

# CITY OF SUMMIT UNION COUNTY, NEW JERSEY

## SUMMIT GOLF COURSE - FOOT BRIDGES MARCH 2017

REVISED AUGUST 2024 (OCTOBER 2021)

### CITY COUNCIL

ELIZABETH FAGAN, MAYOR  
LISA K. ALLEN, COUNCIL PRESIDENT  
DELIA HAMLET  
ANDY MINEGAR  
BOB PAWLOWSKI  
JAMEL BOYER  
GREG VARTAN  
KEVIN SMALLWOOD

### CITY ADMINISTRATOR

MICHAEL F. ROGERS

### CITY ENGINEER

AARON SHRAGER, P.E. C.M.E. P.P.

### CITY CLERK

ROSEMARY LICATESE

### UTILITIES

PUBLIC SERVICE ELECTRIC  
& GAS CO.  
48 MIDDLE AVENUE  
SUMMIT, NJ 07901

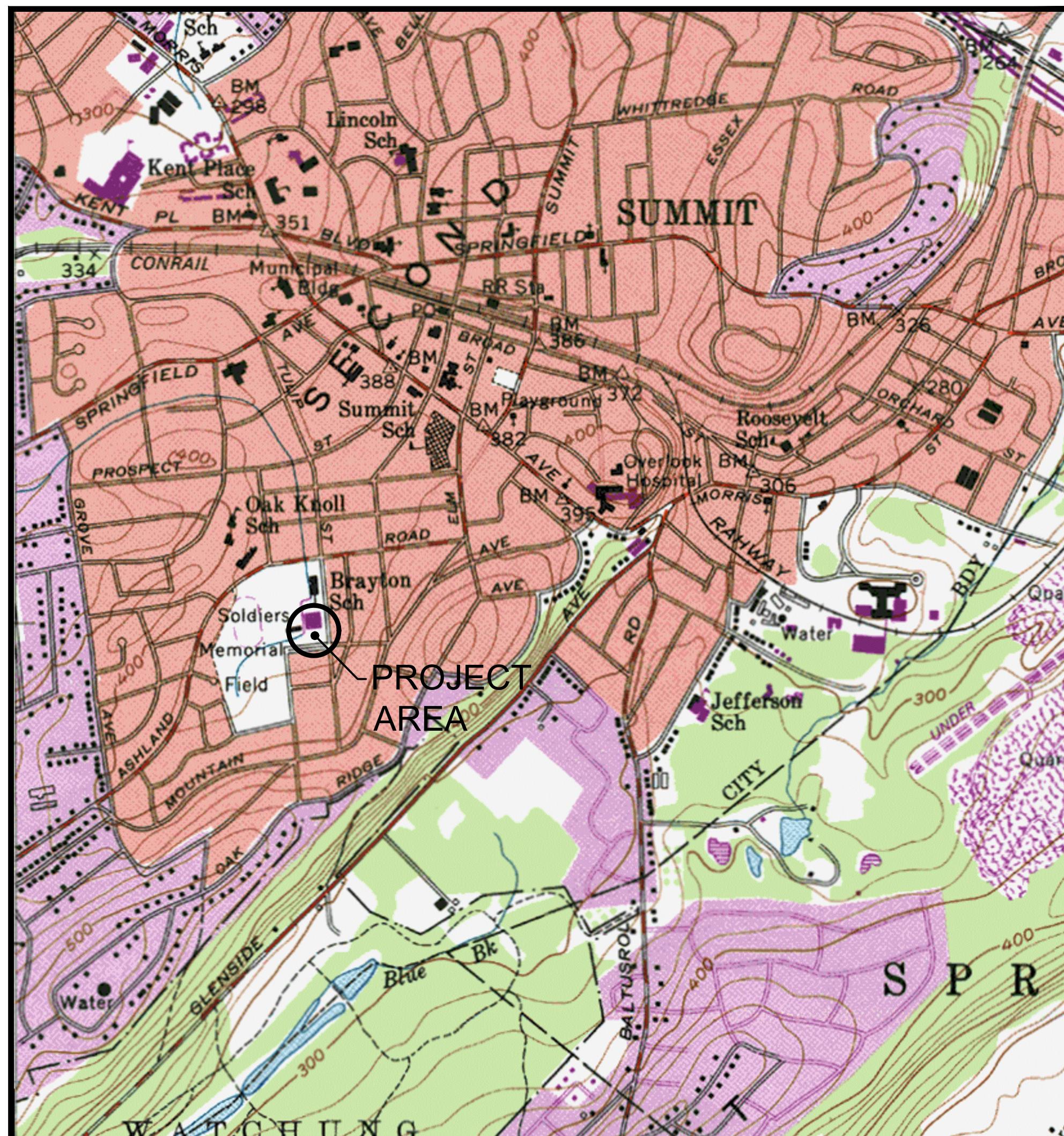
JERSEY CENTRAL POWER  
& LIGHT  
300 MADISON AVENUE  
MORRISTOWN, NJ 07960

COMCAST CABLEVISION  
OF NEW JERSEY  
300 RAHWAY AVENUE  
UNION, NJ 07083

VERIZON  
445 GEORGES ROAD  
NORTH BRUNSWICK, NJ 08902

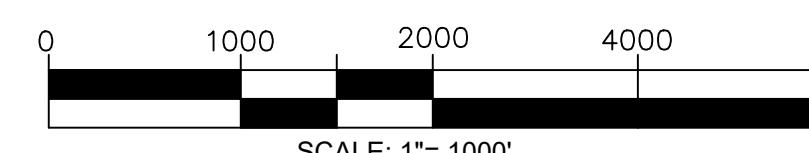
CITY OF SUMMIT  
DIVISION OF PUBLIC WORKS  
41 CHATHAM ROAD  
SUMMIT, NJ 07901

NEW JERSEY AMERICAN WATER CO.  
167 JFK PARKWAY  
SHORT HILLS, NJ 07078



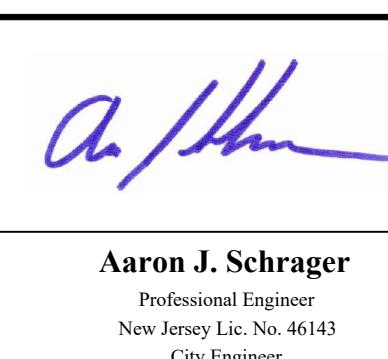
SOURCE: ROSELLE, NEW JERSEY - U.S.G.S TOPOGRAPHIC QUADRANGLE

### KEY MAP



### DRAWING LIST

- 1 TITLE SHEET
- 2 OVERALL SITE PLAN
- 3 SPILLWAY & BRIDGE SITE PLAN & NOTES
- ~~4 DEMOLITION PLANS AND SECTIONS~~
- ~~5 SPILLWAY PLANS, SECTIONS, & DETAILS~~
- 6 BRIDGE PLANS, SECTIONS, & DETAILS
- 7 PEDESTRIAN BRIDGE PLAN
- 8 PEDESTRIAN BRIDGE SECTION - 1
- 9 PEDESTRIAN BRIDGE SECTION - 2
- 10-11 CONSTRUCTION DETAILS
- 12 SOIL EROSION & SEDIMENT CONTROL



8/15/2024

Aaron J. Shrager  
Professional Engineer  
New Jersey Lic. No. 46143  
City Engineer

## LEGEND

- FW — APPROXIMATE FLOOD HAZARD AREA DESIGN FLOOD (DELINEATED USING METHOD 6 FROM THE LATEST FLOOD HAZARD AREA REGULATIONS)
- RZ — 50' RIPARIAN ZONE
- Ls — LIMIT OF DISTURBANCE (1,677 SQUARE YARDS OR 0.35 ACRES)
- 537 SQUARE FEET S.O.W. DISTURBANCE
- 8,125 SQUARE FEET TEMPORARY RIPARIAN DISTURBANCE (MAINTAINED LAWN DISTURBANCE)

1. THE LIMIT OF THE FLOODWAY IS ESTIMATED TO BE AT THE EXISTING WATERS EDGE.
2. THE NORMAL WATER SURFACE ELEVATION IS APPROXIMATELY 182.9'±.
3. ALL ELEVATIONS REFER TO NAVD 1988.
4. NO WETLANDS OR WETLANDS TRANSITION AREAS ARE PRESENT WITHIN THE PROJECT SITE.

NOTE: CONTRACTOR SHALL AVOID DISTURBANCE TO EXISTING GOLF COURSE FEATURES SUCH AS PUTTING GREENS, SAND TRAPS, TEE BOXES, ETC., TO THE MAXIMUM EXTENT PRACTICABLE.

## GRAPHIC SCALE

SCALE: 1"= 20'

0 20 30 40 80

ORIGINALLY DESIGNED BY KEVIN NOLLSTAD FOR  
MOTT MC DONALD & ASSOCIATES, INC.  
NJ LICENSE NO. 4519

10/12/2021 ISSUED FOR CONSTRUCTION  
7/01/2021 GENERAL REVISIONS  
7/05/2019 REVISED PER NODEP  
4/10/2017 REVISED PER NODEP  
Date Revision

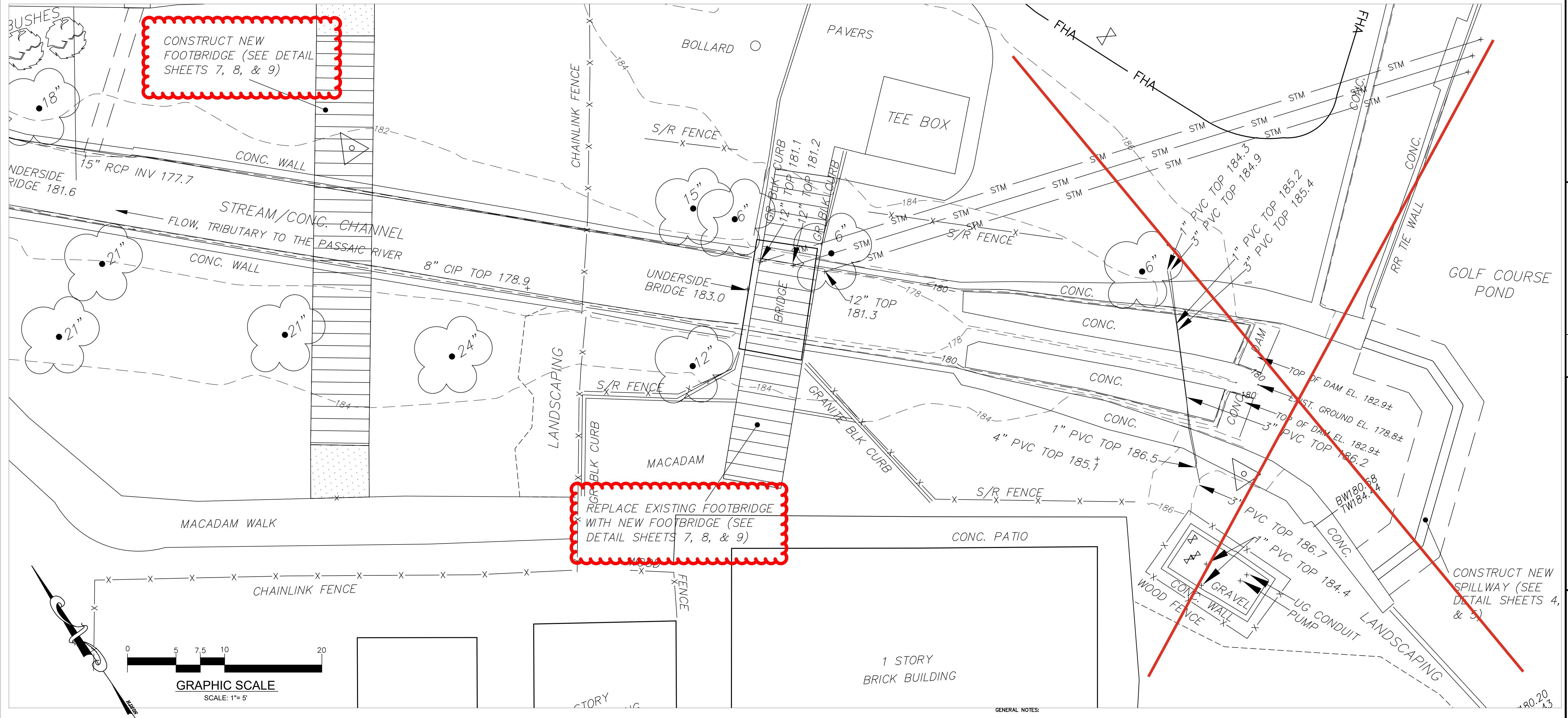
8/15/2024

Aaron J. Schrager  
Professional Engineer  
New Jersey Lic. No. 46143  
City Engineer

CITY OF SUMMIT  
UNION COUNTY, NEW JERSEY  
SUMMIT GOLF COURSE -  
FOOT BRIDGES  
OVERALL SITE PLAN

File SUMMIT GOLF COURSE  
Book \_\_\_\_\_ Page \_\_\_\_\_  
Job No. 319308 2  
Scale 1"=20' B/O Total 12

Drawing No.

