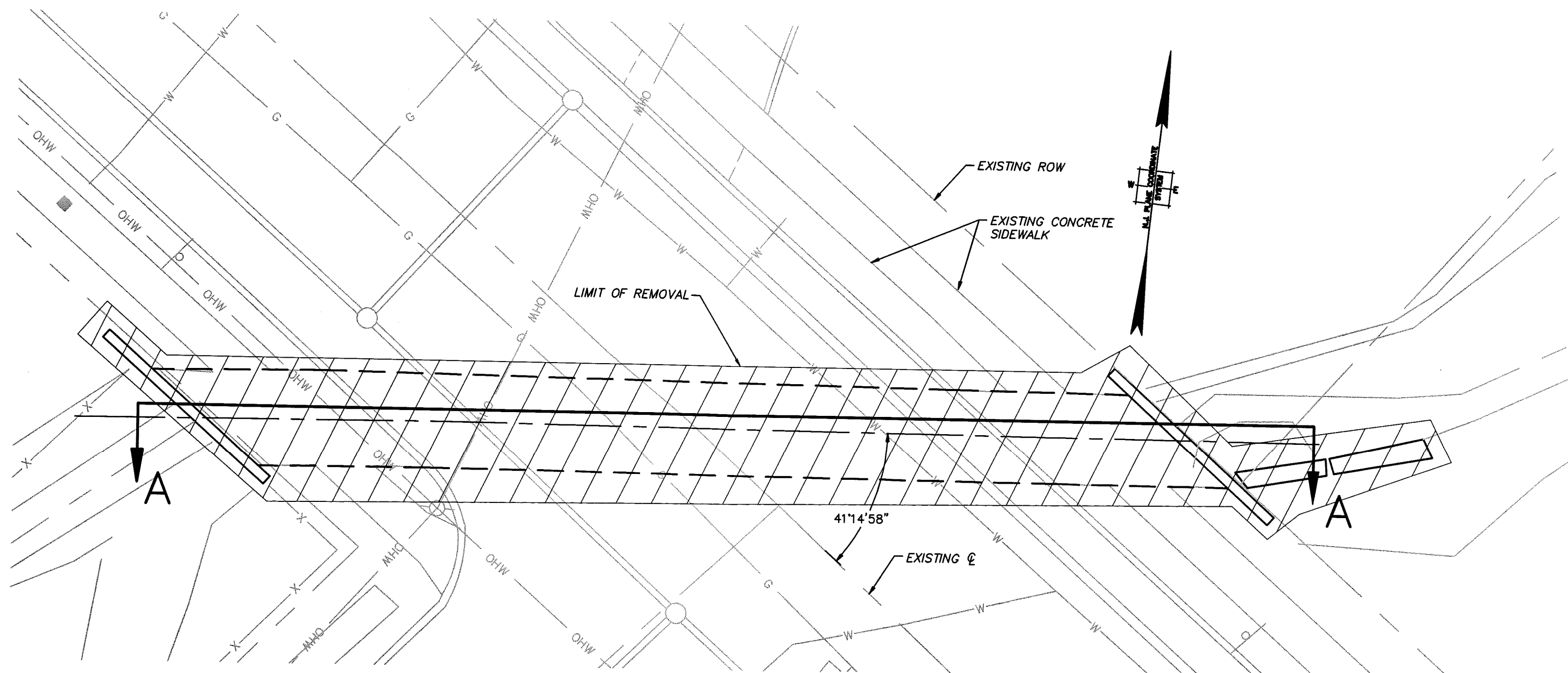


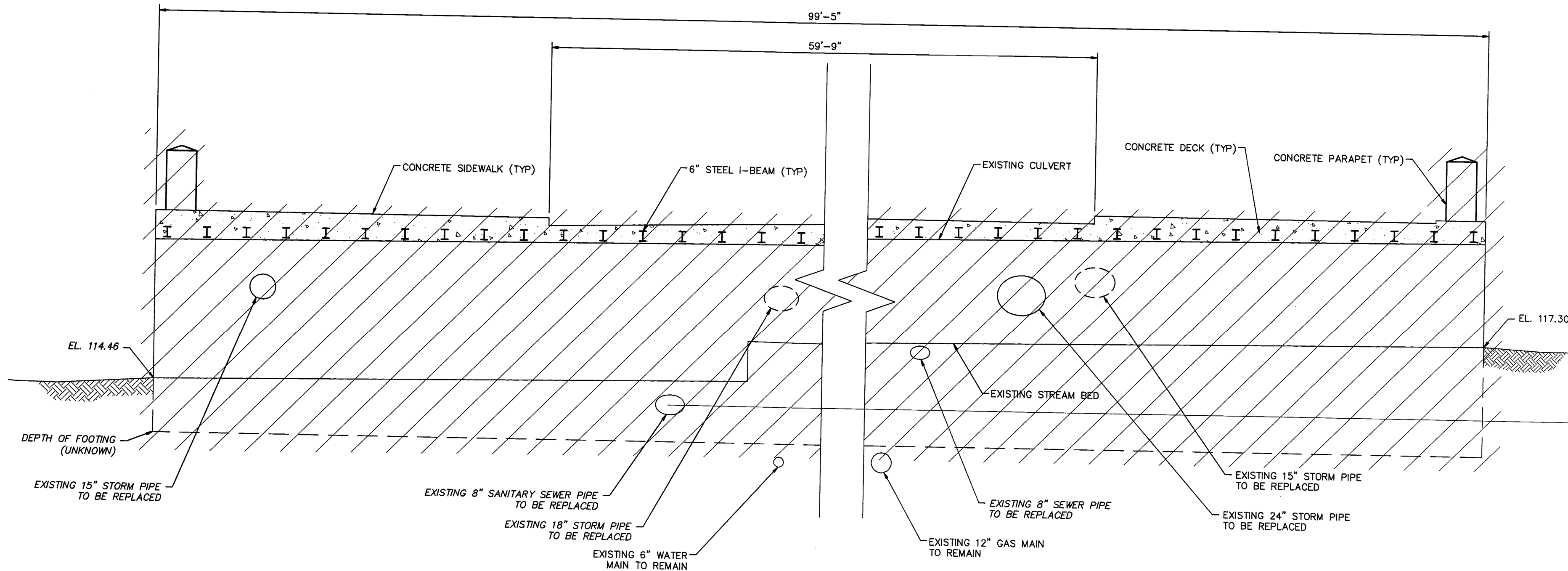
REPLACEMENT OF HILLSIDE AVENUE
CULVERT SP17 OVER STREAM 10-32
UNION COUNTY ENGINEERING
PROJECT #2010-032C
UNION COUNTY, NEW JERSEY
TOWNSHIP OF SPRINGFIELD

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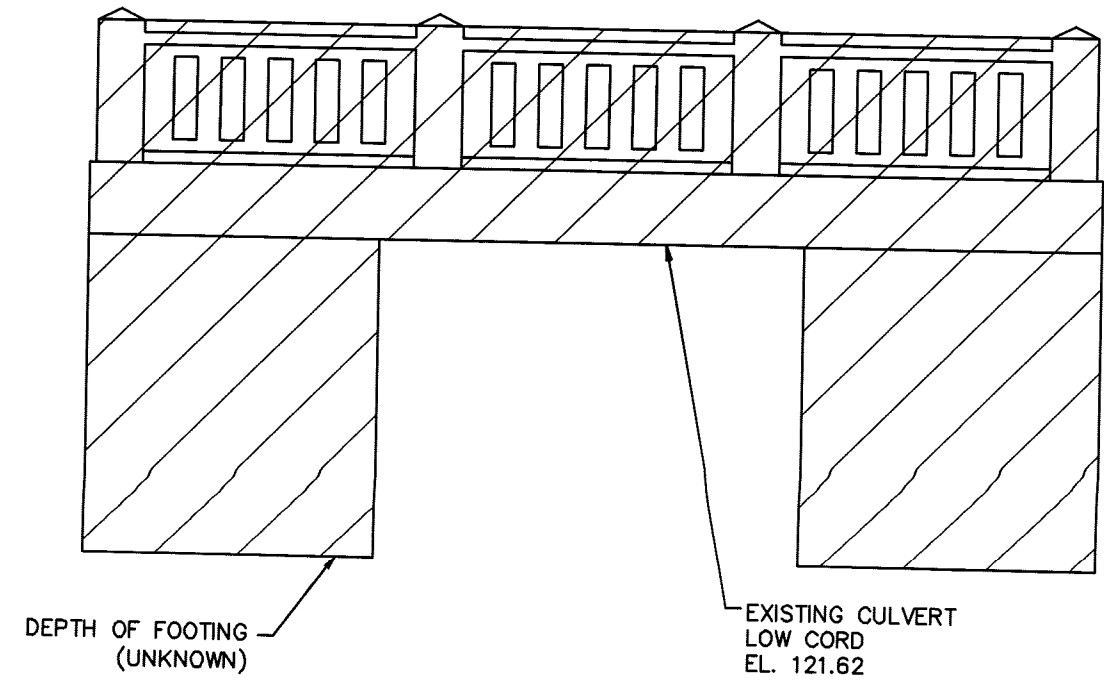
ESTIMATE OF QUANTITIES						
PAY ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	IF AND WHERE DIRECTED	TOTAL CONTRACT QUANTITY	AS-BUILT QUANTITY
1	MOBILIZATION	L.S.	1		1	
2	SILT FENCE	L.F.	240		240	
3	INLET FILTER, TYPE 1	S.F.	60		60	
4	FLOATING TURBIDITY BARRIER	L.F.	20		20	
5	BREAKAWAY BARRICADE	UNIT	20	10	30	
6	DRUM	UNIT	5	2	7	
7	CONSTRUCTION SIGNS	S.F.	450	50	500	
8	CONCRETE CONSTRUCTION BARRIER	L.F.	80		80	
9	TRAFFIC DIRECTORS / FLAGGERS	HRS.	200		200	
10	CLEARING SITE, STRUCTURE	L.S.	1		1	
11	EXCAVATION, UNCLASSIFIED	C.Y.	850	50	900	
12	EXCAVATION, TEST PITS	C.Y.		100	100	
13	I-9 SOIL AGGREGATE	C.Y.	800		800	
14	I-14 SOIL AGGREGATE	C.Y.	60		60	
15	DENSE-GRADED AGGREGATE BASE COURSE, 6" THICK	S.Y.	585	65	650	
16	DENSE-GRADED AGGREGATE BASE COURSE, VARIABLE THICKNESS	C.Y.	10	5	15	
17	HMA MILLING, 2" OR LESS	S.Y.	129		129	
18	HOT MIX ASPHALT 12.5M64 SURFACE COURSE	TON	101	14	115	
19	HOT MIX ASPHALT 19M64 BASE COURSE	TON	234	26	260	
20	TEMPORARY COFFERDAMS	LS	1		1	
21	REINFORCEMENT STEEL, GALVANIZED	LBS.	14,000	2,000	16,000	
22	CONCRETE FOOTING	C.Y.	85		85	
23	CONCRETE ABUTMENT WALL	C.Y.	40		40	
24	CONCRETE WING WALL	C.Y.	17		17	
25	PRECAST CONCRETE CULVERT	LF	100		100	
26	CONCRETE BRIDGE PARAPET	L.F.	55		55	
27	CONCRETE VERTICAL CURB, BRIDGE	L.F.	22		22	
28	CONCRETE SIDEWALK, BRIDGE	C.Y.	5	2	7	
29	RETAINING WALL	S.F.	325		325	
30	15" REINFORCED CONCRETE PIPE, CLASS IV	L.F.	28	22	50	
31	18" REINFORCED CONCRETE PIPE, CLASS IV	L.F.	28	12	40	
32	24" REINFORCED CONCRETE PIPE, CLASS IV	L.F.	13	12	25	
33	INLET, TYPE B	UNIT	1	1	2	
34	RESET EXISTING CASTING	UNIT	5		5	
35	CONCRETE SIDEWALK, 4" THICK	S.Y.	44	6	50	
36	DETECTABLE WARNING SURFACE	S.Y.	2		2	
37	9'X18" CONCRETE VERTICAL CURB	L.F.	145	5	150	
38	RESET GRANITE CURB	L.F.	45	5	50	
39	TRAFFIC STRIPES, LONG-LIFE, EPOXY RESIN 4"	L.F.	245	25	270	
40	TRAFFIC MARKINGS, THERMOPLASTIC	S.F.	25	15	40	
41	8" DUCTILE IRON SEWER PIPE	L.F.	42		42	
42	12" DUCTILE IRON SEWER PIPE	L.F.	20		20	
43	TOPSOILING, 4" THICK	S.Y.	185		185	
44	FERTILIZING AND SEEDING, TYPE A-3	S.Y.	185		185	
45	STRAW MULCHING	S.Y.	185		185	
46	SMALL DECIDUOUS TREE, 2-1/2" CALIPER	UNIT		10	10	



CULVERT PLAN
SCALE: 1" = 10'-0"



EXISTING LONGITUDINAL SECTION A-A
SCALE: 1/4" = 1'-0"



EXISTING DOWNSTREAM ELEVATION
SCALE: 1/4" = 1'-0"

DEMOLITION NOTES:

- THE DETAILS SHOWN ON THIS PLAN ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE CORRECT AND ARE NOT INTENDED TO BE COMPLETE OR ALL INCLUSIVE. BIDDERS SHALL VISIT THE SITE OF THE PROJECT BEFORE SUBMITTING A PROPOSAL TO ASCERTAIN THE EXTENT OF THE WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTION AND THE ORIGINAL CONTRACT PLANS. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATION TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH FIELD CONDITIONS.
- EXISTING CULVERT AND WINGWALLS SHALL BE REMOVED IN THEIR ENTIRETY. DRAINAGE PIPES SHALL BE REMOVED AS SHOWN ON PLAN.
- PAYMENT FOR REMOVAL OF EXISTING STRUCTURE, INCLUSIVE OF ALL THE CULVERT COMPONENTS AS SHOWN ON THIS DRAWING, SHALL BE PAID FOR UNDER THE ITEM "CLEARING SITE, STRUCTURE".
- DURING DEMOLITION, THE CONTRACTOR SHALL MINIMIZE DISRUPTIONS TO THE STREAM. ADEQUATE CARE SHALL BE TAKEN TO PREVENT DEBRIS AND UNWANTED MATERIALS FROM FALLING INTO THE STREAM. HOWEVER, IF THIS HAPPENS THE CONTRACTOR SHALL IMMEDIATELY REMOVE THE DEBRIS AT NO ADDITIONAL COST TO THE COUNTY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED BY HIS OPERATIONS TO THE EXISTING UTILITIES OR OTHER EXISTING APPURTENANCES WHICH ARE SCHEDULED TO REMAIN OR BE RELOCATED. ANY DAMAGE TO THE EXISTING UTILITIES SCHEDULED TO REMAIN SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR WITHOUT COST TO THE COUNTY AND TO THE SATISFACTION OF THE ENGINEER.

