FOR PERMITTING PURPOSES ONLY

GLENN W. CUSTIS
Lic. No. 8039

CONCEPTUAL DESIGN

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GREEN RIDGE RECYCLING & DISPOSAL FACILITY

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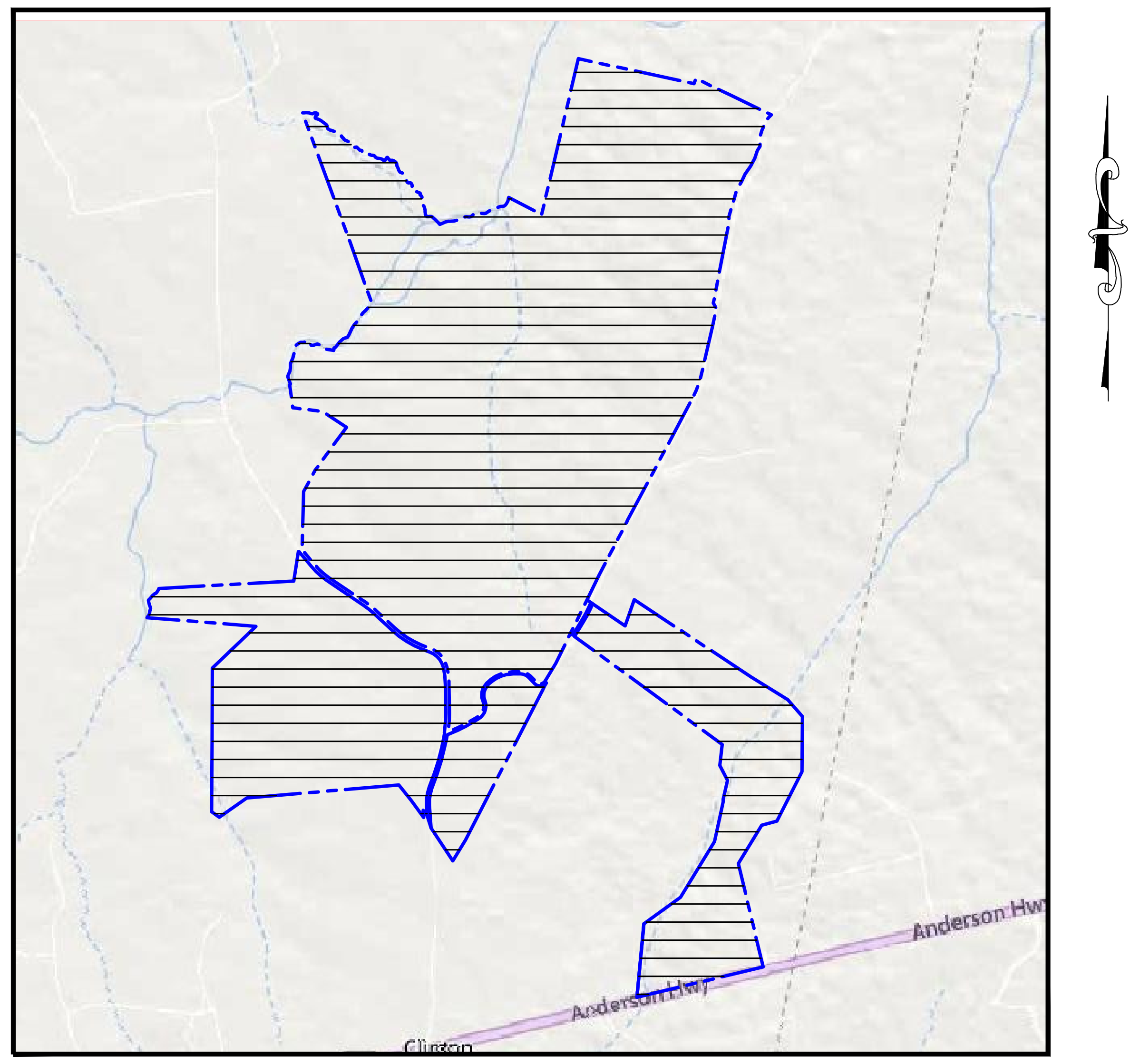
CUMBERLAND COUNTY, VIRGINIA

SITE SUMMARY

OWNER/DEVELOPER:	GREEN RIDGE RECYCLING & DISPOSAL 12230 DEER GROVE ROAD MIDLOTHIAN, VIRGINIA 23112
CONTACT:	JERRY CIFOR 12230 DEER GROVE ROAD MIDLOTHIAN, VIRGINIA 23112
TELEPHONE NO:	802–379–1575
ENGINEER:	DRAPER ADEN ASSOCIATES 1030 WILMER AVE, SUITE 100 RICHMOND, VIRGINIA 23227
CONTACT:	LYNN KLAPPICH
TELEPHONE NO.	540–552–0444
EMAIL:	lklappich@daa.com
PARCEL NUMBER:	37–A–69, 38–A–7, 44–A–13, 44–A–14, 44–A–21, 44–A–22, 44–A–36, 44–A–19A, 44–A–19, 44–A–20, 45–1–41, 45–2–2–A, 45–2–2–B, 45–A–1, 45–A–7
LOCATION:	THE SITE IS IN CLINTON, VIRGINIA, NORTH OF U.S. ROUTE 60 (ANDERSON HIGHWAY), AND LOOSELY BOUNDED BY ROUTE 654 (PINEGROVE ROAD) AND ROUTE 685 (MILLER LANE).
PRESENT ZONING:	M2
PROJECT SUMMARY:	
EXISTING USE:	TIMBER FARMS
PROPOSED USE:	SANITARY LANDFILL
ACREAGE:	1,178 ACRES
FLOOD ZONE X & A FIRM COMMUNITY–PANEL NUMBER:	5100430125B DATED JUNE 16, 2009 5100430150B DATED JUNE 16, 2009 51145C0100B DATED FEBRUARY 6, 2008
LAND DISTURBANCE:	514 ACRES
WETLANDS ON–SITE:	YES
WETLAND PERMITS REQ'D:	YES
VSMP PERMIT:	YES
RPA ON–SITE:	NO
RMA ON–SITE:	NO



VICINITY MAP

1" = 2000'

PROJECT DESCRIPTION

THE PROJECT INCLUDES THE PERMITTING, CONSTRUCTION AND OPERATION OF A 238 ACRE SANITARY LANDFILL WITH A LIFE EXPECTANCY OF 25 – 30 YEARS. IN SUPPORT OF THE SANITARY LANDFILL, THE PROJECT WILL REQUIRE THE CONSTRUCTION OF AN ENTRANCE OFF OF ROUTE 60, CONVENIENCE CENTER FOR PUBLIC USE, ACCESS ROAD TO THE SITE, SCALES AND SCALE HOUSE, RELOCATION OF MILLER LANE AND PINE GROVE ROAD, INTERNAL ACCESS ROADS, BORROW AREAS IN SUPPORT OF THE OPERATIONS, STORMWATER MANAGEMENT BMPS AND STRUCTURES, OFFICE AND MAINTENANCE FACILITIES, PARKING AND OTHER ANCILLARY FACILITIES SUCH AS A LEACHATE TANK FARM AS MAY BE NEEDED FOR OPERATIONS AND AS REQUIRED BY THE FINAL LANDFILL PERMIT. FACILITY IS UNDERGOING PERMITTING WITH THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY AND OTHER AGENCIES. THE TOTAL AREA OF LAND DISTURBANCE FOR THIS PROJECT IS 514 ACRES.

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C6.3A	ENTRANCE ROAD PLAN & PROFILE (STA. 56+00 - 80+00)
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C10.0	CULVERT DRAINAGE AREA MAP
C11.0	CULVERT CALCULATIONS (SHEET 1 OF 3)
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C12.0	LANDFILL SEDIMENT BASIN OUTLET PROTECTION

NOTES:

1. THIS MAPPING PROJECT, L18-10560, WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF, ROBERT H. TUCK FROM AN ACTUAL AIRBORNE SURVEY MADE UNDER MY SUPERVISION; THAT THE IMAGERY AND/OR ORIGINAL DATA WAS OBTAINED ON 05-02-18; AND THAT THIS PLAT, MAP, OR DIGITAL GEOSPATIAL DATA INCLUDING METADATA MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED.
2. PARCEL LINES SHOWN HEREON ARE PER BOUNDARY SURVEYS BY HIGHMARK ENGINEERING DATED MAY 24, 2018, MARCH 4, 2019, APRIL 17, 2019 AND PER BOUNDARY SURVEY BY DRAPER ADEN ASSOCIATES DATED MARCH 29, 2019 AND COMPILED BOUNDARY EXHIBIT BY DRAPER ADEN ASSOCIATES DATED NOVEMBER 6, 2019.
3. WETLANDS INFORMATION PROVIDED BY A SURVEY PERFORMED BY KOONTZ BRYANT JOHNSON WILLIAMS GROUP, DATED AUGUST 22, 2018, REVISED MAY 10, 2019.
4. SEE KBJW IMPACT DRAWINGS DATED APRIL 29, 2022 FOR STREAM REACH IDENTIFICATION AND IMPACTS.

DAA PROJECT #18020117-110102

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NOTE: CONTRACTOR TO CONTACT MISS UTILITY (811) IN ADVANCE OF PLANNED WORK. ADVANCE TIME PERIOD SHALL BE IN ACCORDANCE WITH CURRENT MISS UTILITY GUIDELINES (www.missutilityofvirginia.com).

ALWAYS CARE BEFORE YOU DIG!
CALL "MISS UTILITY"
KEEP VIRGINIA SAFE!

DRAPER ADEN ASSOCIATES REVIEW

THESE PLANS HAVE BEEN SUBJECTED TO TECHNICAL AND QUALITY REVIEWS BY:

EDWARD E. HOFMANN JR.
NAME: PRINTED SIGNATURE DATE
PROJECT DESIGNER

GLENN W. CUSTIS, P.E.
NAME: PRINTED SIGNATURE DATE
PROJECT MANAGER

LYNN P. KLAPPICH
NAME: PRINTED SIGNATURE DATE
QUALITY REVIEWER

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• Fayetteville, NC
• Northern Virginia
• Virginia Beach, VA

COVER SHEET
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: AS SHOWN
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C1.0

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FOR PERMITTING PURPOSES ONLY

GENERAL NOTES

1. DIMENSIONS AND RADII ARE TO FACE OF CURB, WHERE APPLICABLE, UNLESS OTHERWISE INDICATED.
2. DIMENSIONS AT BUILDING ARE TO OUTSIDE FACE, UNLESS OTHERWISE INDICATED.
3. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM THE COUNTY OF GOOCHLAND OR STATE AGENCIES.
4. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND AT HIS EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
5. ALL WATER AND SEWER CONSTRUCTION AND MATERIALS SHALL CONFORM WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE COUNTY OF GOOCHLAND. (REFERENCE DEPARTMENT OF PUBLIC UTILITIES COUNTY OF GOOCHLAND, VIRGINIA STANDARDS FOR DETAILS.)
6. WHERE PAVEMENT IS BEING REMOVED, THE CONTRACTOR SHALL REMOVE AGGREGATE BASE MATERIAL TO SUB–GRADE.
7. DAMAGE TO UTILITIES (INCLUDING UNDERGROUND) OR PROPERTY OF OTHERS BY CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO PRE–CONSTRUCTION CONDITIONS BY CONTRACTOR AT NO COST TO OWNER.
8. EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY CONTRACTOR (WHICH ARE NOT TO BE REMOVED) SHALL BE REPAIRED TO LIKE–NEW CONDITION.
9. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURES IN OPERABLE CONDITION.
10. THE OWNER SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY COUNTY OF GOOCHLAND INSPECTORS.
11. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER REGARDING THE REQUIREMENTS FOR AND LIMITS OF UNDERGROUND ELECTRICAL SERVICE AND GAS SERVICE.
12. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF NEW UNDERGROUND TELEPHONE SERVICE WITH THE TELEPHONE UTILITY AND THE OWNER'S REQUIREMENTS.
13. ALL PROPOSED UTILITIES ARE TO BE INSTALLED UNDERGROUND INCLUDING ELECTRIC, TELEPHONE, AND CATV.
14. ALL UNDERGROUND UTILITIES (WATER, SANITARY SEWER, ELECTRICITY, TELEPHONE, ETC.) SHALL BE INSTALLED AND TESTED SATISFACTORILY PRIOR TO COMMENCING ANY PAVING OPERATIONS WHERE SUCH UTILITIES ARE WITHIN THE LIMITS OF PAVEMENT.
15. ALL GROUND COVER AND LANDSCAPING SHALL BE PROPERLY MAINTAINED IN A HEALTHY CONDITION AT ALL TIMES. DEAD PLANT MATERIALS SHALL BE REMOVED IN A REASONABLE TIME AND REPLACED DURING THE NORMAL PLANTING SEASON.
16. FIRE LANE DESIGNATION AND MARKING TO BE DETERMINED PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
17. UNLESS OTHERWISE NOTED, ALL CONCRETE PIPE SHALL BE REINFORCED CONCRETE PIPE, CLASS III.
18. ALL EXCAVATION FOR UNDERGROUND PIPE INSTALLATION MUST COMPLY WITH OSHA STANDARDS FOR THE CONSTRUCTION INDUSTRY (29 CFR PART 1926).
19. VERIFY THE PROPOSED LAYOUT WITH ITS RELATIONSHIP TO THE EXISTING SITE SURVEY. ALSO VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND MATERIAL SPECIFICATIONS AND NOTIFY THE OWNER AND ENGINEER OF ANY ERRORS, OMISSIONS, OR DISCREPANCIES BEFORE COMMENCING OR PROCEEDING WITH WORK.
20. DEVIATIONS FROM, OR CHANGES TO THESE PLANS WILL NOT BE ALLOWED, UNLESS OTHERWISE APPROVED BY THE ENGINEER.
21. MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UTILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO THE PLANS IF NECESSARY. THE EXISTENCE AND/OR LOCATION OF UTILITIES SHOWN ON THESE PLANS MAY BE ONLY APPROXIMATELY CORRECT. TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN HEREON AND ANY OTHER EXISTING UTILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS. REPAIR AT YOUR OWN EXPENSE, ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION. IF A UTILITY IS DAMAGED DURING CONSTRUCTION, STOP WORK IMMEDIATELY AND NOTIFY THE ENGINEER.
22. PROPERLY SECURE THE CONSTRUCTION AREA AT ALL TIMES AGAINST UNAUTHORIZED ENTRY AND ADEQUATELY PROTECT EQUIPMENT, MATERIALS, AND COMPLETED WORK FROM THEFT AND VANDALISM. THE OWNER IS NOT RESPONSIBLE FOR THE LOSS OF ANY MATERIAL STORED AT THE SITE.
23. ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND SHALL DEFEND, INDEMNIFY, AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL AND ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM "THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER."
24. ALL TURF AREAS THAT ARE IMPACTED OR DISTURBED BY VEHICLES, EQUIPMENT, OR ACTIVITY SHALL BE REPAIRED, REGRADED, AND RESEEDED TO THE SATISFACTION OF THE OWNER.
25. PERFORM ALL WORK USING DIMENSIONS SHOWN ON THESE PLANS. DO NOT USE SCALES, RULERS, DIVIDERS, MAP WHEELS OR OTHER MEASURING DEVICES TO DETERMINE SPATIAL RELATIONSHIPS ON THESE DRAWINGS.
26. ALL UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION LIMITS OF PAVED AREAS.
27. NO LANDSCAPING OF ANY TYPE SHALL BE PLACED WITHIN A THREE FOOT RADIUS OF ANY FIRE HYDRANT, FIRE PUMP TEST HEADER, FIRE DEPARTMENT SPRINKLER SYSTEM CONNECTION, FIRE DEPARTMENT STANDPIPE CONNECTION OR FIRE SUPPRESSION CONTROL VALVE. LANDSCAPING IN THE AREA OF FIRE HYDRANTS, FIRE PUMP TEST HEADERS, FIRE DEPARTMENT SPRINKLER SYSTEM CONNECTIONS OR FIRE DEPARTMENT STANDPIPE CONNECTIONS SHALL BE OF THE TYPE THAT WILL NOT ENCROACH ON THE REQUIRED THREE FOOT RADIUS ON MATURITY OF THE LANDSCAPING.
28. AN APPROVED KEY BOX SHALL BE PROVIDED FOR THE PROPOSED SITE IN ACCORDANCE WITH THE INTERNATIONAL FIRE CODE, SECTION 506.1 THE REQUIRED FORMS AND INSTALLATION INSTRUCTIONS FOR THE KEY BOX CAN BE OBTAINED FROM GOOCHLAND FIRE AND EMS, FIRE AND LIFE SAFETY DIVISION, AT 556–5304.

SITE STORM SEWER

1. ALL STORM SEWER MATERIAL, JOINTS, AND INSTALLATION SHALL COMPLY WITH 2012 INTERNATIONAL PLUMBING CODE.
2. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL CONFORM TO ASTM C14 & C76. ALL RCP SHALL HAVE A CONCRETE JOINT WITH CONFINED O–RING GASKET OF RUBBER OR NEOPRENE CONFORMING TO ASTM C443 OR C1173.

EROSION CONTROL NOTES

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 VR 625–02–00 EROSION AND SEDIMENT CONTROL REGULATIONS.
2. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING. IF DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL DEVICES ARE FOUND NECESSARY, THEY SHALL BE INSTALLED AS DIRECTED BY THE DEPARTMENT OF COMMUNITY DEVELOPMENT.
3. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
4. NO DISTURBED AREA WILL BE DENUDED FOR MORE THAN 30 CALENDAR DAYS.
5. ALL STORM AND SANITARY SEWER LINES NOT IN STREETS ARE TO BE MULCHED AND SEEDED IMMEDIATELY AFTER BACKFILL. NO MORE THAN FIVE HUNDRED (500) FEET ARE TO BE OPEN AT ONE TIME.
6. ELECTRIC POWER, TELEPHONE, AND GAS SUPPLY TRENCHES ARE TO BE COMPACTED, SEEDED AND MULCHED IMMEDIATELY AFTER BACKFILL.
7. ALL TEMPORARY EARTH BERMS, DIVERSIONS, AND SILT DAMS ARE TO BE MULCHED AND SEEDED FOR VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES TO ALL SOIL STOCKPILES.
8. DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY SILT TRAPS, MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.
9. ANY DISTURBED AREA NOT PAVED, SODDED, OR BUILT UPON BY NOVEMBER 1ST, IS TO BE SEEDED ON THAT DATE WITH OATS, ABRUZZI, RYE OR EQUIVALENT AND MULCHED WITH HAY OR STRAW MULCH. MODIFY AS APPLICABLE DEPENDING ON PROPOSED TIME OF CONSTRUCTION.
10. 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.
11. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
12. 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 DEPARTMENT OF COMMUNITY DEVELOPMENT.

VDOT GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION WITHIN THE PUBLIC RIGHT OF WAY SHALL BE IN ACCORDANCE WITH CURRENT VIRGINIA DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS, STANDARDS, CURRENT WORK AREA PROTECTION MANUAL, AND ALL APPLICABLE LOCATION AND DESIGN INSTRUCTIONAL AND INFORMATIONAL MEMORANDUMS.
2. LAND USE PERMIT (CE–7) MUST BE OBTAINED FROM THE VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO BEGINNING ANY CONSTRUCTION WITHIN THE EXISTING STATE MAINTAINED RIGHT OF WAY (INCLUDING ACCESS).
3. VDOT IS TO RECEIVE WRITTEN NOTIFICATION 48 HOURS PRIOR TO COMMENCING WITH INITIAL CONSTRUCTION ACTIVITIES.
4. PRIOR TO ANY CONSTRUCTION, THE CONTRACTOR SHALL CONSULT THE ENGINEER AND VERIFY THE APPROVAL OF THE PLANS BY ALL APPLICABLE FEDERAL, STATE AND LOCAL AGENCIES.
5. PRELIMINARY DESIGN OF THE PAVEMENT STRUCTURE FOR ALL SUBDIVISION STREETS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE PAVEMENT DESIGN GUIDE FOR SUBDIVISION AND SECONDARY ROADS IN VIRGINIA. THE COMPLETED DESIGN WORKSHEET APPENDIX IV SHALL BE INCLUDED WITH THE INITIAL PLAN SUBMITTAL FOR EACH PROPOSED PAVEMENT SECTION UTILIZING THE PREDICTED SOIL SUPPORT VALUE SHOWN IN APPENDIX I OF THE PAVEMENT DESIGN GUIDE.
6. THE CONTRACTOR SHALL VERIFY THE ELEVATIONS OF ALL POINTS OF CONNECTION OR PROPOSED WORK TO EXISTING CURBS, SANITARY LINES, WATER LINES, ETC., PRIOR TO CONSTRUCTION.
7. UPON DISCOVERY OF SOILS THAT ARE UNSUITABLE FOR FOUNDATIONS, SUB–GRADES, OR OTHER ROADWAY CONSTRUCTION PURPOSES, THE CONTRACTOR SHALL IMMEDIATELY CONTACT A GEOTECHNICAL ENGINEER AND VDOT. THESE AREAS SHALL BE EXCAVATED BELOW PLAN GRADE AS DIRECTED BY A GEOTECHNICAL ENGINEER, BACKFILLED WITH SUITABLE MATERIAL AND COMPACTED IN ACCORDANCE WITH CURRENT VDOT SPECIFICATIONS.
8. ALL STORM SEWER DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH VDOT I & I LD–94 (D) 121.13.
9. ALL DRAINAGE STRUCTURES SHALL BE IN ACCORDANCE WITH CURRENT VERSIONS OF LD–97 (D) 121. PIPE WITHIN THE RIGHT OF WAY SHALL BE A MINIMUM CL–III OR GREATER IN ACCORDANCE WITH CURRENT VDOT STANDARDS AND SPECIFICATIONS.
10. ALL PRE–CAST UNITS SHALL BE VDOT APPROVED. CERTIFICATION AND VDOT STAMP WILL BE REQUIRED ON ALL UNITS. SHOP DRAWINGS, GEOTECHNICAL DATA AND SOIL BEARING CAPACITY, AND PLAN VIEW SHALL BE SUBMITTED AS PACKAGE FOR VDOT REVIEW AND APPROVAL.
11. ALL CONCRETE SHALL BE MINIMUM CLASS A3–AE (AIR ENTRAINED 3,000 PSI).
12. ALL ENTRANCES ARE TO BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH CURRENT VDOT STANDARDS. RESIDENTIAL LOT ACCESS SHALL BE PROVIDED PER THE FOLLOWING CRITERIA:
    - ALL DRIVEWAY ENTRANCE CULVERTS ARE TO BE A MINIMUM OF 15" DIAMETER X 20' LONG PIPE AND SHALL CONFORM TO PE–1 PRIVATE ENTRANCE STANDARDS UNLESS OTHERWISE DIRECTED BY THE RESIDENT ENGINEER. NO ENTRANCE CULVERTS ARE TO BE INSTALLED WITHIN FIVE (5) FEET OF A PROPERTY CORNER.
    - VDOT STANDARD CG–9D ENTRANCES SHALL BE INSTALLED IN CURB AND GUTTER NEIGHBORHOODS.

    INSPECTIONS TO BE PERFORMED BY VDOT SHALL BE REQUESTED IN WRITING, 48 HOURS PRIOR TO ENTRANCE INSTALLATION.
13. THE DEVELOPER IS RESPONSIBLE FOR FURNISHING AND INSTALLING ALL SIGNS DEEMED PERTINENT TO THE PROPOSED DEVELOPMENT. THE CONTRACTOR SHALL CONTACT VDOT INSPECTION STAFF TO ESTABLISH LOCATIONS FOR ANY SIGNAGE REQUIREMENTS AS DEEMED NECESSARY BY VDOT. INSTALLATION OF SAID SIGNS SHALL OCCUR AT NO EXPENSE TO THE STATE AND PRIOR TO STATE ACCEPTANCE OF ROADWAY(S).
14. DESIGN CHANGES, SPECIFIED MATERIALS CHANGES AND/OR FIELD CHANGES FROM THE APPROVED PLANS NEED TO BE RE–SUBMITTED TO VDOT PRIOR TO PROCEEDING WITH THE WORK. A LETTER OF EXPLANATION SHALL ACCOMPANY THE REVISED PLANS AND/OR DRAINAGE CALCULATIONS, WHICH MUST BE SUBMITTED, TO VDOT FOR REVIEW AND APPROVAL BY THE RESIDENT ENGINEER.
15. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES SHOWN ON PLANS IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON PLAN. IF THERE APPEARS TO BE A CONFLICT, AND/OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON THIS PLAN, CALL MISS UTILITY OF CENTRAL VIRGINIA AT 1–800–552–7001 OR 811. THE DEVELOPER SHALL BE RESPONSIBLE FOR THE RELOCATION OF ANY UTILITY WITHIN EXISTING AND/OR PROPOSED RIGHT OF WAY REQUIRED BY THE DEVELOPMENT.
16. ALL STREETLIGHTS SHALL BE LOCATED A MINIMUM OF 9.5' FROM THE EDGE OF PAVEMENT ON CURB AND GUTTER STREETS AND/OR LOCATED A MINIMUM OF 5.5' BEHIND THE DITCH LINE ON OPEN DITCH STREETS.
17. GENERALLY, PAVED ROADSIDE DITCHES ARE TO BE SPECIFIED WHEN VELOCITIES EXCEED CURRENT VDOT DESIGN CRITERIA OR WHEN DITCH SLOPES ARE LESS THAN 0.75%. WHERE DITCH SLOPES EXCEED 5.0%, THE DEVELOPER MAY CHOOSE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES IN AN ATTEMPT TO ACHIEVE CHANNEL STABILIZATION WHILE ACKNOWLEDGING THAT ADDITIONAL PAVED DITCH LININGS MAY BE REQUIRED PRIOR TO ACCEPTANCE OF THE ROADS INTO THE SECONDARY SYSTEM OF STATE HIGHWAYS. PAVED ROADSIDE DITCHES SHALL CONFORM TO VDOT–PG–2A STANDARDS AND SPECIFICATIONS.
18. VDOT AND COUNTY APPROVAL OF CONSTRUCTION PLANS DOES NOT PRECLUDE THE RIGHT TO REQUIRE ADDITIONAL FACILITIES AS DEEMED NECESSARY FOR ACCEPTANCE OF THE ROADS INTO THE VDOT SECONDARY ROAD SYSTEM.
19. VDOT APPROVAL OF SITE PLANS WILL EXPIRE FIVE (5) YEARS FROM THE DATE OF THE INITIAL APPROVAL. VDOT APPROVAL OF SUBDIVISION PLANS WILL EXPIRE FIVE (5) YEARS FROM THE DATE OF THE INITIAL APPROVAL.
20. VDOT SHALL HAVE PERFORMED THE REQUIRED FIELD INSPECTION (PROOF ROLL) PRIOR TO PLACEMENT OF THE AGGREGATE BASE COURSE(S). CONTACT VDOT, IN WRITING, FOR SUBGRADE INSPECTION 48 HOURS PRIOR TO SCHEDULING PLACEMENT OF AGGREGATE BASE COURSE(S).
21. A PRIME COAT SEAL BETWEEN THE AGGREGATE BASE AND BITUMINOUS CONCRETE WILL BE REQUIRED AT A RATE OF 0.30 GALLONS PER SQUARE YARD (REC–250 PRIME COAT) PER VDOT STANDARDS AND SPECIFICATIONS.
22. THE SCHEDULING OF AGGREGATE BASE INSTALLATION AND SUBSEQUENT PAVING ACTIVITIES SHALL ACCOMMODATE FORECAST WEATHER CONDITIONS PER SECTION 315 OF THE ROAD AND BRIDGE SPECIFICATIONS.
23. VDOT SHALL HAVE APPROVED ALL BASE COURSE(S) FOR DEPTH, TEMPLATE AND PERFORMED THE REQUIRED FIELD INSPECTION (VISUAL, PROOF ROLL, COMPACTION OR ANY ADDITIONAL AS DETERMINED BY VDOT INSPECTOR) PRIOR TO PLACEMENT OF ANY SURFACE COURSE(S). CONTACT VDOT, IN WRITING, FOR INSPECTION OF THE BASE COURSE(S) 48 HOURS PRIOR TO APPLICATION OF THE SURFACE COURSE(S).
24. AN ACTUAL COPY OF THE COMPLETE CBR REPORT IS TO BE SUBMITTED TO VDOT IN CONJUNCTION WITH FINAL PAVEMENT DESIGNS. ALL PAVEMENT DESIGN RECOMMENDATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITION OF THE PAVEMENT DESIGN GUIDE FOR SUBDIVISION AND SECONDARY ROADS IN VIRGINIA.
25. A LICENSED GEOTECHNICAL ENGINEER SHALL ASCERTAIN CAUSE AND CERTIFY RECOMMENDED METHOD OF REPAIR FOR ALL PAVEMENT STRUCTURAL FAILURES PRIOR TO STATE ACCEPTANCE.
26. ALL VEGETATION AND ORGANIC MATERIAL IS TO BE REMOVED FROM THE RIGHT OF WAY LIMITS PRIOR TO CONDITIONING OF THE SUBGRADE.
27. DRY GUTTER IS NOT ALLOWED IN VDOT RIGHT OF WAY.
28. THE DEVELOPER WILL BE RESPONSIBLE FOR THE DESIGN COSTS OF ANY TRAFFIC SIGNAL INSTALLATION AND/OR MODIFICATION UNDER AN ACCOUNT RECEIVABLE WITH VDOT.
29. THE NECESSITY AND LOCATIONS FOR ADDITIONAL VDOT STANDARD UNDERDRAINS TO BE DETERMINED AT TIME OF SUBGRADE INSPECTION.
30. APPROVAL OF A DETAILED CONSTRUCTION SEQUENCING/MAINTENANCE OF TRAFFIC NARRATIVE FOR THE WORK ZONE IS A PREREQUISITE FOR ISSUANCE OF A LAND USE PERMIT ALLOWING ACCESS TO AND CONSTRUCTION WITHIN VDOT MAINTAINED RIGHT–OF–WAY.
31. VDOT SHALL BE PROVIDED DOCUMENTATION BY A LICENSED GEOTECHNICAL ENGINEER, CERTIFYING THAT ALL IN–PLACE PAVEMENTS MEET OR EXCEED THE APPROVED PAVEMENT DESIGN THICKNESS PRIOR TO STATE ACCEPTANCE. THE CERTIFYING DOCUMENTATION SHALL CONFORM TO VDOT SPECIFICATIONS AND THE APPROVED PLANS.
32. THE ESTABLISHMENT OF A TEMPORARY VEGETATIVE COVER IS REQUIRED ON ALL DENUDED AREAS THAT ARE NOT TO BE FINE GRADED FOR PERIODS LONGER THAN 30 DAYS.
33. NO STRUCTURE SHALL BE CONSTRUCTED ON STATE MAINTAINED RIGHTS OF WAY UNLESS SAID STRUCTURES ARE SHOWN ON ROAD CONSTRUCTION PLANS APPROVED BY VDOT OR COVERED BY A VDOT LAND USE PERMIT (OR BY A LETTER OF INTENT FROM THE RESIDENT ENGINEER TO ISSUE SAID PERMIT AT THE TIME OF STATE ACCEPTANCE).
34. THE DEVELOPER IS RESPONSIBLE FOR CONTACTING THE RICHMOND DISTRICT TRAFFIC ENGINEERING SECTION AT 804–524–6000 FOR GUARDRAIL LOCATION AND PLACEMENT REQUIREMENTS.

ABBREVIATIONS AND SYMBOLS

SYMBOLS

@	AT
℄	CENTERLINE
⅊	PLATE
ø	DIAMETER
°	DEGREE

ABBREVIATIONS

A	AREA
AC	ACRE(S)
AWWA	AMERICAN WATER WORKS ASSOCIATION
BLDG.	BUILDING
BOTT.	BOTTOM
CF	CUBIC FEET
CG	CURB AND GUTTER
C.I.	CAST IRON
CI	CURB INLET
CIP	CAST IN PLACE
CJ	CONSTRUCTION JOINT
CLR.	CLEAR
C.O.	CLEANOUT
CONC.	CONCRETE
CONT.	CONTINUOUS
CY	CUBIC YARD(S)
D.B.	DEED BOOK
D.I.	DUCTILE IRON
DI	DROP INLET
DIA.	DIAMETER
DS	DOWNSPOUT
EA.	EACH
E.F.	EACH FACE
ELEV.	ELEVATION
EX.	EXISTING
EXP.	EXPANSION
E.W.	EACH WAY
FC	FACE OF CURB
FF	FINISHED FLOOR
FL	FLOW LINE
FT	FOOT (FEET)
GA	GAUGE
GALV.	GALVANIZED
GS	GROUND SHOT
ID	INSIDE DIAMETER
INV.	INVERT
JT.	JOINT
LAT	LATERAL
LB	POUND
LBS	POUNDS
LF	LINEAR FOOT (FEET)
MAT'L.	MATERIAL
MAX.	MAXIMUM
MFR.	MANUFACTURER
MH	MANHOLE
MIN.	MINIMUM
M.J.	MECHANICALLY JOINED
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
PB	PARCEL BOOK
PL	PROPERTY LINE
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
REQ'D.	REQUIRED
R/W	RIGHT–OF–WAY
IINV.	SANITARY
SF	SQUARE FOOT (FEET)
SPEC.	SPECIFICATION
SPECS	SPECIFICATIONS
SQ.	SQUARE
STM	STORM
STD.	STANDARD
SW	SIDEWALK
SWM	STORM WATER MANAGEMENT
SY	SQUARE YARD(S)
TC	TOP OF CURB
TDC	TURNED DOWN CURB
TEMP.	TEMPORARY
TYP.	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VAR.	VARIABLE
VDOT	VIRGINIA DEPARTMENT OF TRANSPORTATION
VESCH	VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK
WV	WATER VALVE
WWF	WELDED WIRE FABRIC

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NOTES (SHEET 1 OF 2)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: NONE
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C2.0

FOR PERMITTING PURPOSES ONLY

STATE MINIMUM STANDARDS FOR EROSION CONTROL

GENERAL EROSION AND SEDIMENT CONTROL NOTES

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 THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS 9VAC25–840.

ES–2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE–CONSTRUCTION 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.

MINIMUM STANDARDS

A VESCP MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

MS–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 DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR.

MS–2 DURING CONSTRUCTION OF THE PROJECT, SOIL STOCKPILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE.

MS–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.

MS–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 UPSLOPE LAND DISTURBANCE TAKES PLACE.

MS–5 STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

MS–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 THAT 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 TWENTY–FIVE YEAR STORM OF 24–HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

MS–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.

MS–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.

MS–9 WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.

MS–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.

MS–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 RECEIVING CHANNEL.

MS–12 WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, 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.

MS–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 OF NONERODIBLE MATERIAL SHALL BE PROVIDED.

MS–14 ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

MS–15 THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

MS–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. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THESE REQULATIONS.

F. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.

MS–17 WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND–DISTURBING ACTIVITIES.

MS–18 ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE VESCP. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.

MS–19 PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24–HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:

A. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN–MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.

B. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:

(1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR

(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 SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN–YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.

C. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN–MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:

(1) IMPROVE THE CHANNEL 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 THE 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 VESCP 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 VESCP 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 DISSIPATERS SHALL BE PLACED 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 OUTLET, 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. 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.

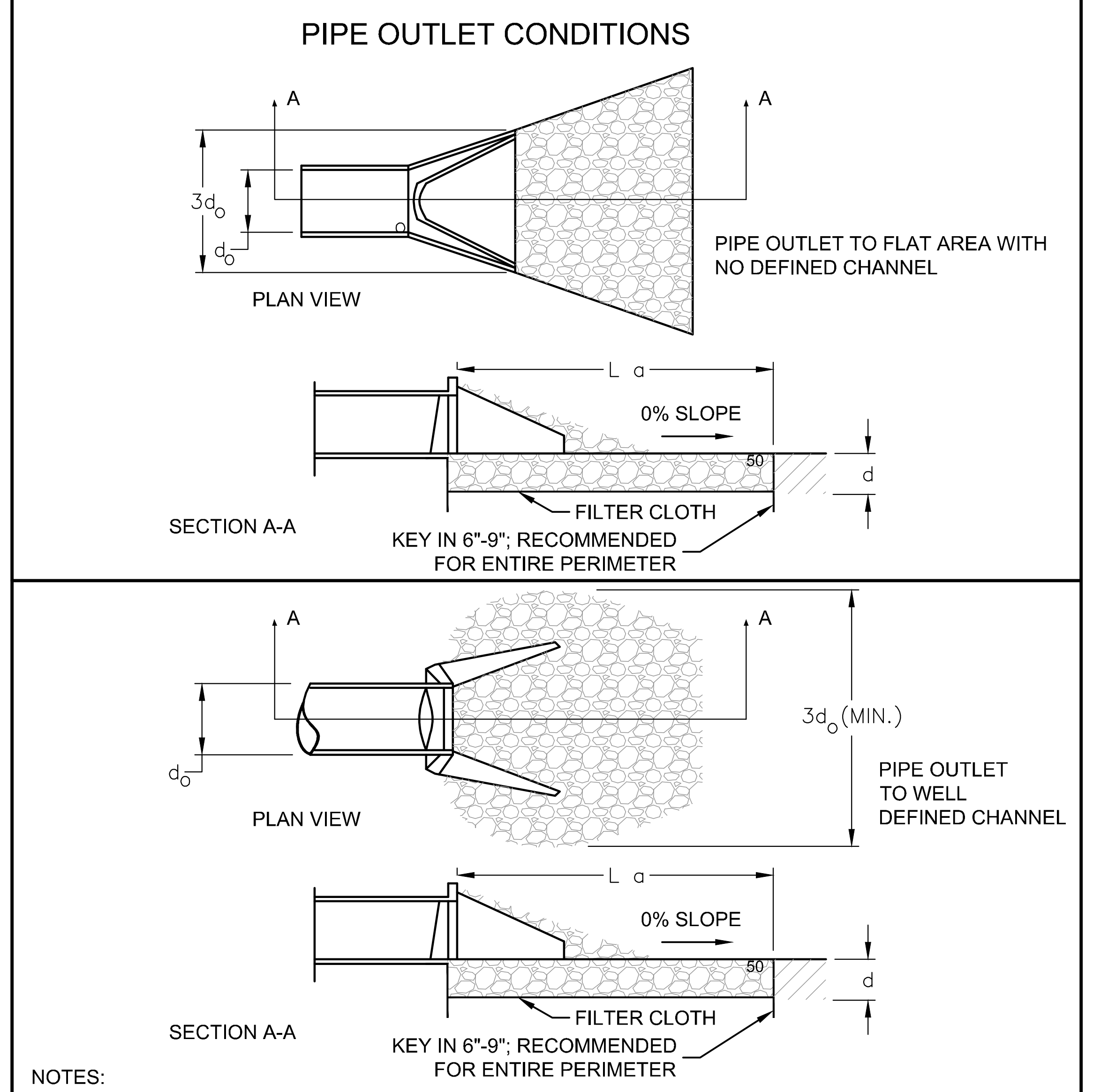
L. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN–MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN–MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (I) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (II) DETAIN AND RELEASE OVER A 24–HOUR PERIOD THE EXPECTED RAINFALL 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 § 62.1–44.15:54 OR 62.1–44.15:65 OF THE ACT.

M. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1–44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1–44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND–DISTURBING ACTIVITIES (I) ARE IN ACCORDANCE WITH PROVISIONS FOR TIME LIMITS ON APPLICABILITY OF APPROVED DESIGN CRITERIA IN 9VAC25–870–47 OR GRANDFATHERING IN 9VAC25–870–48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION, IN WHICH CASE THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1–44.15:52 A OF THE ACT SHALL APPLY, OR (II) ARE EXEMPT PURSUANT TO § 62.1–44.15:34 C 7 OF THE ACT.

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

STATUTORY AUTHORITY

§ 62.1–44.15:52 OF THE CODE OF VIRGINIA.


PIPE OUTLET CONDITIONS
A
A
3do
do
PLAN VIEW
PIPE OUTLET TO FLAT AREA WITH NO DEFINED CHANNEL
L a
0% SLOPE
50
d
SECTION A-A
FILTER CLOTH
KEY IN 6"-9"; RECOMMENDED FOR ENTIRE PERIMETER
A
A
3do (MIN.)
do
PLAN VIEW
PIPE OUTLET TO WELL DEFINED CHANNEL
L a
0% SLOPE
50
d
SECTION A-A
FILTER CLOTH
KEY IN 6"-9"; RECOMMENDED FOR ENTIRE PERIMETER

NOTES:
1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GABION BASKET, OR CONCRETE.
2. La IS THE LENGTH OF THE RIPRAP 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.