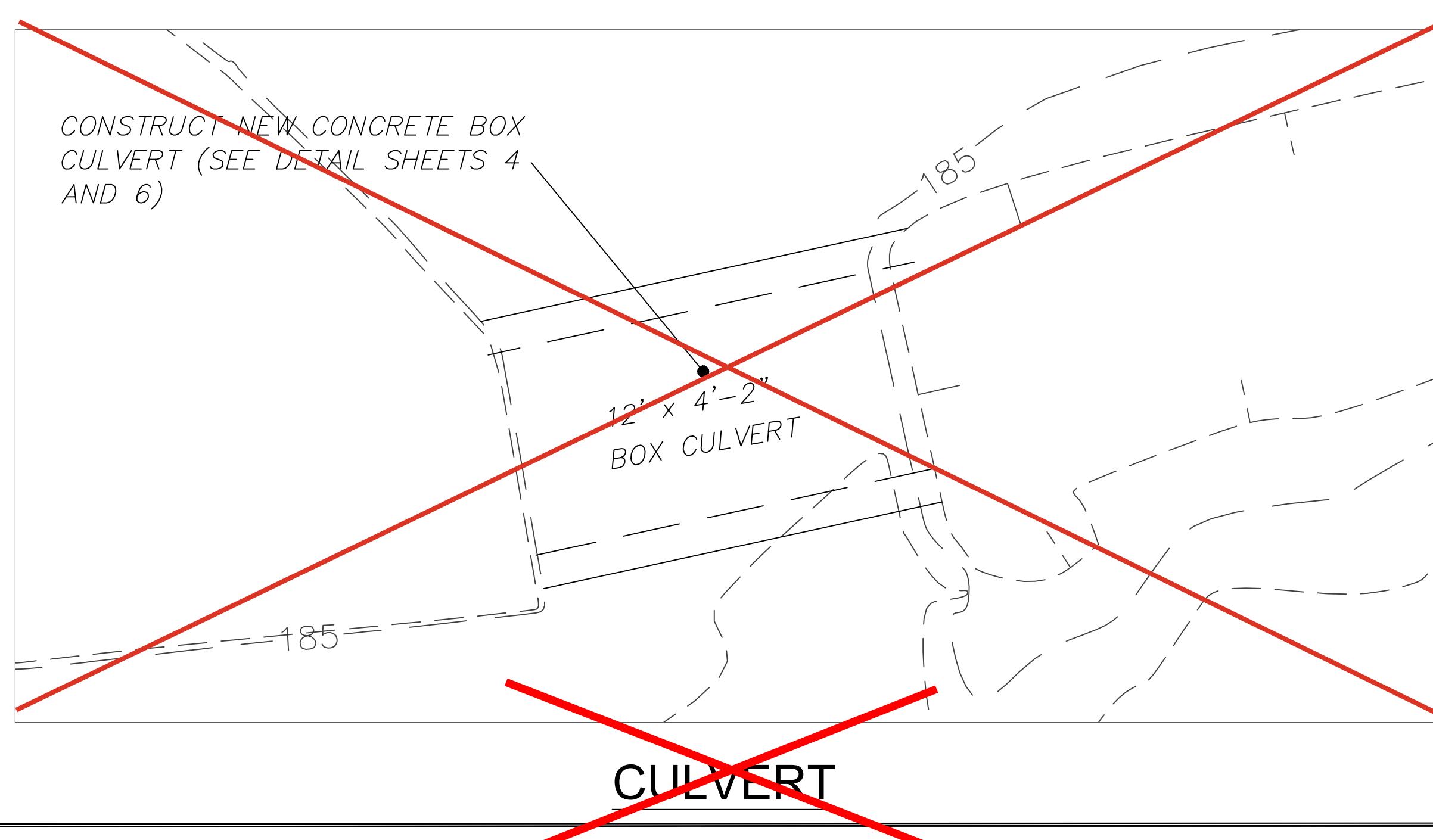


## SITE PLAN

## LEGEND

- FHA — APPROXIMATE FLOOD HAZARD AREA DESIGN FLOOD (DELINEATED USING METHOD 6 FROM THE LATEST FLOOD HAZARD AREA REGULATIONS)
- RZ — 50' RIPARIAN ZONE
- L — LIMIT OF DISTURBANCE (1,677 SQUARE YARDS OR 0.35 ACRES)

1. THE LIMIT OF THE FLOODWAY IS ESTIMATED TO BE AT THE EXISTING WATERS EDGE.
2. THE NORMAL WATER SURFACE ELEVATION IS APPROXIMATELY 182.9'±.
3. ALL ELEVATIONS REFER TO NAVD 1988.
4. NO WETLANDS OR WETLANDS TRANSITION AREAS ARE PRESENT WITHIN THE PROJECT SITE.



ORIGINALLY DESIGNED BY KEVIN K. NOLSTAD FOR  
MOTT MACDONALD ON 10/12/2021  
NJ LICENSE NO. 45197

12/08/2022	ISSUED FOR CONSTRUCTION
9/13/2019	GENERAL REVISIONS
7/05/2017	REVISED PER NJDEP
4/10/2017	REVISED PER NJDEP

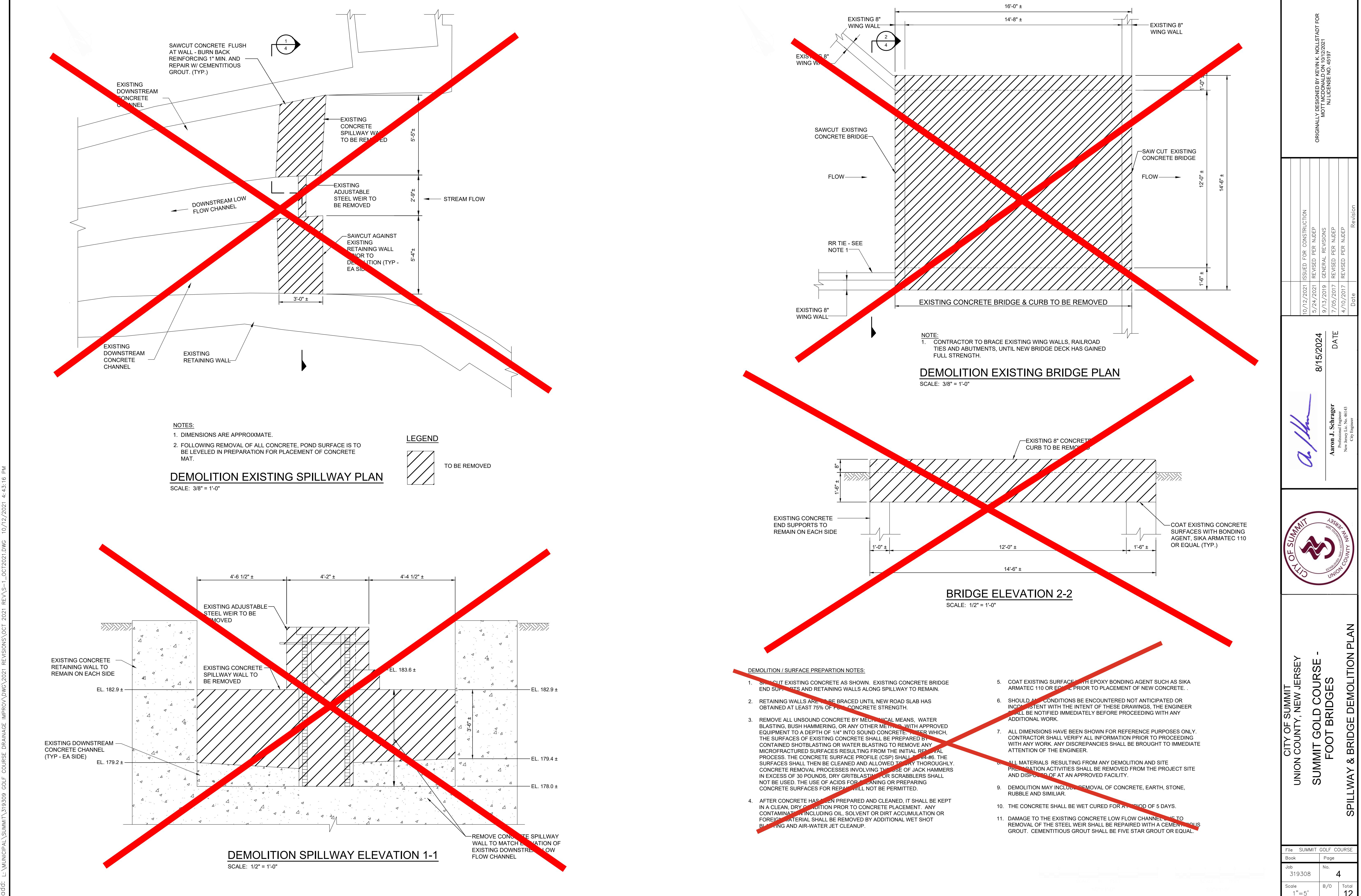
8/15/2024.  
Aaron M. Schrager  
Professional Engineer  
New Jersey Lic. No. 46143  
City Engineer

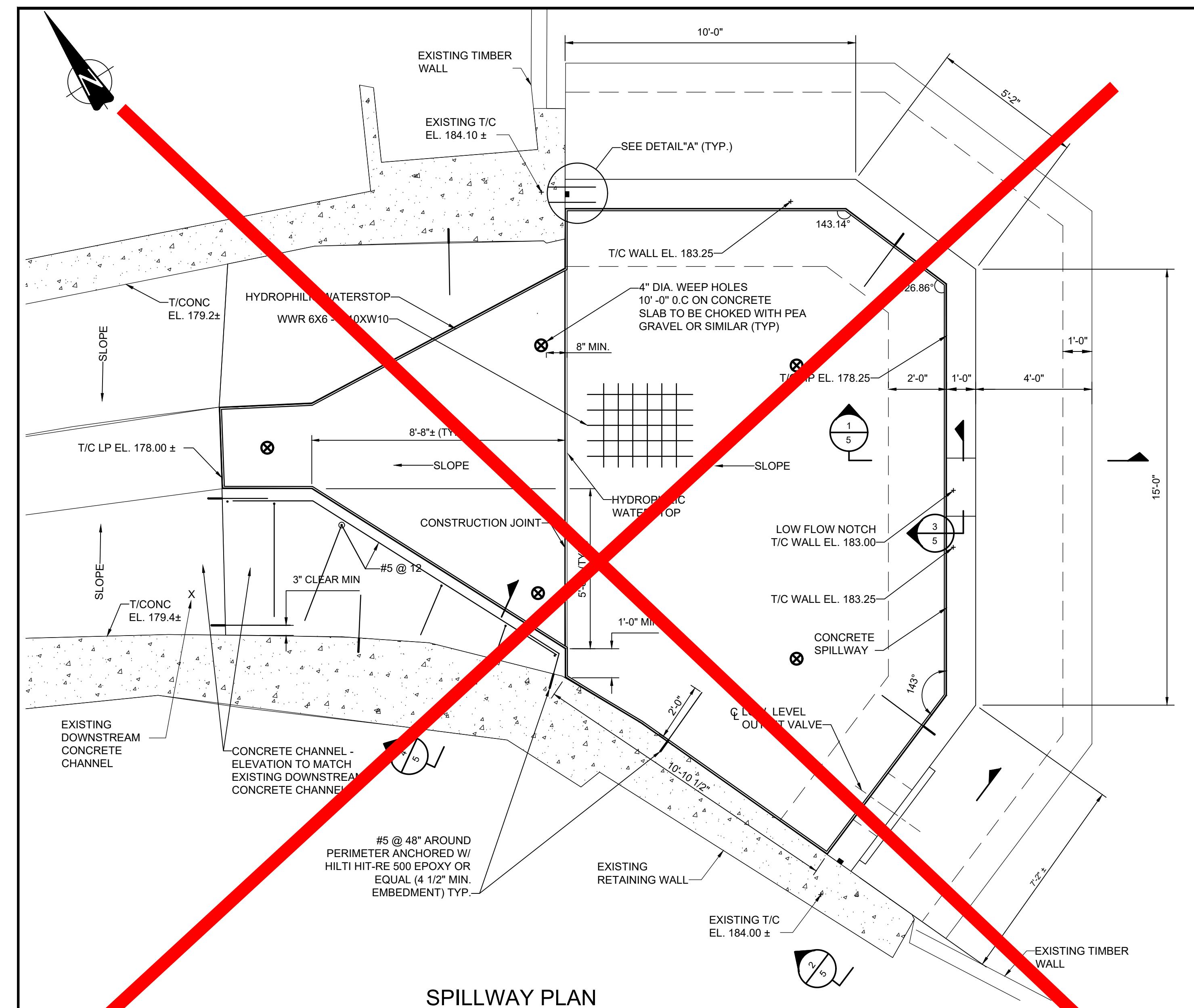


CITY OF SUMMIT  
UNION COUNTY, NEW JERSEY  
SUMMIT GOLD COURSE -  
FOOT BRIDGES  
SPILLWAY & BRIDGE SITE PLAN AND NOTES

File	Summit Gold Course	Page
Book		
Job	No.	
319308	3	
Scale	1"=5'	B/O
		Total
		12

Drawing No.