COUNTY OF UNION, DIVISION OF ENGINEERING
THOMAS MINEO, P.E., COUNTY ENGINEER

REPLACEMENT OF HILLSIDE AVENUE
CULVERT STRUCTURE No. SP17
OVER STREAM 10-32
IN SPRINGFIELD TOWNSHIP

UNION COUNTY NEW JERSEY

**ESTIMATE OF QUANTITIES AND
STRUCTURAL DEMOLITION PLAN**

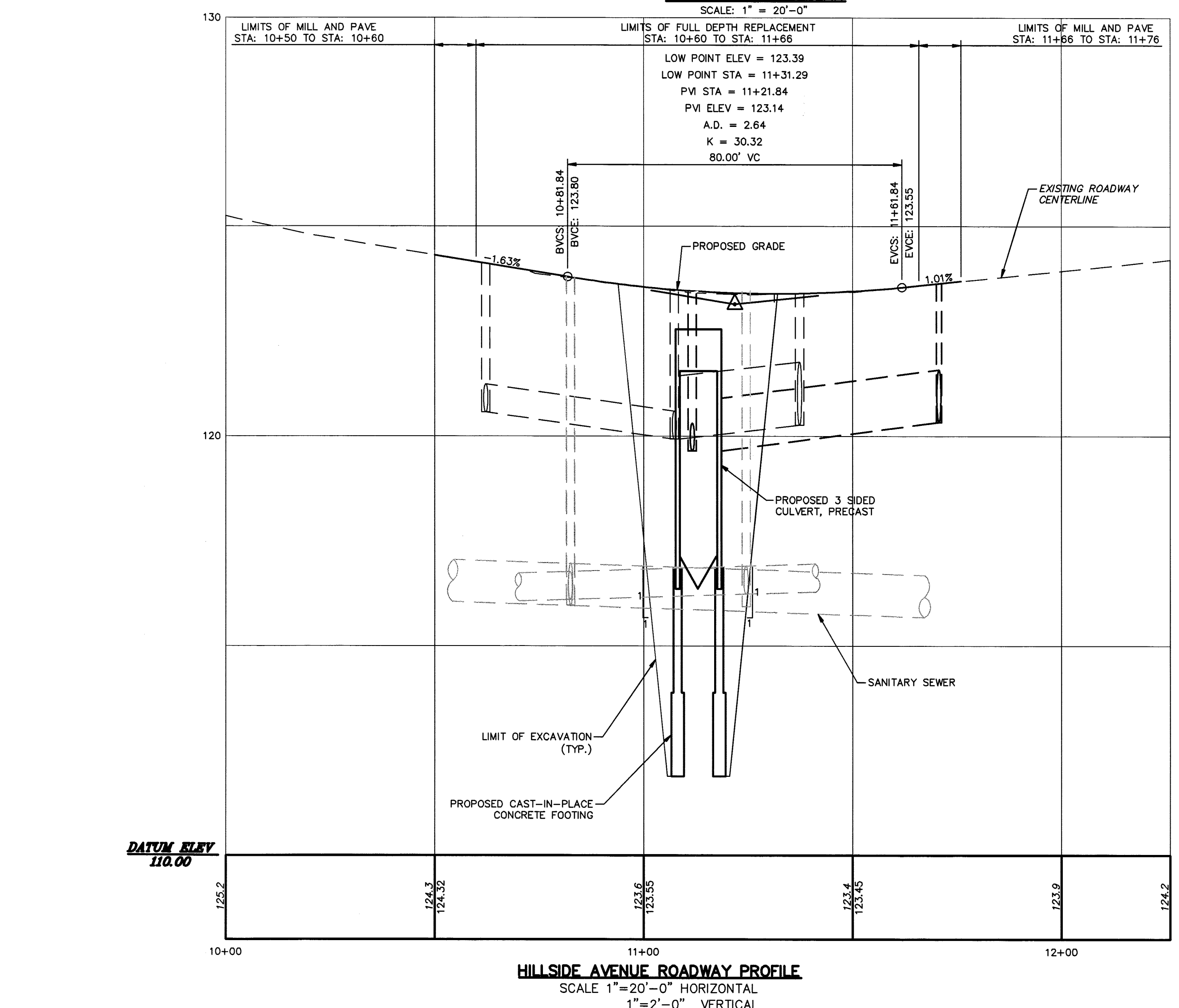
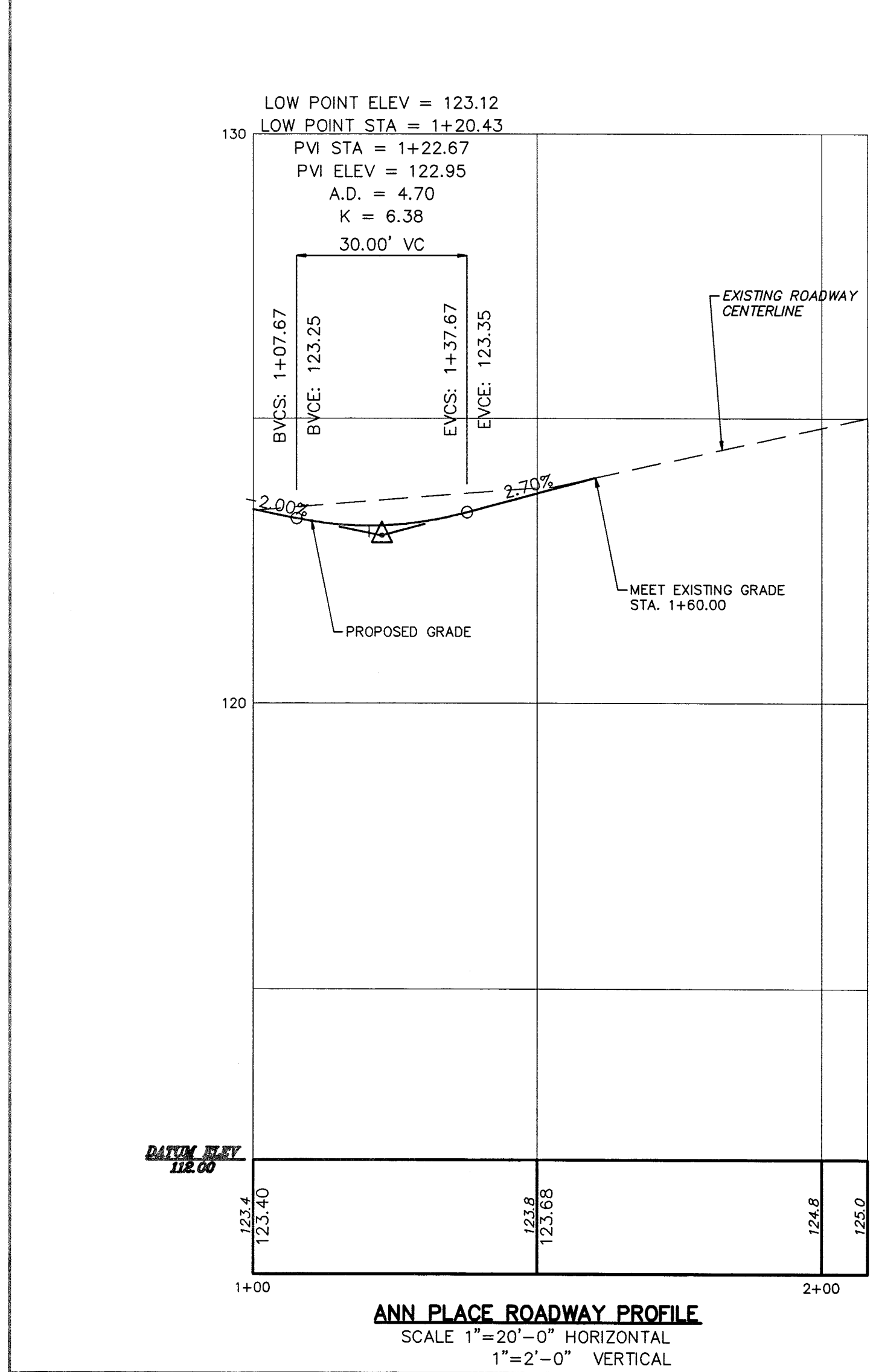
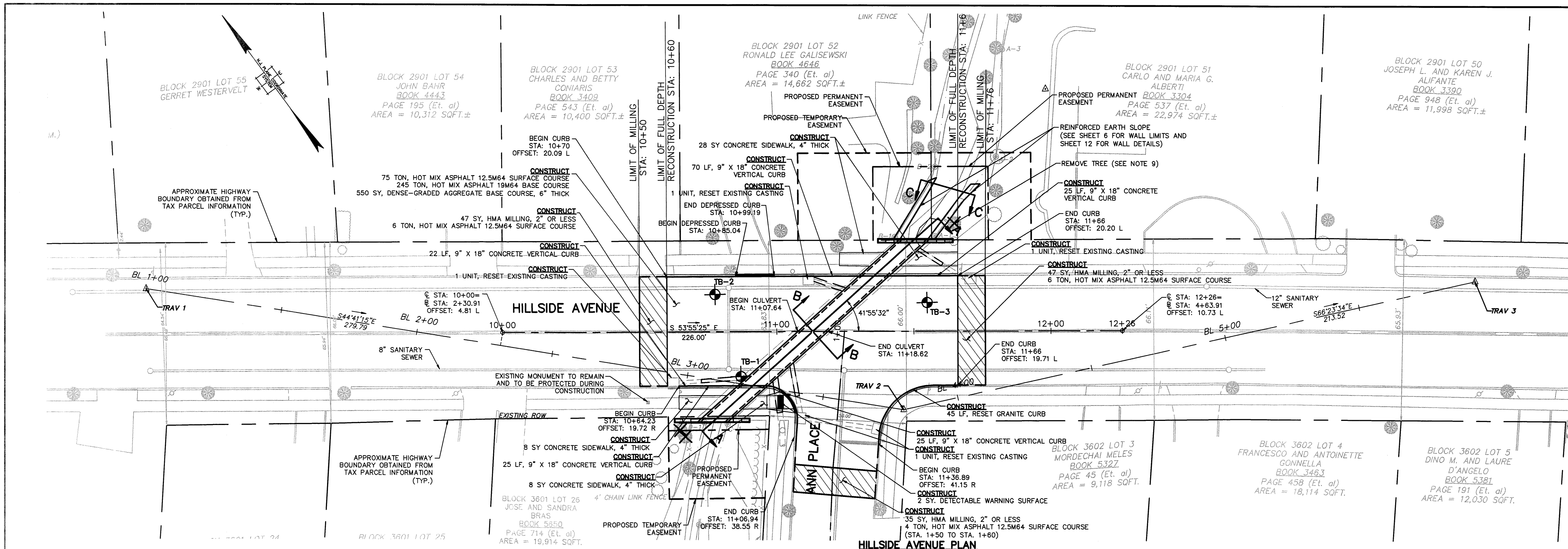
scale: AS SHOWN drawn by SG checked by date December 2012

NABIL M. GHANEM
PROFESSIONAL ENGINEER
NEW JERSEY LIC. NO. GE36407

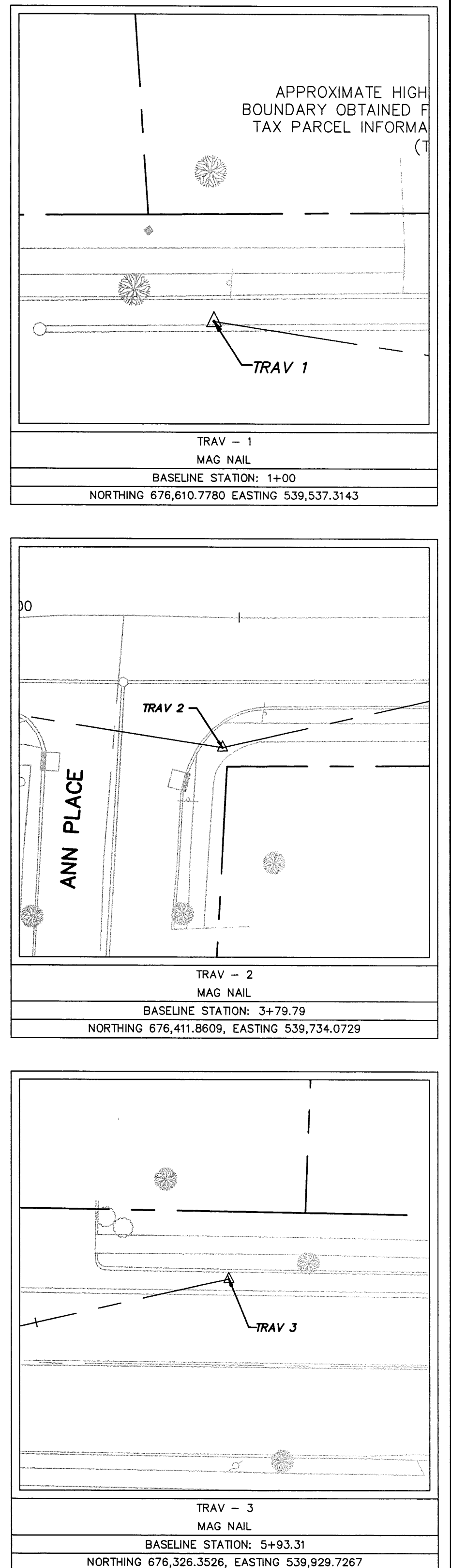
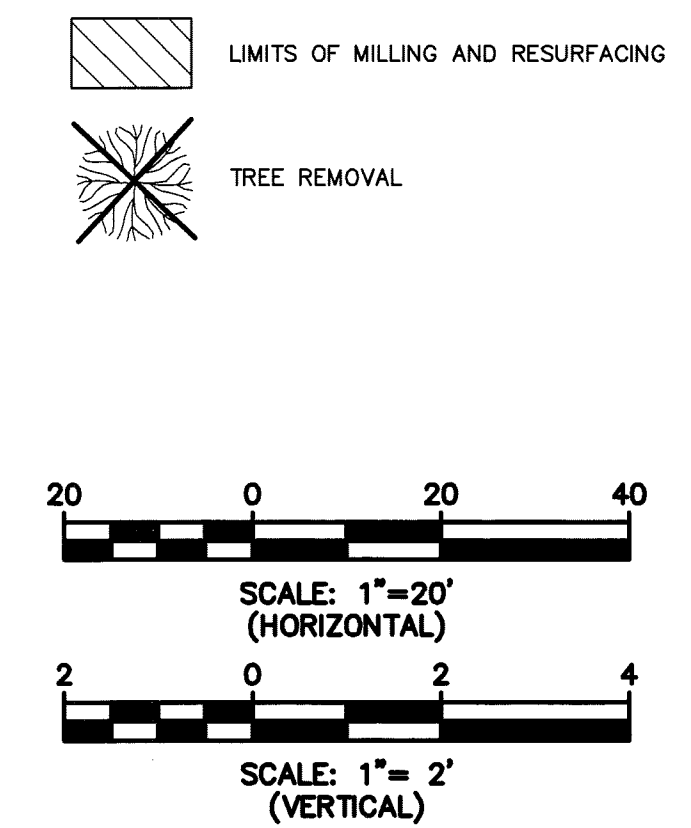
MASER
Professional Engineer
New Jersey Lic. No. 11111

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NY010308



- NOTES:**
- THE CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE OF THE STREAM FLOW AND PROTECTION OF THE NEW CULVERT STRUCTURE DURING CONSTRUCTION AND DEMOLITION. FOR THIS PURPOSE, THE CONTRACTOR HAS THE OPTION OF USING COFFERDAMS, TEMPORARY PIPES, OR ANY OTHER FEASIBLE MEASURES OR STREAM DIVERSION TECHNIQUES, AS APPROVED BY THE RESIDENT ENGINEER. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY COFFERDAMS" ITEM.
 - CONTRACTOR SHALL NOT REMOVE ANY TREES AT THE JOB SITE WITHOUT PRIOR APPROVAL BY THE ENGINEER. THE LIMITS OF TREE REMOVAL SHALL BE WITHIN THE PROJECT LIMITS, INCLUDING THE EASEMENT AREAS. PAYMENT FOR TREE REMOVAL SHALL BE INCLUDED UNDER "CLEARING SITE" ITEM. THE CONTRACTOR SHALL RE-PLANT TREES AS SPECIFIED IN THE PROJECT SPECIFICATIONS AND IF AND WHERE DIRECTED BY THE RESIDENT ENGINEER. PAYMENT WILL BE MADE UNDER THE BID ITEM "SMALL DECIDUOUS TREE, 2-1/2" CALIPER".
 - SEE SHEET 5 FOR SECTIONS A & B, SEE SHEET 12 FOR SECTION C.
 - LANDSCAPING CONSISTS OF THE FOLLOWING ITEMS:
 - TOPSOILING, 4" THICK
 - FERTILIZING AND SEEDING, TYPE A-3
 - STRAW MULCHING
 - FOR DRAINAGE ITEMS SEE SHEET 6.
 - FOR UTILITY IMPACTS AND STRIPING ITEMS SEE SHEET 7.
 - THE CONTRACTOR SHALL USE COFFERDAMS OR TEMPORARY SHEETING FOR PROTECTION OF THE OPEN EXCAVATION AS NEEDED DURING CONSTRUCTION.
 - FOR EASEMENT DIMENSIONS SEE SHEET 6.
 - COST OF TREE REMOVAL SHALL BE INCLUDED UNDER "CLEARING SITE STRUCTURE" PAY ITEM.



COUNTY OF UNION, DIVISION OF ENGINEERING
 THOMAS MINEO, P.E., COUNTY ENGINEER

**REPLACEMENT OF HILLSIDE AVENUE
 CULVERT STRUCTURE No. SP17
 OVER STREAM 10-32
 IN SPRINGFIELD TOWNSHIP**

UNION COUNTY NEW JERSEY

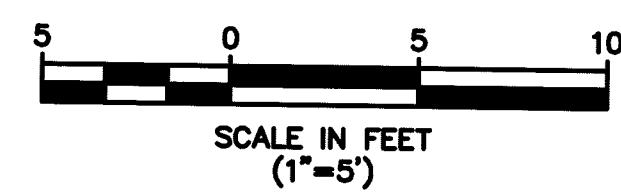
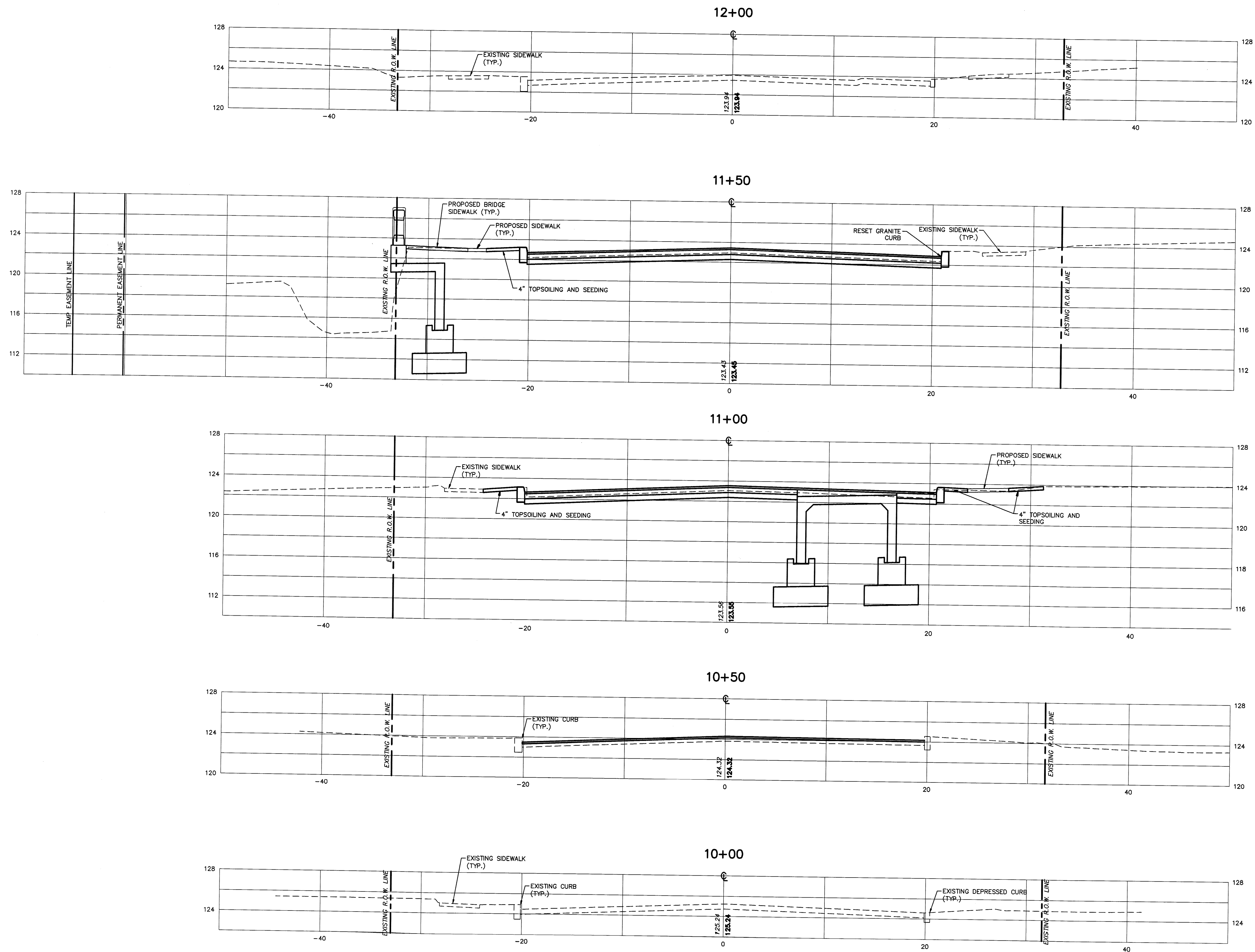
CONSTRUCTION PLAN

scale: AS SHOWN drawn by SG checked by date December 2012

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COUNTY OF UNION, DIVISION OF ENGINEERING
THOMAS MINEO, P.E., COUNTY ENGINEER

