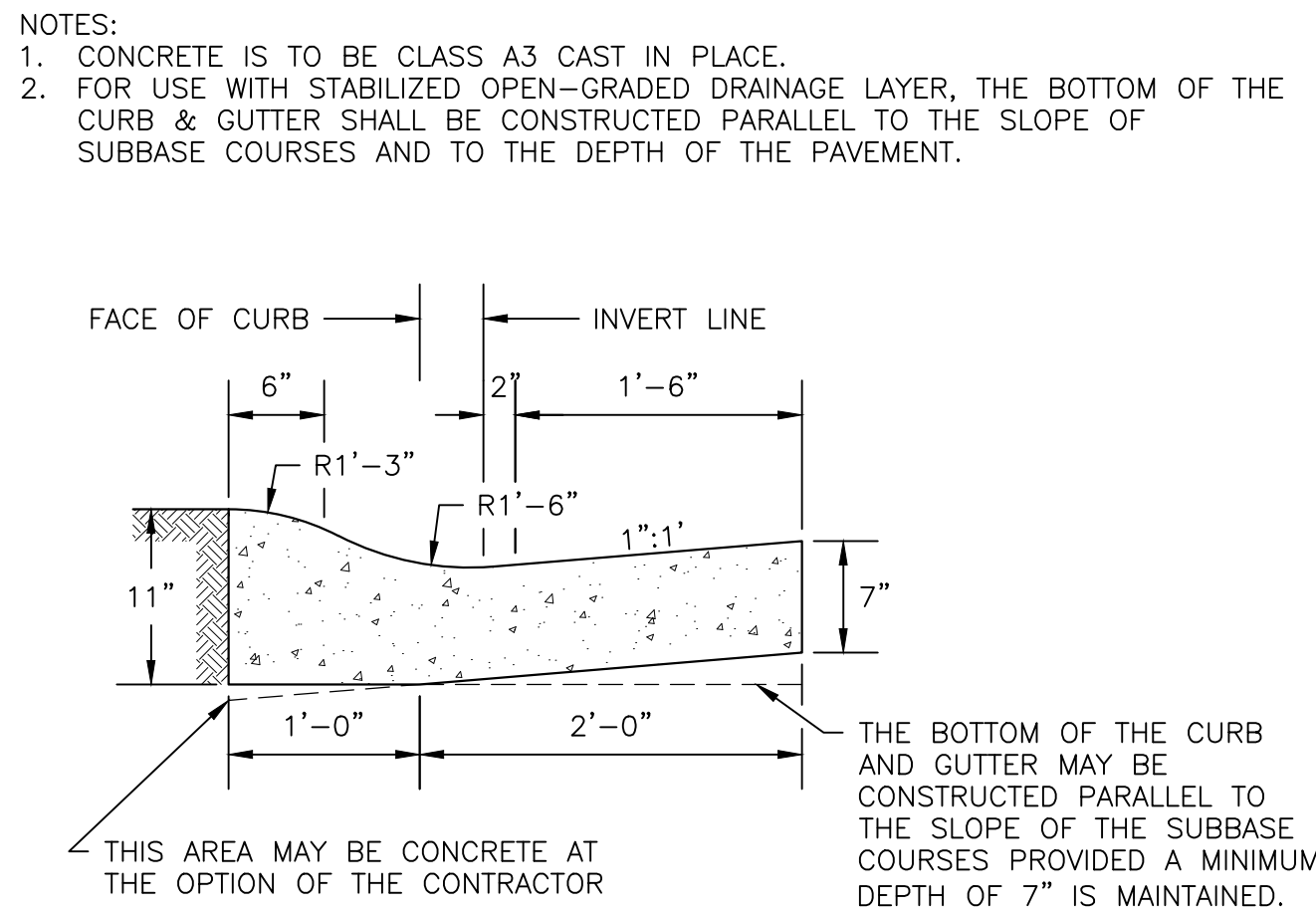
CONCRETE BUMPER BLOCK
N.T.S.



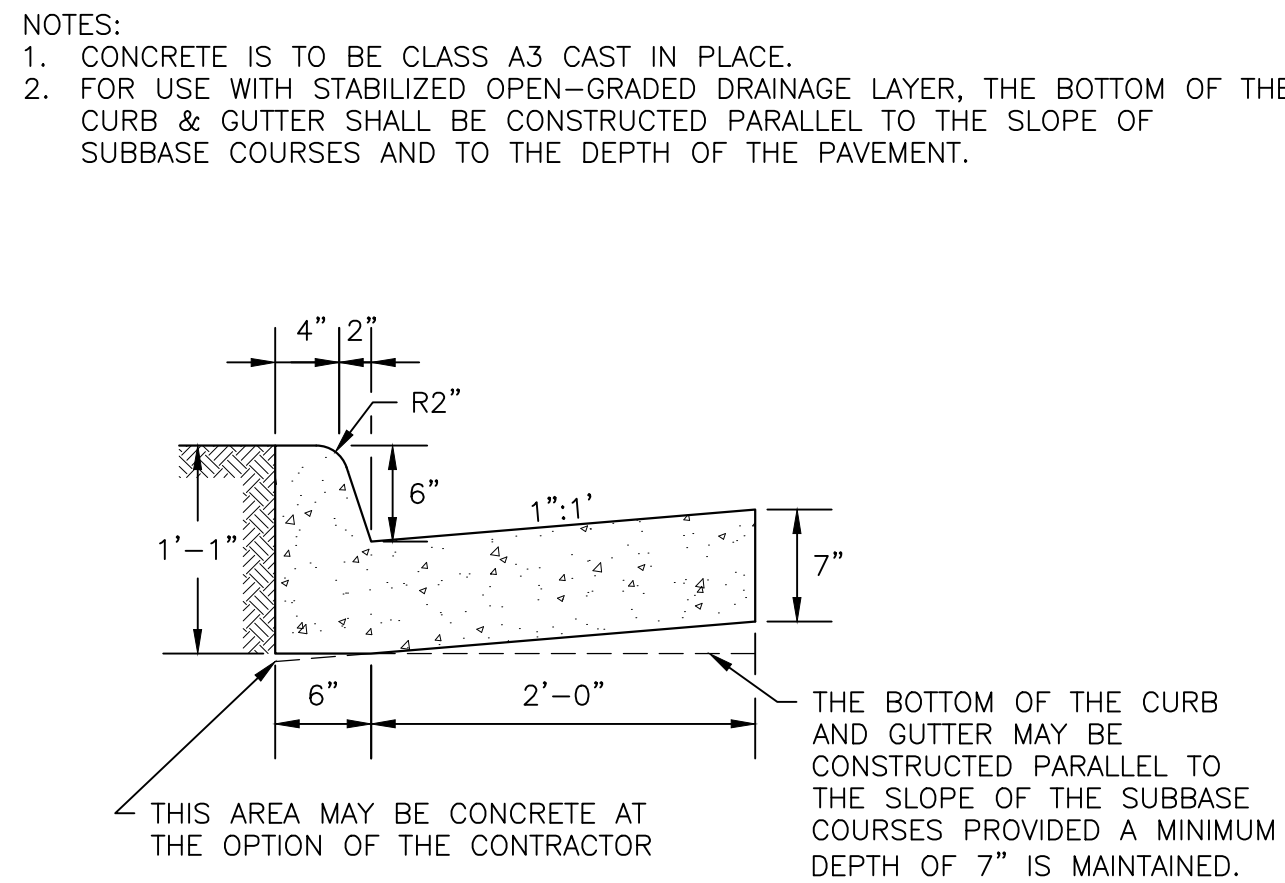
CURB TO PAVEMENT TERMINATION
N.T.S.



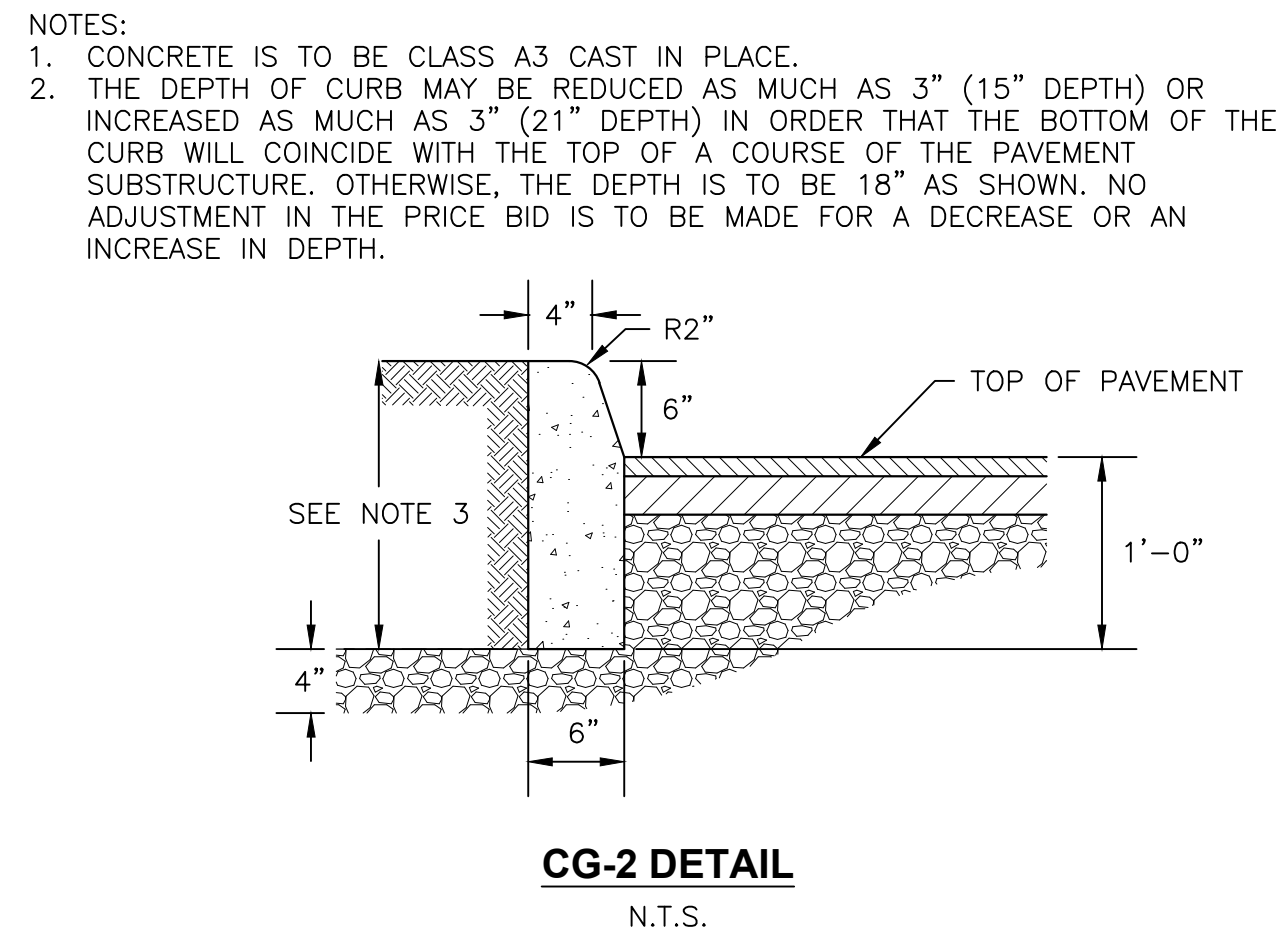
ROLLTOP/CG-6 TRANSITION
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ROLLTOP CURB AND GUTTER
N.T.S.

