

MILL RIVER BANK REPAIR PROJECT

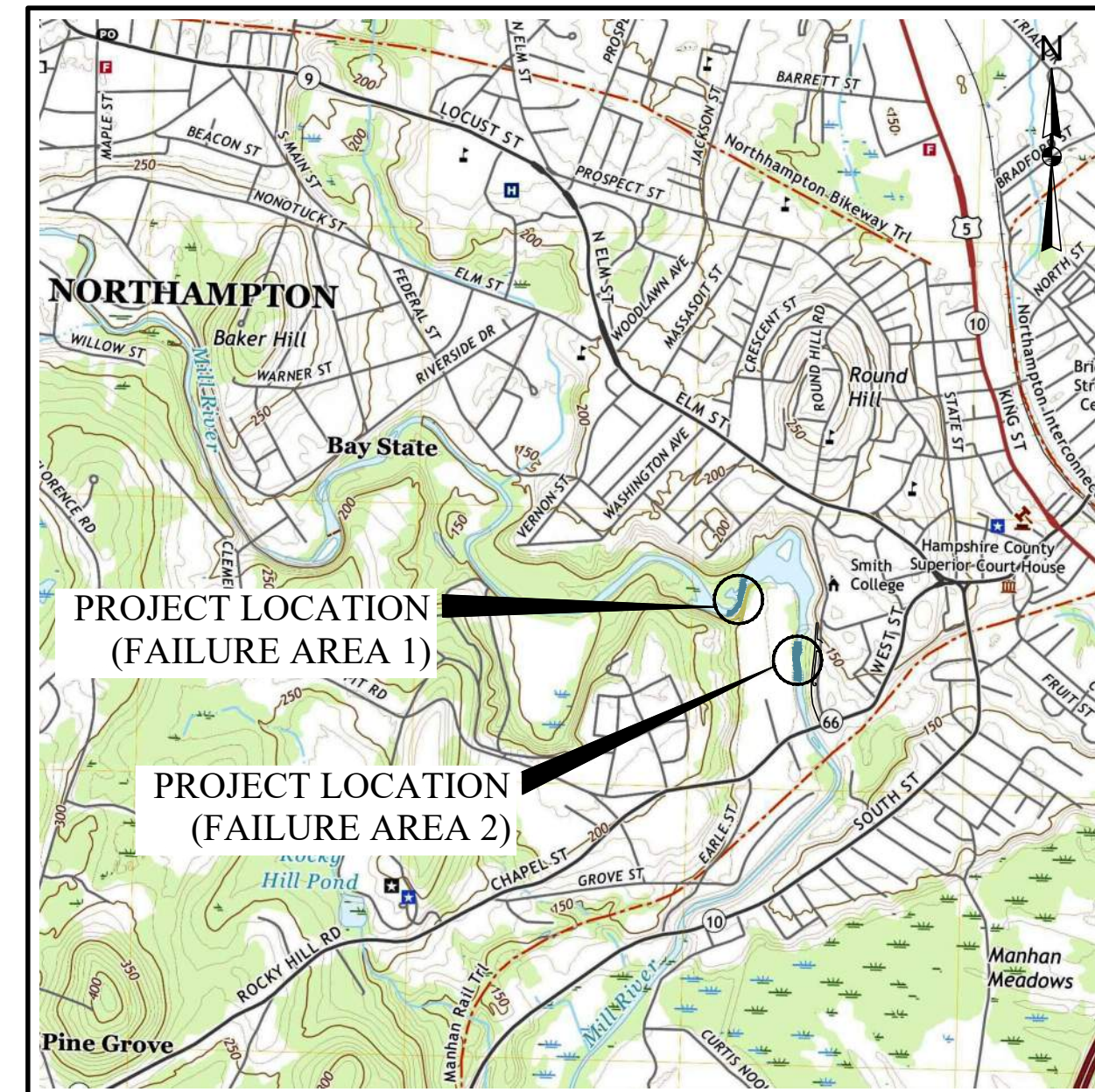
SMITH COLLEGE

NORTHAMPTON, MASSACHUSETTS

OCTOBER, 2023

COVER SHEET

- EX-1 EXISTING TOPOGRAPHIC PLAN OF LAND
- C-1 SITE ACCESS, EROSION & SEDIMENT CONTROL, AND WATER CONTROL PLAN
- C-2 EROSION & SEDIMENT CONTROL NOTES AND DETAILS
- C-3 PROPOSED LAYOUT PLAN BANK REPAIRS
- C-4 FAILURE AREA 1 CROSS SECTIONS
- C-5 FAILURE AREA 2 CROSS SECTIONS
- C-6 CONSTRUCTION DETAILS
- C-7 PROPOSED POROUS BITUMINOUS CONCRETE PAVEMENT PLAN AND DETAILS
- C-8 FAILURE AREA 1 RESTORATION PLAN
- L-1 LANDSCAPE PLAN
- BR-1 LAMONT BRIDGE REHABILITATION: REPAIR PLANS
- BR-2 LAMONT BRIDGE REHABILITATION: REPAIR ELEVATION AND DETAILS
- BR-3 LAMONT BRIDGE REHABILITATION: REPAIR DETAILS
- BR-4 LAMONT BRIDGE REHABILITATION: TYPICAL CONCRETE REPAIR DETAILS



LOCUS PLAN
 U.S.G.S. Easthampton MA Quad 2021
 1" = 2000'

PRELIMINARY DRAWING
TO ACCOMPANY PERMIT
APPLICATIONS AND REVIEW
NOT FOR CONSTRUCTION
OCTOBER 2023

REFERENCE NOTES:

1. THE BASE MAP WAS DEVELOPED FROM SEALED PLANS PROVIDED BY NORTHEAST SURVEY CONSULTANTS ENTITLED "PLAN OF LAND IN NORTHAMPTON, MA PREPARED FOR GZA GEOENVIRONMENTAL, INC. & SMITH COLLEGE", DATED 12-30-2019, SHEETS 1 - 2 OF 2.
2. VERTICAL COORDINATE BASE = N.A.V.D. 1988, HORIZONTAL COORDINATE BASE = MASSACHUSETTS STATE PLANE, N.A.D. 83 (MASS MAINLAND).
3. WETLAND FLAGS SERIES RA DELINEATION BY GZA GEOENVIRONMENTAL, INC., 10/22/2019.
4. WETLAND FLAGS SERIES WF FROM DIKE REPAIR PLAN, PARADISE POND DAM REPAIRS, PARE CORPORATION, AUGUST 3, 2012.
5. THE BASE MAP FOR AREAS ALONG PARADISE POND FROM THE BOAT RAMP TO NORTH OF THE LAMONT BRIDGE WERE DEVELOPED FROM DIKE REPAIR PLAN, PARADISE POND DAM REPAIRS, PARE CORPORATION, AUGUST 3, 2012.

PREPARED FOR:

Smith College Facilities Management
 126 West Street
 Northampton, MA

SURVEYOR:

Northeast Survey Consultants
 116 Pleasant Street, Suite 302
 P.O. Box 109
 Easthampton, MA 01027
 413-203-5144

DESIGNER:

GZA GeoEnvironmental, Inc.
Engineers and Scientists
 ONE FINANCIAL PLAZA
 1350 Main Street, Suite 1400
 Springfield, MA 01103
 413-726-2100



LEGEND

- CONC. CONCRETE
- BIT. BITUMINOUS CONCRETE
- FF FINISHED FLOOR
- B.C. BIT. CURB
- C.C. CONC. CURB
- G.C. GRANITE CURB
- S.G.C. SLOPED GRANITE CURB
- C/T COMMUNICATIONS
- D STORM DRAIN
- E ELECTRIC
- G GAS
- S SEWER
- W WATER
- ~ BOOK ~ PAGE
- PROPERTY LINE
- INTERIOR PROPERTY LINE
- EASEMENT LINE
- BURIED UTILITY LINE
- CONTOUR LINE
- CENTERLINE OF FLOW - THALWEG
- EDGE OF WATER
- OHW OVERHEAD WIRES
- STOCKADE FENCE
- CHAIN LINK FENCE
- TREE LINE ±
- ROOF DRAIN
- POST / BOLLARD
- BORE HOLE FOUND
- CALCULATED CORNER
- SURVEY CONTROL POINT
- SIGN POST
- TREE
- UTILITY POLE
- GUY WIRE ANCHOR
- ELECTRIC BOX
- RECORD ELECTRIC BOX
- CATCH BASIN
- STORM OUTFALL
- MANHOLE
- WATER GATE VALVE
- HYDRANT
- STUMP
- SPOT ELEVATION
- APPROXIMATE DEBRIS LINE INDICATING APPROXIMATE NORMAL POOL EDGE OF WATER
- EDGE OF WATER AT TIME OF SURVEY 11-8-2019 (POND MAINTENANCE)

31A-260
N/F
SMITH COLLEGE
DEED 925~93

PARADISE POND
NORMAL POOL WATER SURFACE
ELEV = 136.2'±
(EVIDENCED BY WOOD BOARDS ON DAM)
POND MAINTENANCE WORK
AT TIME OF SURVEY
ELEVATION VARIES
11-8-2019

WATERMARK ON BOLDER
INDICATING NORMAL POND
WATER ELEVATION = 136.1'±

CONTROL POINT #3
X IN CONCRETE
N: 2942825.625
E: 347069.652

BENCHMARK
CHISEL SQUARE ON
CORNER OF CONC.
SEWER STRUCTURE
ELEV. = 144.83'

31C-15
N/F
SMITH COLLEGE
DEED 860~421

31D-21
N/F
NORTHAMPTON HOUSING
AUTHORITY
DEED 5630~117
PLAN 183~1

- NOTES:**
1. FIELD SURVEY BY EDM TOTAL STATION.
 2. THE HORIZONTAL DATUM IS NAD83 (MASS. MAINLAND), THE VERTICAL DATUM IS NAVD88 AND BOTH ARE BASED ON AN RTK GPS SURVEY.
 3. WETLAND FLAGS LOCATED ON NOVEMBER 8, 2019 BASED ON FIELD DELINEATION PERFORMED BY GZA ON OCTOBER 22, 2019.
 4. THE LOCATIONS OF UTILITIES SHOWN HEREON ARE THE RESULT OF SURFACE EVIDENCE AS LOCATED BY FIELD SURVEY. THIS PLAN DOES NOT NECESSARILY DEPICT THE EXACT LOCATION OF THESE UTILITIES AND MAY NOT SHOW ALL OF THE UTILITIES WHICH EXIST WITHIN THE PREMISES SURVEYED. CONTACT DIG-SAFE AT 1-888-344-7233 BEFORE EXCAVATION.

Daniel F. Stasz
DANIEL F. STASZ
No. 47160
REGISTERED PROFESSIONAL LAND SURVEYOR

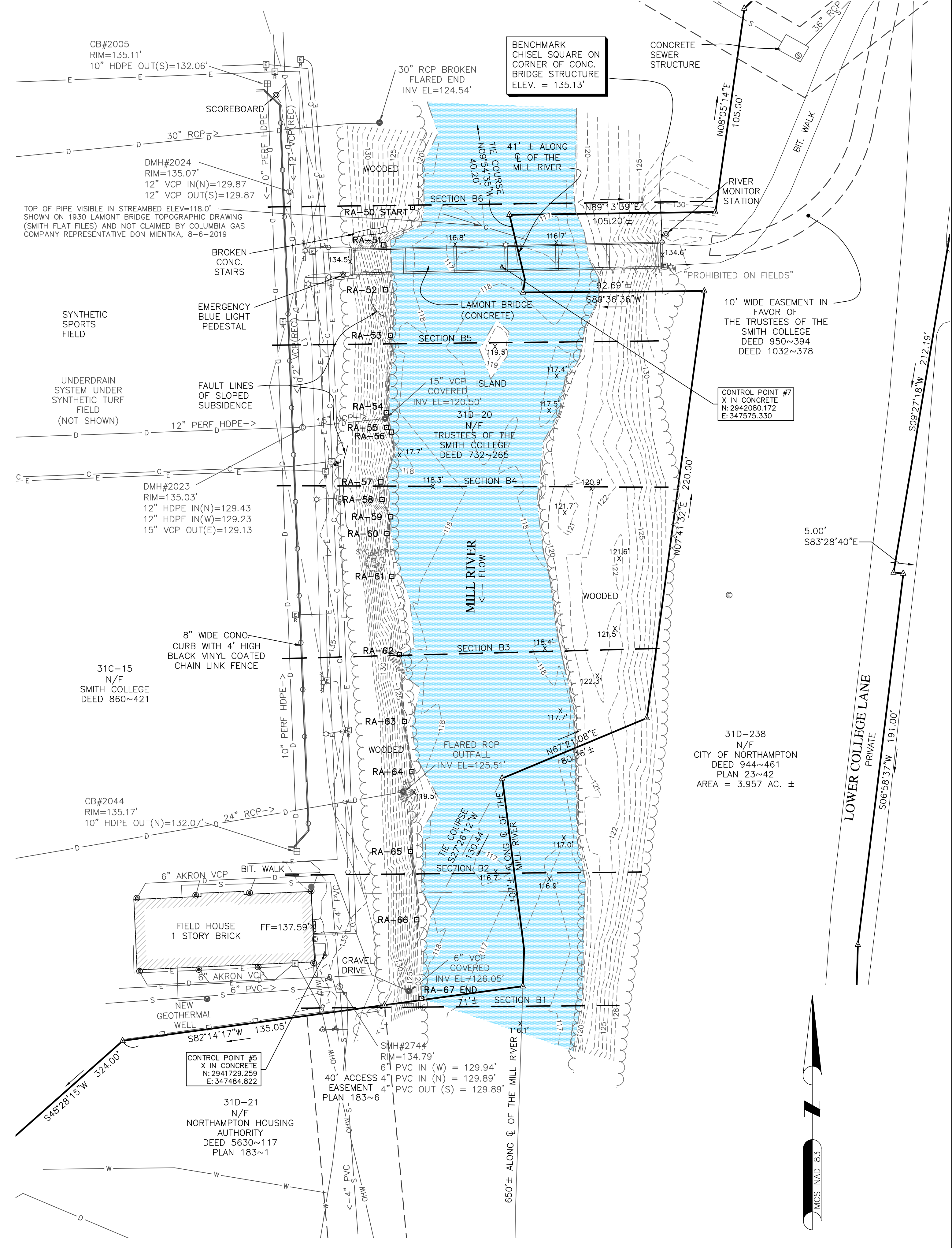
CONTROL POINT #4
X IN CONCRETE
N: 2942407.427
E: 346900.092

AREA "A"

31C-13
N/F
SMITH COLLEGE
DEED 594~279

38A-85
N/F
SMITH COLLEGE
LOT K1
DEED 5898~55
PLAN 183~1-6

SEE DEED 3561~285 FOR
CONSERVATION EASEMENT
100' FROM MEAN HIGH WATER



AREA "B"