REPLACEMENT OF HILLSIDE AVENUE
CULVERT STRUCTURE No. SP17
OVER STREAM 10-32
IN SPRINGFIELD TOWNSHIP

UNION COUNTY NEW JERSEY

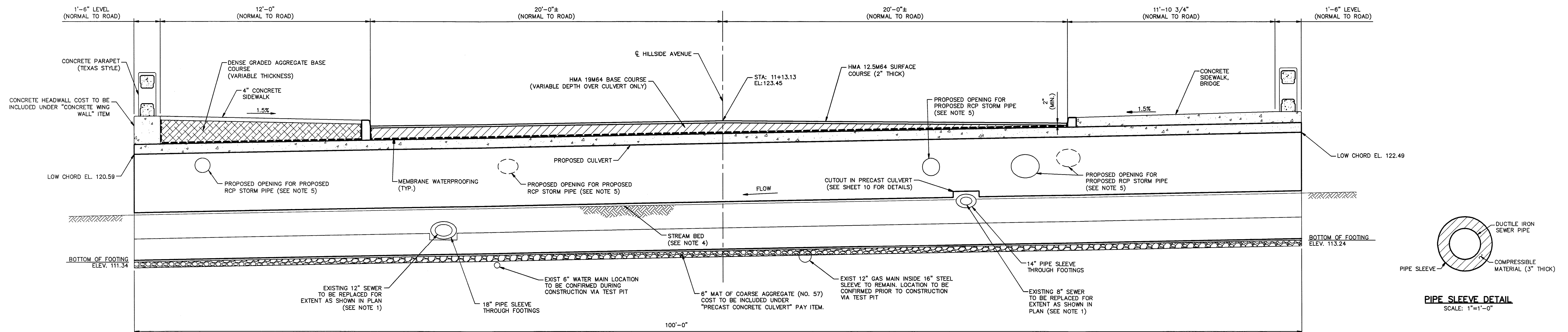
ROADWAY CROSS SECTIONS

scale: AS SHOWN drawn by AM checked by date December 2012

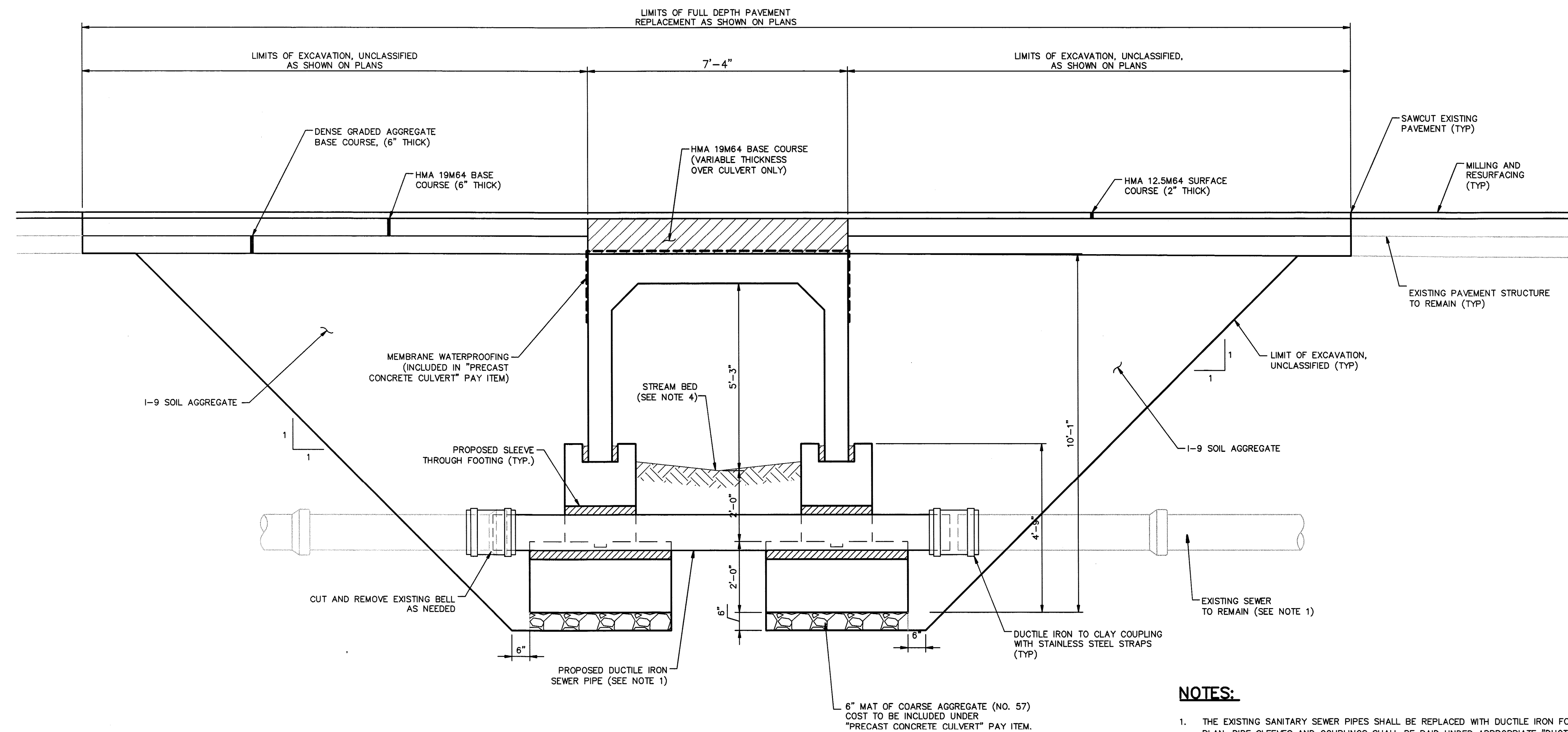
Nabil M. Ghanem
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NY010151





A PROPOSED SECTION
SCALE: 1/4"=1'-0"



B PROPOSED SECTION
SCALE: 1/2"=1'-0"

NOTES:

1. THE EXISTING SANITARY SEWER PIPES SHALL BE REPLACED WITH DUCTILE IRON FOR EXTENT SHOWN IN PLAN. PIPE SLEEVES AND COUPLINGS SHALL BE PAID UNDER APPROPRIATE "DUCTILE IRON PIPE" PAY ITEM.
2. LOCATIONS OF UNDERGROUND UTILITIES SHALL BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
3. FOR SECTION A & B LOCATIONS, SEE SHEET 3.
4. STREAM BED SHALL BE FILLED WITH 1-14 SOIL AGGREGATE TO ELEVATIONS SHOWN.
5. FOR EXACT LOCATIONS AND SIZE OF PROPOSED RCP STORM PIPES, SEE SHEET 10.
6. FOR UTILITY IMPACTS, SEE SHEET 7.

COUNTY OF UNION, DIVISION OF ENGINEERING THOMAS MINEO, P.E., COUNTY ENGINEER	
REPLACEMENT OF HILLSIDE AVENUE CULVERT STRUCTURE No. SP17 OVER STREAM 10-32 IN SPRINGFIELD TOWNSHIP	
UNION COUNTY	NEW JERSEY
TYPICAL CULVERT SECTIONS	
scale: AS SHOWN drawn by D.J.L. checked by date December 2012	
 	
RED BANK OFFICE 331 Newnam Springs Road Suite 203 Red Bank, N.J. 07701 Phone (732) 383-1800 Fax (732) 383-1804	
5 of 12	

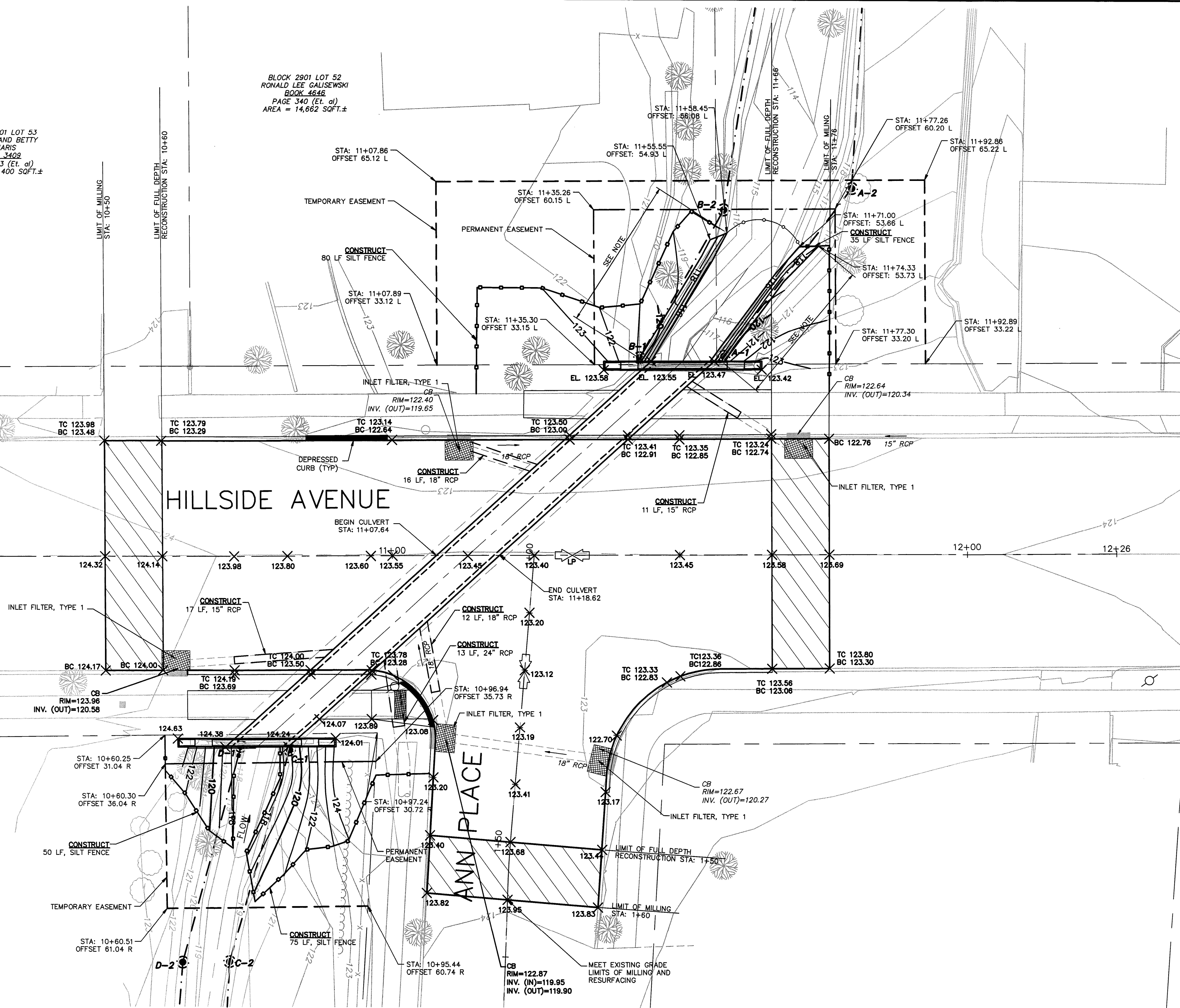
BLOCK 2901 LOT 53
CHARLES AND BETTY
CONIARIS
BOOK 3402
PAGE 543 (Et. al)
AREA = 10,400 SQFT.±

BLOCK 2901 LOT 52
RONALD LEE GALISEWSKI
BOOK 4646
PAGE 340 (Et. al)
AREA = 14,662 SQFT.±

BLOCK 2901 LOT 51
CARLO AND MARIA G.
ALBERTI
BOOK 3304
PAGE 537 (Et. al)
AREA = 22,974 SQFT.±

BLOCK 3601 LOT 26
JOSE AND SANDRA
BRAS
BOOK 5650
PAGE 714 (Et. al)
AREA = 19,914 SQFT.

BLOCK 3602 LOT 4
FRANCESCO AND ANTOINETTE
GOVIELLA
BOOK 3463
PAGE 458 (Et. al)
AREA = 18,114 SQFT.

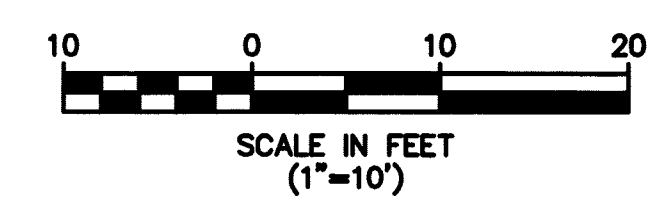


PLAN
SCALE: 1" = 10'-0"

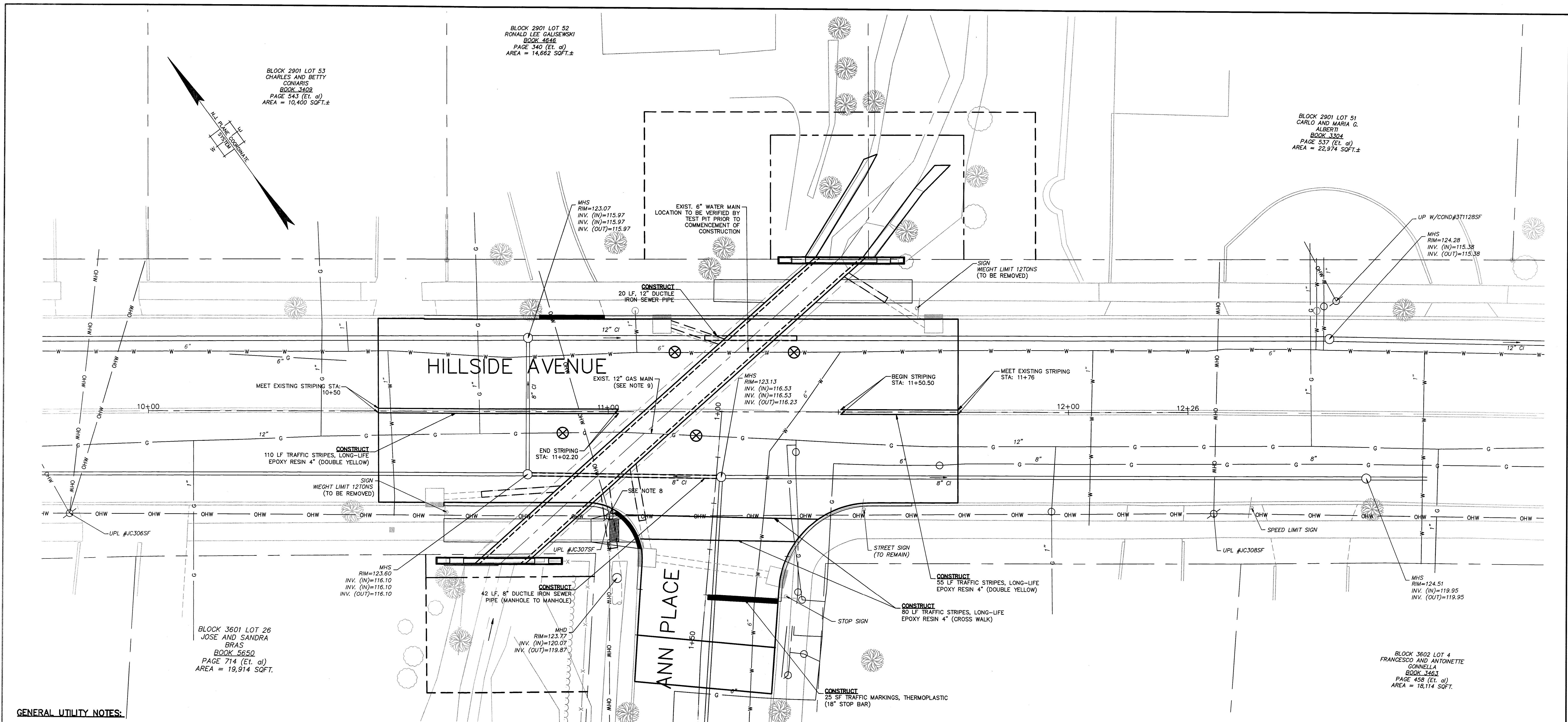
TOTAL AREA OF SOIL DISTURBANCE = 6,200 SQ. FT.

- LEGEND:**
- FLOATING TURBIDITY BARRIER
 - SILT FENCE

NOTE:
LENGTH SHOWN INDICATES EXTENT OF REINFORCED EARTH SLOPE.