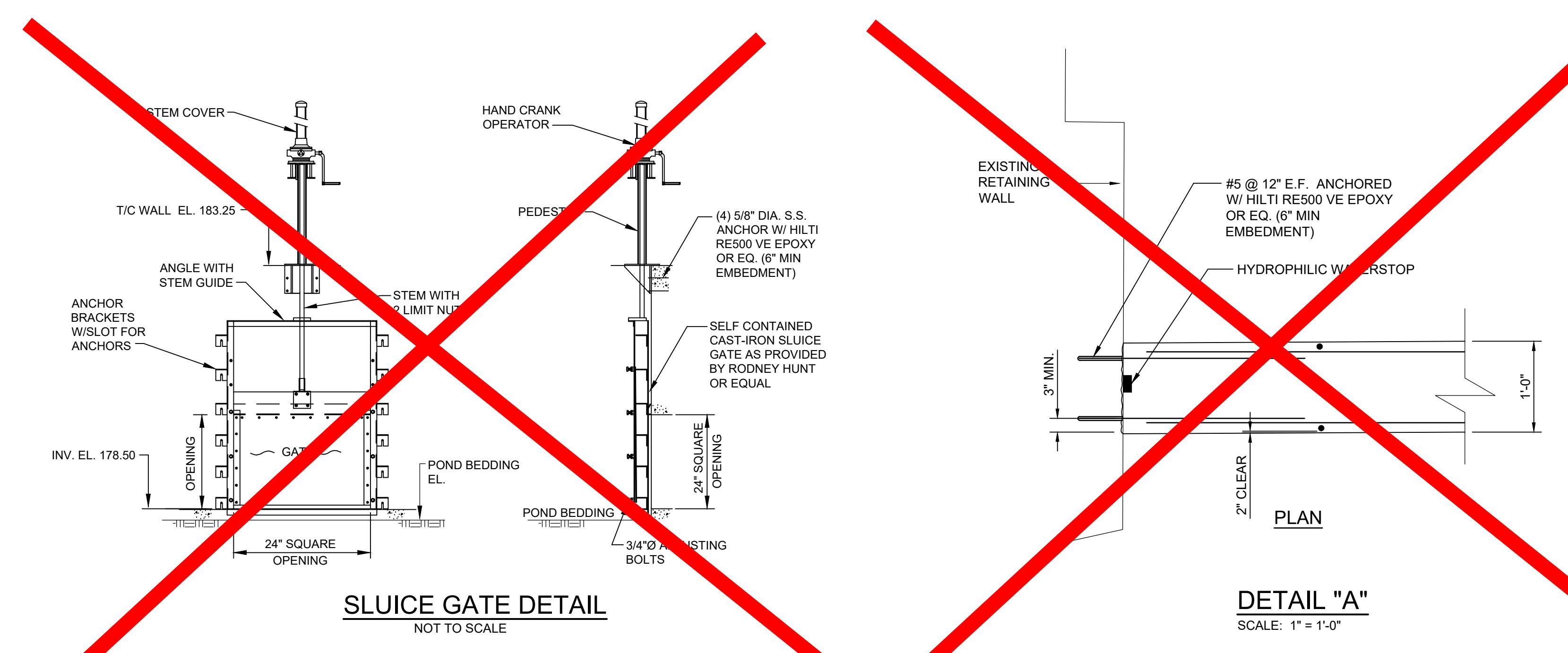




**SPILLWAY PLAN**

SCALE: 3/8 = 1'-0"

DESIGN LOADS:  
WSE = HEIGHT OF WALL  
BEARING CAPACITY: 2000 PSF

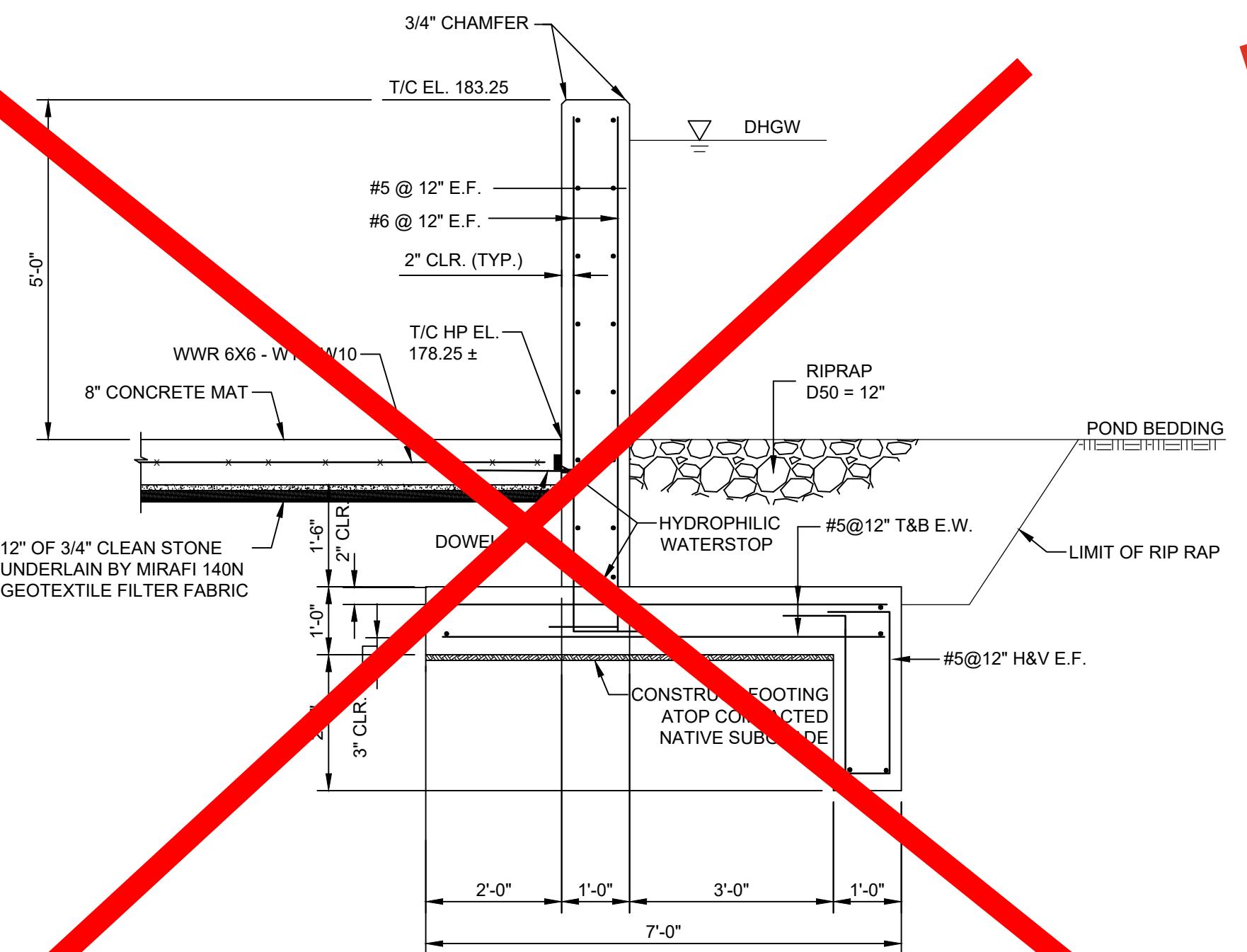


**SLUICE GATE DETAIL**

NOT TO SCALE

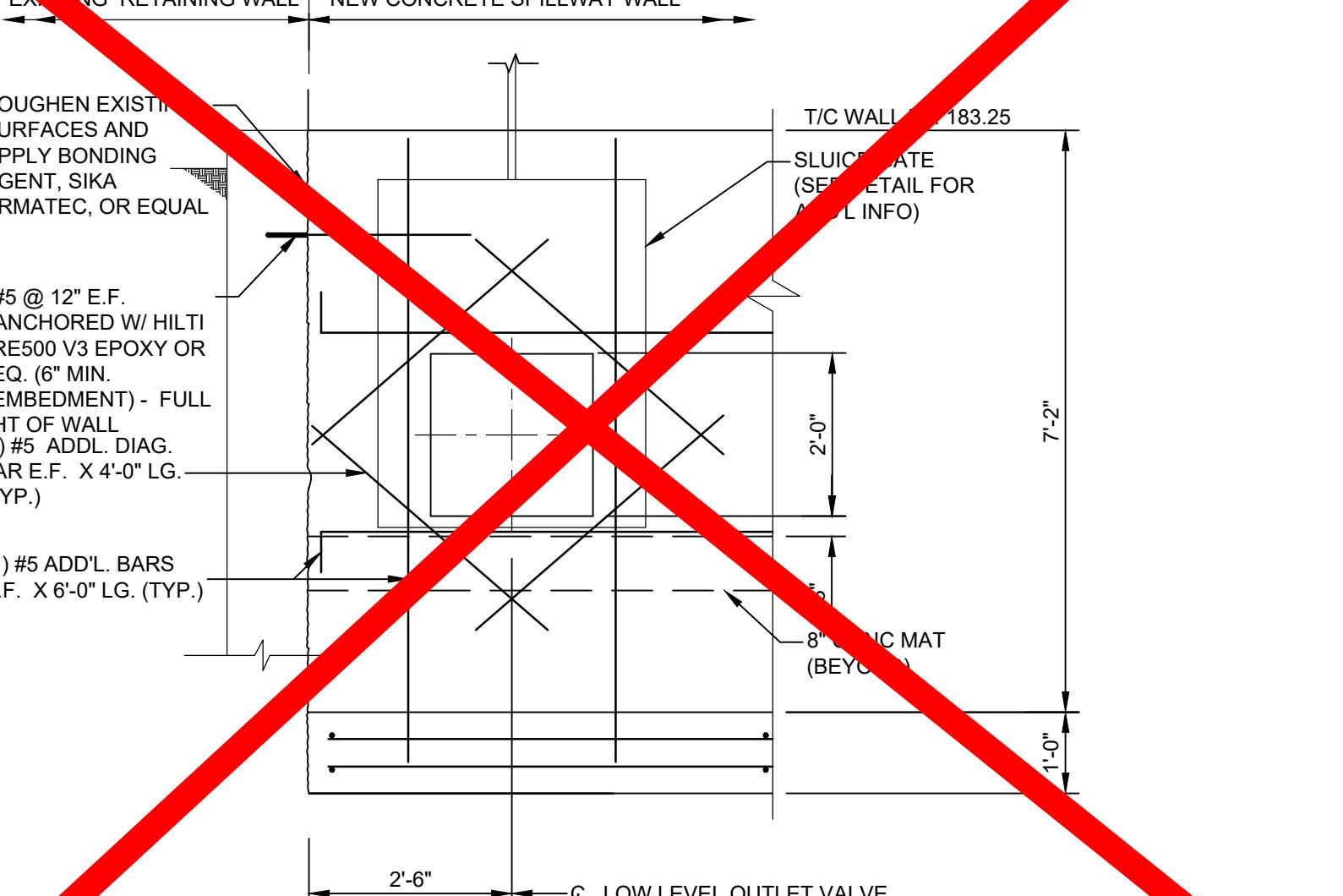
SEE DETAIL "A" (TYP.)

SCALE: 1" = 1'-0"



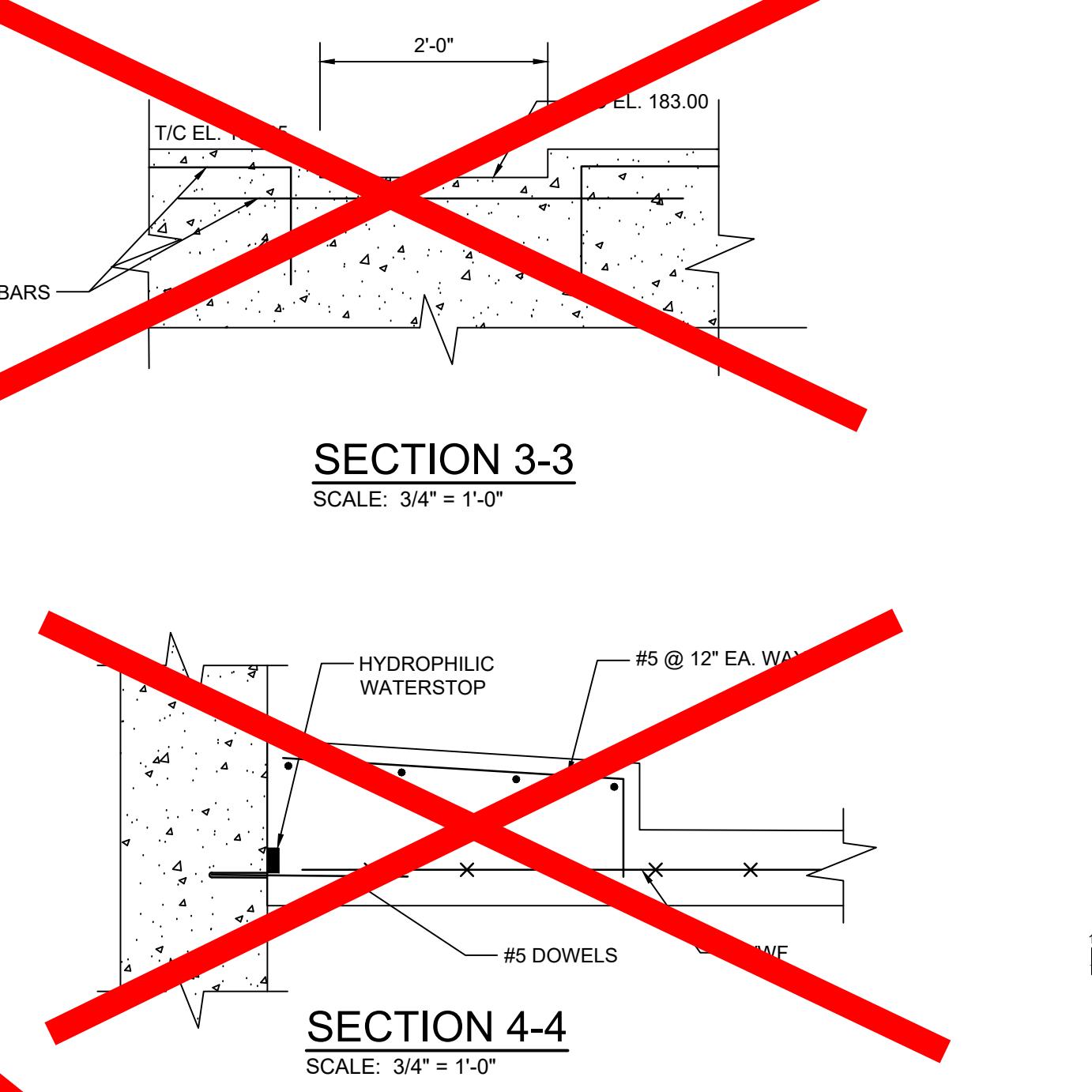
**SECTION 1-1**

SCALE: 1/2 = 1'-0"



**SECTION 2-2**

SCALE: 1/2 = 1'-0"



**SECTION 3-3**

SCALE: 3/4" = 1'-0"

SEE DETAIL "A"

SCALE: 3/4" = 1'-0"