3.18
Sheet C2.1

TYPICAL OUTLET PROTECTION DETAIL

NOT TO SCALE

CULVERT OUTLET PROTECTION DIMENSIONS (IMPACT AREAS ONLY)

CULVERT	LENGTH (FT.)	PIPE DIA. (IN.)	WIDTH (FT)	3Do (FT.)	STONE DEPTH (IN.)	d(50) (IN.)
ER-CULVERT 1	10	18	11.5	4.5	18	6
ER-CULVERT 4	36	60	41	15	18	12
ER-CULVERT 7A						
ER-CULVERT 7B						
ER-CULVERT 10	16	30	18.5	7.5	18	6
SR-CULVERT1	16	30	18.5	7.5	18	6
SR-CULVERT 4	16	30	18.5	7.5	18	6
SR-CULVERT 7	32	54	36.5	13.5	18	12
HR-CULVERT 4	16	30	18.5	7.5	18	6

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NOTES (SHEET 2 OF 2)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

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MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: NONE
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PROJECT NUMBER: 18020117-110102

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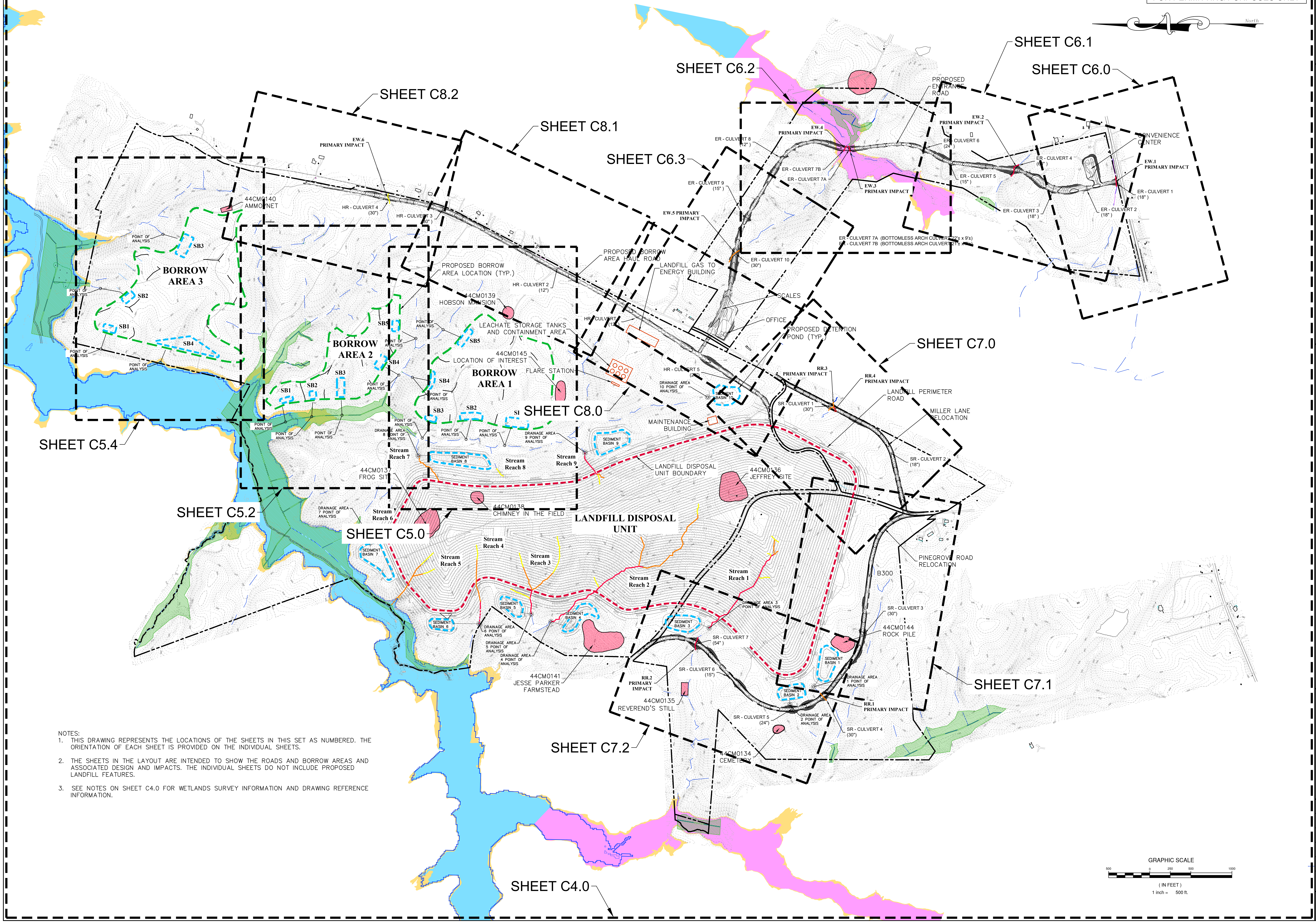
FOR PERMITTING PURPOSES ONLY


North
SHEET C6.1
SHEET C6.0
SHEET C6.2
SHEET C6.3
SHEET C8.2
SHEET C8.1
SHEET C8.0
SHEET C7.0
SHEET C7.1
SHEET C7.2
SHEET C5.4
SHEET C5.2
SHEET C5.0
SHEET C4.0
PROPOSED ENTRANCE ROAD
CONVENIENCE CENTER
EW.1 PRIMARY IMPACT
EW.2 PRIMARY IMPACT
EW.3 PRIMARY IMPACT
EW.4 PRIMARY IMPACT
EW.5 PRIMARY IMPACT
EW.6 PRIMARY IMPACT
ER - CULVERT 1 (18")
ER - CULVERT 2 (18")
ER - CULVERT 3 (18")
ER - CULVERT 4 (60")
ER - CULVERT 5 (15")
ER - CULVERT 6 (24")
ER - CULVERT 7B
ER - CULVERT 7A
ER - CULVERT 8 (12")
ER - CULVERT 9 (15")
ER - CULVERT 10 (30")
ER - CULVERT 7A (BOTTOMLESS ARCH CULVERT 22'± x 9'±)
ER - CULVERT 7B (BOTTOMLESS ARCH CULVERT 21'± x 7'±)
PROPOSED BORROW AREA HAUL ROAD
LANDFILL GAS TO ENERGY BUILDING
SCALES
OFFICE
PROPOSED DETENTION POND (TYP.)
HR - CULVERT 1 (12")
HR - CULVERT 2 (12")
HR - CULVERT 3 (30")
HR - CULVERT 4 (30")
HR - CULVERT 5 (24")
44CM0140 AMMONET
44CM0139 HOBSON MANSION
44CM0145 LOCATION OF INTEREST
44CM0137 FROG SITE
44CM0138 CHIMNEY IN THE FIELD
44CM0136 JEFFREY SITE
44CM0141 JESSE PARKER FARMSTEAD
44CM0135 REVEREND'S STILL
44CM0134 CEMETERY
44CM0144 ROCK PILE
PROPOSED BORROW AREA LOCATION (TYP.)
LEACHATE STORAGE TANKS AND CONTAINMENT AREA
FLARE STATION
BORROW AREA 1
BORROW AREA 2
BORROW AREA 3
SB1
SB2
SB3
SB4
SB5
POINT OF ANALYSIS
MAINTENANCE BUILDING
DRAINAGE AREA 10 POINT OF ANALYSIS
SEDIMENT BASIN 10
SEDIMENT BASIN 9
SEDIMENT BASIN 8
SEDIMENT BASIN 7
SEDIMENT BASIN 6
SEDIMENT BASIN 5
SEDIMENT BASIN 4
SEDIMENT BASIN 3
SEDIMENT BASIN 2
SEDIMENT BASIN 1
RR.1 PRIMARY IMPACT
RR.2 PRIMARY IMPACT
RR.3 PRIMARY IMPACT
RR.4 PRIMARY IMPACT
LANDFILL PERIMETER ROAD
MILLER LANE RELOCATION
SR - CULVERT 1 (30")
SR - CULVERT 2 (18")
SR - CULVERT 3 (30")
SR - CULVERT 4 (30")
SR - CULVERT 5 (24")
SR - CULVERT 6 (15")
SR - CULVERT 7 (54")
LANDFILL DISPOSAL UNIT BOUNDARY
LANDFILL DISPOSAL UNIT
PINEGROVE ROAD RELOCATION
B300
Stream Reach 1
Stream Reach 2
Stream Reach 3
Stream Reach 4
Stream Reach 5
Stream Reach 6
Stream Reach 7
Stream Reach 8
Stream Reach 9
DRAINAGE AREA 1 POINT OF ANALYSIS
DRAINAGE AREA 2 POINT OF ANALYSIS
DRAINAGE AREA 3 POINT OF ANALYSIS
DRAINAGE AREA 4 POINT OF ANALYSIS
DRAINAGE AREA 5 POINT OF ANALYSIS
DRAINAGE AREA 6 POINT OF ANALYSIS
DRAINAGE AREA 7 POINT OF ANALYSIS
DRAINAGE AREA 8 POINT OF ANALYSIS
DRAINAGE AREA 9 POINT OF ANALYSIS
GRAPHIC SCALE
500
0
250
500
1000
(IN FEET)
1 inch = 500 ft.

NOTES:

1. THIS DRAWING REPRESENTS THE LOCATIONS OF THE SHEETS IN THIS SET AS NUMBERED. THE ORIENTATION OF EACH SHEET IS PROVIDED ON THE INDIVIDUAL SHEETS.
2. THE SHEETS IN THE LAYOUT ARE INTENDED TO SHOW THE ROADS AND BORROW AREAS AND ASSOCIATED DESIGN AND IMPACTS. THE INDIVIDUAL SHEETS DO NOT INCLUDE PROPOSED LANDFILL FEATURES.
3. SEE NOTES ON SHEET C4.0 FOR WETLANDS SURVEY INFORMATION AND DRAWING REFERENCE INFORMATION.

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OVERALL SHEET LAYOUT PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

ORIGINAL SUBMITTAL- 09/02/2020

JPA RESPONSE 1- 05/07/2021

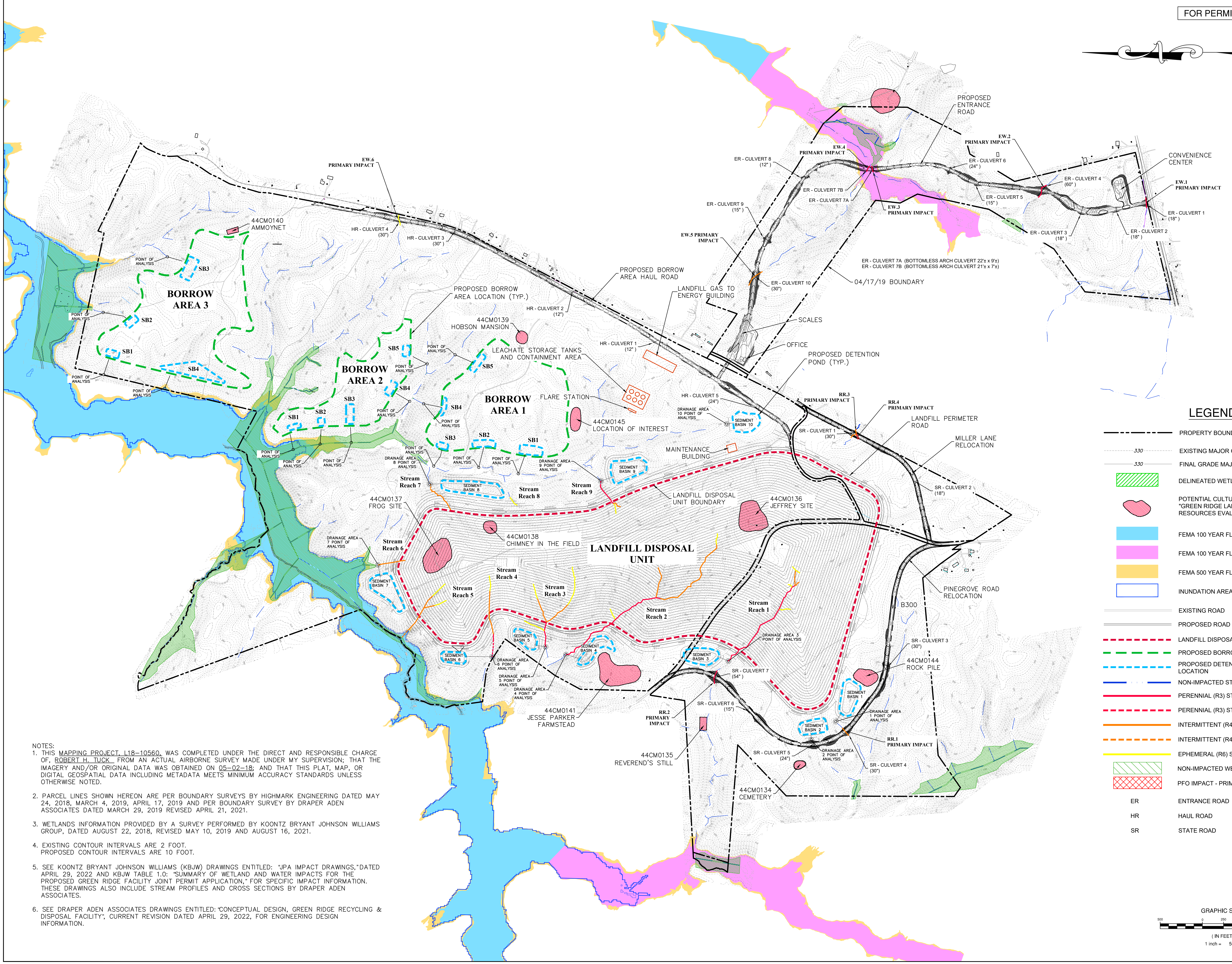
JPA RESPONSE 2 - 01/11/2022

JPA RESPONSE 3 - 04/29/2022

DESIGNED BY:	LPK
DRAWN BY:	DLD
CHECKED BY:	LPK
SCALE:	1" = 500'
DATE:	SEPTEMBER 30, 2021
PROJECT NUMBER:	18020117-110102

C3.0

FOR PERMITTING PURPOSES ONLY


North
PROPOSED ENTRANCE ROAD
EW.2 PRIMARY IMPACT
CONVENIENCE CENTER
EW.1 PRIMARY IMPACT
EW.4 PRIMARY IMPACT
ER - CULVERT 8 (12")
ER - CULVERT 6 (24")
ER - CULVERT 4 (60")
ER - CULVERT 7B
ER - CULVERT 7A
ER - CULVERT 5 (15")
ER - CULVERT 1 (18")
ER - CULVERT 9 (15")
EW.3 PRIMARY IMPACT
ER - CULVERT 3 (18")
ER - CULVERT 2 (18")
EW.5 PRIMARY IMPACT
ER - CULVERT 7A (BOTTOMLESS ARCH CULVERT 22'± x 9'±)
ER - CULVERT 7B (BOTTOMLESS ARCH CULVERT 21'± x 7'±)
ER - CULVERT 10 (30")
04/17/19 BOUNDARY
EW.6 PRIMARY IMPACT
44CM0140 AMMOYNET
HR - CULVERT 4 (30")
HR - CULVERT 3 (30")
PROPOSED BORROW AREA HAUL ROAD
LANDFILL GAS TO ENERGY BUILDING
PROPOSED BORROW AREA LOCATION (TYP.)
HR - CULVERT 2 (12")
SCALES
OFFICE
BORROW AREA 3
SB3
SB2
SB1
SB4
POINT OF ANALYSIS
44CM0139 HOBSON MANSION
HR - CULVERT 1 (12")
PROPOSED DETENTION POND (TYP.)
BORROW AREA 2
SB5
SB4
SB3
SB2
SB1
LEACHATE STORAGE TANKS AND CONTAINMENT AREA
SB5
FLARE STATION
BORROW AREA 1
SB4
HR - CULVERT 5 (24")
DRAINAGE AREA 10 POINT OF ANALYSIS
SEDIMENT BASIN 10
RR.3 PRIMARY IMPACT
RR.4 PRIMARY IMPACT
44CM0145 LOCATION OF INTEREST
SR - CULVERT 1 (30")
LANDFILL PERIMETER ROAD
MILLER LANE RELOCATION
MAINTENANCE BUILDING
SB3
SB2
SB1
DRAINAGE AREA 8 POINT OF ANALYSIS
DRAINAGE AREA 9 POINT OF ANALYSIS
SEDIMENT BASIN 9
Stream Reach 7
SEDIMENT BASIN 8
Stream Reach 8
Stream Reach 9
LANDFILL DISPOSAL UNIT BOUNDARY
SR - CULVERT 2 (18")
44CM0137 FROG SITE
44CM0136 JEFFREY SITE
44CM0138 CHIMNEY IN THE FIELD
DRAINAGE AREA 7 POINT OF ANALYSIS
Stream Reach 6
LANDFILL DISPOSAL UNIT
SEDIMENT BASIN 7
Stream Reach 4
Stream Reach 5
Stream Reach 3
PINEGROVE ROAD RELOCATION
B300
Stream Reach 2
Stream Reach 1
DRAINAGE AREA 3 POINT OF ANALYSIS
SR - CULVERT 3 (30")
SEDIMENT BASIN 5
SEDIMENT BASIN 6
SEDIMENT BASIN 4
SEDIMENT BASIN 3
44CM0144 ROCK PILE
DRAINAGE AREA 6 POINT OF ANALYSIS
DRAINAGE AREA 5 POINT OF ANALYSIS
DRAINAGE AREA 4 POINT OF ANALYSIS
SR - CULVERT 7 (54")
SEDIMENT BASIN 1
DRAINAGE AREA 1 POINT OF ANALYSIS
44CM0141 JESSE PARKER FARMSTEAD
RR.2 PRIMARY IMPACT
SR - CULVERT 6 (15")
SEDIMENT BASIN 2
RR.1 PRIMARY IMPACT
SR - CULVERT 5 (24")
DRAINAGE AREA 2 POINT OF ANALYSIS
SR - CULVERT 4 (30")
44CM0135 REVEREND'S STILL
44CM0134 CEMETERY

LEGEND:

—— - - —— - - ——	PROPERTY BOUNDARY (FACILITY BOUNDARY)
- - - 330 - - -	EXISTING MAJOR CONTOURS
—— 330 ——	FINAL GRADE MAJOR CONTOURS
▨	DELINEATED WETLANDS
▨	POTENTIAL CULTURAL RESOURCES OF INTEREST (SEE "GREEN RIDGE LANDFILL, PHASE 1 CULTURAL RESOURCES EVALUATION REPORT")
🟦	FEMA 100 YEAR FLOOD PLAIN AE (DRAFT)
🟪	FEMA 100 YEAR FLOOD PLAIN A (DRAFT)
🟨	FEMA 500 YEAR FLOOD PLAIN (DRAFT)
☐	INUNDATION AREA
═══	EXISTING ROAD
═══	PROPOSED ROAD
- - - - -	LANDFILL DISPOSAL UNIT BOUNDARY
— — — —	PROPOSED BORROW AREA LOCATION
- - - - -	PROPOSED DETENTION POND / SEDIMENT TRAP LOCATION
—— · · · ——	NON-IMPACTED STREAM
————	PERENNIAL (R3) STREAM IMPACTS - PRIMARY
- - - - -	PERENNIAL (R3) STREAM IMPACTS - SECONDARY
————	INTERMITTENT (R4) STREAM IMPACTS - PRIMARY
- - - - -	INTERMITTENT (R4) STREAM IMPACTS - SECONDARY
————	EPHEMERAL (R6) STREAM IMPACTS - PRIMARY
▨	NON-IMPACTED WETLANDS
▩	PFO IMPACT - PRIMARY
ER	ENTRANCE ROAD
HR	HAUL ROAD
SR	STATE ROAD

GRAPHIC SCALE

500 0 250 500 1000

(IN FEET)

1 inch = 500 ft.

NOTES:

1. THIS MAPPING PROJECT, L18–10560, WAS COMPLETED UNDER THE DIRECT AND RESPONSIBLE CHARGE OF, ROBERT H. TUCK FROM AN ACTUAL AIRBORNE SURVEY MADE UNDER MY SUPERVISION; THAT THE IMAGERY AND/OR ORIGINAL DATA WAS OBTAINED ON 05–02–18; AND THAT THIS PLAT, MAP, OR DIGITAL GEOSPATIAL DATA INCLUDING METADATA MEETS MINIMUM ACCURACY STANDARDS UNLESS OTHERWISE NOTED.
2. PARCEL LINES SHOWN HEREON ARE PER BOUNDARY SURVEYS BY HIGHMARK ENGINEERING DATED MAY 24, 2018, MARCH 4, 2019, APRIL 17, 2019 AND PER BOUNDARY SURVEY BY DRAPER ADEN ASSOCIATES DATED MARCH 29, 2019 REVISED APRIL 21, 2021.
3. WETLANDS INFORMATION PROVIDED BY A SURVEY PERFORMED BY KOONTZ BRYANT JOHNSON WILLIAMS GROUP, DATED AUGUST 22, 2018, REVISED MAY 10, 2019 AND AUGUST 16, 2021.
4. EXISTING CONTOUR INTERVALS ARE 2 FOOT.
   PROPOSED CONTOUR INTERVALS ARE 10 FOOT.
5. SEE KOONTZ BRYANT JOHNSON WILLIAMS (KBJW) DRAWINGS ENTITLED: "JPA IMPACT DRAWINGS," DATED APRIL 29, 2022 AND KBJW TABLE 1.0: "SUMMARY OF WETLAND AND WATER IMPACTS FOR THE PROPOSED GREEN RIDGE FACILITY JOINT PERMIT APPLICATION," FOR SPECIFIC IMPACT INFORMATION. THESE DRAWINGS ALSO INCLUDE STREAM PROFILES AND CROSS SECTIONS BY DRAPER ADEN ASSOCIATES.
6. SEE DRAPER ADEN ASSOCIATES DRAWINGS ENTITLED: "CONCEPTUAL DESIGN, GREEN RIDGE RECYCLING & DISPOSAL FACILITY", CURRENT REVISION DATED APRIL 29, 2022, FOR ENGINEERING DESIGN INFORMATION.

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OVERALL PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

ORIGINAL SUBMITTAL- 09/02/2020

JPA RESPONSE 1- 05/07/2021

JPA RESPONSE 2 - 01/11/2022

JPA RESPONSE 3 - 04/29/2022

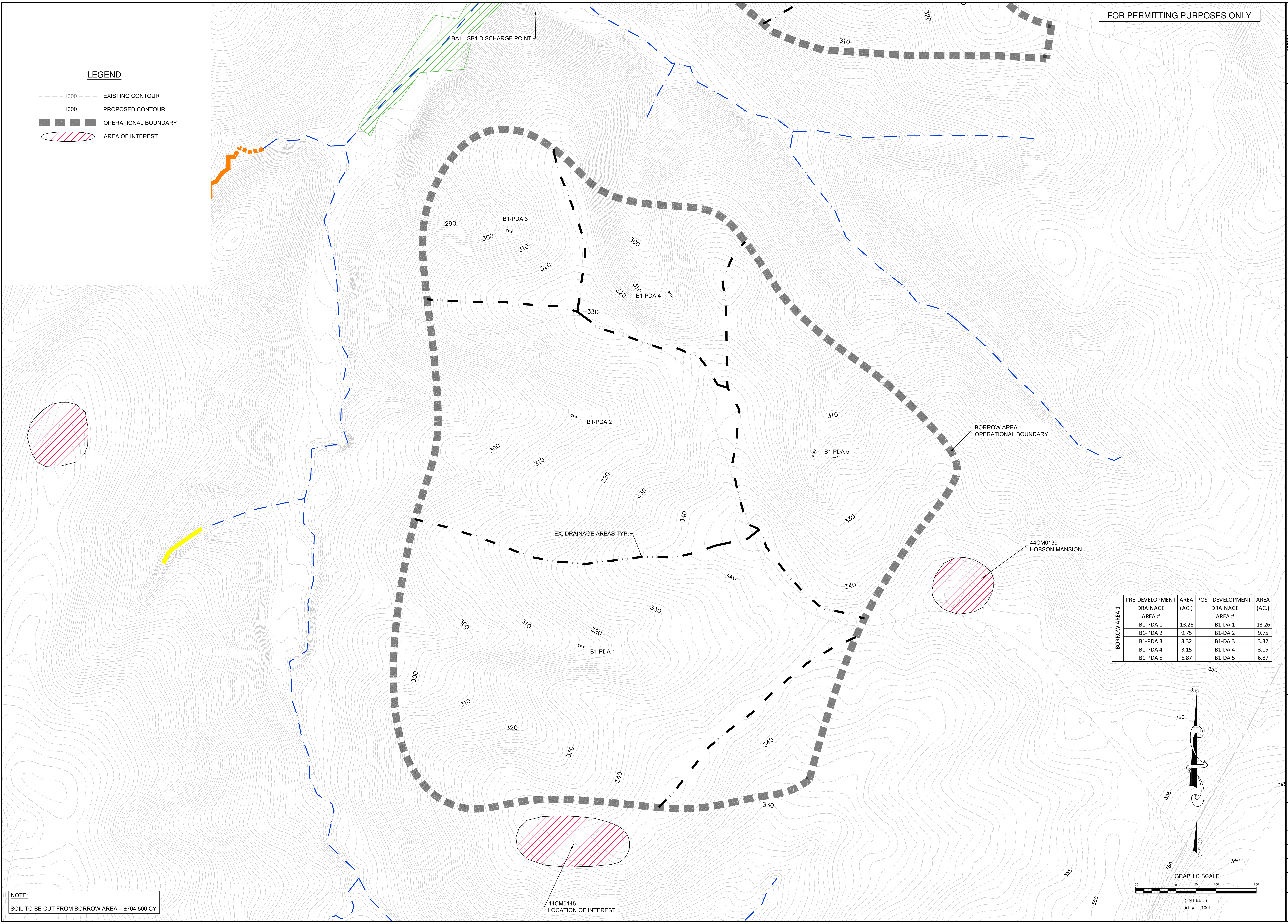
DESIGNED BY:	LPK/AST
DRAWN BY:	DLD
CHECKED BY:	LPK
SCALE:	1" = 500'
DATE:	SEPTEMBER 30, 2021
PROJECT NUMBER:	18020117-110102

C4.0

FOR PERMITTING PURPOSES ONLY

LEGEND

– – 1000 – –	EXISTING CONTOUR
—— 1000 ——	PROPOSED CONTOUR
▬ ▬ ▬ ▬	OPERATIONAL BOUNDARY
▨	AREA OF INTEREST



BA1 - SB1 DISCHARGE POINT
B1-PDA 3
B1-PDA 4
B1-PDA 2
B1-PDA 5
B1-PDA 1
BORROW AREA 1
OPERATIONAL BOUNDARY
44CM0139
HOBSON MANSION
EX. DRAINAGE AREAS TYP.
44CM0145
LOCATION OF INTEREST
290
300
310
320
330
340
350
355
360
GRAPHIC SCALE
100
0
50
100
200
(IN FEET)
1 inch = 100ft.

BORROW AREA 1	PRE-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)	POST-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)
	B1-PDA 1	13.26	B1-DA 1	13.26
	B1-PDA 2	9.75	B1-DA 2	9.75
	B1-PDA 3	3.32	B1-DA 3	3.32
	B1-PDA 4	3.15	B1-DA 4	3.15
	B1-PDA 5	6.87	B1-DA 5	6.87

NOTE:

SOIL TO BE CUT FROM BORROW AREA = ±704,500 CY

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BORROW AREA 1 EX. DRAINAGE AREA PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 100'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C5.0

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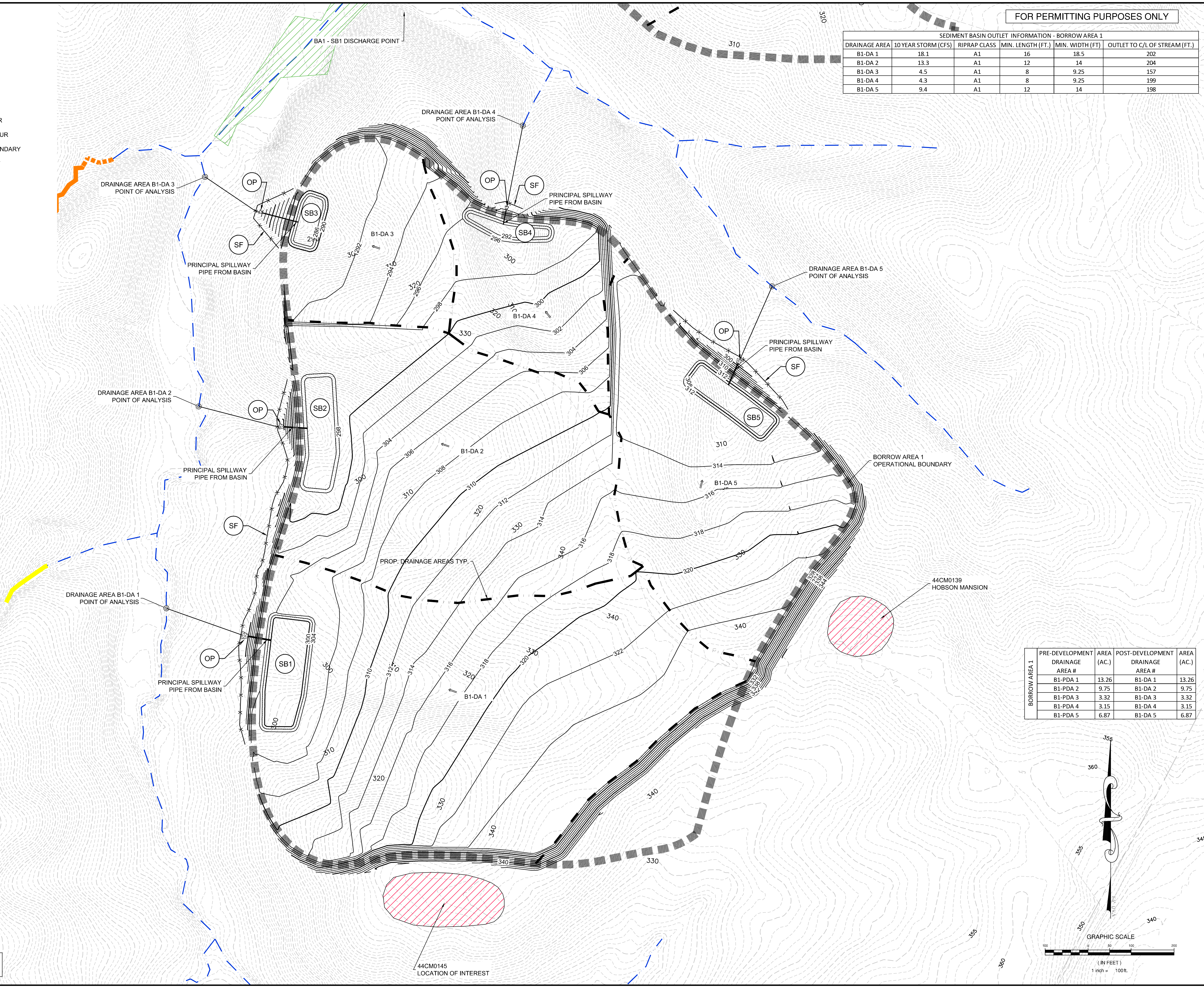
FOR PERMITTING PURPOSES ONLY

SEDIMENT BASIN OUTLET INFORMATION - BORROW AREA 1					
DRAINAGE AREA	10 YEAR STORM (CFS)	RIPRAP CLASS	MIN. LENGTH (FT.)	MIN. WIDTH (FT)	OUTLET TO C/L OF STREAM (FT.)
B1-DA 1	18.1	A1	16	18.5	202
B1-DA 2	13.3	A1	12	14	204
B1-DA 3	4.5	A1	8	9.25	157
B1-DA 4	4.3	A1	8	9.25	199
B1-DA 5	9.4	A1	12	14	198

LEGEND

— — 1000 — —	EXISTING CONTOUR
—— 1000 ——	PROPOSED CONTOUR
▬ ▬ ▬ ▬	OPERATIONAL BOUNDARY
▨	AREA OF INTEREST


BA1 - SB1 DISCHARGE POINT
DRAINAGE AREA B1-DA 4
POINT OF ANALYSIS
DRAINAGE AREA B1-DA 3
POINT OF ANALYSIS
OP
SF
SB3
SB4
PRINCIPAL SPILLWAY
PIPE FROM BASIN
B1-DA 3
B1-DA 4
DRAINAGE AREA B1-DA 5
POINT OF ANALYSIS
SB5
DRAINAGE AREA B1-DA 2
POINT OF ANALYSIS
SB2
B1-DA 2
B1-DA 5
BORROW AREA 1
OPERATIONAL BOUNDARY
PROP. DRAINAGE AREAS TYP.
44CM0139
HOBSON MANSION
DRAINAGE AREA B1-DA 1
POINT OF ANALYSIS
SB1
B1-DA 1
44CM0145
LOCATION OF INTEREST
300
310
320
330
340
GRAPHIC SCALE
(IN FEET)
1 inch = 100ft.

BORROW AREA 1	PRE-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)	POST-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)
	B1-PDA 1	13.26	B1-DA 1	13.26
	B1-PDA 2	9.75	B1-DA 2	9.75
	B1-PDA 3	3.32	B1-DA 3	3.32
	B1-PDA 4	3.15	B1-DA 4	3.15
	B1-PDA 5	6.87	B1-DA 5	6.87

NOTE:

SOIL TO BE CUT FROM BORROW AREA = ±704,500 CY

COMMONWEALTH OF VIRGINIA
GLENN W. CUSTIS
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BORROW AREA 1 GRADING PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

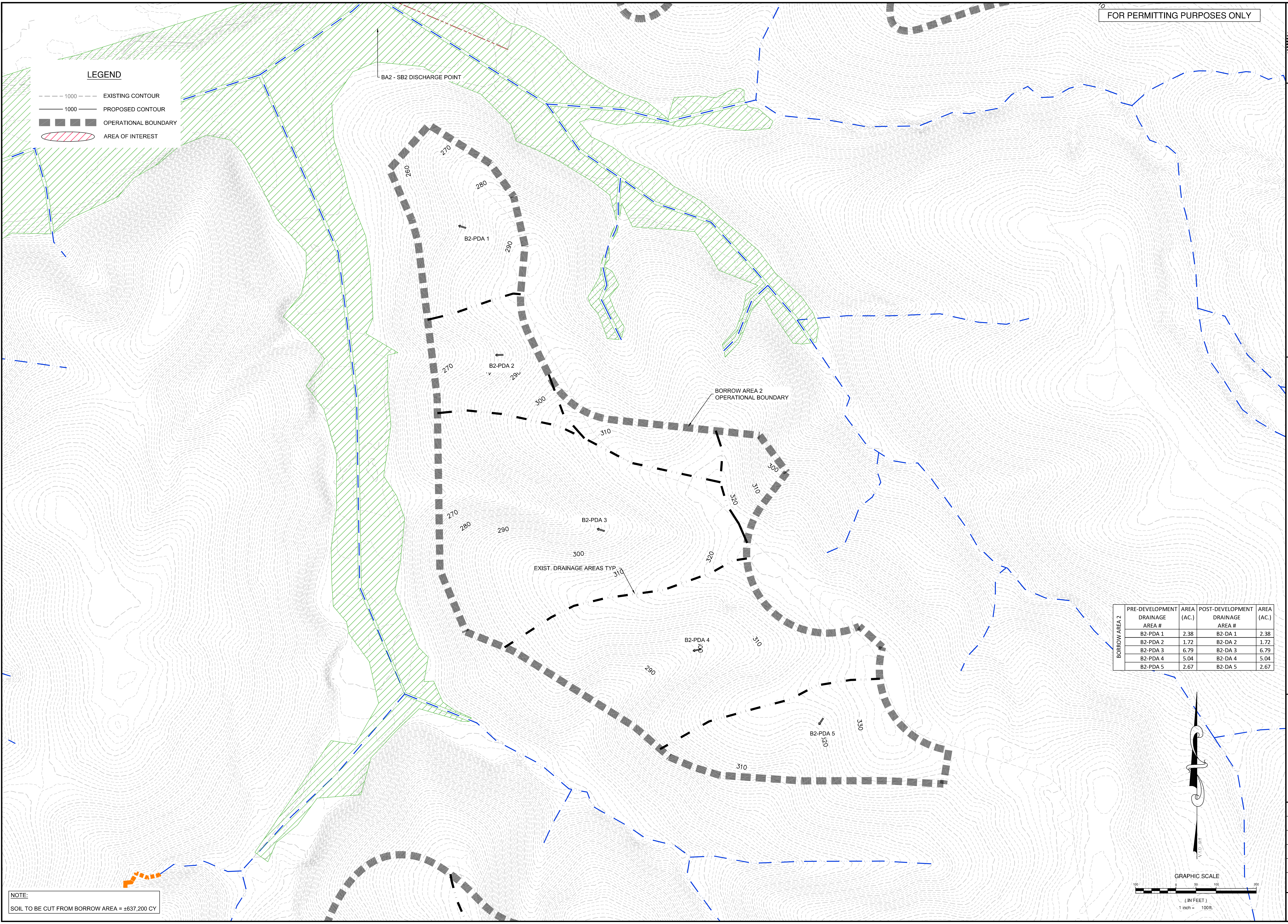
DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 100'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C5.1

FOR PERMITTING PURPOSES ONLY

LEGEND

- - - 1000 - - - EXISTING CONTOUR
——— 1000 ——— PROPOSED CONTOUR
■ ■ ■ ■ OPERATIONAL BOUNDARY
▨ AREA OF INTEREST


BA2 - SB2 DISCHARGE POINT
270
260
280
B2-PDA 1
290
270
B2-PDA 2
290
300
BORROW AREA 2
OPERATIONAL BOUNDARY
310
300
310
320
270
280
290
B2-PDA 3
300
320
EXIST. DRAINAGE AREAS TYP.
310
B2-PDA 4
300
310
290
330
B2-PDA 5
320
310
GRAPHIC SCALE
100
0
50
100
200
(IN FEET)
1 inch = 100ft.

BORROW AREA 2	PRE-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)	POST-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)
	B2-PDA 1	2.38	B2-DA 1	2.38
	B2-PDA 2	1.72	B2-DA 2	1.72
	B2-PDA 3	6.79	B2-DA 3	6.79
	B2-PDA 4	5.04	B2-DA 4	5.04
	B2-PDA 5	2.67	B2-DA 5	2.67

NOTE:

SOIL TO BE CUT FROM BORROW AREA = ±637,200 CY

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BORROW AREA 2 EX. DRAINAGE AREA PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

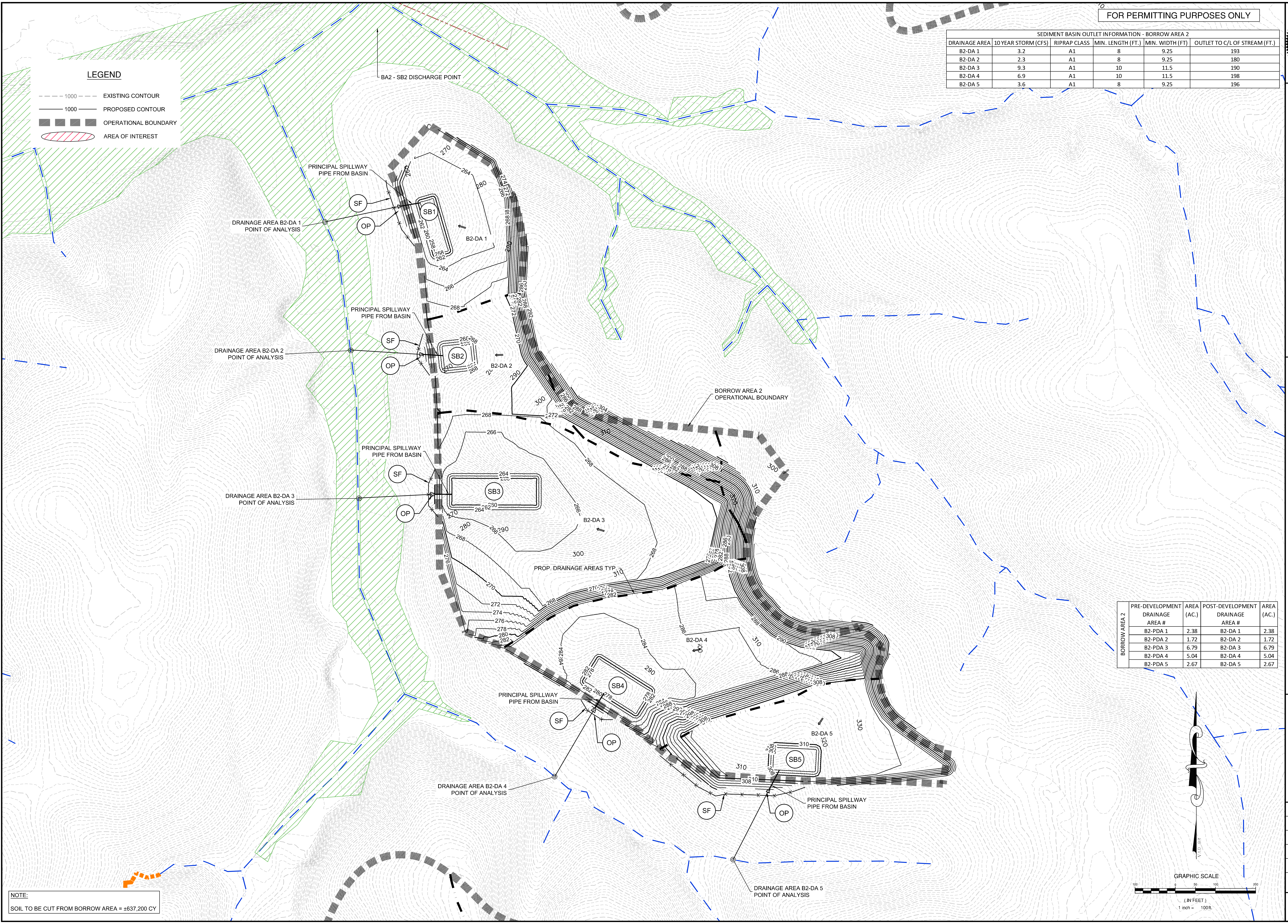
JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 100'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C5.2

FOR PERMITTING PURPOSES ONLY

SEDIMENT BASIN OUTLET INFORMATION - BORROW AREA 2					
DRAINAGE AREA	10 YEAR STORM (CFS)	RIPRAP CLASS	MIN. LENGTH (FT.)	MIN. WIDTH (FT)	OUTLET TO C/L OF STREAM (FT.)
B2-DA 1	3.2	A1	8	9.25	193
B2-DA 2	2.3	A1	8	9.25	180
B2-DA 3	9.3	A1	10	11.5	190
B2-DA 4	6.9	A1	10	11.5	198
B2-DA 5	3.6	A1	8	9.25	196


LEGEND
1000 EXISTING CONTOUR
1000 PROPOSED CONTOUR
OPERATIONAL BOUNDARY
AREA OF INTEREST
BA2 - SB2 DISCHARGE POINT
PRINCIPAL SPILLWAY PIPE FROM BASIN
SF
OP
SB1
B2-DA 1
DRAINAGE AREA B2-DA 1 POINT OF ANALYSIS
SB2
B2-DA 2
DRAINAGE AREA B2-DA 2 POINT OF ANALYSIS
SB3
B2-DA 3
DRAINAGE AREA B2-DA 3 POINT OF ANALYSIS
BORROW AREA 2 OPERATIONAL BOUNDARY
PROP. DRAINAGE AREAS TYP
SB4
B2-DA 4
DRAINAGE AREA B2-DA 4 POINT OF ANALYSIS
SB5
B2-DA 5
DRAINAGE AREA B2-DA 5 POINT OF ANALYSIS
GRAPHIC SCALE
(IN FEET)
1 inch = 100ft.

NOTE:
SOIL TO BE CUT FROM BORROW AREA = ±637,200 CY

BORROW AREA 2	PRE-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)	POST-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)
	B2-PDA 1	2.38	B2-DA 1	2.38
	B2-PDA 2	1.72	B2-DA 2	1.72
	B2-PDA 3	6.79	B2-DA 3	6.79
	B2-PDA 4	5.04	B2-DA 4	5.04
	B2-PDA 5	2.67	B2-DA 5	2.67

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BORROW AREA 2 GRADING PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 100'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C5.3

FOR PERMITTING PURPOSES ONLY

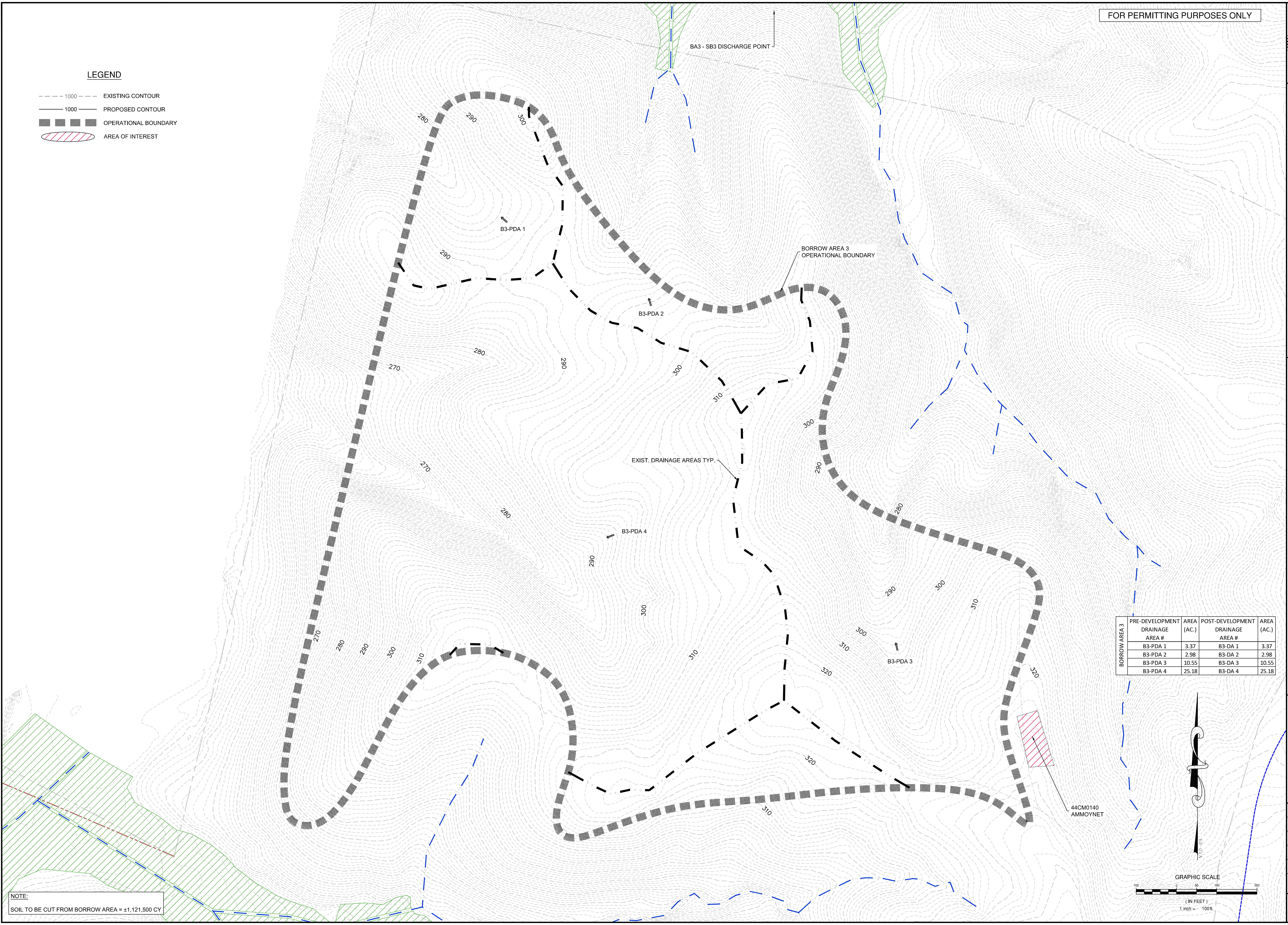
LEGEND

- - - 1000 - - - EXISTING CONTOUR

—— 1000 —— PROPOSED CONTOUR

▬ ▬ ▬ ▬ OPERATIONAL BOUNDARY

▨ AREA OF INTEREST


BA3 - SB3 DISCHARGE POINT
280
290
300
B3-PDA 1
290
BORROW AREA 3
OPERATIONAL BOUNDARY
B3-PDA 2
280
270
290
300
310
300
EXIST. DRAINAGE AREAS TYP.
270
290
280
B3-PDA 4
290
300
290
300
310
300
270
280
290
300
310
310
310
B3-PDA 3
320
320
320
310
44CM0140
AMMOYNET
GRAPHIC SCALE
(IN FEET)
1 inch = 100ft.