COUNTY OF UNION, DIVISION OF ENGINEERING THOMAS MINEO, P.E., COUNTY ENGINEER	
REPLACEMENT OF HILLSIDE AVENUE CULVERT STRUCTURE No. SP17 OVER STREAM 10-32 IN SPRINGFIELD TOWNSHIP	
UNION COUNTY	NEW JERSEY
GRADING AND DRAINAGE PLAN	
scale: AS SHOWN	drawn by SG checked by date December 2012
NABIL M. GHANEM PROFESSIONAL ENGINEER NEW JERSEY LIC. NO. 36407	
RED BANK OFFICE 351 Newman Springs Road Suite 203 Red Bank, N.J. 07701 Phone (732) 383-1890 Fax (732) 383-1904	
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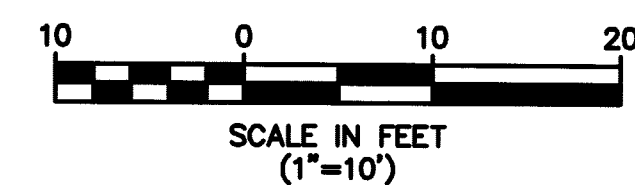
GENERAL UTILITY NOTES:

1. THE CONTRACTOR SHALL CONFIRM THE ELEVATIONS OF UNDERGROUND GAS, WATER AND TELEPHONE UTILITIES USING TEST PITS IN APPROXIMATE LOCATIONS AS SHOWN. FINAL LOCATIONS OF TEST PITS SHALL BE APPROVED BY THE ENGINEER IN THE FIELD. PAYMENTS FOR TEST PITS WILL BE MADE UNDER "EXCAVATION, TEST PITS" PAY ITEM. UNDERGROUND UTILITIES MAY REQUIRE TEMPORARY OR PERMANENT RELOCATION DURING CONSTRUCTION DEPENDING ON ACTUAL ELEVATIONS.
2. UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THEIR LOCATION AND COMPLETENESS. NO WORK SHALL BEGIN UNTIL THE CONTRACTOR PROVIDES THE RESIDENT ENGINEER THE CONFIRMATION NUMBER OBTAINED FROM THE ONE-CALL SYSTEM IN ACCORDANCE WITH THE UNDERGROUND FACILITY PROTECTION ACT. THE CONTRACTOR SHALL CALL THE GARDEN STATE UNDERGROUND PLANT LOCATION SERVICE AT 1-800-272-1000 FOR UTILITY MARKOUT AT LEAST 3 FULL WORKING DAYS PRIOR TO EXCAVATING, BUT NOT MORE THAN 10 WORKING DAYS.
3. THE ENGINEER AND THE APPROPRIATE UTILITY COMPANIES MUST BE NOTIFIED IMMEDIATELY OF ANY UTILITY CONFLICTS FOUND DURING CONSTRUCTION.
4. CONTRACTOR MUST OBSERVE SAFE CLEARANCES FROM ALL OVERHEAD ELECTRIC LINES DURING THE CONSTRUCTION. SPECIFIC INFORMATION ON REQUIRED CLEARANCE MAY BE OBTAINED FROM THE FOLLOWING SOURCES:
 1. NATIONAL ELECTRIC SAFETY CODE
 2. US DEPARTMENT OF LABOR - OCCUPATIONAL SAFETY
 3. NJ DEPARTMENT OF LABOR AND INDUSTRY - BUREAU OF ENGINEERING AND SAFETY
5. ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES MUST BE PROTECTED FROM DAMAGE AT ALL TIMES DURING CONSTRUCTION. IN AREAS OF FULL DEPTH RECONSTRUCTION, CARE SHALL BE TAKEN SO THAT ALL EXISTING UTILITIES ARE PROTECTED AND KEPT OPERATIONAL. CONTRACTOR SHALL BE RESPONSIBLE TO SUPPORT UTILITY POLES ADJACENT TO EXCAVATION AREAS UNTIL THE AREA IS BACKFILLED AND STABILIZED.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING UTILITY COMPANIES TO DETERMINE EACH COMPANY'S SCHEDULE FOR THE RELOCATION AND/OR RESETTling OF THEIR FACILITIES. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR COORDINATING UTILITY WORK SO THAT ANY CONTRACT WORK TO BE PERFORMED BY THE CONTRACTOR DOES NOT INTERFERE WITH OR DELAY THE EFFORTS OF THE UTILITY COMPANIES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATIONS WITH THE AFFECTED UTILITY COMPANIES.
8. POLE UPL #JC307SF AT STA. 11+01.88 OFFSET: 36.07R IS TO BE TEMPORARILY SUPPORTED OR RELOCATED DURING CONSTRUCTION. THIS WORK IS TO BE DONE BY THE UTILITY COMPANY AT NO COST TO THE COUNTY.
9. BASED ON INFORMATION RECEIVED FROM PSE&G, THE EXISTING GAS MAIN IS LOCATED BELOW THE THE BOTTOM OF THE PROPOSED FOOTING AND WOULD NOT BE IMPACTED. HOWEVER, THE CONTRACTOR SHALL PERFORM TEST PITS PRIOR TO THE START OF CONSTRUCTION TO DETERMINE THE EXACT LOCATION OF THE EXISTING MAIN. IF AS A RESULT OF THE TEST PIT THE EXISTING GAS MAIN IS FOUND TO BE IMPACTED BY CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY PSE&G TO RELOCATE OR PROTECT THEIR MAIN. ANY PROVISIONS TO RELOCATE OR PROTECT THE GAS MAIN SHALL BE THE RESPONSIBILITY OF PSE&G AT NO COST TO THE COUNTY.

PLAN
SCALE: 1" = 10'-0"

LEGEND:

- ⊗ APPROXIMATE TEST PIT LOCATIONS.



COUNTY OF UNION, DIVISION OF ENGINEERING THOMAS MINEO, P.E., COUNTY ENGINEER	
REPLACEMENT OF HILLSIDE AVENUE CULVERT STRUCTURE No. SP17 OVER STREAM 10-32 IN SPRINGFIELD TOWNSHIP	
UNION COUNTY	NEW JERSEY
UTILITY, SIGNING AND STRIPING PLAN	
scale: AS SHOWN drawn by: SG checked by: date: December 2012	
 NABIL M. GHANEM PROFESSIONAL ENGINEER NEW JERSEY LIC. NO. 36407	 MASER 331 Newnam Springs Road Suite 200 Red Bank, N.J. 07701 Phone (732) 385-1860 Fax (732) 385-1864
7 of 12	NY010246

SOMERSET-UNION SOIL CONSERVATION DISTRICT

1. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED FORTY-EIGHT (48) HOURS IN WRITING PRIOR TO ANY LAND DISTURBING ACTIVITY.
2. ALL WORK IS TO BE DONE IN ACCORDANCE WITH THE STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL OF NEW JERSEY.
3. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES ARE TO BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCE, OR IN THEIR PROPER SEQUENCE, AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
4. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLANS WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RE-CERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT STATE SOIL EROSION AND SEDIMENT CONTROL STANDARDS.
5. IN THAT N.J.S.A 4:24-39 ET. SEQ. REQUIRES THAT NO CERTIFICATES OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR EROSION CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES. ALL SITE WORK AND ALL WORK AROUND INDIVIDUAL LOTS IN SUBDIVISIONS, WILL HAVE TO BE COMPLETED PRIOR TO THE DISTRICT ISSUING A REPORT OF COMPLIANCE FOR THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE MUNICIPALITY.
6. ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN THIRTY (30) DAYS, AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF 2 TO 2 1/2 TONS PER ACRE, ACCORDING TO STATE STANDARD FOR STABILIZATION WITH MULCH ONLY.
7. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING, ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES AND ROADWAY EMBANKMENTS) WILL RECEIVE TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF 1 1/2 TO 2 TONS PER ACRE, ACCORDING TO STATE STANDARDS.
8. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS TO STABILIZE STREETS, ROADS, DRIVEWAYS, AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN FIFTEEN (15) DAYS OF THE PRELIMINARY GRADING.
9. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION CONTINUES (I.E. SLOPES GRATER THAN 3:1).
10. THE STANDARD FOR STABILIZED CONSTRUCTION ACCESS REQUIRES THE INSTALLATION OF A PAD OF CLEAN CRUSHED STONE AT POINTS WHERE TRAFFIC WILL BE ACCESSING THE CONSTRUCTION SITE. AFTER INTERIOR ROADWAYS ARE PAVED, INDIVIDUAL LOTS REQUIRE A STABILIZED CONSTRUCTION ENTRANCE CONSISTING OF ONE INCH TO TWO INCH (1" - 2") STONE FOR A MINIMUM LENGTH OF TEN FEET (10') EQUAL TO THE LOT ENTRANCE WIDTH. ALL OTHER ACCESS POINTS SHALL BE BLOCKED OFF.
11. ALL SOIL WASHED, DROPPED, SPILLED, OR TRACKED OUTSIDE THE LIMIT OF DISTURBANCE OR ONTO PUBLIC RIGHT-OF-WAYS WILL BE REMOVED IMMEDIATELY.
12. PERMANENT VEGETATION IS TO BE SEEDDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING.
13. AT THE TIME THAT SITE PREPARATION FOR PERMANENT VEGETATIVE STABILIZATION IS GOING TO BE ACCOMPLISHED, ANY SOIL THAT WILL NOT PROVIDE A SUITABLE ENVIRONMENT TO SUPPORT ADEQUATE VEGETATIVE GROUND COVER SHALL BE REMOVED OR TREATED IN SUCH A WAY THAT IT WILL PERMANENTLY ADJUST THE SOIL CONDITIONS AND RENDER IT SUITABLE FOR VEGETATIVE GROUND COVER. IF THE REMOVAL OR TREATMENT OF THE SOIL WILL NOT PROVIDE SUITABLE CONDITIONS, NON-VEGETATIVE MEANS OF PERMANENT GROUND STABILIZATION WILL HAVE TO BE EMPLOYED.
14. IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOILS, ANY SOIL HAVING A PH OF 4 OR LESS OR CONTAINING IRON SULFIDES SHALL BE COVERED WITH A MINIMUM OF TWELVE (12) INCHES OF SOIL HAVING A PH OF 5 OR MORE PRIOR TO SEEDING PREPARATION. AREAS WHERE TREES OR SHRUBS ARE TO BE PLANTED SHALL BE COVERED WITH A MINIMUM OF TWENTY-FOUR (24) INCHES OF SOIL HAVING A PH OF 5 OR MORE.
15. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
16. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SEDIMENT TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
17. SHOULD THE CONTROL OF DUST AT THE SITE BE NECESSARY, THE SITE WILL BE SPRINKLED UNTIL THE SURFACE IS WET. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED OR MULCH SHALL BE APPLIED AS REQUIRED BY THE STANDARD FOR DUST CONTROL.
18. STOCKPILE AND STAGING LOCATIONS ESTABLISHED IN THE FIELD SHALL BE PLACED WITHIN THE LIMIT OF DISTURBANCE ACCORDING TO THE CERTIFIED PLAN. STAGING AND STOCKPILES NOT LOCATED WITHIN THE LIMIT OF DISTURBANCE WILL REQUIRE CERTIFICATION OF A REVISED SOIL EROSION AND SEDIMENT CONTROL PLAN. CERTIFICATION OF A NEW SOIL EROSION AND SEDIMENT CONTROL PLAN MAY BE REQUIRED FOR THESE ACTIVITIES IF AN AREA GREATER THAN 5,000 SQUARE FEET IS DISTURBED.
19. ALL SOIL STOCKPILES ARE TO BE TEMPORARILY STABILIZED IN ACCORDANCE WITH SOIL EROSION AND SEDIMENT CONTROL NOTE #6.
20. THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR ANY EROSION OR SEDIMENTATION THAT MAY OCCUR BELOW STORMWATER OUTFALLS OR OFFSITE AS A RESULT OF CONSTRUCTION OF THE PROJECT.

GENERAL MAINTENANCE

1. MAINTENANCE SHALL OCCUR ON A REGULAR BASIS CONSISTENT WITH FAVORABLE PLANT GROWTH SOIL AND CLIMATE CONDITIONS.
2. ALL RIPRAP AND CONSTRUCTION ENTRANCE SHALL BE RAKED AS REQUIRED TO MAINTAIN INTENDED USE.
3. WHEN IT BECOMES NECESSARY, THE OWNER SHALL INFORM THE CONTRACTORS OF UNSATISFACTORY CONDITION OR EROSION AND SEDIMENT DEVICES. AT SUCH TIME THE CONTRACTOR SHALL IMPROVE THE CONDITIONS OF SAID DEVICES TO MEET WITH THE APPROVAL OF THE OWNER.
4. SHOULD UNFORESEEN EROSION CONDITIONS DEVELOP DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE ACTION TO REMEDY SUCH CONDITIONS AND TO PREVENT DAMAGE TO ADJACENT PROPERTIES AS A RESULT OF INCREASED RUNOFF AND/OR SEDIMENT DISPLACEMENT.
5. SEEDDED AREAS THAT HAVE BEEN WASHED AWAY SHALL BE FILLED AND GRADED AS NECESSARY AND THEN RESEEDDED. THE PROCEDURE SHALL BE REPEATED AFTER EACH STORM OR UNTIL NO MORE SIGNS OF EROSION ARE EVIDENT.
6. CONTROL MEASURES SHALL APPLY TO SUBSEQUENT OWNERS IF TITLE IS CONVEYED.
7. THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF SOIL EROSION AND SEDIMENT CONTROL MEASURES AFTER CONSTRUCTION.

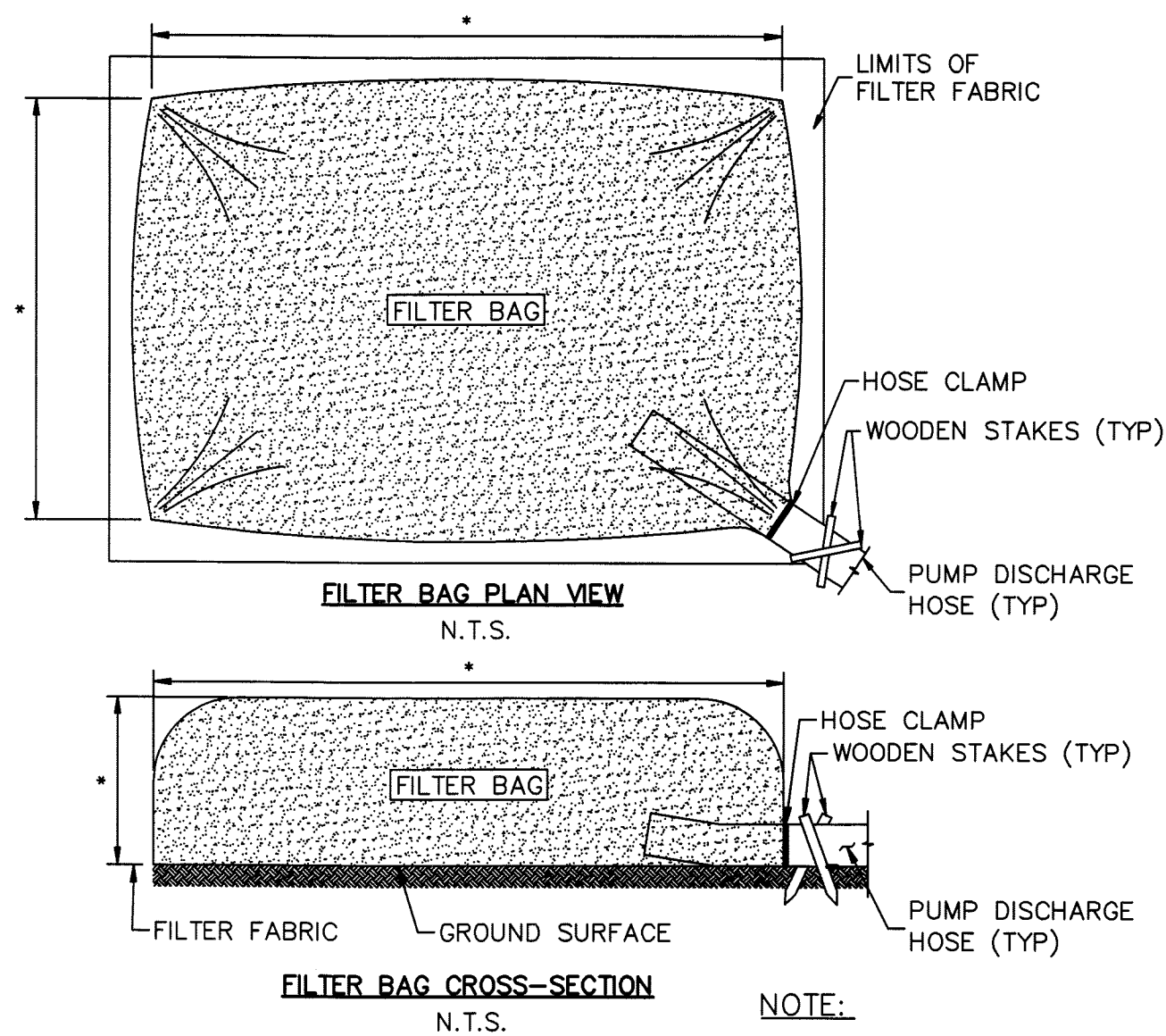
SCHEDULE OF SEED MIXES FOR SOIL STABILIZATION

TEMPORARY SEED MIX	RATE (LBS/ACRE)	PERMANENT SEED MIX	RATE (LBS/ACRE)
WINTER RYE	55	PERENNIAL RYE	55
WEeping LOVEGRASS	10	CHEWING RED FESCUE	40
PERENNIAL RYE	55	CREeping RED FESCUE	40
SERICA LESPEDEZA	55	KENTUCKY BLUE GRASS	40
	175 LBS. MIN.		175 LBS. MIN.

ALL SEEDING, STABILIZATION, ETC. TO BE AS SPECIFIED IN "STANDARDS FOR SOIL EROSION/SEDIMENT CONTROL IN NEW JERSEY"

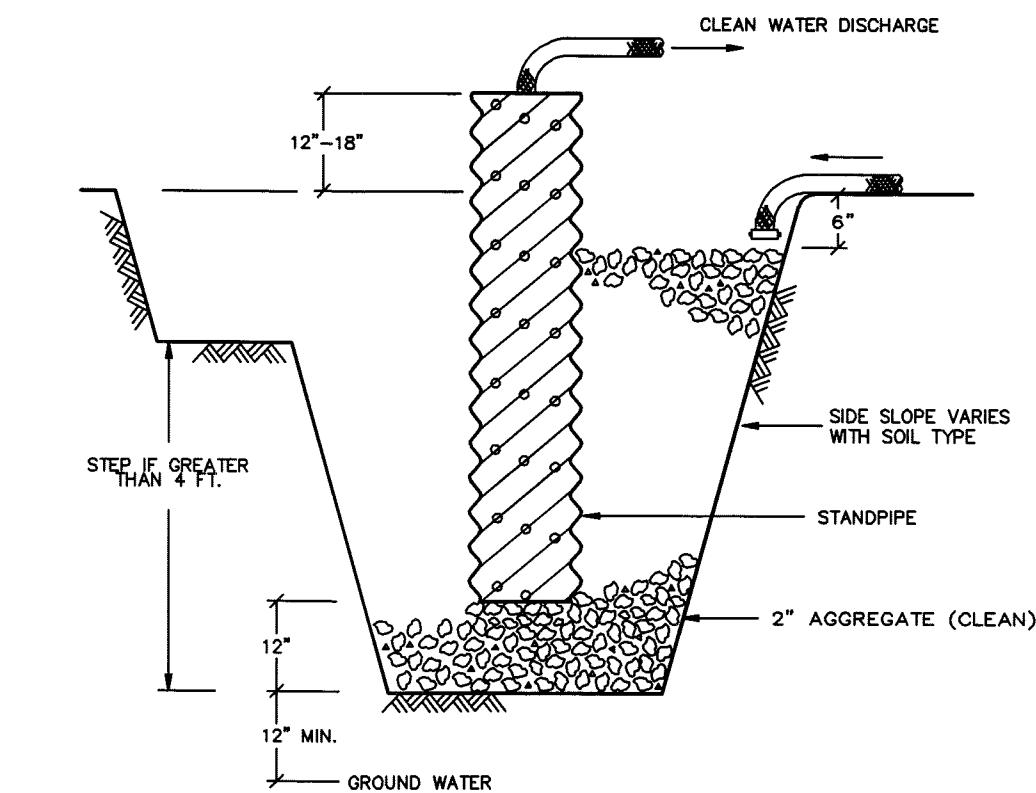
FERTILIZER TO BE 10-6-4 OR 10-5-5 APPLIED AT 800 TO 1000 LBS/ACRE, OR 5-10-10 OR 5-10-5 APPLIED AT 500-600 LBS/ACRE. EXACT APPLICATION RATE TO BE DETERMINED BY SOIL TESTING

GROUND LIMESTONE TO BE SPREAD AT VARYING RATES TO CORRECT EXISTING PH VALUES TO A LEVEL OF 6.5.