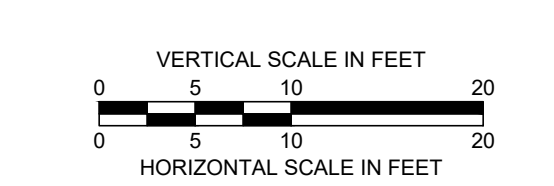
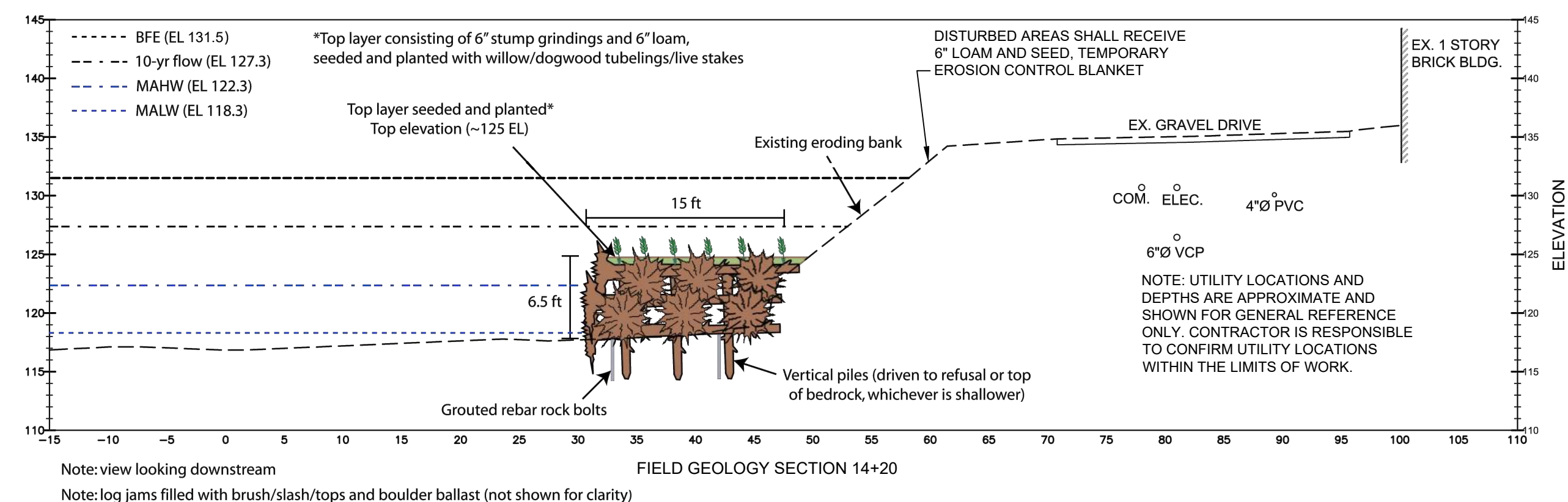
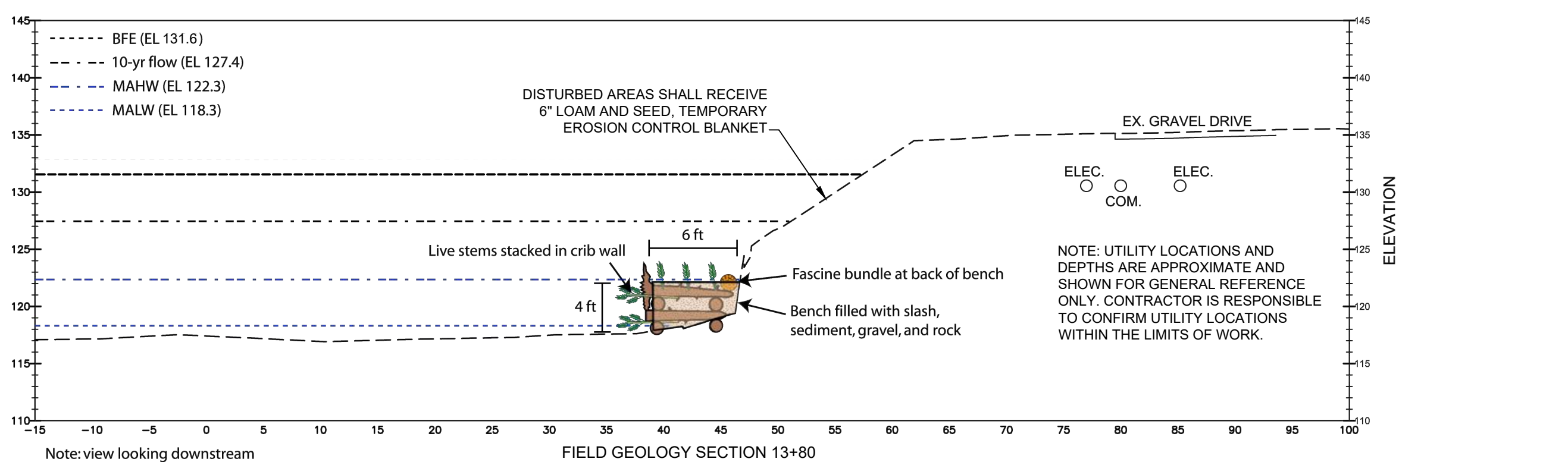
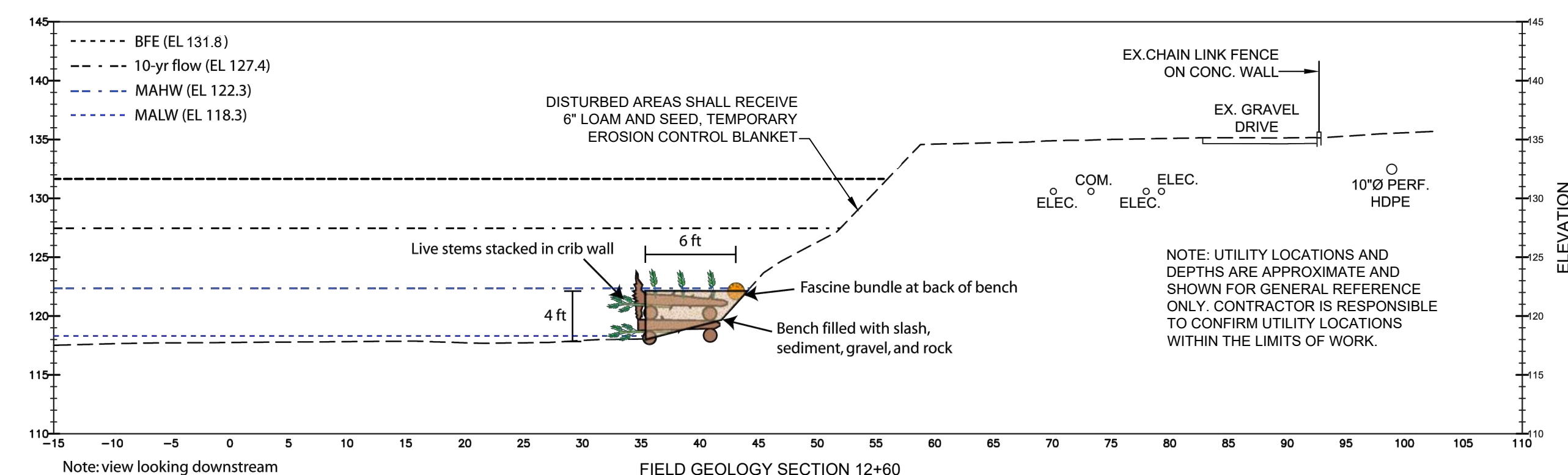
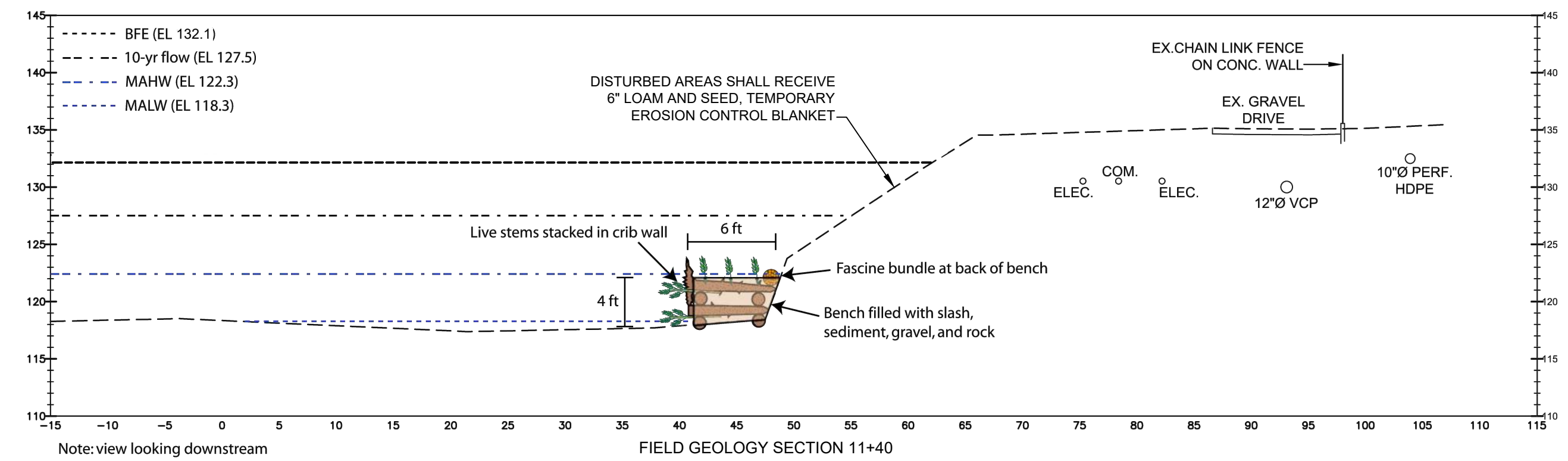
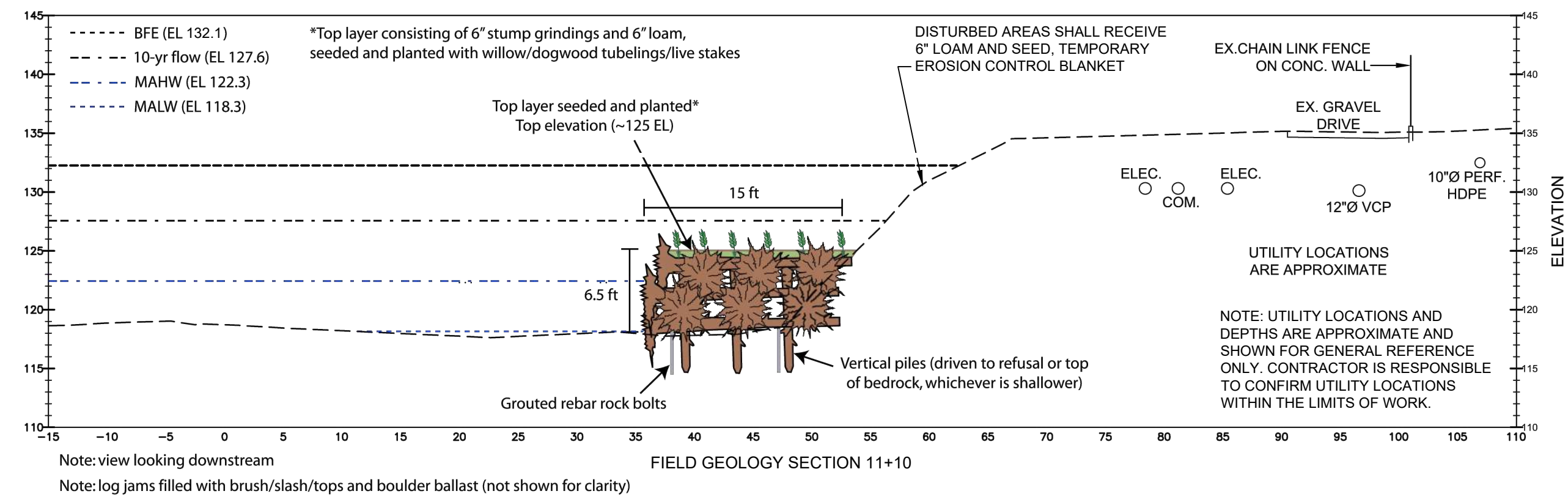
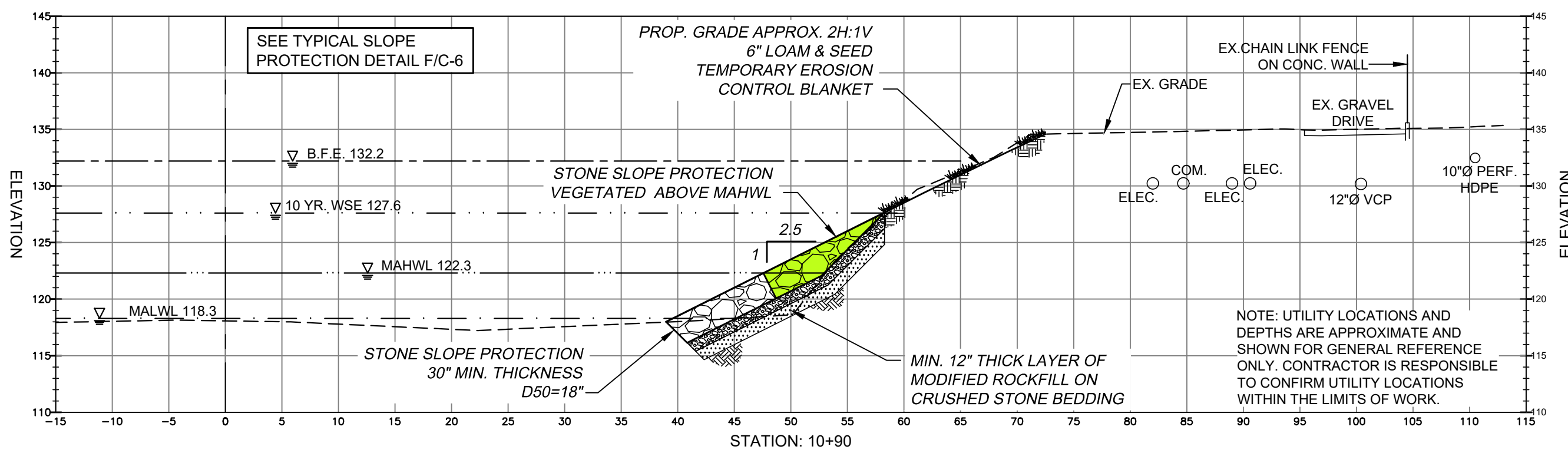
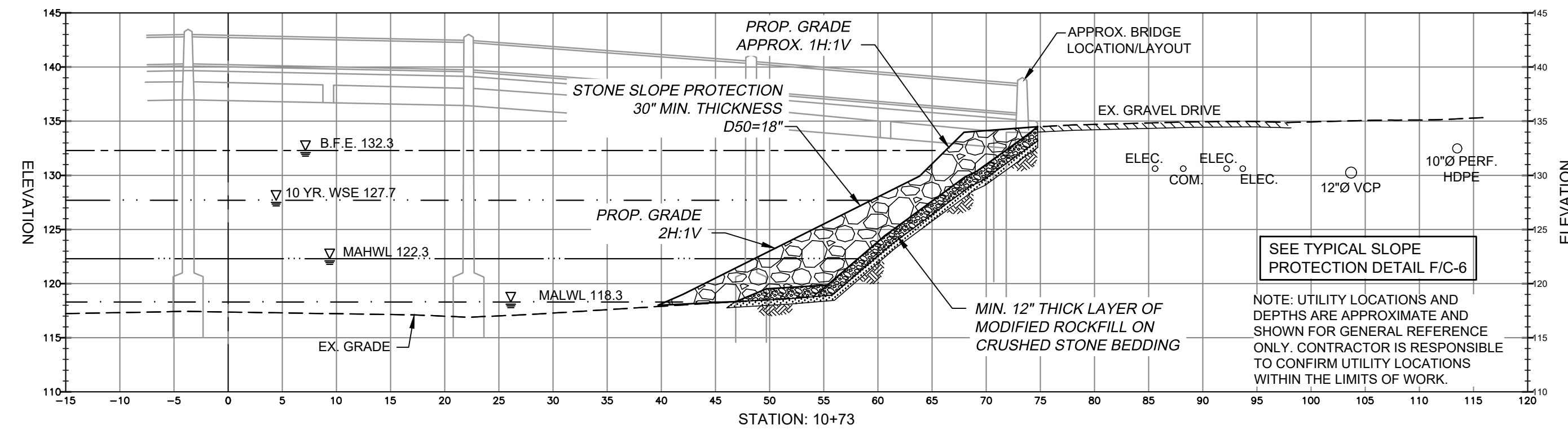
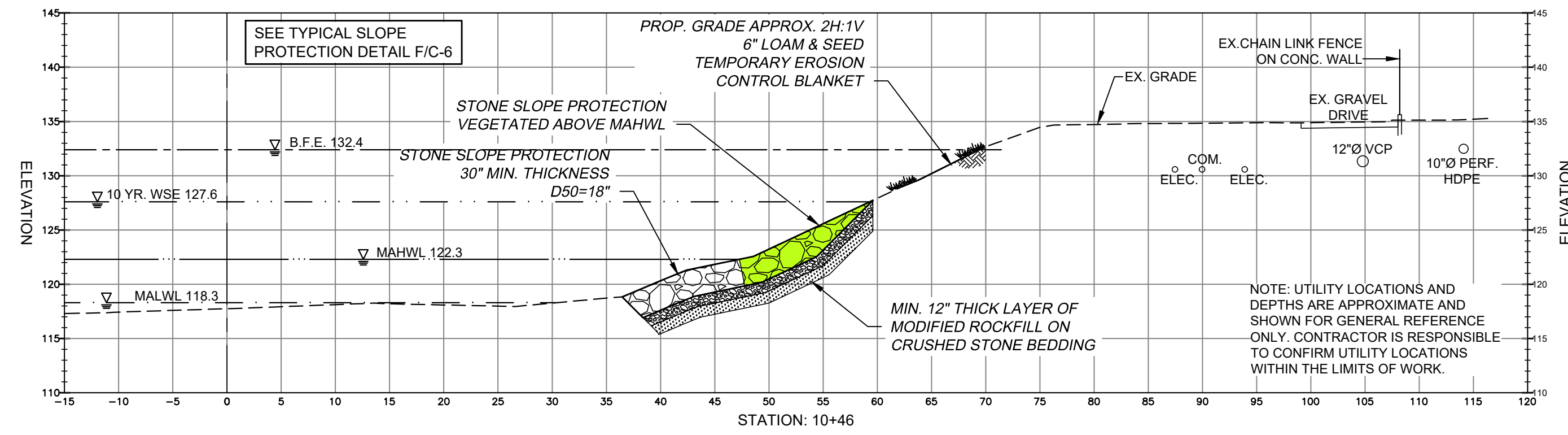
NORTHEAST SURVEY CONSULTANTS
116 PLEASANT ST., SUITE 302
EASTHAMPTON, MA 01027
(413) 203-5144

EXISTING CONDITIONS

SURVEYOR:	DFS	ENGINEER:	12-30-2019
DRAFTING:	DAW	DESIGN:	
FIELD WORK:	DAW	HORZ. SCALE:	1" = 30'
PROJECT NUMBER:	19-195	VERT. SCALE:	
DRAWING NAME:	19-195.DWG	DATE:	

PLAN OF LAND IN NORTHAMPTON, MA
PREPARED FOR
GZA GEOENVIRONMENTAL, INC. & SMITH COLLEGE

SHEET NO. **1** OF **2**



PRELIMINARY DRAWING
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OCTOBER 2023

NO.	ISSUE/DESCRIPTION	BY	DATE

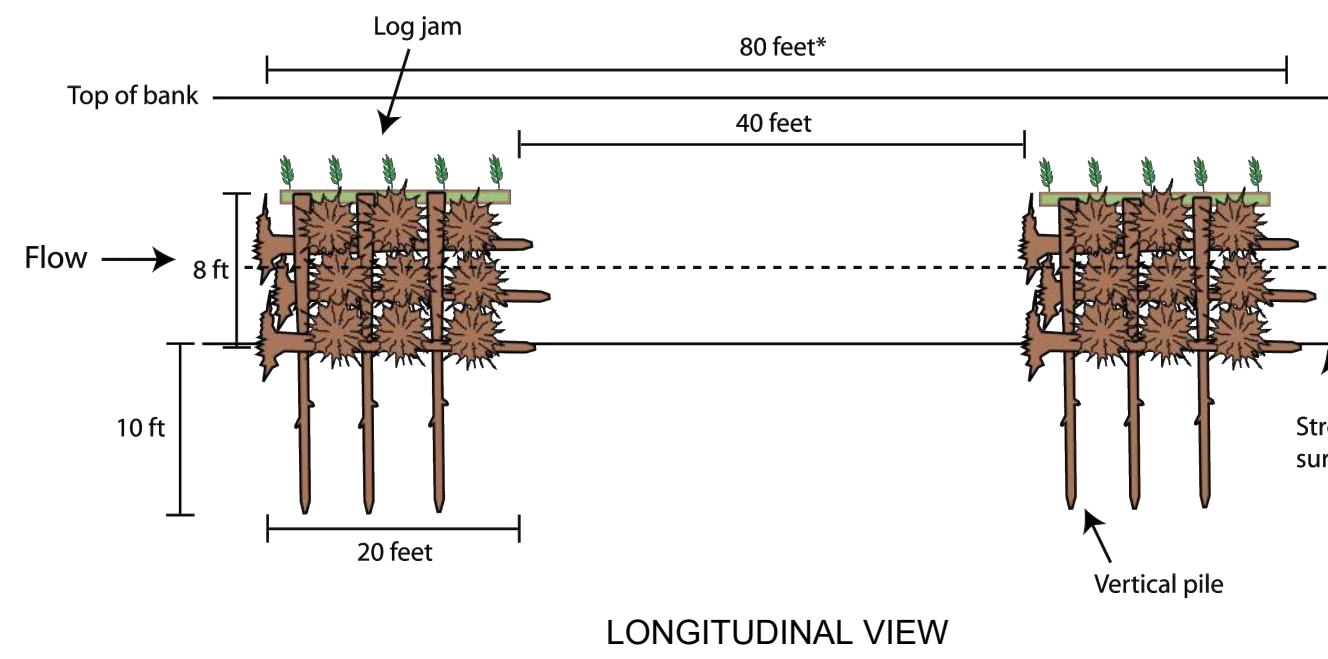
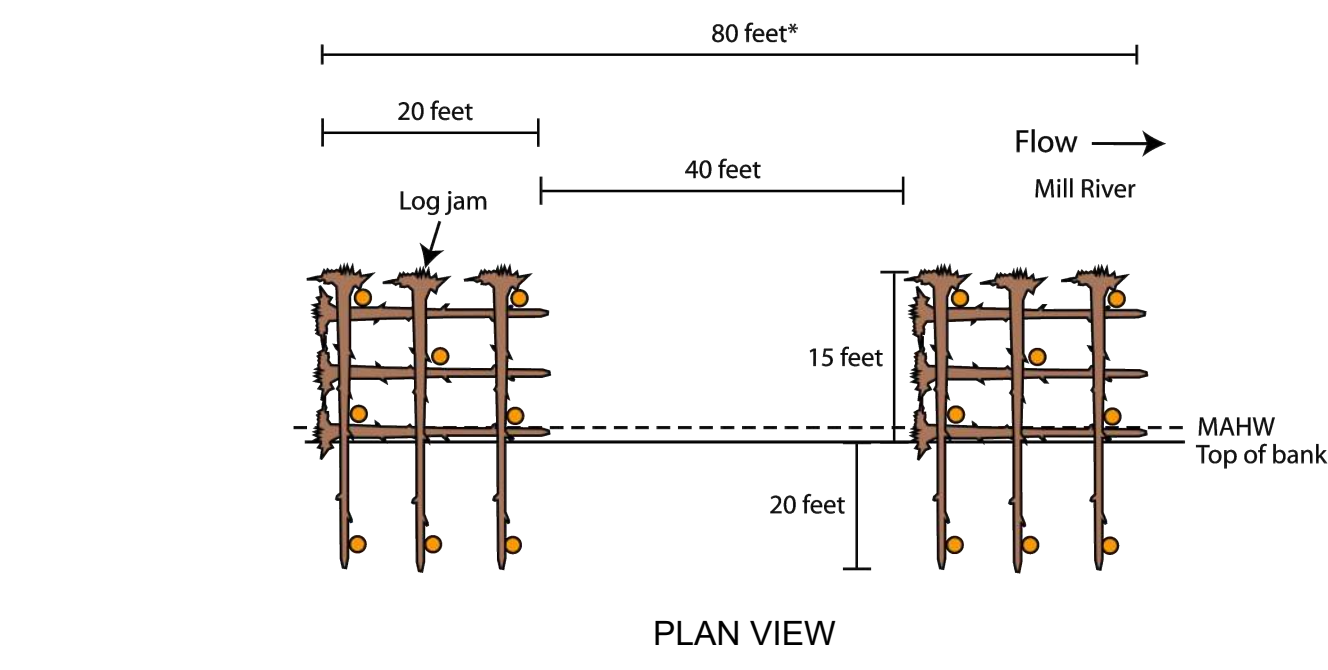
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MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

FAILURE AREA 2
CROSS SECTIONS

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: SMITH COLLEGE FACILITIES MANAGEMENT 126 WEST STREET NORTHAMPTON, MA		
PROJ MGR: RTS	REVIEWED BY: NLR	CHECKED BY: SLL	DRAWING
DESIGNED BY: RTS	DRAWN BY: EDM	SCALE: AS NOTED	C-5
DATE: OCTOBER, 2023	PROJECT NO.: 15.0166791.01	REVISION NO.:	

2023 - GZA GeoEnvironmental, Inc. - 15.0166791.01 - 23.DWG - C-5 - DOWNSTREAM SECTION - OCTOBER 20, 2023 1:24 PM EDWARD MULLEN
 MILL RIVER BANK REPAIR 15.0166791.01 CAD/IMG/GZA BASE-791.01.9-5-23.DWG C-5 DOWNSTREAM SECTION OCTOBER 20, 2023 1:24 PM EDWARD MULLEN