BORROW AREA 3	PRE-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)	POST-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)
	B3-PDA 1	3.37	B3-DA 1	3.37
	B3-PDA 2	2.98	B3-DA 2	2.98
	B3-PDA 3	10.55	B3-DA 3	10.55
	B3-PDA 4	25.18	B3-DA 4	25.18

NOTE:

SOIL TO BE CUT FROM BORROW AREA = ±1,121,500 CY

COMMONWEALTH OF VIRGINIA
GLENN W. CUSTIS
Lic. No. 8039
PROFESSIONAL ENGINEER

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BORROW AREA 3 EX. DRAINAGE AREA PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 100'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C5.4

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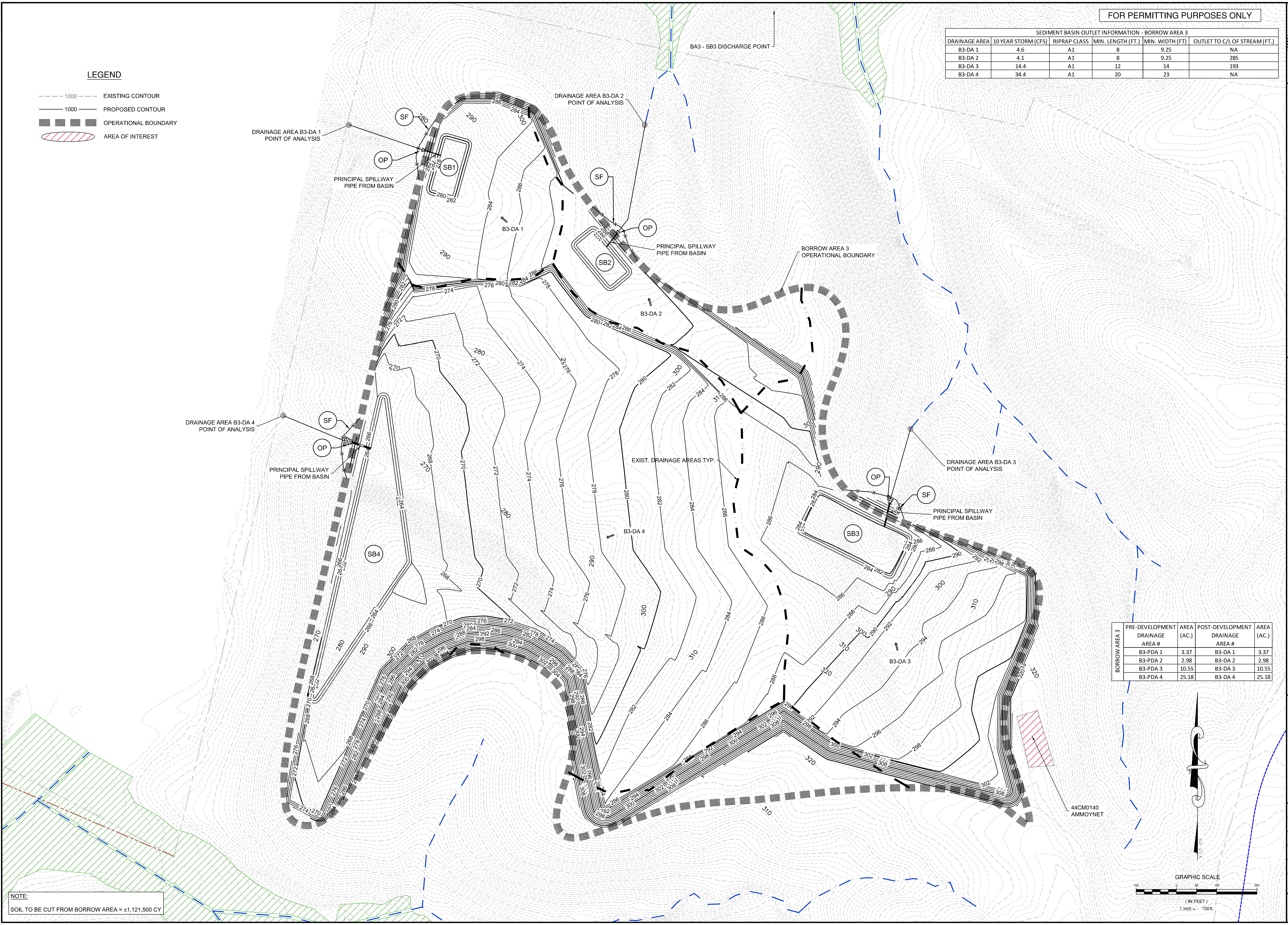
FOR PERMITTING PURPOSES ONLY

SEDIMENT BASIN OUTLET INFORMATION - BORROW AREA 3					
DRAINAGE AREA	10 YEAR STORM (CFS)	RIPRAP CLASS	MIN. LENGTH (FT.)	MIN. WIDTH (FT)	OUTLET TO C/L OF STREAM (FT.)
B3-DA 1	4.6	A1	8	9.25	NA
B3-DA 2	4.1	A1	8	9.25	285
B3-DA 3	14.4	A1	12	14	193
B3-DA 4	34.4	A1	20	23	NA



LEGEND
1000 EXISTING CONTOUR
1000 PROPOSED CONTOUR
OPERATIONAL BOUNDARY
AREA OF INTEREST
BA3 - SB3 DISCHARGE POINT
DRAINAGE AREA B3-DA 2 POINT OF ANALYSIS
DRAINAGE AREA B3-DA 1 POINT OF ANALYSIS
SF
OP
SB1
PRINCIPAL SPILLWAY PIPE FROM BASIN
B3-DA 1
SB2
BORROW AREA 3 OPERATIONAL BOUNDARY
B3-DA 2
DRAINAGE AREA B3-DA 4 POINT OF ANALYSIS
EXIST. DRAINAGE AREAS TYP.
DRAINAGE AREA B3-DA 3 POINT OF ANALYSIS
SB3
SB4
B3-DA 4
B3-DA 3
44CM0140 AMMOYNET
GRAPHIC SCALE
100 0 50 100 200
(IN FEET)
1 inch = 100ft.
NAD 83

BORROW AREA 3	PRE-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)	POST-DEVELOPMENT DRAINAGE AREA #	AREA (AC.)
	B3-PDA 1	3.37	B3-DA 1	3.37
	B3-PDA 2	2.98	B3-DA 2	2.98
	B3-PDA 3	10.55	B3-DA 3	10.55
	B3-PDA 4	25.18	B3-DA 4	25.18

NOTE:

SOIL TO BE CUT FROM BORROW AREA = ±1,121,500 CY

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BORROW AREA 3 GRADING PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
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CHECKED BY: GWC
SCALE: 1" = 100'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C5.5

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EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	◠
3.18	OUTLET PROTECTION	OP	●
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▭
3.31	TEMPORARY SEEDING	TS	◄— TS —►
3.35	MULCHING	MU	◄— MU —►
3.39	DUST CONTROL	DC	◄— DC —►

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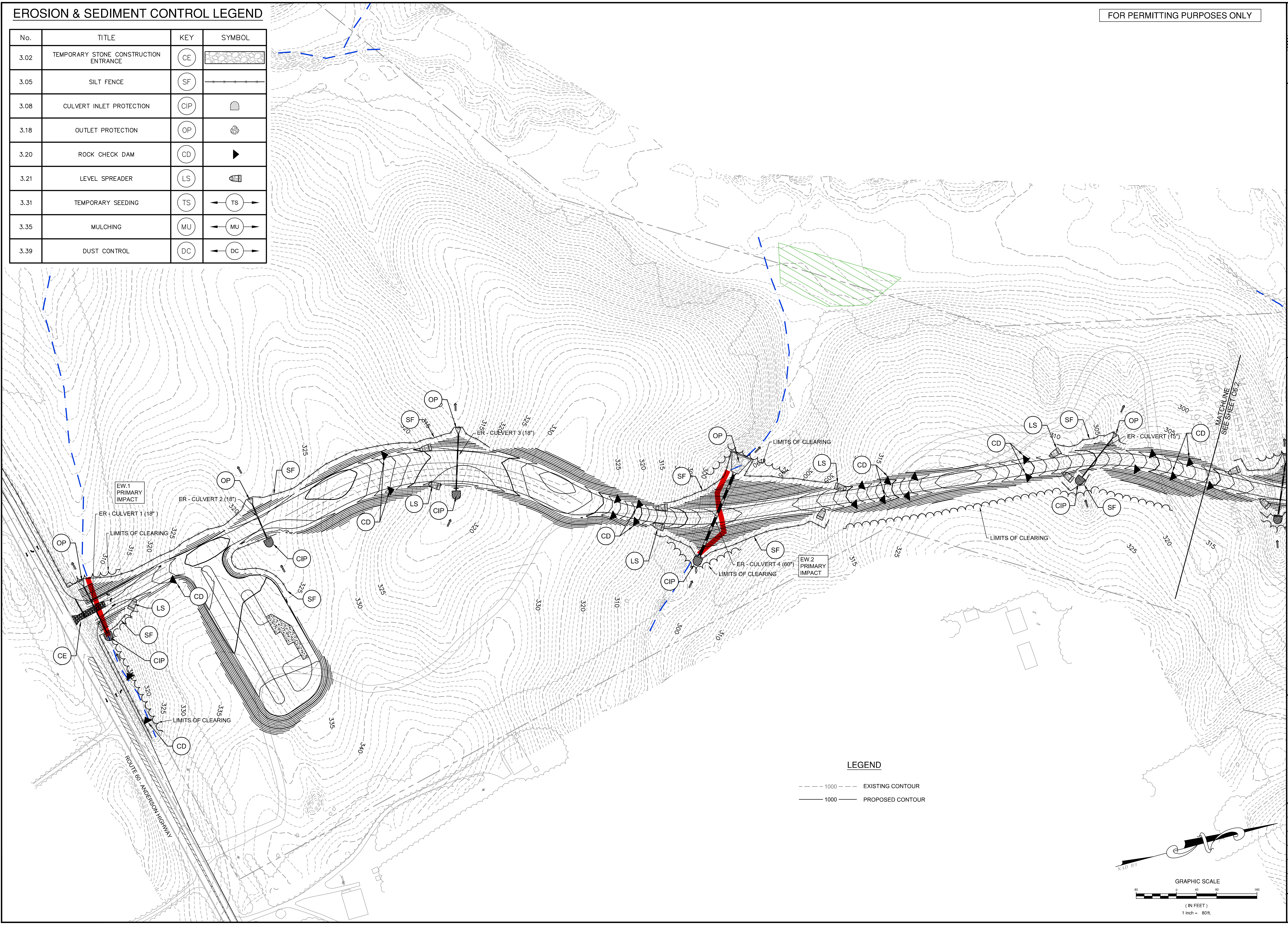

OP
SF
CD
LS
CIP
CE
EW.1 PRIMARY IMPACT
ER - CULVERT 1 (18")
ER - CULVERT 2 (18")
ER - CULVERT 3 (18")
ER - CULVERT 4 (60")
ER - CULVERT (15")
EW.2 PRIMARY IMPACT
LIMITS OF CLEARING
MATCHLINE SEE SHEET C6.2
ROUTE 60 - ANDERSON HIGHWAY
300
305
310
315
320
325
330
335
340
NAD 83
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80ft.

LEGEND

- - - 1000 - - -	EXISTING CONTOUR
——— 1000 ———	PROPOSED CONTOUR

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ENTRANCE ROAD ESC PLAN (SHEET 1 OF 3)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY:
EEH

DRAWN BY:
EEH

CHECKED BY:
GWC

SCALE:
1" = 80'

DATE:
SEPTEMBER 30, 2021

PROJECT NUMBER:
18020117-110102

C6.1

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EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	▨
3.18	OUTLET PROTECTION	OP	▨
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▨
3.31	TEMPORARY SEEDING	TS	◀— TS —▶
3.35	MULCHING	MU	◀— MU —▶
3.39	DUST CONTROL	DC	◀— DC —▶

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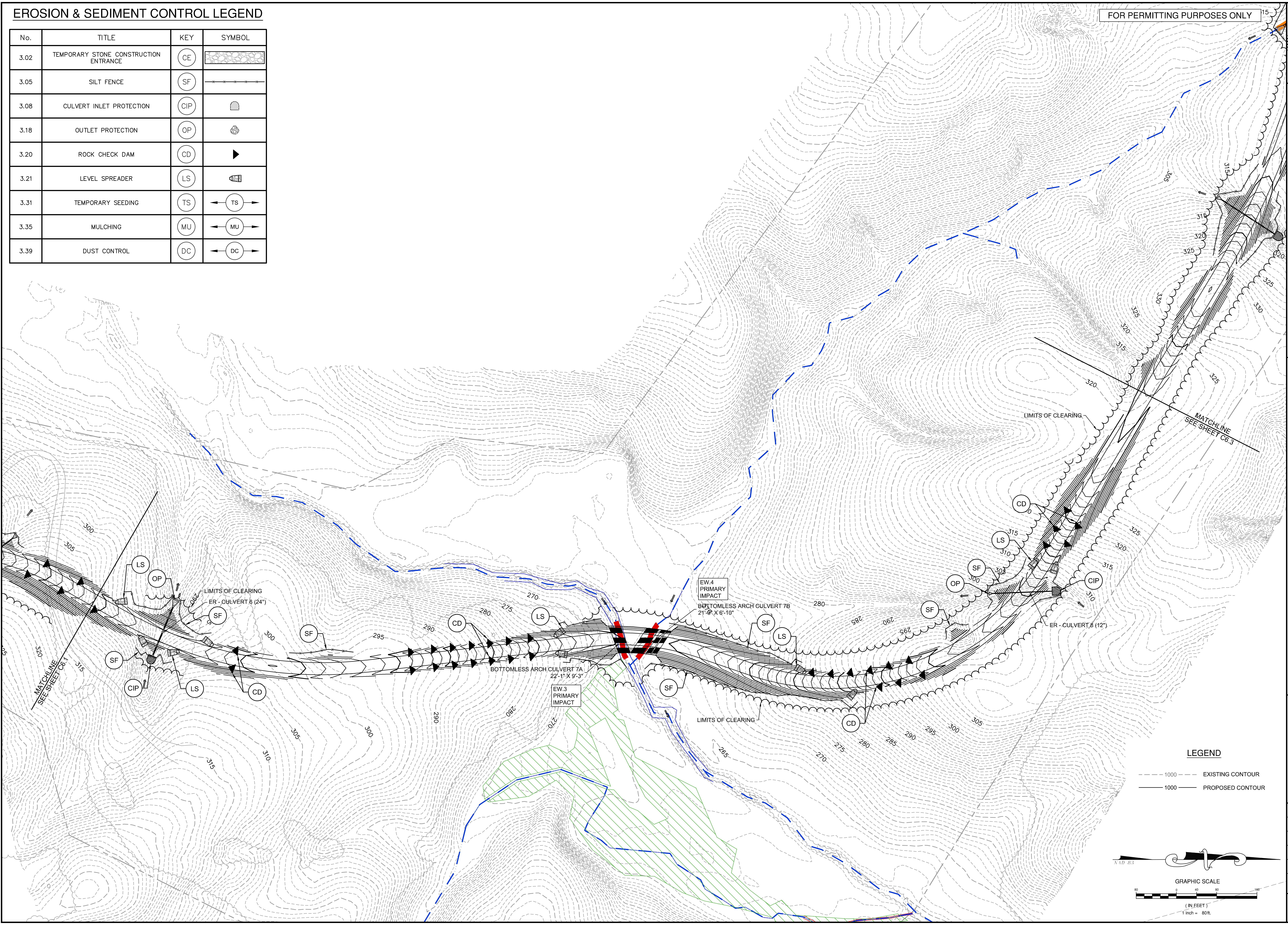
LIMITS OF CLEARING
ER - CULVERT 6 (24")
MATCHLINE SEE SHEET C6.1
MATCHLINE SEE SHEET C6.3
EW.4 PRIMARY IMPACT
BOTTOMLESS ARCH CULVERT 7B
21'-9" X 6'-10"
BOTTOMLESS ARCH CULVERT 7A
22'-1" X 9'-3"
EW.3 PRIMARY IMPACT
LIMITS OF CLEARING
LIMITS OF CLEARING
ER - CULVERT 8 (12")
LS
OP
SF
CIP
CD
300
305
310
315
320
325
330
270
275
280
285
290
295
265
NAD 83

LEGEND

- - 1000 - -	EXISTING CONTOUR
—— 1000 ——	PROPOSED CONTOUR

GRAPHIC SCALE

0 40 80 160

(IN FEET)
1 inch = 80ft.

COMMONWEALTH OF VIRGINIA
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ENTRANCE ROAD ESC PLAN (SHEET 2 OF 3)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C6.2

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EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	▲
3.18	OUTLET PROTECTION	OP	◆
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▭
3.31	TEMPORARY SEEDING	TS	◄—TS—►
3.35	MULCHING	MU	◄—MU—►
3.39	DUST CONTROL	DC	◄—DC—►

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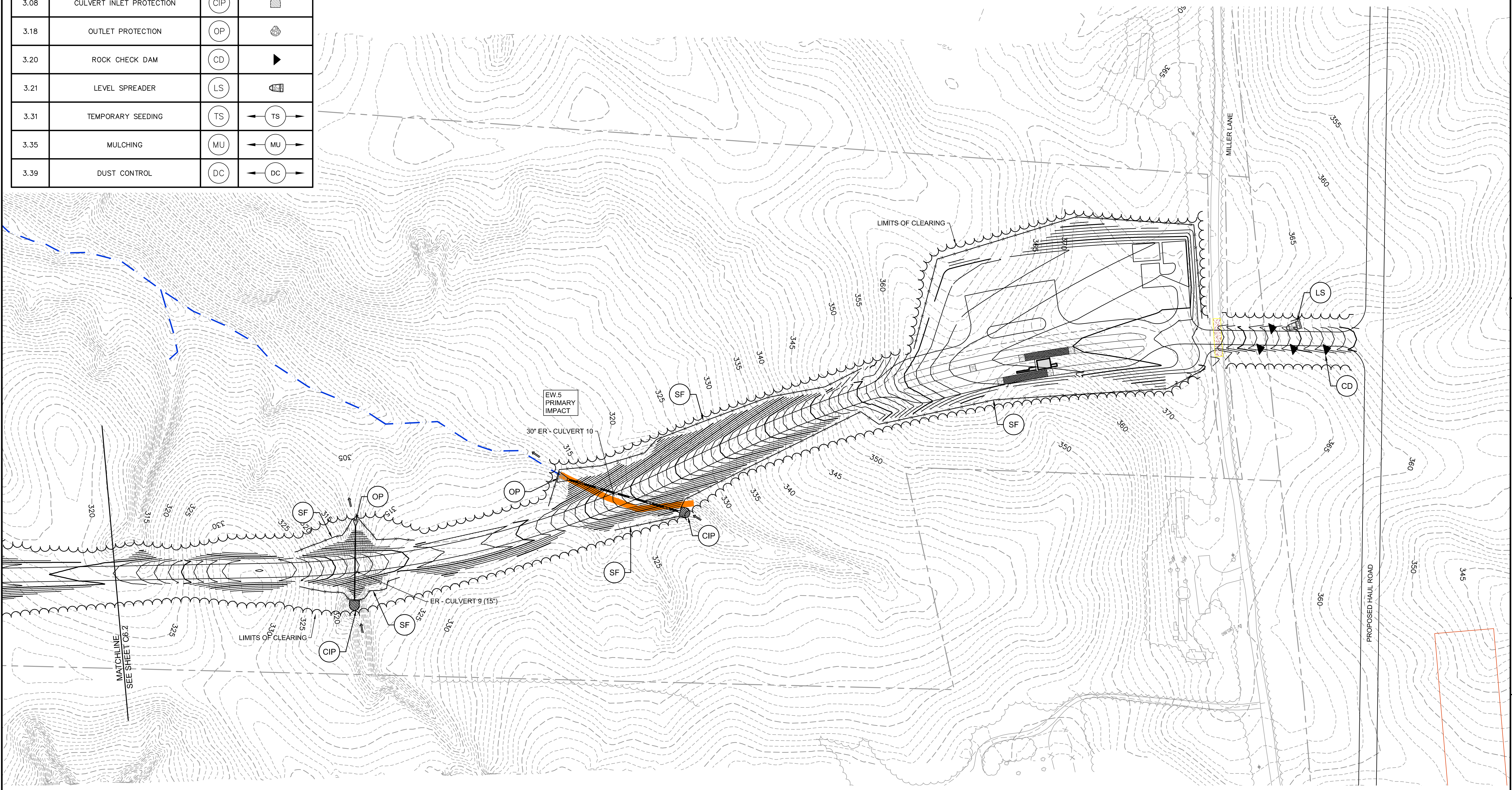
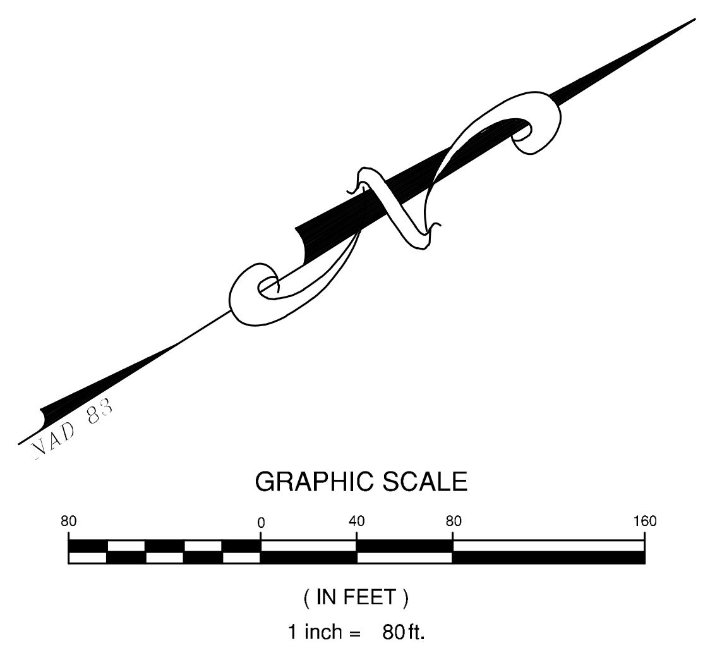

LIMITS OF CLEARING
MILLER LANE
LS
CD
SF
EW.5
PRIMARY
IMPACT
30" ER - CULVERT 10
OP
CIP
ER - CULVERT 9 (15")
LIMITS OF CLEARING
MATCHLINE
SEE SHEET C6.2
PROPOSED HAUL ROAD
305
315
320
325
330
335
340
345
350
355
360
365
370

LEGEND

- - 1000 - - EXISTING CONTOUR

—— 1000 —— PROPOSED CONTOUR


GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80ft.

ENTRANCE ROAD ESC PLAN (SHEET 3 OF 3)

GREEN RIDGE RECYCLING & DISPOSAL FACILITY

CUMBERLAND COUNTY, VIRGINIA

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REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C6.3

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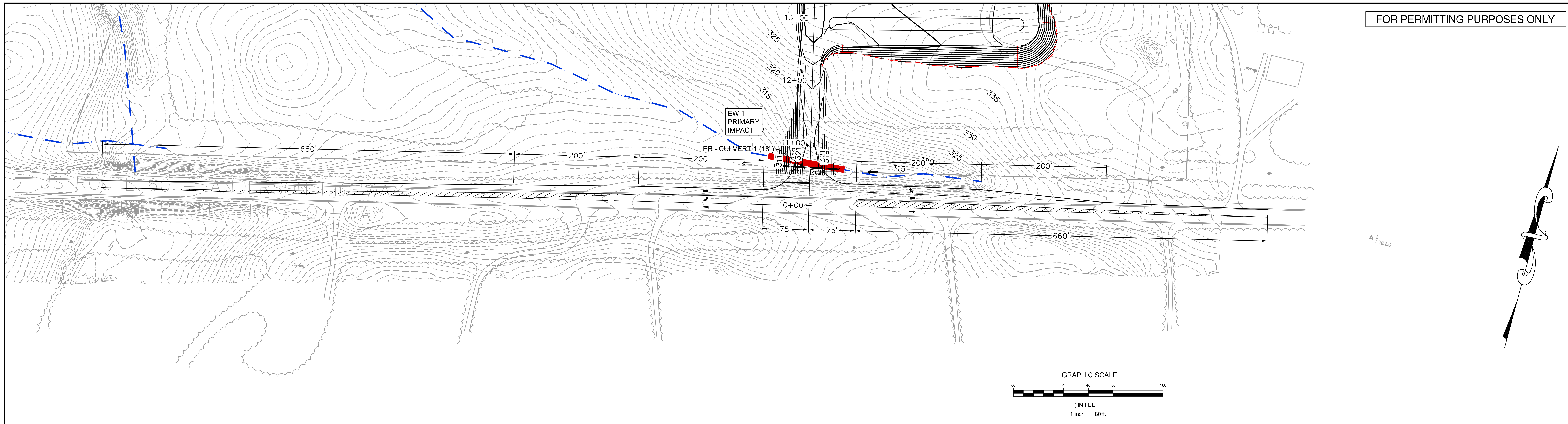
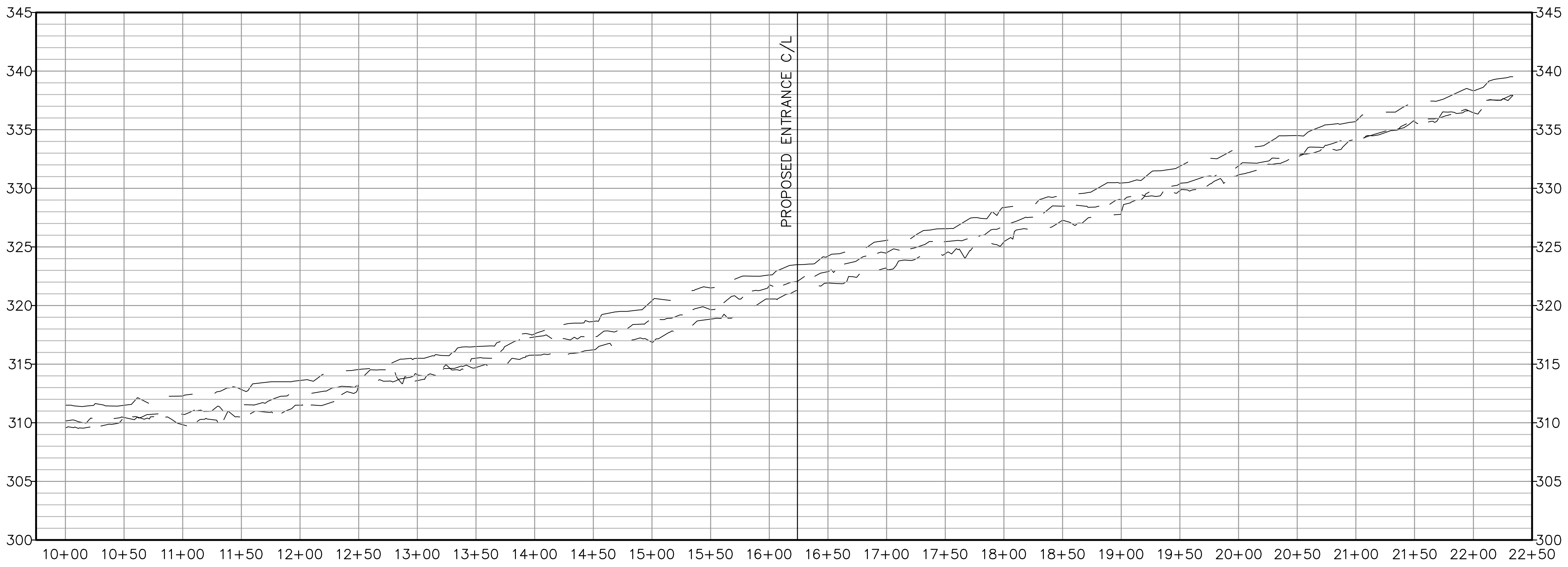

13+00
12+00
11+00
10+00
325
320
315
335
330
325
315
EW.1
PRIMARY
IMPACT
ER - CULVERT 1 (18")
18" RCP
311
319
321
321
319
660'
200'
200'
200'
200'
75'
75'
660'
US ROUTE 60 - ANDERSON HIGHWAY
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80ft.



ANDERSON HIGHWAY
Scale: H: 1"=80', V: 1"= 8'

PROFILE LEGEND

EG	EXISTING GRADE
FG	FINISHED GRADE
——— – ———	EXISTING CENTERLINE PROFILE
—— —— ——	EXISTING 25' LEFT PROFILE
— — — —	EXISTING 25' RIGHT PROFILE
———	PROPOSED CENTERLINE PROFILE

COMMONWEALTH OF VIRGINIA
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ENTRANCE PLAN & PROFILE
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C6.0

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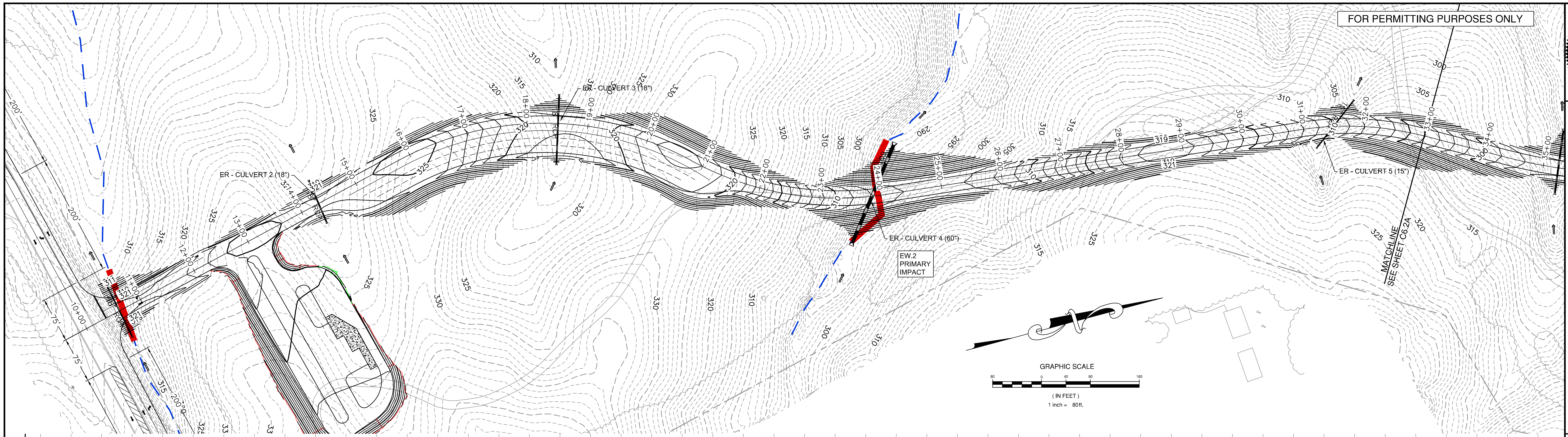
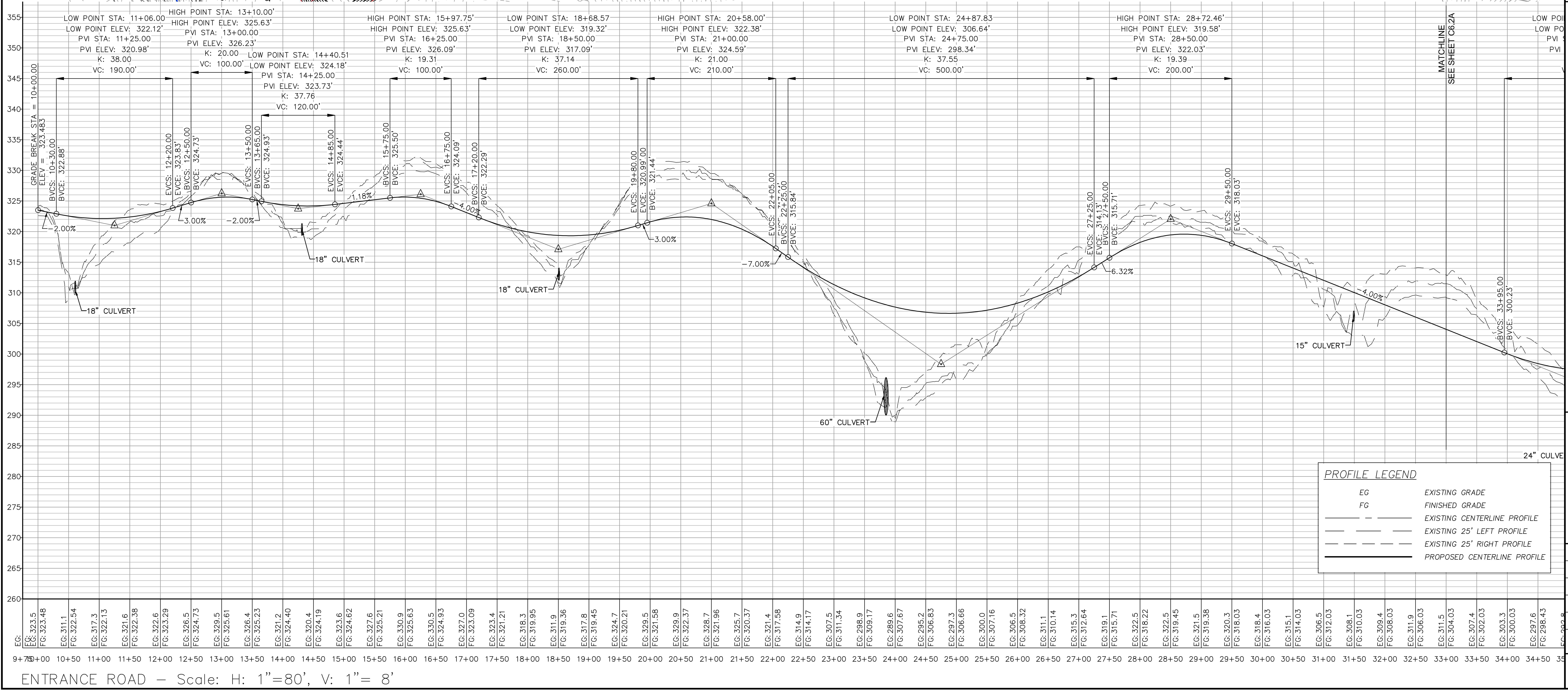


ER - CULVERT 2 (18")
ER - CULVERT 3 (18")
ER - CULVERT 4 (60")
ER - CULVERT 5 (15")
EW.2 PRIMARY IMPACT
MATCHLINE SEE SHEET C6.2A
10+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00
32+00
33+00
34+00
35+00
GRAPHIC SCALE
80 0 40 80 160
(IN FEET)
1 inch = 80ft.



PROFILE LEGEND

EG	EXISTING GRADE
FG	FINISHED GRADE
——— – ———	EXISTING CENTERLINE PROFILE
——— ———	EXISTING 25' LEFT PROFILE
— — — —	EXISTING 25' RIGHT PROFILE
━━━━━━	PROPOSED CENTERLINE PROFILE

ENTRANCE ROAD – Scale: H: 1"=80', V: 1"= 8'

ENTRANCE ROAD PLAN & PROFILE (STA. 10+00 - 33+00)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY

CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
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SCALE: 1" = 80'
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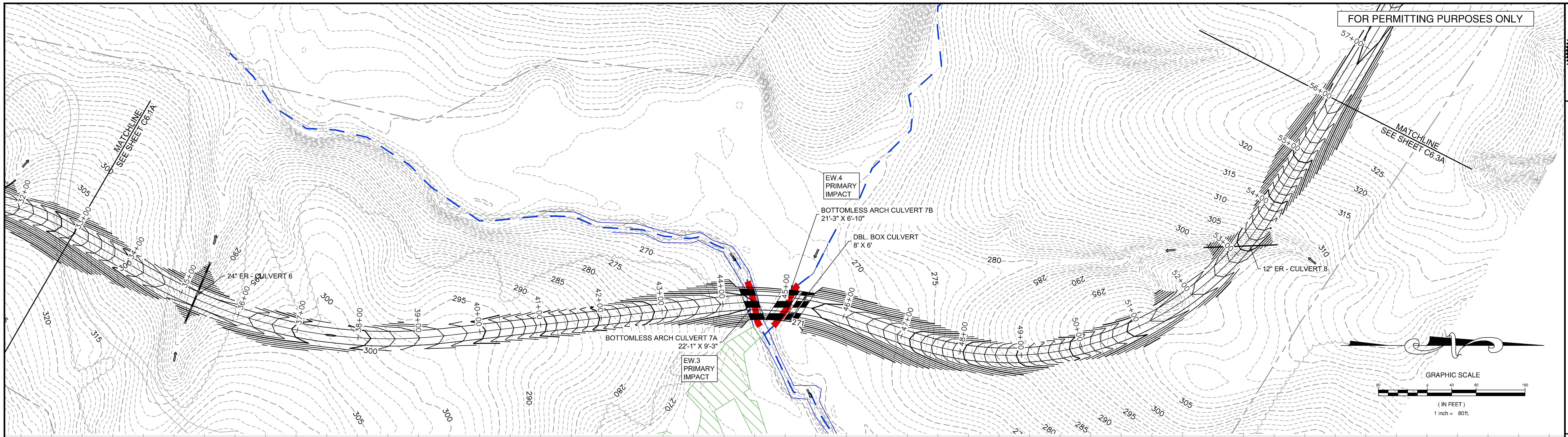
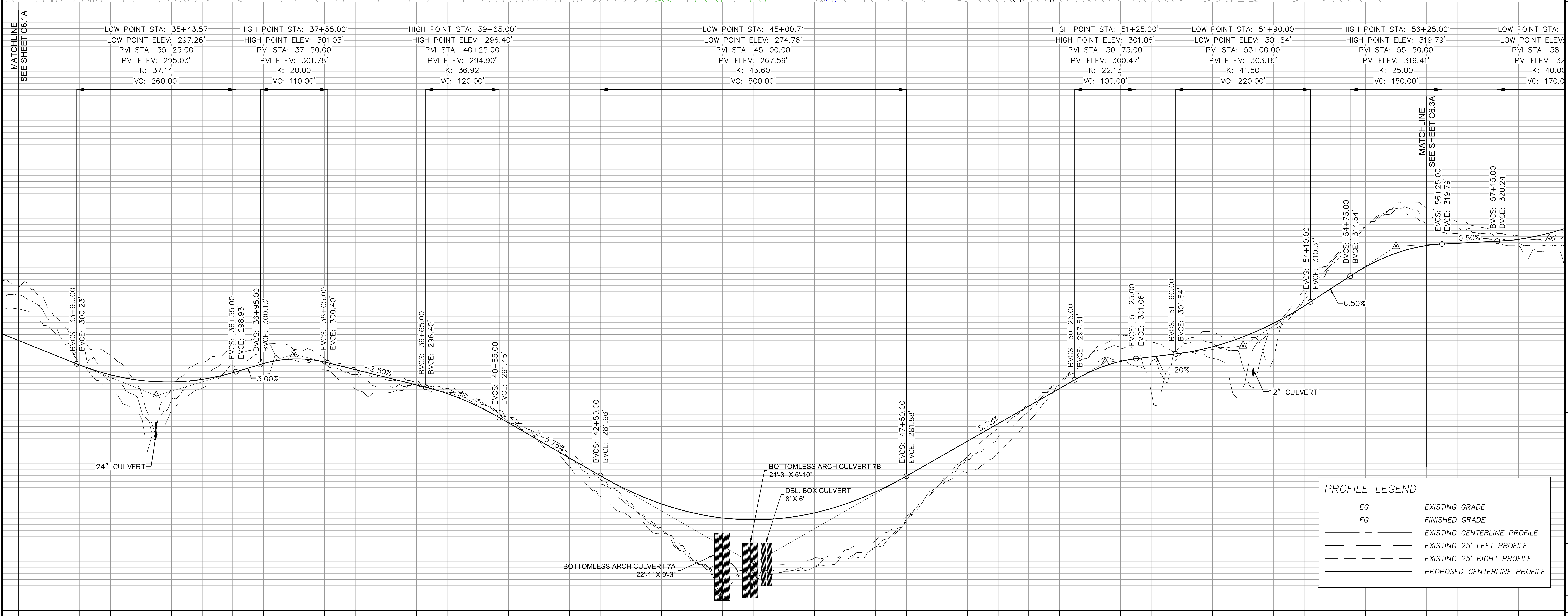
PROJECT NUMBER: 18020117-110102

C6.1A

FOR PERMITTING PURPOSES ONLY


MATCHLINE SEE SHEET C6.1A
MATCHLINE SEE SHEET C6.3A
24" ER - CULVERT 6
BOTTOMLESS ARCH CULVERT 7A
22'-1" X 9'-3"
EW.3
PRIMARY
IMPACT
EW.4
PRIMARY
IMPACT
BOTTOMLESS ARCH CULVERT 7B
21'-3" X 6'-10"
DBL. BOX CULVERT
8' X 6'
12" ER - CULVERT 8
32+00
33+00
34+00
35+00
36+00
37+00
38+00
39+00
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00
48+00
49+00
50+00
51+00
52+00
53+00
54+00
55+00
56+00
57+00
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80ft.
320
315
310
305
300
295
290
285
280
275
270


MATCHLINE
SEE SHEET C6.1A
LOW POINT STA: 35+43.57
LOW POINT ELEV: 297.26'
PVI STA: 35+25.00
PVI ELEV: 295.03'
K: 37.14
VC: 260.00'
HIGH POINT STA: 37+55.00'
HIGH POINT ELEV: 301.03'
PVI STA: 37+50.00
PVI ELEV: 301.78'
K: 20.00
VC: 110.00'
HIGH POINT STA: 39+65.00'
HIGH POINT ELEV: 296.40'
PVI STA: 40+25.00
PVI ELEV: 294.90'
K: 36.92
VC: 120.00'
LOW POINT STA: 45+00.71
LOW POINT ELEV: 274.76'
PVI STA: 45+00.00
PVI ELEV: 267.59'
K: 43.60
VC: 500.00'
HIGH POINT STA: 51+25.00'
HIGH POINT ELEV: 301.06'
PVI STA: 50+75.00
PVI ELEV: 300.47'
K: 22.13
VC: 100.00'
LOW POINT STA: 51+90.00
LOW POINT ELEV: 301.84'
PVI STA: 53+00.00
PVI ELEV: 303.16'
K: 41.50
VC: 220.00'
HIGH POINT STA: 56+25.00'
HIGH POINT ELEV: 319.79'
PVI STA: 55+50.00
PVI ELEV: 319.41'
K: 25.00
VC: 150.00'
LOW POINT STA:
LOW POINT ELEV:
PVI STA: 58+
PVI ELEV: 32
K: 40.00
VC: 170.0
MATCHLINE
SEE SHEET C6.3A
BVCS: 33+95.00
BVCE: 300.23'
EVCS: 36+55.00
EVCE: 298.93'
BVCS: 36+95.00
BVCE: 300.13'
EVCS: 38+05.00
EVCE: 300.40'
BVCS: 39+65.00
BVCE: 296.40'
EVCS: 40+85.00
EVCE: 291.45'
BVCS: 42+50.00
BVCE: 281.96'
EVCS: 47+50.00
EVCE: 281.88'
BVCS: 50+25.00
BVCE: 297.61'
EVCS: 51+25.00
EVCE: 301.06'
BVCS: 51+90.00
BVCE: 301.84'
EVCS: 54+10.00
EVCE: 310.31'
BVCS: 54+75.00
BVCE: 314.54'
EVCS: 56+25.00
EVCE: 319.79'
BVCS: 57+15.00
BVCE: 320.24'
-3.00%
-2.50%
-5.75%
5.72%
1.20%
6.50%
0.50%
24" CULVERT
12" CULVERT
BOTTOMLESS ARCH CULVERT 7B
21'-3" X 6'-10"
DBL. BOX CULVERT
8' X 6'
BOTTOMLESS ARCH CULVERT 7A
22'-1" X 9'-3"