FILTER BAG NOTES:

1. FILTER BAGS WILL BE USED AS AN EFFECTIVE FILTER MEDIUM TO CONTAIN SAND, SILTS AND FINES WHEN TRENCH DEWATERING. THE WETLAND FILTER BAG CONTAINS THESE MATERIALS WHILE ALLOWING THE WATER TO FLOW THROUGH THE FABRIC.
2. WET SAND FILTER BAGS MAY REPLACE HAY BALE CORRALS DURING TRENCH DEWATERING AT THE DISCRETION OF THE ENVIRONMENTAL INSPECTOR. TO INSURE PROPER INSTALLATION, FILTER BAG WILL BE PLACED ON RELATIVELY FLAT TERRAIN, FREE OF BRUSH AND STUMPS TO AVOID RUPTURE AND PUNCTURES. PROPER INSTALLATION REQUIRES CUTTING A SMALL HOLE IN THE CORNER OF THE BAG, INSERTING THE PUMP DISCHARGE HOSE, AND THEN SECURING THE DISCHARGE HOSE TO THE BAG WITH A HOSE CLAMP. FILTER BAGS WILL BE PLACED AS FAR AWAY FROM FLOWING STREAMS AND WETLANDS AS POSSIBLE.
3. PRIOR TO REMOVING A BAG FROM THE HOSE, THE BAG WILL BE TIED OFF BELOW THE END OF THE HOSE ALLOWING THE BAG TO DRAIN. DRAINAGE WILL NOT BE ALLOWED THROUGH THE INLET HOLE. TO AVOID RUPTURE, THE BAGS WILL BE ATTENDED AND PUMPING RATES MONITORED. ONCE THE BAG IS INFLATED TO A HEIGHT OF 4-Feet, PUMPING WILL STOP TO AVOID RUPTURE. FILTER BAG USE DURING CONSTRUCTION WILL BE BUNDLED AND REMOVED FOR PROPER DISPOSAL.
4. FILTER BAGS ARE CONSTRUCTED OF NON-WOVEN GEOTEXTILE FABRIC. A MAXIMUM OF ONE SIX INCH DISCHARGE HOSE WILL BE ALLOWED PER FILTER BAG. BAG CAPACITY WILL BE EXCEEDED BEYOND 2,000 GALLONS PER MINUTE. TYPICAL BAG DIMENSIONS ARE 15-Feet BY 13.25-Feet TO HELP PREVENT PUNCTURES, GEOTEXTILE FABRIC WILL BE PLACED BENEATH THE FILTER BAGS WHEN USED IN WOODED LOCATIONS. UNATTENDED FILTER BAGS WILL BE ENCLOSED WITH A HAY BALE OR SILT FENCE CORRAL. HOSE CLAMPS WILL BE USED TO SECURE THE DISCHARGE HOSE, WIRE OR STRING WILL NOT BE USED.

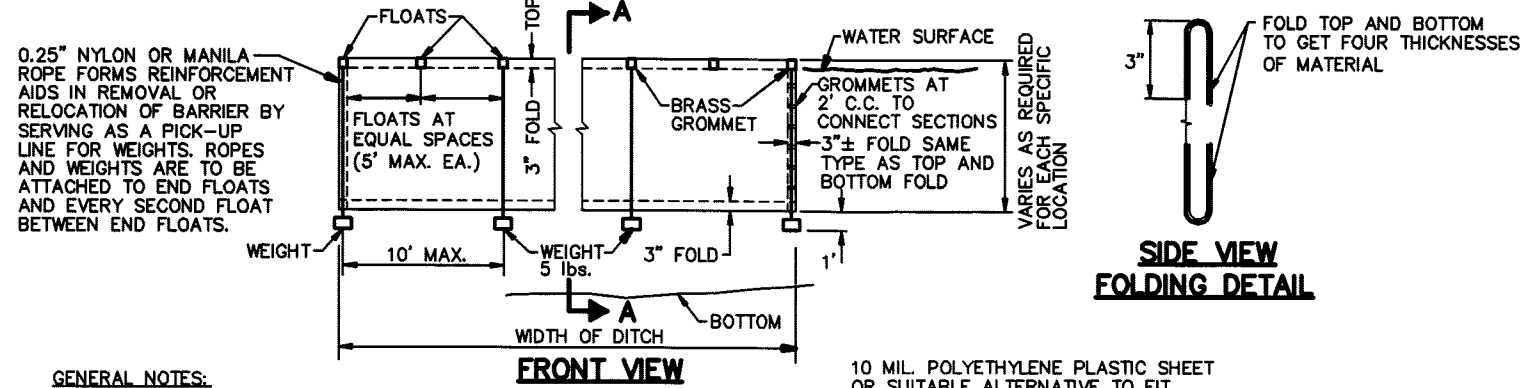
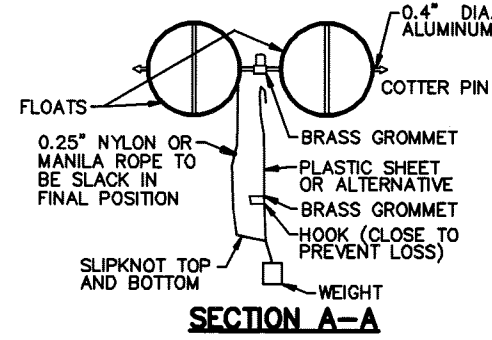


CAN BE USED ON ANY SITE UNDERGOING ACTIVE CONSTRUCTION, ESPECIALLY EXCAVATION, BUT GENERALLY ARE NOT SUITABLE FOR LARGE VOLUMES OF RUNOFF. WATER PUMPER FROM EXCAVATIONS OR DIVERTED FROM STOCKPILE OR TRACKING AREAS MAY BE DIRECTED TO DEWATERING PITS FOR PRIMARY SEDIMENT REMOVAL. THIS PRACTICE IS PARTICULARLY APPLICABLE TO SMALL SITES OR URBAN AREAS WHERE THERE IS INSUFFICIENT ROOM FOR MULTIPLE SILT TRAPS OR SEDIMENT BASINS.

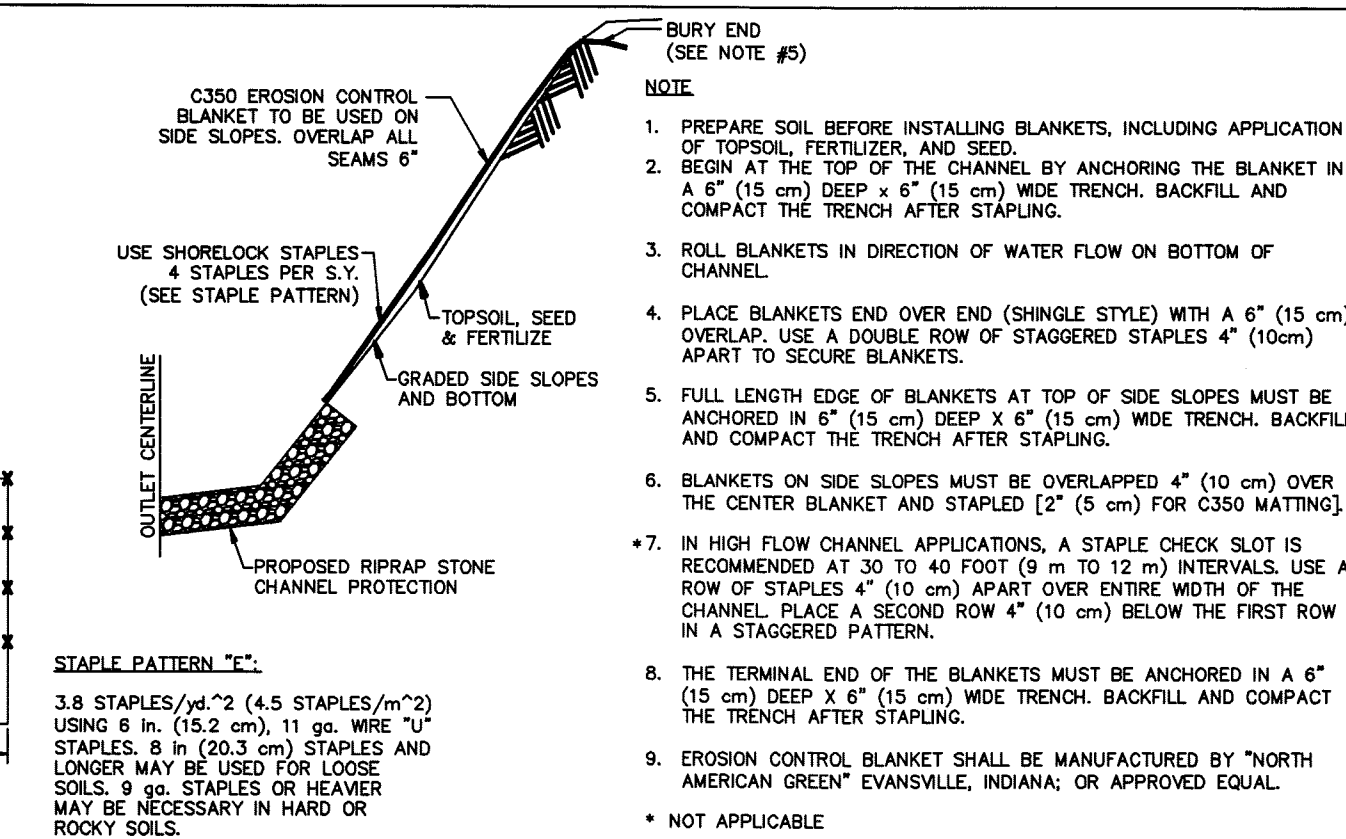
INSTALLATION NOTES

1. PIT DIMENSIONS ARE VARIABLE.
2. THE STANDPIPE SHOULD BE A PERFORATED 12" TO 24" DIAMETER CORRUGATED METAL, PVC OR HOPE PIPE.
3. A BASE OF 2" CLEAN AGGREGATE SHOULD BE PLACED IN THE PIT TO A DEPTH OF 12". AFTER INSTALLING THE STANDPIPE, THE PIT SURROUNDING THE STANDPIPE SHOULD THEN BE BACKFILLED WITH 2" AGGREGATE.
4. THE STANDPIPE SHOULD EXTEND 12" - 18" ABOVE THE LIP OF THE PIT.
5. IF DISCHARGE WILL BE PUMPED DIRECTLY TO A STORM DRAINAGE SYSTEM, THE STANDPIPE SHOULD BE WRAPPED WITH FILTER FABRIC BEFORE INSTALLATION. IF DESIRED, 1/4" - 1/2" HARDWARE CLOTH MAY BE PLACED AROUND THE STANDPIPE, PRIOR TO ATTACHING THE FILTER FABRIC, THIS WILL INCREASE THE RATE OF WATER SEEPAGE INTO THE PIPE.

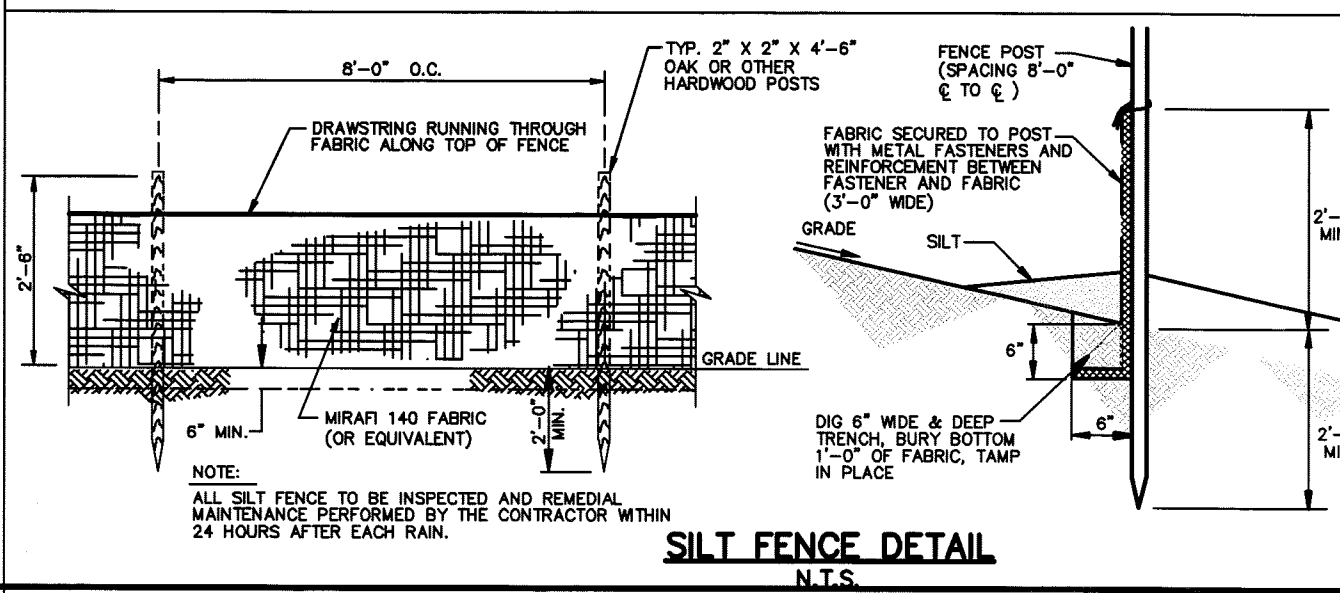
DEWATERING PIT (SEDIMENT TRAP)



FLOATING TURBIDITY BARRIER



SLOPE PROTECTION MATTING DETAIL



TEMPORARY SOIL STABILIZATION COVER

PRIOR TO HALTING CONSTRUCTION FOR PERIODS LONGER THAN 30 DAYS AND DURING THE OFFSEASON, THE CONTRACTOR SHALL STABILIZE WITH TEMPORARY VEGETATIVE COVER AND ALL EXPOSED SOILS. TEMPORARY VEGETATIVE COVER SHALL BE ACCOMPLISHED BY THE FOLLOWING METHODS AND MATERIALS.

1. FERTILIZER SHALL BE APPLIED AT A RATE OF 500 LBS/ACRE OR 11 LBS/1000 S.F. OF 10-20-10 OR EQUIVALENT. IF SEED IS DRILLED OVER BANDED FERTILIZATION, THE RATE OF FERTILIZER MAY BE REDUCED BY 50%.
2. LIMESTONE SHALL BE APPLIED TO A RATE OF 2 TONS/ACRE OR 90 LBS/1000 S.F. LIMESTONE EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDES SHALL BE USED.
3. LIME AND FERTILIZER SHALL BE WORKED INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH A DISC, SPRINGTOOTH HARROW, OR OTHER SUITABLE EQUIPMENT.
4. MULCHING SHALL BE APPLIED AFTER SEEDING. MUCH MATERIALS SHALL BE UNROTTED, SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO BE APPLIED AT THE RATE OF 1 1/2 TO 2 TONS PER ACRES (70 TO 90 LBS/1000 S.F.) EXCEPT THAT WHERE CRUMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION SHALL BE DOUBLED. MULCH SHALL BE SPREAD UNIFORMLY SO THAT APPROXIMATELY 75% TO 95% OF THE SOIL SURFACE WILL BE COVERED.
5. MULCH SHALL BE ANCHORED IMMEDIATELY AFTER PLACEMENT BY:

LIQUID MULCH BINDERS-- MAY BE USED TO ANCHOR SALT OR STRAW MULCHES.

A. APPLICATIONS SHOULD BE HEAVIER AT EDGES WHERE WIND CATCHES THE MULCH, IN VALLEYS AND AT CRESTS OF BANDS. REMAINDER OF AREA SHOULD BE UNIFORM IN APPEARANCES.

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 AREAS AND ON SLOPES LESS THAN 8 FEET HIGH. ON SLOPES, 8 FEET OR MORE HIGH, USE 0.75 GAL/SQ.YD. PER 363 GAL/ACRE.
2. OUTBACK ASPHALT: RAPID CURING (RC-70, RC-25 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 0.75 GAL/SQ.YD. PER 363 GAL/ACRE.
3. SYNTHETIC OR ORGANIC BINDERS: BINDERS SUCH AS CURASOL DCA-70, PERTO-SET AND TERRA-TACT MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCHER 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.
6. MULCH MAY BE USED IN PLACE OF TEMPORARY SEEDING IF SPREAD AT A RATE OF 2.0 TO 2.5 TONS PER ACRE AND ANCHORED AS DISCUSSED ABOVE. A MULCH ANCHORING TOOL MAY BE USED WHERE CONDITIONS PERMIT. TOOL PENETRATION SHALL BE DONE ABOUT 3 TO 4 INCHES ON SLOPING LAND, THE OPERATION SHALL BE DONE ON THE CONTOUR.
7. TEMPORARY SEED MIX SHALL BE PERENNIAL RYEGRASS WITH A RATE OF 40 LBS/ACRE OR 1 LBS/1000 S.F. SEED MIX SHALL BE APPLIED UNIFORMLY. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH THE SEED. EXCEPT FOR DRILLED, HYDROSEEDED OR CULT PACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL TO A DEPTH OF 1/4 TO 1/2 INCH BY RAKING OR DRAGGING.
8. SEEDING MIX SHALL BE APPLIED BETWEEN 3/1 - 5/15 OR 8/15 - 10/1 WHEN REQUIRED. IF STABILIZATION IS REQUIRED OUTSIDE THESE SEEDING DATES, MULCH SHALL BE USED AS DEFINED ITEM NO. 6.

PERMANENT VEGETATIVE COVER: IMMEDIATELY FOLLOWING THE COMPLETION OF CONSTRUCTION ACTIVITIES AT THIS SITE, THE CONTRACTOR SHALL STABILIZE WITH PERMANENT VEGETATIVE COVER, ALL EXPOSED AND DISTURBED SOILS. PERMANENT VEGETATIVE COVER SHALL BE ACCOMPLISHED AS SPECIFIED BELOW.