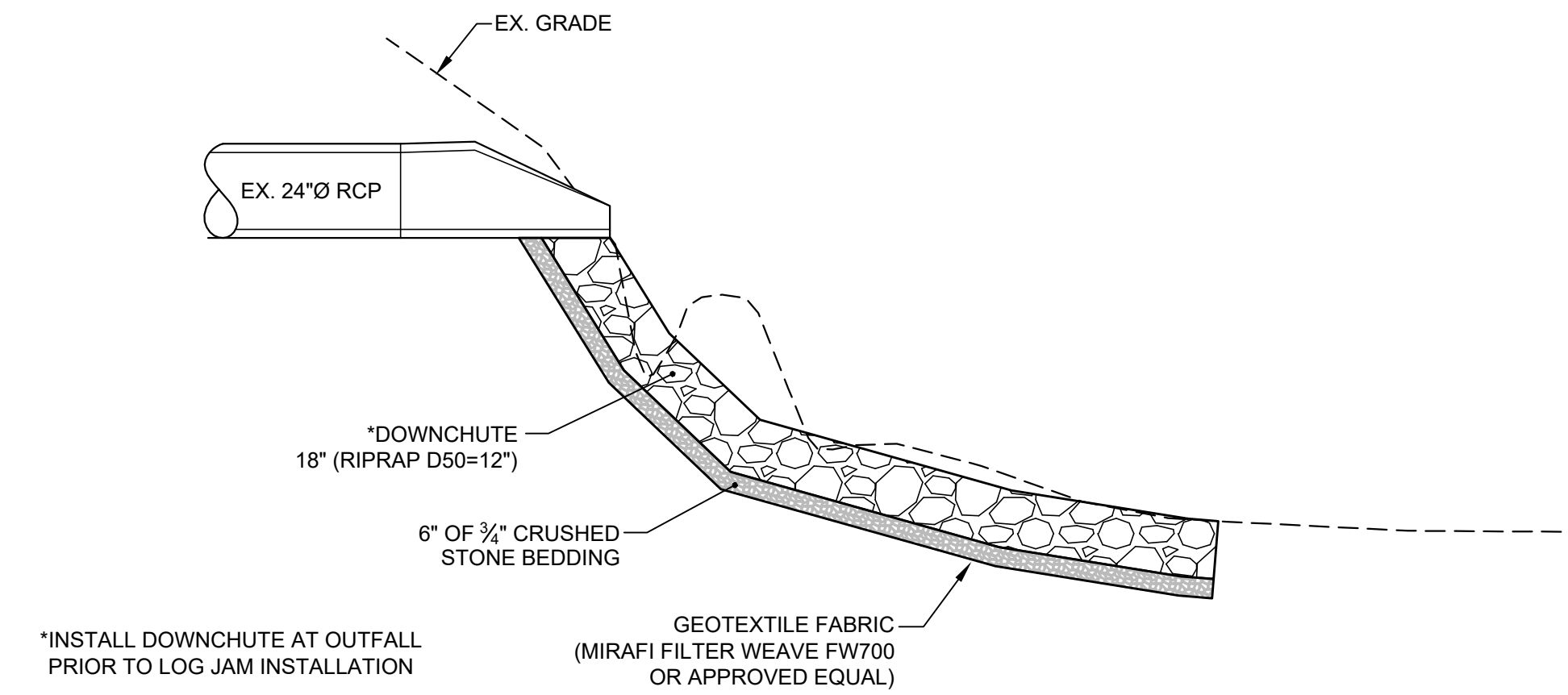
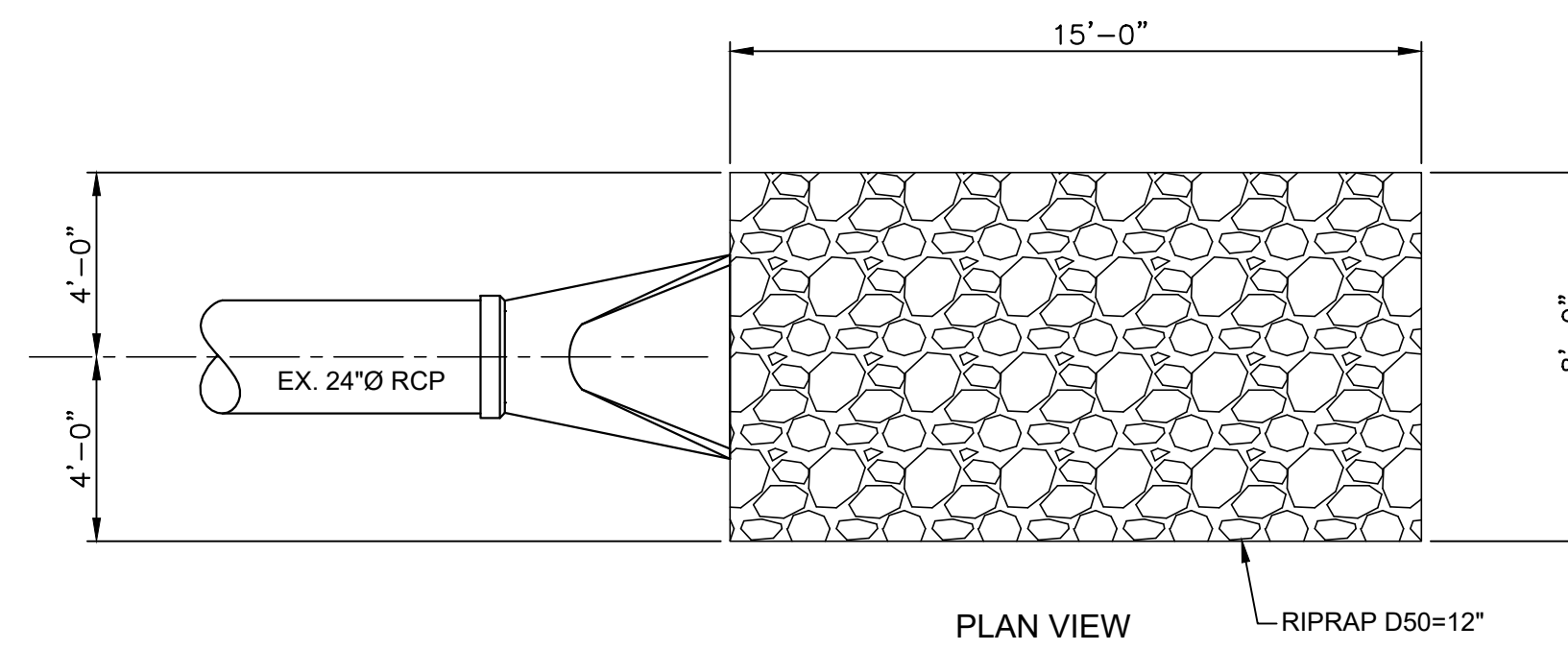


*Only a portion of treatment area displayed to show detail
 *Top layer consisting of 4" stump grindings and 6" loam, seeded and planted with willow/dogwood tubelings/live stakes

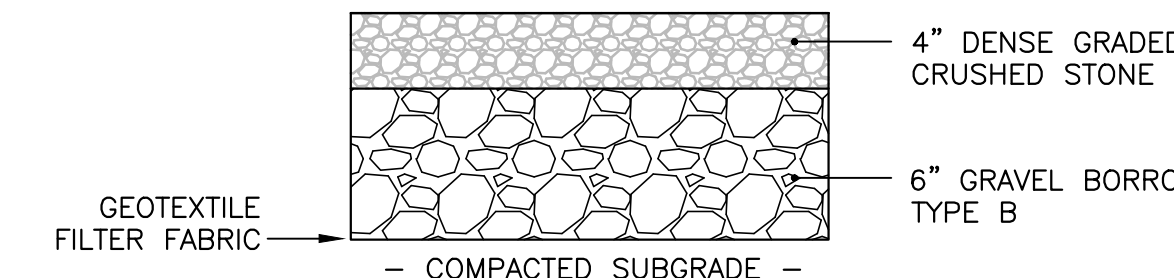
Rootwad Design constraints x ft
 Log / log pile Willow/dogwood tubelings/live stakes

Note: Log jams filled with brush/slash/tops and boulder ballast (not shown for clarity)

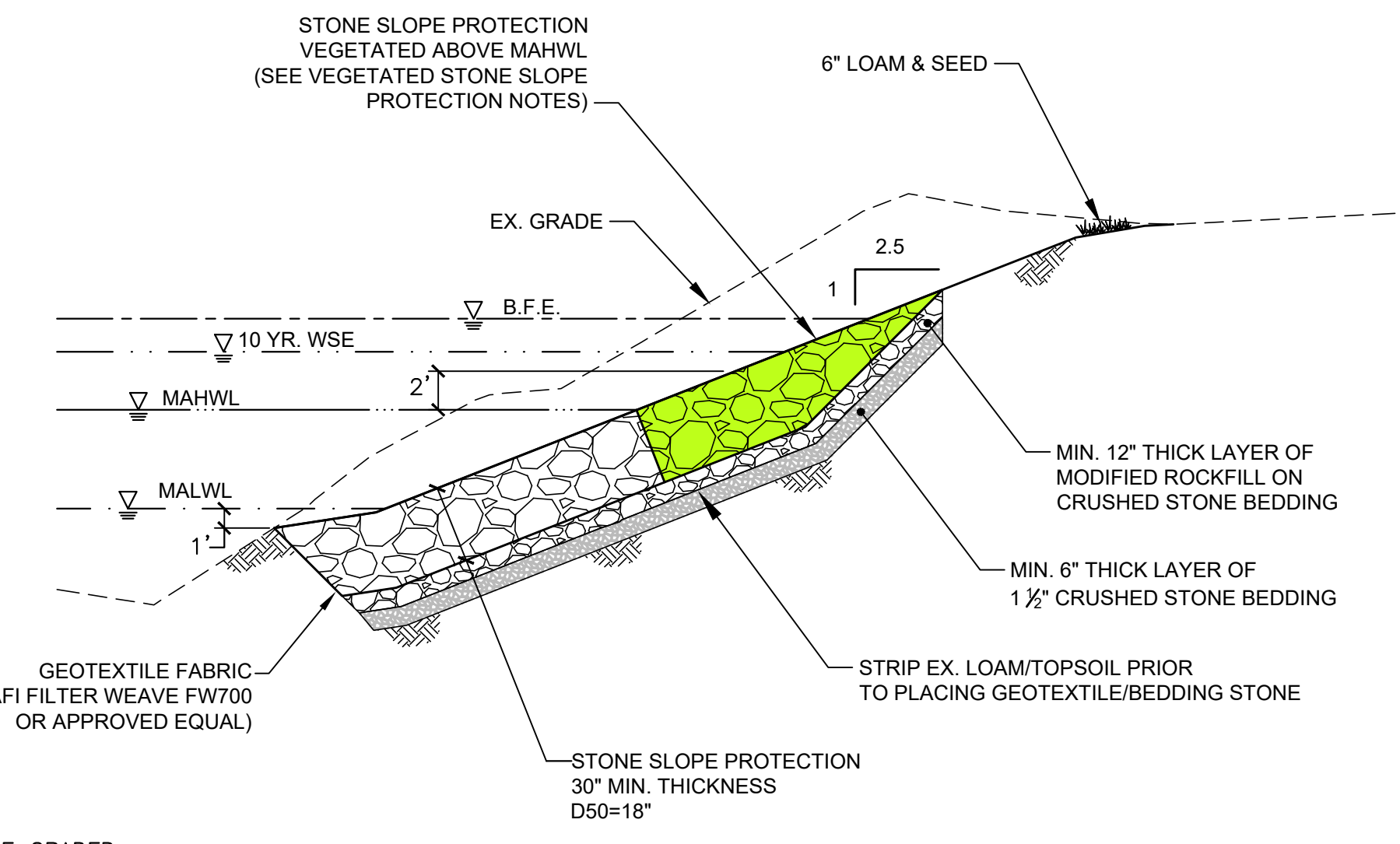
A FAILURE AREA 1 - LOG JAM TYPICAL PLAN AND LONGITUDINAL VIEWS
 C-6 NTS



E OUTFALL REPAIR
 C-6 NTS

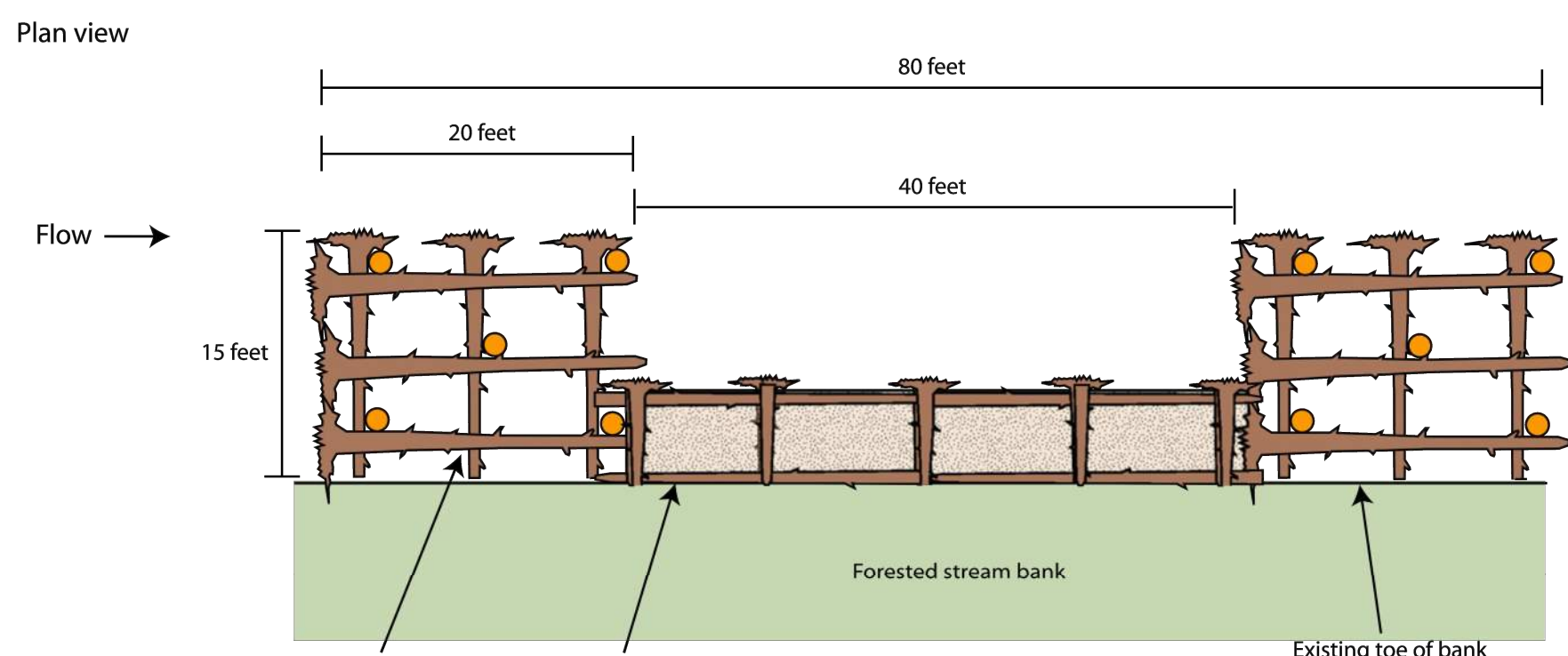


G GRAVEL DRIVE DETAIL
 C-6 NTS

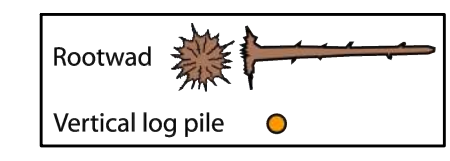


F TYPICAL STONE SLOPE PROTECTION DETAIL
 C-6 NTS

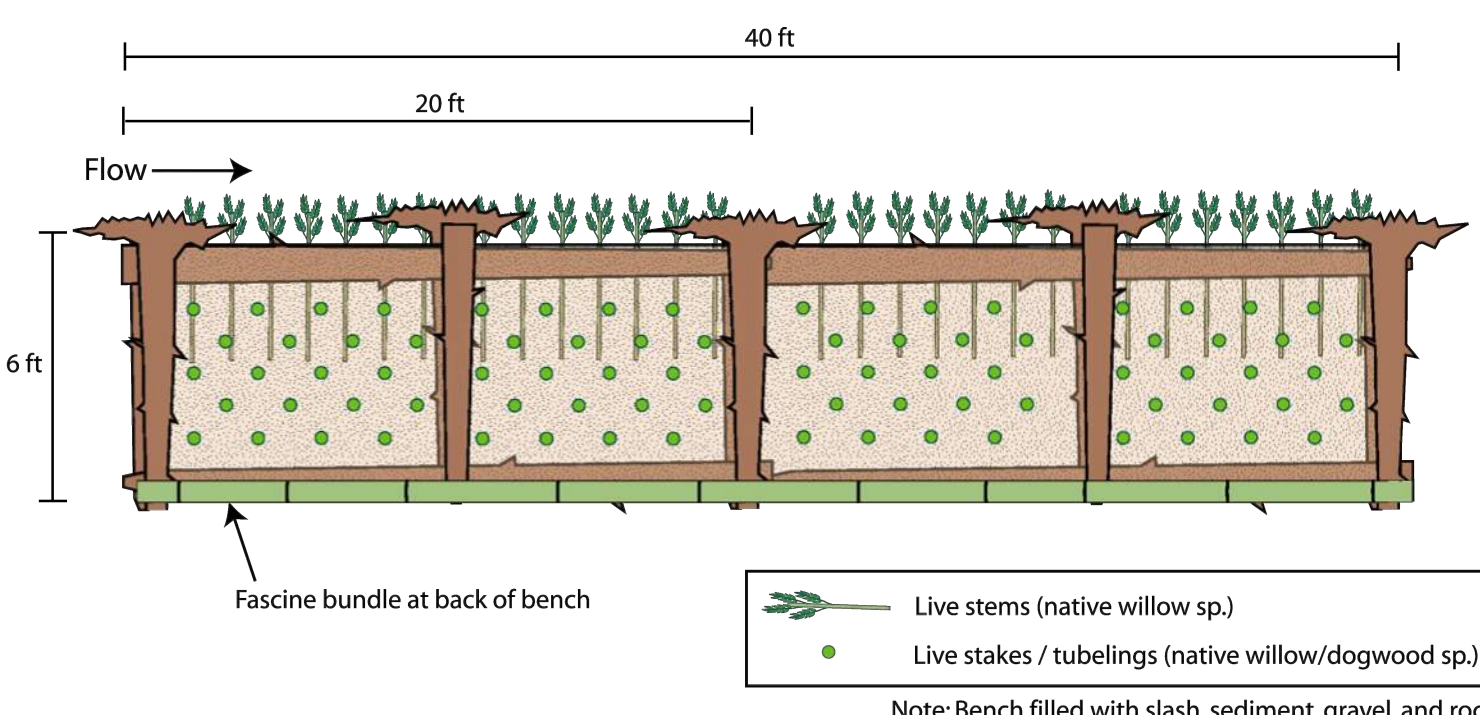
- VEGETATED STONE SLOPE PROTECTION NOTES:**
- MATERIALS AND CONSTRUCTION FOR VEGETATED STONE REVETMENT SHALL CONFORM TO THE RELEVANT PROVISIONS OF SECTION 983 OF THE STANDARD SPECIFICATIONS.
 - SOIL MIX SHALL BE PLACED OVER THE NATURAL STONE REVETMENT TO A SURFACE DEPTH OF APPROXIMATELY 2 INCHES. ALL NATURAL STONE AND BOULDER VOIDS WITHIN THE STONE REVETMENT SHALL BE CHOKED USING THE SOIL MIX.
 - THE STONE REVETMENT AREA SHALL BE SEEDED WITH NEW ENGLAND CONSERVATION WILDLIFE MIX BY NEW ENGLAND WETLAND PLANTS OR APPROVED EQUAL. APPLICATION RATE SHALL BE 30 LBS/ACRE ALONG THE UPPER ONE-THIRD OF THE SLOPE AND 25 LBS/ACRE ALONG THE REMAINDER OF THE SLOPE.
 - BONDED FIBER MATRIX (BFM) SHALL BE APPLIED OVER THE TOP OF THE SEEDED SLOPE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. APPLICATION RATE SHALL BE 5000 LBS/ACRE. BONDED FIBER MATRIX (BFM) SHALL BE CONSTRUCTED OF 100% BIODEGRADABLE MATERIALS AND SHALL CONTAIN NO WEED SEEDS OR PLASTIC COMPONENTS.
 - THE CONTRACTOR SHALL INSPECT AND MAINTAIN THE VEGETATED STONE REVETMENT UNTIL SUCH TIME AS A UNIFORM GROWTH OF VEGETATION HAS BEEN ESTABLISHED.



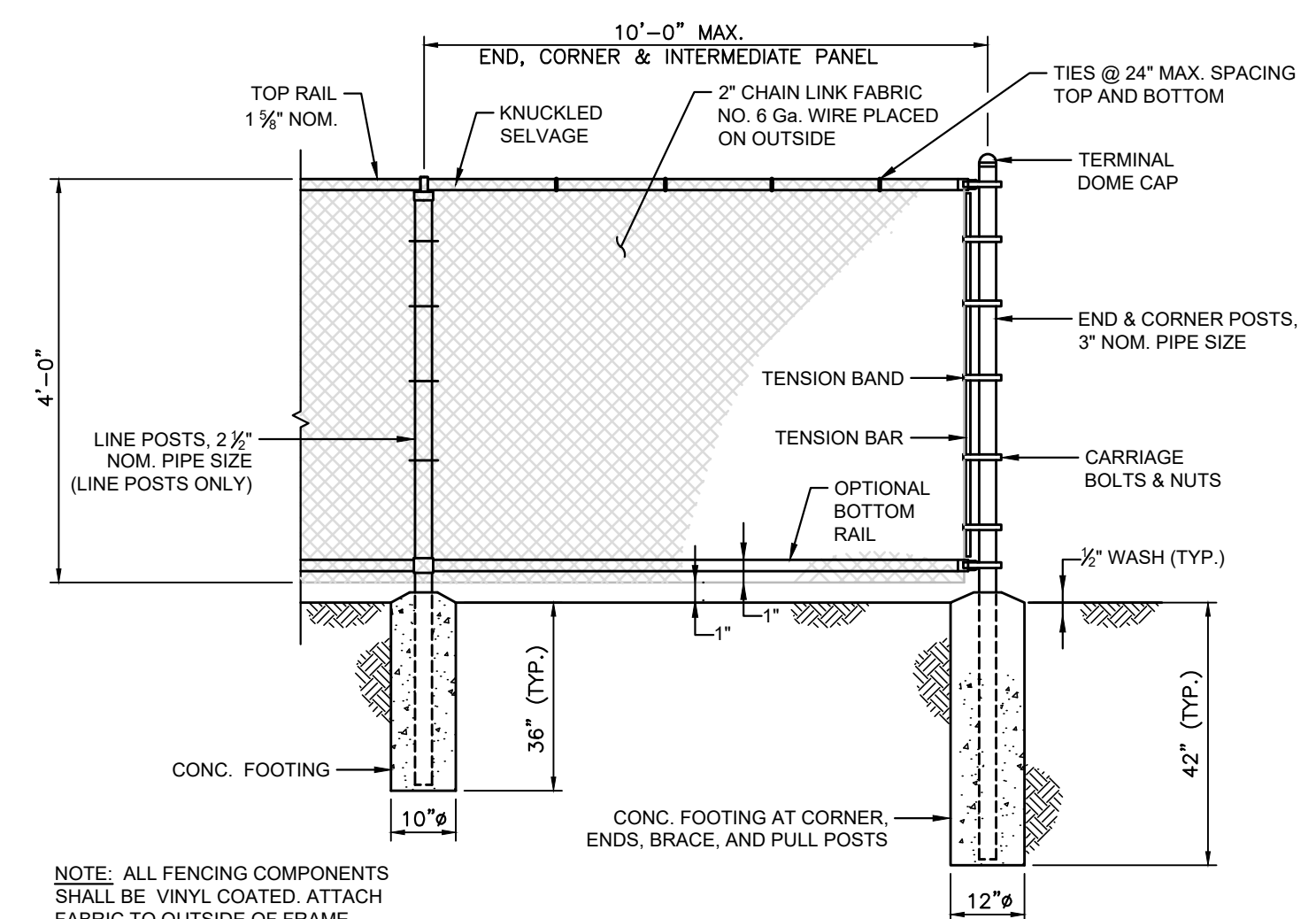
Note: Log jams filled with brush/slash (tree tops) and boulder ballast. Not shown for clarity. Estimate 33 cu. yd. of 1.0-2.0 ft rock per log jam structure (3' thick over 20' by 15' area).