PROFILE LEGEND

EG	EXISTING GRADE
FG	FINISHED GRADE
—— – ——	EXISTING CENTERLINE PROFILE
—— —— ——	EXISTING 25' LEFT PROFILE
— — — —	EXISTING 25' RIGHT PROFILE
———	PROPOSED CENTERLINE PROFILE

33+00	EG: 311.5	FG: 304.03
33+50	EG: 307.4	FG: 302.03
34+00	EG: 303.3	FG: 300.03
34+50	EG: 297.6	FG: 298.43
35+00	EG: 292.8	FG: 297.51
35+50	EG: 294.3	FG: 297.26
36+00	EG: 298.2	FG: 297.68
36+50	EG: 301.1	FG: 298.78
37+00	EG: 303.5	FG: 300.27
37+50	EG: 301.7	FG: 301.02
38+00	EG: 300.2	FG: 300.52
38+50	EG: 298.5	FG: 299.28
39+00	EG: 296.5	FG: 298.03
39+50	EG: 296.7	FG: 296.78
40+00	EG: 296.4	FG: 295.36
40+50	EG: 294.5	FG: 293.30
41+00	EG: 291.5	FG: 290.59
41+50	EG: 288.0	FG: 287.71
42+00	EG: 284.7	FG: 284.84
42+50	EG: 280.6	FG: 281.96
43+00	EG: 276.9	FG: 279.38
43+50	EG: 273.0	FG: 277.36
44+00	EG: 268.4	FG: 275.92
44+50	EG: 262.5	FG: 275.05
45+00	EG: 263.6	FG: 274.76
45+50	EG: 266.5	FG: 275.04
46+00	EG: 267.0	FG: 275.89
46+50	EG: 268.6	FG: 277.31
47+00	EG: 270.4	FG: 279.31
47+50	EG: 274.5	FG: 281.88
48+00	EG: 280.1	FG: 284.74
48+50	EG: 284.6	FG: 287.60
49+00	EG: 288.2	FG: 290.46
49+50	EG: 292.4	FG: 293.32
50+00	EG: 297.5	FG: 296.18
50+50	EG: 301.6	FG: 298.89
51+00	EG: 302.9	FG: 300.62
51+50	EG: 300.6	FG: 301.36
52+00	EG: 303.2	FG: 301.97
52+50	EG: 303.6	FG: 303.00
53+00	EG: 299.7	FG: 304.62
53+50	EG: 305.9	FG: 306.84
54+00	EG: 311.3	FG: 309.67
54+50	EG: 317.5	FG: 312.91
55+00	EG: 322.6	FG: 316.04
55+50	EG: 325.6	FG: 318.29
56+00	EG: 324.5	FG: 319.54
56+50	EG: 322.5	FG: 319.91
57+00	EG: 321.6	FG: 320.16
57+50	EG: 320.0	FG: 320.56
58+00	EG: 319.5	FG: 321.56

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ENTRANCE ROAD PLAN & PROFILE
(STA. 33+00 - 56+00)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY

CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C6.2A

P:\2018\1802\0100\18020117\18020117-010303\CAD\18020117-010303_SD\18020117-010303_Site-Entrance Road.dwg April 29, 2022 12:09:48 PM

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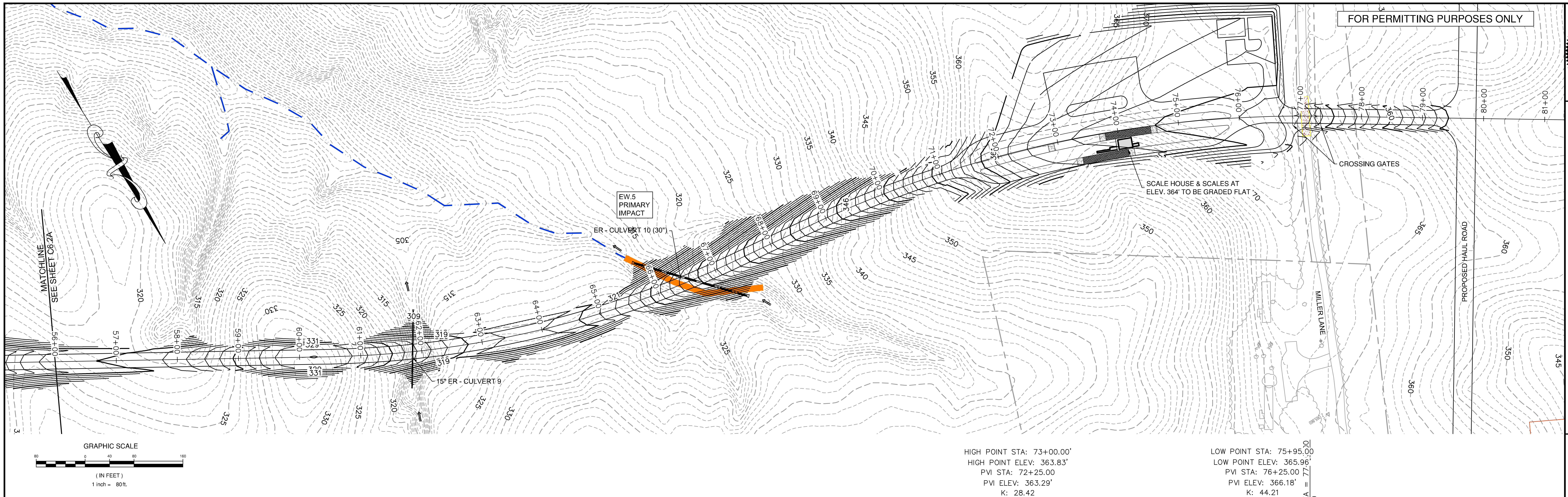
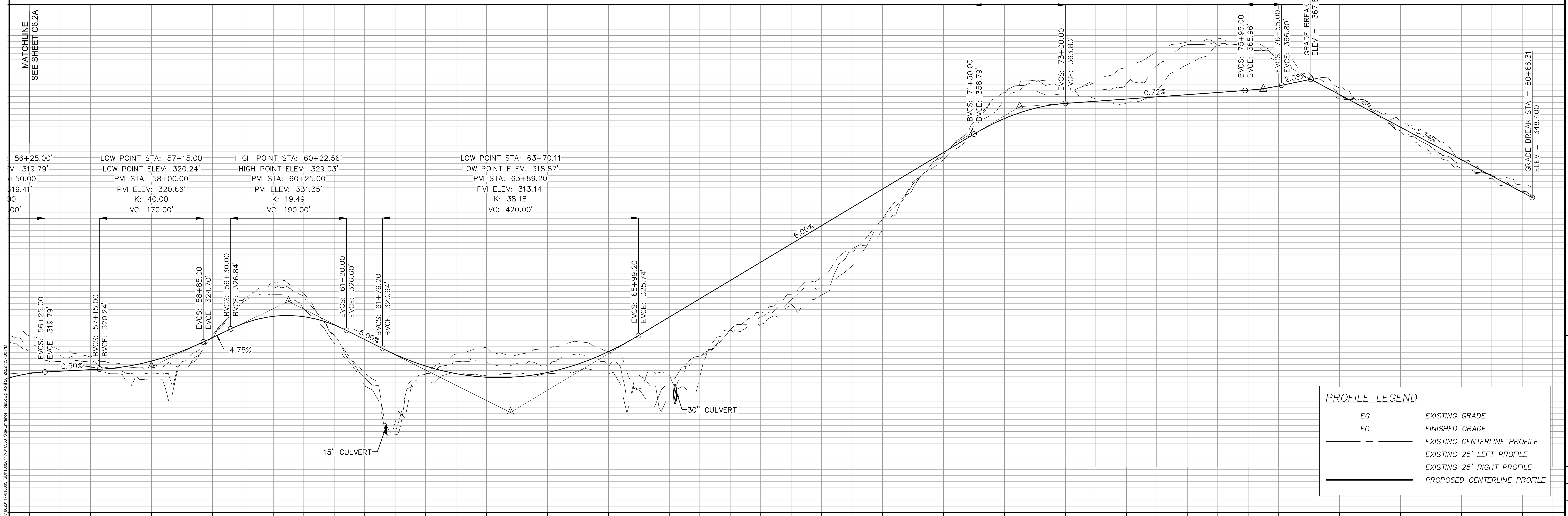

MATCHLINE
SEE SHEET C6.2A
EW.5
PRIMARY
IMPACT
ER - CULVERT 10 (30")
15" ER - CULVERT 9
SCALE HOUSE & SCALES AT
ELEV. 364' TO BE GRADED FLAT
CROSSING GATES
MILLER LANE
PROPOSED HAUL ROAD
56+00
57+00
58+00
59+00
60+00
61+00
62+00
63+00
64+00
65+00
66+00
67+00
68+00
69+00
70+00
71+00
72+00
73+00
74+00
75+00
76+00
77+00
78+00
79+00
80+00
81+00
305
309
315
319
320
321
325
330
331
335
340
345
350
355
360
365
370
GRAPHIC SCALE
(IN FEET)
1 inch = 80ft.


MATCHLINE
SEE SHEET C6.2A
56+25.00'
V: 319.79'
+50.00
19.41'
0
00'
LOW POINT STA: 57+15.00
LOW POINT ELEV: 320.24'
PVI STA: 58+00.00
PVI ELEV: 320.66'
K: 40.00
VC: 170.00'
HIGH POINT STA: 60+22.56'
HIGH POINT ELEV: 329.03'
PVI STA: 60+25.00
PVI ELEV: 331.35'
K: 19.49
VC: 190.00'
LOW POINT STA: 63+70.11
LOW POINT ELEV: 318.87'
PVI STA: 63+89.20
PVI ELEV: 313.14'
K: 38.18
VC: 420.00'
HIGH POINT STA: 73+00.00'
HIGH POINT ELEV: 363.83'
PVI STA: 72+25.00
PVI ELEV: 363.29'
K: 28.42
VC: 150.00'
LOW POINT STA: 75+95.00
LOW POINT ELEV: 365.96'
PVI STA: 76+25.00
PVI ELEV: 366.18'
K: 44.21
VC: 60.00'
EVCS: 56+25.00
EVCE: 319.79'
BVCS: 57+15.00
BVCE: 320.24'
EVCS: 58+85.00
EVCE: 324.70'
BVCS: 59+30.00
BVCE: 326.84'
EVCS: 61+20.00
EVCE: 326.60'
BVCS: 61+79.20
BVCE: 323.64'
EVCS: 65+99.20
EVCE: 325.74'
BVCS: 71+50.00
BVCE: 358.79'
EVCS: 73+00.00
EVCE: 363.83'
BVCS: 75+95.00
BVCE: 365.96'
EVCS: 76+55.00
EVCE: 366.80'
GRADE BREAK STA = 77
ELEV = 367.800
GRADE BREAK STA = 80+66.31
ELEV = 348.400
0.50%
4.75%
-5.00%
6.00%
0.72%
2.08%
-5.34%
15" CULVERT
30" CULVERT
PROFILE LEGEND
EG — EXISTING GRADE
FG — FINISHED GRADE
EXISTING CENTERLINE PROFILE
EXISTING 25' LEFT PROFILE
EXISTING 25' RIGHT PROFILE
PROPOSED CENTERLINE PROFILE

STA	EG	FG
56+00	324.5	319.54
56+50	322.5	319.91
57+00	321.6	320.16
57+50	320.0	320.56
58+00	319.5	321.56
58+50	321.3	323.19
59+00	325.5	325.41
59+50	331.5	327.68
60+00	333.5	328.90
60+50	332.3	328.84
61+00	325.7	327.50
61+50	318.8	325.10
62+00	309.5	322.66
62+50	319.5	320.75
63+00	321.5	319.51
63+50	321.5	318.92
64+00	321.2	318.98
64+50	320.9	319.70
65+00	322.7	321.07
65+50	320.9	323.10
66+00	319.4	325.79
66+50	316.1	328.79
67+00	322.4	331.79
67+50	326.4	334.79
68+00	328.8	337.79
68+50	331.6	340.79
69+00	333.7	343.79
69+50	339.5	346.79
70+00	343.0	349.79
70+50	350.6	352.79
71+00	355.6	355.79
71+50	360.8	358.79
72+00	365.6	361.35
72+50	367.6	363.03
73+00	366.5	363.83
73+50	366.9	364.19
74+00	367.0	364.55
74+50	370.0	364.91
75+00	373.5	365.27
75+50	374.3	365.64
76+00	373.4	366.00
76+50	371.1	366.70
77+00	367.6	367.74
77+50	365.3	365.29
78+00	363.0	362.62
78+50	359.5	359.95
79+00	356.7	357.28
79+50	353.5	354.61
80+00	351.6	351.94
80+50	349.4	349.27
81+00		

COMMONWEALTH OF VIRGINIA
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ENTRANCE ROAD PLAN & PROFILE
(STA. 56+00 - 80+00)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY

CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C6.3A

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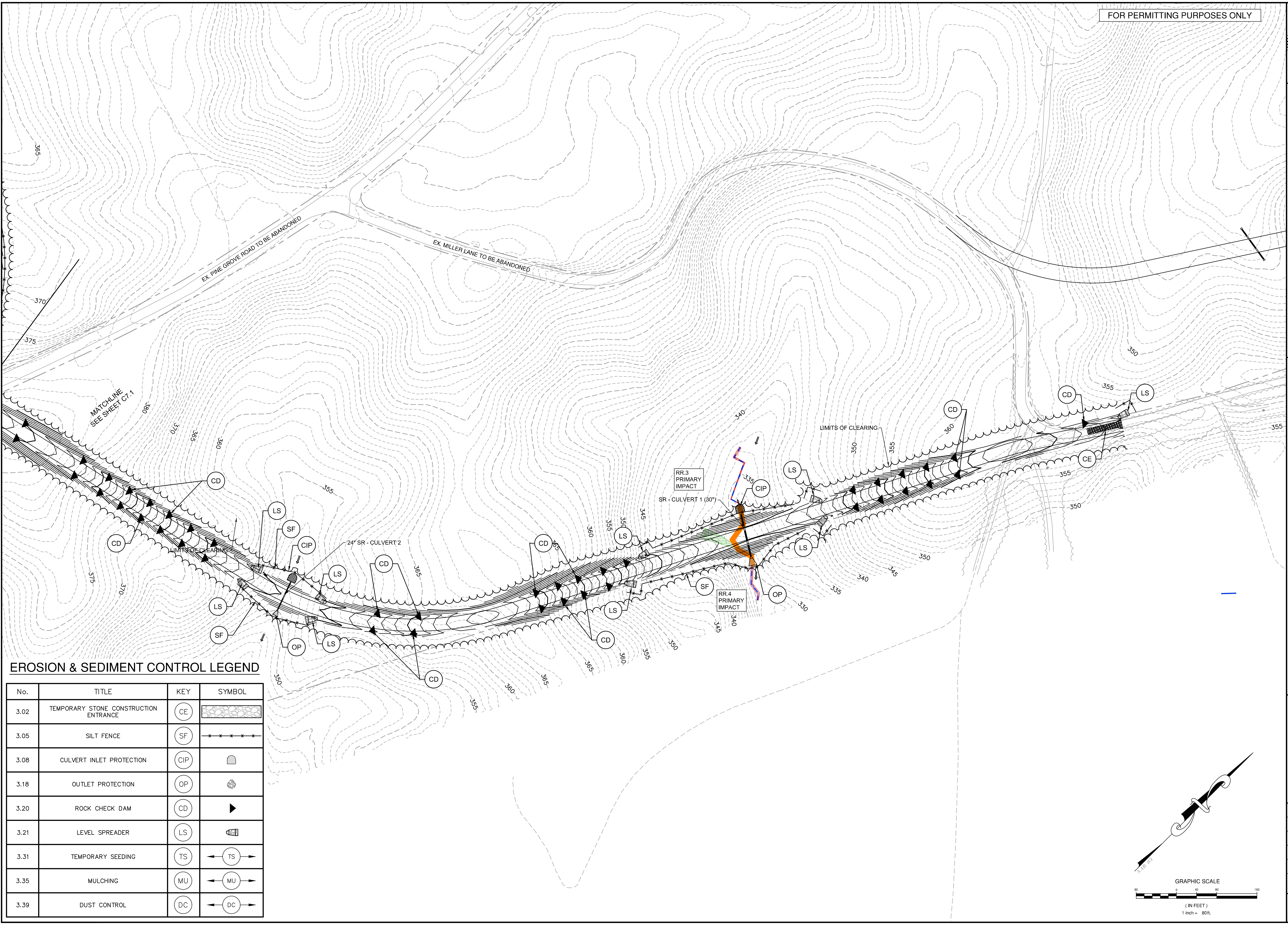
EX. PINE GROVE ROAD TO BE ABANDONED
EX. MILLER LANE TO BE ABANDONED
MATCHLINE SEE SHEET C7.1
LIMITS OF CLEARING
24" SR - CULVERT 2
SR - CULVERT 1 (30")
RR.3 PRIMARY IMPACT
RR.4 PRIMARY IMPACT
CD
LS
SF
CIP
OP
CE
330
335
340
345
350
355
360
365
370
375
380
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80ft.

EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	◠
3.18	OUTLET PROTECTION	OP	●
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▭
3.31	TEMPORARY SEEDING	TS	◄— TS —►
3.35	MULCHING	MU	◄— MU —►
3.39	DUST CONTROL	DC	◄— DC —►

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RELOCATED MILLER LANE ESC PLAN
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

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JPA - RESPONSE 3
APRIL 29, 2022

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PROJECT NUMBER: 18020117-110102

C7.0

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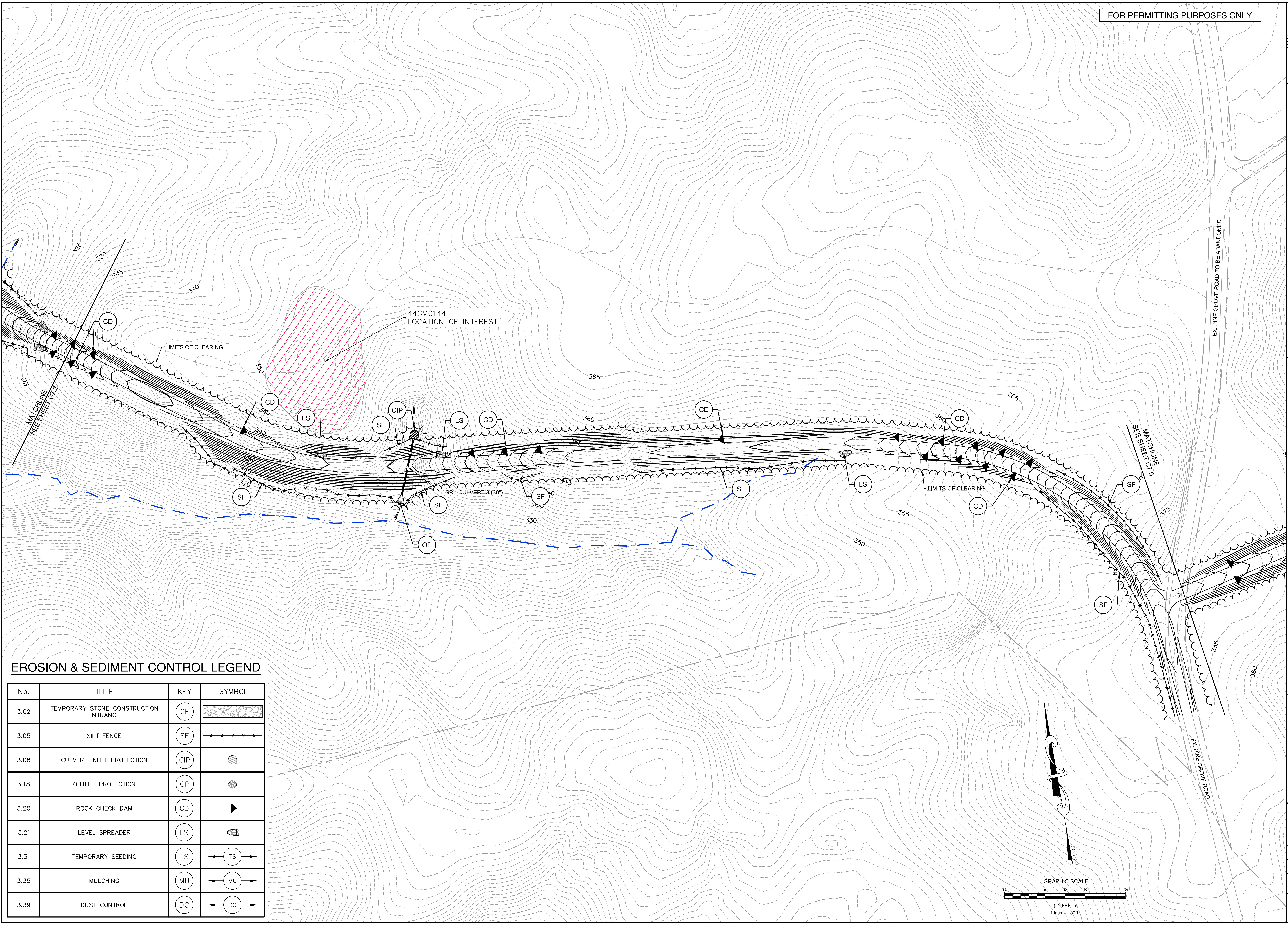
325
330
335
340
350
CD
LIMITS OF CLEARING
44CM0144
LOCATION OF INTEREST
365
MATCHLINE
SEE SHEET C7.2
325
CD
LS
345
340
330
325
320
SF
CIP
SF
LS
CD
360
355
SR - CULVERT 3 (30")
SF
SF
345
340
335
330
OP
CD
SF
LS
355
350
360
CD
365
LIMITS OF CLEARING
CD
MATCHLINE
SEE SHEET C7.0
SF
375
SF
385
380
EX. PINE GROVE ROAD TO BE ABANDONED
EX. PINE GROVE ROAD
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80 ft.

EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	◒
3.18	OUTLET PROTECTION	OP	●
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▭
3.31	TEMPORARY SEEDING	TS	◄— TS —►
3.35	MULCHING	MU	◄— MU —►
3.39	DUST CONTROL	DC	◄— DC —►

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RELOCATED PINE GROVE ROAD ESC PLAN
(SHEET 1 OF 2)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C7.1

EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	◠
3.18	OUTLET PROTECTION	OP	●
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▭
3.31	TEMPORARY SEEDING	TS	◄— TS —►
3.35	MULCHING	MU	◄— MU —►
3.39	DUST CONTROL	DC	◄— DC —►

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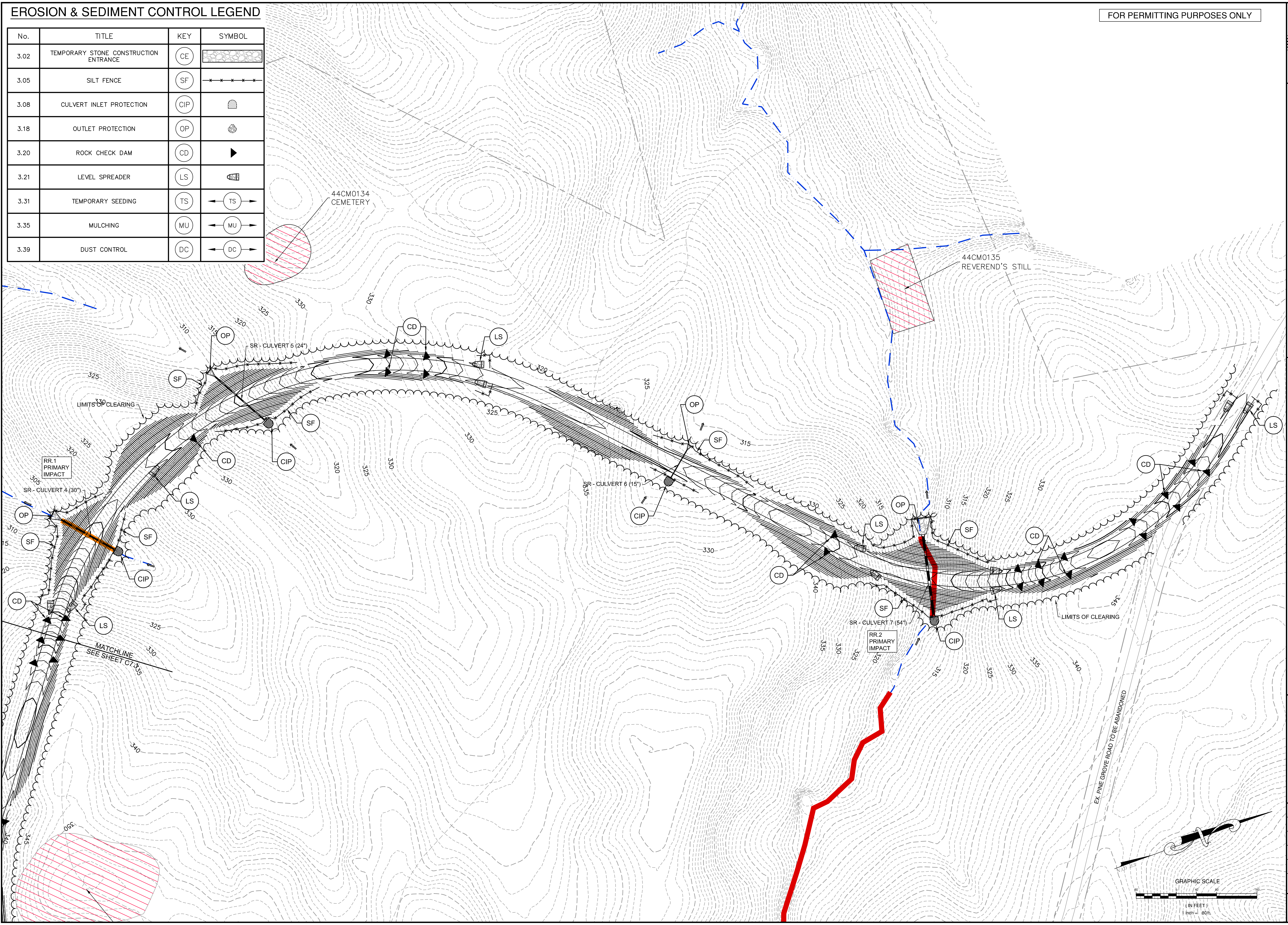
44CM0134
CEMETERY
44CM0135
REVEREND'S STILL
SR - CULVERT 5 (24")
SR - CULVERT 4 (30")
SR - CULVERT 6 (15")
SR - CULVERT 7 (54")
RR.1
PRIMARY
IMPACT
RR.2
PRIMARY
IMPACT
LIMITS OF CLEARING
LIMITS OF CLEARING
MATCHLINE
SEE SHEET C7.1
EX. PINE GROVE ROAD TO BE ABANDONED
OP
SF
CIP
CD
LS
310
315
320
325
330
335
340
345
NAD 83
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80 ft.

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RELOCATED PINE GROVE ROAD ESC PLAN
(SHEET 2 OF 2)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY

CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

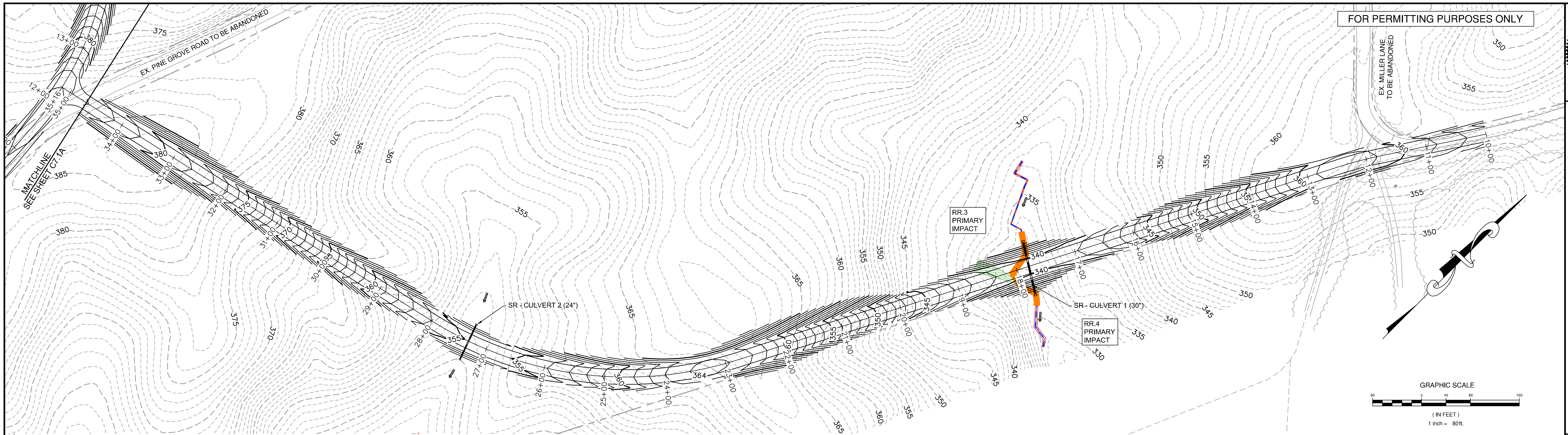
JPA - RESPONSE 2
JANUARY 11, 2022

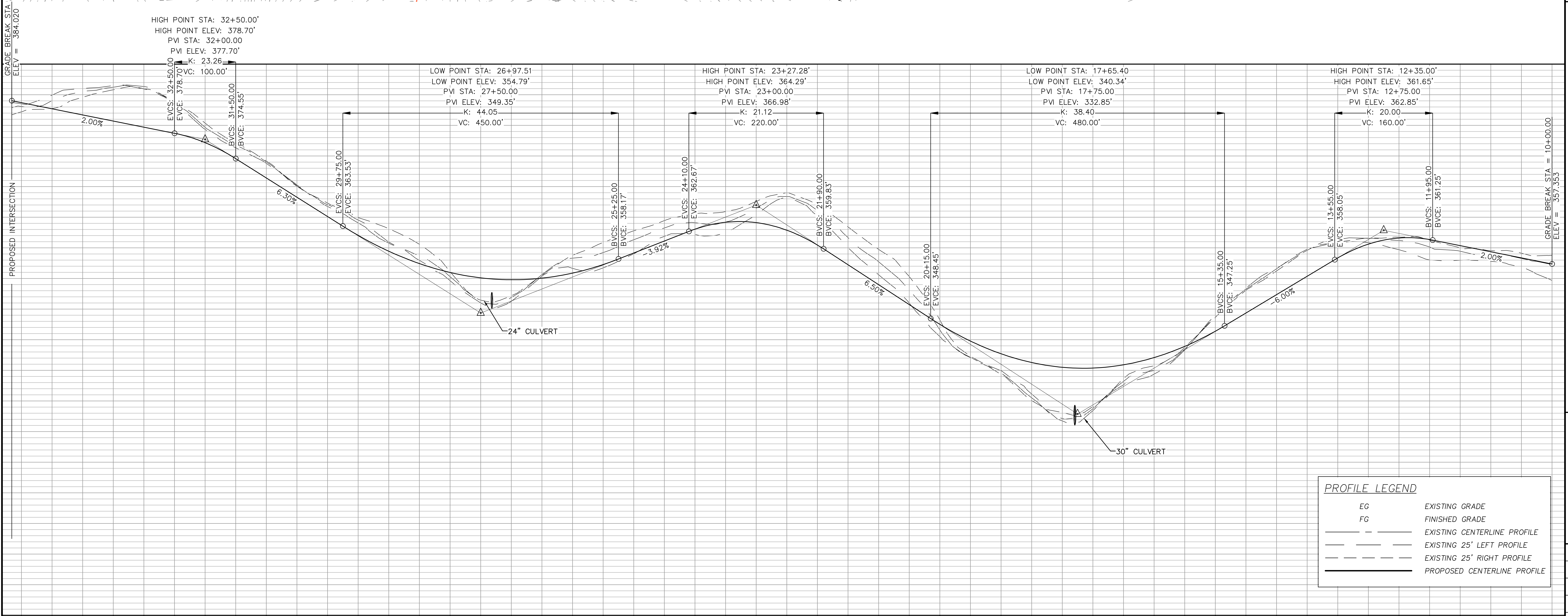
JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY:	EEH
DRAWN BY:	EEH
CHECKED BY:	GWC
SCALE:	1" = 80'
DATE:	SEPTEMBER 30, 2021
PROJECT NUMBER:	18020117-110102

C7.2

FOR PERMITTING PURPOSES ONLY





PROFILE LEGEND

EG	*EXISTING GRADE*
FG	*FINISHED GRADE*
——— — ———	*EXISTING CENTERLINE PROFILE*
—— —— ——	*EXISTING 25' LEFT PROFILE*
— — — — —	*EXISTING 25' RIGHT PROFILE*
————	*PROPOSED CENTERLINE PROFILE*

Station	EG	FG
35+00	EG: 383.1	FG: 383.08
34+50	EG: 384.0	FG: 384.04
34+00	EG: 385.5	FG: 385.54
33+50	EG: 386.2	FG: 386.23
33+00	EG: 386.3	FG: 386.34
32+50	EG: 383.7	FG: 383.68
32+00	EG: 379.7	FG: 379.67
31+50	EG: 376.8	FG: 376.76
31+00	EG: 374.0	FG: 374.01
30+50	EG: 370.1	FG: 370.14
30+00	EG: 366.8	FG: 366.75
29+50	EG: 364.1	FG: 364.07
29+00	EG: 360.8	FG: 360.76
28+50	EG: 358.7	FG: 358.67
28+00	EG: 355.3	FG: 355.31
27+50	EG: 351.4	FG: 351.41
27+00	EG: 351.9	FG: 351.89
26+50	EG: 355.6	FG: 355.61
26+00	EG: 358.3	FG: 358.31
25+50	EG: 359.2	FG: 359.23
25+00	EG: 361.3	FG: 361.31
24+50	EG: 363.2	FG: 363.24
24+00	EG: 364.1	FG: 364.09
23+50	EG: 364.2	FG: 364.21
23+00	EG: 366.5	FG: 366.46
22+50	EG: 368.4	FG: 368.36
22+00	EG: 366.1	FG: 366.11
21+50	EG: 361.7	FG: 361.66
21+00	EG: 357.7	FG: 357.72
20+50	EG: 353.1	FG: 353.11
20+00	EG: 346.6	FG: 346.61
19+50	EG: 342.1	FG: 342.08
19+00	EG: 339.6	FG: 339.56
18+50	EG: 335.5	FG: 335.51
18+00	EG: 332.1	FG: 332.13
17+50	EG: 333.7	FG: 333.74
17+00	EG: 338.2	FG: 338.19
16+50	EG: 340.0	FG: 339.96
16+00	EG: 343.5	FG: 343.49
15+50	EG: 348.8	FG: 348.78
15+00	EG: 353.3	FG: 353.26
14+50	EG: 356.6	FG: 356.58
14+00	EG: 359.8	FG: 359.75
13+50	EG: 361.3	FG: 361.33
13+00	EG: 361.6	FG: 361.55
12+50	EG: 361.2	FG: 361.20
12+00	EG: 360.1	FG: 360.14
11+50	EG: 359.4	FG: 359.44
11+00	EG: 358.7	FG: 358.73
10+50	EG: 358.3	FG: 358.26
10+00	EG: 357.4	FG: 357.35

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DATE: SEPTEMBER 30, 2021
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C7.0A

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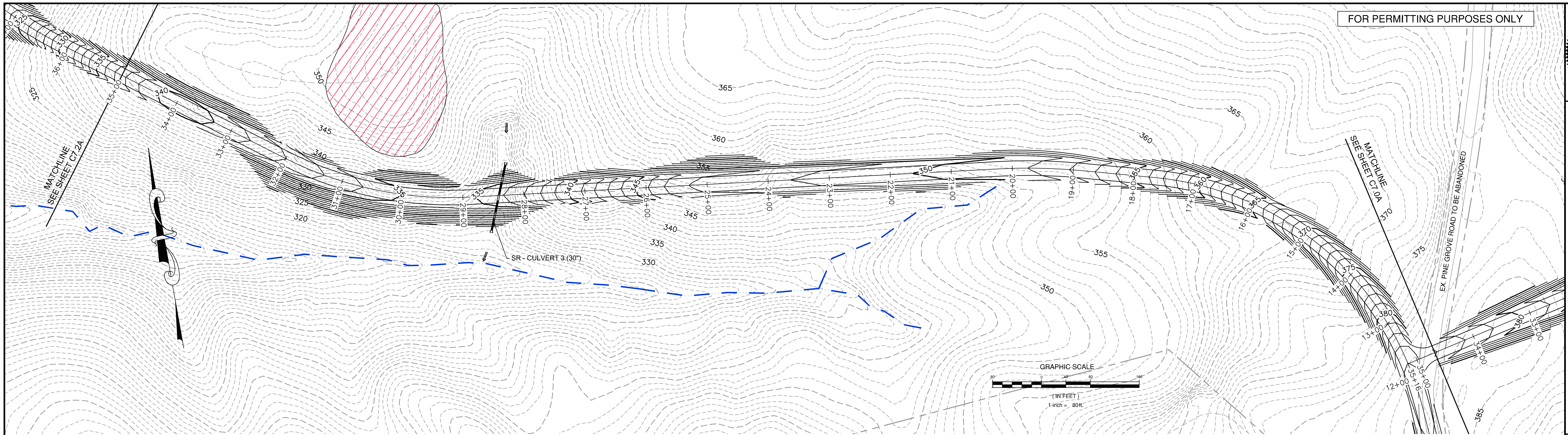
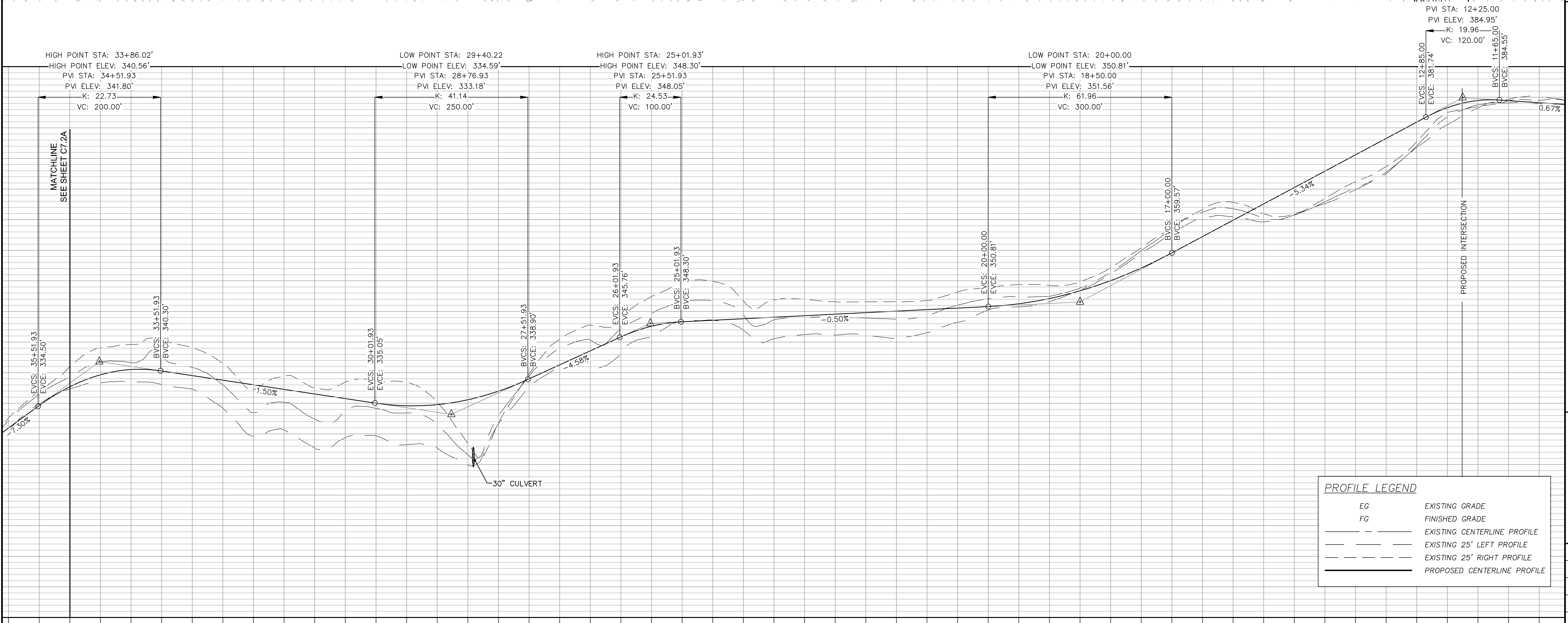

MATCHLINE SEE SHEET C7.2A
MATCHLINE SEE SHEET C7.0A
SR - CULVERT 3 (30")
EX PINE GROVE ROAD TO BE ABANDONED
GRAPHIC SCALE
(IN FEET)
1 inch = 80ft.
36+00
35+00
34+00
33+00
32+00
31+00
30+00
29+00
28+00
27+00
26+00
25+00
24+00
23+00
22+00
21+00
20+00
19+00
18+00
17+00
16+00
15+00
14+00
13+00
12+00
35+16
35+00
34+00
33+00
320
325
330
335
340
345
350
355
360
365
370
375
380
385



PROFILE LEGEND

EG	*EXISTING GRADE*
FG	*FINISHED GRADE*
——— – ———	*EXISTING CENTERLINE PROFILE*
—— —— ——	*EXISTING 25' LEFT PROFILE*
— — — —	*EXISTING 25' RIGHT PROFILE*
————	*PROPOSED CENTERLINE PROFILE*

Station	EG	FG
6+00	332.2	332.19
35+50	336.5	336.49
35+00	339.3	339.31
34+50	341.7	341.69
34+00	341.6	341.65
33+50	342.6	342.64
33+00	340.9	340.86
32+50	338.0	338.01
32+00	333.5	333.49
31+50	335.2	335.16
31+00	332.4	332.42
30+50	334.0	333.97
30+00	334.2	334.17
29+50	333.4	333.43
29+00	331.5	331.48
28+50	326.6	326.60
28+00	333.0	333.02
27+50	339.4	339.42
27+00	344.0	343.95
26+50	345.3	345.35
26+00	347.1	347.14
25+50	349.6	349.62
25+00	351.5	351.48
24+50	351.7	351.68
24+00	349.5	349.51
23+50	348.7	348.65
23+00	349.0	349.01
22+50	348.9	348.89
22+00	348.9	348.93
21+50	348.7	348.75
21+00	349.2	349.22
20+50	351.0	351.03
20+00	352.1	352.07
19+50	352.4	352.41
19+00	352.5	352.48
18+50	353.8	353.82
18+00	356.4	356.41
17+50	359.9	359.92
17+00	363.5	363.53
16+50	366.2	366.22
16+00	366.8	366.78
15+50	365.3	365.32
15+00	365.7	365.74
14+50	367.9	367.93
14+00	370.2	370.19
13+50	372.5	372.49
13+00	377.0	377.04
12+50	381.7	381.74
12+00	383.8	383.76
11+50	384.1	384.08
11+00	383.9	383.94