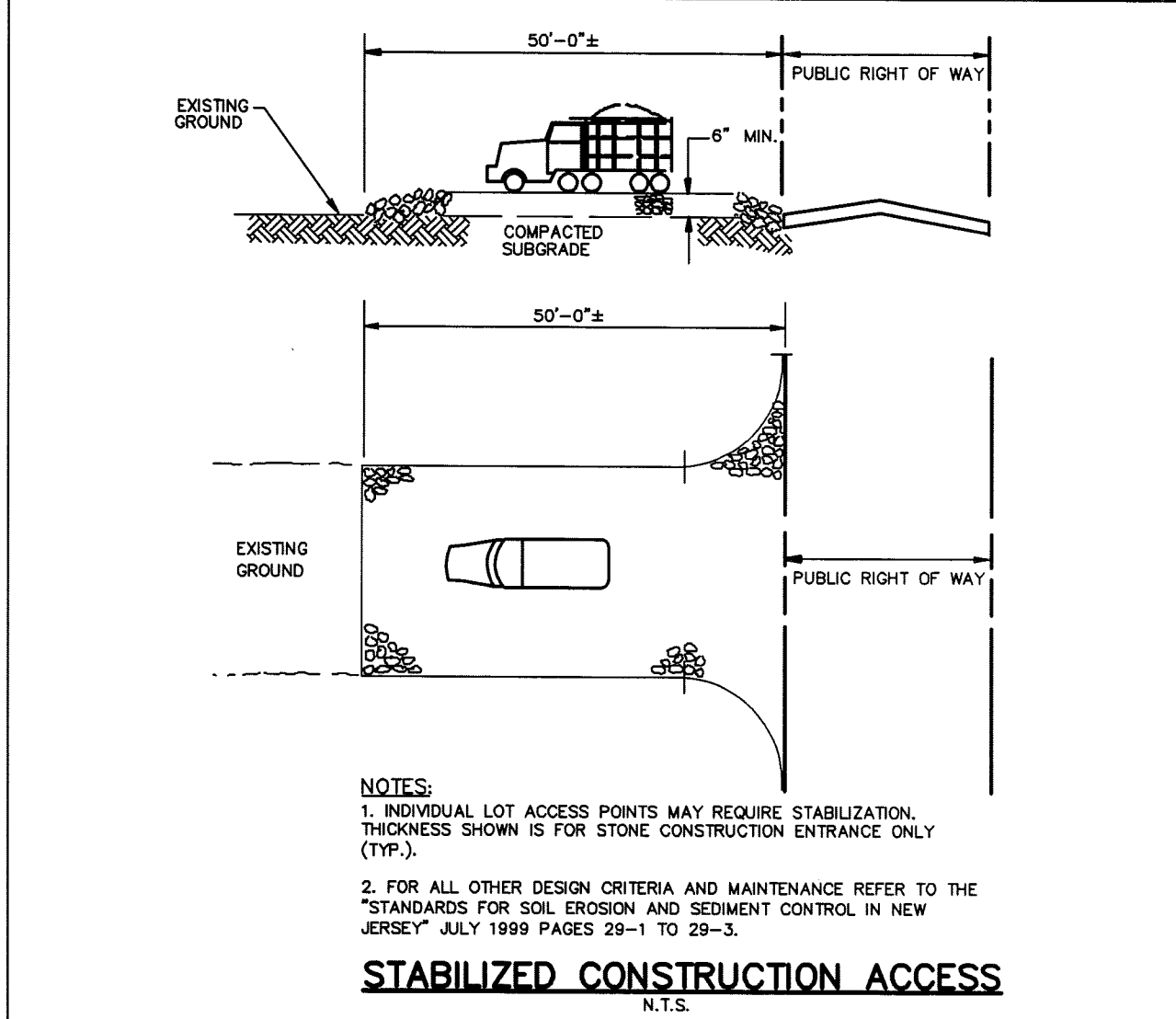
1. TOPSOILING: THE CONTRACTOR SHALL PREPARE AREAS TO BE STABILIZED WITH PERMANENT VEGETATIVE COVER BY APPLYING TOPSOIL TO A UNIFORM DEPTH OF 4 INCHES. TOPSOIL SHALL BE FRIABLE AND LOAMY AND OF GOOD QUALITY.
2. FERTILIZER: SHALL BE APPLIED AT A RATE OF 500 LB/ACRE OF 11 LBS/1000 S.F. OF 10-20-20 OR EQUIVALENT. IN ADDITION, 300 LBS OR 38-0-0 PER ACRE OR EQUIVALENT OF SLOW RELEASE NITROGEN MAY BE USED IN LIEU OF TOPDRESSING.
3. LIMESTONE: SHALL BE APPLIED AT A RATE OF 3 TONS/ACRE 135 LBS/1000 S.F. LIMESTONE EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDES SHALL BE USED.
4. LIME AND FERTILIZER: SHALL BE WORKED INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES UNTIL A REASONABLE UNIFORM, FINE SEEDBED PREPARED.
5. MULCHING: SHALL BE APPLIED AFTER SEEDING. MUCH MATERIALS SHALL BE UNROTTED, SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR SALT HAY TO BE APPLIED AT A RATE OF 1/2 TO 2 TONS PER ACRE (70 LBS TO 90 LBS/1000 S.F.), EXCEPT THAT WHERE A CRUMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION SHALL BE 3 TONS/ACRE.
6. MULCHING SHALL BE ANCHORED IMMEDIATELY AFTER PLACEMENT BY THE FOLLOWING METHOD: LIQUID MULCH BINDERS.
7. TOPDRESSING: AN APPLICATION OF FERTILIZER SUCH AS 10-10-10 OR EQUIVALENT AT 400 LBS/ACRE OR 10 LBS/1000 S.F. BETWEEN SEPTEMBER AND OCTOBER 15 SHALL BE REQUIRED FOR SPRING SEEDING UNLESS A SLOW RELEASE NITROGEN IS USED AS STATED ABOVE.

STANDARDS FOR DUST CONTROL

DURING CONSTRUCTION ACTIVITY THE FOLLOWING METHODS SHOULD BE CONSIDERED:

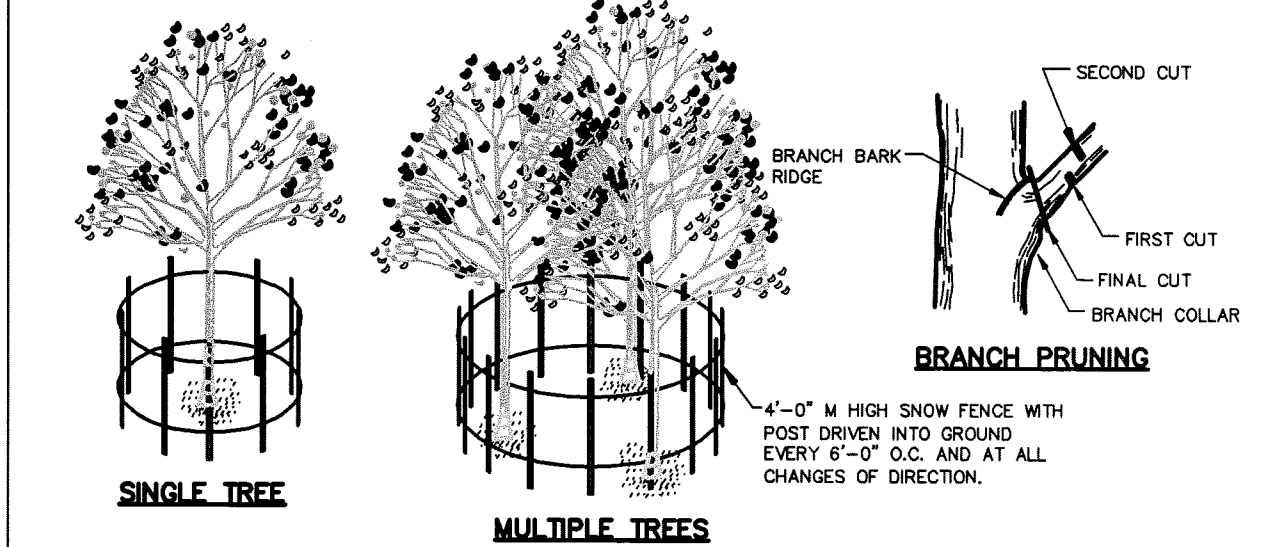
- A. CALCIUM CHLORIDE-- SHALL BE IN A LOOSE, DRY GRANULAR FORM FINE ENOUGH TO USE IN A STANDARD SEED SPREADER, AT A RATE THAT WILL KEEP THE SUBJECT SURFACE MOIST, BUT NOT CAUSE PLANT DAMAGE OR POLLUTION BY SATURATION IF USED ON STEEP SLOPES OTHER MEASURES SHALL BE TAKEN TO INSURE PROTECTION FROM CONTAMINATION INTO STREAMS, STORM SEWERS OR ACCUMULATING AROUND PLANT LIFE.
- B. SPRINKLING-- SHALL BE OF NON-CONTAMINATED WATER SPRINKLED AT A RATE TO WET THE SUBJECT SURFACE, BUT NOT TO CAUSE EROSION OR PONDING-IMPONDMENT.

OTHER METHODS ACCEPTABLE ARE LISTED IN THE "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL FOR THE STATE OF NEW JERSEY" ISSUE APRIL 1999 SECTION 16.1.



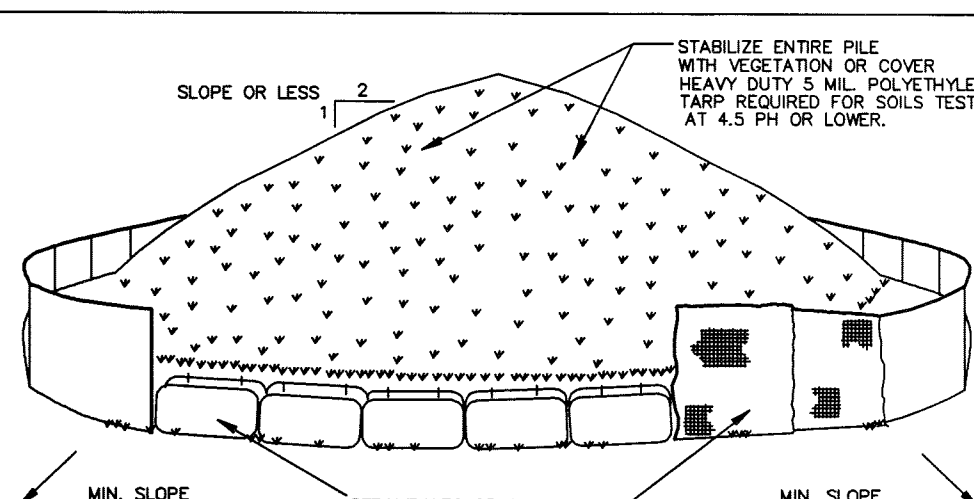
NOTES:
1. INDIVIDUAL LOT ACCESS POINTS MAY REQUIRE STABILIZATION. THICKNESS SHOWN IS FOR STONE CONSTRUCTION ENTRANCE ONLY (TYP.).
2. FOR ALL OTHER DESIGN CRITERIA AND MAINTENANCE REFER TO THE "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY" JULY 1989 PAGES 29-1 TO 29-3.

STABILIZED CONSTRUCTION ACCESS



- NOTES:
1. PROTECTIVE FENCING IS TO BE ERRECTED PRIOR TO CONSTRUCTION AND MAINTAINED DURING CONSTRUCTION AS DIRECTED BY THE LANDSCAPE ARCHITECT, SOIL CONSERVATION DISTRICT AND/OR MUNICIPAL ENGINEER.
2. NO CONSTRUCTION ACTIVITY IS PERMITTED WITHIN THE PROTECTIVE FENCING.
3. AS CONSTRUCTION NEARS COMPLETION THE FENCING WILL BE REMOVED AS NECESSARY TO CORRECT ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITY.
4. AT THE COMPLETION OF CONSTRUCTION ALL TREES WILL BE PRUNED AS NECESSARY TO CORRECT ANY DAMAGE RESULTING FROM CONSTRUCTION ACTIVITY.
5. GENERAL MECHANICAL DAMAGE -- SEE DETAIL ABOVE FOR CORRECT PLACEMENT OF TREE PROTECTION.
6. BOX TREES WITHIN 25'-0" OF A BUILDING SITE TO PREVENT MECHANICAL INJURY, FENCING OR OTHER BARRIER SHOULD BE INSTALLED AT THE DRIP LINE OF THE TREE BRANCHES.
7. BOARDS WILL NOT BE NAILED TO TREES DURING BUILDING OPERATIONS.
8. FEEDER ROOTS SHOULD NOT BE CUT IN AN AREA INSIDE THE DRIP LINE OF THE TREE BRANCHES.
9. DAMAGED TRUNKS OR EXPOSED ROOTS SHOULD HAVE DAMAGED BARK REMOVED IMMEDIATELY AND NO PAINT SHALL BE APPLIED. EXPOSED ROOTS SHOULD BE COVERED WITH TOPSOIL IMMEDIATELY AFTER EXCAVATION IS COMPLETE. ROOTS SHALL BE PRUNED TO GIVE A CLEAN, SHARP SURFACE AMENABLE TO HEALING. ROOTS EXPOSED DURING HOT WEATHER SHOULD BE IRRIGATED TO PREVENT PERMANENT TREE INJURY. CARE FOR SERIOUS INJURY SHOULD BE PRESCRIBED BY A PROFESSIONAL FORESTER OR CERTIFIED TREE EXPERT.
10. TREE LIMB REMOVAL WHERE NECESSARY, WILL BE DONE AS NATURAL TARGET PRUNING TO REMOVE THE DESIRED BRANCH COLLAR. THESE SHOULD BE NO FLUSH CUTS. FLUSH CUTS DESTROY A MAJOR DEFENSE SYSTEM OF THE TREE. NO TREE SHALL BE REMOVED. ALL CUTS SHALL BE MADE AT THE OUTSIDE EDGE OF THE BRANCH COLLAR. CUTS MADE TOO FAR BEYOND THE BRANCH COLLAR MAY LEAD TO EXCESS SPROUTING, CRACKS AND ROOT REMOVAL OF A "Y" CROTCH SHOULD BE CONSIDERED FOR FREE STANDING SPECIMEN TREES TO AVOID FUTURE SPLITTING DAMAGE.

TEMPORARY TREE PROTECTION DETAIL



TO BE USED WHERE TOPSOIL PRESERVATION IS NECESSARY FOR REGRADING AND VEGETATING DISTURBED AREAS. TOPSOIL IS APPLIED TO SUBSOLS THAT ARE DROUGHTY, HAVING LOW AVAILABLE MOISTURE FOR PLANTS. TOPSOIL IS APPLIED TO SUBSOLS THAT ARE DROUGHTY, HAVING LOW AVAILABLE MOISTURE FOR PLANTS. TOPSOIL IS APPLIED TO SUBSOLS THAT ARE DROUGHTY, HAVING LOW AVAILABLE MOISTURE FOR PLANTS. TOPSOIL IS APPLIED TO SUBSOLS THAT ARE DROUGHTY, HAVING LOW AVAILABLE MOISTURE FOR PLANTS.

INSTALLATION NOTES

1. AREA CHOSEN FOR STOCKPILING OPERATIONS SHALL BE DRY AND STABLE.
2. MAXIMUM SLOPE OF STOCKPILE SHALL BE 1:2.
3. UPON COMPLETION OF SOIL STOCKPILING, EACH PILE SHALL BE SURROUNDED WITH EITHER SILT FENCING OR STRAMBALES, THEN STABILIZED WITH VEGETATION OR COVERED.

SOIL STOCKPILING

COUNTY OF UNION, DIVISION OF ENGINEERING
THOMAS MINEO, P.E., COUNTY ENGINEER

REPLACEMENT OF HILLSIDE AVENUE
CULVERT STRUCTURE No. SP17
OVER STREAM 10-32
IN SPRINGFIELD TOWNSHIP

UNION COUNTY NEW JERSEY

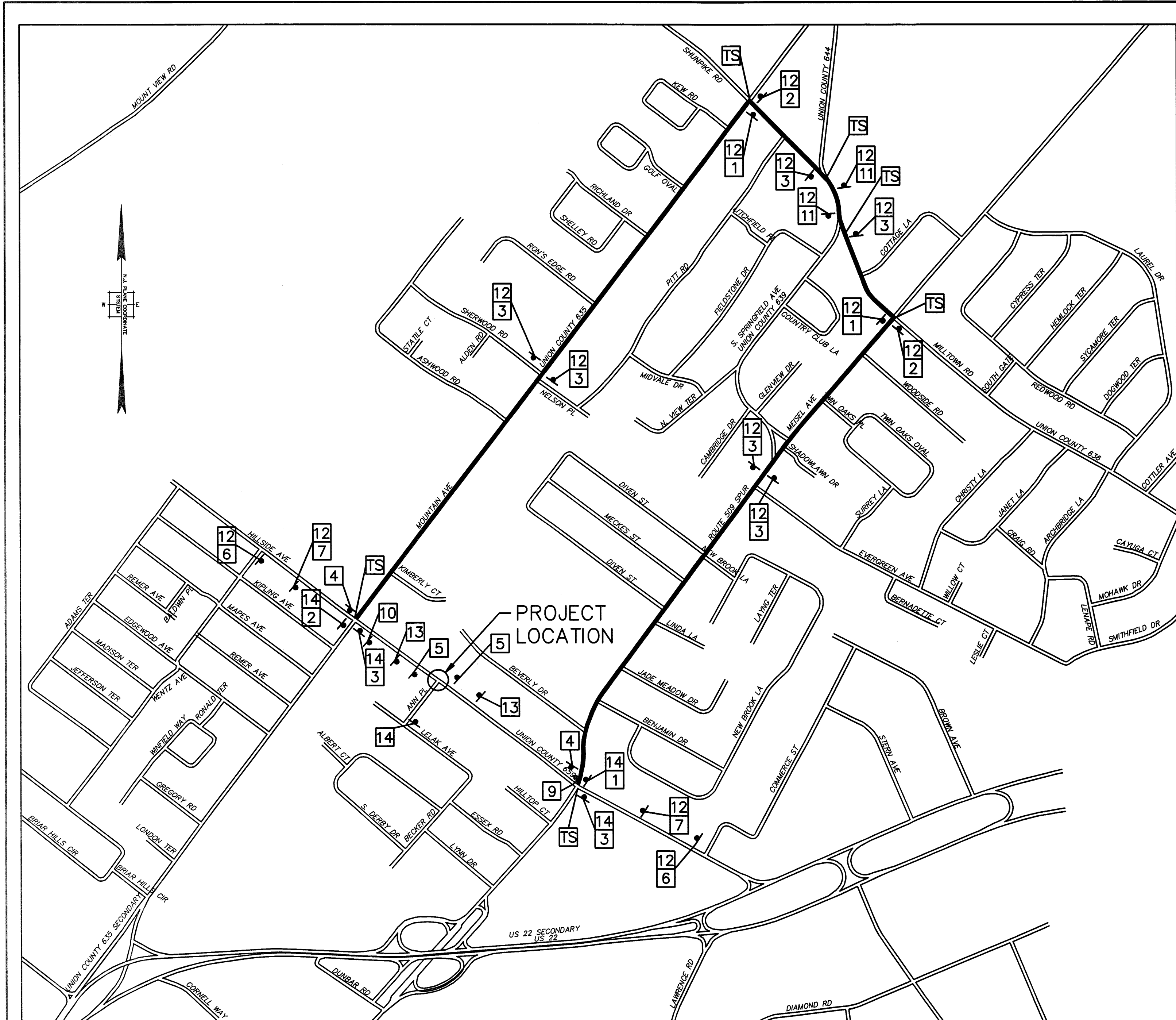
SOIL EROSION AND SEDIMENT CONTROL
DETAILS AND NOTES