**NOTES:**

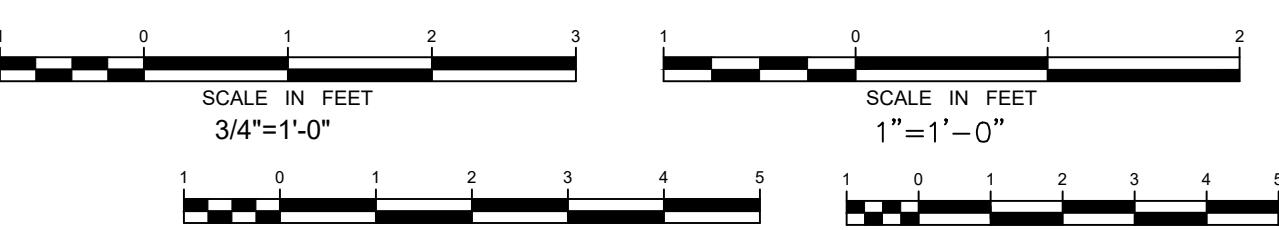
1. NO FOUNDATION ELEMENT SHALL BE PLACED UNTIL THE ENGINEER HAS INSPECTED THE BEARING MATERIAL AND GIVEN HIS PERMISSION TO PLACE CONCRETE. IF UNSUITABLE MATERIALS ENCOUNTERED DURING FOUNDATION EXCAVATION, IT SHOULD BE REMOVED IN ITS ENTIRETY AND REPLACED WITH COMPAKTED IMPERVIOUS FILL MATERIAL TO BEARING ELEVATION.
2. NO FOOTING OR FOUNDATION ELEMENT SHALL BE PLACED ON FROZEN MATERIAL UNDER ANY CIRCUMSTANCES.
3. ALL BEARING STRATA UNDER INSTALLED FOUNDATION ELEMENTS SHALL BE PROTECTED FROM FREEZING.
4. ALL BACKFILLING AGAINST WALLS SHALL BE CAREFULLY DONE WITH SMALL HAND PROPELLED COMPACTION EQUIPMENT. NO BACKFILLING OPERATIONS SHALL BE STARTED AT THE PROJECT SITE UNTIL ALL CONCRETE HAS ATTAINED ITS FINAL SET. IN ANY EVENT, TRUCKS, BULLDOZERS, ETC., WILL NOT BE ALLOWED CLOSER THAN 6'-0" TO ANY WALL BEING BACKFILLED AGAINST.
5. THE CONTRACTOR SHALL FULLY BRACE AND OTHERWISE PROTECT HIS WORK IN PROGRESS UNTIL THE STRUCTURE IS COMPLETED.
6. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND LOCATE ALL EXISTING UNDERGROUND UTILITIES AND LINES AS NEEDED BEFORE COMMENCING CONSTRUCTION.
7. ALL REINFORCED CONCRETE SHALL BE AIR ENTRAINED (6%±1%), HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,500 PSI, A MINIMUM TYPE I/I/II CEMENT CONTENT OF 640 LBS. PER CUBIC YARD, A MAXIMUM WATER CONTENT OF 32.3 GALLON'S PER YARD OF CEMENT, AND A W/C RATIO OF 0.42 MAX.
8. ALL REINFORCING STEEL SHALL HAVE A MINIMUM YIELD STRENGTH, FY = 60 KSI AND SHALL BE NEW DOMESTIC DEFORMED BILLET-STEEL CONFORMING TO ASTM A615, GRADE 60.
9. THE MINIMUM BAR L/P SPLICE TO BE 24" FOR #5 BARS AND 30" OR #6 BARS.
10. ELEVATIONS SHOWN WERE BASED ON SURVEY DATED MARCH 29, 2013. CONTRACTOR TO VERIFY ELEVATIONS PRIOR TO CONSTRUCTION, ENGINEER TO BE NOTIFIED IF THE ELEVATION CHANGES BY ± 6".

**WATERSTOP NOTES:**

1. EXPANDING RUBBER WATERSTOP SHALL BE A CHEMICALLY MODIFIED NATURAL RUBBER PRODUCT WITH A HYDROPHILIC AGENT. APPROVED PRODUCT SHALL BE HYDROTEX CJ-1020-2K BY GREENSTREAK, OR EQUAL. WATERSTOPS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2. ADHESIVE BETWEEN WATERSTOP AND EXISTING CONCRETE SHALL BE GREENSTREAK 7300 EPOXY BY GREENSTREAK, OR APPROVED EQUAL. ADHESIVE SHALL BE APPLIED TO BOTH CONTACT SURFACES IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. HYDROPHILIC WATERSTOP SHALL BE TERMINATED 2" FROM TOP OF WALL.

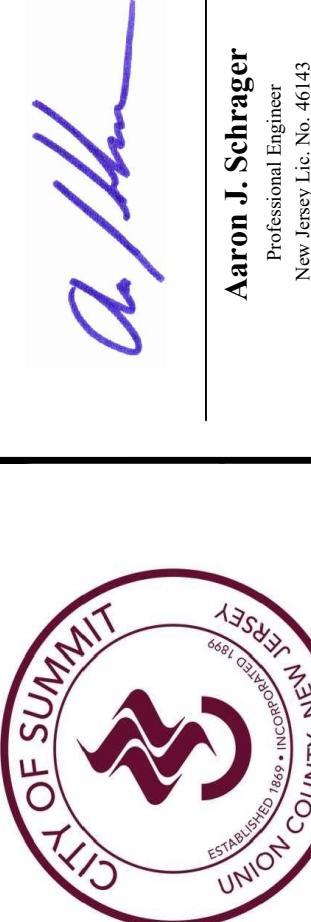
**CONCRETE TESTING:**

1. THE OWNER WILL DESIGNATE A TESTING LABORATORY, WHICH IS TO PERFORM ALL TESTING AND PROVIDE INSPECTION SERVICES WHEN REQUIRED. THE TESTING LABORATORY IS TO MEET THE REQUIREMENTS OF ASTM E329 AND IS TO BE A LABORATORY DIFFERENT FROM THAT WHICH PROVIDED THE CONCRETE DESIGN MIX PROPORTIONS.
2. THE TEST CYLINDERS ARE TO BE MADE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C31. TEST CYLINDERS FOR STRENGTH OF PUMPED CONCRETE ARE TO BE TAKEN AT THE POINT OF DELIVERY FROM THE PUMPING LINE. OTHER CYLINDERS ARE TO BE TAKEN AT THE POINT OF DISCHARGE.
3. A MINIMUM OF FIVE TEST CYLINDERS ARE TO BE MADE FROM EACH DELIVERY, TWO OF WHICH WILL BE TESTED AT AGE SEVEN DAYS, TWO TO BE TESTED AT AGE TWENTY-EIGHT DAYS, AND THE FIFTH CYLINDER WILL BE TESTED, IF NEEDED, TO CONFIRM STRENGTH AT AN EARLIER OR LATER DAY THAN TWENTY-EIGHT DAYS. THE TESTS ARE TO BE PERFORMED BY THE TESTING LABORATORY IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C39. TEST CYLINDERS ARE TO BE MADE AT THE POINT OF PLACEMENT.
4. CONCRETE TEST CYLINDERS ARE TO BE PROPERLY MARKED, SHOWING THE NAME OF THE PROJECT, THE LOCATION OF THE CONCRETE TESTED, THE DESIGN STRENGTH, PLACEMENT NUMBER AND THE IDENTIFICATION NUMBERS OF THE CYLINDERS IN NUMERICAL SEQUENCE.
5. THE CONTRACTOR SHALL PROVIDE A CURING BOX, ON THE PROJECT SITE, FOR THE SAFE STORAGE AND PROPER CURING OF TEST CYLINDERS IN ACCORDANCE WITH ASTM C31. THE CURING BOX SHALL BE OF SUFFICIENT SIZE TO ACCOMMODATE THE MAXIMUM NUMBER OF TEST CYLINDERS CAST FOR ANY DAILY PLACEMENT. THE CURING BOX SHALL BE INSULATED, WITH AN INSULATED HINGED COVER, AND SMALL STORE CYLINDERS ON SITE UNTIL TRANSPORTED TO THE TESTING LABORATORY. THE TEMPERATURE WITHIN THE CURING BOX SHALL BE MAINTAINED BETWEEN 60°-80°F, AS SPECIFIED IN ASTM C31. HEATING DEVICES AND/OR BLANKETS SHALL BE SUPPLIED BY THE CONTRACTOR TO MAINTAIN THE TEMPERATURE LIMITS. IF SPACE HEATERS ARE USED, CARE SHALL BE TAKEN SO THAT THE CYLINDERS ARE NOT OVERHEATED. IN THE CASE WHERE THE CYLINDERS ARE STORED INDOORS, THE CYLINDERS ARE TO BE COVERED IN BAGS IN ORDER TO RETAIN THE MOISTURE OF THE CYLINDERS. THE CURING BOX SHALL HAVE A HIGH LOW THERMOMETER AND THE MAXIMUM AND MINIMUM INTERNAL TEMPERATURES SHALL BE RECORDED DAILY. THE LOCATION OF THE CURING BOX SHALL BE IN AN AREA THAT IS FREE FROM DISTURBANCE AND VIBRATION, SUCH AS PILE-DRIVING AND TRAFFIC. FAILURE TO MAINTAIN THESE CONDITIONS MAY RESULT IN ADDITIONAL TESTING AT THE COST OF THE CONTRACTOR. NO CONCRETE SHALL BE DELIVERED TO THE SITE UNTIL THE CURING BOX, AS DESCRIBED HAS BEEN PROVIDED. THE CYLINDERS SHALL REMAIN IN THE CURING BOX A MINIMUM OF 24 HOURS OR UNTIL TRANSPORTED TO THE APPROVED TESTING LABORATORY.
6. THE CYLINDERS SHALL BE TRANSPORTED IN SUCH A MANNER THAT THEY WILL NOT BE JARRED, ROLLED, BOUNCED, OR DROPPED.
7. SLUMP TESTS ARE TO BE PERFORMED BY THE TESTING LABORATORY, OR IN AUTHORIZED REPRESENTATIVE OF THE ENGINEER, IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C143. SLUMP IN EXCESS OF 4" WILL BE A CAUSE FOR REJECTION OF THE TRUCKLOAD OF CONCRETE.
8. ALL TEST REPORTS ARE TO BE SUBMITTED TO THE ENGINEER ON APPROPRIATE FORMS. NOT LESS THAN FIVE(5) COPIES ARE TO BE SUBMITTED.
9. ALL TEST REPORTS ARE TO INCLUDE THE PROJECT NAME, NAME OF CONTRACTOR, NAME OF CONCRETE TESTING SERVICE, NAME OF CONCRETE SUPPLIER, PLACEMENT LOCATION, PLACEMENT NUMBER, AND DATE, DATE OF TEST, CYLINDER NUMBERS, AND TESTS RESULTS. TEST REPORTS ARE ALSO TO INDICATE WHETHER OR NOT MATERIALS ARE ACCEPTABLE FOR THEIR INTENDED USE.



ORIGINALLY DESIGNED BY KEVIN K NOU STADT FOR  
MOTT MCDONALD ON 10/12/2021  
NJ LICENSE NO. 45197

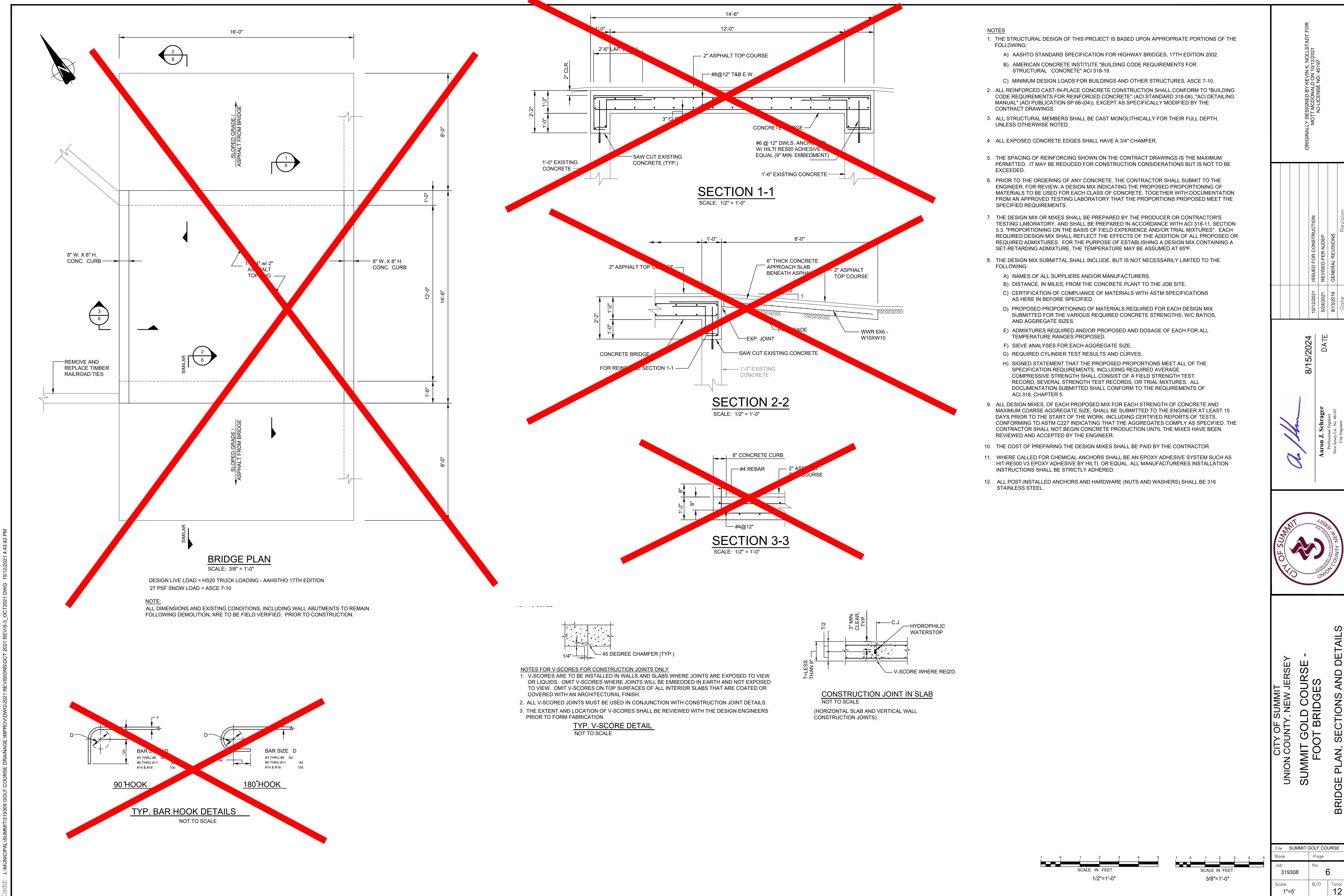
10/12/2021	ISSUED FOR CONSTRUCTION
5/24/2021	REVISED PER INDEX
9/13/2019	GENERAL REVISIONS
7/05/2017	REVISED PER INDEX