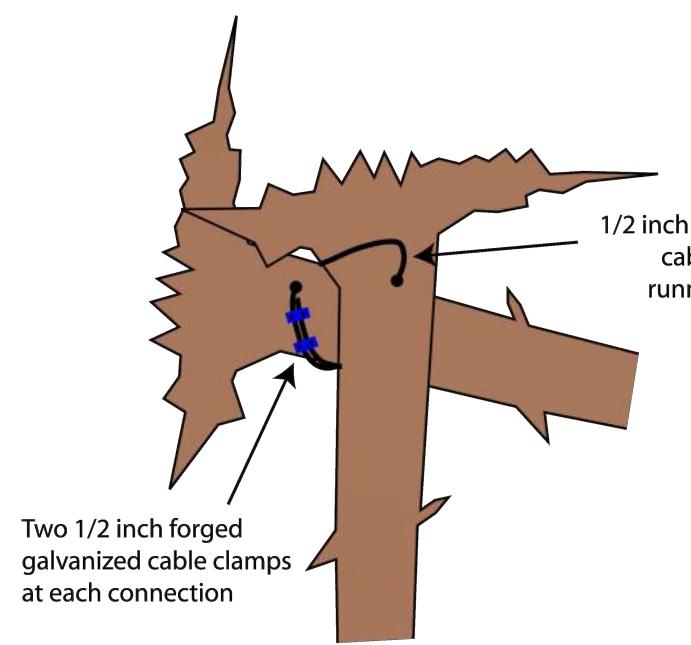
B FAILURE AREA 2 - TYPICAL LOG JAM / ROOTWAD BENCH BANK REPAIR
 C-6 NTS



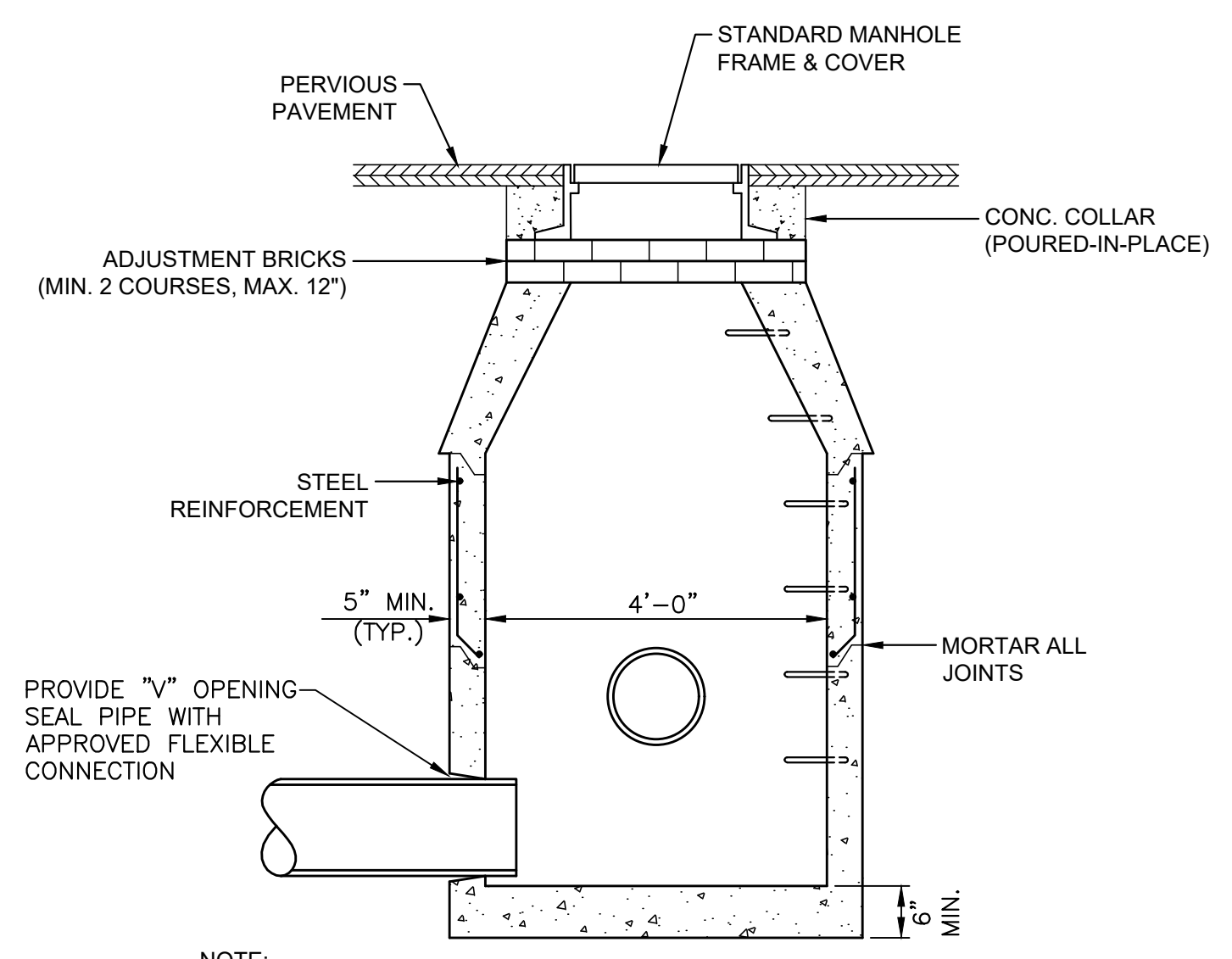
C FAILURE AREA 2 - TYPICAL ROOTWAD BENCH BANK REPAIR
 C-6 NTS



I CHAIN LINK FENCE
 C-6 NTS



D CABLE DETAIL FOR SECURING LOG JAM LAYERS 2-5
 C-6 NTS



H STANDARD PRECAST DRAIN MANHOLE
 C-6 NTS

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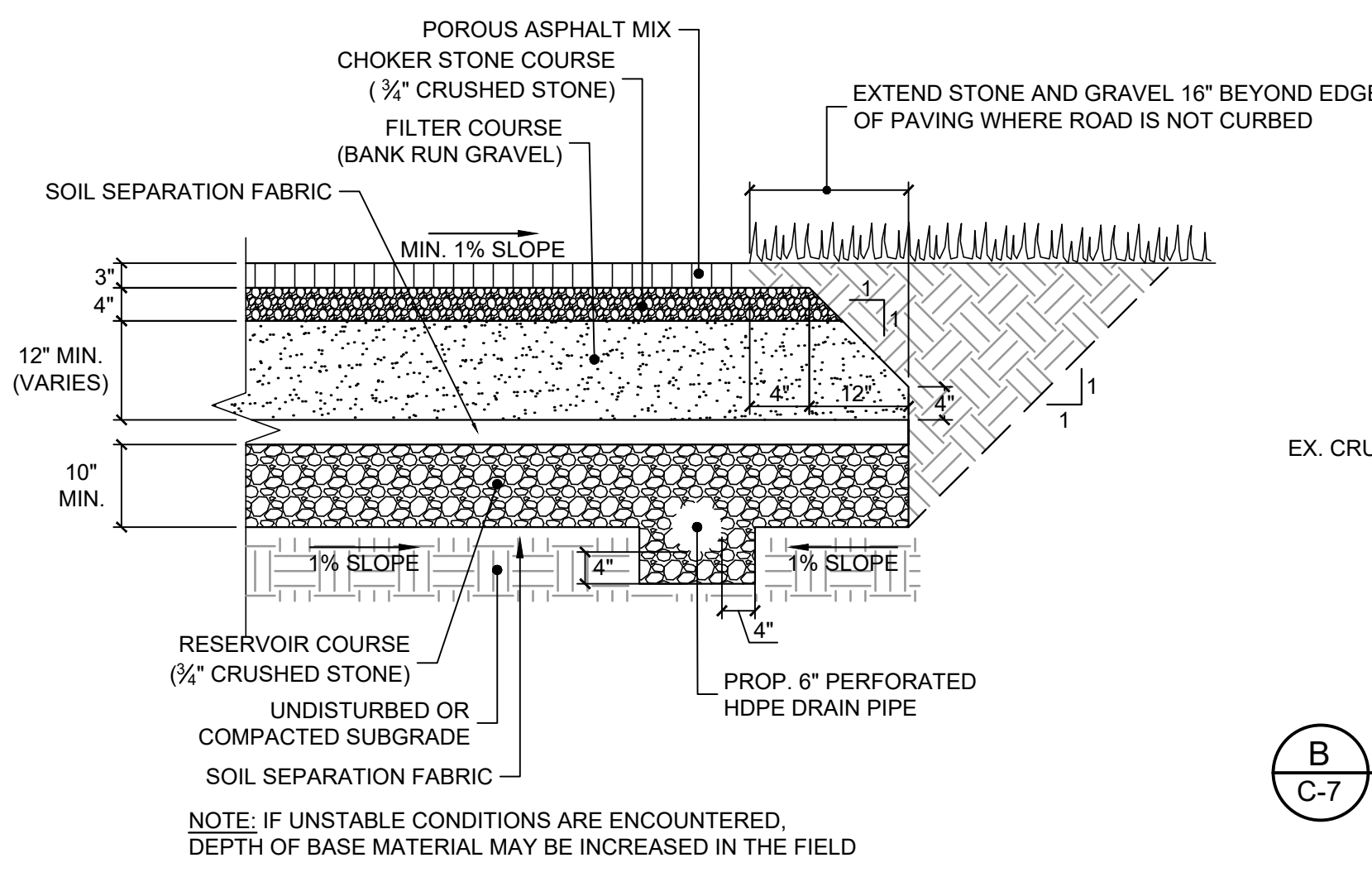
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**MILL RIVER BANK REPAIR PROJECT
 SMITH COLLEGE
 NORTHAMPTON, MA**

CONSTRUCTION DETAILS

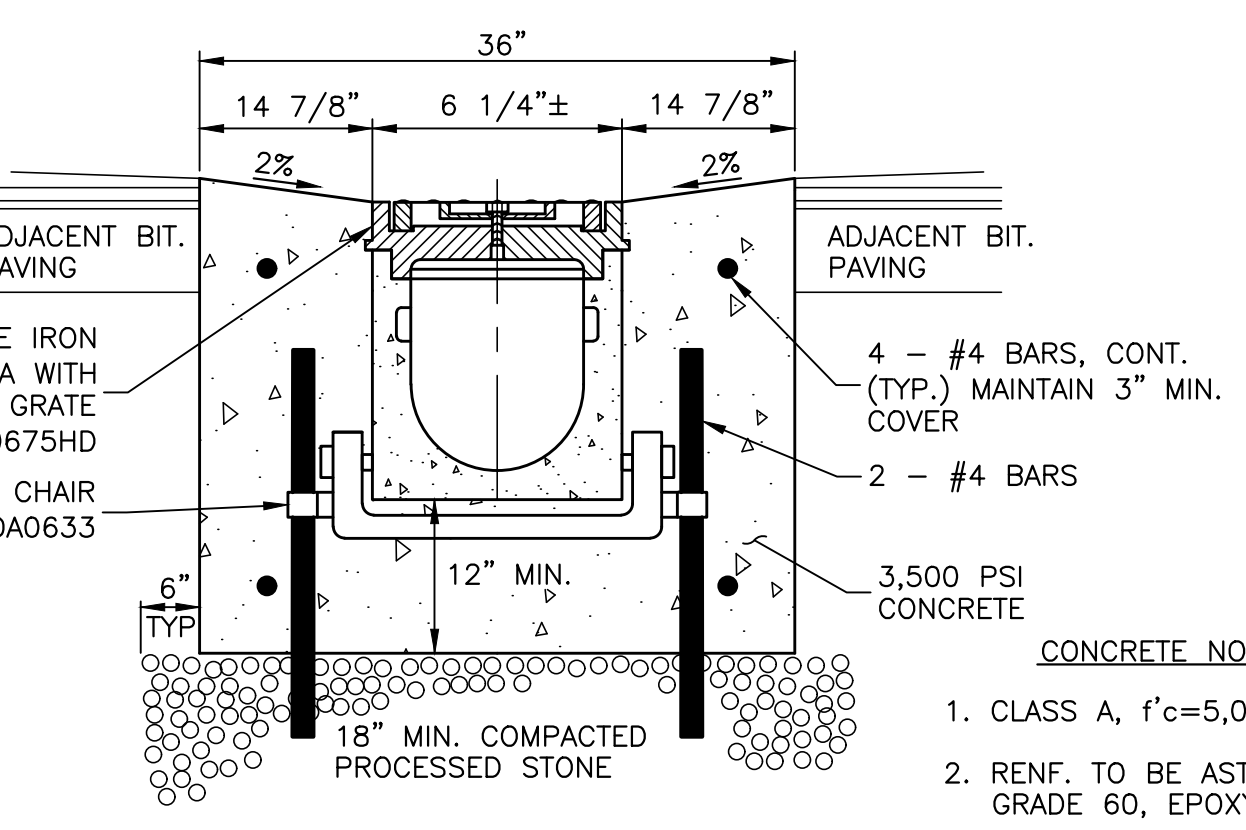
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: SMITH COLLEGE FACILITIES MANAGEMENT 126 WEST STREET NORTHAMPTON, MA
PROJ MGR: RTS DESIGNED BY: RTS DATE: OCTOBER, 2023	REVIEWED BY: NLR DRAWN BY: EDM PROJECT NO.: 15.0166791.01
CHECKED BY: SLL SCALE: AS NOTED REVISION NO.: -	DRAWING C-6

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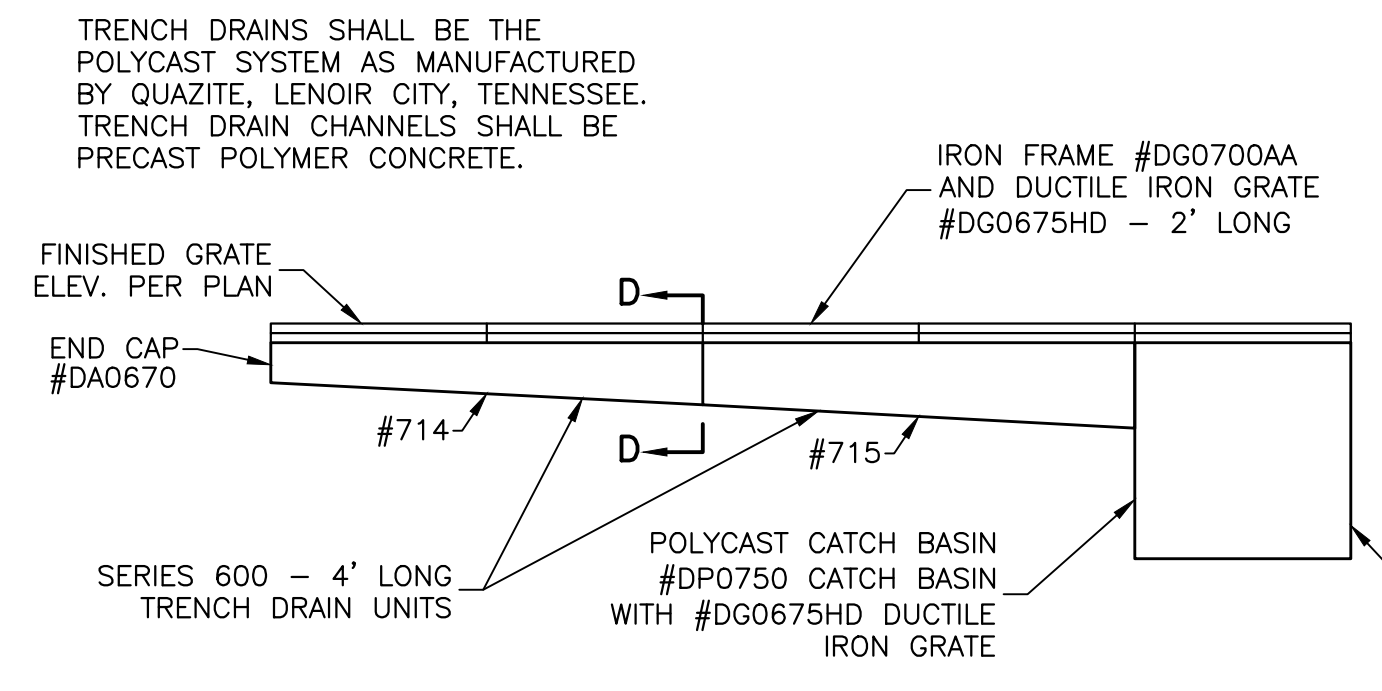