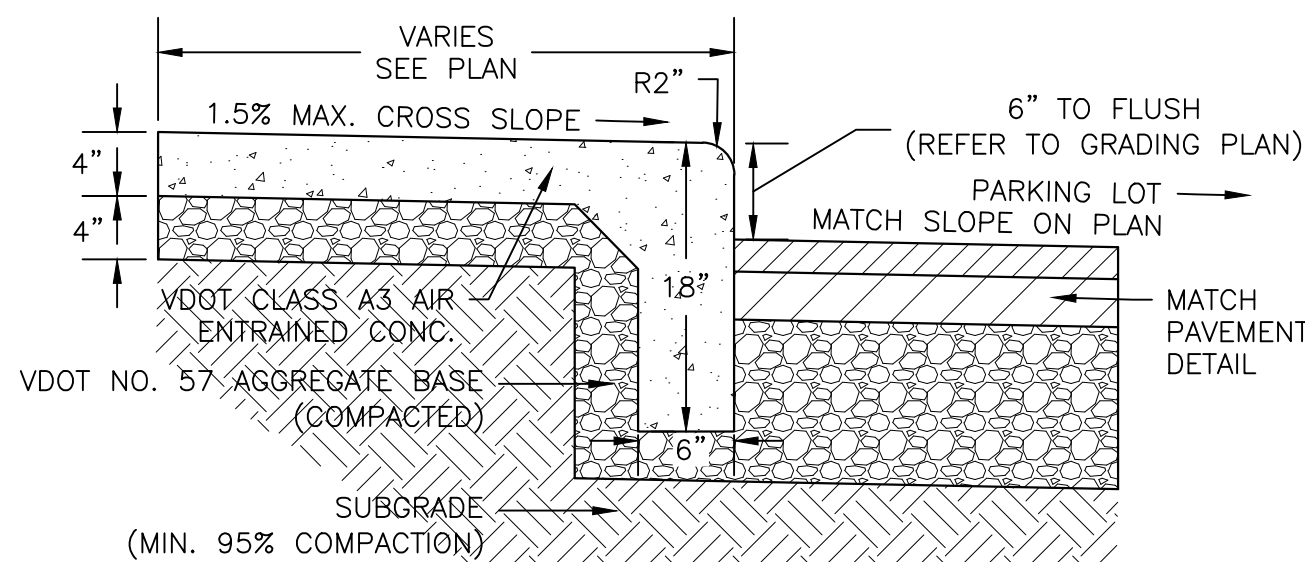


CG-6 (WET) DETAIL
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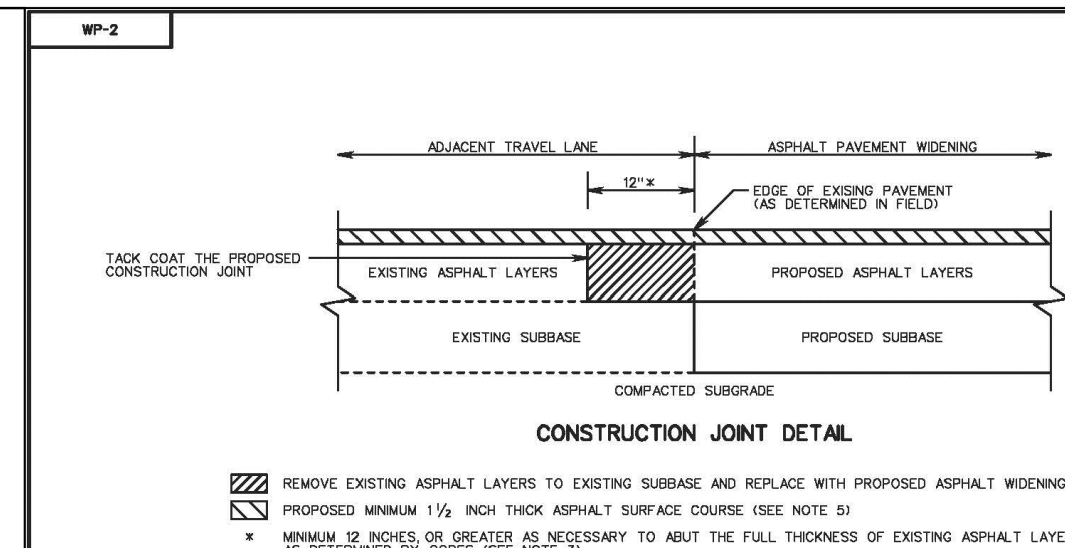


CG-2 DETAIL
N.T.S.

- NOTES:
1. G.C. SHALL BE RESPONSIBLE FOR OBTAINING ADEQUATE COMPACTION OF SUBGRADE PRIOR TO CONCRETE CONSTRUCTION.
 2. 3" PREFORMED EXPANSION JOINT FILLER WHERE ADJACENT TO BUILDING.
 3. SCORING EVERY 6", EXPANSION JOINTS EVERY 25' O.C.
 4. FINISH - TROWELED EDGES, BROOM FINISH.
 5. MAXIMUM LONGITUDINAL SLOPE IS 4.5% WHEN WITHIN A PUBLIC RIGHT-OF-WAY AND PARALLEL TO THE ROAD, LONGITUDINAL SLOPE IS TO FOLLOW ROAD GRADES. REFER TO RAMP DETAIL WHEN IN RAMP CONDITION.

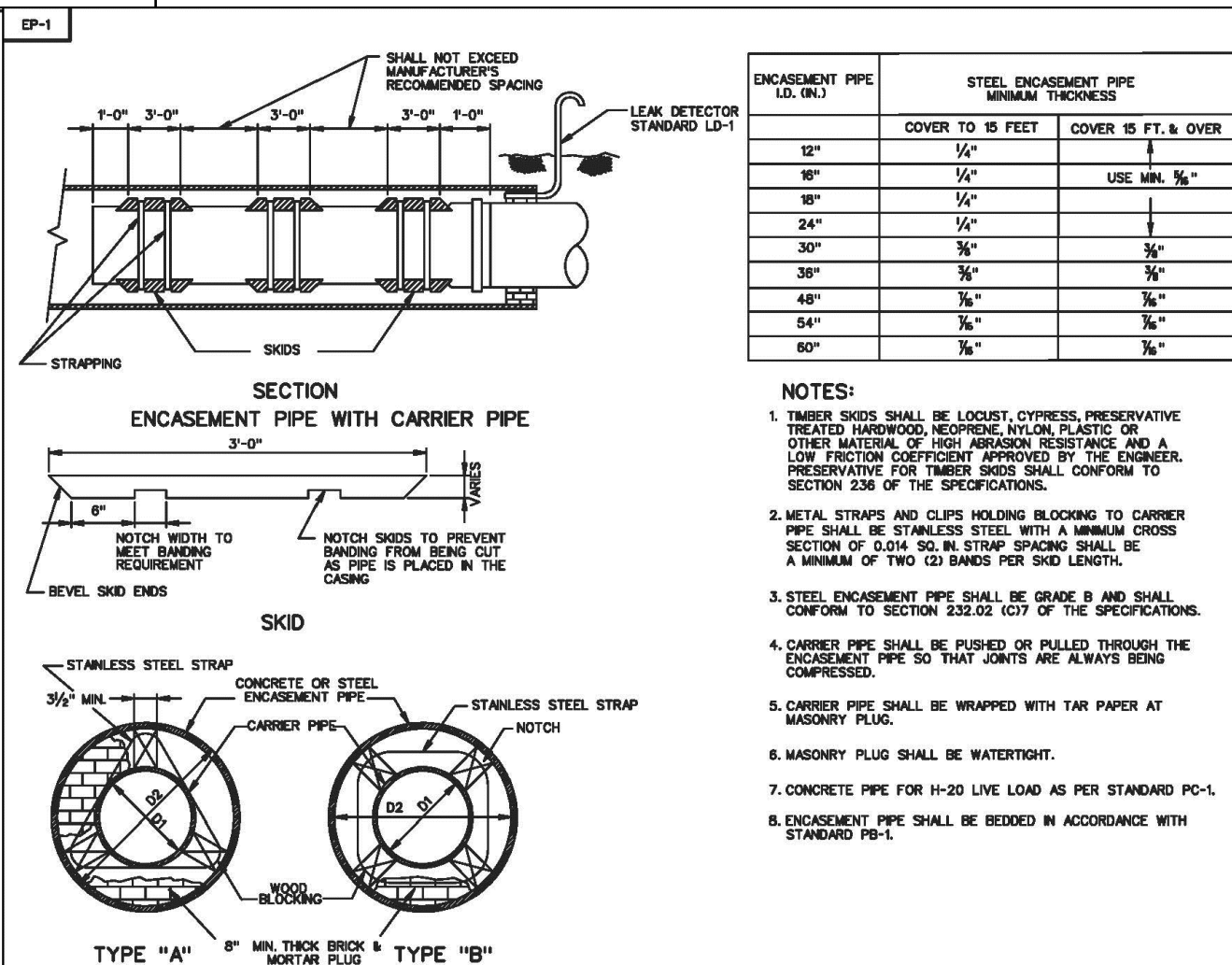


TURNDOWN SIDEWALK
N.T.S.