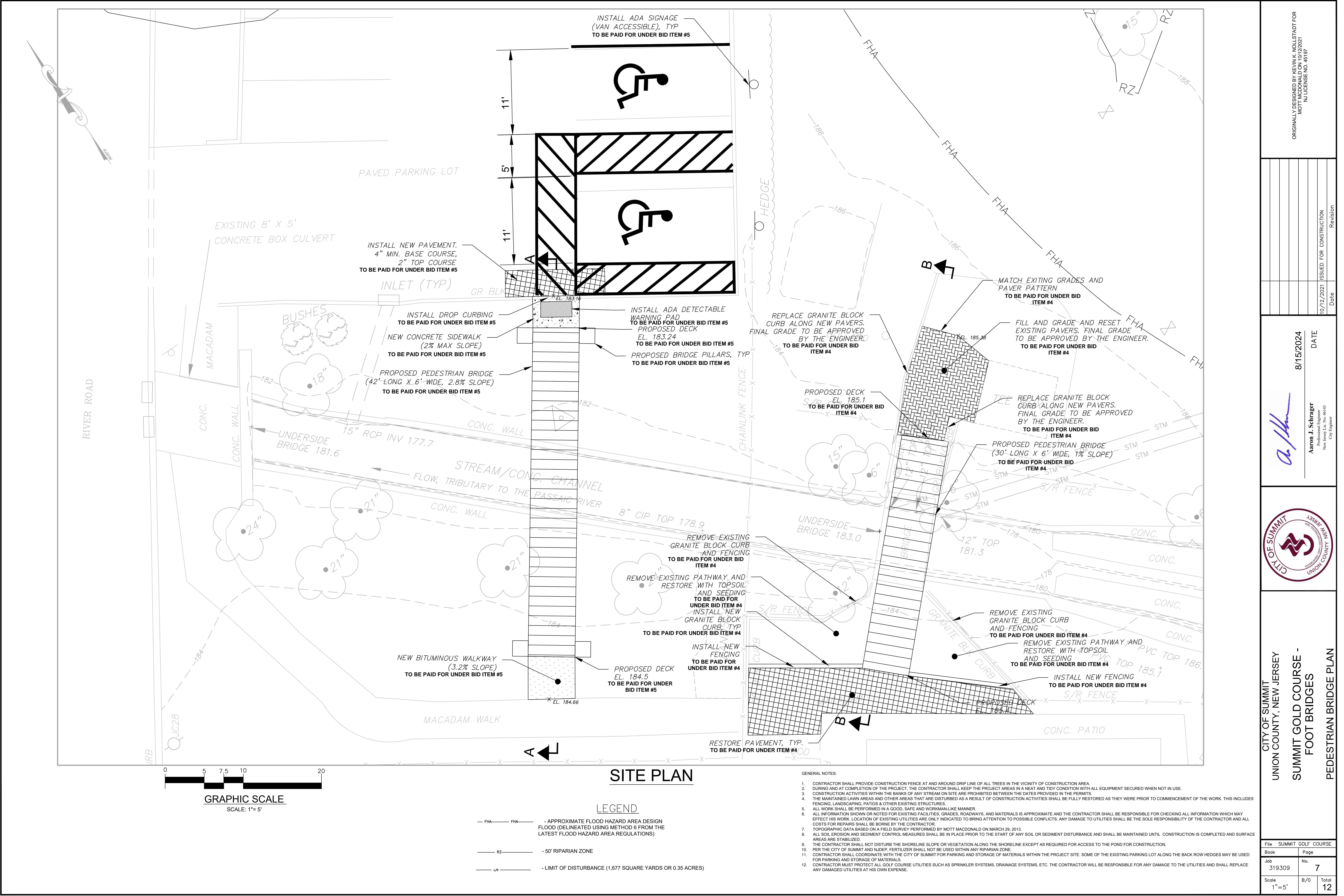


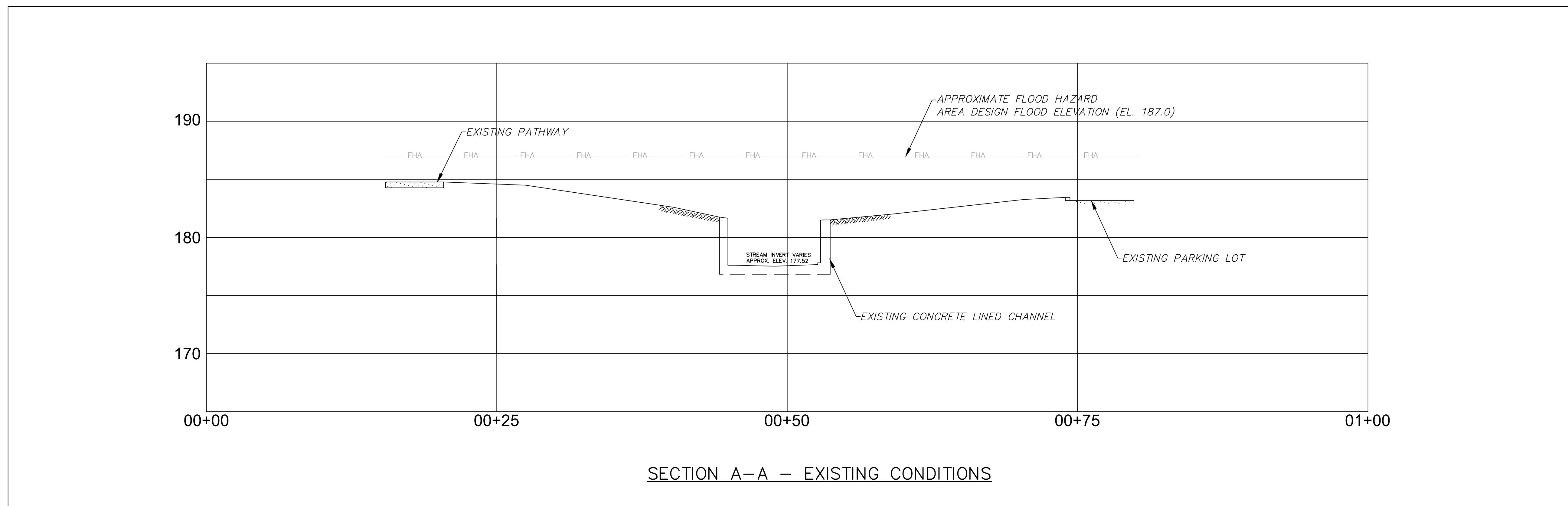
**CITY OF SUMMIT  
UNION COUNTY, NEW JERSEY  
SUMMIT GOLD COURSE -  
FOOT BRIDGES  
SPILLWAY PLAN, SECTIONS AND DETAILS**