scale: AS SHOWN drawn by SG checked by date December 2012

NABIL M. GHANEM
PROFESSIONAL ENGINEER
NEW JERSEY LIC. NO. 36407

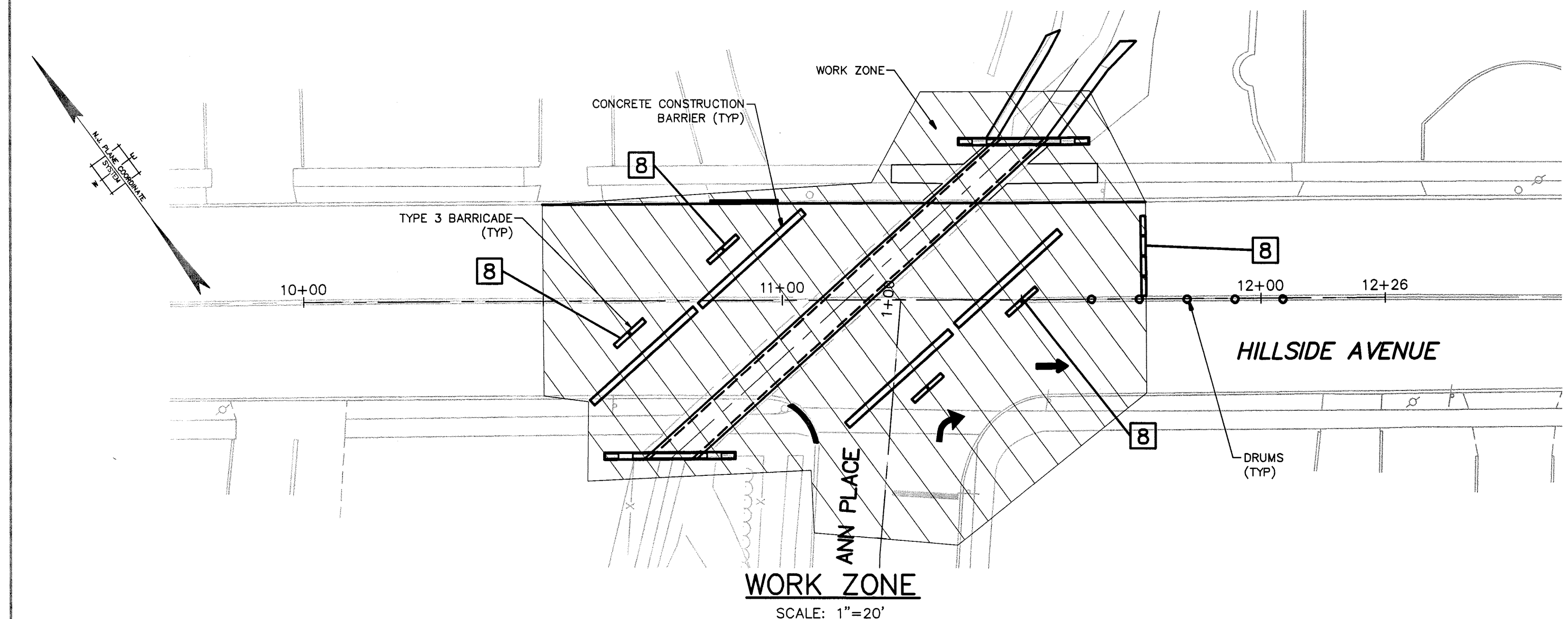
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8 of 12
NY008792



DETOUR PLAN

SCALE: 1"=500'



WORK ZONE

SCALE: 1"=20'

STANDARD SIGNS					
NO.	SIGN DESIGN	SIGN TYPE	SIGN SIZE	MOUNT TYPE	NUMBER REQUIRED
1		M4-9R	30"x24"	POST TYPE	3
2		M4-9L	30"x24"	POST TYPE	3
3		M4-9X	30"x24"	POST TYPE	8
4		M4-8A	24"x18"	POST TYPE	2
5		R14-2	48"x30"	POST TYPE	2
6		W20-3F	36"x36"	POST TYPE	2
7		W20-2F	48"x48"	POST TYPE	2
8		R11-2	48"x30"	ON BARRICADE	4
9		R11-3B	60"x30"	POST TYPE	1
10		R11-3B	60"x30"	POST TYPE	1
11		M4-9LX	30"x24"	POST TYPE	2

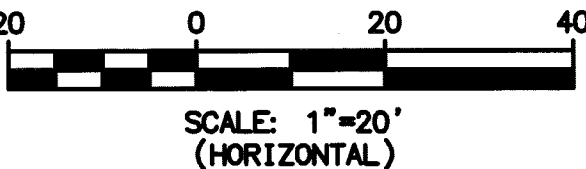
SPECIAL SIGNS					
NO.	SIGN DESIGN	COLOR	SIGN SIZE	MOUNT TYPE	NUMBER REQUIRED
12		BLACK ON ORANGE	30"x15"	POST TYPE	16
13		BLACK ON ORANGE	72"x42"	POST TYPE	2
14		BLACK ON ORANGE	72"x42"	POST TYPE	5

TRAFFIC CONTROL NOTES:

- ALL CONSTRUCTION SIGNS AND TRAFFIC CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES," AS AMENDED.
- SPECIAL SIGNS SHALL BE FABRICATED IN ACCORDANCE WITH THE "STANDARD HIGHWAY SIGNS" AND "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS," PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION, AS AMENDED.
- IF, WHEN, AND AS DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL SUPPLY AND PLACE ADDITIONAL SIGNS AND TRAFFIC CONTROL DEVICES.
- THE PLANS SHOW SCHEMATICALLY THE POSITION OF THE TEMPORARY CONSTRUCTION ITEMS. FIELD CONDITIONS MAY VARY THE CONFIGURATION SOMEWHAT. THE ACTUAL POSITIONING OF ANY TEMPORARY ITEM SHALL BE APPROVED BY THE ENGINEER.
- TEMPORARY SIGNS SHALL NOT BE PLACED AT ANY LOCATION WHERE THEY ARE OBSCURED BY TEMPORARY OR PERMANENT OBJECTS.
- ACCESS TO PROPERTIES ADJACENT TO THE CONSTRUCTION AREA SHALL BE MAINTAINED BY THE CONTRACTOR AT ALL TIMES.
- ALL LETTERS ON "SPECIAL SIGNS" TO BE 4 INCHES HIGH.
- CONTRACTOR SHALL PLACE TEMPORARY CONCRETE BARRIER SECTIONS AT BOTH SIDES OF WORK ZONE. THESE BARRIERS CAN SHIFT ASIDE IN ORDER TO PROVIDE ACCESS FOR CONSTRUCTION MATERIALS AND EQUIPMENT INTO THE WORK AREA WITH NO SEPARATE PAYMENT ALLOWED.
- THE CONTRACTOR MUST NOTIFY THE TOWNSHIP, POLICE, EMERGENCY SERVICES, AND BOARD OF EDUCATION 3 WEEKS (MIN.) BEFORE CLOSING HILLSIDE AVE.
- DURATION OF ROAD CLOSURE SHALL BE A MAXIMUM OF 30 CALENDAR DAYS.
- A SINGLE LANE OF TRAFFIC SHALL BE MAINTAINED BETWEEN ANN PLACE AND HILLSIDE AVE, EXCEPT DURING PAVEMENT CONSTRUCTION.

LEGEND:

- CONCRETE CONSTRUCTION BARRIER
- BREAKAWAY BARRICADE
- TRAFFIC SIGN
- WORK ZONE
- TRAFFIC SIGNAL



COUNTY OF UNION, DIVISION OF ENGINEERING
THOMAS MINEO, P.E., COUNTY ENGINEER

REPLACEMENT OF HILLSIDE AVENUE
CULVERT STRUCTURE No. SP17
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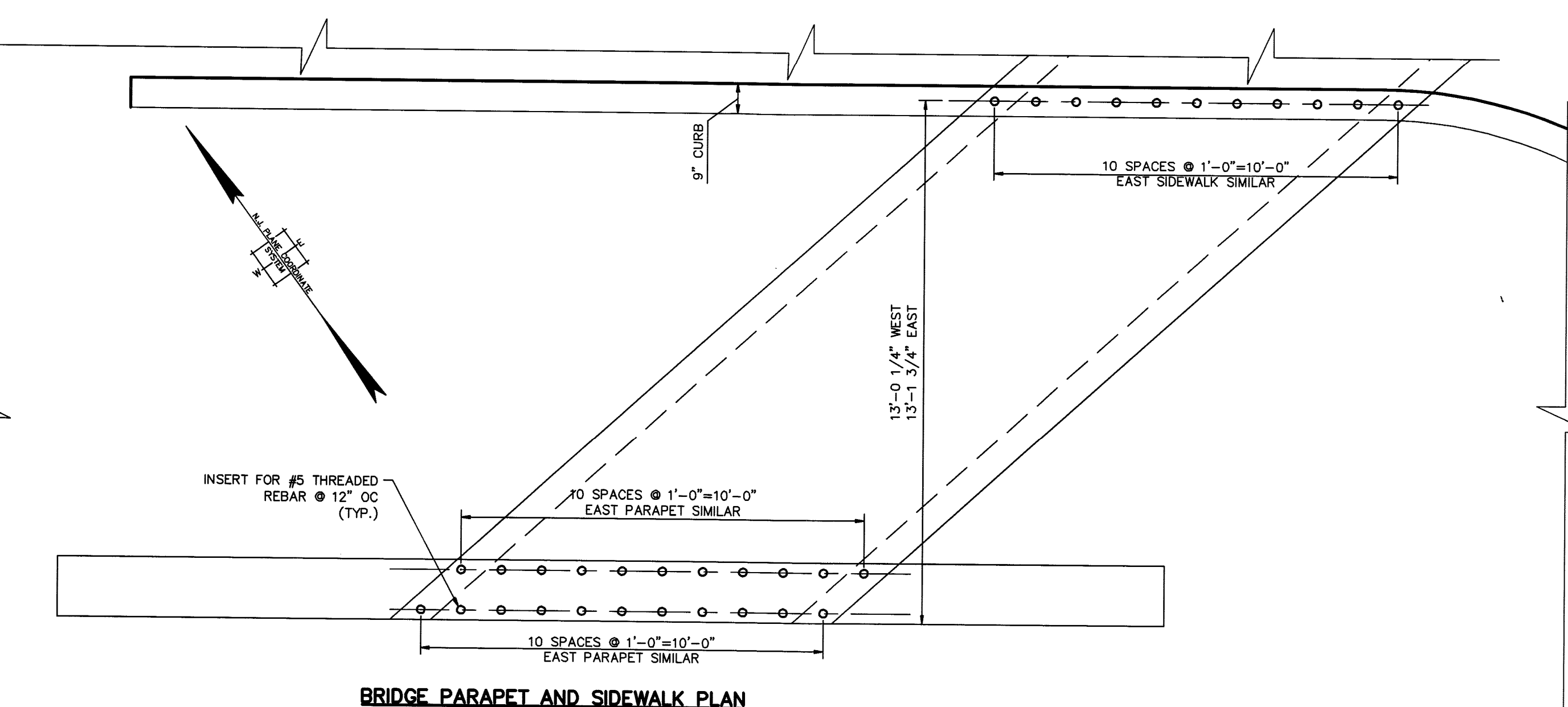
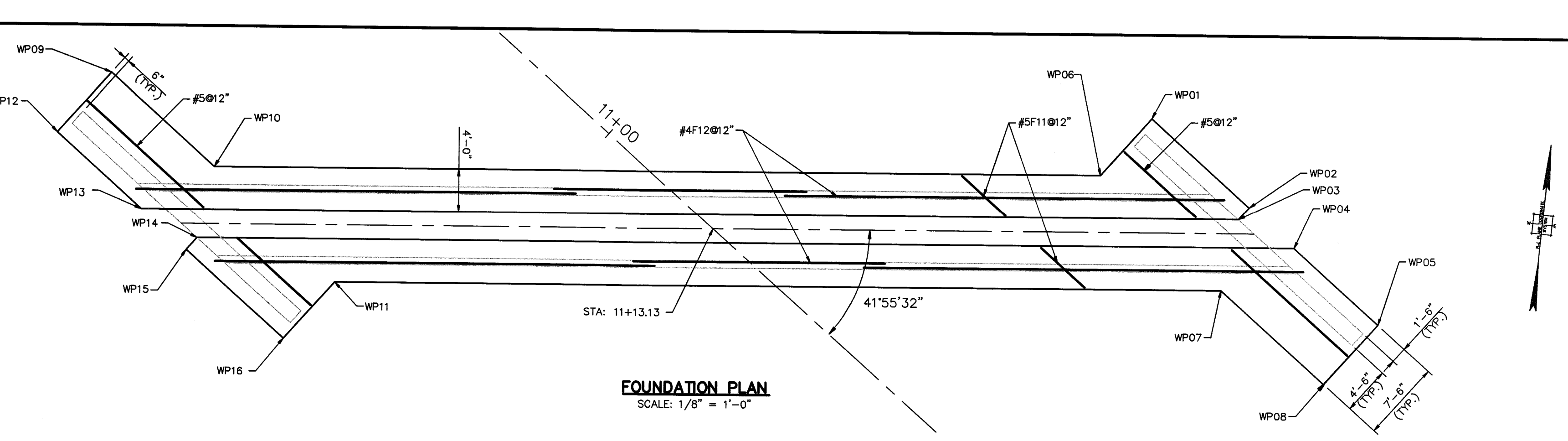
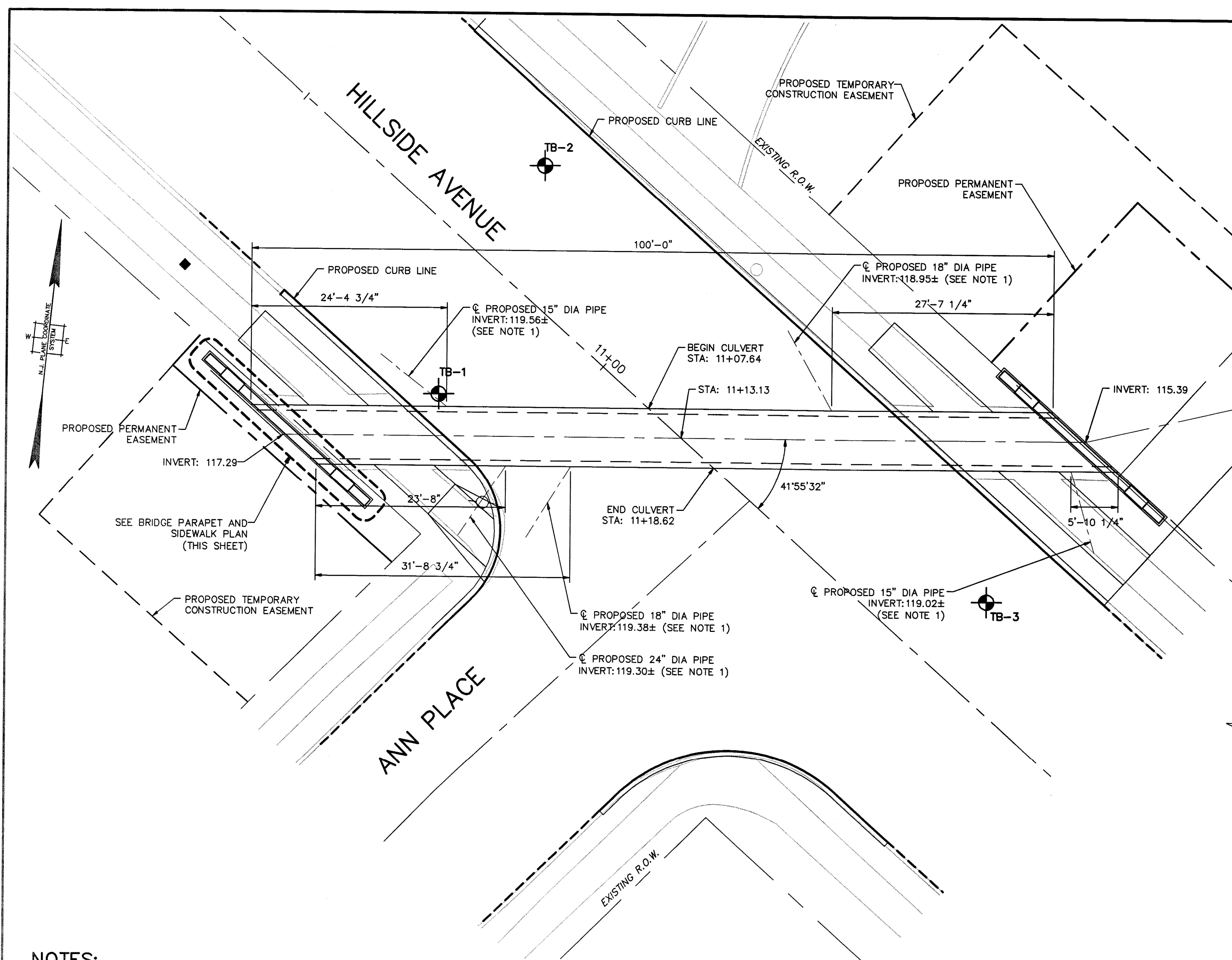
DETOUR PLAN

scale: AS SHOWN drawn by: SG checked by: date December 2012

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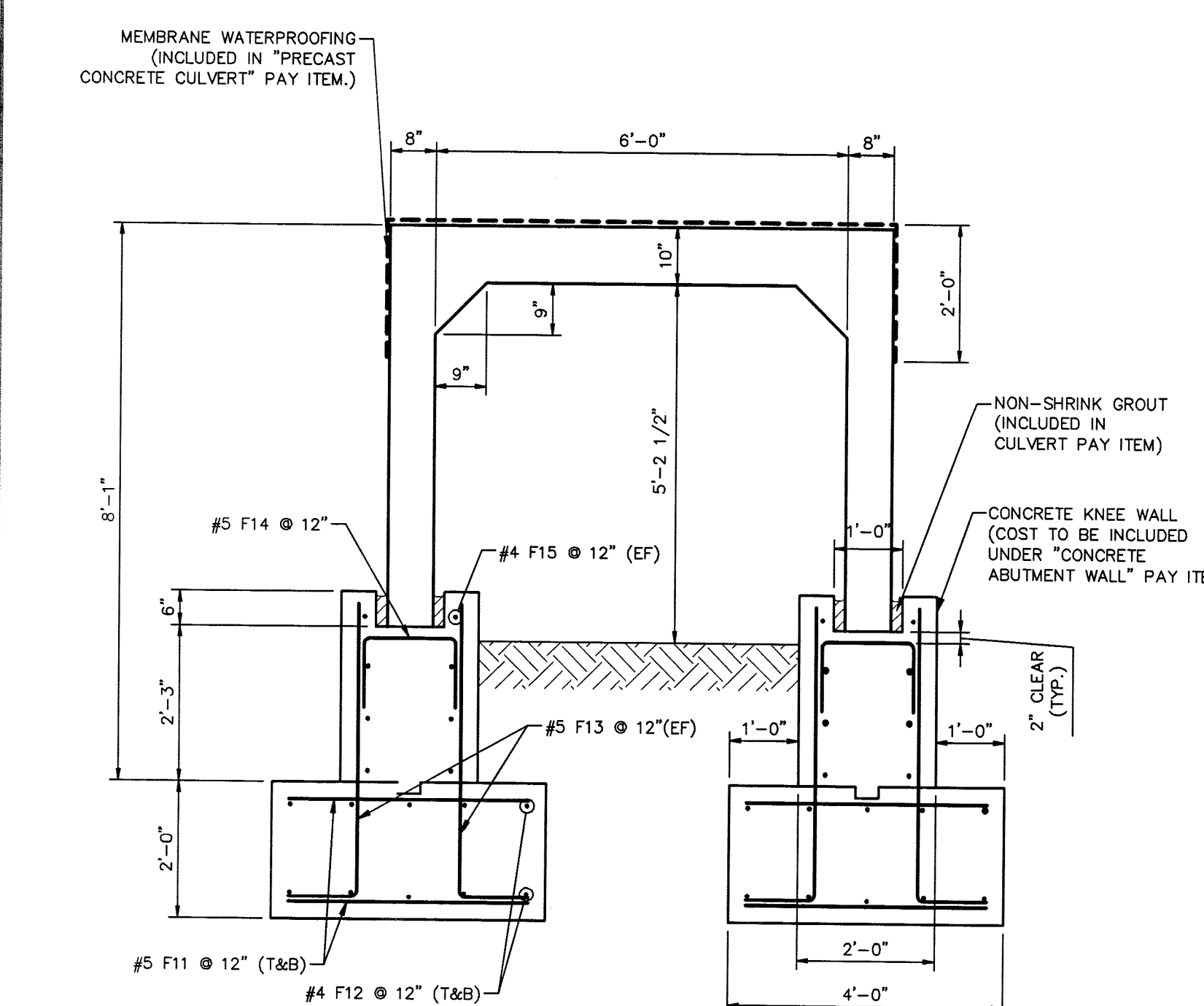
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NY010364