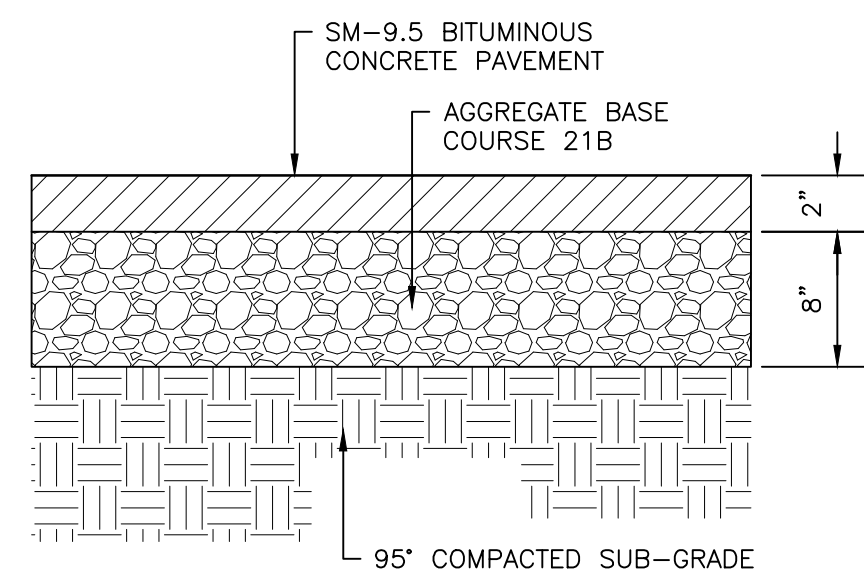


- NOTES:
1. ASPHALT PAVEMENT WIDENING SHALL HAVE A PAVEMENT DESIGN IN ACCORDANCE WITH CURRENT VDOT PROCEDURES AND BE APPROVED BY THE ENGINEER.
 2. THE PAVEMENT DESIGN FOR ASPHALT PAVEMENT WIDENING SHALL MEET OR EXCEED THE DEPTH AND TYPES OF THE LAYERS OF EXISTING PAVEMENT.
 3. SUBSURFACE DRAINAGE OF THE EXISTING AND PROPOSED PAVEMENT SHALL BE ADDRESSED IN THE PAVEMENT DESIGN.
 4. A MINIMUM OF THREE CORES SHALL BE TAKEN ALONG THE CENTER OF THE ADJACENT TRAVEL LANE TO DETERMINE THE TYPE AND THICKNESS OF EXISTING PAVEMENT LAYERS. THESE CORES SHALL BE SPACED NO MORE THAN 500 FEET APART.
 5. THE ADJACENT TRAVEL LANE SHALL BE MILLED A MINIMUM DEPTH OF 1 1/2 INCHES AND REPLACED WITH AN ASPHALT SURFACE COURSE TO MATCH THE PROPOSED PAVEMENT WIDENING SURFACE COURSE. MATCHES SHALL BE 10 FEET LONG.
 6. THE ENGINEER MAY REQUIRE THE MILLING DEPTH OF THE EXISTING PAVEMENT TO BE ADJUSTED TO ACHIEVE AN ACCEPTABLE PAVEMENT CROSS-SLOPE AND EFFECTIVE SURFACE DRAINAGE.
 7. EXISTING PAVEMENT MARKINGS AND MARKERS WITHIN THE PROJECT LIMITS SHALL BE RESTORED SUBJECT TO THE APPROVAL OF THE ENGINEER.
 8. FINAL TRANSVERSE PAVEMENT TESTS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 200.00 OF THE SPECIFICATIONS EXCEPT THAT ALL JOINTS SHALL BE IN LOCATIONS SHALL BE TESTED USING A 10 FOOT STANDSTRESSER IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 200.00 OF THE SPECIFICATIONS.

ASPHALT PAVEMENT WIDENING FOR WIDENING SUBJECT TO TRAFFIC
VIRGINIA DEPARTMENT OF TRANSPORTATION

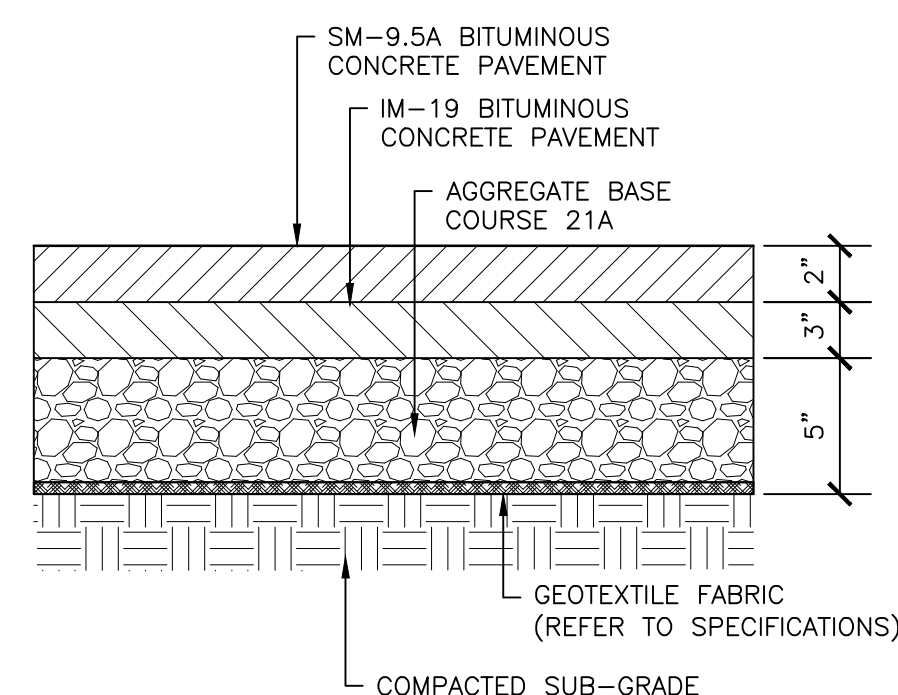


CONCRETE OR STEEL ENCASUREMENT PIPE
VIRGINIA DEPARTMENT OF TRANSPORTATION



NOTE: PAVEMENT DESIGN IS PRELIMINARY, REFER TO GEOTECH REPORT FOR FINAL DESIGN

LIGHT DUTY PAVING - DETAIL
NTS



NOTE: PAVEMENT DESIGN IS PRELIMINARY, REFER TO GEOTECH REPORT FOR FINAL DESIGN

HEAVY DUTY ASPHALT PAVING - DETAIL
NTS



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APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
SITE DETAILS

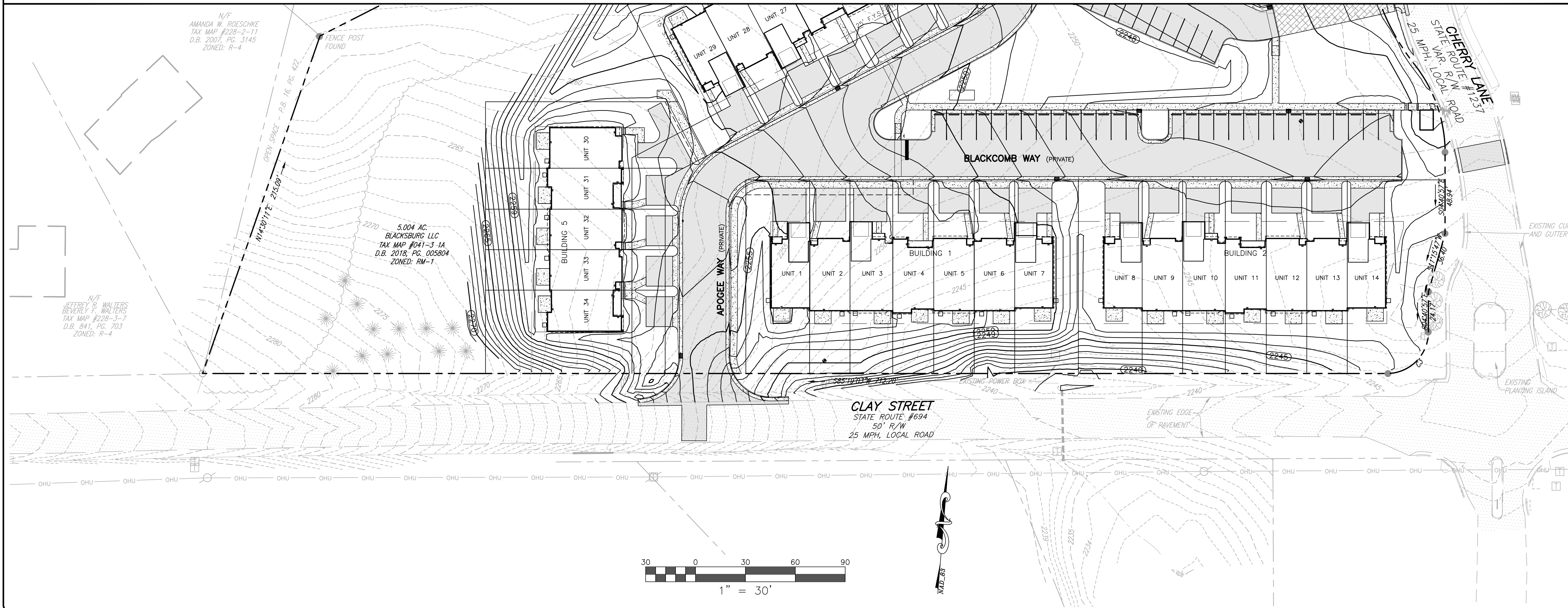
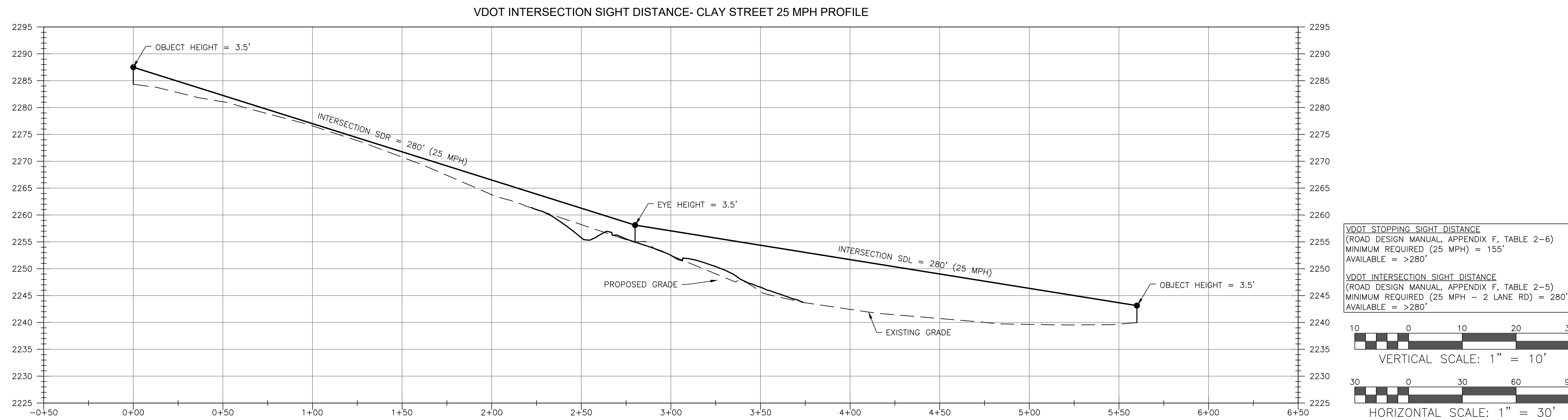
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DESIGNED BY TKP
CHECKED BY SMS
DATE 01-18-2021
SCALE AS NOTED
REVISIONS
1. 5/5/21
2. 11/21/22
3. 2/20/23