File	SUMMIT GOLF COURSE
Book	
Job	No. 319308
Scale	1'=5'
B/O	Total 12

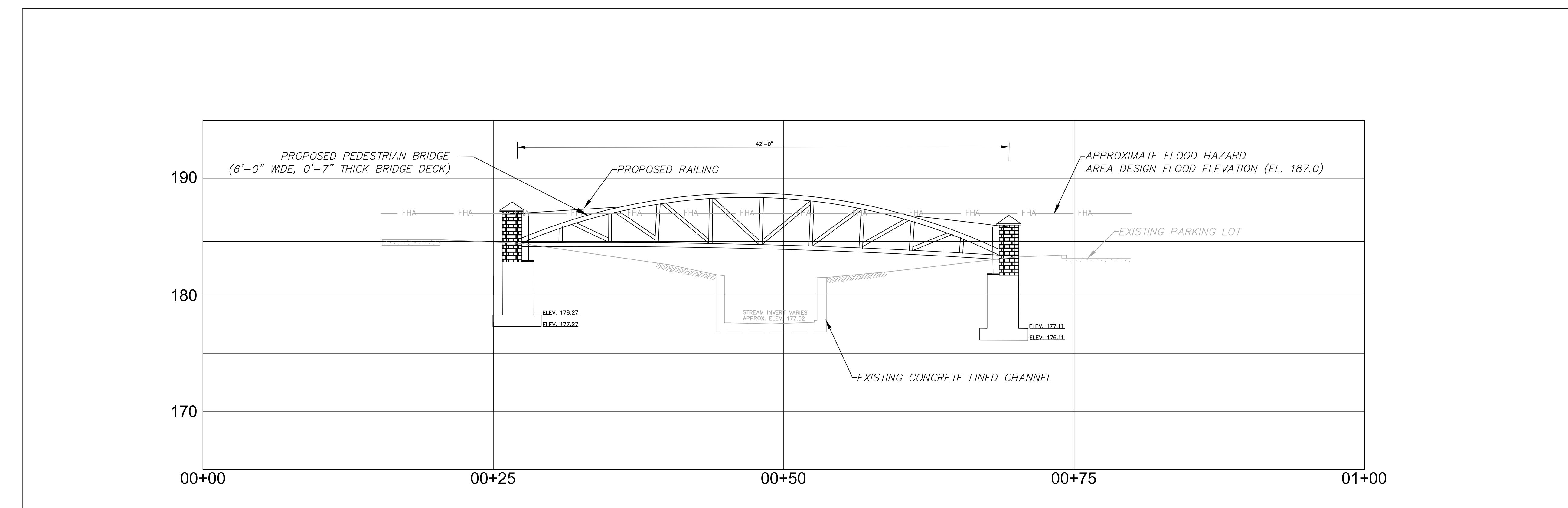
Drawing No. 12







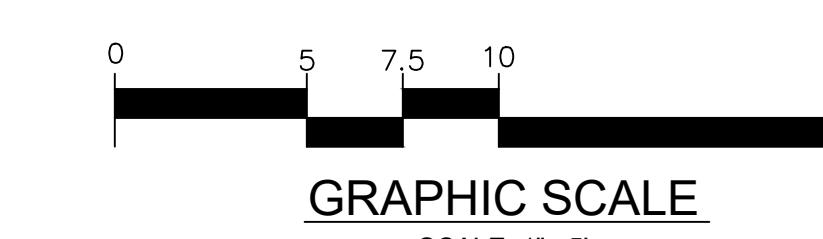
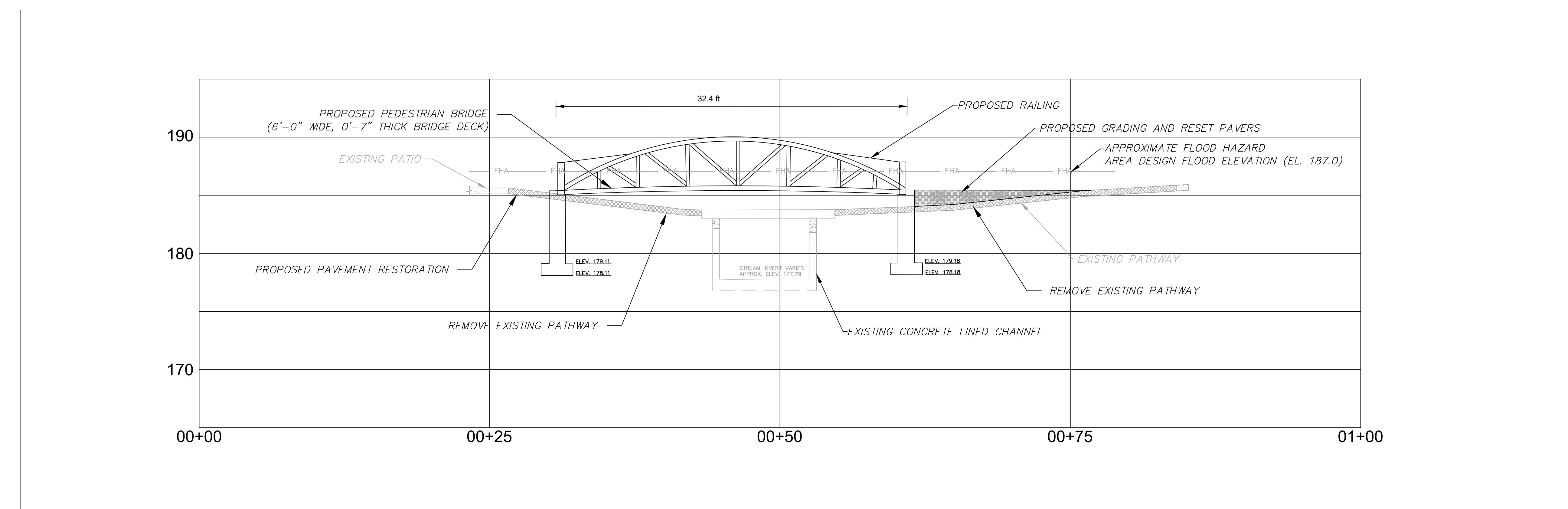
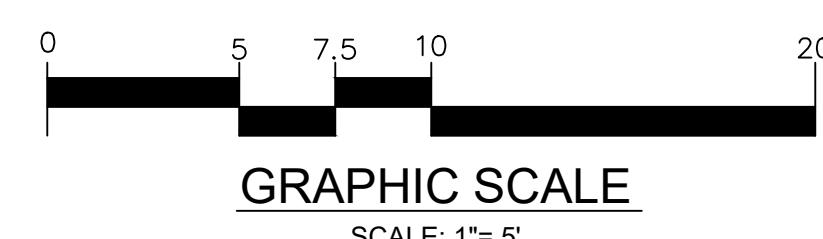
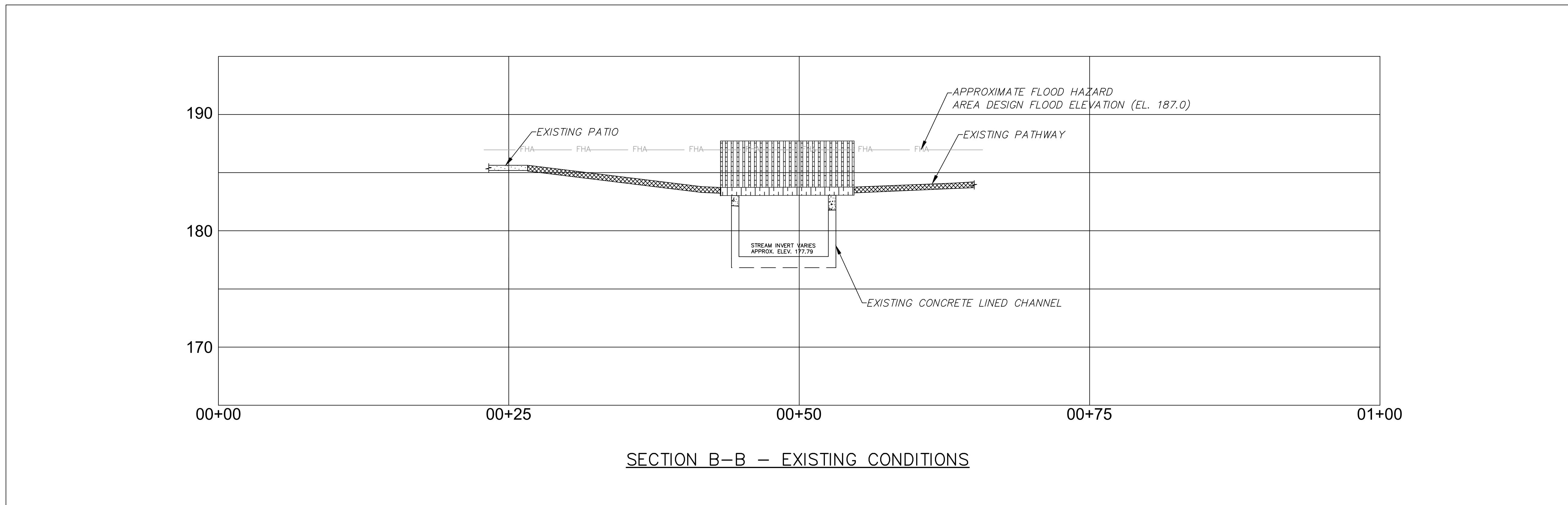
GRAPHIC SCALE  
SCALE: 1" = 5'



SECTION A-A - PROPOSED PEDESTRIAN BRIDGE

GRAPHIC SCALE  
SCALE: 1" = 5'

<p>ORIGINALLY DESIGNED BY KEVIN K. NOLLSTADT FOR MOTT MCDONALD ON 10/12/2021 NU LICENSE No. 45197</p>	
ISSUED FOR CONSTRUCTION	Revision
10/12/2021	Date
Aaron J. Schrager	DATE 8/15/2024
Professional Engineer New Jersey Lic. No. 4643	
City Engineer	
	
<p>CITY OF SUMMIT UNION COUNTY, NEW JERSEY SUMMIT GOLF COURSE - FOOT BRIDGES PEDESTRIAN BRIDGE SECTION - 1</p>	
File	SUMMIT GOLF COURSE
Book	Page
Job	No.
319309	8
Scale	B/O
1" = 5'	Total
	12



ORIGINALLY DESIGNED BY KEVIN K. NOLLSTADT FOR  
MOTT MCDONALD ON 10/12/2021  
NU LICENSE NO. 46197

ISSUED FOR CONSTRUCTION  
Revision  
Date  
10/12/2021

*A. Schrager*  
Aaron J. Schrager  
Professional Engineer  
New Jersey Lic. No. 46443  
City Engineer

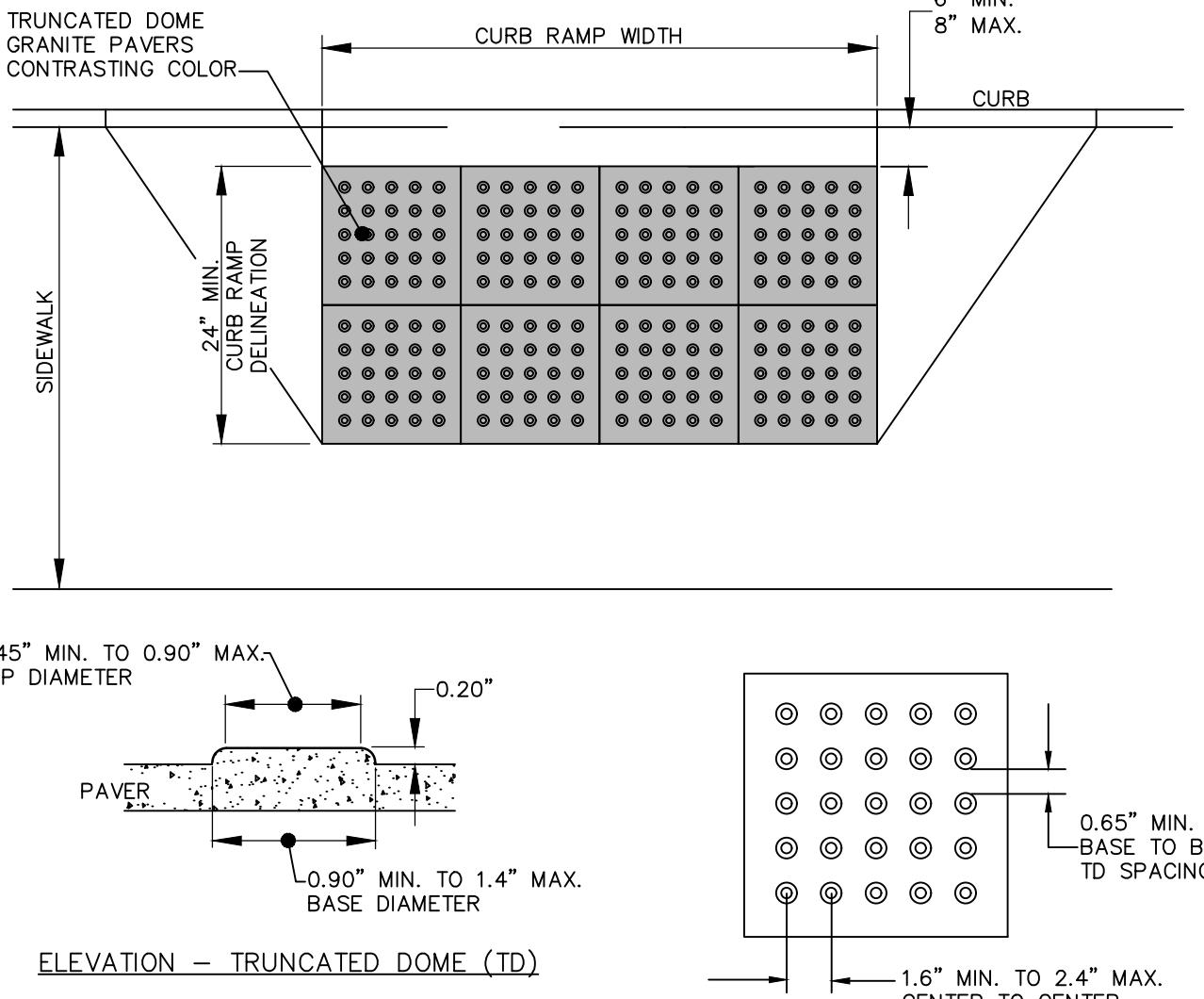


CITY OF SUMMIT  
UNION COUNTY, NEW JERSEY  
SUMMIT GOLD COURSE -  
FOOT BRIDGES  
PEDESTRIAN BRIDGE SECTION - 2

File: SUMMIT GOLF COURSE  
Book: Page  
Job: No.  
319309 9  
Scale: 1"=5' B/O  
1"=5' Total 12

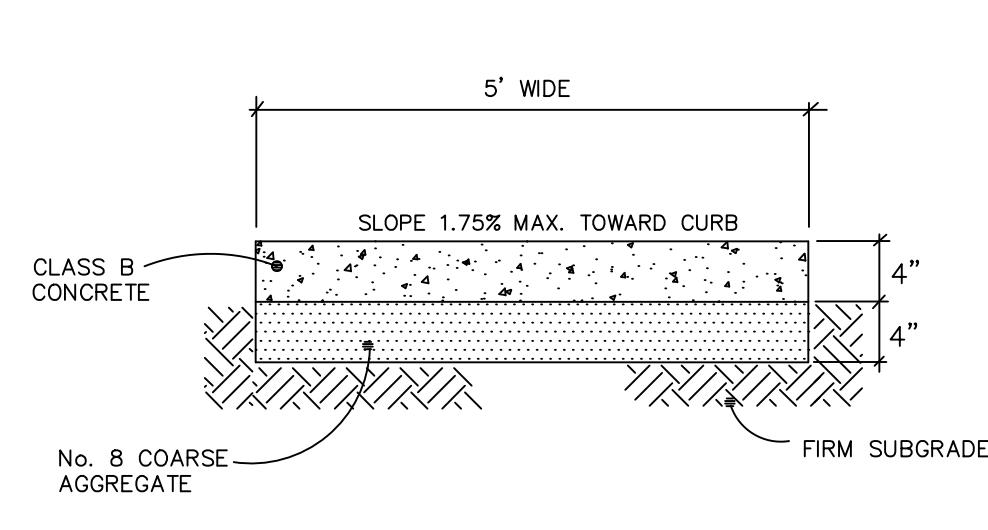
Drawing No.