P:\2018\1802\0100\18020117\18020117-010303\CAD\18020117-010303_SDI\18020117-010303_Site-Secondary Road.dwg April 28, 2022 1:39:04 PM

COMMONWEALTH OF VIRGINIA
GLENN W. CUSTIS
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PROFESSIONAL ENGINEER

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RELOCATED PINE GROVE ROAD PLAN & PROFILE
(STA. 12+00 - 35+00)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY

CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

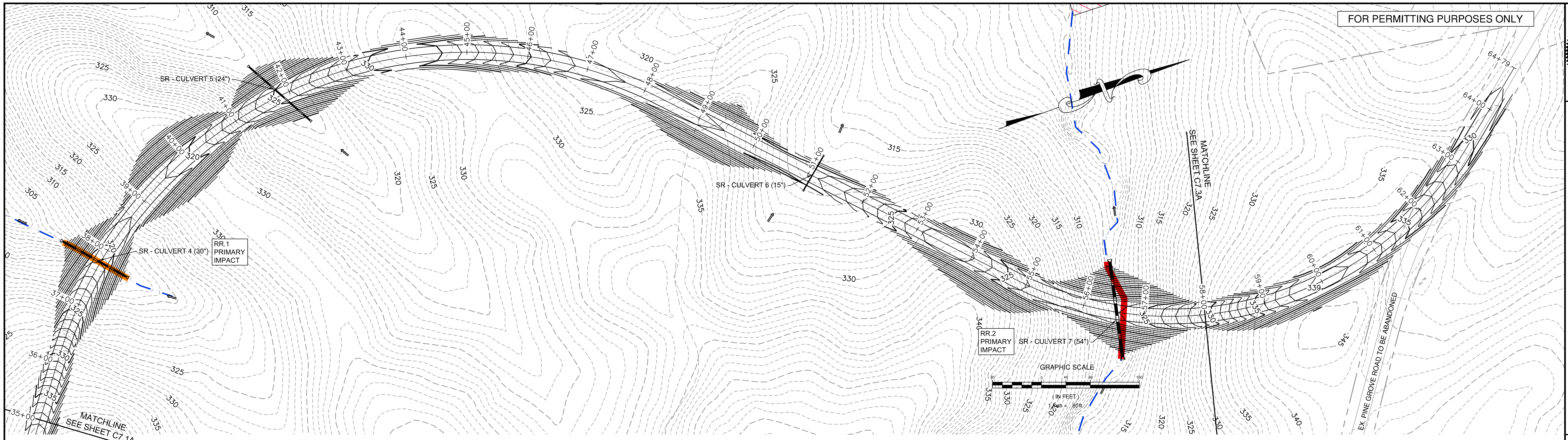
JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C7.1A

FOR PERMITTING PURPOSES ONLY


SR - CULVERT 5 (24")
SR - CULVERT 4 (30")
RR.1
PRIMARY
IMPACT
SR - CULVERT 6 (15")
RR.2
PRIMARY
IMPACT
SR - CULVERT 7 (54")
MATCHLINE
SEE SHEET C7.3A
MATCHLINE
SEE SHEET C7.1A
EX. PINE GROVE ROAD TO BE ABANDONED
GRAPHIC SCALE
(IN FEET)
1 inch = 80ft.
35+00
36+00
39+00
40+00
41+00
42+00
43+00
44+00
45+00
46+00
47+00
48+00
49+00
50+00
51+00
52+00
53+00
54+00
55+00
56+00
57+00
58+00
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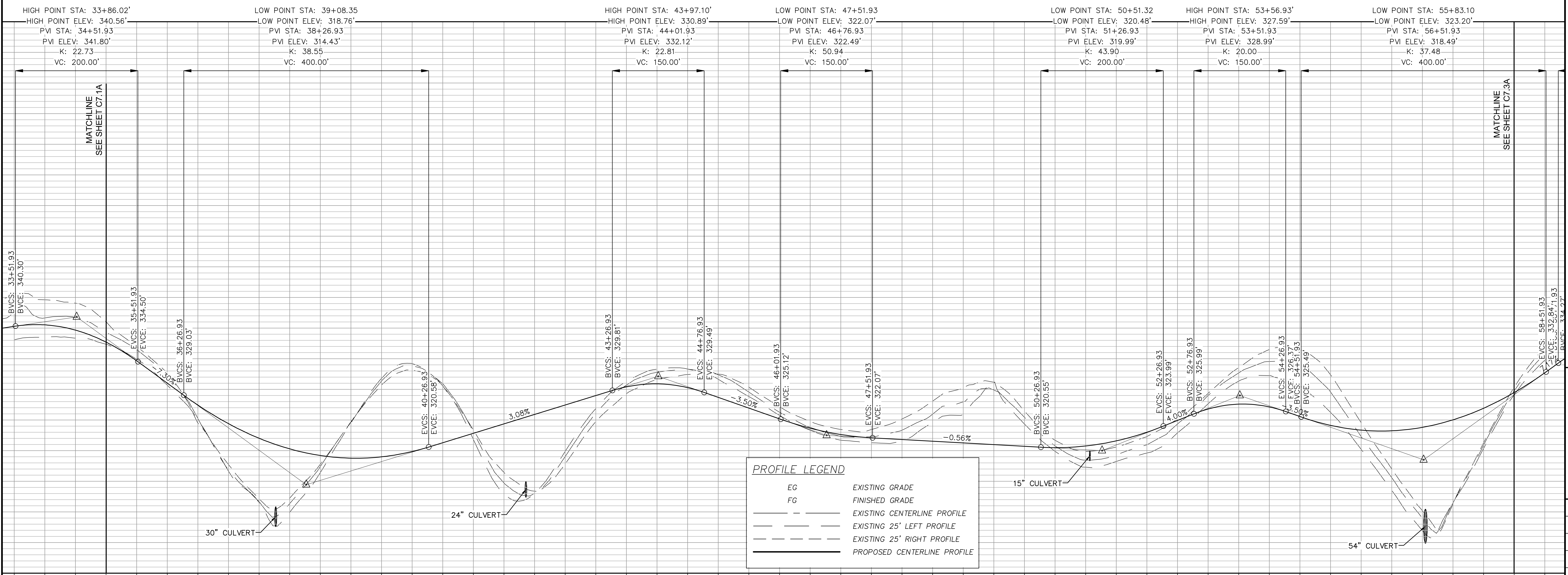
320
325
330
335
340
345



PROFILE LEGEND

EG	*EXISTING GRADE*
FG	*FINISHED GRADE*
———— — ————	*EXISTING CENTERLINE PROFILE*
——— ——— ———	*EXISTING 25' LEFT PROFILE*
— — — — —	*EXISTING 25' RIGHT PROFILE*
━━━━━━━━	*PROPOSED CENTERLINE PROFILE*

33+50	EG: 342.6	FG: 342.64
34+00	EG: 341.6	FG: 341.65
34+50	EG: 341.7	FG: 341.69
35+00	EG: 339.3	FG: 339.31
35+50	EG: 336.5	FG: 336.49
36+00	EG: 332.2	FG: 332.19
36+50	EG: 325.2	FG: 325.22
37+00	EG: 316.8	FG: 316.84
37+50	EG: 311.7	FG: 311.67
38+00	EG: 311.4	FG: 311.36
38+50	EG: 317.4	FG: 317.43
39+00	EG: 324.6	FG: 324.63
39+50	EG: 331.4	FG: 331.36
40+00	EG: 333.8	FG: 333.81
40+50	EG: 330.9	FG: 330.90
41+00	EG: 323.0	FG: 323.05
41+50	EG: 314.7	FG: 314.69
42+00	EG: 313.0	FG: 313.05
42+50	EG: 319.1	FG: 319.05
43+00	EG: 326.1	FG: 326.07
43+50	EG: 330.7	FG: 330.68
44+00	EG: 332.8	FG: 332.77
44+50	EG: 333.3	FG: 333.31
45+00	EG: 332.4	FG: 332.37
45+50	EG: 329.5	FG: 329.54
46+00	EG: 326.3	FG: 326.27
46+50	EG: 323.8	FG: 323.80
47+00	EG: 322.3	FG: 322.32
47+50	EG: 322.3	FG: 322.28
48+00	EG: 323.3	FG: 323.32
48+50	EG: 325.9	FG: 325.94
49+00	EG: 328.0	FG: 327.96
49+50	EG: 329.9	FG: 329.88
50+00	EG: 325.4	FG: 325.43
50+50	EG: 320.8	FG: 320.77
51+00	EG: 318.5	FG: 318.45
51+50	EG: 319.3	FG: 319.30
52+00	EG: 320.9	FG: 320.95
52+50	EG: 324.3	FG: 324.33
53+00	EG: 329.0	FG: 329.01
53+50	EG: 332.7	FG: 332.68
54+00	EG: 334.5	FG: 334.53
54+50	EG: 333.8	FG: 333.82
55+00	EG: 329.6	FG: 329.59
55+50	EG: 322.3	FG: 322.29
56+00	EG: 315.6	FG: 315.58
56+50	EG: 309.0	FG: 308.97
57+00	EG: 311.5	FG: 311.46
57+50	EG: 320.9	FG: 320.90
58+00	EG: 329.8	FG: 329.76
58+50	EG: 335.9	FG: 335.88

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RELOCATED PINE GROVE ROAD PLAN & PROFILE (STA. 35+00 - 58+00)
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REVISIONS

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MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
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CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C7.2A

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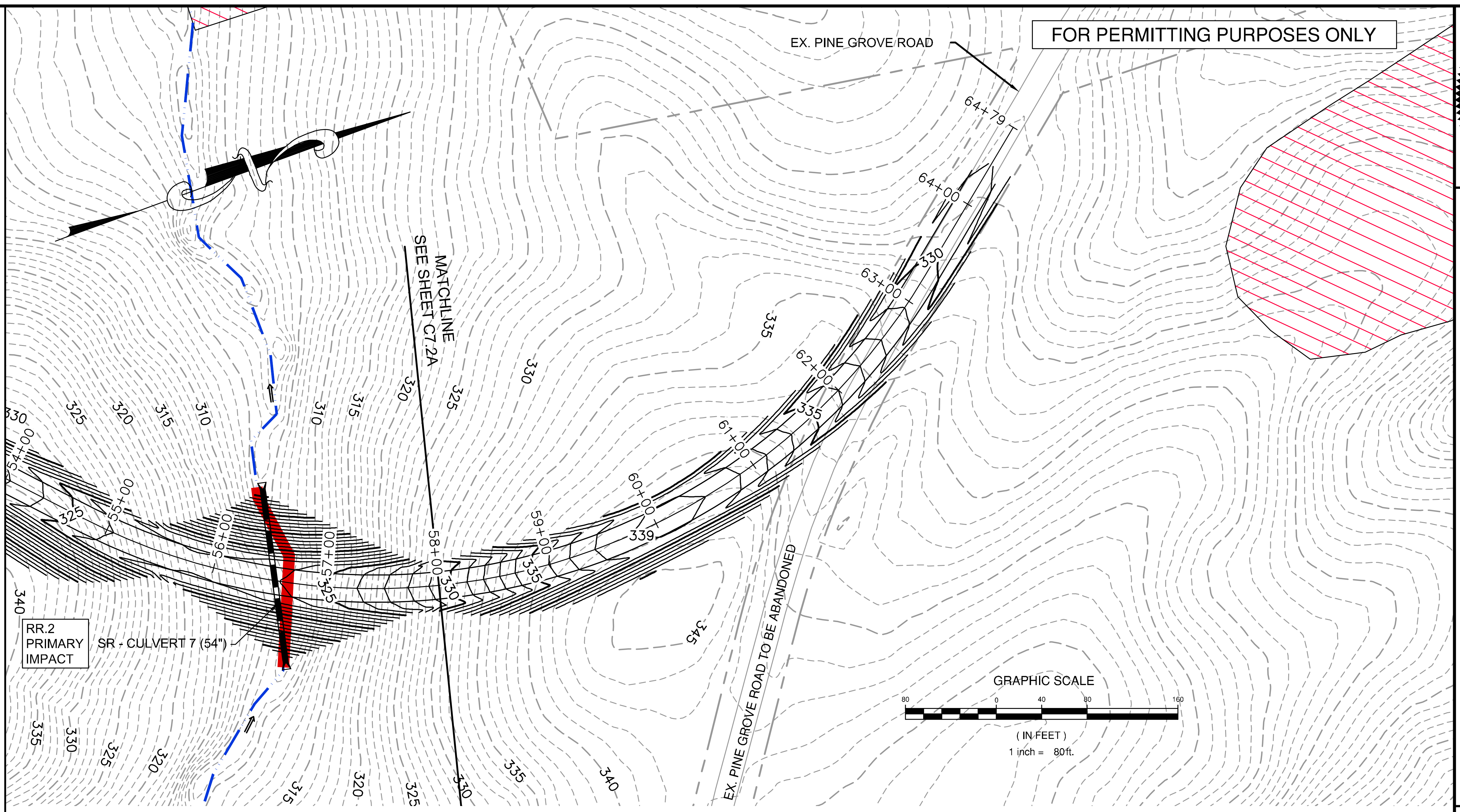
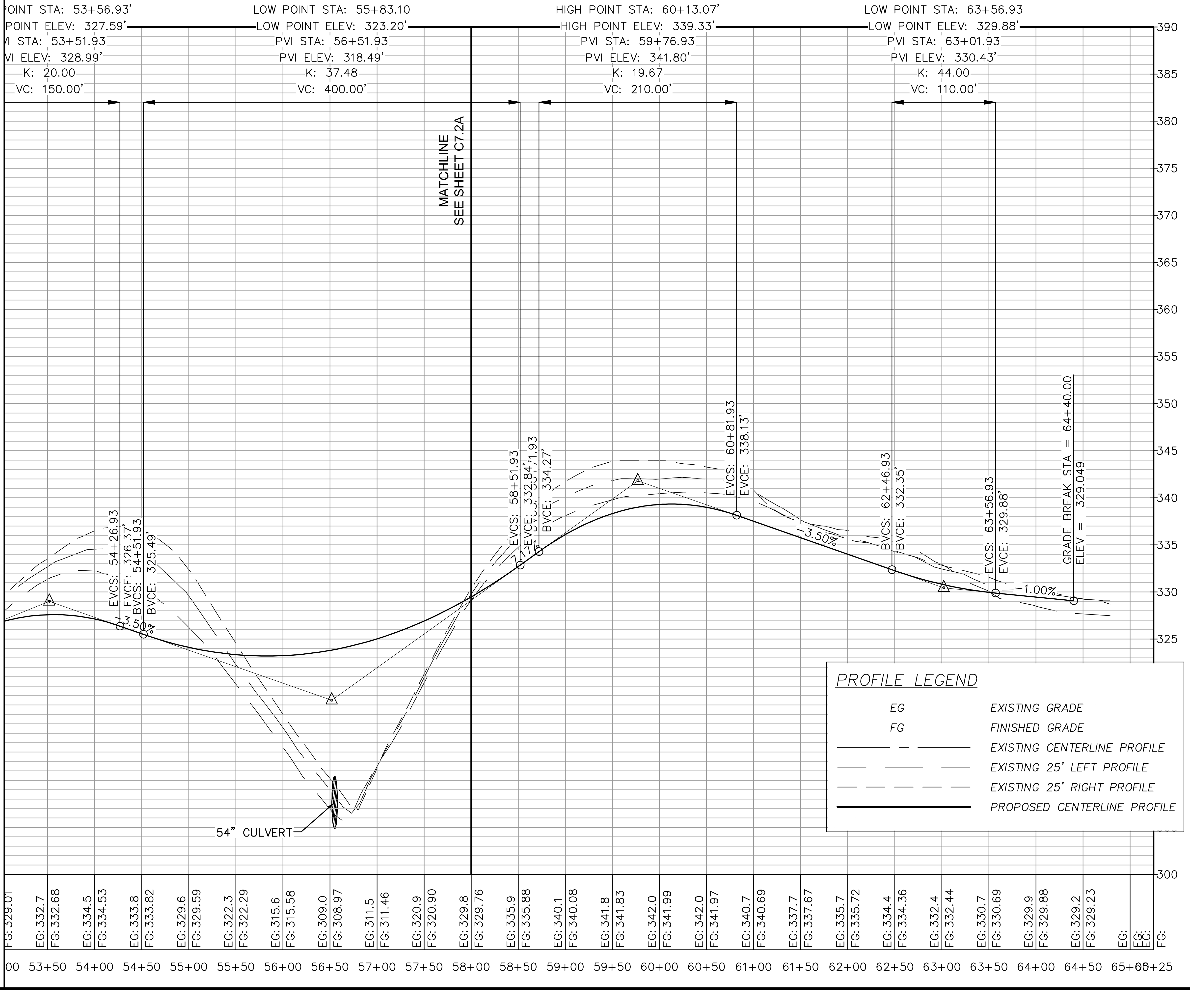

EX. PINE GROVE ROAD
64+79
64+00
63+00
62+00
61+00
60+00
59+00
58+00
57+00
56+00
MATCHLINE
SEE SHEET C7.2A
330
335
339
340
345
325
320
315
310
RR.2
PRIMARY
IMPACT
SR - CULVERT 7 (54")
EX. PINE GROVE ROAD TO BE ABANDONED
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80ft.



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CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
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DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C7.3A

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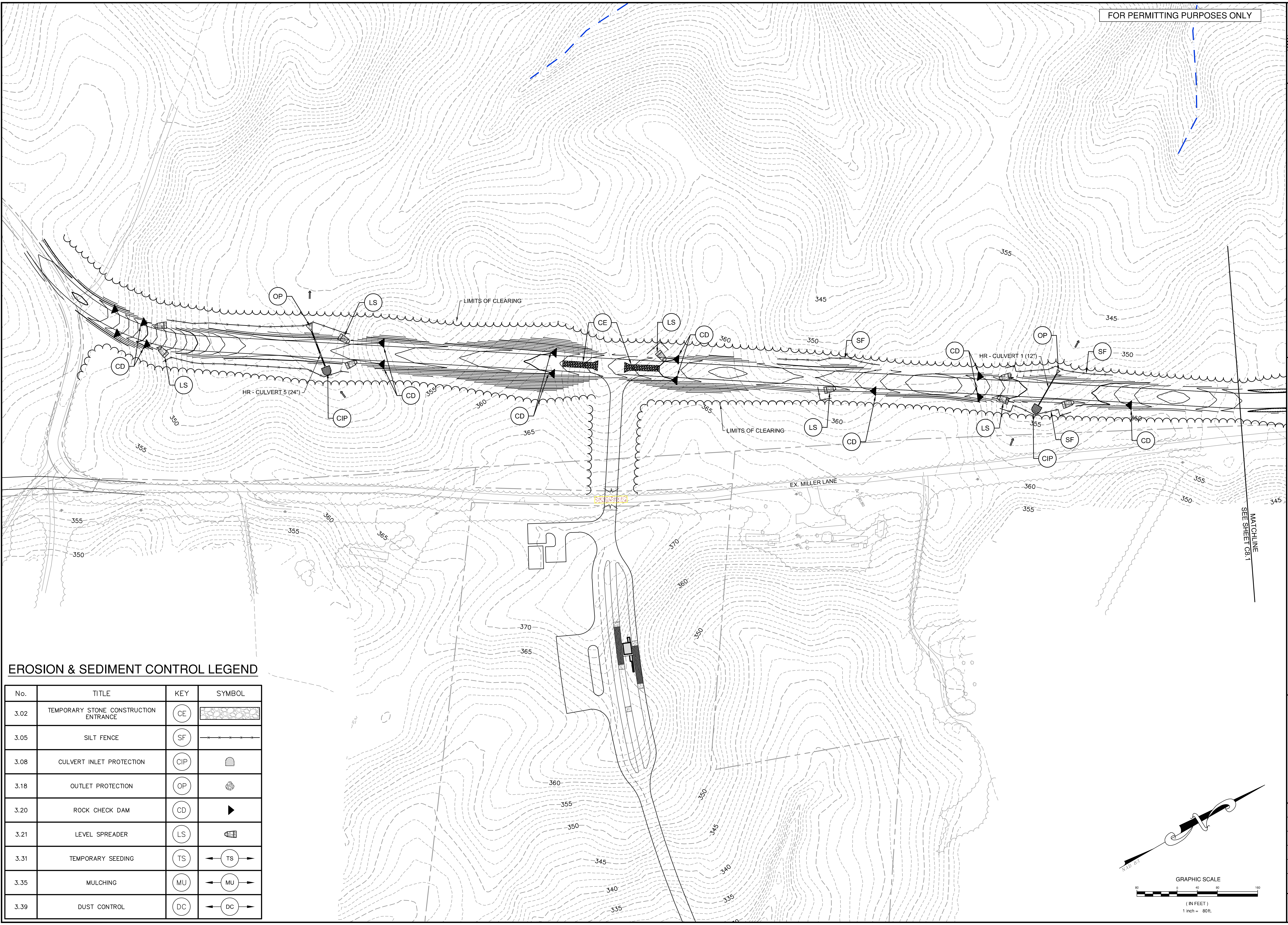
LIMITS OF CLEARING
OP
LS
CE
LS
CD
SF
OP
SF
CD
HR - CULVERT 1 (12")
CD
LS
HR - CULVERT 5 (24")
CIP
CD
CD
LIMITS OF CLEARING
LS
CD
LS
SF
CD
CIP
EX. MILLER LANE
MATCHLINE
SEE SHEET C8.1
370
365
360
355
350
345
340
335
NAD 83
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80ft.

EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	▨
3.18	OUTLET PROTECTION	OP	●
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▨
3.31	TEMPORARY SEEDING	TS	◄— TS —►
3.35	MULCHING	MU	◄— MU —►
3.39	DUST CONTROL	DC	◄— DC —►

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HAUL ROAD ESC PLAN (SHEET 1 OF 3)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

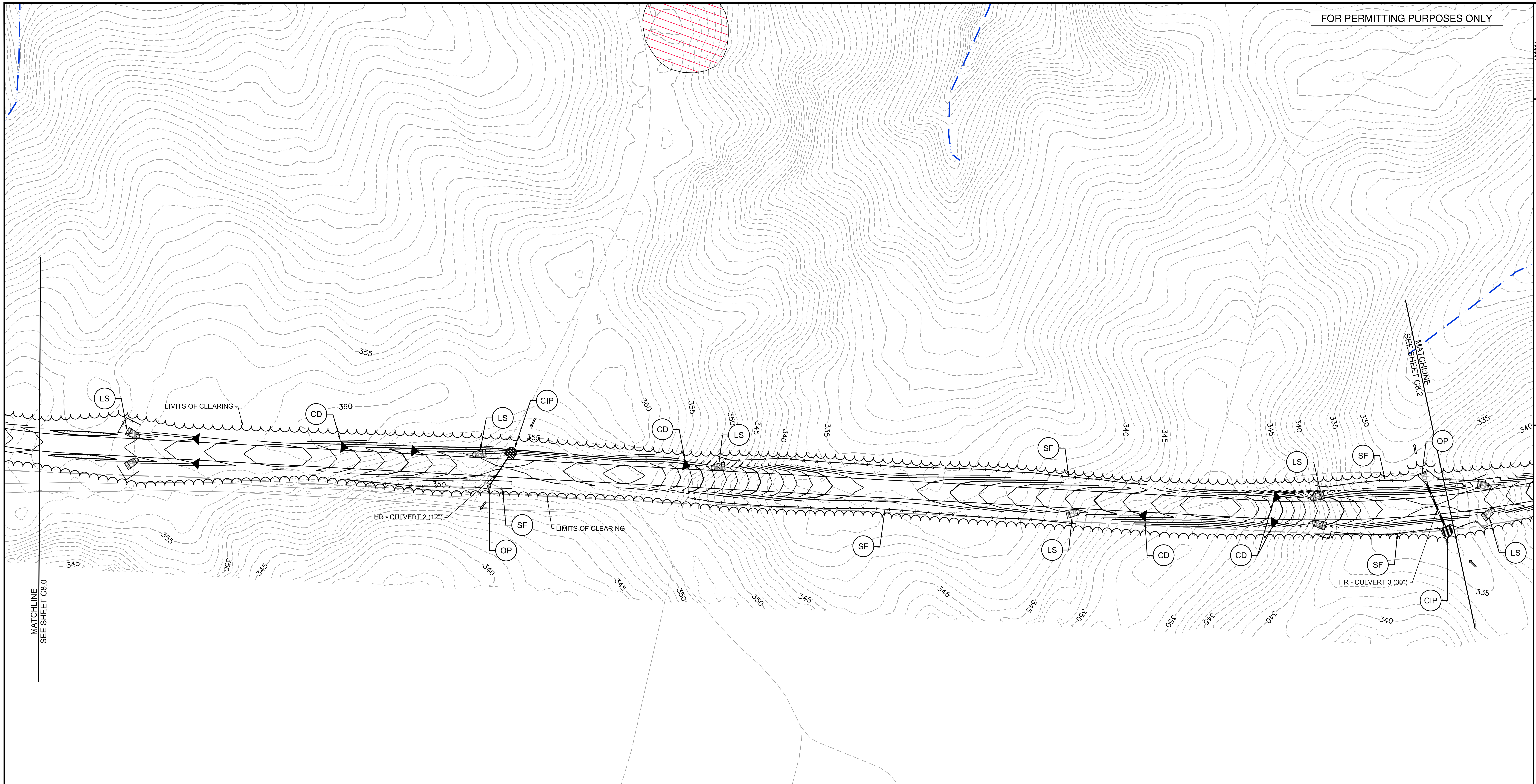
JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

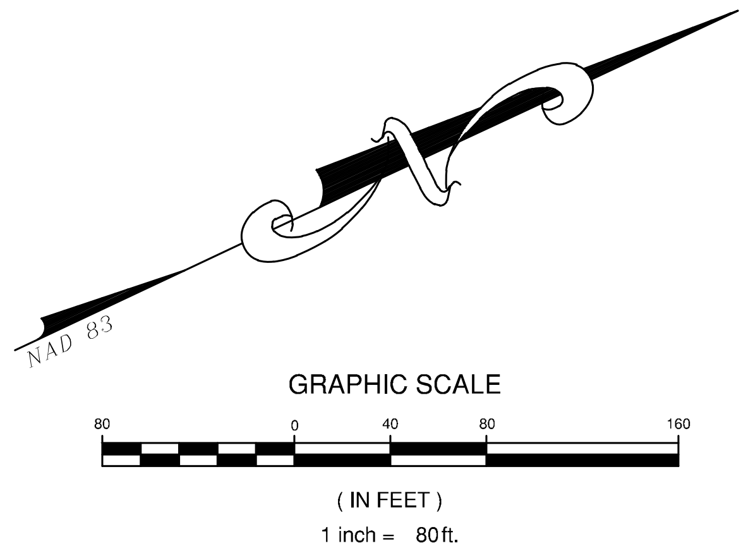
C8.0

FOR PERMITTING PURPOSES ONLY


LS
LIMITS OF CLEARING
CD
360
355
CIP
LS
355
360
355
CD
350
LS
345
340
335
SF
340
345
345
340
335
330
LS
SF
OP
335
340
MATCHLINE
SEE SHEET C8.2
350
HR - CULVERT 2 (12")
SF
LIMITS OF CLEARING
OP
355
345
350
345
340
345
350
SF
350
345
LS
CD
CD
345
350
345
340
SF
HR - CULVERT 3 (30")
CIP
LS
335
340
MATCHLINE
SEE SHEET C8.0

EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	▨
3.18	OUTLET PROTECTION	OP	▨
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▨
3.31	TEMPORARY SEEDING	TS	◄— TS —►
3.35	MULCHING	MU	◄— MU —►
3.39	DUST CONTROL	DC	◄— DC —►


NAD 83
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80 ft.

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Lic. No. 8039

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HAUL ROAD ESC PLAN (SHEET 2 OF 3)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C8.1

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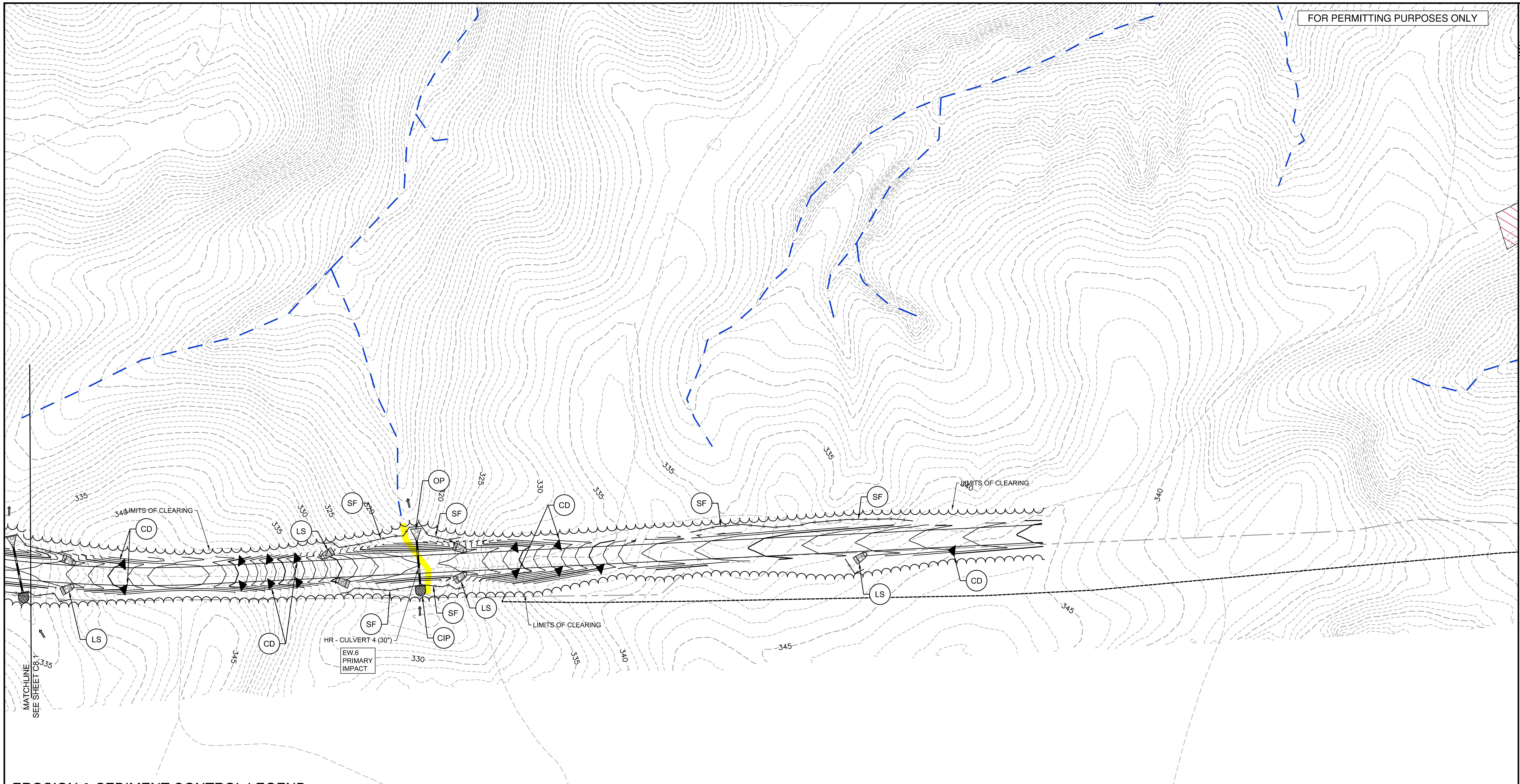
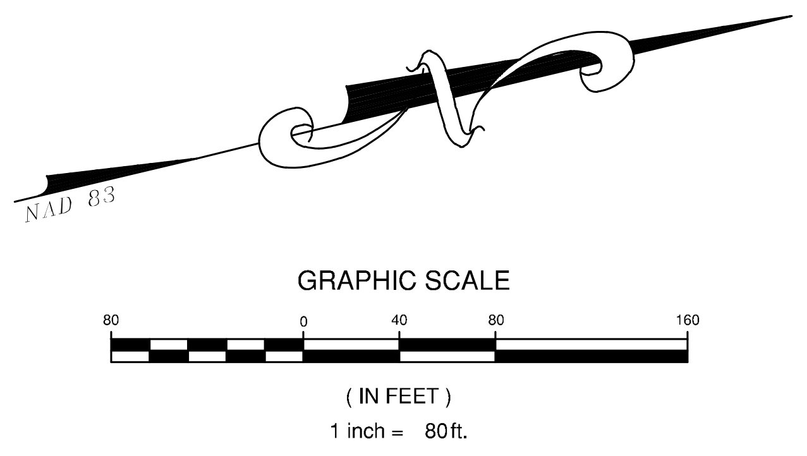

OP
SF
CD
LS
CIP
LIMITS OF CLEARING
LIMITS OF CLEARING
LIMITS OF CLEARING
HR - CULVERT 4 (30")
EW.6
PRIMARY
IMPACT
MATCHLINE
SEE SHEET C8.1
320
325
330
335
340
345

EROSION & SEDIMENT CONTROL LEGEND

No.	TITLE	KEY	SYMBOL
3.02	TEMPORARY STONE CONSTRUCTION ENTRANCE	CE	▨
3.05	SILT FENCE	SF	—×—×—×—
3.08	CULVERT INLET PROTECTION	CIP	◓
3.18	OUTLET PROTECTION	OP	●
3.20	ROCK CHECK DAM	CD	▶
3.21	LEVEL SPREADER	LS	▭
3.31	TEMPORARY SEEDING	TS	◄—TS—►
3.35	MULCHING	MU	◄—MU—►
3.39	DUST CONTROL	DC	◄—DC—►


NAD 83
GRAPHIC SCALE
80
0
40
80
160
(IN FEET)
1 inch = 80ft.

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Lic. No. 8039

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HAUL ROAD ESC PLAN (SHEET 3 OF 3)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C8.2

P:\2018\1802\0100\18020117\18020117-010303\CAD\18020117-010303_SDI\18020117-010303_ESC_Haul Road.dwg April 28, 2022 1:40:20 PM

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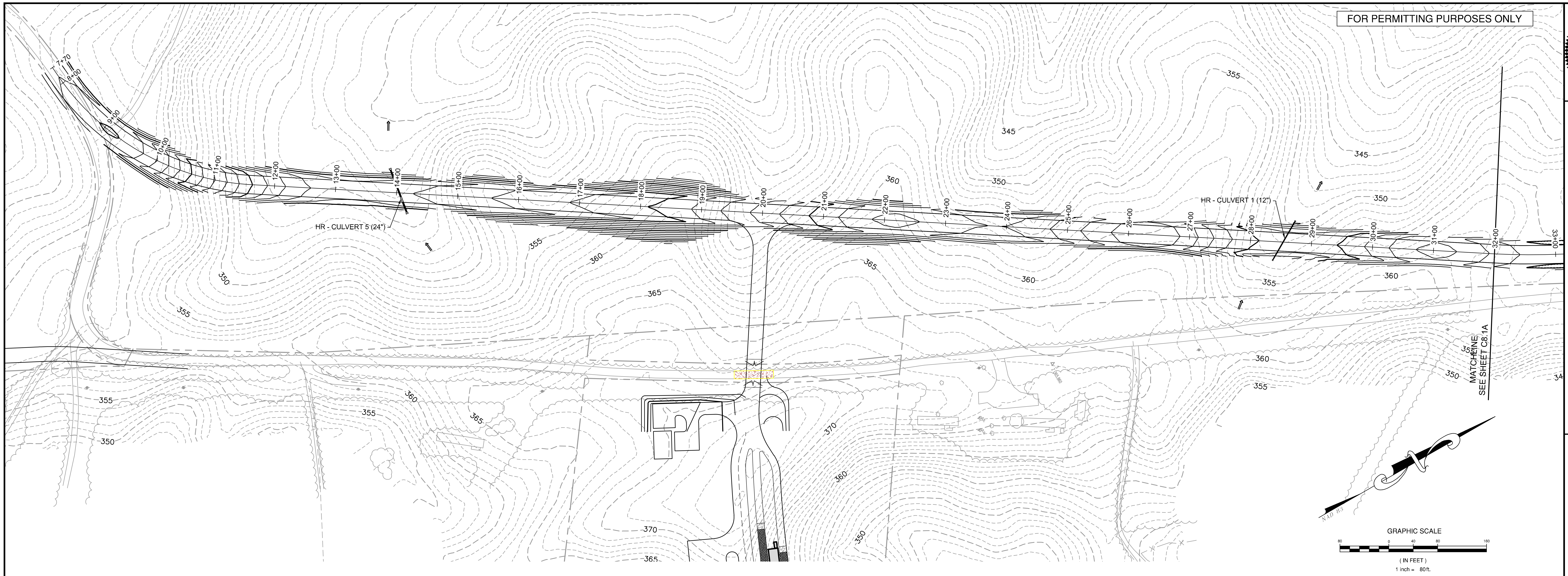
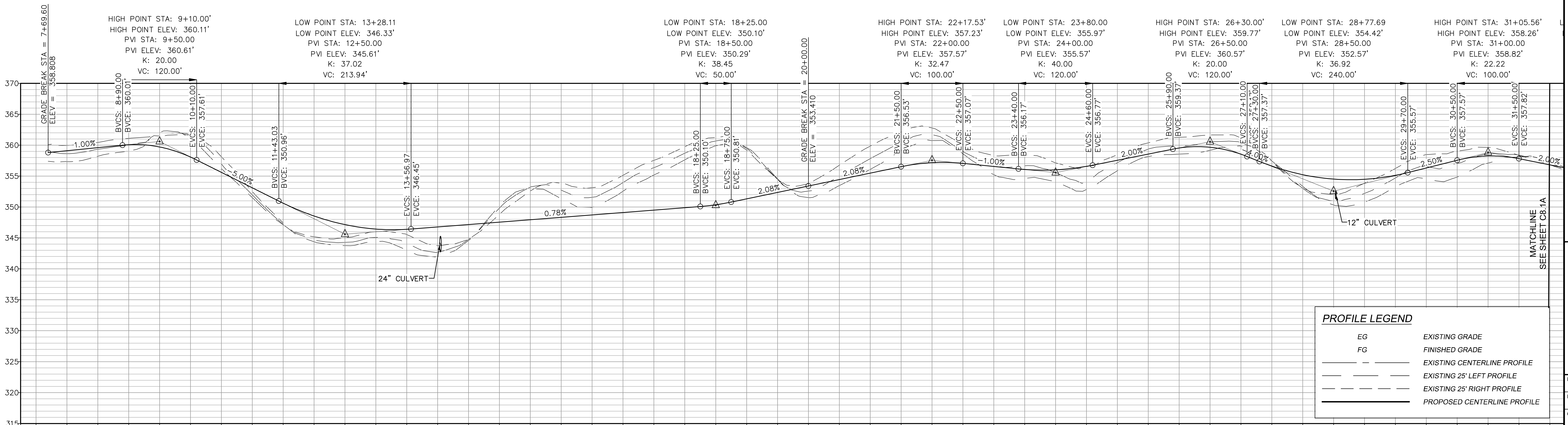


7+70
8+00
9+00
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00
32+00
33+00
HR - CULVERT 5 (24")
HR - CULVERT 1 (12")
MATCHLINE SEE SHEET C8.1A
345
350
355
360
365
370
GRAPHIC SCALE
(IN FEET)
1 inch = 80ft.



	EG:	FG:
7+25		
7+50		
8+00	358.6	359.11
8+50	359.3	359.61
9+00	360.0	360.09
9+50	362.0	359.71
10+00	361.6	358.09
10+50	357.0	355.61
11+00	352.0	353.11
11+50	347.2	350.62
12+00	344.7	348.55
12+50	344.3	347.16
13+00	345.1	346.44
13+50	344.1	346.40
14+00	342.7	346.78
14+50	344.8	347.17
15+00	349.8	347.56
15+50	353.2	347.95
16+00	352.7	348.34
16+50	351.6	348.73
17+00	354.0	349.12
17+50	356.4	349.51
18+00	358.7	349.90
18+50	360.7	350.37
19+00	359.5	351.33
19+50	354.5	352.37
20+00	352.6	353.41
20+50	355.0	354.45
21+00	357.8	355.49
21+50	360.4	356.53
22+00	361.7	357.18
22+50	359.0	357.07
23+00	356.7	356.57
23+50	356.7	356.08
24+00	355.5	356.02
24+50	354.1	356.58
25+00	357.2	357.57
25+50	359.4	358.57
26+00	359.9	359.54
26+50	360.4	359.67
27+00	360.4	358.54
27+50	357.4	356.62
28+00	353.0	355.23
28+50	351.0	354.52
29+00	352.2	354.48
29+50	354.7	355.12
30+00	356.5	356.32
30+50	357.1	357.57
31+00	358.7	358.26
31+50	358.4	357.82
32+00	357.2	356.82

HUAL ROAD – Scale: H: 1"=80', V: 1"= 8'

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C8.0A

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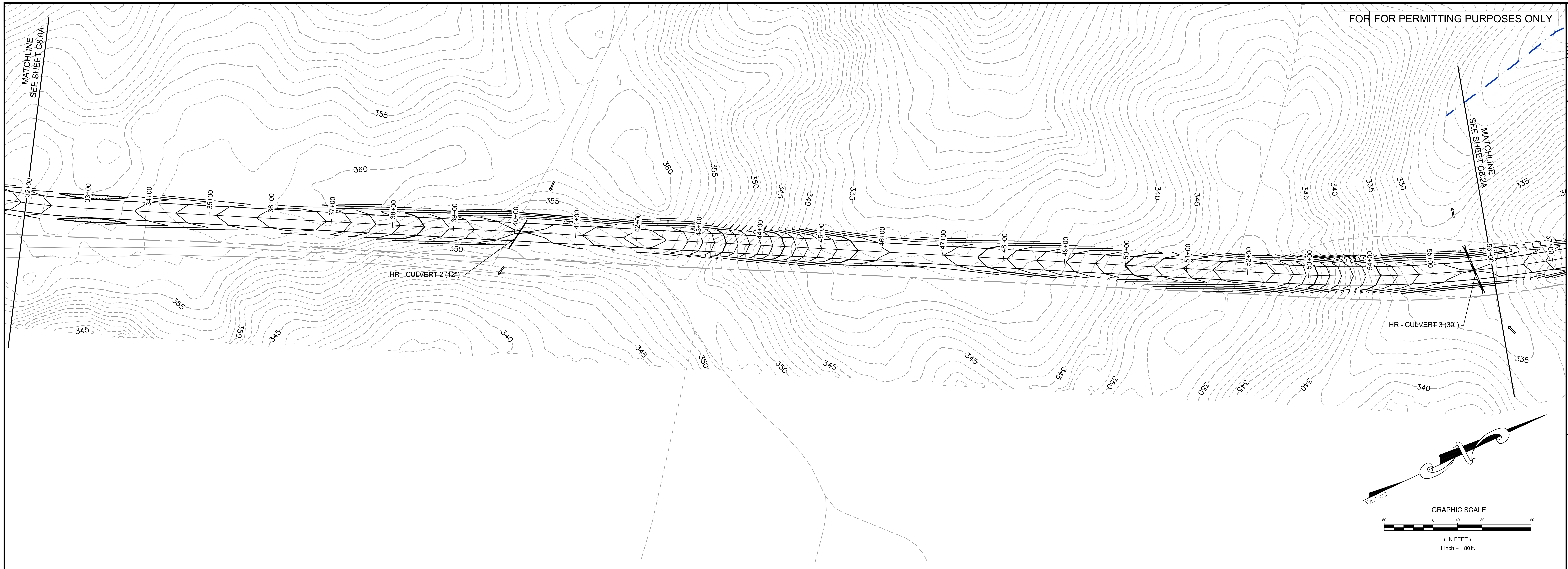
MATCHLINE SEE SHEET C8.0A
MATCHLINE SEE SHEET C8.2A
32+00
33+00
34+00
35+00
36+00
37+00
38+00
39+00
40+00
41+00
42+00
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44+00
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54+00
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57+00
355
360
350
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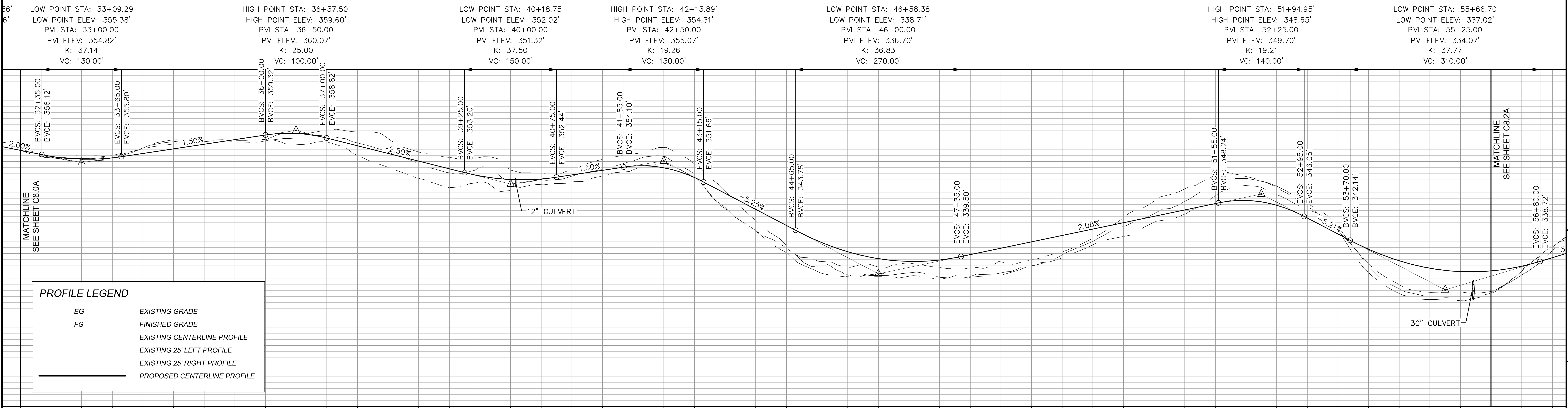
HR - CULVERT 2 (12")
HR - CULVERT 3 (30")
GRAPHIC SCALE
0
80
160
(IN FEET)
1 inch = 80ft.