C21
PROJECT NO. 24200014.00



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APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
VDOT SIGHT DISTANCE

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SCALE	AS SHOWN
REVISIONS	
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3. 2/20/23	

C22
PROJECT NO. 24200014.00

**Typical Traffic Control
Stationary Operation on a Shoulder
(Figure TTC-4.2)**
NOTES

Standard

- For long-term stationary work (more than 3 days) on divided highways having a median wider than 8', sign assemblies on both sides of the roadway shall be required as shown (ROAD WORK AHEAD (W20-1), RIGHT SHOULDER CLOSED AHEAD (W21-5bR), RIGHT SHOULDER CLOSED (W21-5aR)), even though only one shoulder is being closed. For operations less than 3 days in duration, sign assemblies will only be required on the side where the shoulder is being closed.

Guidance

- Sign spacing should be 1300'-1500' for Limited Access highways. For all other roadways, the sign spacing should be 500'-800' where the posted speed limit is greater than 45 mph, and 350'-500' where the posted speed limit is 45 mph or less.

Option:

- The SHOULDER WORK (W21-5) sign on an intersecting roadway may be omitted where drivers emerging from that roadway will encounter another advance warning sign prior to this activity area.
- For short duration operations of 60 minutes or less, all signs and channelizing devices may be eliminated if a vehicle with activated high-intensity amber rotating, flashing, or oscillating lights is used.

Standard:

- Vehicle hazard warning signals shall not be used instead of the vehicle's high-intensity amber rotating, flashing, or oscillating lights. Vehicle hazard warning signals can be used to supplement high-intensity amber rotating, flashing, or oscillating lights.
- Taper length (L) shall be at the following:

Taper Length L					
Speed Limit (mph)	9	10	11	12	Remarks
25	95	105	115	125	L=SW/60
30	135	150	165	180	L=SW/60
35	185	205	225	245	L=SW/60
40	240	270	295	320	L=SW/60
45	405	450	495	540	L=SW

Limited Access highways shall use a 1000' merging taper regardless of the posted speed, for shifting taper see Table 6H-22

Shoulder Taper = 1/2 L Minimum

- Channelizing device spacing shall be at the following:

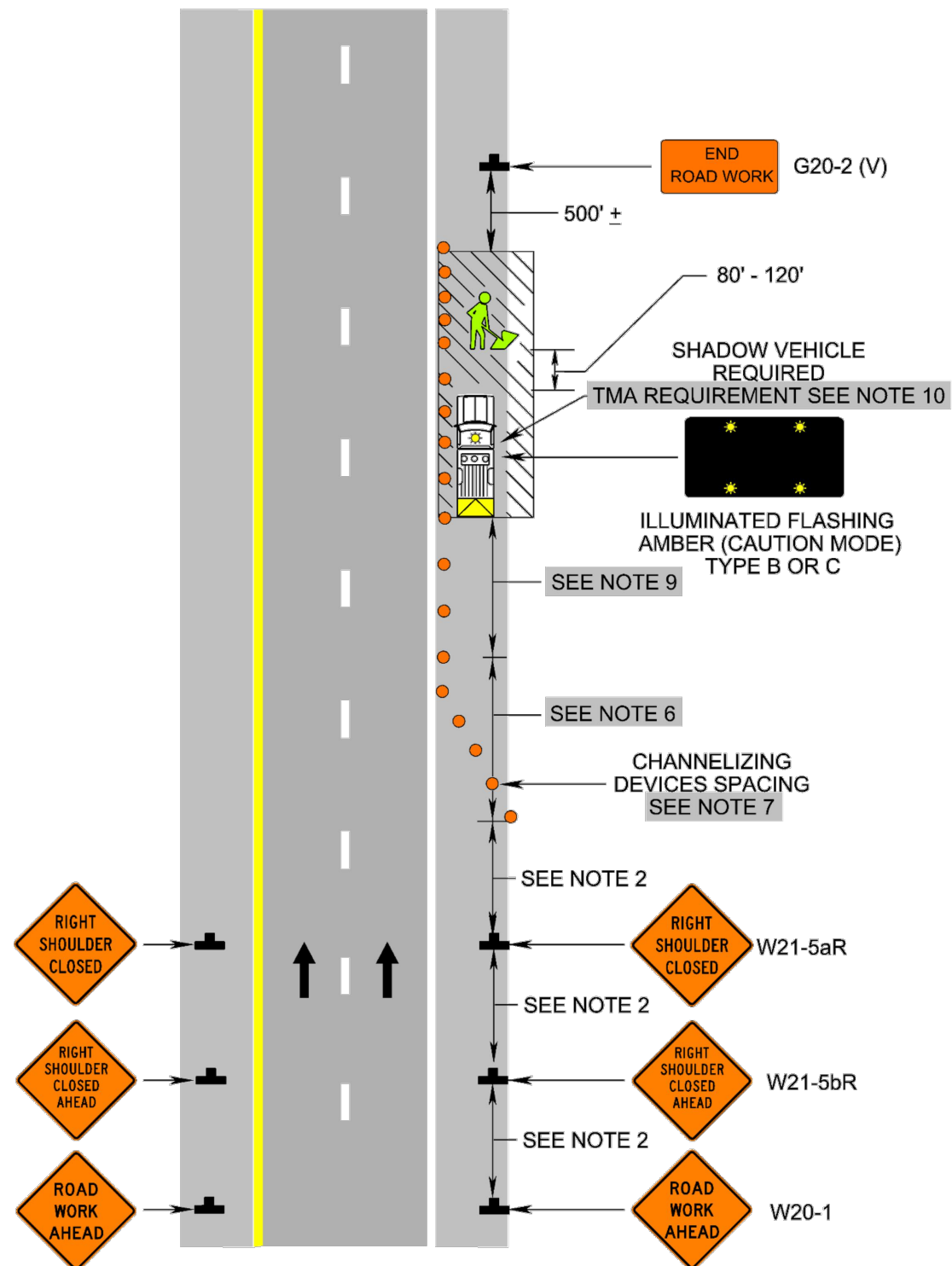
Channelizing Device Spacing			
Location Spacing	Speed Limit (mph)	Location Spacing	Speed Limit (mph)
Transition	0-35 36+	Travelway	0-35 36+
Transition	20' 40'	Travelway	40' 80'

*Construction access spacing may be increased to this distance, but shall not exceed one access per 1/4 mile.

- On roadways with paved shoulders having a width of 8 feet or more, channelizing devices shall be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.
- The buffer space length shall be as shown in Table 6H-3 on Page 6H-5 for the posted speed limit.
- A truck-mounted attenuator (TMA) shall be used on the shadow vehicle on Limited Access highways and multi-lane roadways with posted speed limit equal to or greater than 45 mph for operations with a duration greater than 60 minutes.
- When a side road intersects the highway within the temporary traffic control zone, additional traffic control devices shall be placed as needed.

1: Revision 1 - 4/1/2015
2: Revision 2 - 9/1/2019

**Stationary Operation on a Shoulder
(Figure TTC-4.2)**



1: Revision 1 - 4/1/2015
2: Revision 2 - 9/1/2019

**Typical Traffic Control
Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.2)**
NOTES

Guidance:

- Sign spacing distance should be 350'-500' where the posted speed limit is 45 mph or less, and 500'-800' where the posted speed limit is greater than 45 mph.
- Care should be exercised when establishing the limits of the work zone to insure maximum possible sight distance in advance of the flagger station and transition, based on the posted speed limit and at least equal to or greater than the values in Table 6H-3. Generally speaking, motorists should have a clear line of sight from the graphic flagger symbol sign to the flagger.
- To maintain efficient traffic flow in a flagging operation on a two-lane roadway, the maximum time motorists should be stopped at a flagger station is 8 minutes for high volume roadways (average daily traffic of 500 or more vehicles per day) to a maximum of 12 minutes for low volume roadways (less than 500 vehicles per day). For additional information see Section 6E.07.