A POROUS BITUMINOUS CONCRETE PAVEMENT DETAIL
NTS

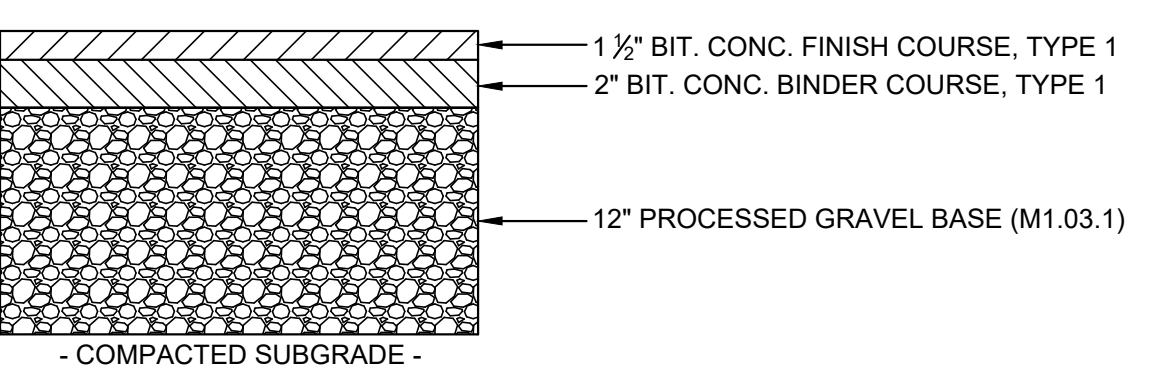
B POROUS BITUMINOUS CONCRETE PAVEMENT AT EXISTING FLUSH CURB
NTS



C TRENCH DRAIN DETAIL
NTS

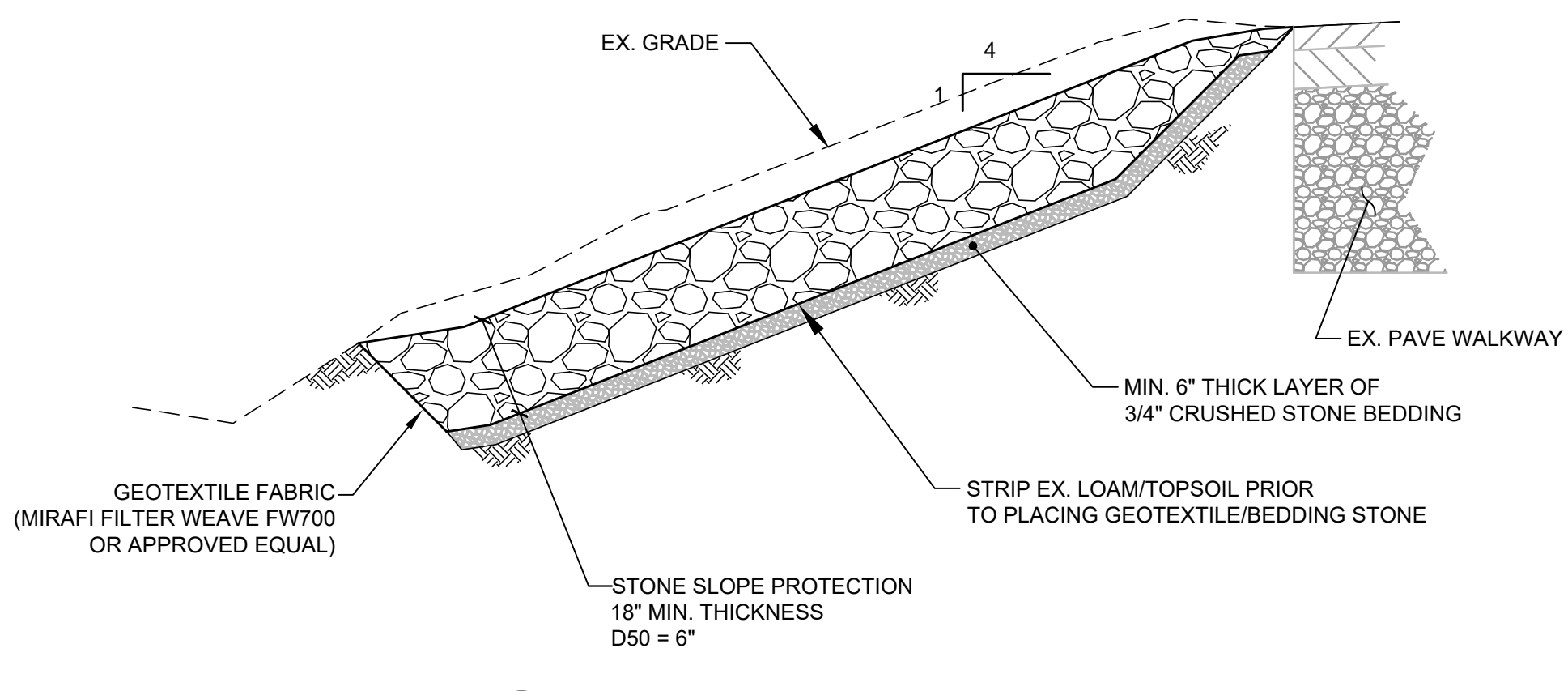


D CAPE COD BERM
NTS

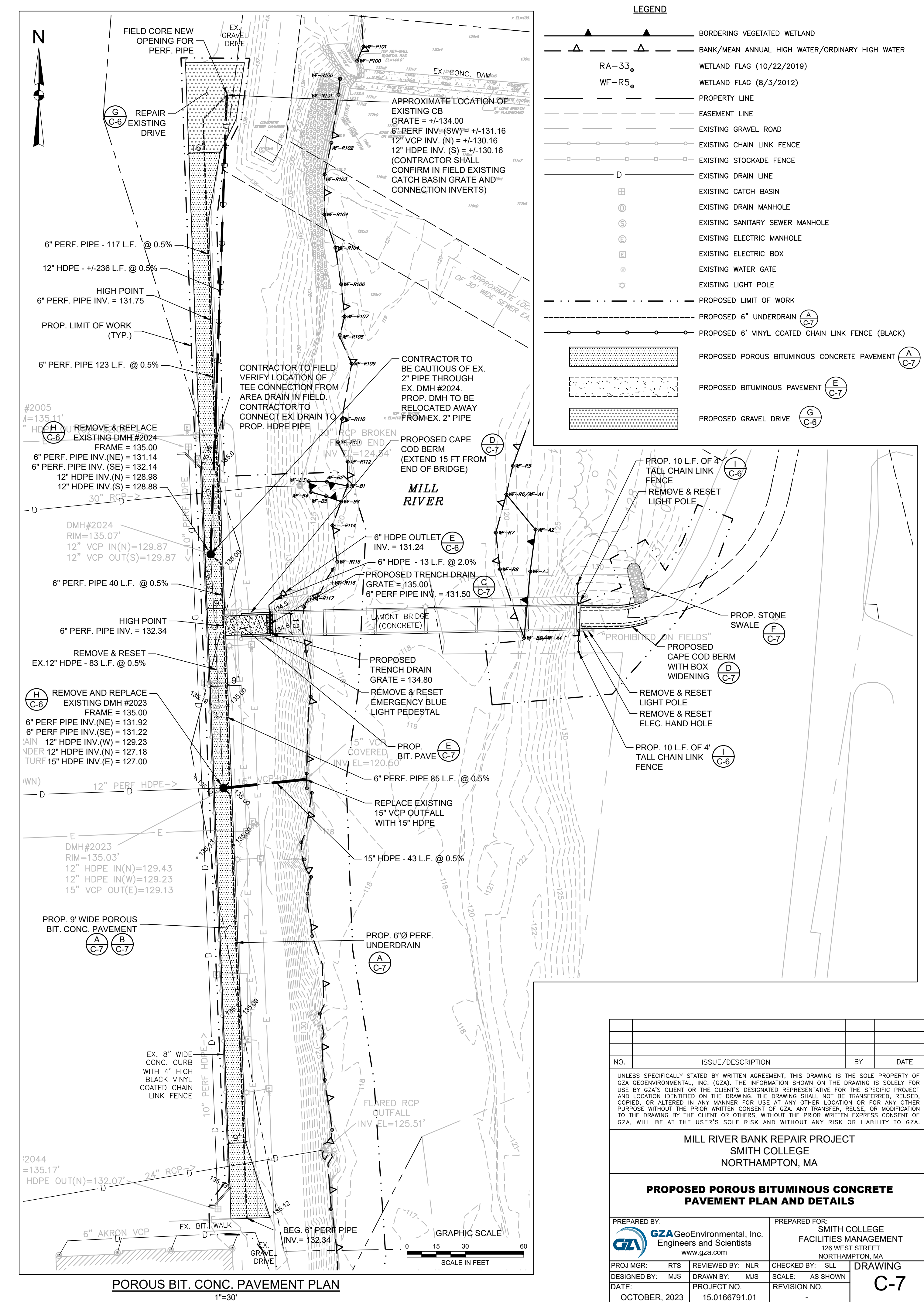


E TYPICAL SECTION BITUMINOUS CONCRETE PAVEMENT
NTS

- CONCRETE NOTES**
1. CLASS A, f'c=5,000 PSI
 2. RENF. TO BE ASTM A-1616 GRADE 60, EPOXY COATED.
 3. PROVIDE 3" COVER OVER ALL STEEL.
 4. ALL EXPOSED EDGES TO BE NEATLY TOOLED.
 5. ALL EXPOSED EDGES TO BE BROOM FINISHED.



F STONE SWALE DETAIL
NTS



POROUS BIT. CONC. PAVEMENT PLAN
1"=30'

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SMITH COLLEGE
NORTHAMPTON, MA

PROPOSED POROUS BITUMINOUS CONCRETE PAVEMENT PLAN AND DETAILS

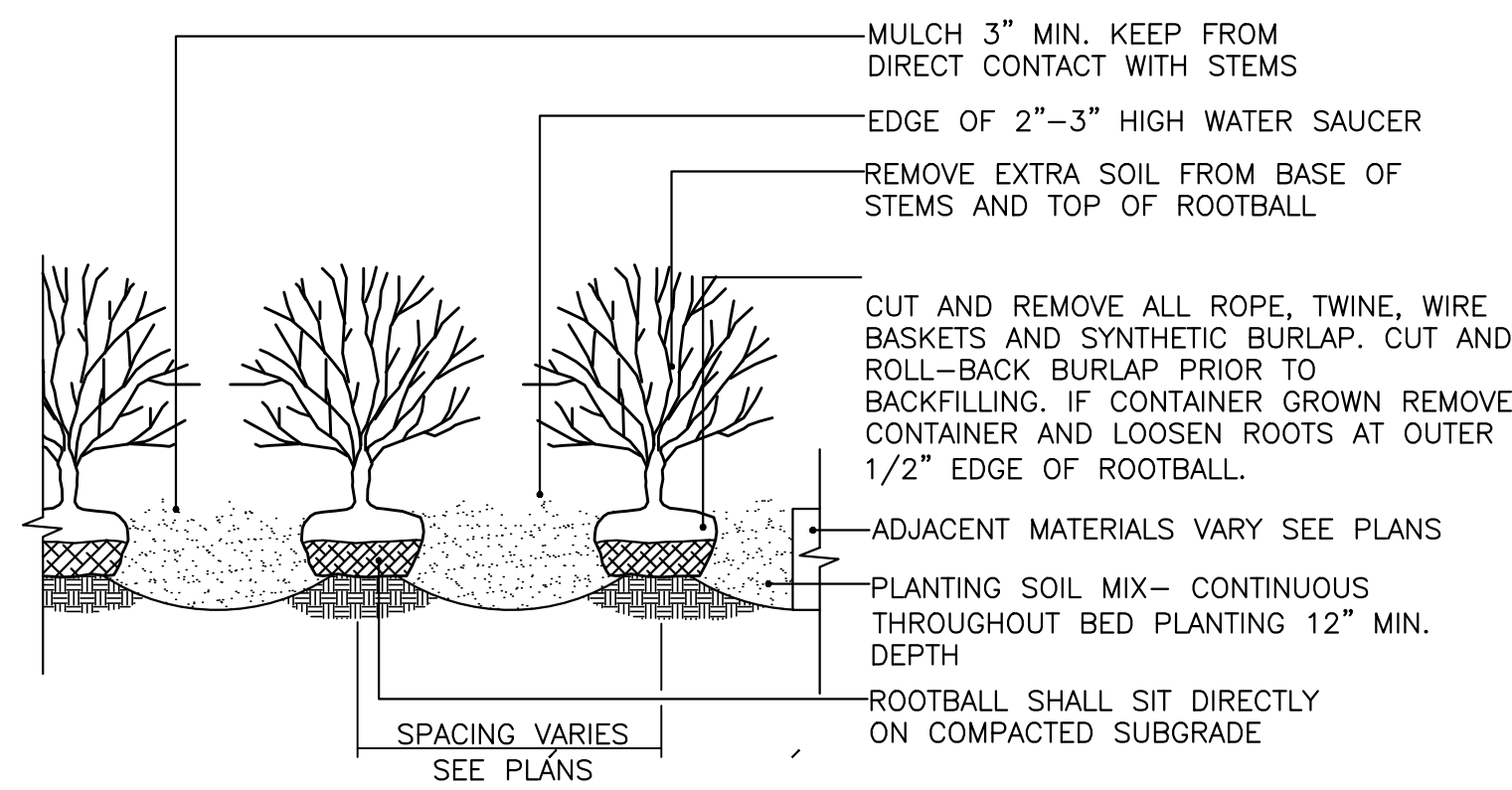
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PROJ MGR: RTS DESIGNED BY: MJS DATE: OCTOBER, 2023	REVIEWED BY: NLR DRAWN BY: MJS PROJECT NO.: 15.0166791.01
CHECKED BY: SLL SCALE: AS SHOWN REVISION NO.:	DRAWING C-7

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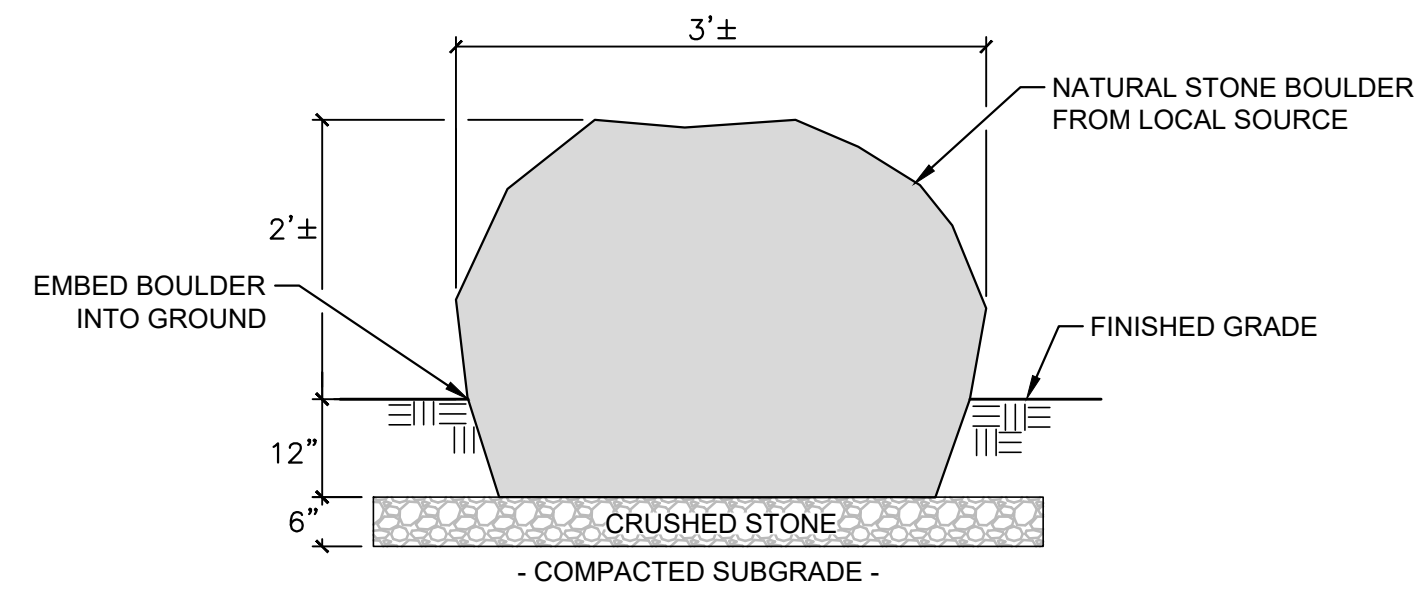
PLANT LIST

TYPE	ABBREV.	COMMON / BOTANICAL NAME	SIZE	QTY.	REMARKS
Deciduous Trees	As	Silver Maple / <i>Acer saccharinum</i>	2.5-3.5" Cal.	2	B4B
	Ba	Yellow Birch / <i>Betula alleghaniensis</i>	2.5-3.5" Cal.	4	B4B
	Bp	Gray Birch / <i>Betula populifolia</i>	2.5-3.5" Cal.	3	B4B
	Am	Black Chokecherry / <i>Aronia melanocarpa</i>	3 Gal.	19	
Shrubs	Ag	Ground Hug Black Chokecherry / <i>Aronia melanocarpa</i> 'ground hug'	3 Gal.	20	
	Nj	New Jersey Tea / <i>Ceanothus americanus</i>	3 Gal.	9	
	Ca	Summersweet / <i>Clethra alnifolia</i>	5 Gal.	10	
	Cs	Redosier Dogwood / <i>Cornus sericea</i>	5 Gal.	10	
	Ig	Inkberry / <i>Ilex glabra</i>	5 Gal.	12	
	Ic	Compact Inkberry / <i>Ilex glabra</i> 'compacta'	3 Gal.	7	
	Mp	Northern Bayberry / <i>Myrica pensylvanica</i>	5 Gal.	4	
	Va	Mapleleaf Viburnum / <i>Viburnum acerfolium</i>	3 Gal.	6	
Perennial, Grasses & Groundcover	Ac	Blue Wood Aster / <i>Aster cordifolius</i>	Flats	234	18-24" O.C.
	Bs	Broom Sedge / <i>Carex scoparia</i>	Flats	118	18-24" O.C.

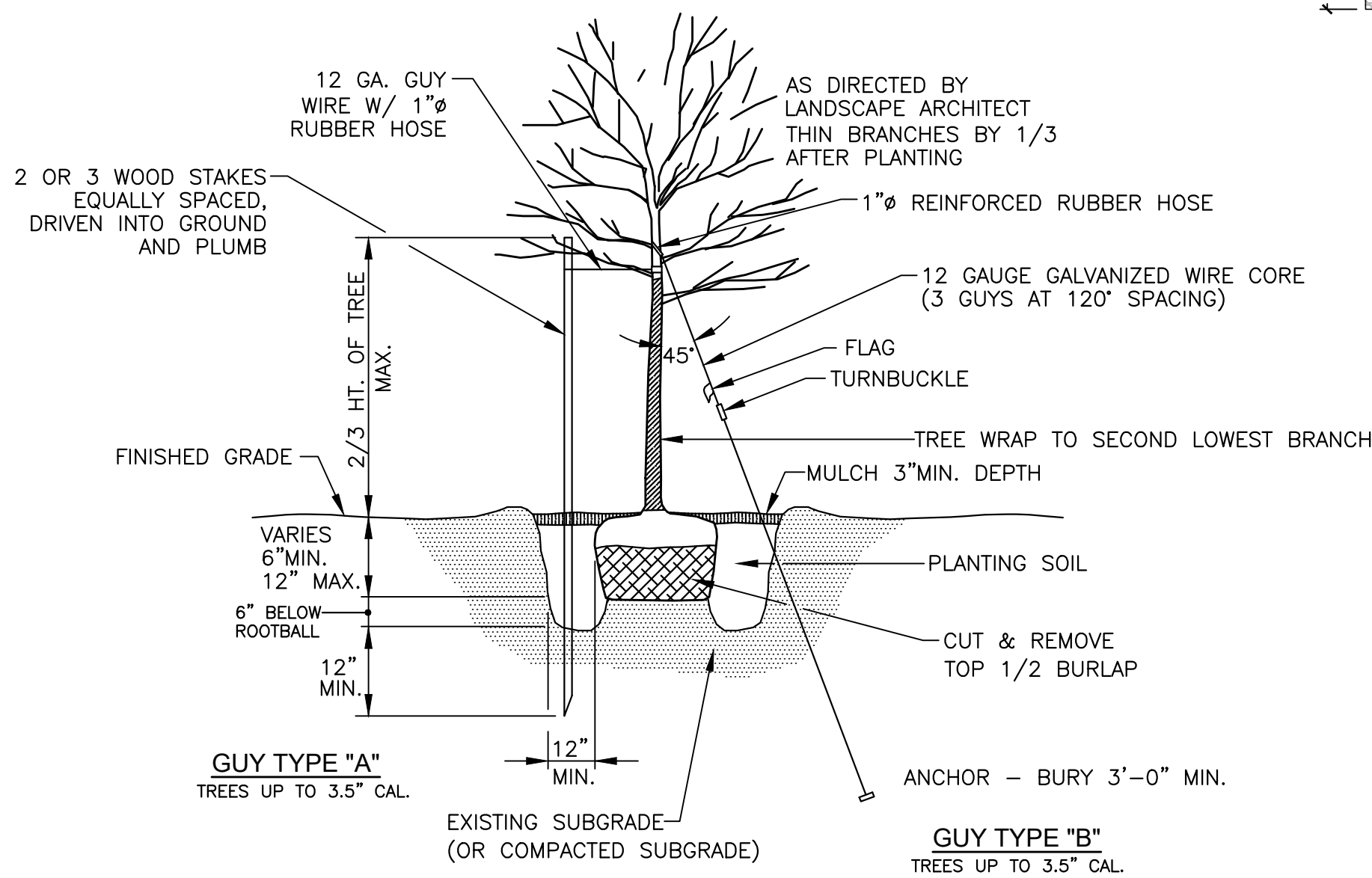
NOTE: SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 1. SHRUBS SHALL BE SET PLUMB AND PLANTED SO THAT THE TOP OF THE ROOTBALL IS 1"-2" ABOVE FINISHED GRADE.
 2. NO PRUNING OR CUTTING UNLESS DIRECTED BY THE LANDSCAPE ARCHITECT.
 3. SAUCER SHALL BE FLOODED TWICE DURING THE FIRST 24 HOURS AFTER PLANTING.