	EG	FG
32+00	357.2	356.82
32+50	355.6	355.85
33+00	355.5	355.39
33+50	355.8	355.60
34+00	357.2	356.32
34+50	358.2	357.07
35+00	358.5	357.82
35+50	358.5	358.57
36+00	358.5	359.32
36+50	358.8	359.57
37+00	359.3	358.82
37+50	358.0	357.57
38+00	356.5	356.32
38+50	354.6	355.07
39+00	353.2	353.82
39+50	354.0	352.65
40+00	351.9	352.07
40+50	352.0	352.15
41+00	352.6	352.82
41+50	353.7	353.57
42+00	355.1	354.26
42+50	355.8	353.97
43+00	352.8	352.39
43+50	347.5	349.82
44+00	343.6	347.20
44+50	340.1	344.57
45+00	337.1	342.11
45+50	336.3	340.30
46+00	336.4	339.17
46+50	336.9	338.72
47+00	336.1	338.94
47+50	336.2	339.82
48+00	336.8	340.86
48+50	338.0	341.90
49+00	339.8	342.94
49+50	342.0	343.98
50+00	344.4	345.02
50+50	346.5	346.06
51+00	348.5	347.10
51+50	351.2	348.14
52+00	352.2	348.65
52+50	351.0	347.87
53+00	348.2	345.79
53+50	344.3	343.18
54+00	337.9	340.70
54+50	334.3	338.82
55+00	333.1	337.61
55+50	333.0	337.06
56+00	333.6	337.17
56+50	336.5	337.94
57+00	340.5	339.32

COMMONWEALTH OF VIRGINIA
GLENN W. CUSTIS
Lic. No. 8039
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CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

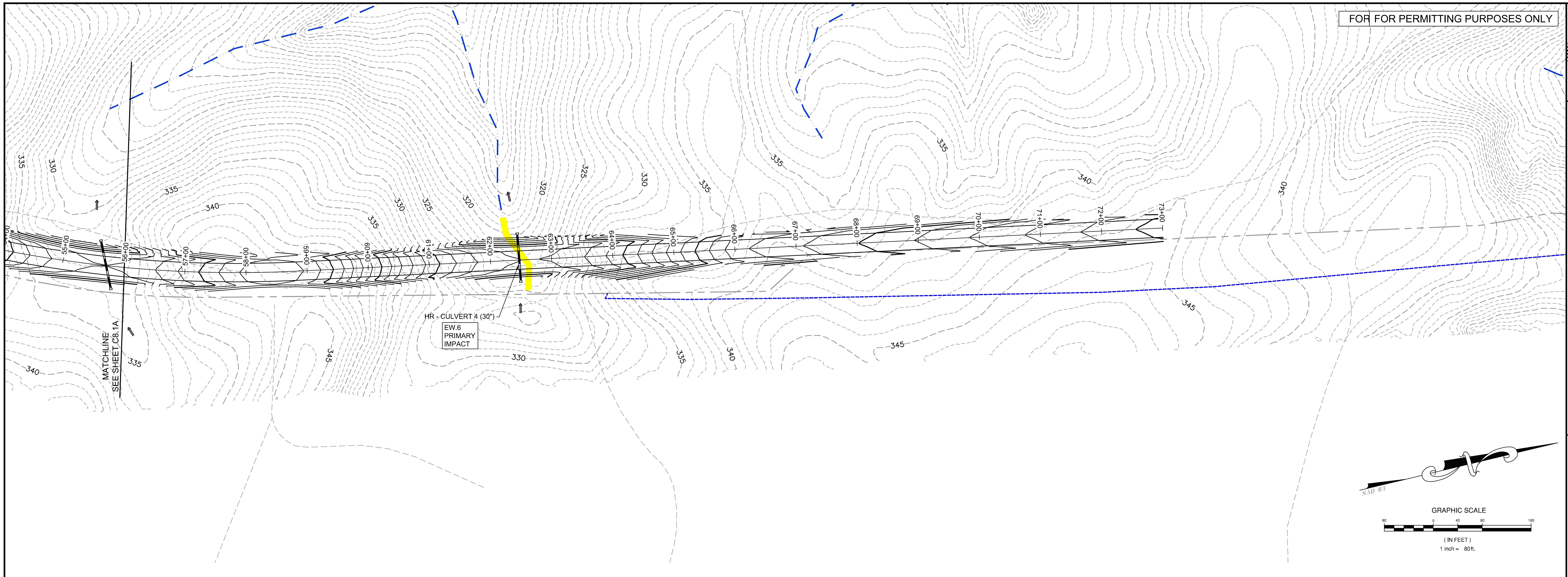
JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 80'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C8.1A

P:\2018\1802\0100\18020117\18020117-010303\CAD\18020117-010303_SDI\18020117-010303_Site_Haul Road.dwg April 28, 2022 1:41:21 PM

FOR PERMITTING PURPOSES ONLY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64+00
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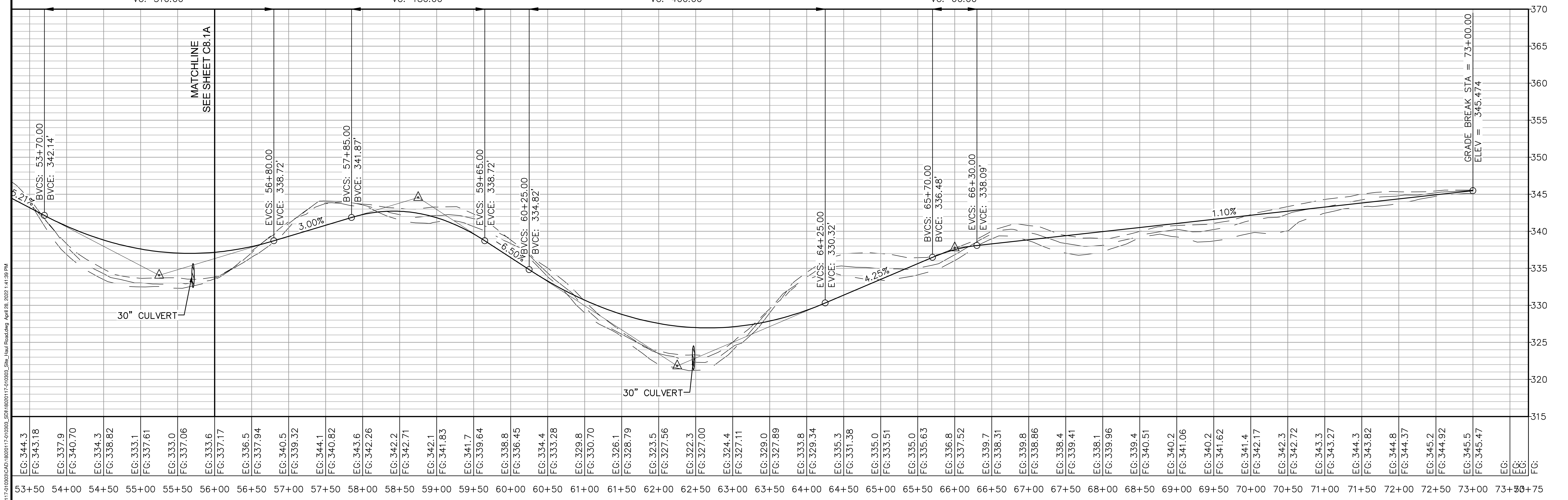
68+00
69+00
70+00
71+00
72+00
73+00
HR - CULVERT 4 (30")
EW.6
PRIMARY
IMPACT
MATCHLINE
SEE SHEET C8.1A
NAD 83
GRAPHIC SCALE
0
40
80
160
(IN FEET)
1 inch = 80ft.

LOW POINT STA: 55+66.70	HIGH POINT STA: 58+41.84'	LOW POINT STA: 62+66.86	HIGH POINT STA: 66+30.00'
LOW POINT ELEV: 337.02'	HIGH POINT ELEV: 342.72'	LOW POINT ELEV: 326.96'	HIGH POINT ELEV: 338.09'
PVI STA: 55+25.00	PVI STA: 58+75.00	PVI STA: 62+25.00	PVI STA: 66+00.00
PVI ELEV: 334.07'	PVI ELEV: 344.57'	PVI ELEV: 321.82'	PVI ELEV: 337.76'
K: 37.77	K: 18.95	K: 37.21	K: 19.06
VC: 310.00'	VC: 180.00'	VC: 400.00'	VC: 60.00'



Station	EG	FG
53+50	EG: 344.3	FG: 343.18
54+00	EG: 337.9	FG: 340.70
54+50	EG: 334.3	FG: 338.82
55+00	EG: 333.1	FG: 337.61
55+50	EG: 333.0	FG: 337.06
56+00	EG: 333.6	FG: 337.17
56+50	EG: 336.5	FG: 337.94
57+00	EG: 340.5	FG: 339.32
57+50	EG: 344.1	FG: 340.82
58+00	EG: 343.6	FG: 342.26
58+50	EG: 342.2	FG: 342.71
59+00	EG: 342.1	FG: 341.83
59+50	EG: 341.7	FG: 339.64
60+00	EG: 338.8	FG: 336.45
60+50	EG: 334.4	FG: 333.28
61+00	EG: 329.8	FG: 330.70
61+50	EG: 326.1	FG: 328.79
62+00	EG: 323.5	FG: 327.56
62+50	EG: 322.3	FG: 327.00
63+00	EG: 324.4	FG: 327.11
63+50	EG: 329.0	FG: 327.89
64+00	EG: 333.8	FG: 329.34
64+50	EG: 335.3	FG: 331.38
65+00	EG: 335.0	FG: 333.51
65+50	EG: 335.0	FG: 335.63
66+00	EG: 336.8	FG: 337.52
66+50	EG: 339.7	FG: 338.31
67+00	EG: 339.8	FG: 338.86
67+50	EG: 338.4	FG: 339.41
68+00	EG: 338.1	FG: 339.96
68+50	EG: 339.4	FG: 340.51
69+00	EG: 340.2	FG: 341.06
69+50	EG: 340.2	FG: 341.62
70+00	EG: 341.4	FG: 342.17
70+50	EG: 342.3	FG: 342.72
71+00	EG: 343.3	FG: 343.27
71+50	EG: 344.3	FG: 343.82
72+00	EG: 344.8	FG: 344.37
72+50	EG: 345.2	FG: 344.92
73+00	EG: 345.5	FG: 345.47
73+50	EG:	FG:
73+75	EG:	FG:

PROFILE LEGEND

EG	*EXISTING GRADE*
FG	*FINISHED GRADE*
—— – ——	*EXISTING CENTERLINE PROFILE*
—— —— ——	*EXISTING 25' LEFT PROFILE*
— — — — —	*EXISTING 25' RIGHT PROFILE*
━━━━━	*PROPOSED CENTERLINE PROFILE*

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REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY:
EEH

DRAWN BY:
EEH

CHECKED BY:
GWC

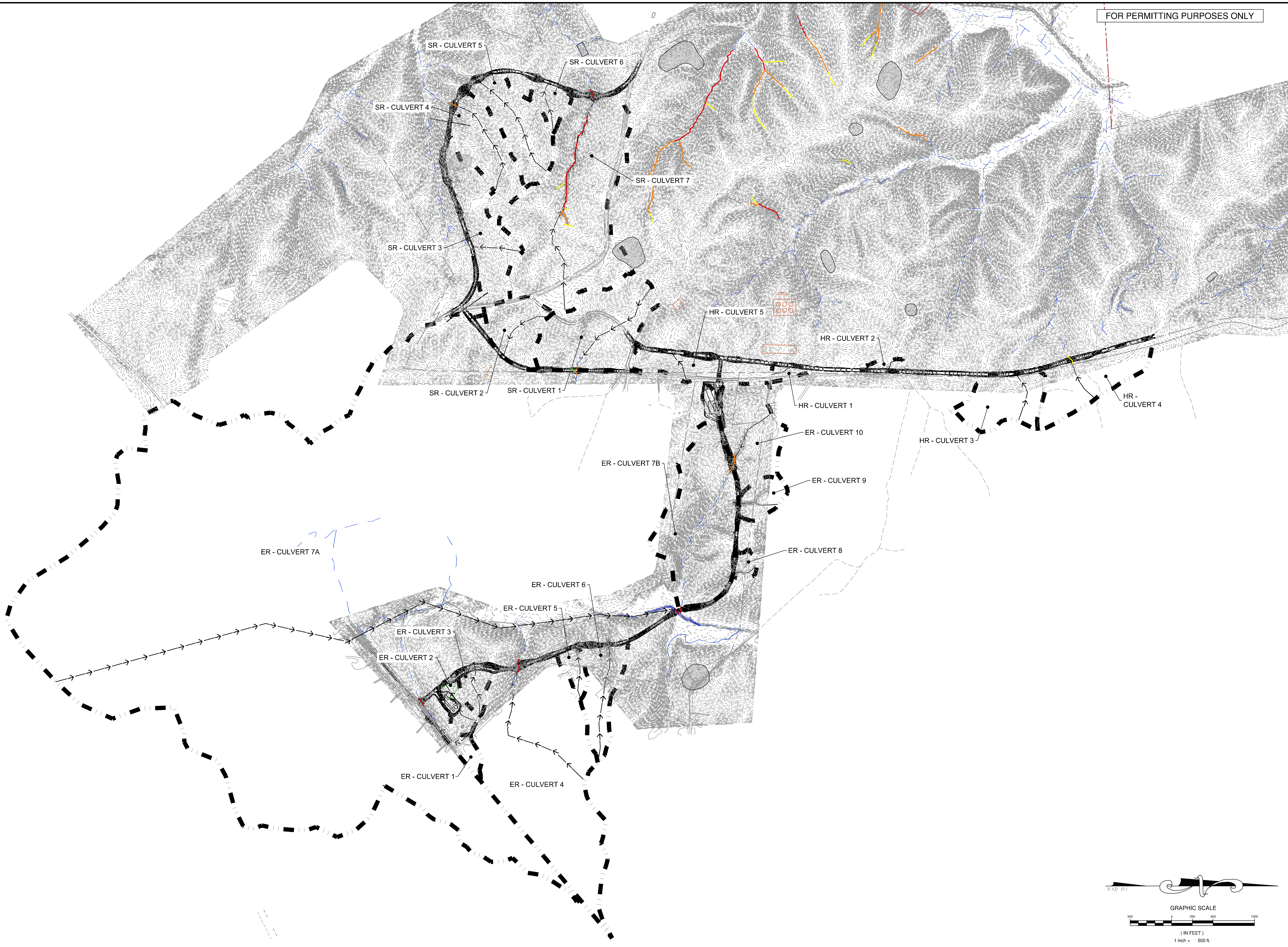
SCALE:
1" = 80'

DATE:
SEPTEMBER 30, 2021

PROJECT NUMBER:
18020117-110102

C8.2A

FOR PERMITTING PURPOSES ONLY


SR - CULVERT 5
SR - CULVERT 6
SR - CULVERT 4
SR - CULVERT 7
SR - CULVERT 3
HR - CULVERT 5
HR - CULVERT 2
SR - CULVERT 2
SR - CULVERT 1
HR - CULVERT 1
HR - CULVERT 4
ER - CULVERT 10
HR - CULVERT 3
ER - CULVERT 7B
ER - CULVERT 9
ER - CULVERT 7A
ER - CULVERT 8
ER - CULVERT 6
ER - CULVERT 5
ER - CULVERT 3
ER - CULVERT 2
ER - CULVERT 1
ER - CULVERT 4
NAD 83
GRAPHIC SCALE
500
0
250
500
1000
(IN FEET)
1 inch = 500 ft.

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Lic. No. 8039

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CULVERT DRAINAGE AREA MAP
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: 1" = 500'
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C10.0

P:\2018\1802\0100\18020117\18020117-010303\CAD\18020117-010303_SDI\18020117-010303_DITCH CALCS.dwg April 28, 2022 1:42:22 PM

CULVERT REPORTS ARE BASED ON A 10 YEAR PEAK STORM, RATIONAL METHOD, EXCEPT FOR CULVERTS 7A & 7B WHICH ARE BASED ON A 100 YEAR PEAK FLOW, SCS METHOD.

FOR PERMITTING PURPOSES ONLY

ER - CULVERT 1

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Apr 23 2021

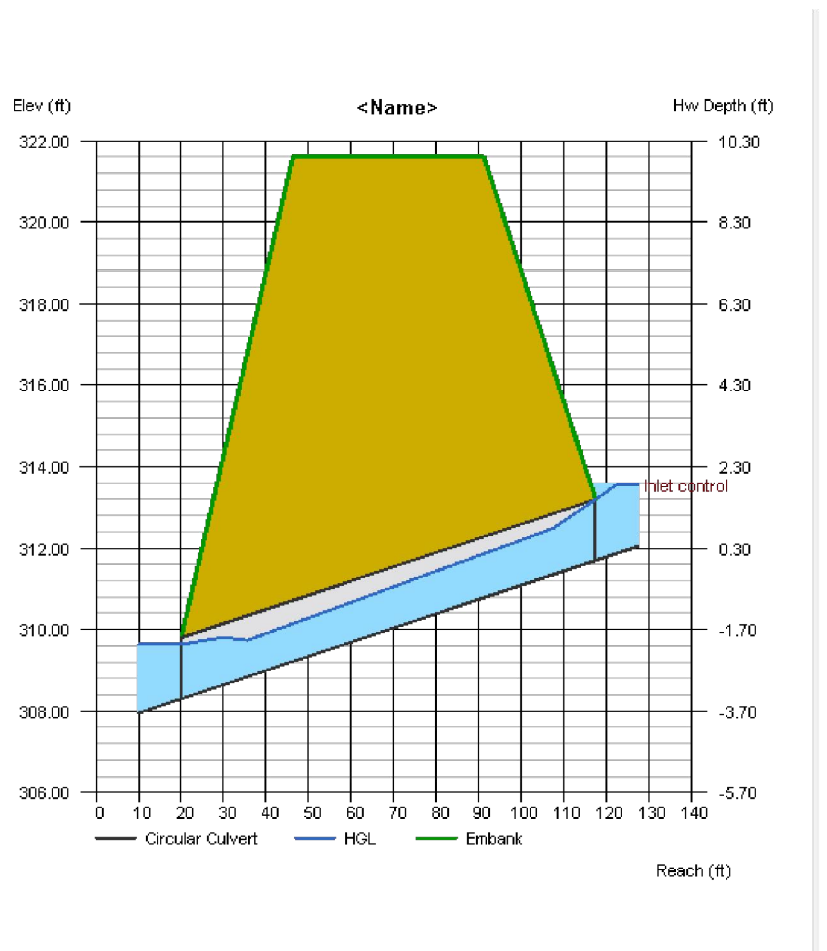
Circular Culvert

Invert Elev Dn (ft) = 308.30
Pipe Length (ft) = 97.50
Slope (%) = 3.49
Invert Elev Up (ft) = 311.70
Rise (in) = 18.0
Shape = Circular
Span (in) = 18.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 321.60
Top Width (ft) = 45.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 9.20
Qmax (cfs) = 9.20
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 9.20
Qpipe (cfs) = 9.20
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 5.53
Veloc Up (ft/s) = 6.21
HGL Dn (ft) = 309.64
HGL Up (ft) = 312.87
Hw Elev (ft) = 313.57
Hw/D (ft) = 1.25
Flow Regime = Inlet Control



ER - CULVERT 2

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

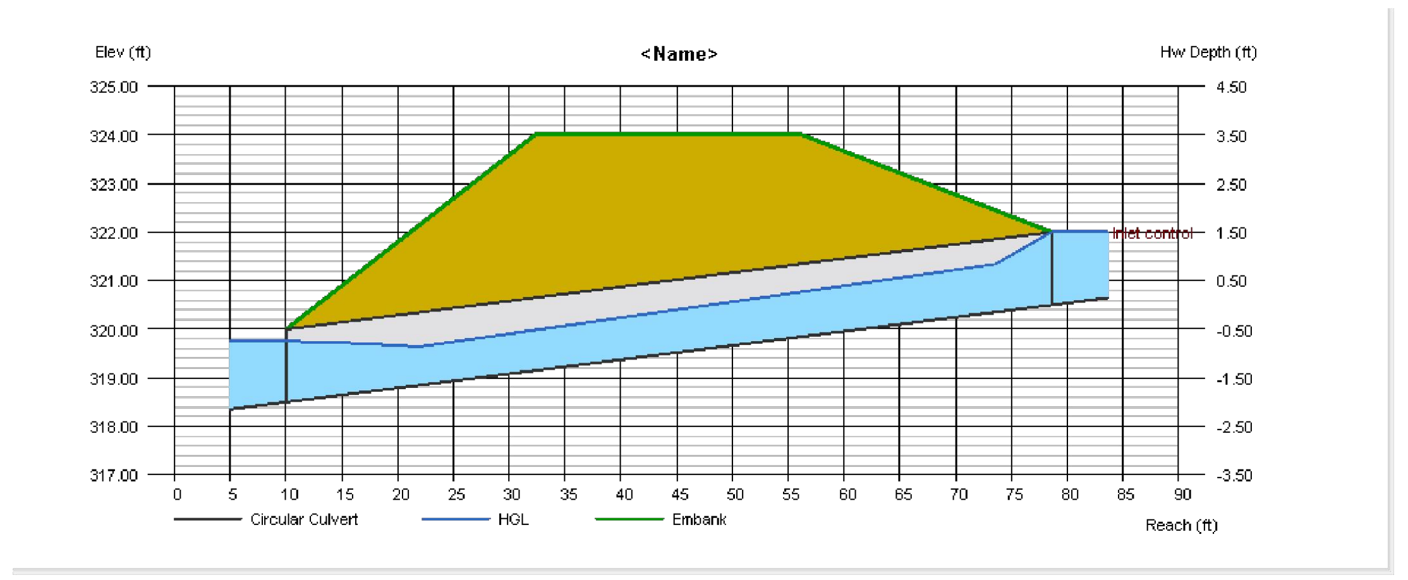
Circular Culvert

Invert Elev Dn (ft) = 318.50
Pipe Length (ft) = 68.60
Slope (%) = 2.92
Invert Elev Up (ft) = 320.50
Rise (in) = 18.0
Shape = Circular
Span (in) = 18.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 324.00
Top Width (ft) = 24.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 6.80
Qmax (cfs) = 6.80
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 6.80
Qpipe (cfs) = 6.80
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.31
Veloc Up (ft/s) = 5.38
HGL Dn (ft) = 319.75
HGL Up (ft) = 321.51
Hw Elev (ft) = 322.00
Hw/D (ft) = 1.00
Flow Regime = Inlet Control



ER - CULVERT 3

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Sep 2 2021

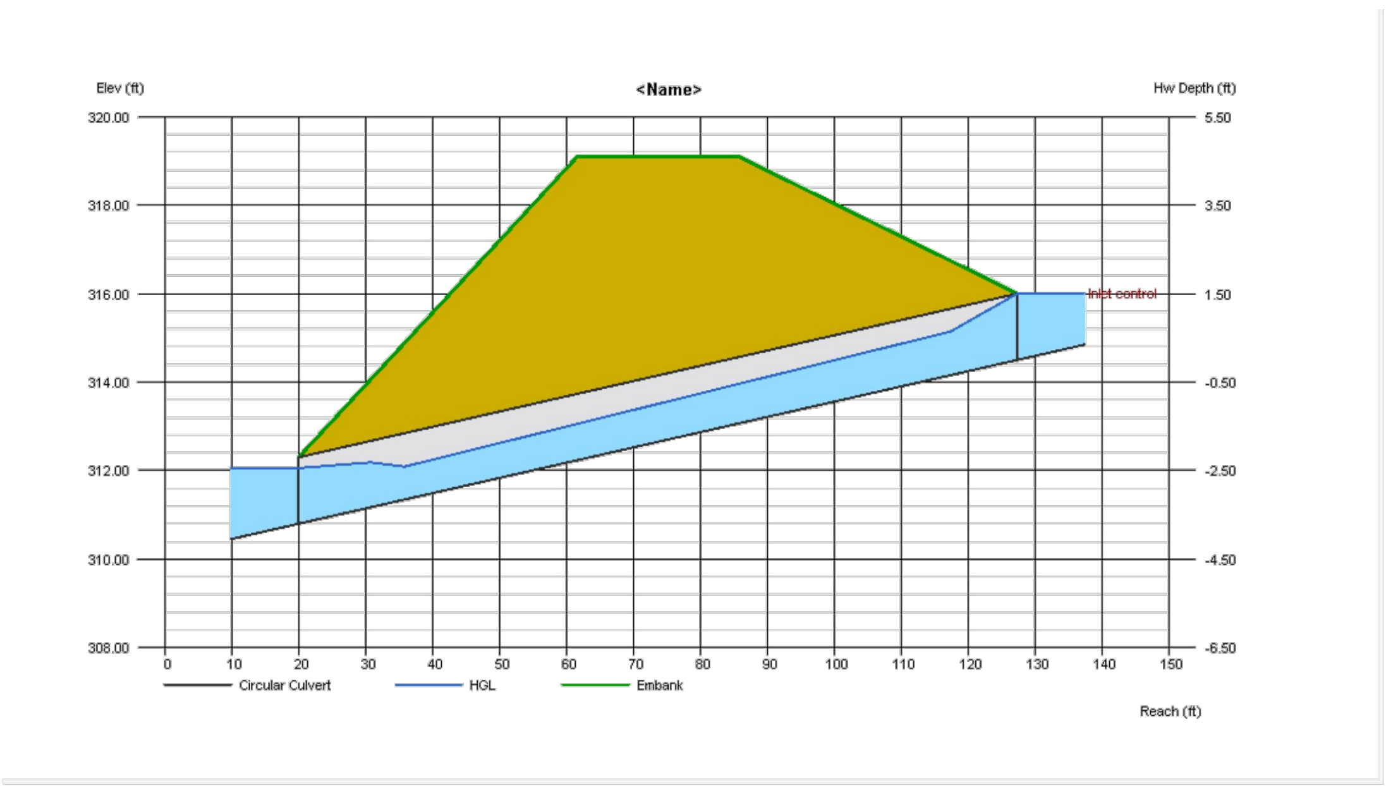
Circular Culvert

Invert Elev Dn (ft) = 310.80
Pipe Length (ft) = 107.37
Slope (%) = 3.45
Invert Elev Up (ft) = 314.50
Rise (in) = 18.0
Shape = Circular
Span (in) = 18.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 319.10
Top Width (ft) = 24.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 6.90
Qmax (cfs) = 6.90
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 6.90
Qpipe (cfs) = 6.90
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.36
Veloc Up (ft/s) = 5.42
HGL Dn (ft) = 312.06
HGL Up (ft) = 315.52
Hw Elev (ft) = 316.01
Hw/D (ft) = 1.01
Flow Regime = Inlet Control



ER - CULVERT 4

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Jul 23 2021

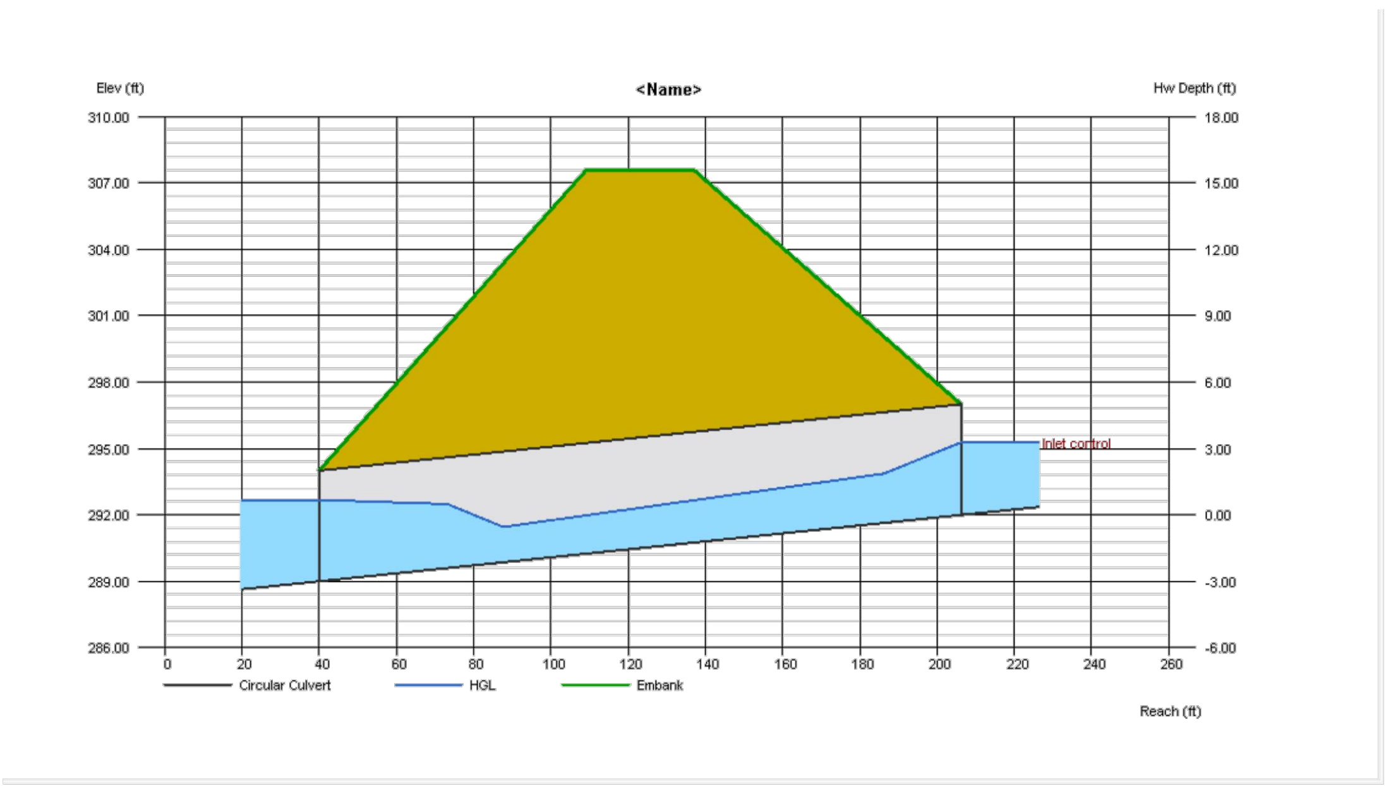
Circular Culvert

Invert Elev Dn (ft) = 289.00
Pipe Length (ft) = 166.20
Slope (%) = 1.81
Invert Elev Up (ft) = 292.00
Rise (in) = 60.0
Shape = Circular
Span (in) = 60.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 307.60
Top Width (ft) = 27.70
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 69.60
Qmax (cfs) = 69.60
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 69.60
Qpipe (cfs) = 69.60
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.50
Veloc Up (ft/s) = 7.66
HGL Dn (ft) = 292.68
HGL Up (ft) = 294.35
Hw Elev (ft) = 295.28
Hw/D (ft) = 0.66
Flow Regime = Inlet Control



ER - CULVERT 5

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

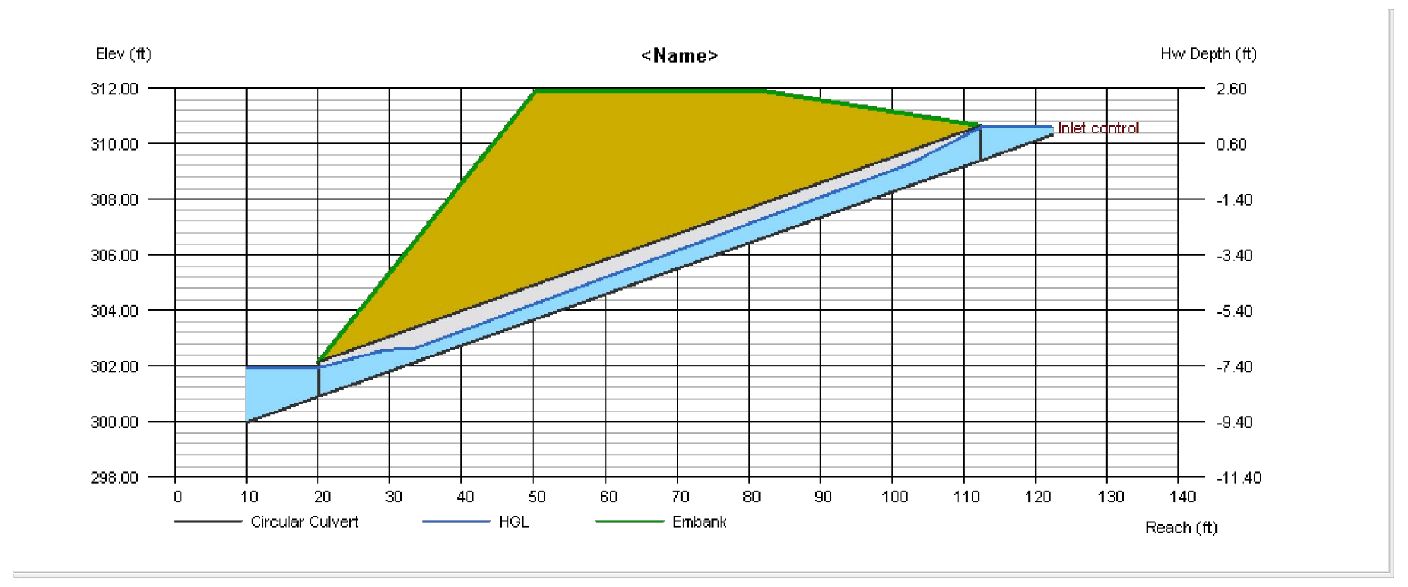
Circular Culvert

Invert Elev Dn (ft) = 300.90
Pipe Length (ft) = 92.40
Slope (%) = 9.20
Invert Elev Up (ft) = 309.40
Rise (in) = 15.0
Shape = Circular
Span (in) = 15.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 311.90
Top Width (ft) = 31.80
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 4.20
Qmax (cfs) = 4.20
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 4.20
Qpipe (cfs) = 4.20
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 3.85
Veloc Up (ft/s) = 4.86
HGL Dn (ft) = 301.94
HGL Up (ft) = 310.23
Hw Elev (ft) = 310.59
Hw/D (ft) = 0.95
Flow Regime = Inlet Control



ER - CULVERT 6

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

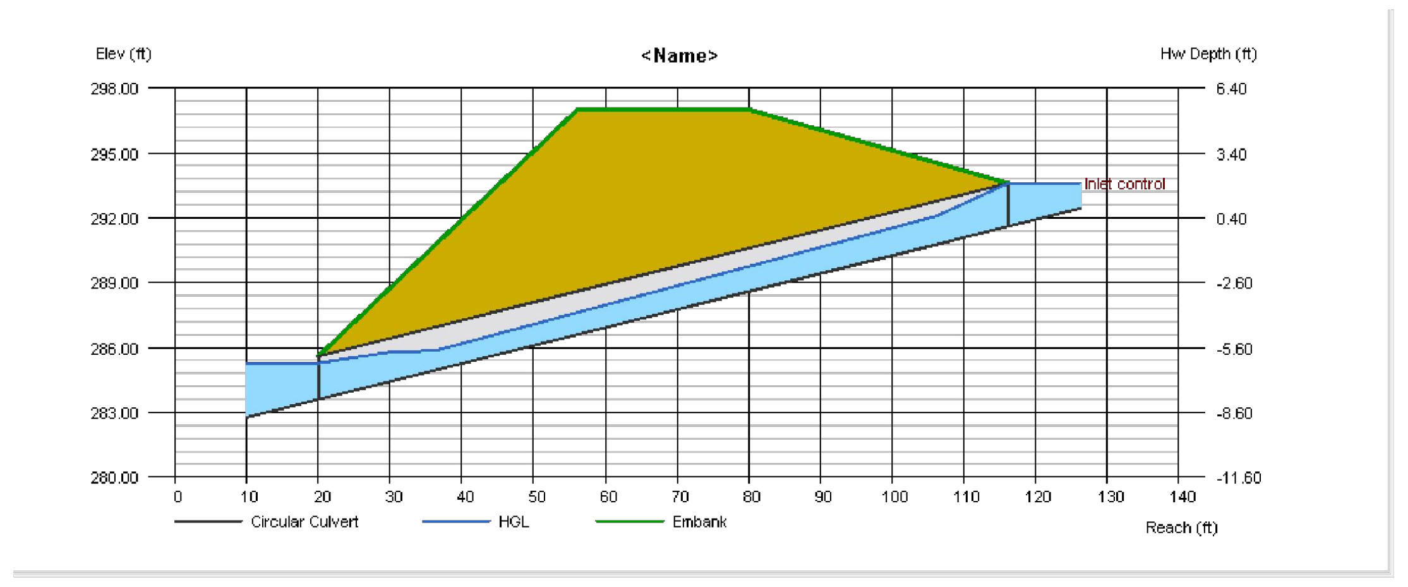
Circular Culvert

Invert Elev Dn (ft) = 283.60
Pipe Length (ft) = 96.20
Slope (%) = 8.32
Invert Elev Up (ft) = 291.60
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 297.00
Top Width (ft) = 24.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 14.50
Qmax (cfs) = 14.50
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 14.50
Qpipe (cfs) = 14.50
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 5.13
Veloc Up (ft/s) = 6.32
HGL Dn (ft) = 285.29
HGL Up (ft) = 292.97
Hw Elev (ft) = 293.60
Hw/D (ft) = 1.00
Flow Regime = Inlet Control



SEE SHEET
HEC-RAS
REPORT
FOR
ER - CULVERT 7

ER - CULVERT 8

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

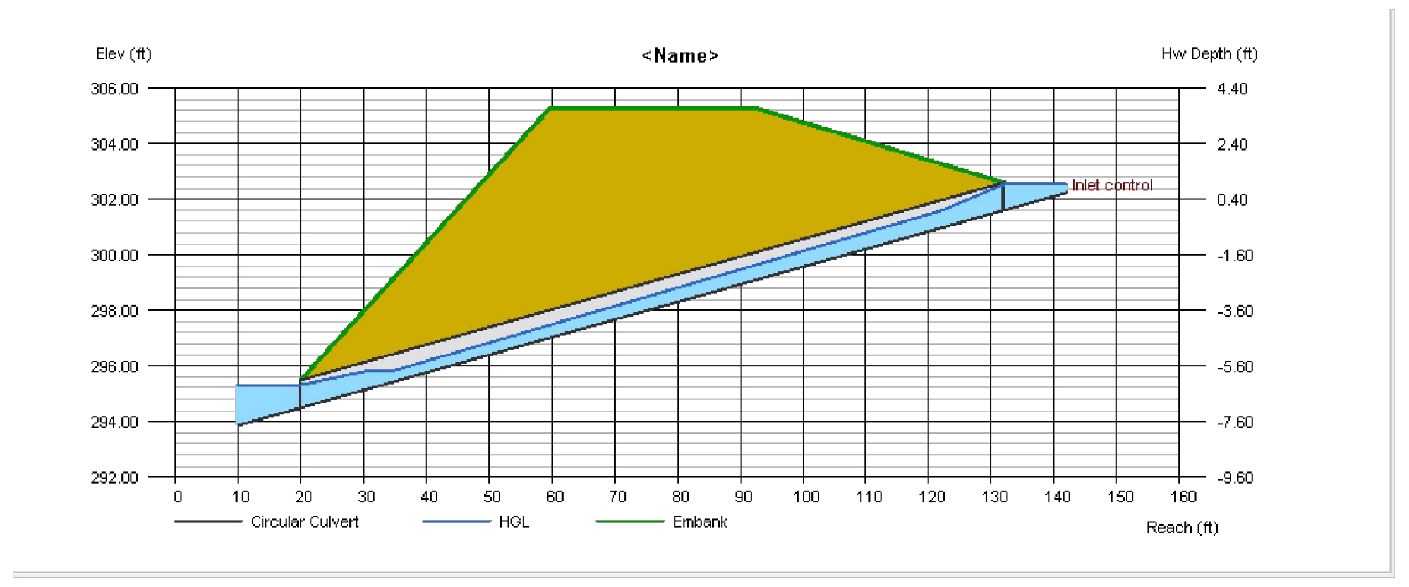
Circular Culvert

Invert Elev Dn (ft) = 294.50
Pipe Length (ft) = 112.00
Slope (%) = 6.34
Invert Elev Up (ft) = 301.60
Rise (in) = 12.0
Shape = Circular
Span (in) = 12.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 305.30
Top Width (ft) = 32.40
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 2.30
Qmax (cfs) = 2.30
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 2.30
Qpipe (cfs) = 2.30
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 3.32
Veloc Up (ft/s) = 4.27
HGL Dn (ft) = 295.32
HGL Up (ft) = 302.25
Hw Elev (ft) = 302.54
Hw/D (ft) = 0.94
Flow Regime = Inlet Control



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CULVERT CALCULATIONS (SHEET 1 OF 3)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: NONE
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C11.0

P:\2018\1802\0100\18020117\18020117-010303\CAD\18020117-010303_SDI\18020117-010303_CALCS.dwg April 28, 2022 1:42:41 PM