Standard:

- Portable Temporary Rumble Strips (PTRS) shall be used as noted in Section 6F.99.
- Flagging stations shall be located far enough in advance of the work space to permit approaching traffic to reduce speed and/or stop before passing the work space and allow sufficient distance for departing traffic in the left lane to return to the right lane before reaching opposing traffic (see Table 6H-3 on Page 6H-5).
- All flaggers shall be state certified and have their certification card in their possession when performing flagging duties (see Section 6E.01, Qualifications for Flaggers).
- Cone spacing shall be based on the posted speed and the values in Table 6H-4 on Page 6H-6.
- A shadow vehicle with at least one high intensity amber rotating, flashing, or oscillating light shall be parked 80'-120' in advance of the first work crew.

Option:

- A SLOW (W21-V10) sign may be required in this area to give advance warning of the operation ahead by slowing approaching traffic prior to reaching the flagger station or queued traffic.

Guidance:

- If the queue of traffic reaches the BE PREPARED TO STOP (W3-4) sign then the signs, and if used the PTRS should be readjusted at greater distances.
- When a highway-rail crossing exists within or upstream of the transition area and it is anticipated that queues resulting from the lane closure might extend through the highway-rail grade crossing, the temporary traffic control zone should be extended so that the transition area precedes the highway-rail crossing (see Figure TTC-56 for additional information on highway-rail crossings).

Standard:

- At night, flagger stations shall be illuminated, except in emergencies (see Section 6E.08).

Option:

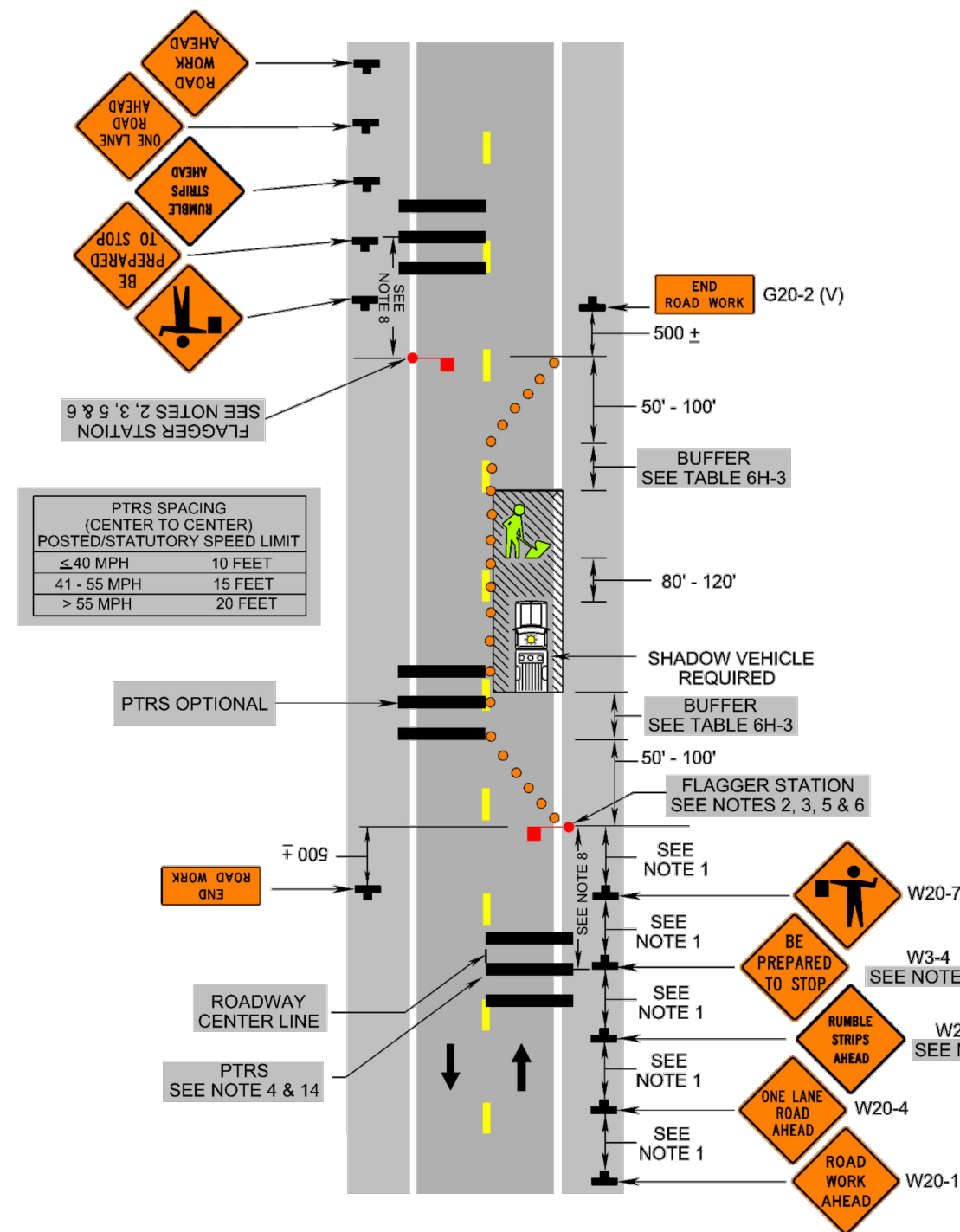
- Cones may be eliminated when using a pilot vehicle operation or when the total roadway width is 20 feet or less.
- For low-volume situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger, positioned to be visible to road users approaching from both directions, may be used (see Chapter 6F).

Standard:

- When used, three portable temporary rumble (PTRS) strips shall be installed across the entire travel lane adjacent to the BE PREPARED TO STOP (W3-4) sign. The portable temporary rumble strips shall be monitored and adjusted as necessary during the work shift to ensure proper placement on the roadway. When the PTRS are installed, the RUMBLE STRIPS AHEAD (W20-V26) sign shall also be utilized.

1: Revision 1 - 4/1/2015
2: Revision 2 - 9/1/2019

**Lane Closure on a Two-Lane Roadway Using Flaggers
(Figure TTC-23.2)**



1: Revision 1 - 4/1/2015
2: Revision 2 - 9/1/2019
3: Revision 2.1 - 11/1/2020



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**TRAFFIC CONTROL NOTES**

- PROJECT CATEGORY (MINIMUM TMP REQUIREMENTS):
 - THIS WILL BE A CATEGORY 1 PROJECT (MINIMAL LEVEL OF CONSTRUCTION)
 - THIS WILL BE PERMITTED WORK.
 - THIS PROJECT WILL INVOLVE TRAFFIC CONTROL DEVICES AND A LANE CLOSURE TO ENSURE SAFE TRAVEL AROUND THE WORK ZONES.
- SIGNS AND OTHER TRAFFIC CONTROL MEASURES ARE SHOWN GRAPHICALLY FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT SHOWN IN ACTUAL LOCATIONS. G.C. SHALL BE RESPONSIBLE FOR ENSURING THAT ALL SIGNAGE IS PLACED THE CORRECT DISTANCE BEFORE OR AFTER THE WORK ZONE AS SHOWN IN THE WORK AREA PROTECTION MANUAL (LATEST ADDITION) AND AS DICTATED BY THE SPECIFIC SITE. ALL SIGN LOCATIONS SHALL BE COORDINATED WITH VDOT.
- THIS MAINTENANCE OF TRAFFIC PLAN IS INTENDED TO PROVIDE A BASIC OVERVIEW OF THE TYPES OF TRAFFIC CONTROL MEASURES NECESSARY FOR THE WORK ZONES ON THIS PROJECT. THIS PLAN IS NOT INTENDED TO SHOW EVERY FEATURE OF THE TRAFFIC CONTROL PLAN. THE G.C. SHALL PROVIDE VDOT WITH A COMPLETE MAINTENANCE OF TRAFFIC PLAN PRIOR TO COMMENCEMENT OF WORK WITHIN THE EXISTING RIGHT-OF-WAY AND THE G.C. SHALL ULTIMATELY BE RESPONSIBLE FOR ENSURING SAFE TRAVEL AROUND ALL WORK AREAS.
- PUBLIC COMMUNICATION PLAN
 - MONTGOMERY COUNTY
 - SALEM VDOT TRAFFIC OPERATIONS CENTER (540) 375-0170*
*THE TRAFFIC OPERATIONS CENTER (TOC) SHALL BE NOTIFIED OF PROPOSED LANE CLOSURES AT THE BEGINNING AND END OF EACH WORK DAY.
 - MONTGOMERY COUNTY SHERIFF'S OFFICE (540) 382-6915
 - MONTGOMERY COUNTY EMERGENCY SERVICES (540) 394-2146
 - TOWN OF BLACKSBURG FIRE DEPARTMENT (540) 961-1175
 - LONG-SHOP MCCOY FIRE & RESCUE (540) 639-0836
 - MONTGOMERY COUNTY PUBLIC SCHOOLS (540) 382-5100
 - VDOT-CHRISTIANSBURG RESIDENCY (540) 381-7201
 - VDOT-CHRISTIANSBURG SIX HEADQUARTERS (540) 375-9500
- TWO WORK ZONES ARE SHOWN ON THIS PLAN AND CONSIST OF LANE CLOSURES ON OLD FORT ROAD AND SHOULDER WORK ON PRICES FORK ROAD TO BE PERFORMED IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE VIRGINIA WORK AREA PROTECTION MANUAL.
- G.C. SHALL CONTACT THE VDOT REPRESENTATIVE IN WRITING WITH A WORK SCHEDULE 2 WEEKS BEFORE STARTING WORK. THE VDOT REPRESENTATIVE WILL DETERMINE IF POLICE PATROL IS NECESSARY FOR TRAFFIC CONTROL.
- THE CONTRACTOR SHALL COORDINATE THE SEQUENCE OF CONSTRUCTION WITH VDOT.
- SIGN SPACING MAY BE ADJUSTED TO FIT FIELD CONDITIONS WITH VDOT APPROVAL.
- ALL PAVEMENT MARKINGS CONFLICTING WITH TRAFFIC PATTERNS SHALL BE ERADICATED AND RE-STRIPED AS NECESSARY.
- WHEN WORK IS NOT BEING PERFORMED, THE CLEAR ZONE OF THE ROADWAY SHALL BE FREE OF STORED MATERIALS AND PARKED EQUIPMENT.
- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE MUTCD (LATEST EDITION), THE VIRGINIA WORK AREA PROTECTION MANUAL (LATEST EDITION), AND AS DIRECTED BY VDOT AND SHALL COMPLY WITH ALL REGULATIONS PROVIDED IN THE ENTRANCE PERMIT.
- THE POSTED SPEED LIMIT ON THIS SECTION OF OLD FORT ROAD IS 25 MPH AND ON PRICES FORK ROAD IS 45 MPH. ALL TAPER LENGTHS, BUFFER LENGTHS, AND CHANNELIZING SHALL BE BASED ON THESE SPEEDS.
- NO WORK SHALL BE DONE ON-SITE UNTIL THE LAND USE PERMIT HAS BEEN ISSUED FOR THE SUBJECT PROPERTY.
- SAFE ACCESS TO ALL EXISTING PUBLIC ROADWAYS SHALL BE MAINTAINED AT ALL TIMES.
- CONSTRUCTION WORK AFTER DARK SHALL OCCUR WITH FLOODLIGHTS BEING UTILIZED WHERE EXISTING LIGHT IS NOT ADEQUATE. THE FLOODLIGHTS SHALL NOT CREATE A DISTRACTING GLARE TO ADJACENT DRIVERS.
- CHANNELIZING DEVICES SUCH AS CONES OR BARRELS SHALL BE UTILIZED WHERE REQUIRED AND FOLLOW THE WORK AREA PROTECTION MANUAL.
- G.C. SHALL MAINTAIN ALL EXISTING ROADWAY SIGNAGE DURING ALL PHASES OF THIS PROJECT.