A SHRUB PLANTING BED
 L-1 NTS

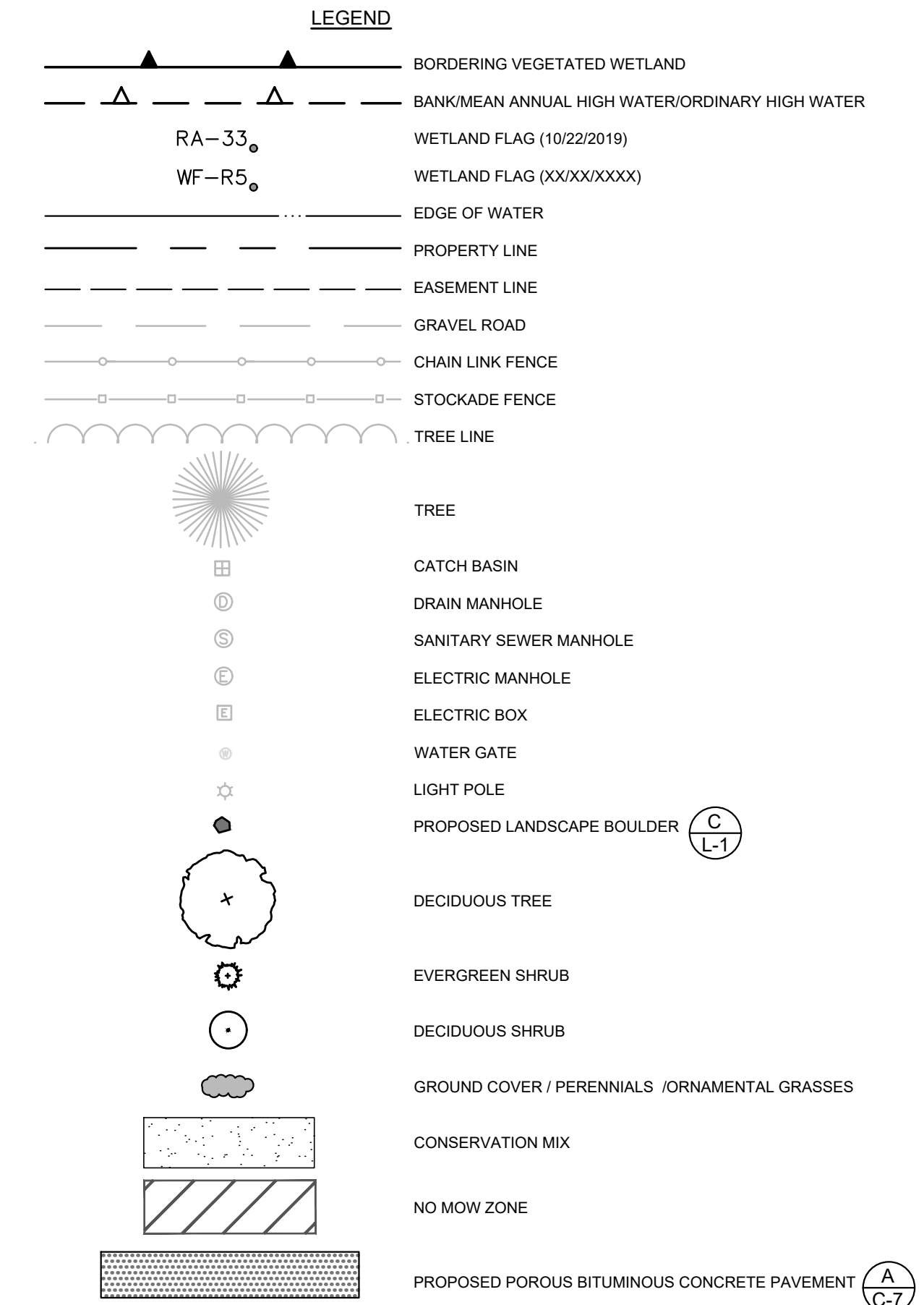
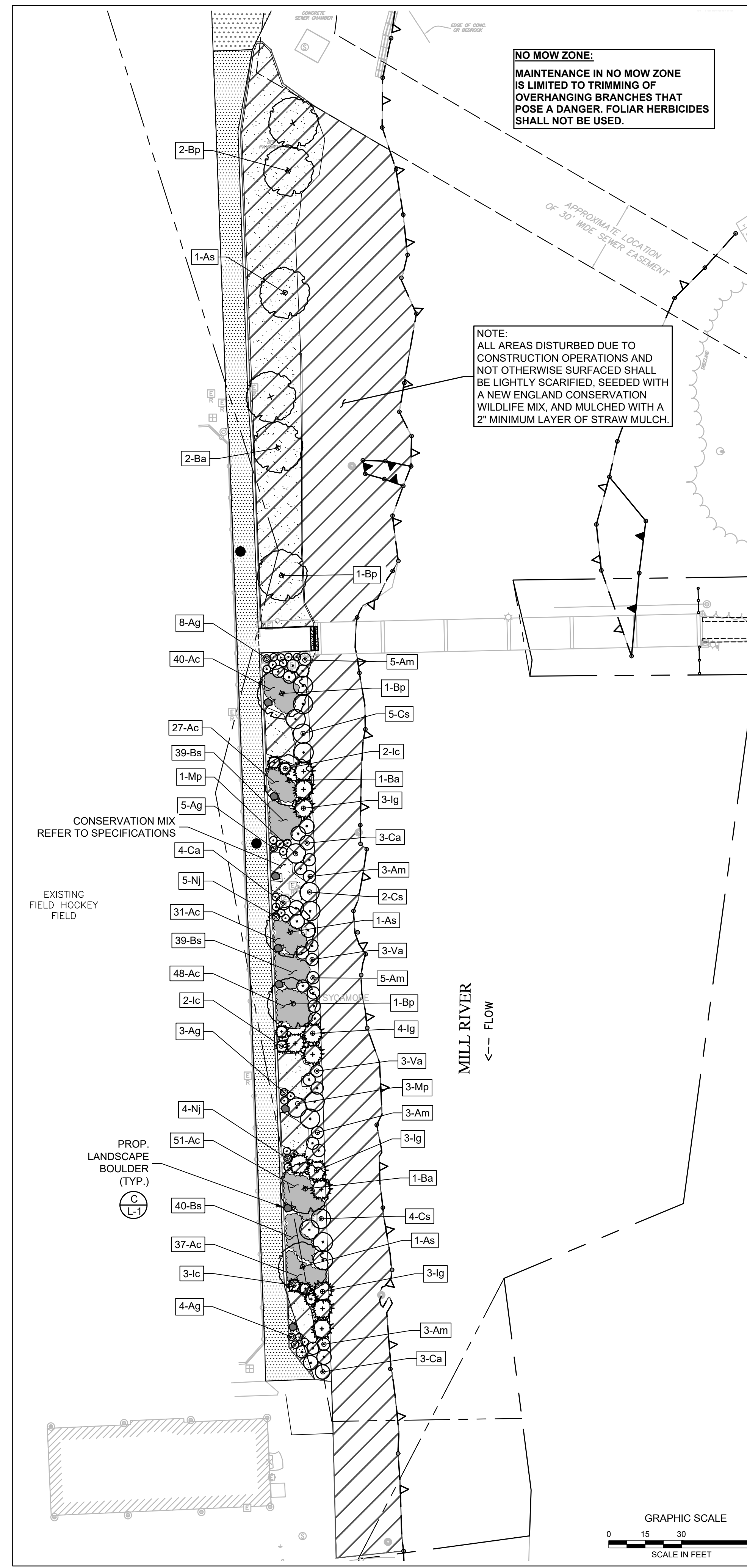


C LANDSCAPE BOULDER
 L-1 NTS



B TREE PLANTING DETAIL
 L-1 NTS

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PLANTING NOTES:

- LANDSCAPE CONTRACTOR SHALL REVIEW ALL SITE UTILITY PLANS AND COORDINATE WITH THE GENERAL CONTRACTOR TO AVOID HAZARDS AND CONFLICTS WITH EXISTING/NEW UNDERGROUND UTILITIES.
- ALL PLANTS SHALL BE HEALTHY NURSERY STOCK MEETING REQUIREMENTS OF NURSERYMEN'S ASSOCIATION STANDARDS FOR TYPE, SIZE, AND CONDITION. ALL OTHERS WILL BE REJECTED.
- OWNER'S REPRESENTATIVE WILL INSPECT ALL PLANT BEDS PRIOR TO ANY PLANTING.
- ALL PLANT BEDS SHALL RECEIVE A 3" SETTLED DEPTH OF AGED SHREDDED HEMLOCK BARK MULCH, IMMEDIATELY AFTER INSTALLATION OF MULCH, THE CONTRACTOR SHALL THOROUGHLY WET ALL BEDS WITH THE EQUIVALENT OF 2" RAINFALL TO SETTLE MULCH TO 3" DEPTH.
- PLANT LIST IS INFORMATIONAL ONLY. IF THERE IS A DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND THOSE SHOWN ON THE PLANS, QUANTITIES SHOWN ON THE PLAN SHALL GOVERN.
- ALL TREE PITS AND PLANT BEDS SHALL RECEIVE PREPARED PLANTING SOIL MIXTURE AS DETAILED AND SPECIFIED. PLANT BEDS: 12" DEPTH WITH SURFACE 3" BELOW FINISHED GRADE TO ALLOW FOR MULCH.
- ALL AREAS DISTURBED DUE TO CONSTRUCTION OPERATIONS AND NOT DESIGNATED FOR OTHER SURFACE TREATMENT SHALL RECEIVE A 6" DEPTH OF TOPSOIL, AND SHALL BE FINE-GRADED AND SEEDED TO LAWN, PER LANDSCAPE SPECIFICATIONS.

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MILL RIVER BANK REPAIR PROJECT SMITH COLLEGE NORTHAMPTON, MA			
LANDSCAPE PLAN			
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: SMITH COLLEGE FACILITIES MANAGEMENT 126 WEST STREET NORTHAMPTON, MA		
PROJ MGR: RTS	REVIEWED BY: NLR	CHECKED BY: SLL	DRAWING L-1
DESIGNED BY: RTS	DRAWN BY: EDM	SCALE: AS NOTED	
DATE: OCTOBER, 2023	PROJECT NO.: 15.0166791.01	REVISION NO.: -	

2023 - GZA GeoEnvironmental, Inc. GZA-24-00-186700 - 0 15079791.01/15079791.03 MILL RIVER BANK REPAIR 15.0166791.01 LANDSCAPE OCTOBER 20, 2023 1:28 PM EDWARD MULLIN

NOTE: REPAIR LOCATIONS ESTIMATED AND SHOWN SCHEMATICALLY. ENGINEER OF RECORD WILL SURVEY REQUIRED REPAIR LOCATIONS TO BE INCLUDED AS PART OF THE BID DOCUMENTS

NOTE: SEE DRAWING BR-1 FOR APPROXIMATE TEMPORARY AND PERMANENT AREAS OF AFFECTED WETLANDS

PROPOSED DRAIN AT END OF WEST APPROACH SLAB (SEE DWG. C-7 FOR DETAILS)

PROPOSED BIT. CONC. WALKWAY (SEE DWG. C-7 FOR DETAILS)

REPAIR SPALLED CONCRETE ON UNDERSIDE OF BRIDGE DECK, GIRDER BEAMS, AND BENTS, AS NECESSARY, USING SIKA-TOP 123 OR APPROVED EQUIVALENT

REPAIR LARGE RUTS AND SPALLED CONCRETE IN TOP SURFACE OF BRIDGE DECK, CURB AND RAILING POSTS WITH SIKA-TOP 123 OR APPROVED EQUIVALENT

INSTALL NEW ADA HANDRAIL ON INSIDE OF EXISTING RAILING

RESURFACE THE ENTIRE BRIDGE DECK AND CURBS WITH SIKAGARD FLEXCOAT OR APPROVED EQUIVALENT. SEE DRAWING BR-4 FOR INSTALLATION PROCEDURE.

PROPOSED STABILIZED CONSTRUCTION ENTRANCE

PROPOSED CAPE COD BERMS AND STONE SWALE (SEE DWG. C-7 FOR DETAILS)

BRIDGE SUPERSTRUCTURE REPAIR PLAN

1/8" = 1'-0"

NOTE: EIGHT (8) TOTAL COLUMN PIERS SHALL BE REPAIRED FROM BEDROCK AT APPROX. EL. 115 TO EL. 124.3

CONSTRUCT TIMBER RETAINING WALL BELOW WESTERN APPROACH SLAB

APPROX. PERMANENT DISTURBANCE OF LAND UNDERWATER AREAS 1 - 4 (COLUMN PIER RETROFIT) = 3.5 S.F. (EACH)

LAND UNDERWATER LIMIT (TYP.)

BORDERING VEGETATED WETLAND (BVW)

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREA D (SURFICIAL) = 1,187 S.F. (ANTICIPATED DURATION 3 WEEKS)

- NOTES:**
- LAND UNDERWATER AREAS A-D ARE INTENDED TO BE ACCESSED FOR THE REPAIRS TO THE UNDERSIDE OF THE BRIDGE, DURING WHICH SCAFFOLDING OR MANLIFTS MAY BE POSITIONED IN THE LAND UNDERWATER AREAS. THESE AREAS MAY BE TRAVELED THROUGH AT ANY TIME, HOWEVER ONLY ONE AREA MAY BE WORKED IN AT A TIME.
 - LAND UNDERWATER AREAS E-H (WHICH INCLUDE AREAS 1-8) ARE INTENDED TO BE ACCESSED FOR THE REPAIRS TO THE BRIDGE COLUMN PIERS. THESE AREAS MAY BE WORKED IN SIMULTANEOUSLY, OR INDIVIDUALLY IN ANY ORDER, AT THE CONTRACTORS DISCRETION. SANDBAG COFFERDAMS, FORMWORK, DREDGING MAY OCCUR IN ALL AREAS E-H AT THE SAME TIME.
 - THE PERMANENT LAND UNDERWATER DISTURBANCE AREAS 1-8 (SHOWN IN PURPLE) REPRESENT THE NEW FOOTPRINT OF THE COLUMN PIERS AFTER REPAIR. SEE SHEET BR-3 FOR COLUMN PIER REPAIR DETAILS.
 - REPAIR WORK TO THE BRIDGE SUPERSTRUCTURE MAY BE PERFORMED AT ANY TIME RELATIVE TO THE SUBSTRUCTURE REPAIR WORK.

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREAS E AND H (DEWATER AND DREDGE) = 178 S.F. (EACH) (ANTICIPATED DURATION 6 WEEKS)

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREA A (SURFICIAL) = 772 S.F. (ANTICIPATED DURATION 3 WEEKS)

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREAS F AND G (DEWATER AND DREDGE) = 123 S.F. (EACH) (ANTICIPATED DURATION 6 WEEKS)

TEMPORARY DISTURBANCE OF LAND UNDERWATER AREAS B AND C (SURFICIAL) = 971 S.F. (EACH) (ANTICIPATED DURATION 3 WEEKS)

APPROX. PERMANENT DISTURBANCE OF LAND UNDERWATER AREAS 5 - 8 (COLUMN PIER RETROFIT) = 3.3 S.F. (EACH)

BRIDGE SUBSTRUCTURE REPAIRS AND AFFECTED WETLANDS PLAN

1/8" = 1'-0"

LEGEND

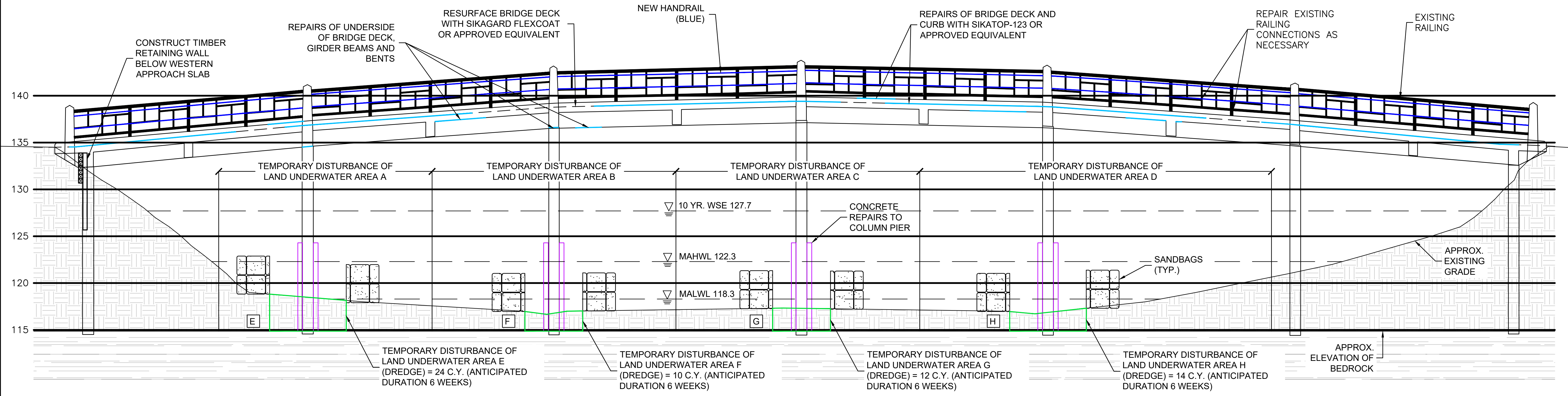
- ▲ BORDERING VEGETATED WETLAND
- △ BANK/MEAN ANNUAL HIGH WATER/ORDINARY HIGH WATER
- RA-33 WETLAND FLAG (10/22/2019)
- WF-R5 WETLAND FLAG (8/3/2012)
- EXISTING COLUMN PIER
- DISTURBANCE AREA IDENTIFICATION
- NEW HANDRAIL
- CONCRETE REPAIR (SIKATOP-123)
- BRIDGE DECK RESURFACING (SIKAGARD FLEXCOAT)
- PROPOSED POROUS BITUMINOUS CONCRETE PAVEMENT
- TEMPORARY LAND UNDERWATER AFFECTED AREA
- PERMANENT LAND UNDERWATER AFFECTED AREA

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MILL RIVER BANK REPAIR PROJECT SMITH COLLEGE NORTHAMPTON, MA			
LAMONT BRIDGE REHABILITATION REPAIR PLANS			

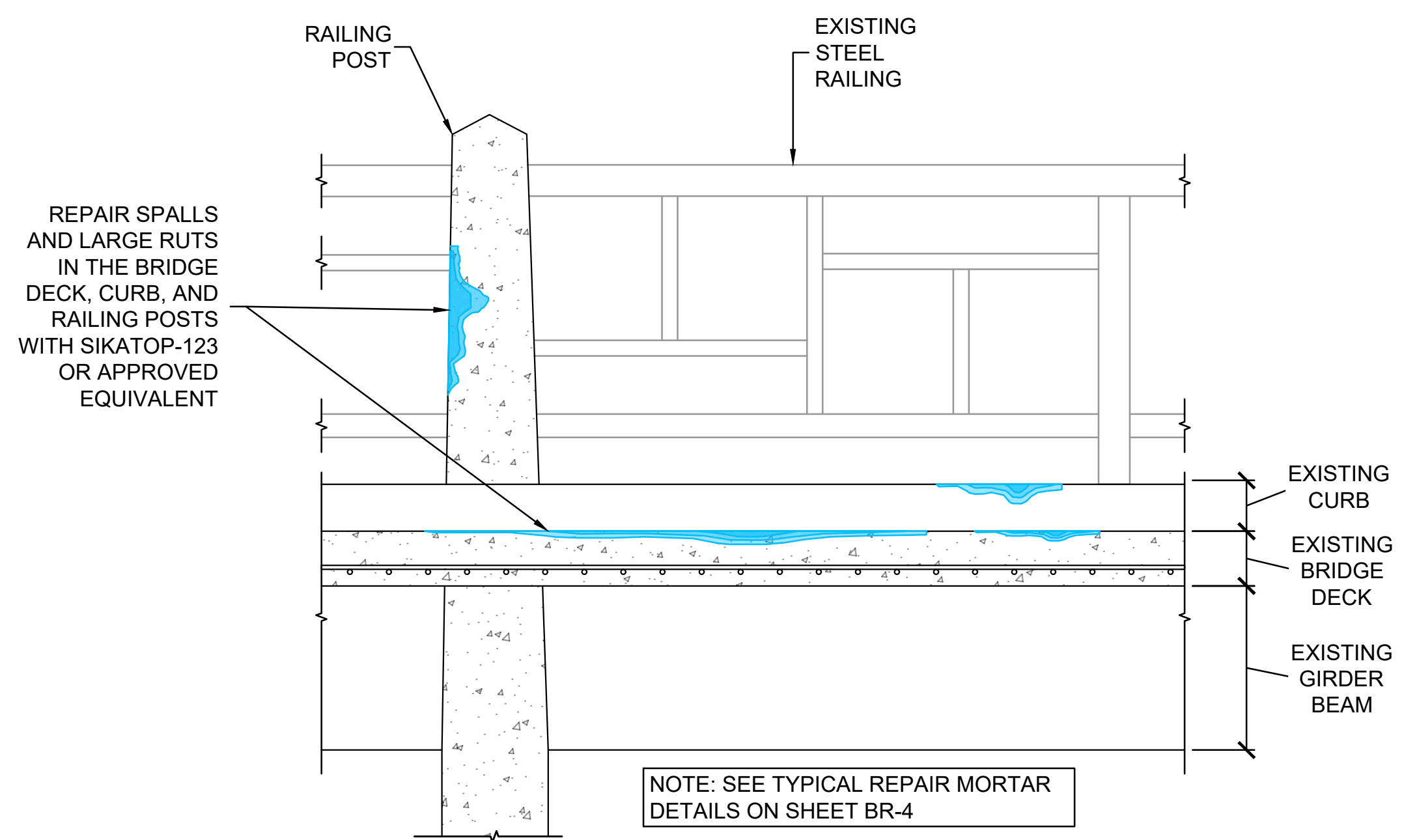
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: SMITH COLLEGE FACILITIES MANAGEMENT 125 WEST STREET NORTHAMPTON, MA
PROJ MGR: PDZ DESIGNED BY: PDZ DATE: OCTOBER, 2023	REVIEWED BY: JAA DRAWN BY: PDZ PROJECT NO: 02.0166791.04
CHECKED BY: JAA SCALE: AS SHOWN REVISION NO.	DRAWING BR-1

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OCTOBER 2023**

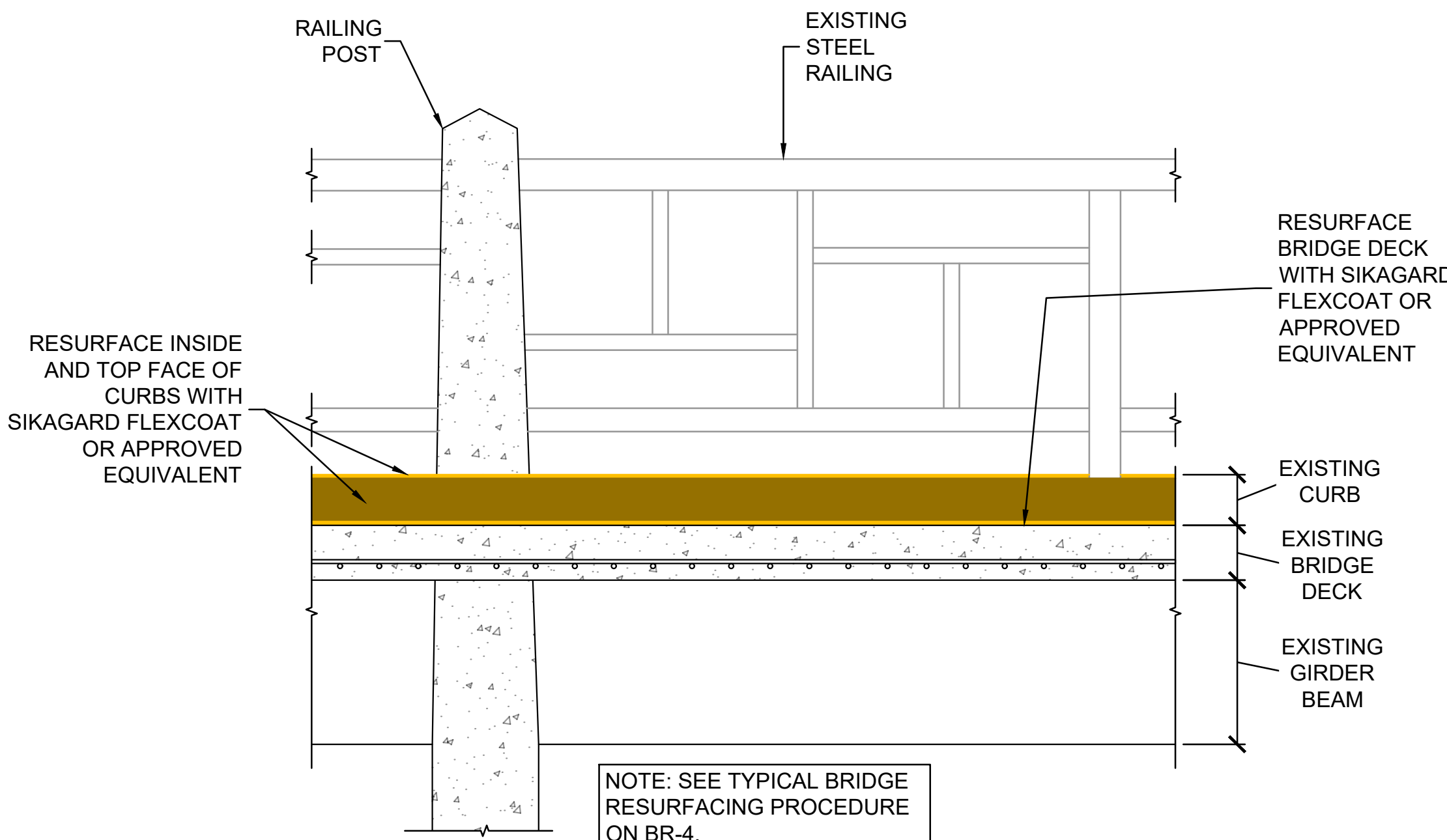
NOTE: REPAIR LOCATIONS ESTIMATED AND SHOWN SCHEMATICALLY. ENGINEER OF RECORD WILL SURVEY REQUIRED REPAIR LOCATIONS TO BE INCLUDED AS PART OF THE BID DOCUMENTS