FOR PERMITTING PURPOSES ONLY

ER - CULVERT 9

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

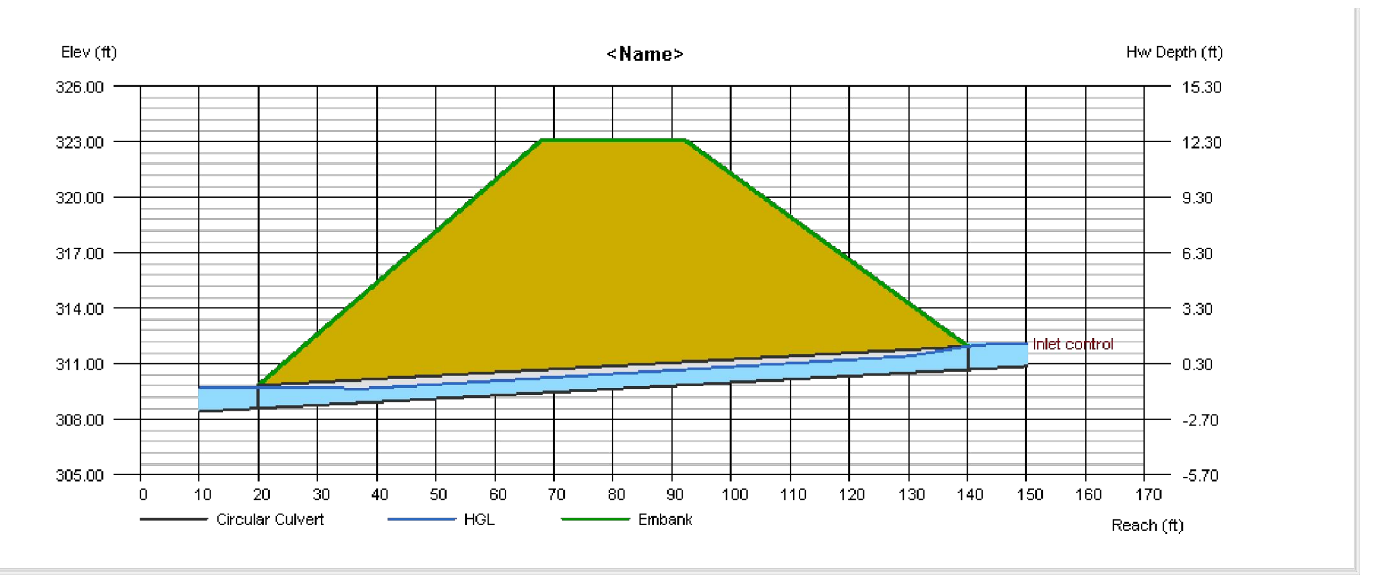
Circular Culvert

Invert Elev Dn (ft) = 308.60
Pipe Length (ft) = 120.10
Slope (%) = 1.75
Invert Elev Up (ft) = 310.70
Rise (in) = 15.0
Shape = Circular
Span (in) = 15.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 323.10
Top Width (ft) = 24.30
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 5.10
Qmax (cfs) = 5.10
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 5.10
Qpipe (cfs) = 5.10
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.52
Veloc Up (ft/s) = 5.30
HGL Dn (ft) = 309.68
HGL Up (ft) = 311.61
Hw Elev (ft) = 312.12
Hw/D (ft) = 1.13
Flow Regime = Inlet Control



ER - CULVERT 10

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Sep 14 2021

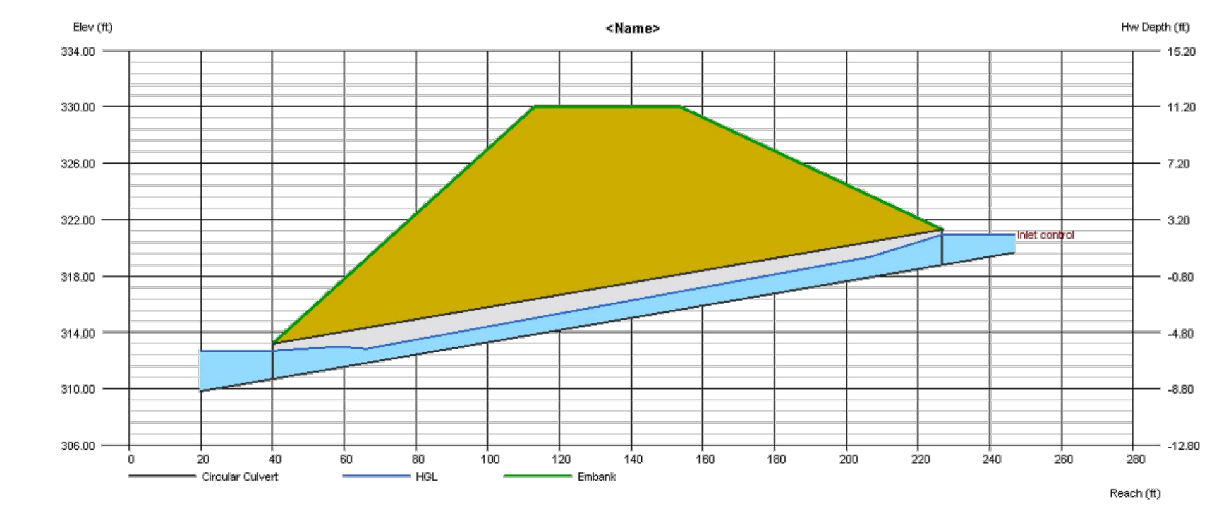
Circular Culvert

Invert Elev Dn (ft) = 310.70
Pipe Length (ft) = 186.78
Slope (%) = 4.34
Invert Elev Up (ft) = 318.80
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 330.00
Top Width (ft) = 40.80
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 19.50
Qmax (cfs) = 19.50
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 19.50
Qpipe (cfs) = 19.50
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.64
Veloc Up (ft/s) = 6.36
HGL Dn (ft) = 312.70
HGL Up (ft) = 320.30
Hw Elev (ft) = 320.94
Hw/D (ft) = 0.86
Flow Regime = Inlet Control



SR - CULVERT 1

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 31 2021

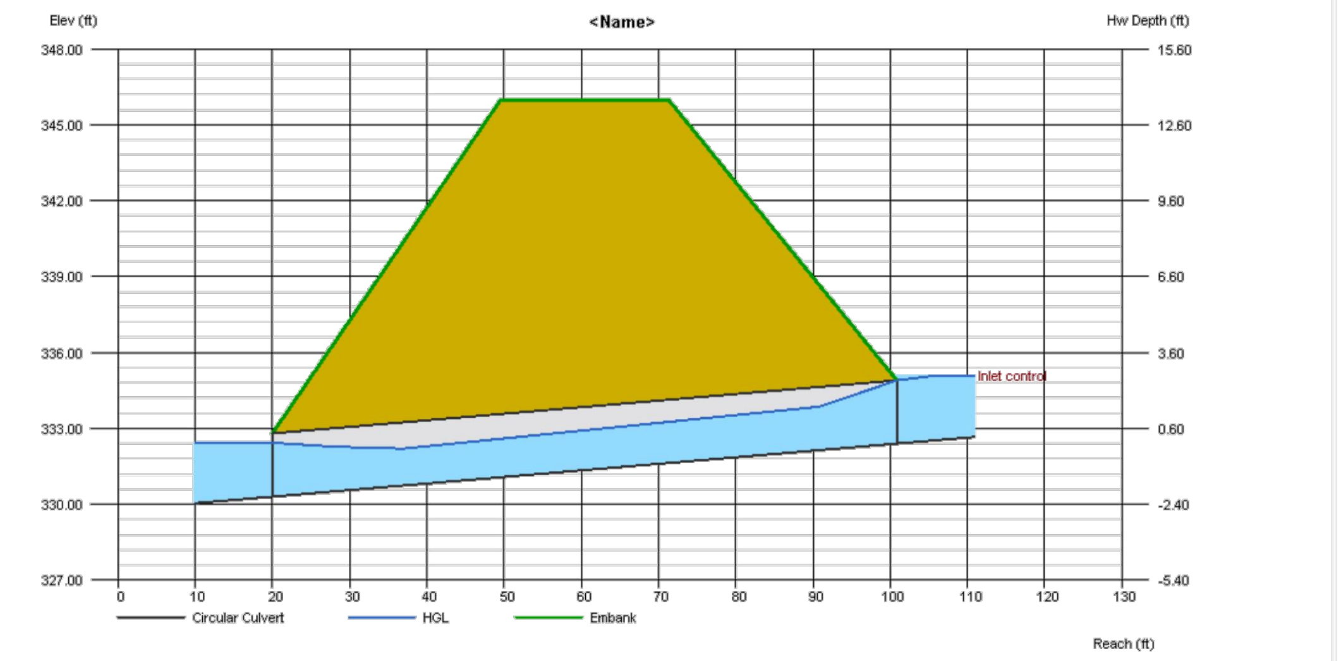
Circular Culvert

Invert Elev Dn (ft) = 330.30
Pipe Length (ft) = 80.86
Slope (%) = 2.60
Invert Elev Up (ft) = 332.40
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 346.00
Top Width (ft) = 21.70
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 26.90
Qmax (cfs) = 26.90
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 26.90
Qpipe (cfs) = 26.90
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 6.03
Veloc Up (ft/s) = 7.25
HGL Dn (ft) = 332.43
HGL Up (ft) = 334.17
Hw Elev (ft) = 335.09
Hw/D (ft) = 1.07
Flow Regime = Inlet Control



SR - CULVERT 2

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Aug 31 2021

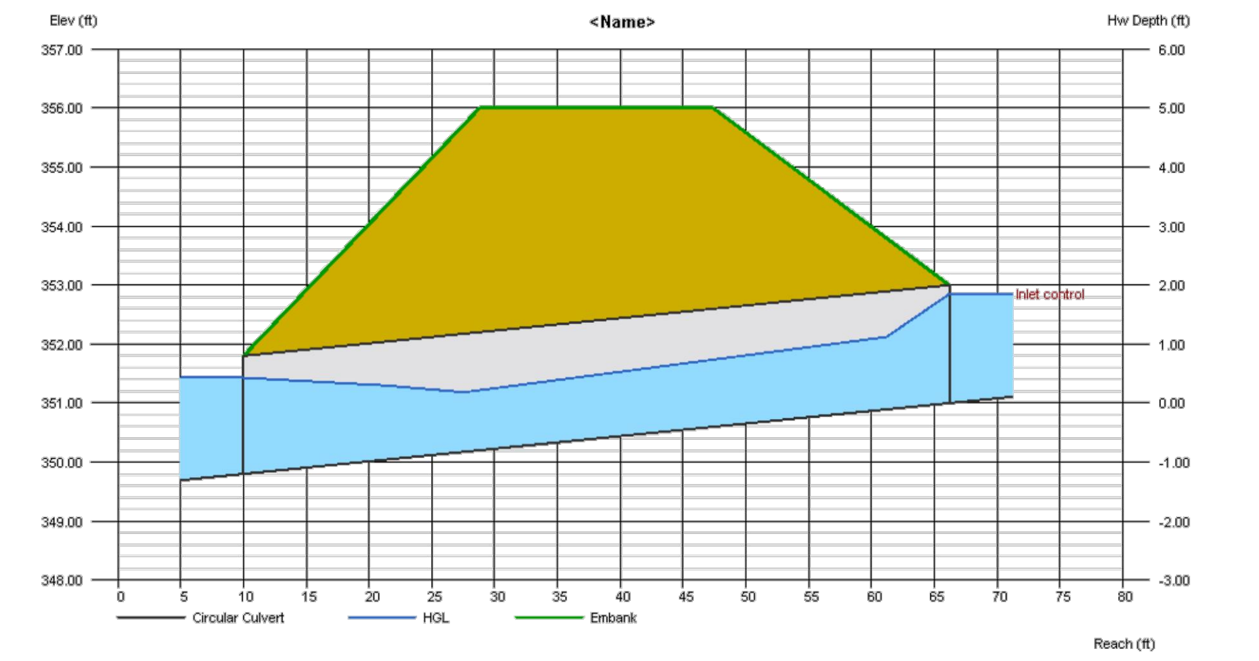
Circular Culvert

Invert Elev Dn (ft) = 349.80
Pipe Length (ft) = 56.20
Slope (%) = 2.14
Invert Elev Up (ft) = 351.00
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 356.00
Top Width (ft) = 18.60
Crest Width (ft) = 25.00

Calculations
Qmin (cfs) = 12.30
Qmax (cfs) = 12.30
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 12.30
Qpipe (cfs) = 12.30
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.49
Veloc Up (ft/s) = 5.90
HGL Dn (ft) = 351.43
HGL Up (ft) = 352.26
Hw Elev (ft) = 352.85
Hw/D (ft) = 0.92
Flow Regime = Inlet Control



SR - CULVERT 3

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

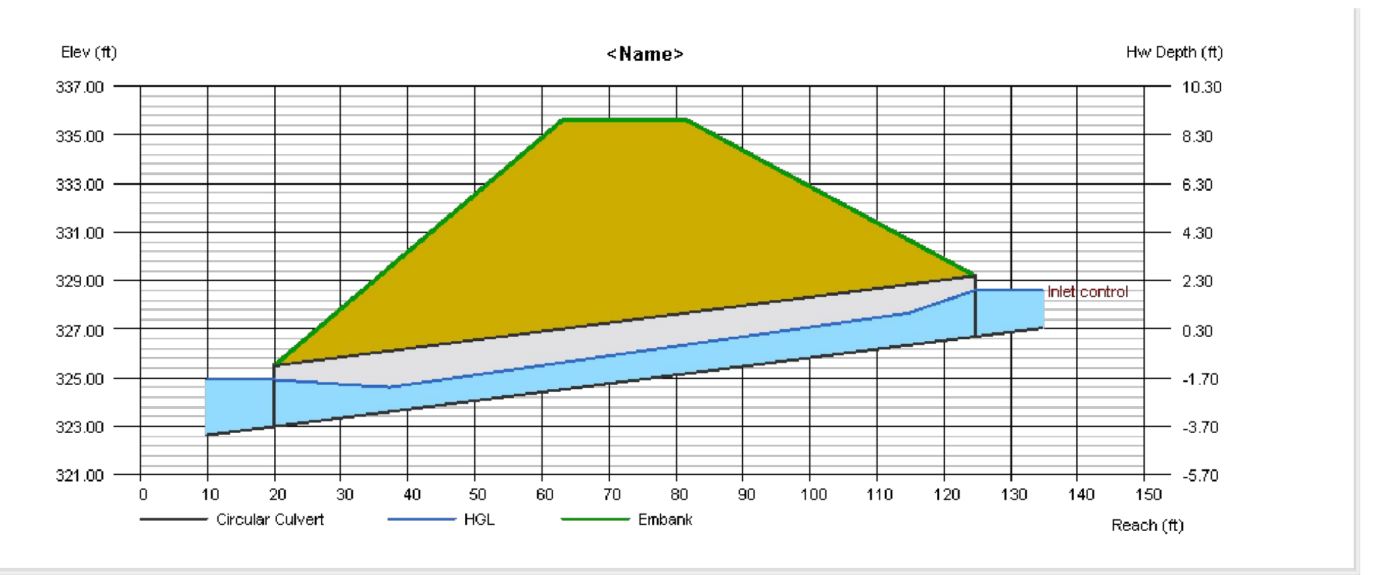
Circular Culvert

Invert Elev Dn (ft) = 323.00
Pipe Length (ft) = 104.70
Slope (%) = 3.53
Invert Elev Up (ft) = 326.70
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 335.60
Top Width (ft) = 18.70
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 16.20
Qmax (cfs) = 16.20
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 16.20
Qpipe (cfs) = 16.20
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 3.99
Veloc Up (ft/s) = 5.95
HGL Dn (ft) = 324.93
HGL Up (ft) = 328.06
Hw Elev (ft) = 328.61
Hw/D (ft) = 0.77
Flow Regime = Inlet Control



SR - CULVERT 4

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Jul 23 2021

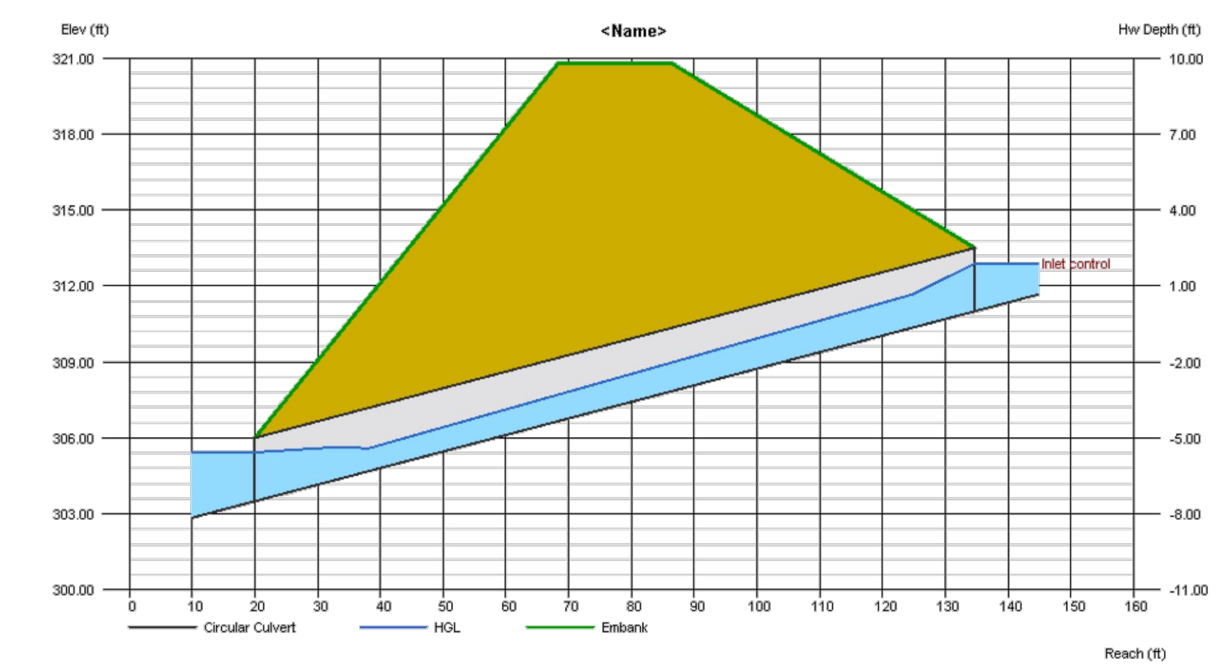
Circular Culvert

Invert Elev Dn (ft) = 303.50
Pipe Length (ft) = 114.70
Slope (%) = 6.54
Invert Elev Up (ft) = 311.00
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 320.80
Top Width (ft) = 18.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 16.30
Qmax (cfs) = 16.30
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 16.30
Qpipe (cfs) = 16.30
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.01
Veloc Up (ft/s) = 5.96
HGL Dn (ft) = 305.43
HGL Up (ft) = 312.36
Hw Elev (ft) = 312.88
Hw/D (ft) = 0.75
Flow Regime = Inlet Control



SR - CULVERT 5

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

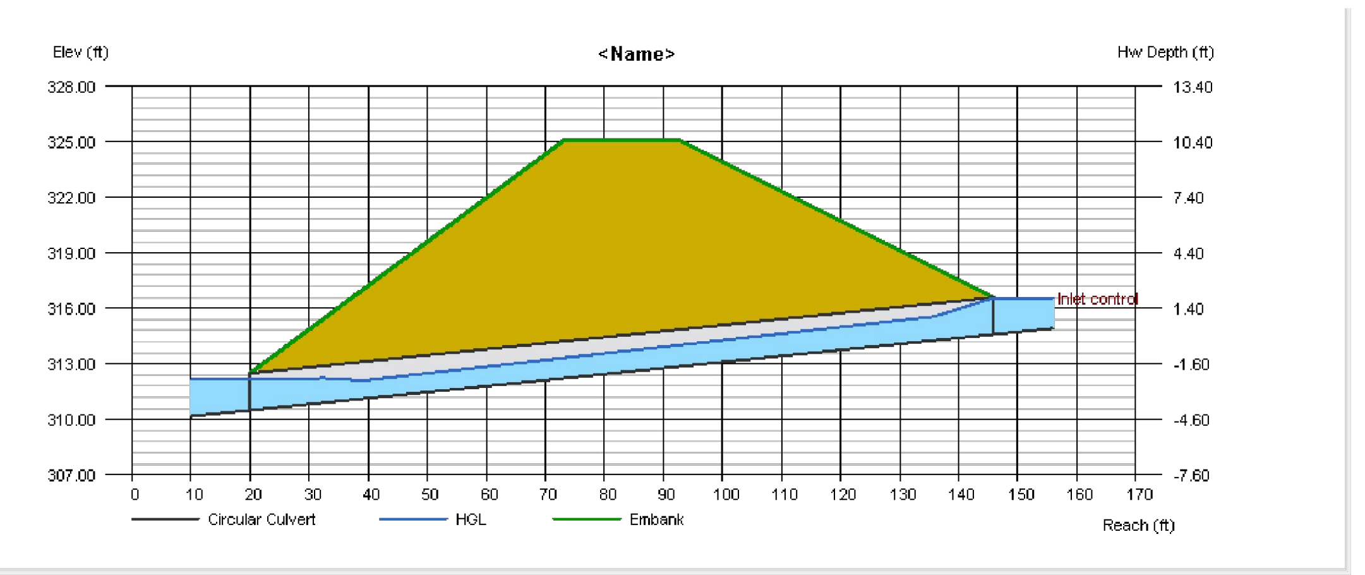
Circular Culvert

Invert Elev Dn (ft) = 310.50
Pipe Length (ft) = 125.90
Slope (%) = 3.26
Invert Elev Up (ft) = 314.60
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 325.10
Top Width (ft) = 19.40
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 13.60
Qmax (cfs) = 13.60
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 13.60
Qpipe (cfs) = 13.60
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.87
Veloc Up (ft/s) = 6.15
HGL Dn (ft) = 312.16
HGL Up (ft) = 315.93
Hw Elev (ft) = 316.57
Hw/D (ft) = 0.98
Flow Regime = Inlet Control



SR - CULVERT 6

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

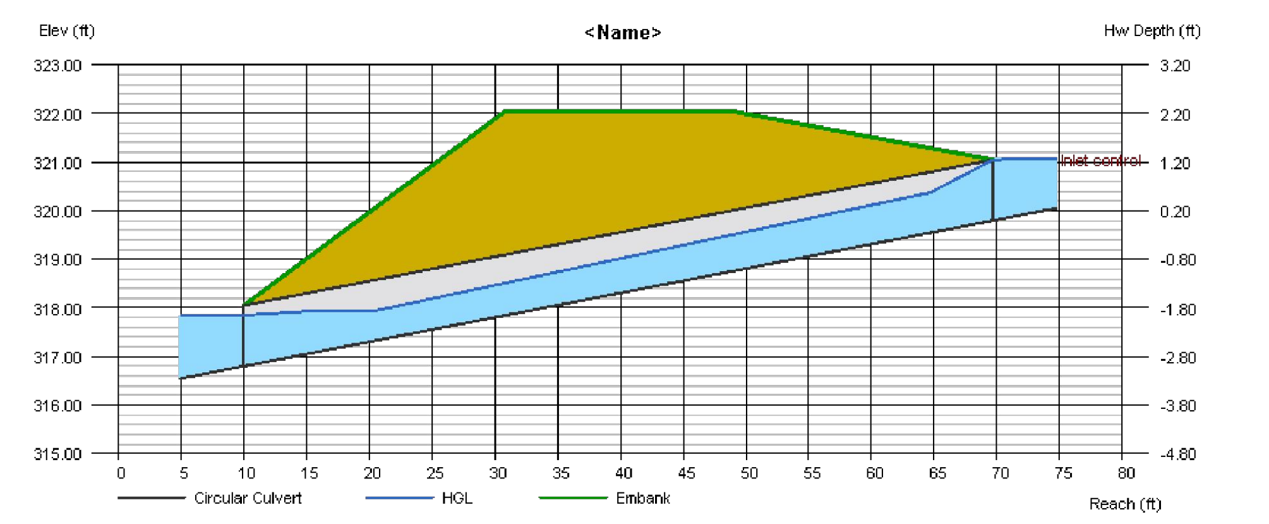
Circular Culvert

Invert Elev Dn (ft) = 316.80
Pipe Length (ft) = 59.70
Slope (%) = 5.03
Invert Elev Up (ft) = 319.80
Rise (in) = 15.0
Shape = Circular
Span (in) = 15.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 322.05
Top Width (ft) = 18.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 4.40
Qmax (cfs) = 4.40
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 4.40
Qpipe (cfs) = 4.40
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.00
Veloc Up (ft/s) = 4.96
HGL Dn (ft) = 317.85
HGL Up (ft) = 320.65
Hw Elev (ft) = 321.06
Hw/D (ft) = 1.01
Flow Regime = Inlet Control



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CULVERT CALCULATIONS (SHEET 2 OF 3)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

JPA - RESPONSE 1
MAY 07, 2021

JPA - RESPONSE 2
JANUARY 11, 2022

JPA - RESPONSE 3
APRIL 29, 2022

DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: NONE
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

C11.1

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FOR PERMITTING PURPOSES ONLY

SR - CULVERT 7

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Jul 23 2021

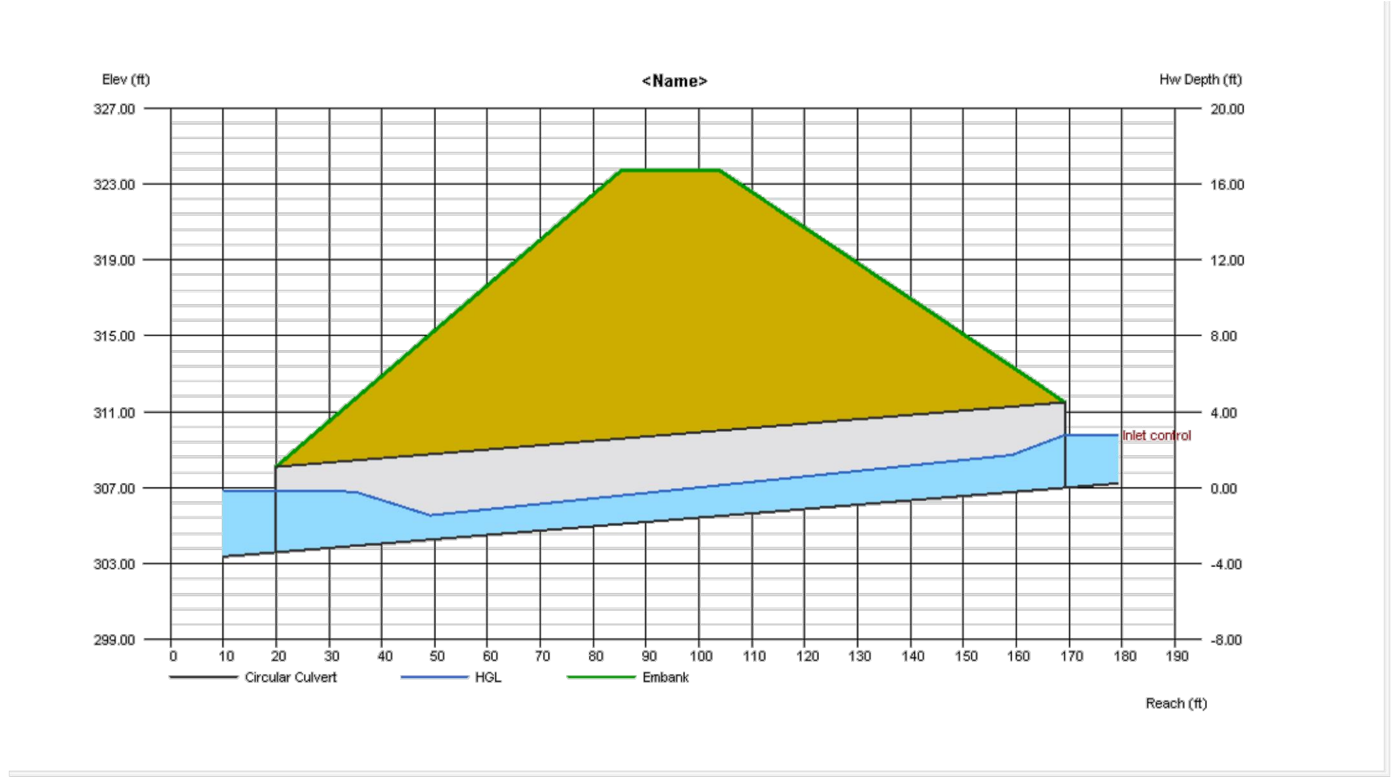
Circular Culvert

Invert Elev Dn (ft) = 303.60
Pipe Length (ft) = 149.20
Slope (%) = 2.28
Invert Elev Up (ft) = 307.00
Rise (in) = 54.0
Shape = Circular
Span (in) = 54.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 323.70
Top Width (ft) = 18.70
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 48.40
Qmax (cfs) = 48.40
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 48.40
Qpipe (cfs) = 48.40
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 3.93
Veloc Up (ft/s) = 7.04
HGL Dn (ft) = 306.86
HGL Up (ft) = 309.01
Hw Elev (ft) = 309.77
Hw/D (ft) = 0.62
Flow Regime = Inlet Control



HR - CULVERT 1

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

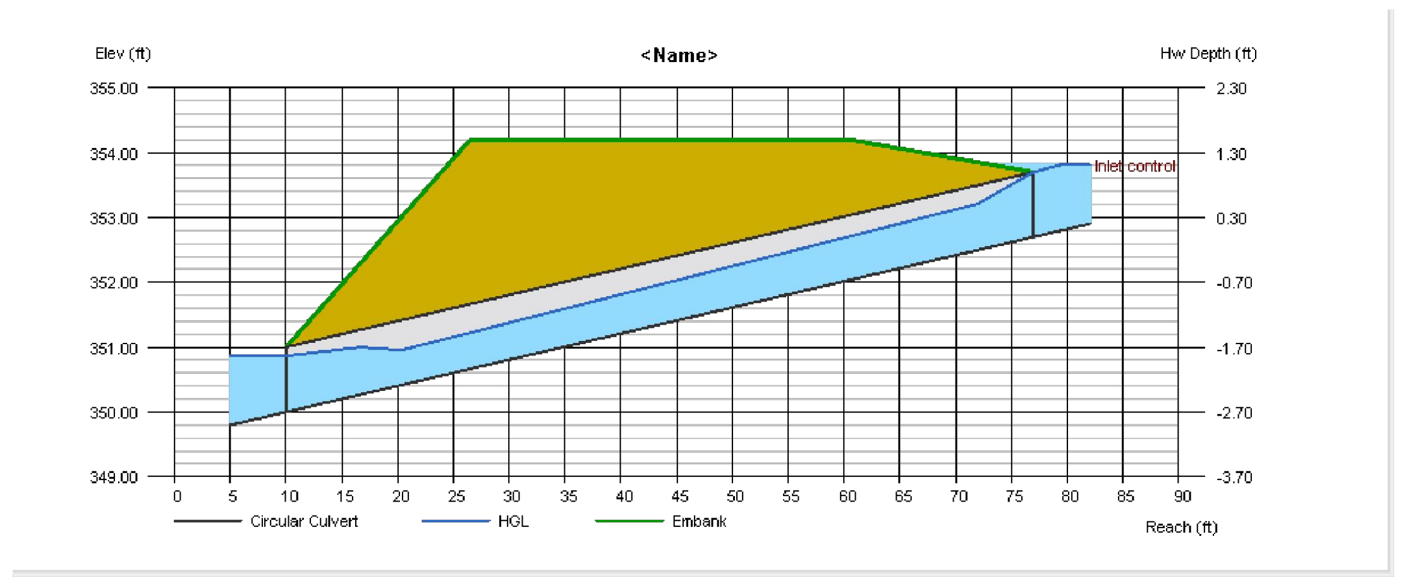
Circular Culvert

Invert Elev Dn (ft) = 350.00
Pipe Length (ft) = 67.00
Slope (%) = 4.03
Invert Elev Up (ft) = 352.70
Rise (in) = 12.0
Shape = Circular
Span (in) = 12.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 354.20
Top Width (ft) = 34.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 2.90
Qmax (cfs) = 2.90
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 2.90
Qpipe (cfs) = 2.90
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.02
Veloc Up (ft/s) = 4.72
HGL Dn (ft) = 350.86
HGL Up (ft) = 353.43
Hw Elev (ft) = 353.82
Hw/D (ft) = 1.12
Flow Regime = Inlet Control



HR - CULVERT 2

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

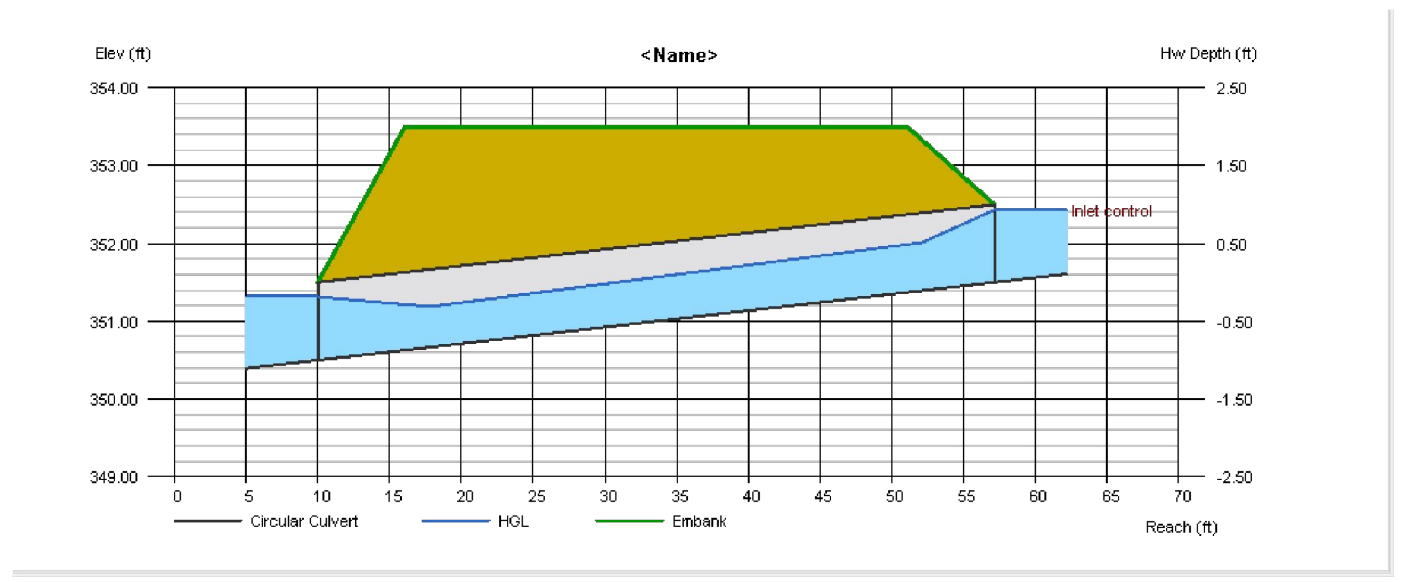
Circular Culvert

Invert Elev Dn (ft) = 350.50
Pipe Length (ft) = 47.15
Slope (%) = 2.12
Invert Elev Up (ft) = 351.50
Rise (in) = 12.0
Shape = Circular
Span (in) = 12.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 353.50
Top Width (ft) = 35.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 2.20
Qmax (cfs) = 2.20
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 2.20
Qpipe (cfs) = 2.20
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 3.20
Veloc Up (ft/s) = 4.19
HGL Dn (ft) = 351.32
HGL Up (ft) = 352.13
Hw Elev (ft) = 352.43
Hw/D (ft) = 0.93
Flow Regime = Inlet Control



HR - CULVERT 3

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

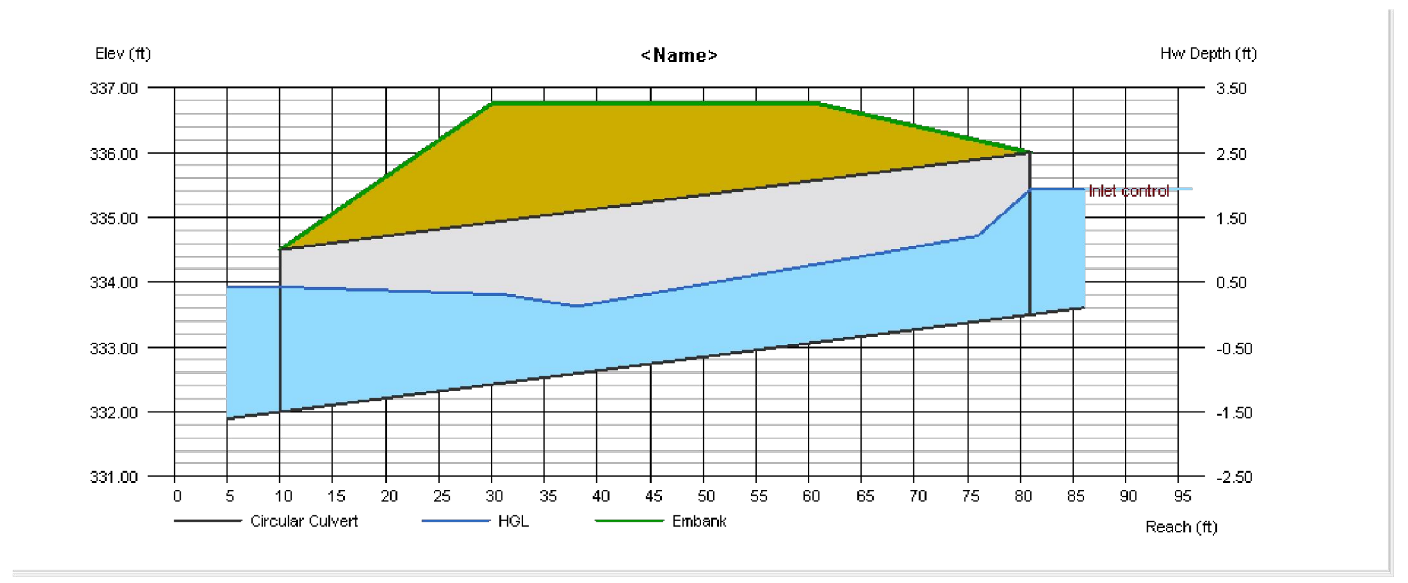
Circular Culvert

Invert Elev Dn (ft) = 332.00
Pipe Length (ft) = 71.00
Slope (%) = 2.11
Invert Elev Up (ft) = 333.50
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 336.75
Top Width (ft) = 31.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 16.20
Qmax (cfs) = 16.20
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 16.20
Qpipe (cfs) = 16.20
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 3.99
Veloc Up (ft/s) = 5.95
HGL Dn (ft) = 333.93
HGL Up (ft) = 334.86
Hw Elev (ft) = 335.43
Hw/D (ft) = 0.77
Flow Regime = Inlet Control



HR - CULVERT 4

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Jul 23 2021

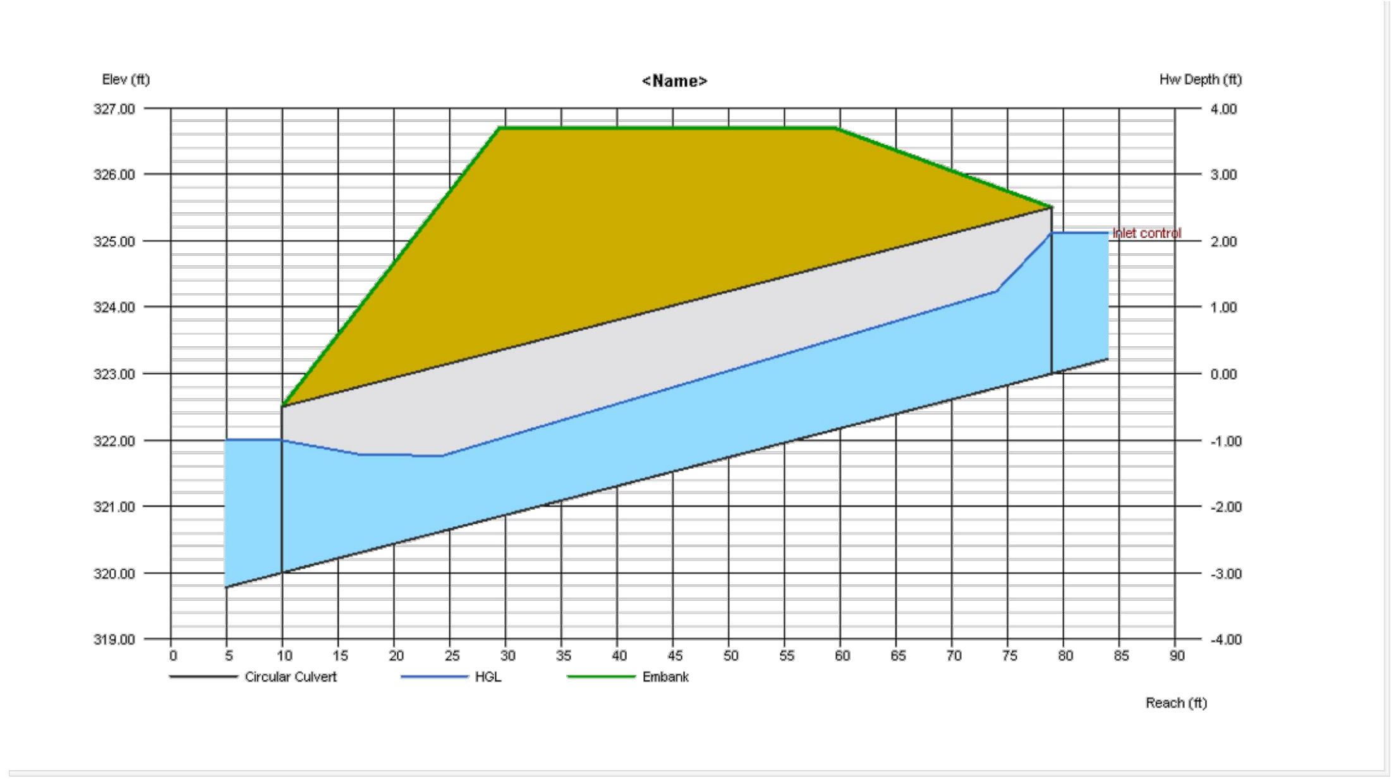
Circular Culvert

Invert Elev Dn (ft) = 320.00
Pipe Length (ft) = 69.00
Slope (%) = 4.35
Invert Elev Up (ft) = 323.00
Rise (in) = 30.0
Shape = Circular
Span (in) = 30.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 326.70
Top Width (ft) = 30.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 19.20
Qmax (cfs) = 19.20
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 19.20
Qpipe (cfs) = 19.20
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.58
Veloc Up (ft/s) = 6.32
HGL Dn (ft) = 321.99
HGL Up (ft) = 324.48
Hw Elev (ft) = 325.12
Hw/D (ft) = 0.85
Flow Regime = Inlet Control



HR - CULVERT 5

Culvert Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Tuesday, Mar 30 2021

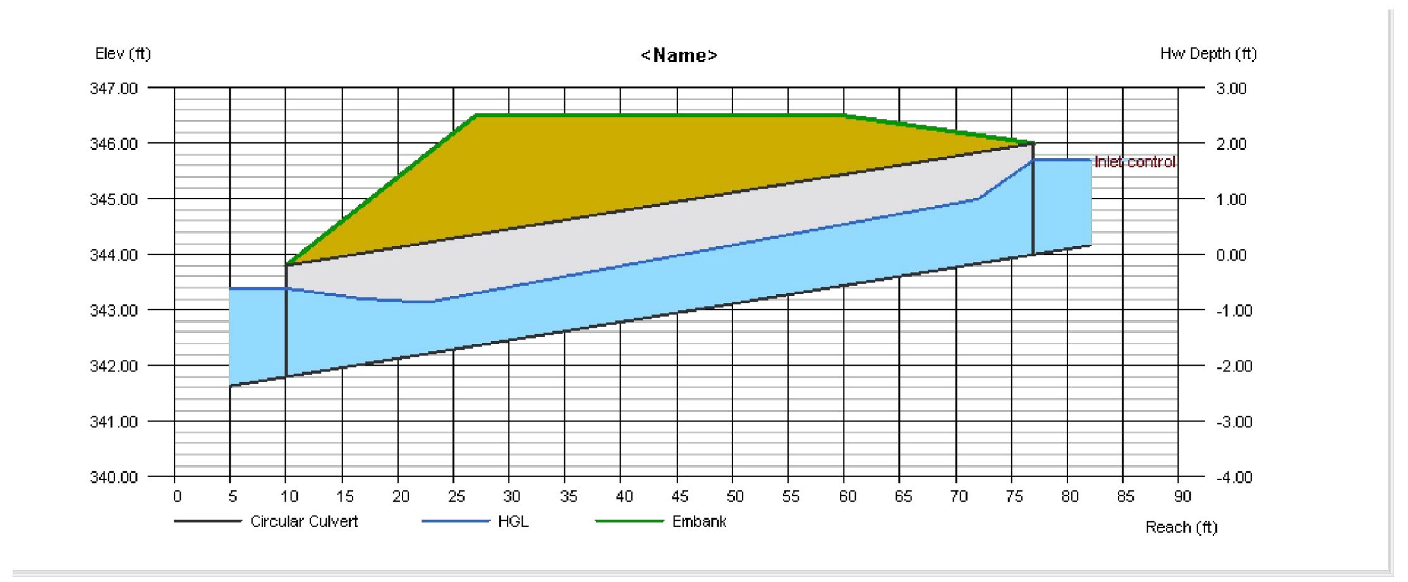
Circular Culvert

Invert Elev Dn (ft) = 341.80
Pipe Length (ft) = 67.00
Slope (%) = 3.28
Invert Elev Up (ft) = 344.00
Rise (in) = 24.0
Shape = Circular
Span (in) = 24.0
No. Barrels = 1
n-Value = 0.013
Culvert Type = Circular Concrete
Culvert Entrance = Groove end projecting (C)
Coeff. K,M,c,Y,k = 0.0045, 2, 0.0317, 0.69, 0.2