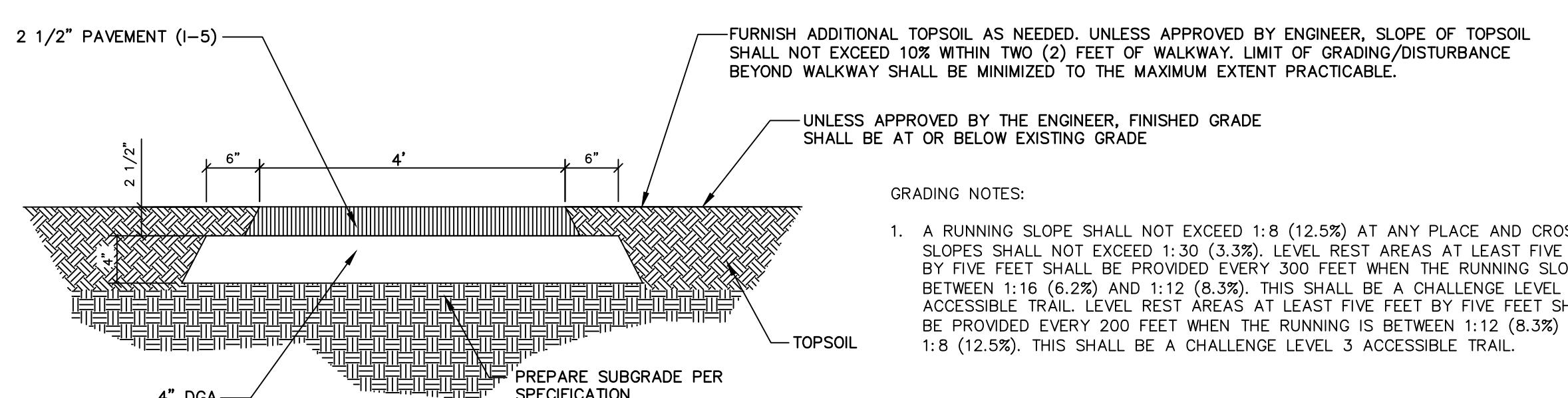
# DETECTABLE WARNING SURFACE

## TRUNCATED DOME GRANITE PAVERS



# CONCRETE SIDEWALK

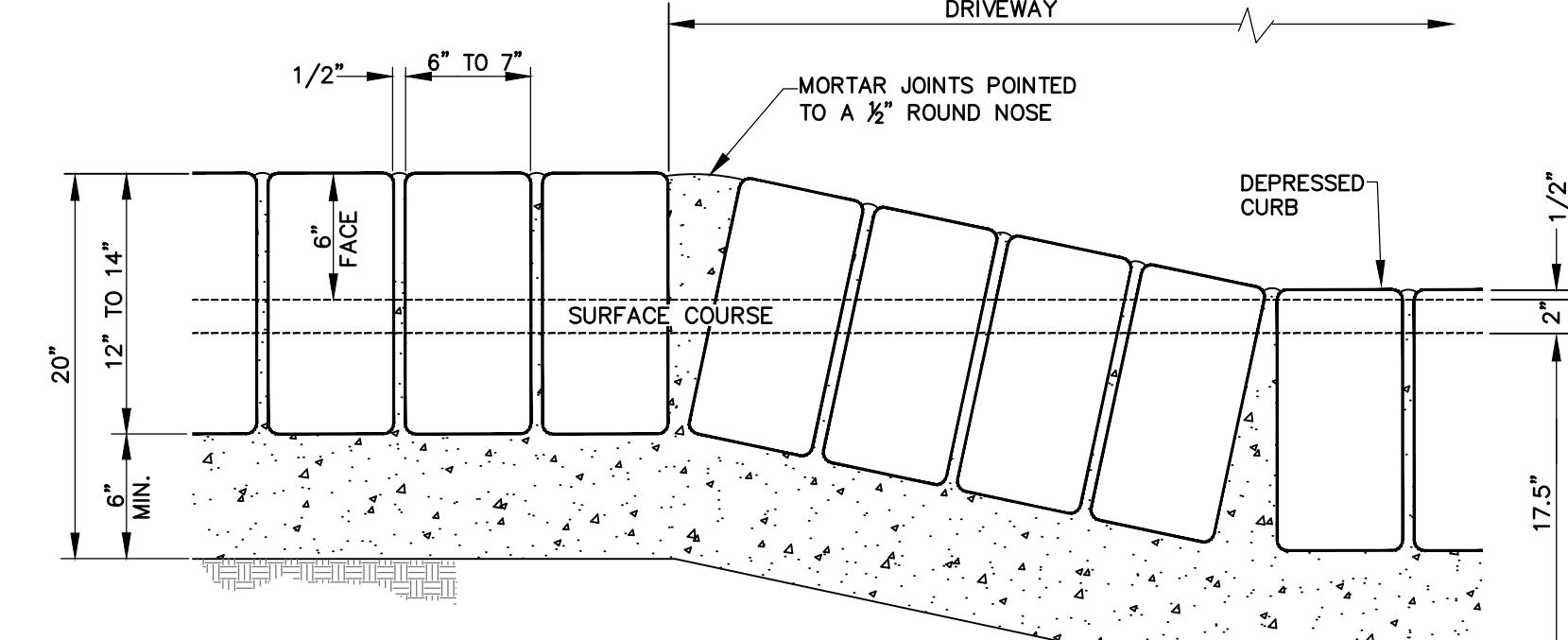
NOT TO SCALE



## PAVEMENT WALKWAY DETAIL

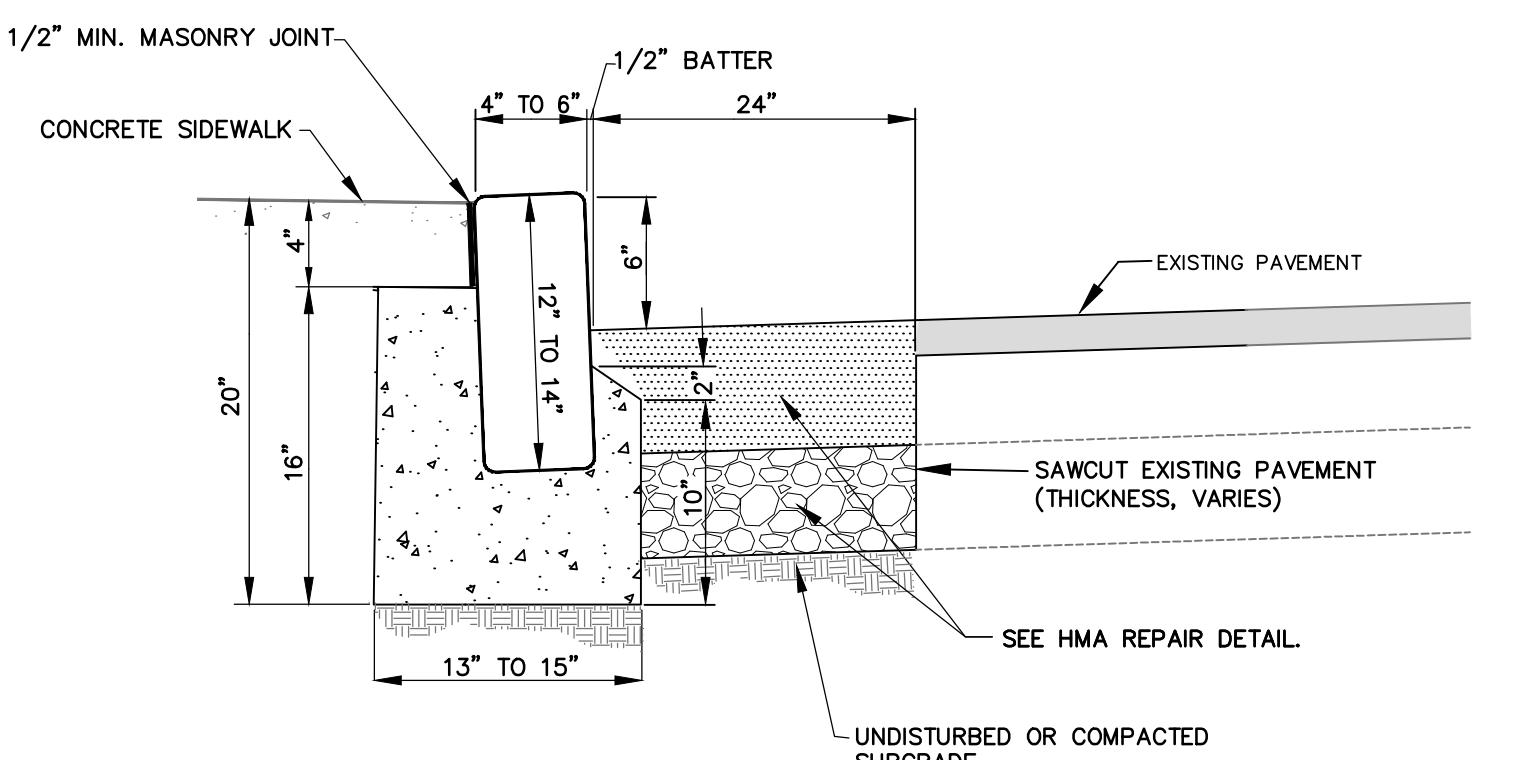
---

NOT TO SCALE



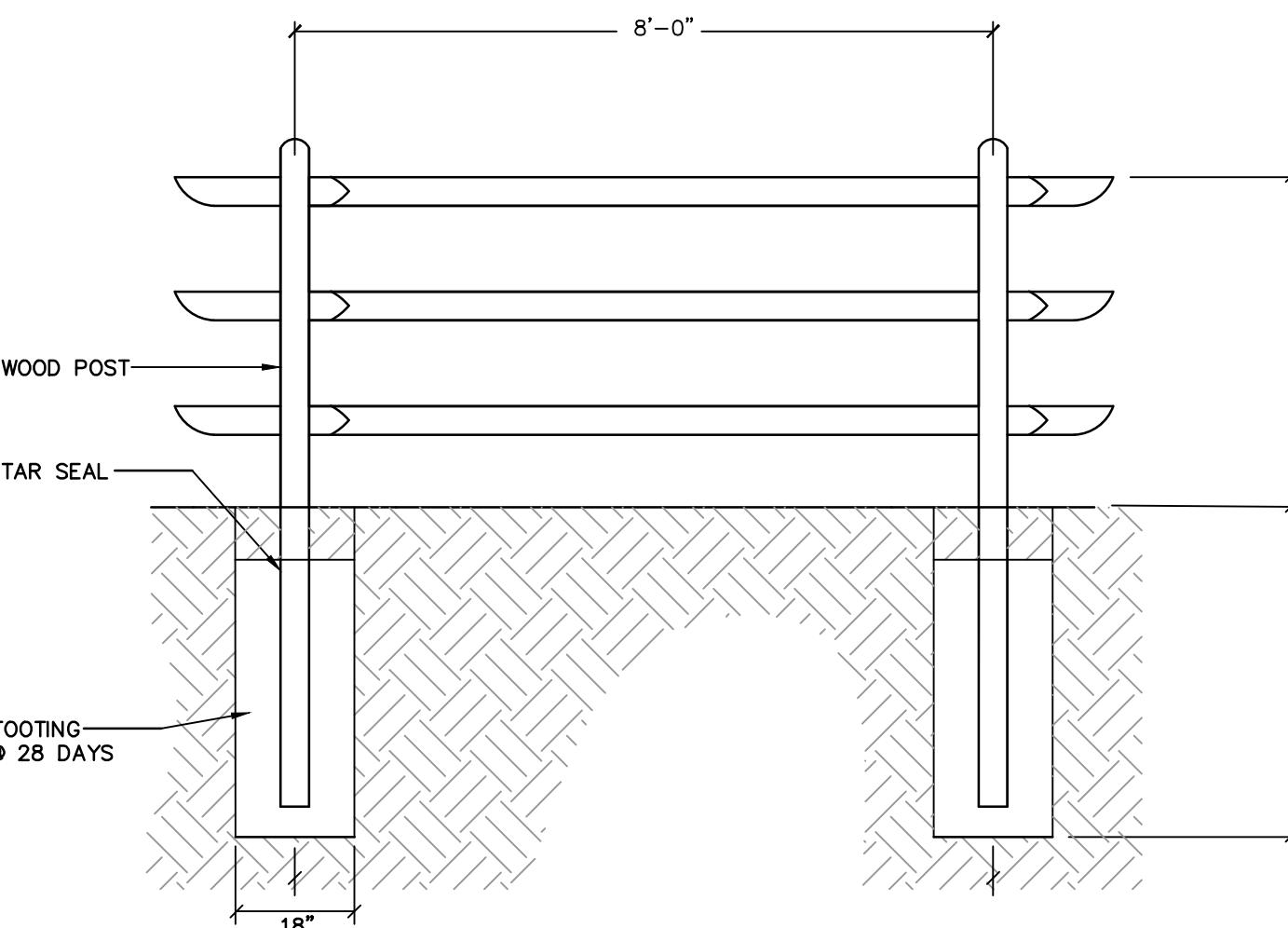
# DEPRESSED GRANITE BLOCK CURB @ DRIVEWAYS

NOT T



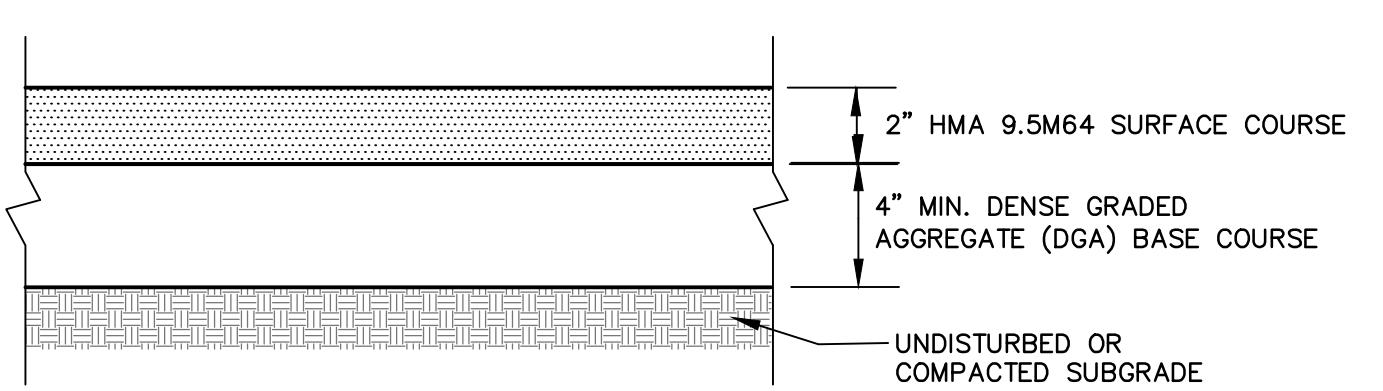
# GRANITE BLOCK CURB

NOT TO SCALE



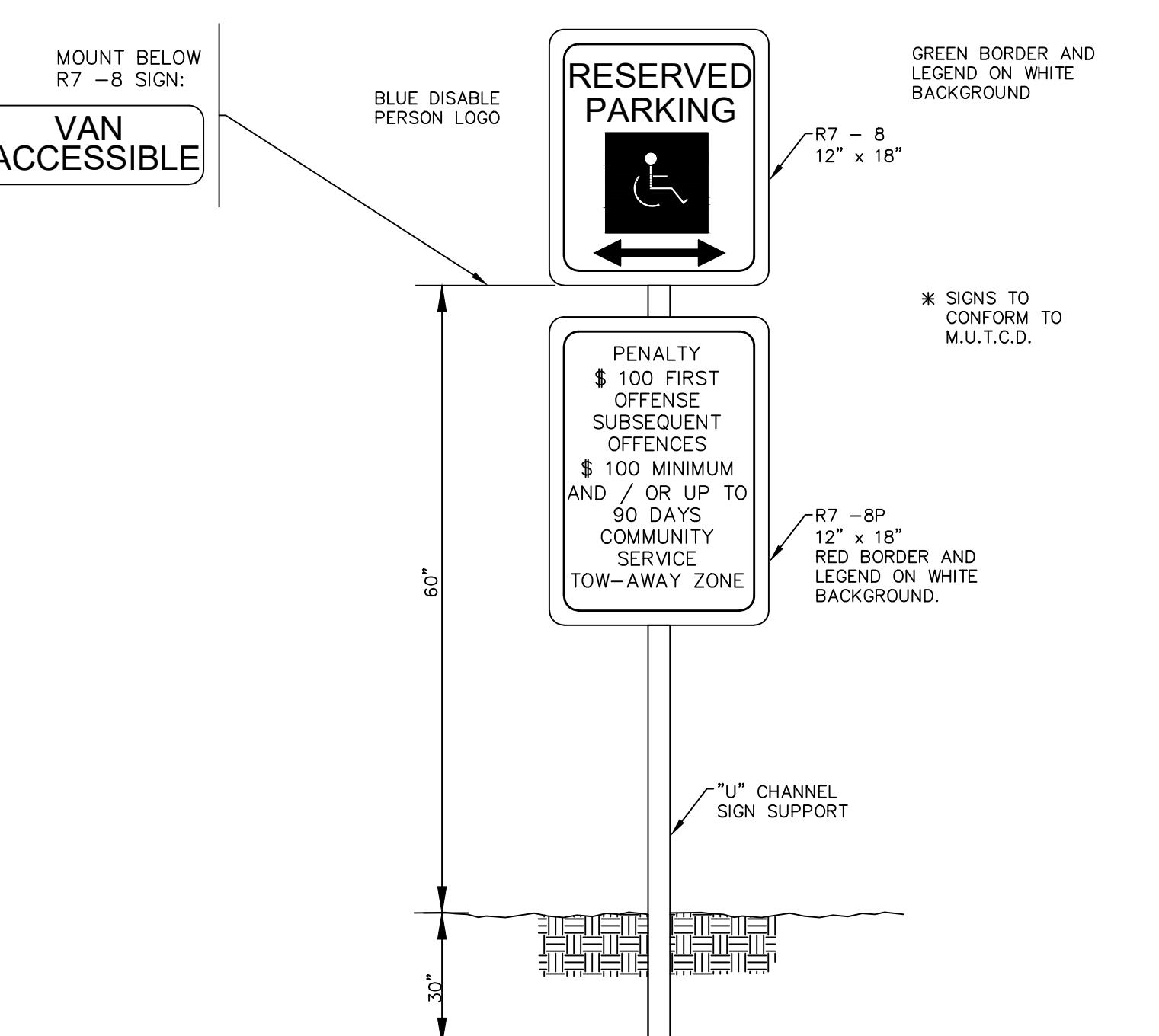
NOTE: SPLIT RAIL FENCE TO MATCH EXISTING.