2 BRIDGE REPAIR ELEVATION
N.T.S



1A BRIDGE SUPERSTRUCTURE REPAIR STEP 1
N.T.S



1B BRIDGE SUPERSTRUCTURE REPAIR STEP 2
N.T.S

LEGEND

- NEW HANDRAIL
- CONCRETE REPAIR (SIKATOP-123)
- TEMPORARY LAND UNDERWATER AFFECTED AREA
- PERMANENT LAND UNDERWATER AFFECTED AREA
- BRIDGE DECK AND CURB RESURFACING (SIKAGARD FLEXCOAT)
- EARTH
- BEDROCK

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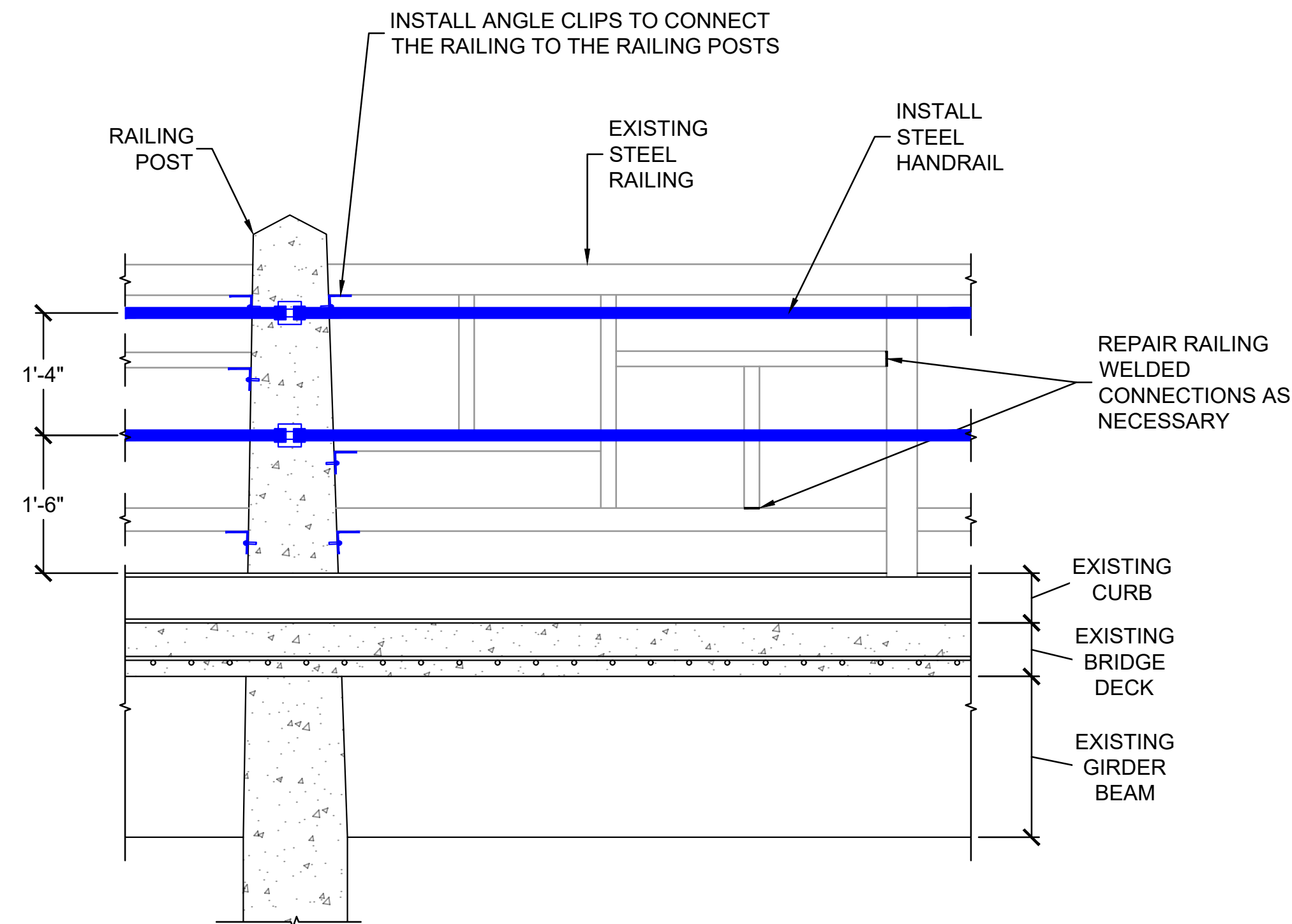
MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

LAMONT BRIDGE REHABILITATION
REPAIR ELEVATION AND DETAILS

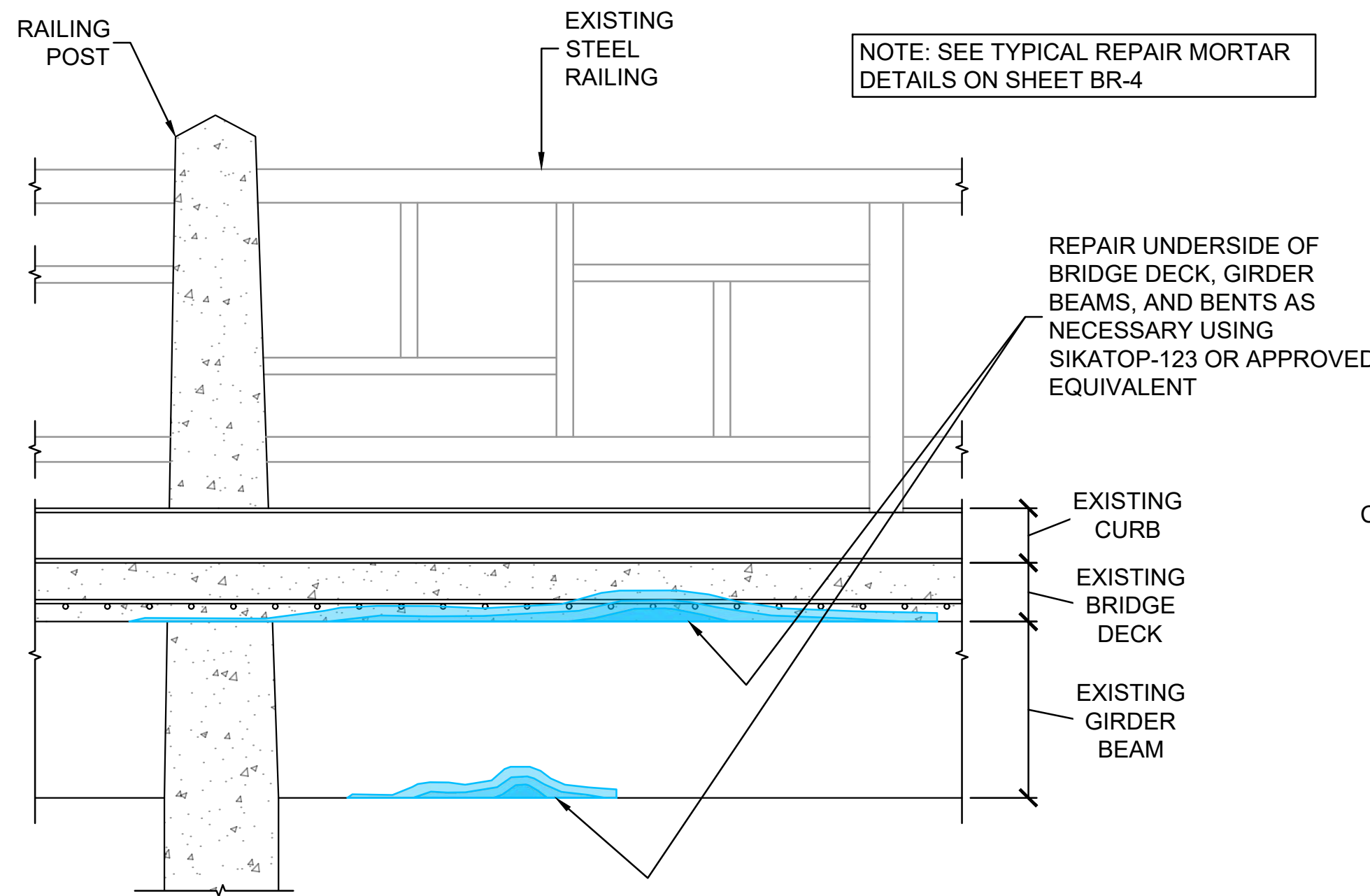
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OCTOBER 2023**

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PROJ MGR: PDZ DESIGNED BY: PDZ DATE: OCTOBER, 2023	REVIEWED BY: JAA DRAWN BY: PDZ PROJECT NO: 02.0166791.04
CHECKED BY: JAA SCALE: AS SHOWN REVISION NO: -	DRAWING BR-2

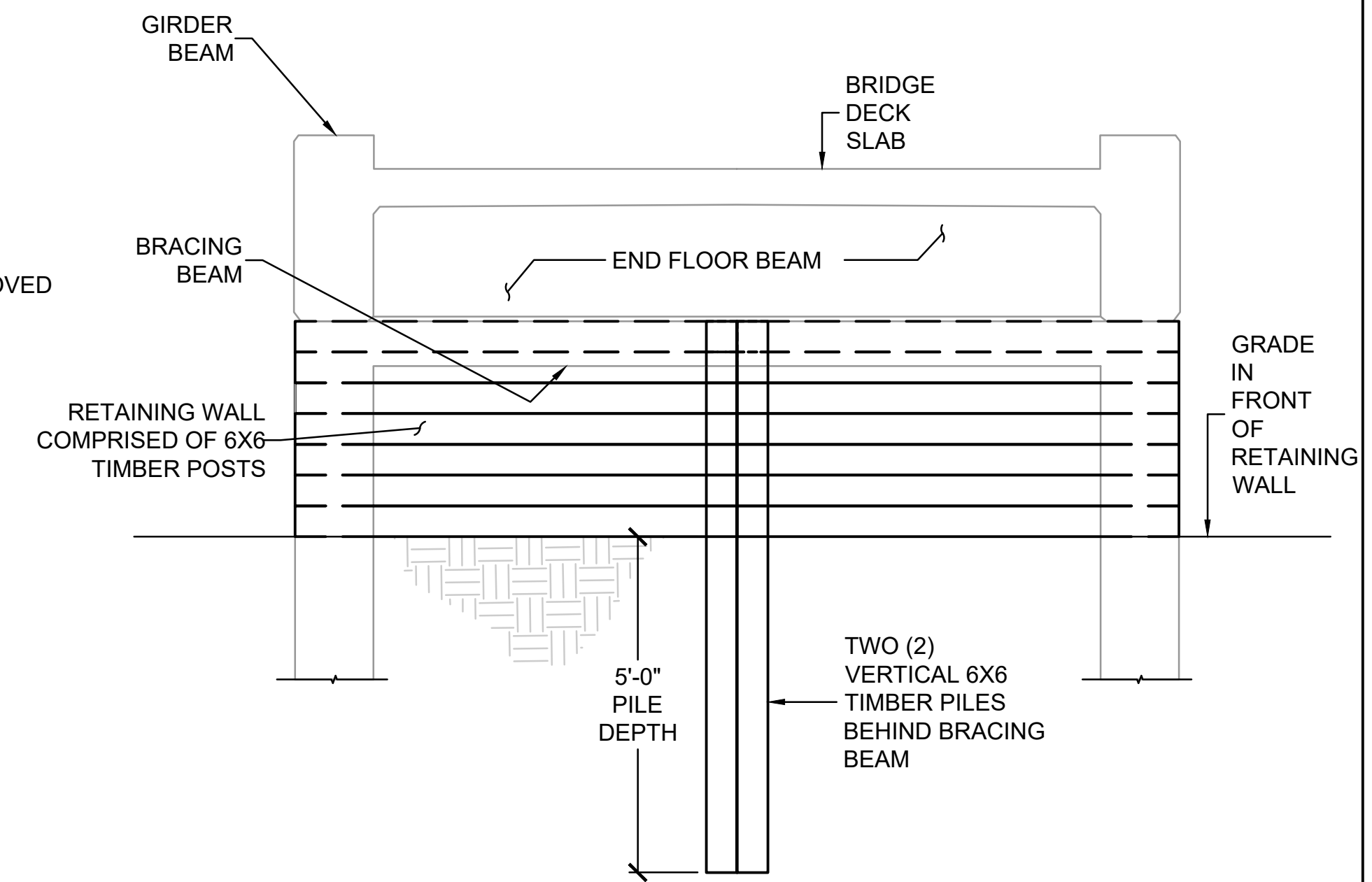
NOTE: BRIDGE SUPERSTRUCTURE AND RAILING REPAIR LOCATIONS ESTIMATED AND SHOWN SCHEMATICALLY. ENGINEER OF RECORD WILL SURVEY REQUIRED REPAIR LOCATIONS TO BE INCLUDED AS PART OF THE BID DOCUMENTS.



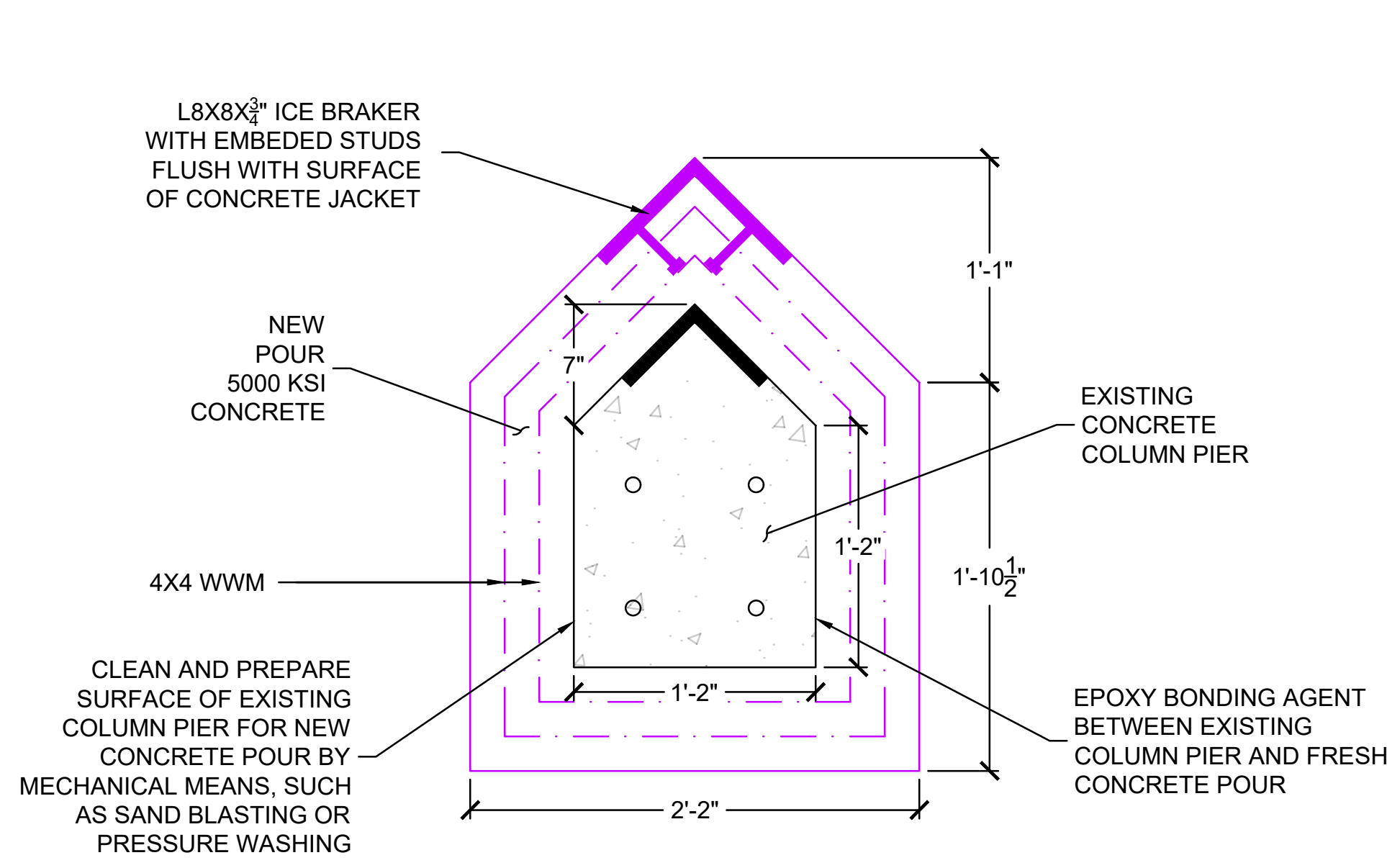
1C BRIDGE SUPERSTRUCTURE REPAIR STEP 3
BR-1 N.T.S



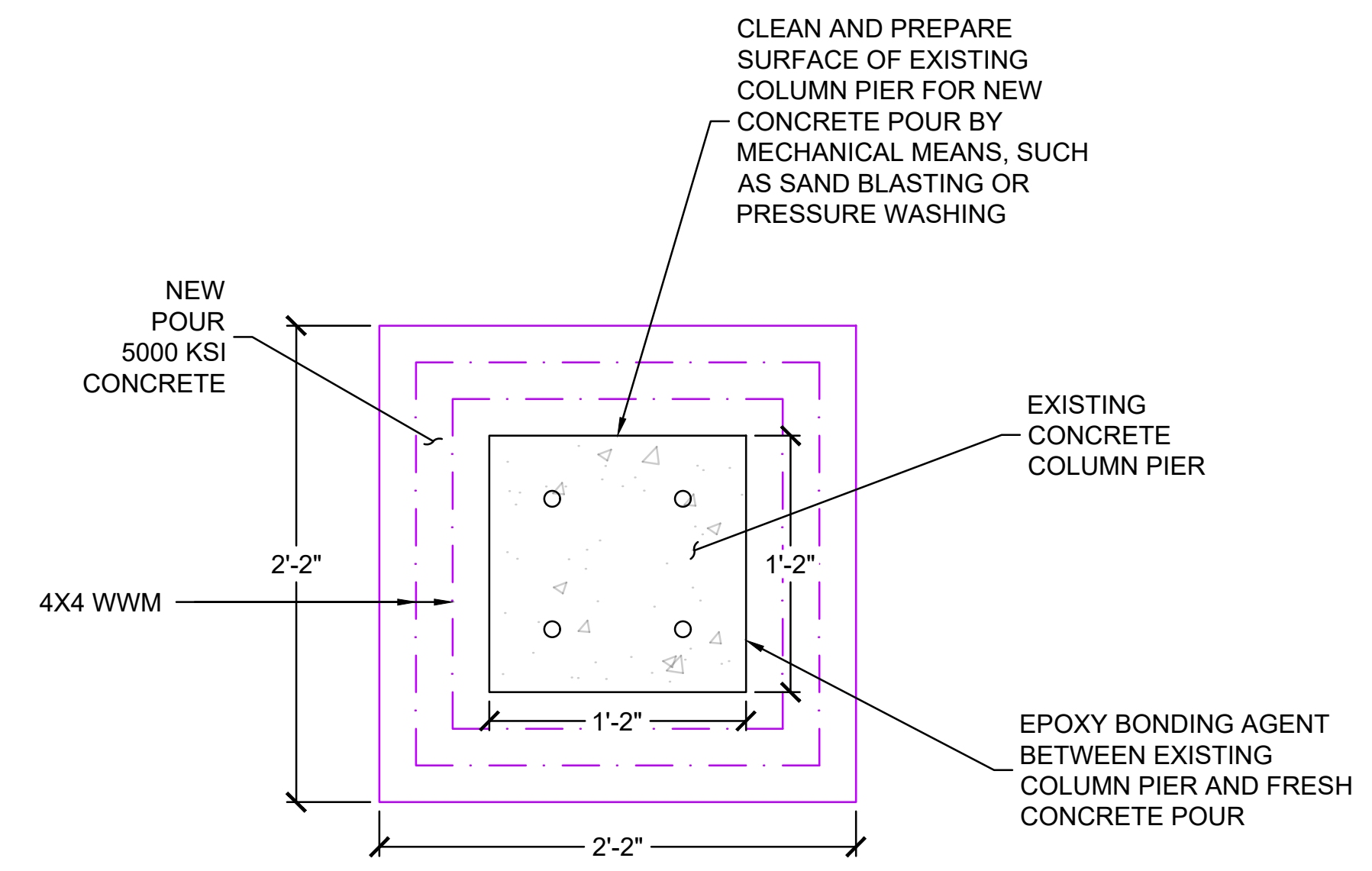
1D BRIDGE SUPERSTRUCTURE REPAIR STEP 4
BR-1 N.T.S



3 WEST APPROACH SLAB RETAINING WALL DETAIL
BR-1 N.T.S



4 TYPICAL UPSTREAM COLUMN PIER REPAIR DETAIL
BR-1 N.T.S



5 TYPICAL DOWNSTREAM COLUMN PIER REPAIR DETAIL
BR-1 N.T.S

- COLUMN PIER REPAIR PROCEDURE:
1. CLEAN AND PREPARE THE SURFACE OF THE EXISTING COLUMN PIER BY MECHANICAL MEANS, SUCH AS SAND BLASTING OR PRESSURE WASHING. PREPARE THE SURFACE FROM THE BASE OF THE COLUMN PIER (TOP OF BEDROCK) TO EL. 124.3.
 2. APPLY AN APPROVED EPOXY BONDING AGENT TO THE CLEAN SURFACE OF THE EXISTING COLUMN PIER.
 3. INSTALL TWO (2) LAYERS OF WELDED WIRE MESH AND POUR THE NEW COLUMN PIER CONCRETE JACKET AROUND THE EXISTING CONCRETE AND ALLOW TO MOIST-CURE.
 4. WHEN CURING IS COMPLETE, RETURN STOCKPILED DREDGE MATERIAL TO FILL THE DREDGED AREA.