Embankment
Top Elevation (ft) = 346.50
Top Width (ft) = 33.00
Crest Width (ft) = 0.00

Calculations
Qmin (cfs) = 10.90
Qmax (cfs) = 10.90
Tailwater Elev (ft) = (dc+D)/2

Highlighted
Qtotal (cfs) = 10.90
Qpipe (cfs) = 10.90
Qovertop (cfs) = 0.00
Veloc Dn (ft/s) = 4.07
Veloc Up (ft/s) = 5.64
HGL Dn (ft) = 343.39
HGL Up (ft) = 345.18
Hw Elev (ft) = 345.70
Hw/D (ft) = 0.85
Flow Regime = Inlet Control



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CULVERT CALCULATIONS (SHEET 3 OF 3)
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS

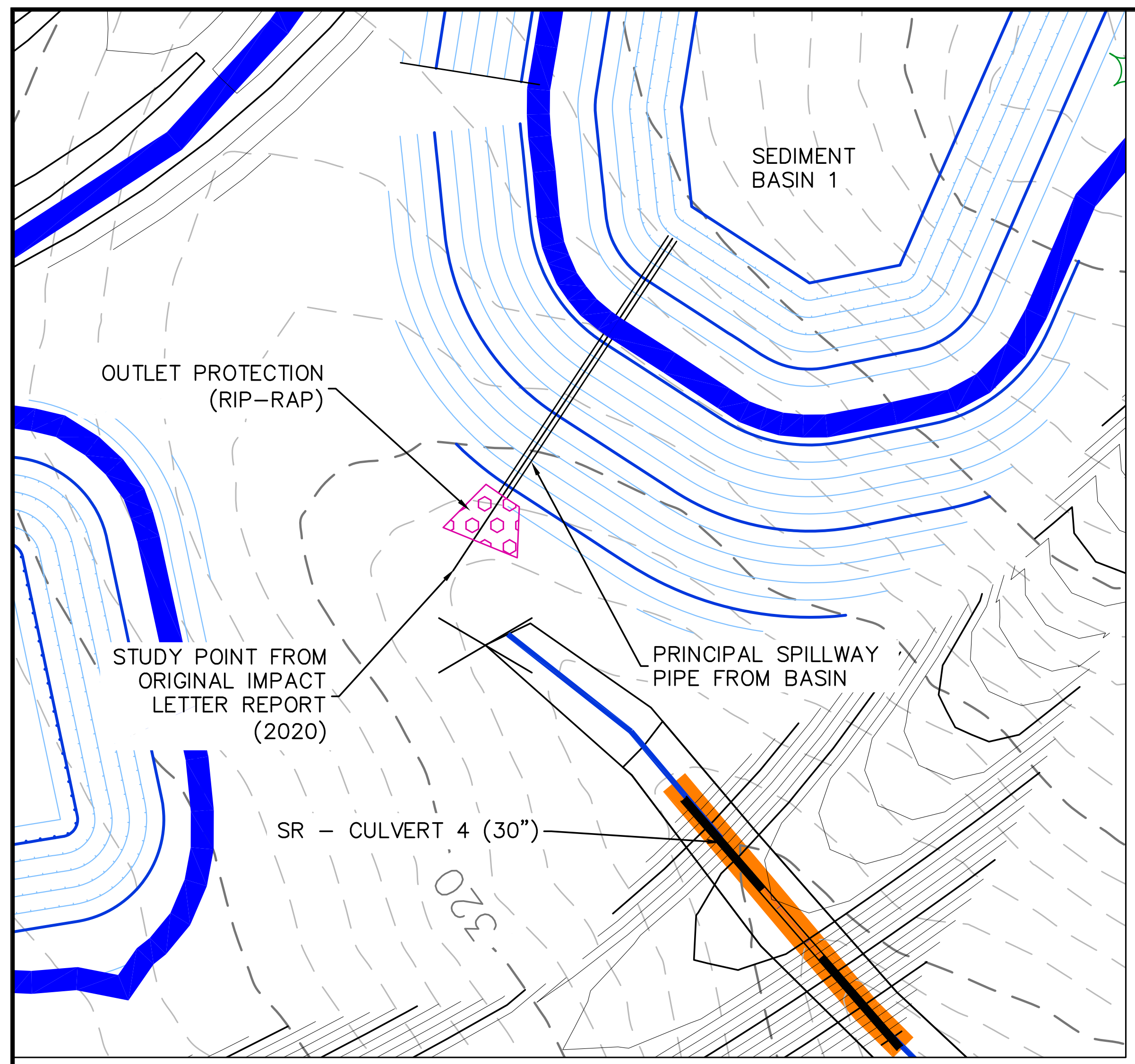
JPA - RESPONSE 1
MAY 07, 2021

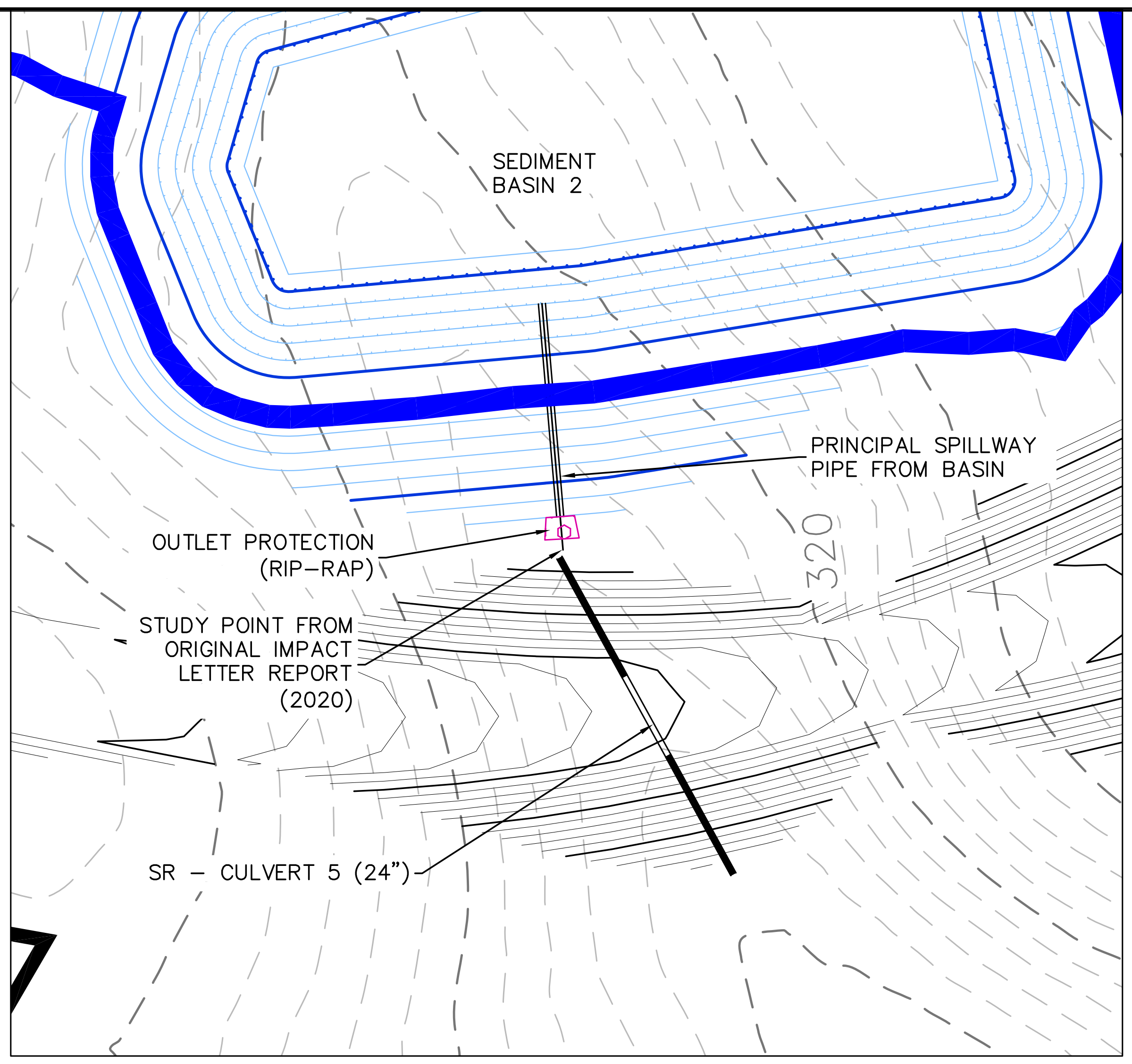
JPA - RESPONSE 2
JANUARY 11, 2022

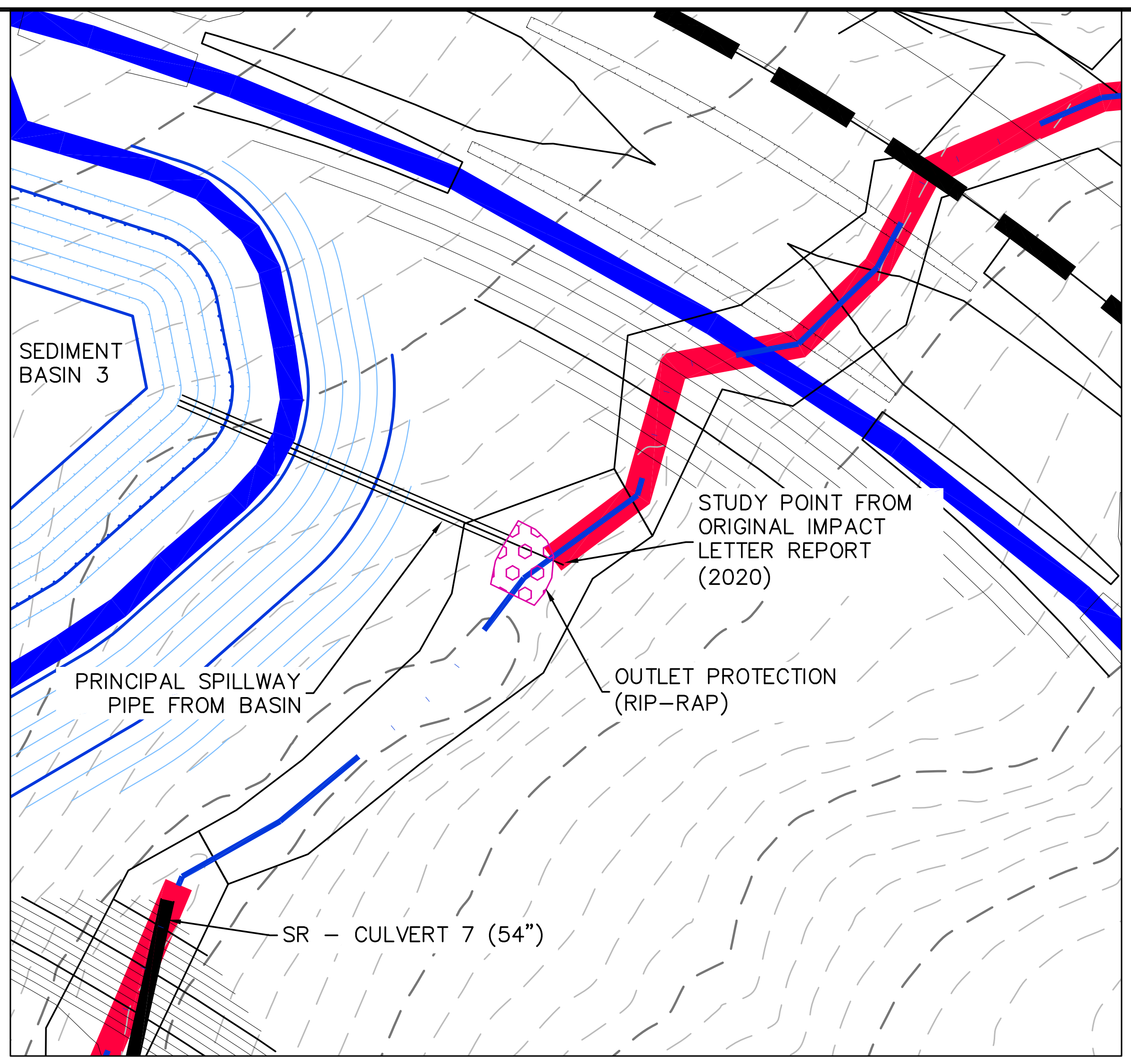
JPA - RESPONSE 3
APRIL 29, 2022

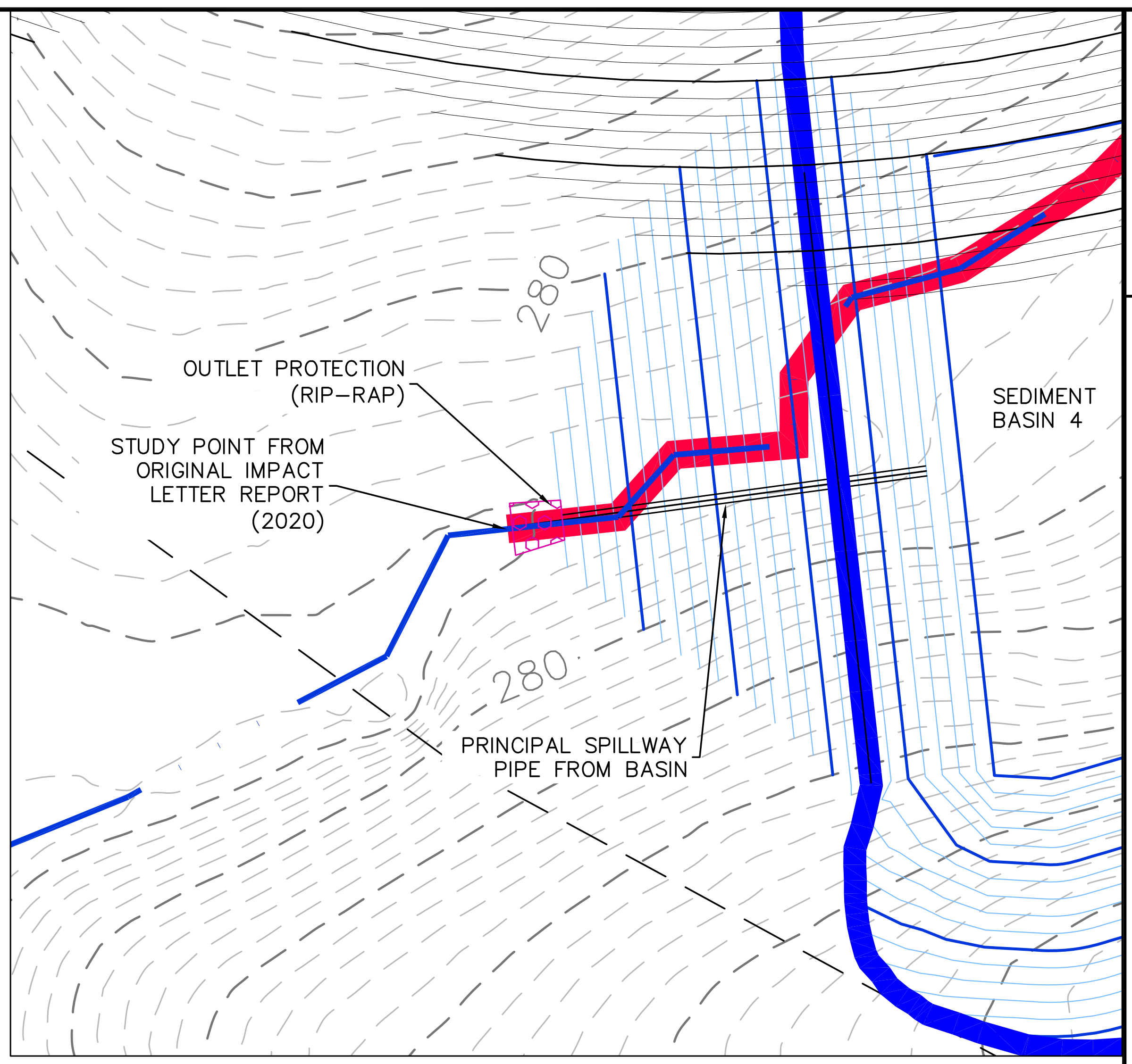
DESIGNED BY: EEH
DRAWN BY: EEH
CHECKED BY: GWC
SCALE: NONE
DATE: SEPTEMBER 30, 2021
PROJECT NUMBER: 18020117-110102

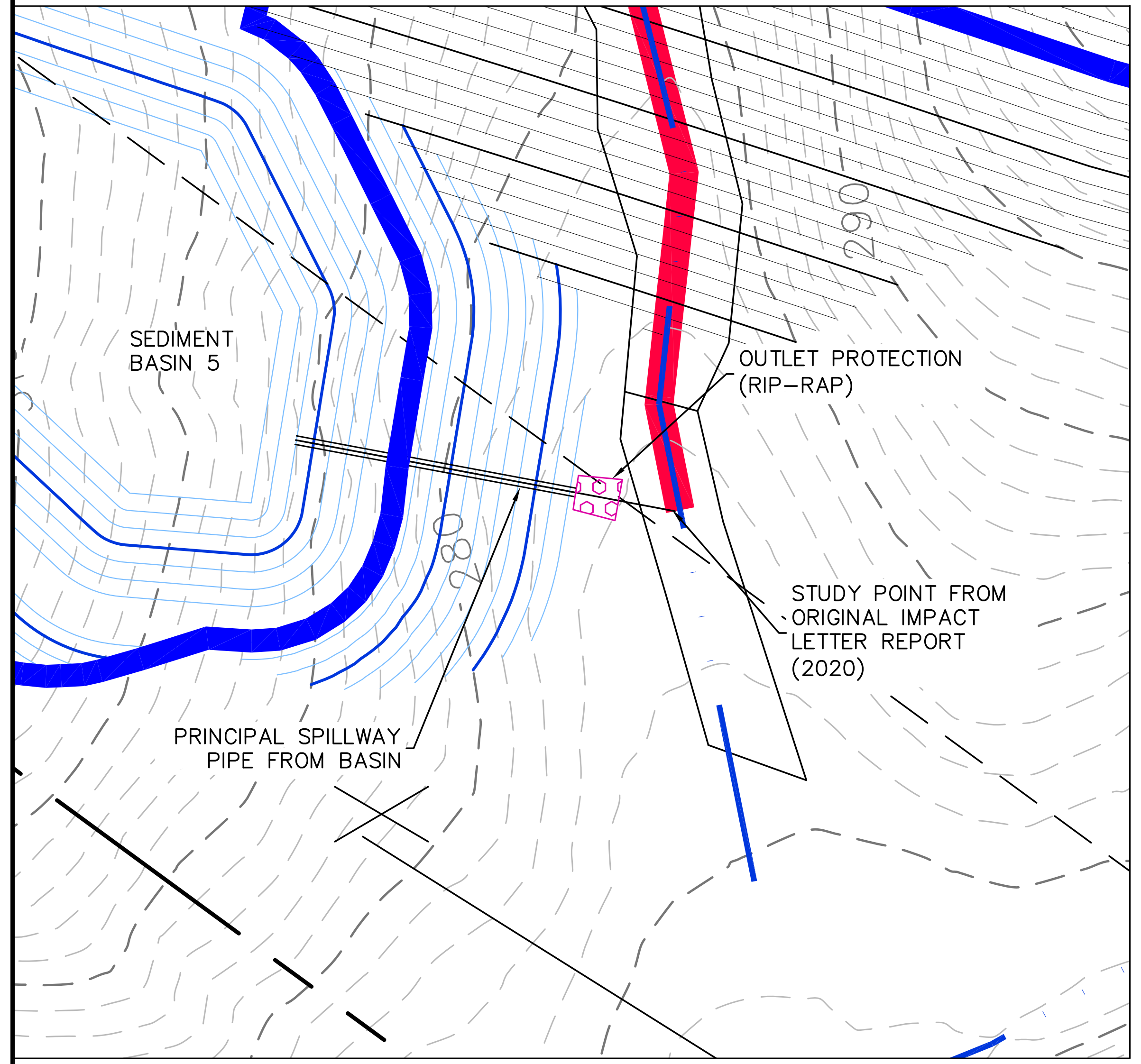
C11.2

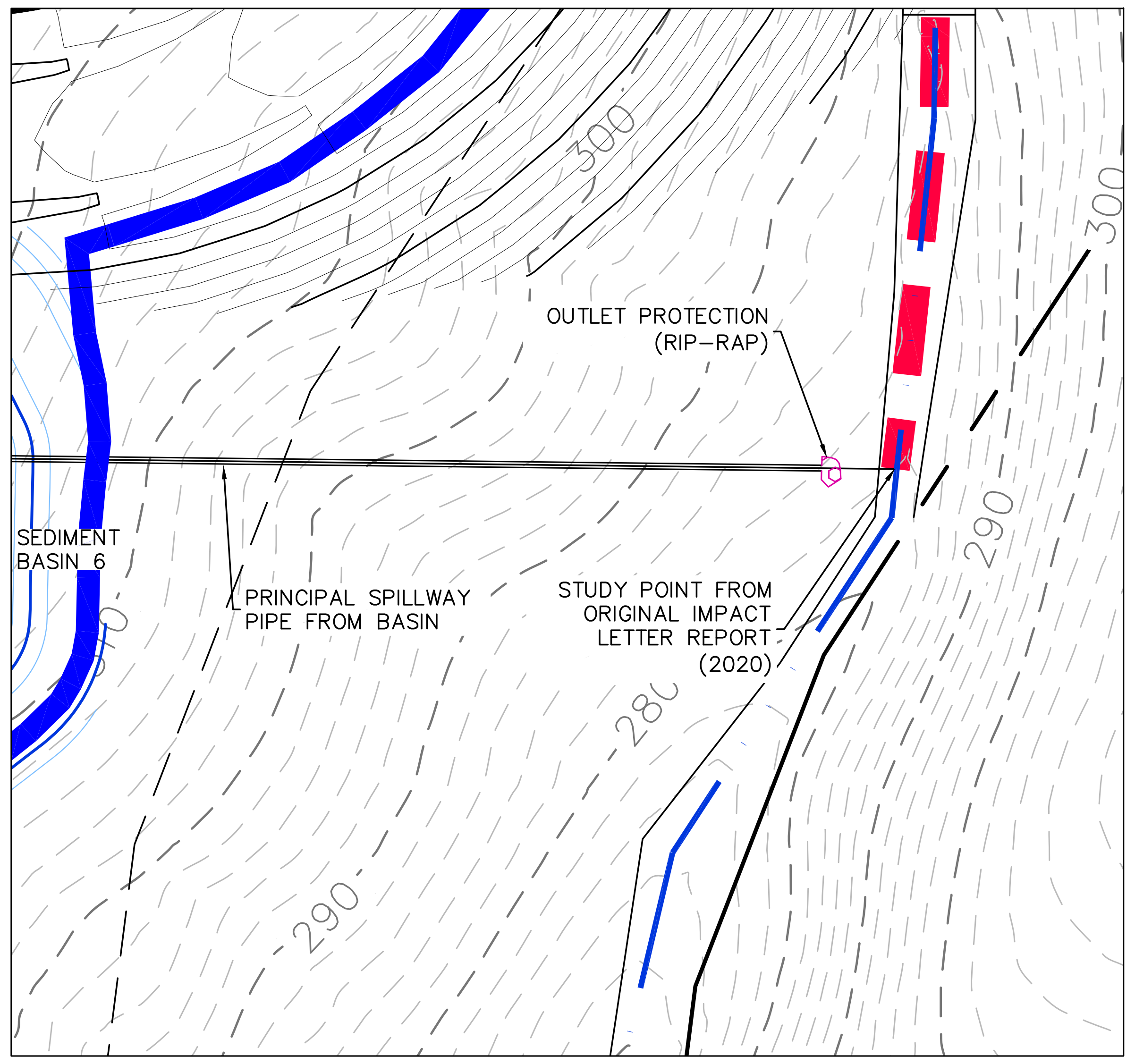

SEDIMENT BASIN 1
OUTLET PROTECTION (RIP-RAP)
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
PRINCIPAL SPILLWAY PIPE FROM BASIN
SR - CULVERT 4 (30")
320


SEDIMENT BASIN 2
PRINCIPAL SPILLWAY PIPE FROM BASIN
OUTLET PROTECTION (RIP-RAP)
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
SR - CULVERT 5 (24")
320


SEDIMENT BASIN 3
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
PRINCIPAL SPILLWAY PIPE FROM BASIN
OUTLET PROTECTION (RIP-RAP)
SR - CULVERT 7 (54")


OUTLET PROTECTION (RIP-RAP)
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
SEDIMENT BASIN 4
280
280
PRINCIPAL SPILLWAY PIPE FROM BASIN


SEDIMENT BASIN 5
290
OUTLET PROTECTION (RIP-RAP)
280
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
PRINCIPAL SPILLWAY PIPE FROM BASIN


300
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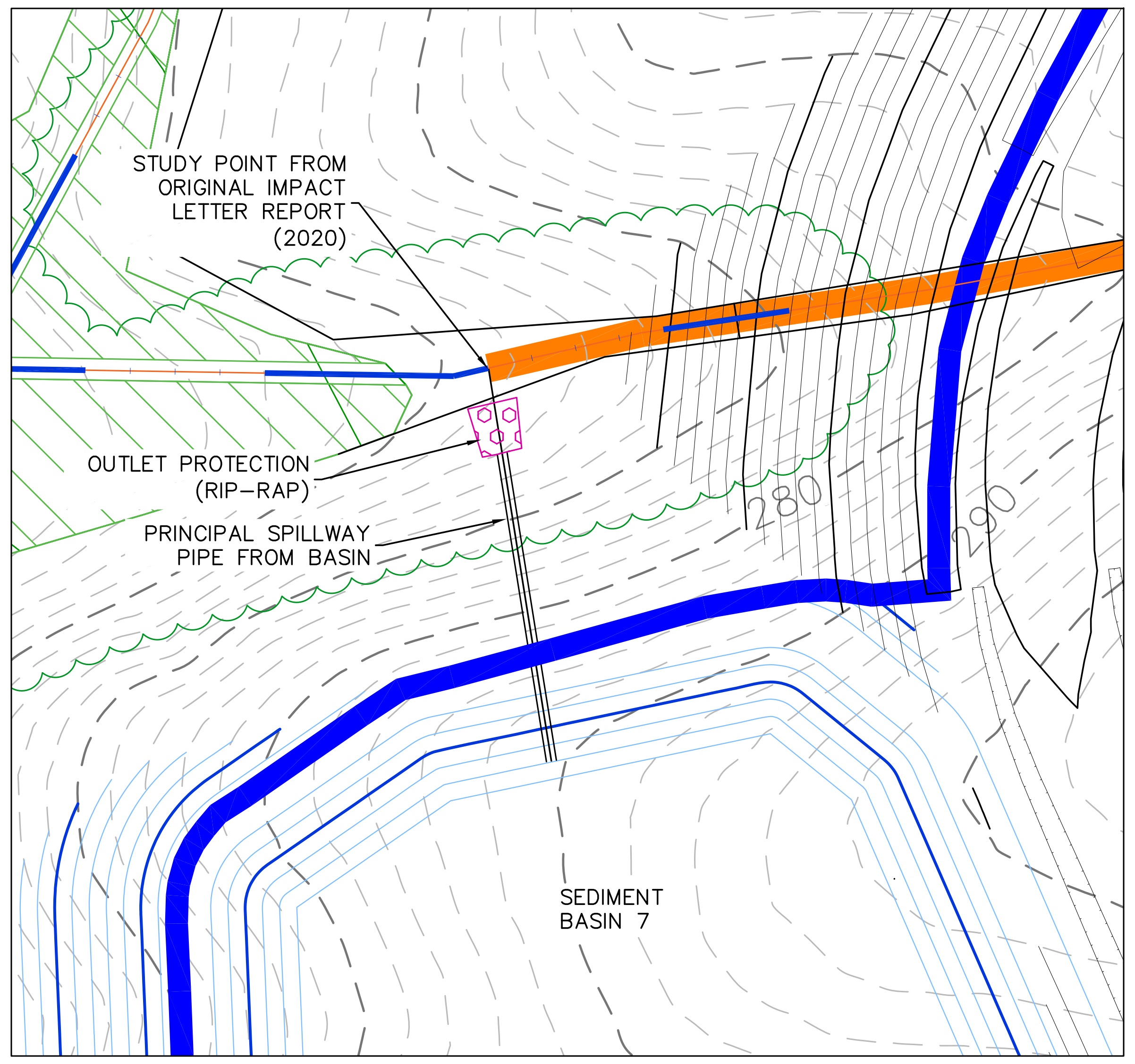
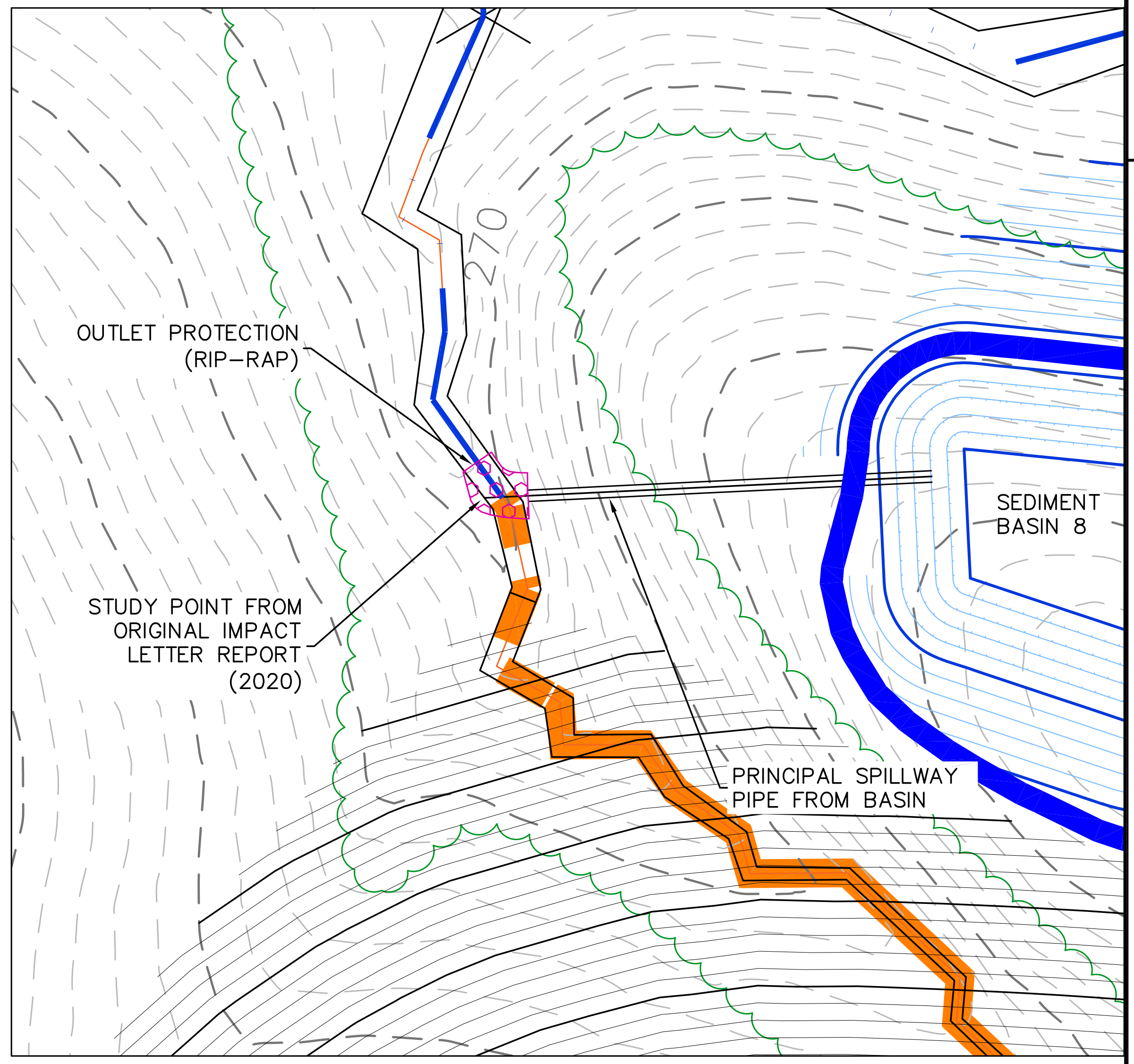
OUTLET PROTECTION (RIP-RAP)
SEDIMENT BASIN 6
PRINCIPAL SPILLWAY PIPE FROM BASIN
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
290
280
290


STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
OUTLET PROTECTION (RIP-RAP)
PRINCIPAL SPILLWAY PIPE FROM BASIN
280
290
SEDIMENT BASIN 7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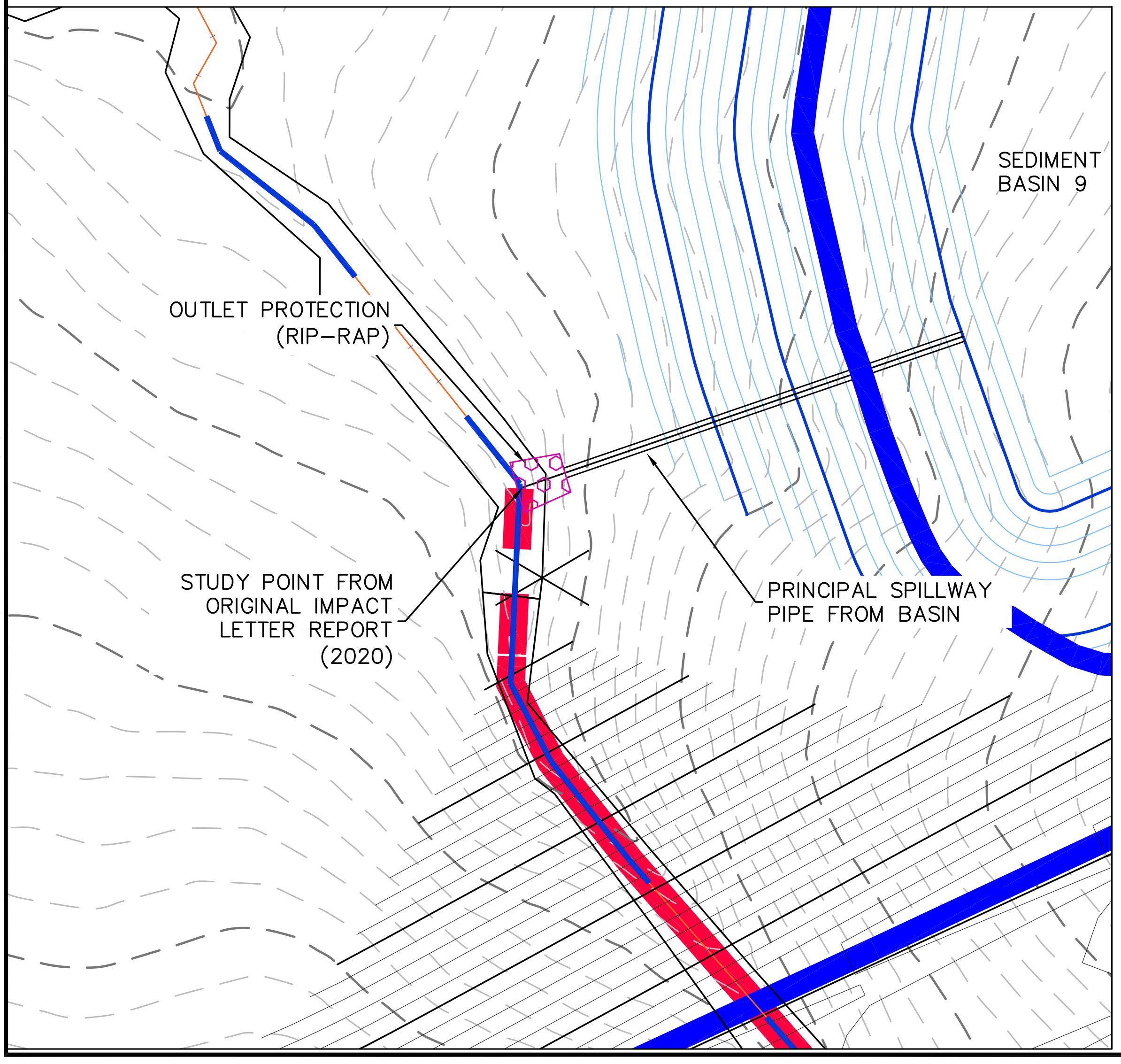
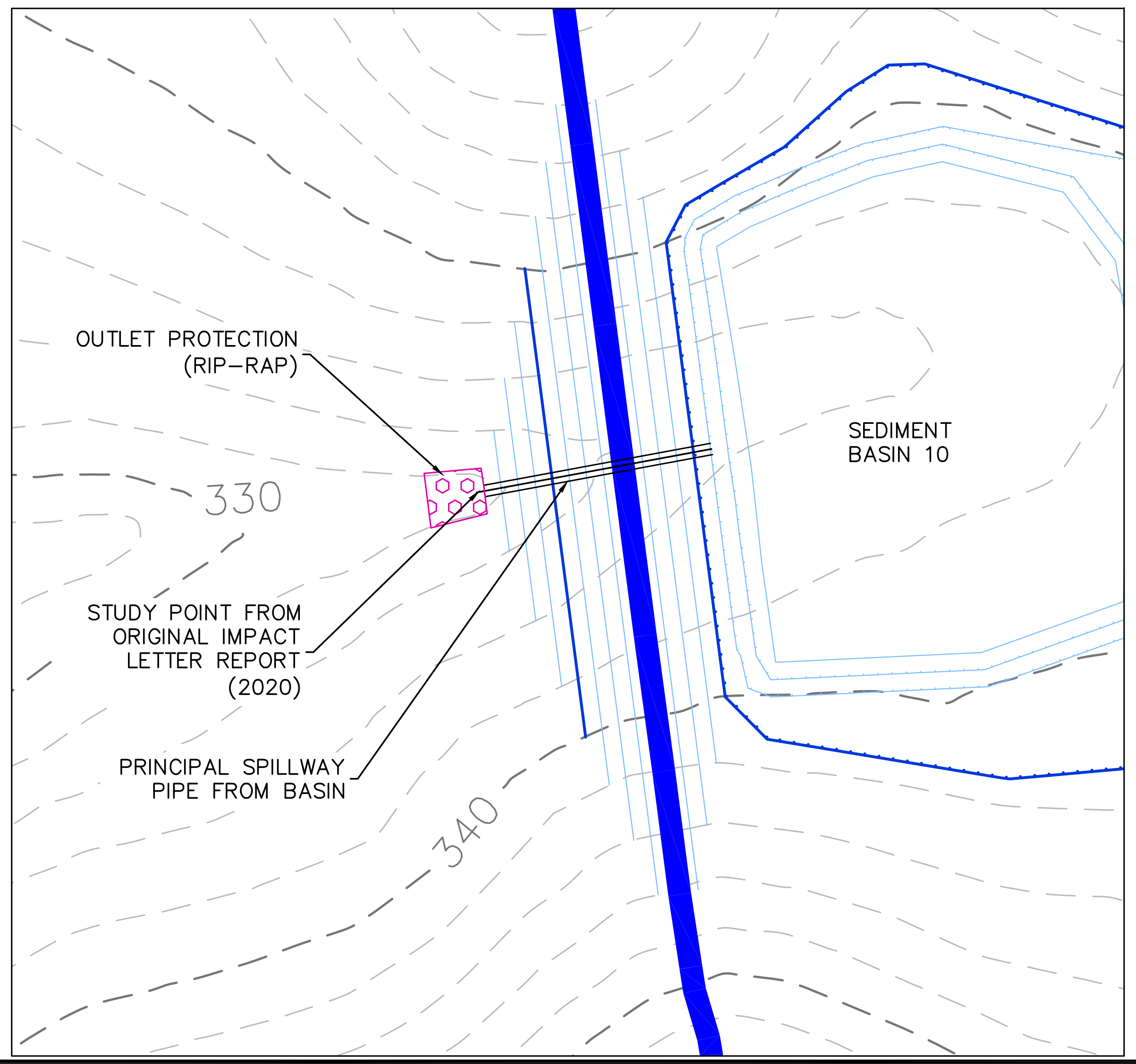
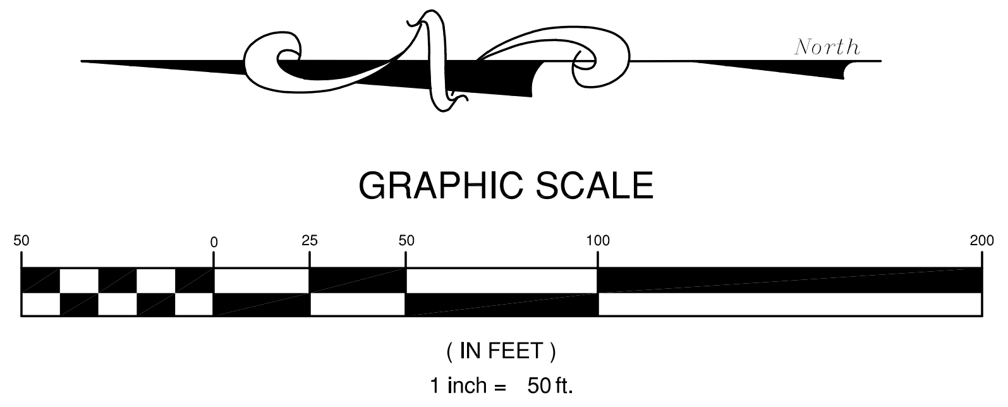
OUTLET PROTECTION (RIP-RAP)
SEDIMENT BASIN 8
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
PRINCIPAL SPILLWAY PIPE FROM BASIN


SEDIMENT BASIN 9
OUTLET PROTECTION (RIP-RAP)
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
PRINCIPAL SPILLWAY PIPE FROM BASIN


OUTLET PROTECTION (RIP-RAP)
330
SEDIMENT BASIN 10
STUDY POINT FROM ORIGINAL IMPACT LETTER REPORT (2020)
PRINCIPAL SPILLWAY PIPE FROM BASIN
340


North
GRAPHIC SCALE
50
0
25
50
100
200
(IN FEET)
1 inch = 50 ft.

LANDFILL SEDIMENT BASIN OUTLET INFORMATION TABLE

BASIN ID	Q10 FLOW (CFS)	RIP-RAP CLASS	OUTLET PROTECTION (RIP-RAP) DIMENSIONS		DISTANCE - END OF OUTLET PROTECTION TO CENTERLINE OF STREAM (FT)
			MIN. LENGTH (FT)	MIN. WIDTH (FT)	
1	0.85	AI	17.5	10.5	13.5
2	0.68	AI	7.5	7.5	402
3	5.63	I	20.0	12.0	0.0
4	1.59	I	17.5	10.5	0.0
5	19.77	II	15.0	9.0	22.0
6	0.12	AI	6.0	6.0	19.5
7	3.62	I	17.5	10.5	12.0
8	11.12	I	20.0	12.0	0.0
9	5.03	I	17.5	10.5	0.0
10	18.22	I	20.0	12.0	222

FOR PERMITTING PURPOSES ONLY

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• Northern Virginia
• Virginia Beach, VA

LANDFILL SEDIMENT BASIN OUTLET PROTECTION
GREEN RIDGE RECYCLING & DISPOSAL FACILITY
CUMBERLAND COUNTY, VIRGINIA

REVISIONS
JPA RESPONSE
APRIL 29, 2022

DESIGNED BY: AST
DRAWN BY: DLD/AST
CHECKED BY: -
SCALE: 1" = 50'
DATE: APRIL 29, 2022
PROJECT NUMBER: 18020117-110102