APOGEE TOWNHOMES

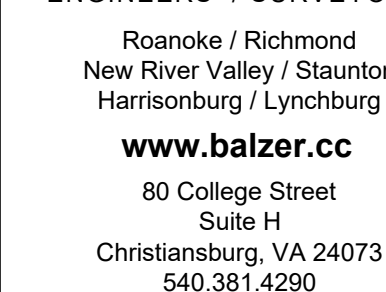
CLAY STREET AND CHERRY LANE

VDOT MOT PLAN

MOUNT TABOR MAGISTERIAL DISTRICT
MONTGOMERY COUNTY, VIRGINIA

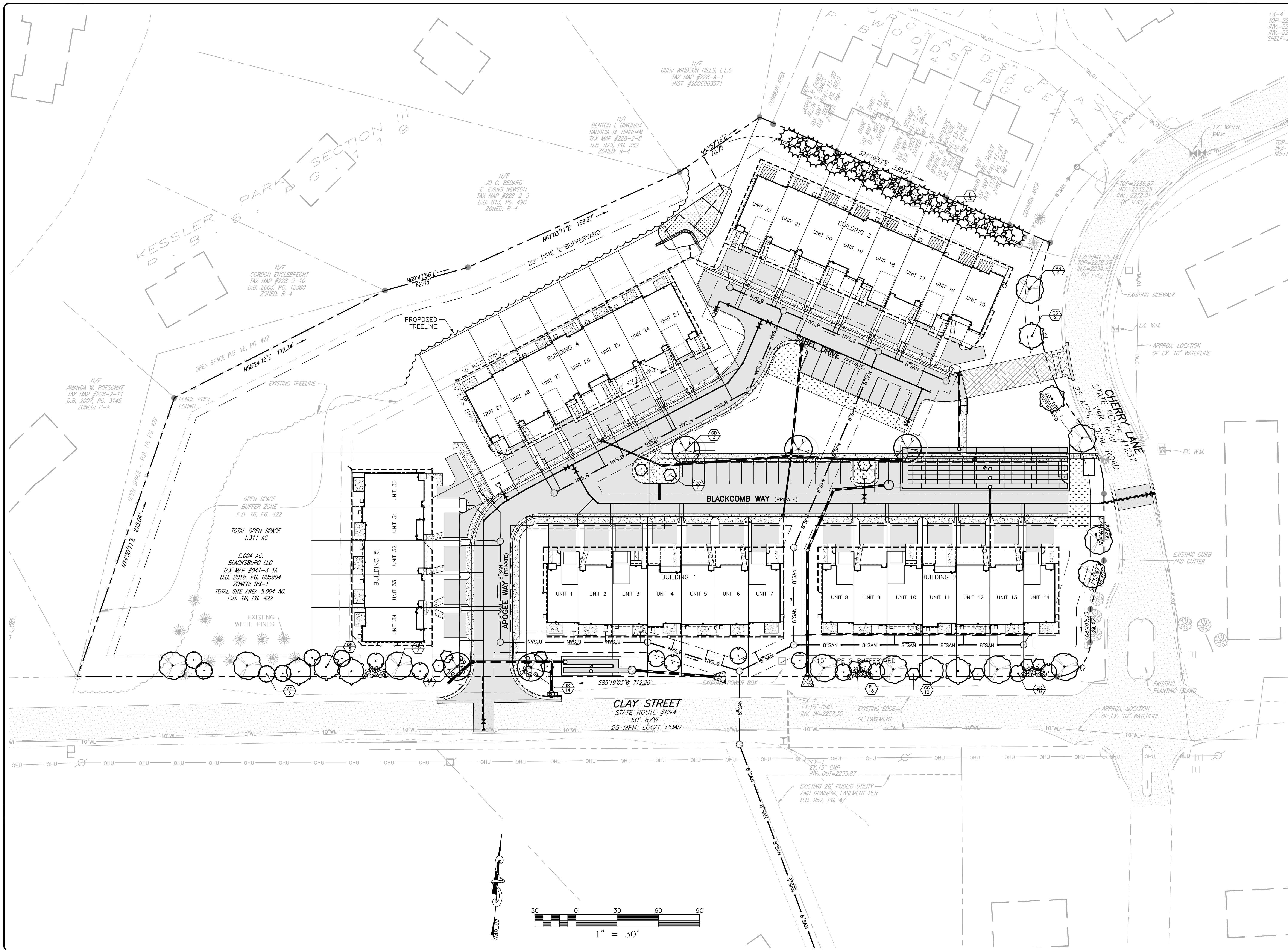
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DATE 01-18-2021
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REVISIONS
1: 5/5/21
2: 11/21/22
3: 2/20/23

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DATE 01-18-2023
SCALE 1" = 1'-0"
REVISIONS
1. 5/5/21
2. 11/21/22
3. 2/20/23

PROJECT NO. 24200014



PLANT MATERIAL NOTES

1. PLANT MATERIAL NAMES ARE IN COMPLIANCE WITH HORTUS THIRD
2. PLANT MATERIAL SIZES AND GRADING ARE TO COMPLY WITH THE AMERICAN STANDARDS FOR NURSERY STOCK, ANSI Z60.1-2004 APPROVED MAY 12, 2004. PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMAN.
3. NO CHANGES TO THE PLANT SCHEDULE UNLESS FIRST APPROVED BY THE TOWN OF CHRISTIANBURG PLANNING DEPARTMENT.
4. PLANT MATERIALS SHALL HAVE ALL STRINGS OR ROPES AT THE BASE OF THE PLANT CUT AWAY FROM THE TRUNK (INCLUDING BIODEGRADABLE BRANDS OF ROPE).
5. ALL PLANT MATERIAL SHALL BE NURSERY GROWN UNLESS OTHERWISE SPECIFIED. PRUNING SHALL BE DONE BEFORE PLANTING OR DURING THE PLANTING OPERATION. REMOVE ANY DEAD OR INJURED RANCHES.
6. SEEDING AND SODDING PREPARATION AND INSTALLATION PER VIRGINIA NURSERY & LANDSCAPE ASSOCIATION STANDARDIZED LANDSCAPE SPECIFICATIONS LATEST EDITION (SEEDING SECTION 02485) (SODDING SECTION 04287)
7. BALLED AND BURLAPED PLANTS SHALL BE DUG WITH FIRM NATURAL BALLS OF EARTH. BALL SIZES SHALL BE IN ACCORDANCE WITH A.A.N SPECIFICATIONS. ALL CONTAINER GROWN STOCK SHALL BE WELL ROOTED AND ESTABLISHED IN THE CONTAINER IN WHICH IT IS SOLD. AN ESTABLISHED CONTAINER GROWN PLANT SHALL HAVE A ROOT SYSTEM DEVELOPED SUFFICIENTLY TO RETAIN ITS SHAPE WHEN REMOVED FROM THE CONTAINER.
8. ALL PLANT MATERIAL SHALL BE COVERED AND PROTECTED FROM EXCESSIVE DRYING DURING TRANSIT.
9. ANTI-DESICCANTS SHALL BE APPLIED ON ALL MATERIAL DUG WHILE IN FOLIAGE.
10. DO NOT MAKE SUBSTITUTIONS. INSTALL MATERIALS AS SHOWN ON PLANS. IF MATERIAL IS NOT AVAILABLE IN THE CORRECT SIZE OR GOOD QUALITY THE CONTRACTOR IS ENCOURAGED TO PROVIDE A WRITTEN LIST INDICATING ALTERNATIVE SPECIES, SIZE AND QUANTITY. NO CHANGES SHALL BE MADE UNLESS WRITTEN AUTHORIZATION HAS BEEN PROVIDED BY THE LANDSCAPE ARCHITECT.
11. PLANT MATERIAL QUANTITIES AND SIZES WILL BE INSPECTED FOR COMPLIANCE WITH THE APPROVED PLANS BY A SITE REVIEW AGENT OF THE TOWN OF CHRISTIANBURG PLANNING DEPARTMENT PRIOR TO RELEASE OF THE CERTIFICATE OF OCCUPANCY.
12. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO ACCEPT OR REJECT ANY MATERIAL DEEMED UNACCEPTABLE. REJECTED MATERIAL SHALL BE REMOVED PROMPTLY FROM THE SITE.