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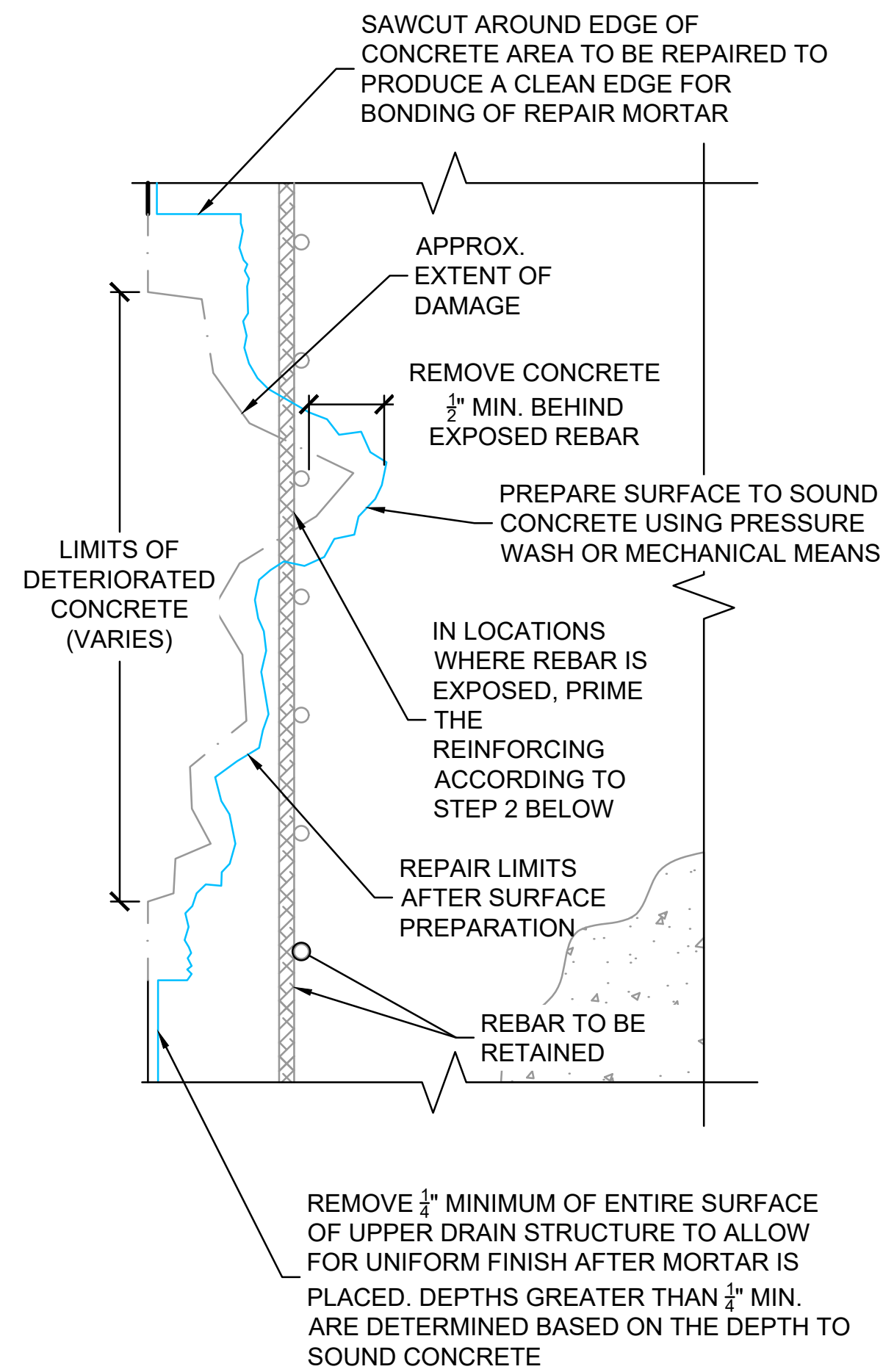
MILL RIVER BANK REPAIR PROJECT
SMITH COLLEGE
NORTHAMPTON, MA

LAMONT BRIDGE REHABILITATION
REPAIR DETAILS

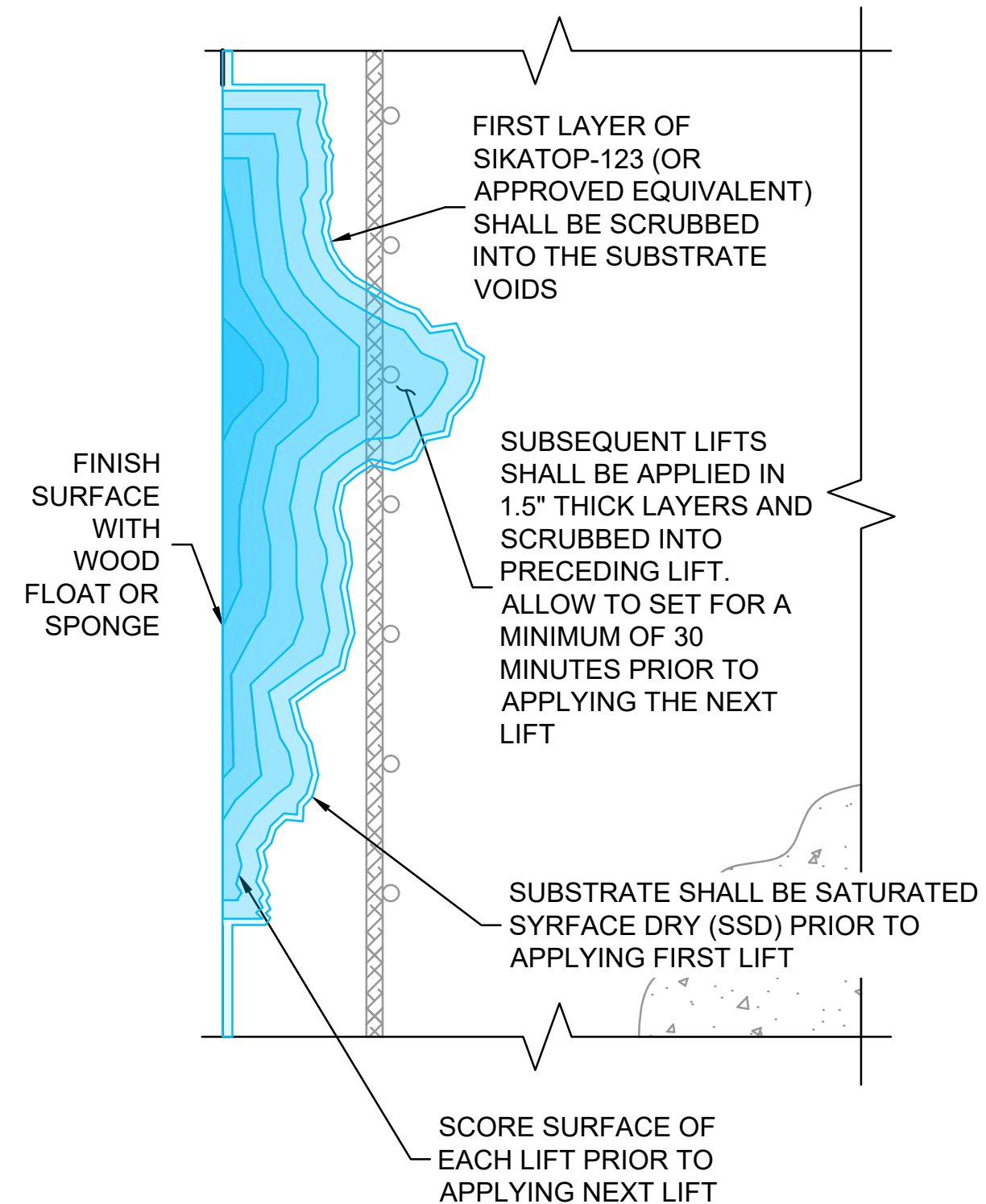
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PROJ MGR: PDZ DESIGNED BY: PDZ DATE: OCTOBER, 2023	CHECKED BY: JAA SCALE: AS SHOWN REVISION NO. -
REVIEWED BY: JAA DRAWN BY: PDZ PROJECT NO. 02.0166791.04	DRAWING BR-3

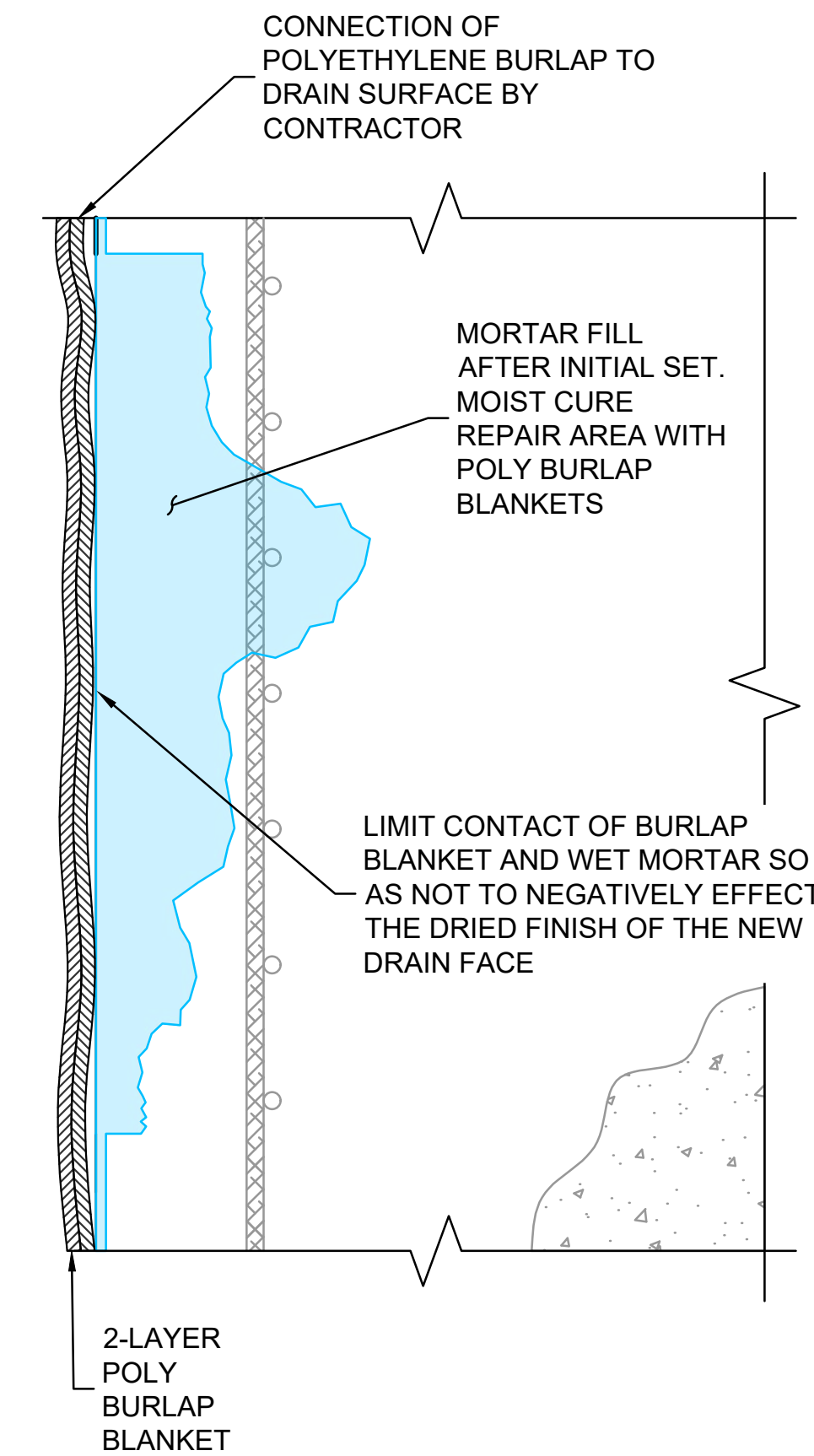
NOTE: GEOMETRY AND EXISTING REINFORCING IN THE BELOW DETAILS IS SHOWN SCHEMATICALLY



TYPICAL CONCRETE REPAIR SECTION STEP 1 & 2
N.T.S



TYPICAL CONCRETE REPAIR SECTION STEP 3 & 4
N.T.S



TYPICAL CONCRETE REPAIR SECTION STEP 5
N.T.S

SIKAGARD FLEXCOAT SYSTEM INSTALLATION PROCEDURE:
(TO BE USED FOR BRIDGE DECK AND CURB RESURFACING)

STEP 1: PREPARATION

- SURFACE MUST BE CLEAN AND SOUND. REMOVE ALL DETERIORATED CONCRETE, DIRT, OIL, GREASE, AND OTHER BOND-INHIBITING MATERIALS FROM THE AREA TO BE REPAIRED.
- AN OPEN TEXTURED SURFACE ICRI CSP-3 IS RECOMMENDED.
- DEEPER AREAS SHALL BE PATCHED WITH APPROPRIATE PATCH MATERIAL LIKE SIKAQUICK® OR SIKAREPAIR® PRODUCTS.

STEP 2: MIXING

- PLACE THE LIQUID COMPONENT IN APPROPRIATE MIXING CONTAINER. IT IS ALWAYS RECOMMENDED TO START MIXING WITH APPROXIMATELY 80 % OF THE LIQUID.
- ADD THE POWDER WHILE CONTINUING TO MIX WITH A LOWSPEED DRILL (400-600 RPM) AND PADDLE. MIX TO A UNIFORM CONSISTENCY, MAXIMUM 3 MINUTES.

STEP 3: APPLICATION

- PRE-WET SURFACE TO SSD (SATURATE SURFACE DRY).
- ENSURE GOOD INTIMATE CONTACT WITH THE SUBSTRATE IS ACHIEVED.
- SIKAGARD® FLEXCOAT CAN BE APPLIED IN MULTIPLE COATS BY BRUSH, ROLLER, TROWEL OR SPRAY TO A TYPICAL THICKNESS OF 60 MILS (1.5 MM).
- APPLY FIRST COAT OF SIKAGARD® FLEXCOAT. APPLY FOLLOWING COATS (ONE OR TWO DEPENDING ON SERVICE CONDITIONS/ REQUIREMENTS) BY BRUSH, TROWEL ROLLER OR SPRAY.
- FINISH TO SPECIFIED TEXTURE.
- PROTECT NEWLY APPLIED SIKAGARD® FLEXCOAT FROM DIRECT SUNLIGHT, WIND, RAIN AND FREEZING.

STEP 4: COLOR FINISH (OPTIONAL)

- APPLY SIKAGARD® FLEXCOAT ATC ACRYLIC TOP COAT FOR COLOR FINISH, WHEN SPECIFIED, IN TWO COATS BY ROLLER, BRUSH OR SPRAY.

NOTE: THE TYPICAL CONCRETE REPAIR PROCEDURE, AS OUTLINED BELOW, APPLIES ONLY TO THE USE OF SIKATOP-123 PLUS REPAIR MORTAR. EQUIVALENT REPAIR MORTAR MAY BE USED IF APPROVED BY THE ENGINEER RESPONSIBLE FOR THIS REPAIR PROCEDURE. NOTE THAT THE USE OF AN ALTERNATE MORTAR MATERIAL MAY ALTER THE INSTALLATION PROCEDURE.

STEP 1: PREPARATION

- REMOVE ALL DETERIORATED CONCRETE, DIRT, OIL, GREASE, AND OTHER BOND-INHIBITING MATERIALS FROM THE AREA TO BE REPAIRED.
- PREPARATION WORK SHALL BE DONE BY HIGH PRESSURE WATER BLAST, SCABBLER OR OTHER APPROPRIATE MECHANICAL MEANS TO OBTAIN AN EXPOSED AGGREGATE SURFACE PROFILE OF $\frac{1}{8}$ ".
- TO ENSURE OPTIMUM REPAIR RESULTS, THE EFFECTIVENESS OF DECONTAMINATION AND PREPARATION SHOULD BE ASSESSED BY A PULL-OFF TEST.
- SAW CUTTING OF EDGES IS PREFERRED AND A DOVETAIL IS RECOMMENDED.
- SUBSTRATE SHOULD BE SATURATED SURFACE DRY (SSD) WITH CLEAN WATER PRIOR TO APPLICATION. NO STANDING WATER SHOULD REMAIN DURING APPLICATION.
- REPAIR AREA SHALL NOT BE LESS THAN 1/4" IN DEPTH.

STEP 2: PRIMING

- **REINFORCING STEEL:** STEEL REINFORCEMENT SHOULD BE THOROUGHLY PREPARED BY MECHANICAL CLEANING TO REMOVE ALL TRACES OF RUST. WHERE CORROSION HAS OCCURRED DUE TO THE PRESENCE OF CHLORIDES, THE STEEL SHOULD BE HIGH PRESSURE WASHED WITH CLEAN WATER AFTER MECHANICAL CLEANING. FOR PRIMING OF REINFORCING STEEL USE SIKA ARMATEC 110 EPOCEM (OR APPROVED EQUIVALENT).
- **CONCRETE SUBSTRATE:**
 - PRIME THE PREPARED SUBSTRATE WITH A BRUSH OR SPRAYED APPLIED COAT OF SIKA ARMATEC 110 EPOCEM (OR APPROVED EQUIVALENT)
 - ALTERNATELY, A SCRUB COAT OF SIKATOP-123 PLUS (OR APPROVED EQUIVALENT) CAN BE APPLIED PRIOR TO PLACEMENT OF THE MORTAR. THE REPAIR MORTAR HAS TO BE APPLIED INTO THE WET SCRUB COAT BEFORE IT DRIES.

STEP 3: MIXING

- MIX THE SIKATOP-123 PLUS (OR APPROVED EQUIVALENT) COMPONENTS ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

STEP 4: APPLICATION

- SIKATOP-123 PLUS (OR APPROVED EQUIVALENT) MUST BE SCRUBBED INTO THE SUBSTRATE, FILLING ALL PORES AND VOIDS.
- FORCE MATERIAL AGAINST THE EDGE OF REPAIR, WORKING TOWARD THE CENTER.
- AFTER FILLING REPAIR, CONSOLIDATE, THEN SCREED.
- WHERE MULTIPLE LIFTS ARE REQUIRED, SCORE TOP OF SURFACE OF EACH LIFT TO PRODUCE A ROUGHENED SURFACE FOR NEXT LIFT.
- ALLOW PRECEDING LIFT TO REACH INITIAL SET, 30 MINUTES MINIMUM, BEFORE APPLYING FRESH MATERIAL.
- SUBSTRATE SHOULD BE SATURATED SURFACE DRY (SSD) WITH CLEAN WATER PRIOR TO APPLICATION. NO STANDING WATER SHOULD REMAIN DURING APPLICATION.
- SCRUB FRESH MORTAR INTO PRECEDING LIFT.
- ALLOW MORTAR OR CONCRETE TO SET TO DESIRED STIFFNESS, THEN FINISH WITH WOOD OR SPONGE FLOAT FOR A SMOOTH SURFACE.

NOTE: SIKATOP-123 PLUS MUST BE APPLIED AT A MIN. AMBIENT AIR TEMPERATURE OF 45°F. TO ACHIEVE THIS CONDITION A HEATED ENCLOSURE MAY NEED TO BE PROVIDED TO REACH THE DESIRED TEMPERATURE.

STEP 5: CURING

- AS PER ACI RECOMMENDATIONS FOR PORTLAND CEMENT CONCRETE, CURING IS REQUIRED.
- MOIST CURE WITH WET BURLAP AND POLYETHYLENE, A FINE MIST OF WATER OR WATER BASED COMPATIBLE CURING COMPOUND (ASTM C-309).
- MOIST CURING SHOULD COMMENCE IMMEDIATELY AFTER FINISHING. PROTECT FRESHLY APPLIED MORTAR FROM DIRECT SUNLIGHT, WIND, WATER AND FROST.

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LAMONT BRIDGE REHABILITATION TYPICAL CONCRETE REPAIR DETAILS			
PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: SMITH COLLEGE FACILITIES MANAGEMENT 125 WEST STREET NORTHAMPTON, MA	
PROJ MGR: PDZ	REVIEWED BY: JAA	CHECKED BY: JAA	DRAWING
DESIGNED BY: PDZ	DRAWN BY: PDZ	SCALE: AS SHOWN	BR-4
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