# FENCE



# PAVEMENT PARKING LOT DETAIL

TO SCALE



# HANDICAPPED PARKING SIGN DETAIL

---

TO SCALE



**CITY OF SUMMIT  
UNION COUNTY, NEW JERSEY**

**SUMMIT GOLD COURSE -  
FOOT BRIDGES**

**CONSTRUCTION DETAILS**

File SUMMIT GOLF COURSE		
Book	Page	
Job 319309	No.	11
Scale AS NTD	B/O	Total 12

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION																		
DEFINITION ESTABLISHMENT OF PERMANENT VEGETATIVE COVER ON EXPOSED SOILS WHERE PERENNIAL VEGETATION IS NEEDED FOR LONG TERM PROTECTION.																		
PURPOSE TO PERMANENTLY STABILIZE THE SOIL, ASSURING CONSERVATION OF SOIL AND WATER, AND TO ENHANCE THE ENVIRONMENT.																		
WHERE APPLICABLE ON EXPOSED SOILS THAT HAVE A POTENTIAL FOR CAUSING OFF-SITE ENVIRONMENTAL DAMAGE.																		
METHODS AND MATERIALS																		
I. SITE PREPARATION																		
A. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, MULCH APPLICATION, AND ANCHORING, AND MAINTENANCE. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH STANDARDS FOR LAND GRADING, P. 4.11.																		
B. INSTALL NEEDED EROSION CONTROL PRACTICES AND FACILITIES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, CHANNEL STABILIZATION MEASURES, SEDIMENT BASINS, AND WATERWAYS. SEE STANDARDS 4.2 THROUGH 4.16.																		
II. SEEDBED PREPARATION																		
A. APPLY LIMESTONE AND FERTILIZER ACCORDING TO SOIL RECOMMENDATIONS SUCH AS THOSE OFFERED BY RUTGERS UNIVERSITY, THE NEW JERSEY STATE SOIL CONSERVATION DISTRICT, AND THE EXTENSION SERVICE OFFICE. IF SOIL TESTING IS NOT FEASIBLE ON SMALL OR VARIABLE SITES, OR WHERE TIMING IS CRITICAL, FERTILIZER MAY BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT. IN ADDITION, 200 POUNDS 38-0-0 PER ACRE OF EQUIVALENT OF SLOW RELEASE NITROGEN MAY BE USED IN LIEU OF TOPDRESSING. (SEE 3.2.7, SECTION IV). APPLY LIMESTONE (EQUIVALENT TO 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDES) AS FOLLOWS:																		
<table border="1"> <thead> <tr> <th>SOIL TEXTURE</th> <th>TONS/ACRE</th> <th>LBS./1,000 SQ. FT.</th> </tr> </thead> <tbody> <tr> <td>CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL</td> <td>4</td> <td>180</td> </tr> <tr> <td>SANDY LOAM, SILT LOAM</td> <td>2</td> <td>90</td> </tr> </tbody> </table>										SOIL TEXTURE	TONS/ACRE	LBS./1,000 SQ. FT.	CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	4	180	SANDY LOAM, SILT LOAM	2	90
SOIL TEXTURE	TONS/ACRE	LBS./1,000 SQ. FT.																
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	4	180																
SANDY LOAM, SILT LOAM	2	90																
PULVERIZED DOLOMITE LIMESTONE IS PREFERRED FOR MOST SOILS SOUTH OF THE NEW BRUNSWICK-TRENTON LINE.																		
B. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT. THE FINAL HARROWING OR DISCING OPERATION SHOULD BE PERFORMED AS SOON AS POSSIBLE. ALL BUT CLAY OR SILTY SOILS AND COARSE SANDS SHOULD BE ROLLED TO FIRM THE SEEDBED WHEREVER FEASIBLE.																		
C. REMOVE FROM THE SURFACE ALL STONES TWO INCHES OR LARGER IN ANY DIMENSION. REMOVE ALL OTHER DEBRIS, SUCH AS WIRE, CABLE, TREE ROOTS, PIECES OF CONCRETE, CLODS, LUMPS, OR OTHER UNSUITABLE MATERIAL.																		
D. INSPECT SEEDBED JUST BEFORE SEEDING. IF TRAFFIC HAS LEFT THE SOIL COMPACTED, THE AREA MUST BE RETILLED AND FIRMED AS ABOVE.																		
III. SEEDING																		
A. SELECT A MIXTURE FROM TABLE 3.2-1 OR USE MIXTURE RECOMMENDED BY THE COOPERATIVE EXTENSION SERVICE OR SOIL CONSERVATION SERVICE WHICH IS APPROVED BY THE SOIL CONSERVATION DISTRICT.																		
B. APPLY SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DRILL, CULTIPACKER SEEDER, OR HYDROSEEDER. THE LATTER MAY BE JUSTIFIABLE FOR LARGE, STEEP AREAS WHERE CONVENTIONAL VEHICLES CANNOT TRAVEL. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH THE SEED, EXCEPT FOR DRILLED, HYDROSEDED OR CULTIPACKED SEEDINGS. SEED SHALL BE INCORPORATED INTO THE SOIL TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.																		
C. AFTER SEEDING, FIRMING THE SOIL WITH A CORROUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY, AND IMPROVE SEEDING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.																		
IV. MULCHING																		
MULCHING IS REQUIRED ON ALL SEEDING. MULCH WILL INSURE AGAINST EROSION BEFORE GRASS IS ESTABLISHED AND WILL ASSIST IN EROSION AND EARLIER ESTABLISHMENT. (THE EXISTENCE OF SATISFACTORY PERMANENT VEGETATION AT THE TIME OF THE PROJECT OR UNIT COMPLETION SHALL BE DEEMED AS COMPLIANCE WITH THE MULCHING REQUIREMENT.)																		
A. MULCH MATERIALS SHOULD BE UNROLLED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO BE APPLIED AT THE RATE OF 1-1/2 TONS PER ACRE (75 LBS. PER 1,000 SQ. FT.), EXCEPT WHERE A CRIMPER IS USED. INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION MUST BE DOUBLE THE LOWER RATE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MATERIAL.																		
B. SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THAT APPROXIMATELY 75% TO 95% OF THE SOIL SURFACE WILL BE COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1,000 SQ. FT. SECTIONS AND DISTRIBUTE 70 TO 90 POUNDS WITHIN EACH SECTION.																		
C. MULCH ANCHORING SHOULD BE ACCOMPLISHED IMMEDIATELY AFTER PLACEMENT TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS, DEPENDING UPON THE SIZE OF THE AREA, STEEPNESS, SLOPES, AND COSTS.																		
1. PEG AND TWINE - DRIVE 8 TO 10 INCH WOODEN PEGS TO WITHIN 2 TO 3 INCHES OF THE SOIL SURFACE EVERY 4 FEET IN ALL DIRECTIONS. STAKES MAY BE DRIVEN BEFORE OR AFTER APPLYING MULCH. SECURE MULCH TO SURFACE BY STRAPPING MULCH AROUND PEGS IN A CRIS-CROSS AND A SQUARE PATTERN. SECURE TWINE AROUND EACH PEG WITH TWO OR MORE ROUND TURNS.																		
2. MULCH NETTING - STAPLE PAPER, JUTE, COTTON, OR PLASTIC NETTINGS TO THE SOIL SURFACE. USE A DEGRADABLE NETTING IN AREAS TO BE MOVED.																		
3. CRIMPER (MULCH ANCHORING TOOL) - A TRACTOR-DRIVEN IMPLEMENT, SOMETHING LIKE A DISCHARGE HOPPER, ESPECIALLY DESIGNED TO PUSH OR CRIMP SOME OF THE BROADCAST LONG FIBER MULCH 3 TO 4 INCHES INTO THE SOIL SO AS TO ANCHOR IT AND LEAVE PART STANDING UPRIGHT. THIS TECHNIQUE IS LIMITED TO AREAS TRaversable BY A TRACTOR, WHICH MUST OPERATE ON THE CONTOUR OF SLOPES. STRAW MULCH RATE MUST BE 3 TONS PER ACRE. NO TACKIFYING OR ADHESIVE AGENT IS REQUIRED.																		
4. LIQUID MULCH-BINDERS - MAY BE USED TO ANCHOR SALT HAY, HAY, OR STRAW MULCHES.																		
A. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS, AND AT CRESTS OF BANKS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCE.																		
B. USE ONE OF THE FOLLOWING:																		
1. EMULSIFIED ASPHALT - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, AND CRS-2). APPLY 0.04 GAL./SQ.YD. OR 194 GAL./ACRE ON FLAT SLOPES LESS THAN 8 FEET HIGH. ON SLOPES 8 FEET OR MORE, USE 0.075 GAL./SQ.YD. OR 363 GAL./ACRE.																		
2. CUTBACK ASPHALT - RAPID CURING (RC-70, RC-250, AND RC-800) OR MEDIUM CURING (MC-250 OR MC-800). APPLY 0.04 GAL./SQ.YD. OR 194 GAL./ACRE ON FLAT AREAS AND ON SLOPES LESS THAN 8 FEET HIGH. ON SLOPES 8 FEET OR MORE HIGH, USE 0.075 GAL./SQ.YD. OR 363 GAL./ACRE.																		
3. SYNTHETIC OR ORGANIC BINDERS - BINDERS SUCH AS CURASOL, DCA-70, PETRO-SET, AND TERRA-TACK MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH MATERIALS.																		
NOTE: ALL NAMES GIVEN ABOVE ARE REGISTERED TRADE NAMES. THIS DOES NOT CONSTITUTE A RECOMMENDATION OF THESE PRODUCTS TO THE EXCLUSION OF OTHER PRODUCTS.																		
C. WOOD-FIBER OR PAPER-FIBER MULCH AT THE RATE OF 1,500 POUNDS PER ACRE MAY BE APPLIED BY A HYDROSEEDER. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.																		
V. IRRIGATION (WHERE FEASIBLE)																		
IF SOIL MOISTURE IS DEFICIENT, AND MULCH IS NOT USED, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER (A MINIMUM OF 1/2 INCH TWICE A DAY UNTIL VEGETATION IS WELL ESTABLISHED). THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE IN ABNORMALLY DRY OR HOT WEATHER OR DROUGHTY SITES.																		
VI. TOPDRESSING																		
A. SPRING SEEDINGS WILL REQUIRE AN APPLICATION OF FERTILIZER SUCH AS 10-10-10 OR EQUIVALENT AT 400 POUNDS PER ACRE OR 10 POUNDS PER 1,000 SQ. FT. BETWEEN SEPTEMBER 1 AND OCTOBER 15.																		
B. FALL SEEDINGS WILL REQUIRE THE ABOVE BETWEEN MARCH AND MAY.																		
C. MIXTURES DOMINATED BY WEEPING LOVEGRASS OR LEGUMES MAY NOT NEED TOPDRESSING.																		
D. BERMUDAGRASS SHOULD BE TOPDRESSED BEFORE AUGUST 15.																		
IF SLOW RELEASE NITROGEN (300 POUNDS 30-0-0 PER ACRE OR EQUIVALENT) IS USED IN ADDITION TO SUGGESTED FERTILIZER, THIS FOLLOW-UP OF TOPDRESSING IS NOT MANDATORY.																		
NOTE: SOILS HAVING A pH OF 4 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM OF 12 INCHES OF SOIL HAVING A pH OF 5 OR MORE BEFORE SEEDBED PREPARATION. THE ADDED SOIL SHALL BE LIMED AS ABOVE.																		
SOILS AND SEED MIXTURES																		
40% PERENNIAL RYE GRASS 30% CREEPING RED FESCUE 20% KENTUCKY BLUE GRASS 10% ALAIRE PERENNIAL RYE GRASS																		
END OF NOTES																		
SEQUENCE OF CONSTRUCTION																		
1. INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE, SOIL EROSION AND SEDIMENT CONTROL MEASURES, ESTABLISH STAGING AND STOCKPILE AREAS.																		
2. INSTALL EROSION CONTROL MEASURES TO THE WORK AREA AS REQUIRED FOR CONSTRUCTION. EXCAVATE; CONSTRUCT NEW STRUCTURES;																		