MAINTENANCE AND ACCEPTANCE

1. CONTRACTOR SHALL MAINTAIN PLANT MATERIAL DURING INSTALLATION. MAINTENANCE SHALL BECOME RESPONSIBILITY OF OWNER UPON ACCEPTANCE OF WORK.
2. CONTRACTOR SHALL NOTIFY OWNER AND TOWN INSPECTOR WHEN LANDSCAPE INSTALLATION IS COMPLETE AND READY FOR INSPECTION.
3. WHERE THE LANDSCAPE WORK IS COMPLETED, THE OWNER'S REPRESENTATIVE WILL, UPON WRITTEN REQUEST, MAKE AN INSPECTION TO DETERMINE ACCEPTABILITY. IF WORK IS NOT ACCEPTABLE, REPLACE REJECTED WORK AND CONTINUE MAINTENANCE UNTIL REINSPECTION AND APPROVAL.
4. CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND LABOR FOR 12 CALENDAR MONTHS AFTER ACCEPTANCE. MAKE REPLACEMENTS OF ALL PLANTS 50% DEAD OR IMPAIRED IN EARLY FALL FOLLOWING PLANTING AND ADDITIONALLY IN THE EARLY SPRING FOR THE SAME OR OTHER MATERIALS WHICH ARE DEAD OR IMPAIRED FROM THE WINTER CONDITIONS.
5. WITHIN 10 DAYS AFTER ACCEPTANCE THE CONTRACTOR SHALL DELIVER AN OUTLINE OF MAINTENANCE PROCEDURES TO THE OWNER.
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY DURING THE GUARANTEE PERIOD TO PROVIDE WRITTEN NOTICE TO THE OWNER OF ANY MAINTENANCE PRACTICE WHICH IN THEIR OPINION WILL AFFECT THE GUARANTEE IF NOT REMEDIED PROMPTLY.

MINIMUM LANDSCAPING REQUIREMENTS

TREE CANOPY REQUIREMENTS

1. TEN (10) PERCENT TREE CANOPY COVERAGE = 32,696 S.F.
- PROPOSED TREE CANOPY COVERAGE = 41,315 S.F.

BUFFERYARD REQUIREMENTS

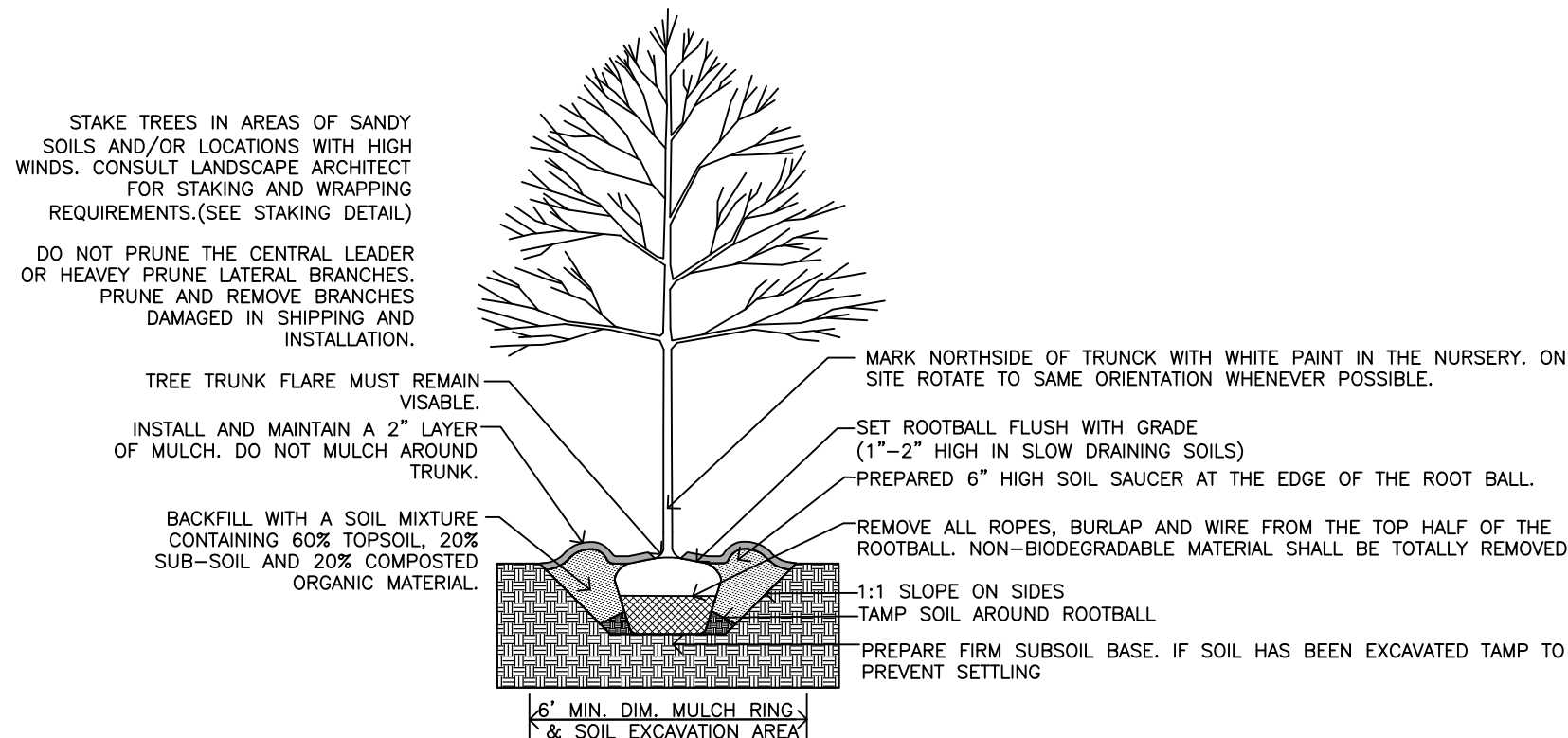
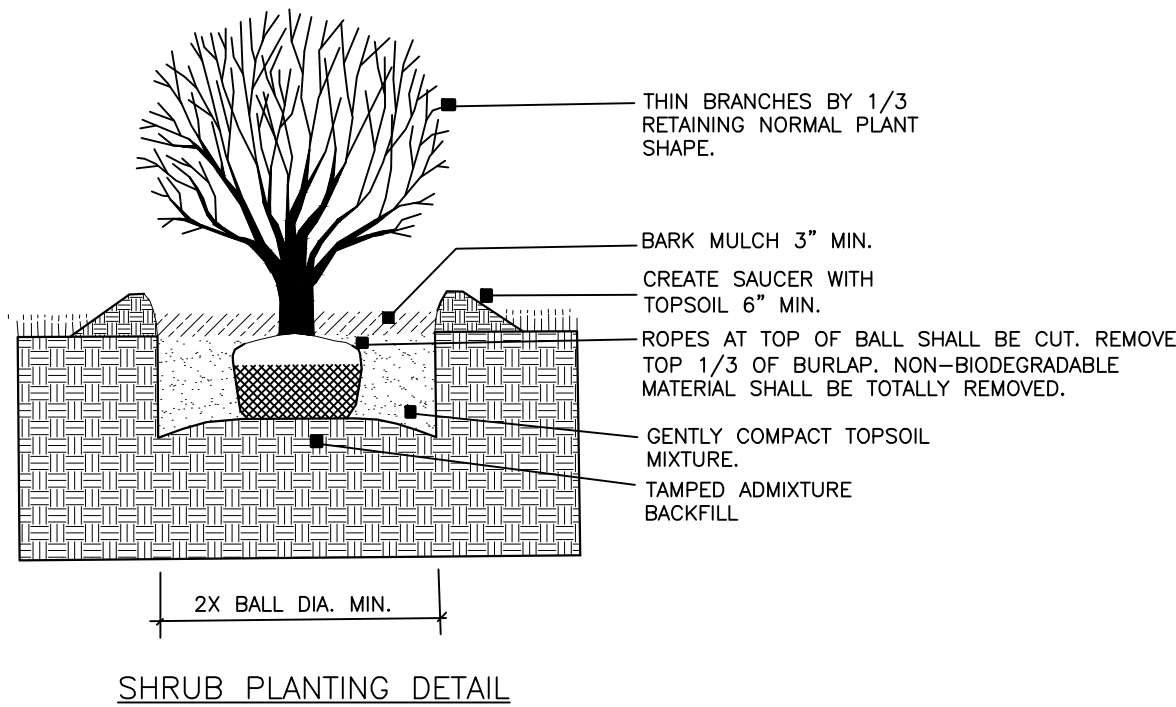
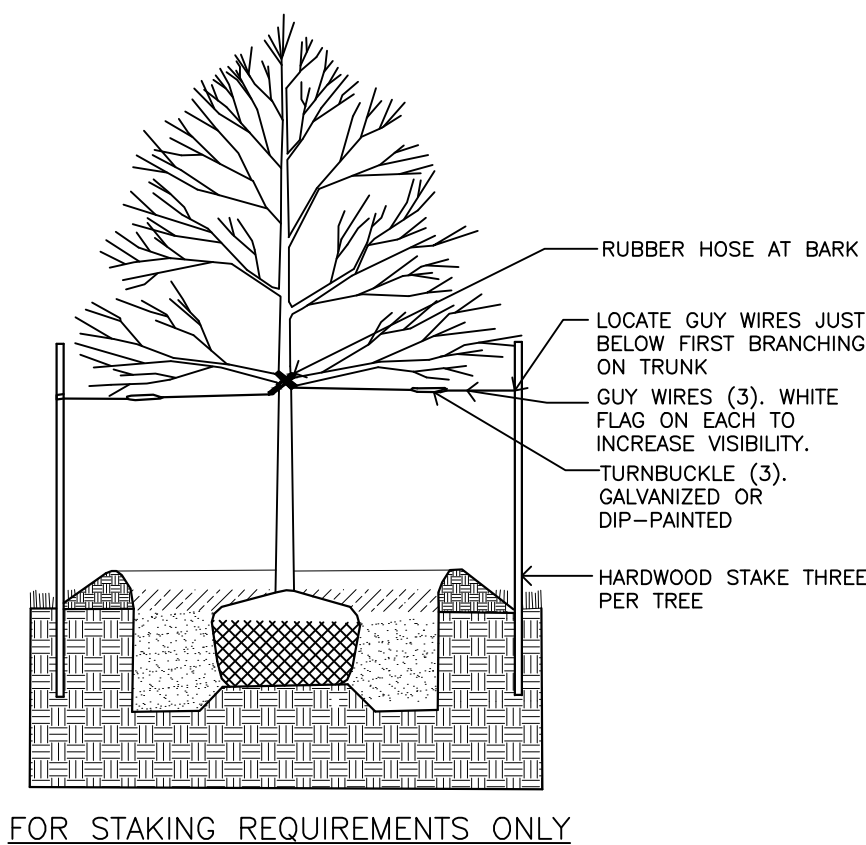
1. FRONT 15' TYPE 2 (CLAY STREET) 700 FT (PER 100 LF):
 - 2 CANOPY TREES = 14 REQUIRED.....14 PROVIDED
 - 3 UNDERSTORY TREES = 21 REQUIRED.....21 PROVIDED
 - 5 SHRUBS = 35 REQUIRED.....41 PROVIDED
 2. FRONT 10' TYPE 1 (CHERRY LANE) 305 FT (PER 100 LF):
 - 2 CANOPY = 6 REQUIRED.....6 PROVIDED
 3. SIDE 10' TYPE 1 (NORTH) 204 FT (PER 100 LF):
 - 4 UNDERSTORY TREES= 8 REQUIRED.....8 PROVIDED
 4. REAR 20' TYPE 2 (WEST) 653 FT (PER 100 LF):
 - 2 CANOPY TREES = 13 REQUIRED.....0 PROVIDED
 - 4 UNDERSTORY TREES = 26 REQUIRED.....0 PROVIDED
 - 10 SHRUBS = 65 REQUIRED.....0 PROVIDED
- EXISTING EVERGREEN TREELINE TO COUNT TOWARDS BUFFER REQUIREMENTS

PARKING LOT REQUIREMENTS

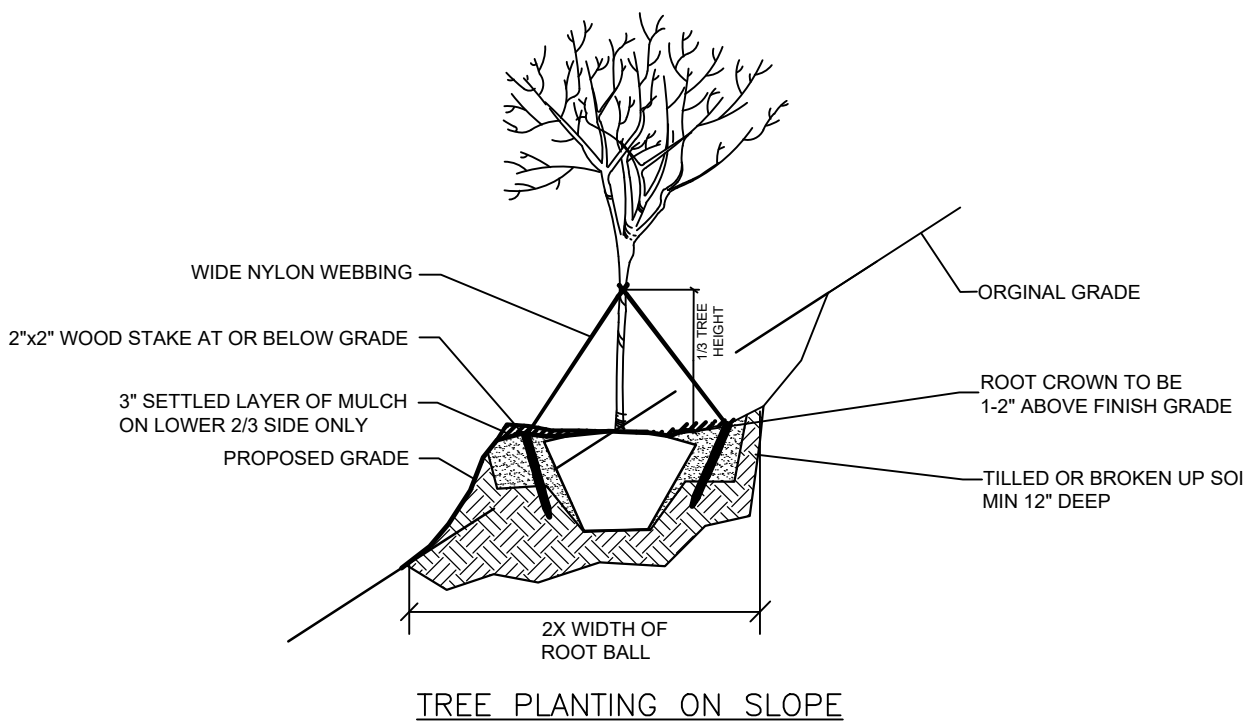
1. 1 CANOPY TREE PER 10 SPACED (PERIMETER)
28 SPACES = 3 TREES REQUIRED
3 CANOPY TREES PROVIDED
2. 5% OF PARKING AREA TO BE PLANTED (INTERIOR)
12,892 SF TOTAL AREA = 645 SF PLANTED AREA REQUIRED
763 SF PROPOSED

SITE PREPARATION AND INSTALLATION

1. A CONTRACTOR SHALL ASCERTAIN LOCATIONS OF ALL UTILITIES PRIOR TO EXCAVATION. PRIOR TO COMMENCING ANY WORK, CONTACT "MISS UTILITY" AT 1-800-552-7001.
2. LANDSCAPE CONTRACTOR SHALL COORDINATE WITH THE GENERAL, GRADING AND UTILITY CONTRACTORS REGARDING THE READINESS OF THE SITE.
3. IDENTIFY LOCATIONS OF PROPOSED TREES ON SITE PRIOR TO DIGGING. NOTIFY LANDSCAPE ARCHITECT IF ANY CONFLICTS EXIST WITH PROPOSED PLANTS AND THE BUILT SITE.
4. LANDSCAPING SHALL BE INSTALLED AND MAINTAINED SO AS NOT TO INTERFERE WITH SIGHT DISTANCE NEEDS OF DRIVERS IN THE PARKING AREAS AND AT THE ENTRANCE/EXIT LOCATIONS.
5. NO LANDSCAPING SHALL BE INSTALLED THAT WILL OBSTRUCT ACCESS TO FIRE HYDRANT OR OTHER FIRE DEPARTMENT CONNECTIONS. A CLEAR AREA OF 3 FEET SHALL BE MAINTAINED AROUND ALL FIRE HYDRANT CONNECTIONS.
6. PLANTING SHALL OCCUR IN ACCORDANCE WITH ALL DETAILS.
7. EXCAVATE EXISTING SOIL TO FORM PLANTING PIT. LOOSEN SIDE SLOPES AND TAMP BOTTOM.
8. INSTALL PLANT TO PROPER LEVEL.
9. BACKFILL WITH SOIL MIXTURE MADE OF 60% SCREENED TOPSOIL(SHALL BE FREE OF STONES, LUMPS, PLANT ROOTS AND OTHER DEBRIS OVER 1-1/2". IT SHALL NOT CONTAIN TOXIC SUBSTANCES HARMFUL TO PLANT GROWTH. TOP SOIL SHALL HAVE A PH RANGE OF 5.0 TO 7.0), 20% LOOSENEED SUB-SOIL AND 20% COMPOSTED ORGANIC MATERIAL.
10. IN AREAS WITH POORLY DRAINING SOIL PROVIDED 2"-3" BASE MADE OF LOOSE AGGREGATE AND LEVEL TOP OF ROOT BALL 2"-3" ABOVE SURROUNDING FINISHED GRADE.
11. FIRMLY TAMP SOIL AROUND THE PLANT. DO NOT MOUND SOIL AROUND THE TRUNK OR FILL MORE THEN 1/2" OVER THE TOP OF EXISTING ROOT BALL SURFACE.
12. WATER IN THOROUGHLY UNTIL PLANTING PIT IS FULLY SATURATED.



TREE PLANTING DETAIL 2" TO 4" CALIPER TREES
IN UNRESTRICTED SOIL CONDITIONS.



PLANT_SCHEDULE

EVERGREEN TREE	QTY	BOTANICAL / COMMON NAME	HEIGHT	CANOPY COVERAGE
TI	25	Thuja x 'Green Giant' / Green Giant Arborvitae	6' MIN.	100 SF = 2,500 SF
LARGE TREE	QTY	BOTANICAL / COMMON NAME	CALIPER	CANOPY COVERAGE
AR	11	Acer rubrum 'October Glory' TM / October Glory Maple	1.00" CAL. MIN.	314 SF = 3,454 SF
GB	5	Ginkgo biloba 'Autumn Gold' TM / Maidenhair Tree	1.50" CAL. MIN.	133 SF = 665 SF
QS	7	Quercus shumardii / Shumard Red Oak	1.00" CAL. MIN.	254 SF = 1,778 SF
SMALL DECIDUOUS TREE	QTY	BOTANICAL / COMMON NAME	HEIGHT	CANOPY COVERAGE
AG	6	Amelanchier x grandiflora 'Autumn Brilliance' / 'Autumn Brilliance' Serviceberry	6' MIN.	201 SF = 1,206 SF
CC	13	Cercis canadensis 'Ace of Hearts' / Ace of Hearts Redbud	6' MIN.	201 SF = 2,613 SF
CR	10	Cornus x 'Rutcan' / Constellation Flowering Dogwood	6' MIN	177 SF = 1,770 SF
SHRUBS	QTY	BOTANICAL / COMMON NAME	HEIGHT	
PL	18	Prunus laurocerasus / Cherry Laurel	30" MIN.	
IS2	23	Ilex crenata 'Soft Touch' / Soft Touch Japanese Holly	30" MIN.	

EX. WESTERN
BUFFER* = 27,329 SF

TOTAL = 41,315 SF

*EXISTING WESTERN BUFFER IS COMPRISED OF WHITE PINES.



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APOGEE TOWNHOMES
CLAY STREET AND CHERRY LANE
LANDSCAPE NOTES AND DETAILS

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