WORKING POINT	STATION	OFFSET
WP01	11+36.41	35.20L
WP02	11+48.66	35.20L
WP03	11+48.66	33.70L
WP04	11+54.32	35.20L
WP05	11+64.91	35.20L
WP06	11+36.41	28.07L
WP07	11+51.96	27.70L
WP08	11+65.40	27.70L
WP09	10+62.01	27.12R
WP10	10+74.95	27.12R
WP11	10+90.50	27.49R
WP12	10+62.01	34.62R
WP13	10+72.59	34.62R
WP14	10+78.25	33.12R
WP15	10+78.25	34.62R
WP16	10+90.49	34.62R

- NOTES:**
- CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL CULVERT OPENINGS PRIOR TO THE PROCUREMENT OF THE CULVERT.
 - INVERTS SHOWN ARE AT PIPE CONNECTIONS TO THE CULVERT.

CULVERT PLAN
SCALE: 1" = 10'-0"



TYPICAL CULVERT SECTION
SCALE: 1/2" = 1'-0"

GENERAL NOTES:

- DESIGN SPECIFICATIONS:
2002 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES WITH INTERIMS AS MODIFIED BY SECTION 3 OF 2002 NJDOT DESIGN MANUAL FOR BRIDGES AND STRUCTURES 4TH EDITION.
- CONSTRUCTION SPECIFICATIONS:
2007 ENGLISH NJDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH SUPPLEMENTARY SPECIFICATIONS AS MODIFIED BY THE SPECIAL PROVISIONS.
- DESIGN LOADS:
(A) LIVE LOADS: AASHTO HS20-44+25% OR TANDEM 24 KIP AXLES AT 4 FEET CENTERS, WHICHEVER GOVERNS.
- CAST-IN-PLACE CONCRETE:
(A) DESIGN STRESSES:
CLASS A:
DESIGN COMPRESSIVE STRENGTH4,000 PSI
CLASS MIX DESIGN STRENGTH4,600 PSI
CLASS B:
DESIGN COMPRESSIVE STRENGTH3,000 PSI
CLASS MIX DESIGN STRENGTH3,700 PSI
(B) CLASSES OF CONCRETE FOR STRUCTURAL ITEMS
REINFORCED FOOTINGSB
RETAINING WALLSB
PARAPET, CURB AND SIDEWALKA
- STEEL REINFORCEMENT:
REINFORCING BARS SHALL CONFORM TO ASTM A-615 GRADE 60 (f_s = 24,000 psi) AND SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A767/A767M. CLEAR COVER SHALL BE 1 1/2 INCHES, UNLESS OTHERWISE NOTED.
- PRECAST CONCRETE:
(A) PRECAST CONCRETE SHALL BE CLASS P WITH DESIGN STRENGTH OF 5,500 PSI MINIMUM AT 28 DAYS.
(B) ALL LIFTING HOLES SHALL BE FILLED WITH NONSHRINK GROUT.
(C) PRECASTING PLANT SHALL PROVIDE TWO COATS OF AN EPOXY WATERPROOFING SEALANT ON THE EXTERIOR SURFACES OF PRECAST LIMITS. IN ADDITION, ANY TOP SLAB HAND HOLE POCKETS OR LIFTING HOLES, WHICH ARE GROUTED IN THE FIELD, SHALL RECEIVE TWO COATS OF EPOXY WATERPROOFING SEALANT AFTER GROUT HAS PROPERLY CURED.
(D) PRIOR TO BACKFILLING, A 2-FOOT WIDE STRIP OF FILTER FABRIC SHALL BE PLACED OVER THE TOP AND SIDE TRANSVERSE JOINTS.
(E) PRECAST CULVERT SECTIONS SHALL BE 4-FOOT LONG (MINIMUM), 8-FOOT LONG (MAXIMUM).
(F) PLACE BACKFILL MATERIAL IN 8-INCH LIFTS OR LESS. WHEN PLACING BACKFILL, ENSURE THAT THE DIFFERENCE BETWEEN THE HEIGHTS OF THE BACKFILL ON THE OPPOSITE SIDES OF THE STRUCTURE DOES NOT EXCEED 12 INCHES. USE MECHANICAL TAMPERS TO COMPACT THE BACKFILL ADJACENT TO EACH SIDE OF THE UNITS AND OVER THE TOP OF THE UNITS UNTIL THEY ARE COVERED. DO NOT OPERATE HEAVY EQUIPMENT (WEIGHING IN EXCESS OF 12 TONS) OVER THE STRUCTURE UNTIL A DEPTH OF BACKFILL HAS BEEN PLACED THAT WILL SUPPORT THE EQUIPMENT.
- BORINGS
INDICATES LOCATION OF BORINGS
LOG NO.
- FOUNDATIONS:
EXISTING SOILS:
INTERNAL FRICTION ANGLE = 32°
MINIMUM FACTORS OF SAFETY:
OVERTURNING = 2.0
SLIDING = 1.5
MAX. ALLOWABLE BEARING PRESSURE = 4,500 PSF

COUNTY OF UNION, DIVISION OF ENGINEERING

THOMAS MINEO, P.E., COUNTY ENGINEER

REPLACEMENT OF HILLSIDE AVENUE
CULVERT STRUCTURE No. SP17
OVER STREAM 10-32
IN SPRINGFIELD TOWNSHIP

UNION COUNTY NEW JERSEY

CULVERT DETAILS

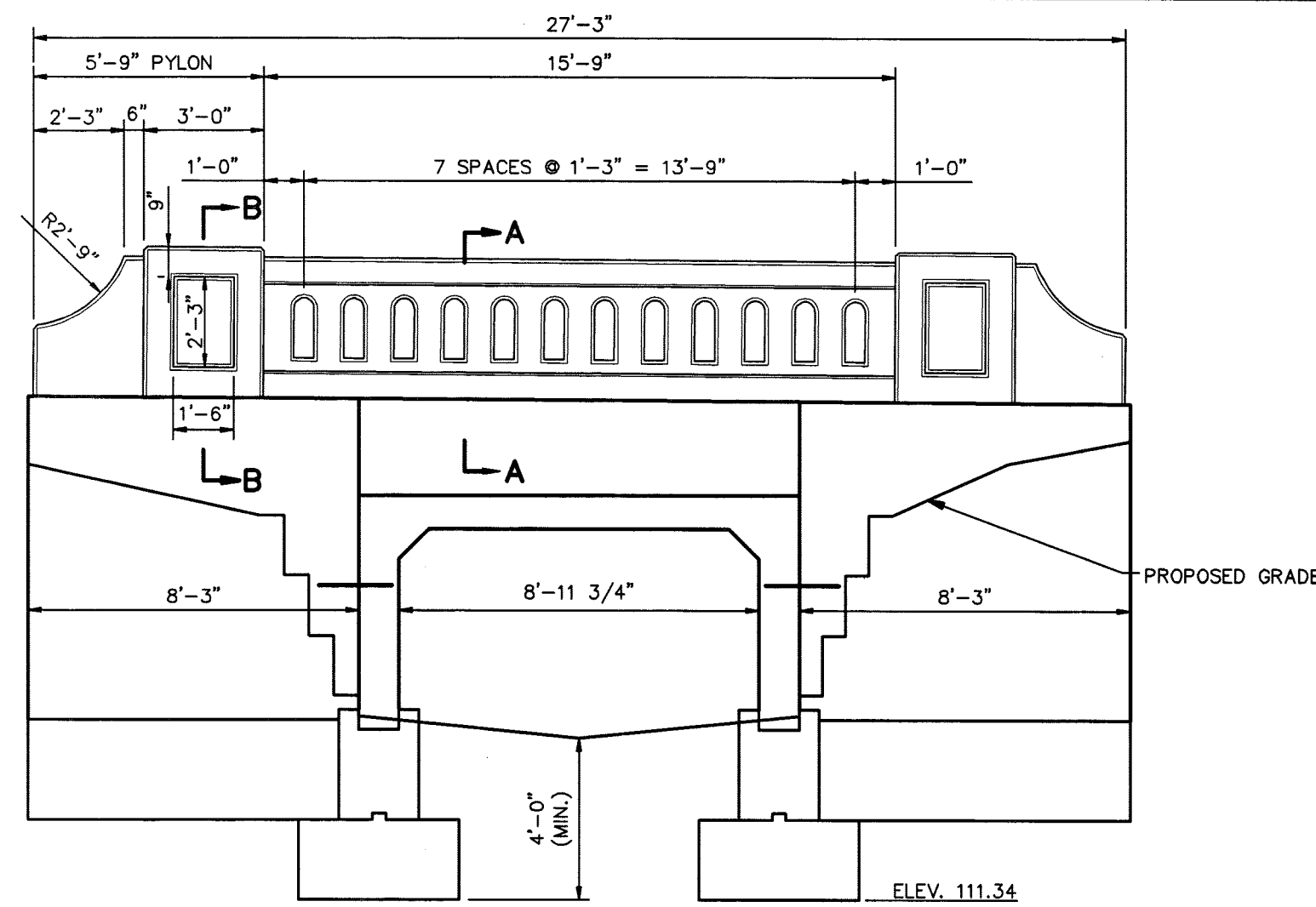
scale: AS SHOWN drawn by SG checked by date December 2012

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PROFESSIONAL ENGINEER
NEW JERSEY LIC. NO. GE36407

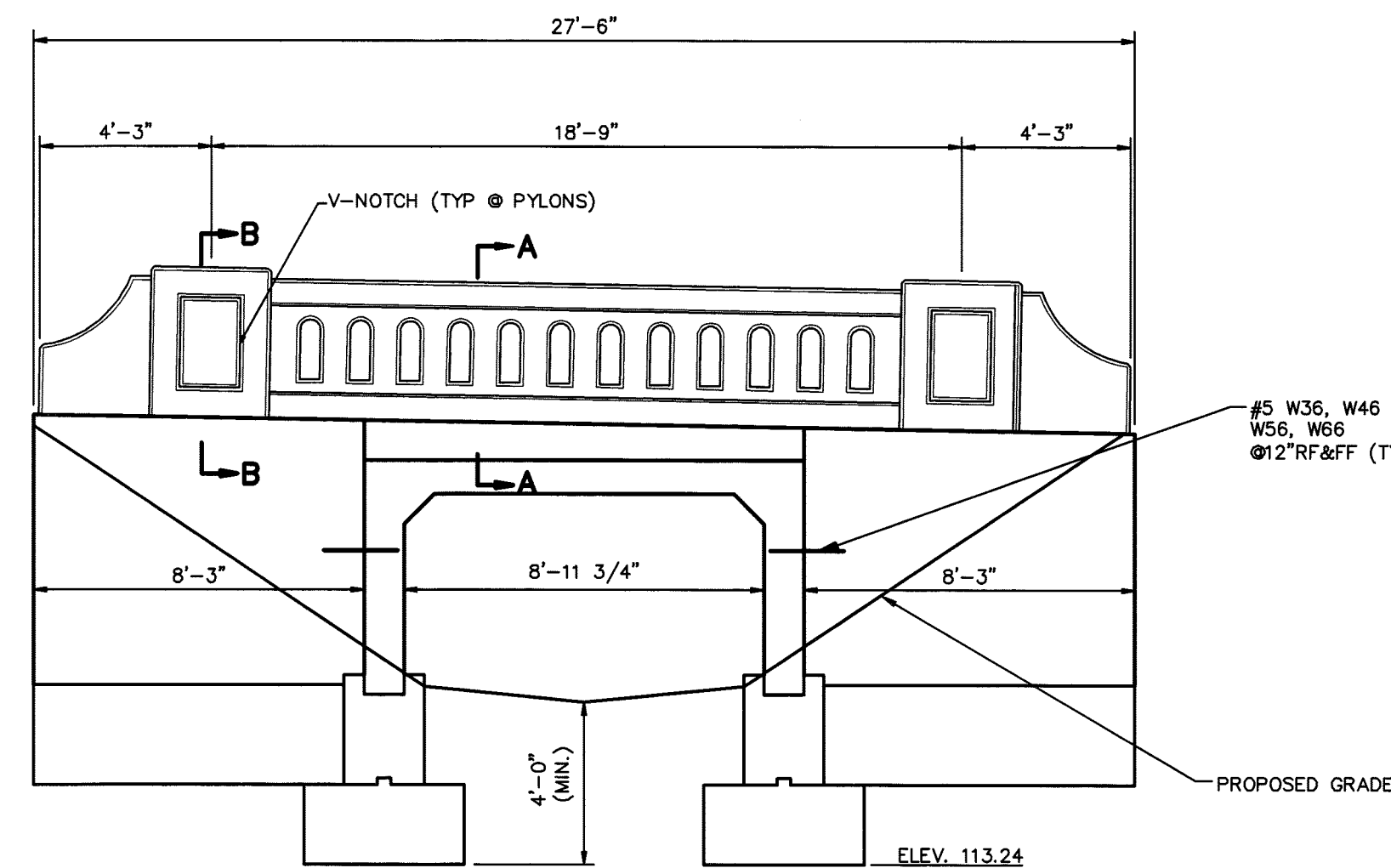
MASER
RED BANK OFFICE
331 Newnam Springs Road
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Red Bank, N.J. 07701
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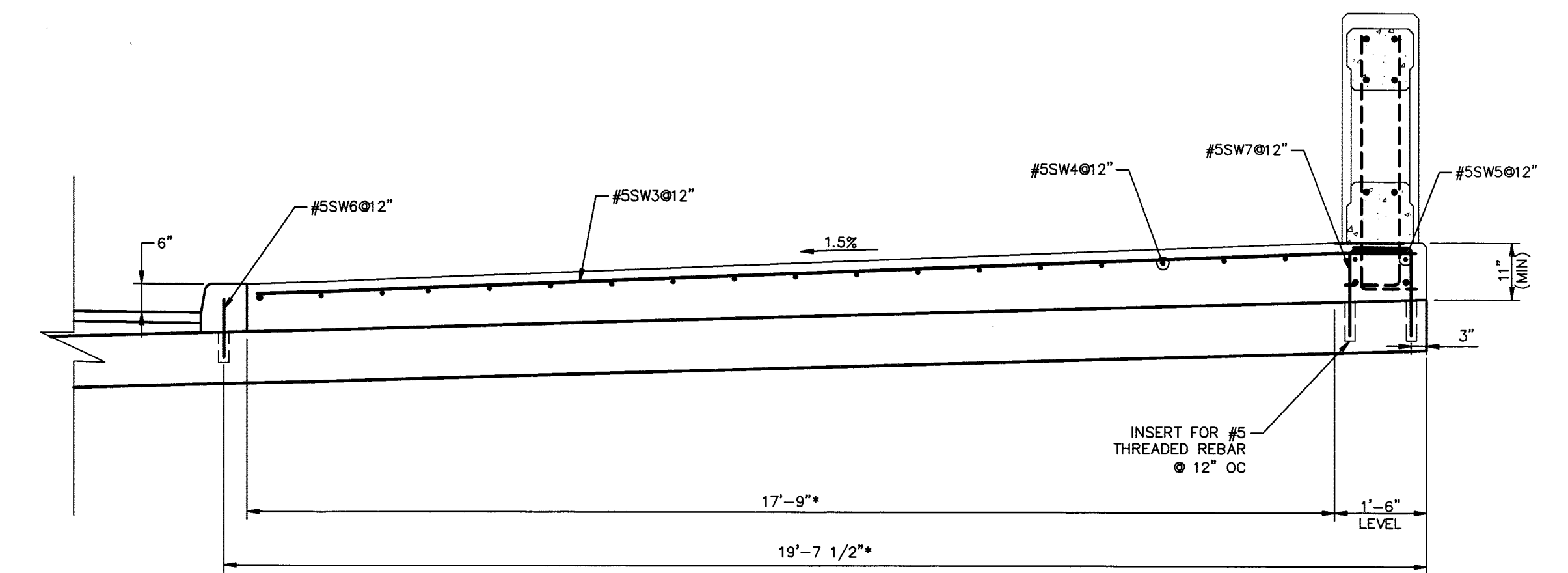
NY010139



PARAPET ELEVATION (DOWNSTREAM FACE)
SCALE: 1/4" = 1'-0"



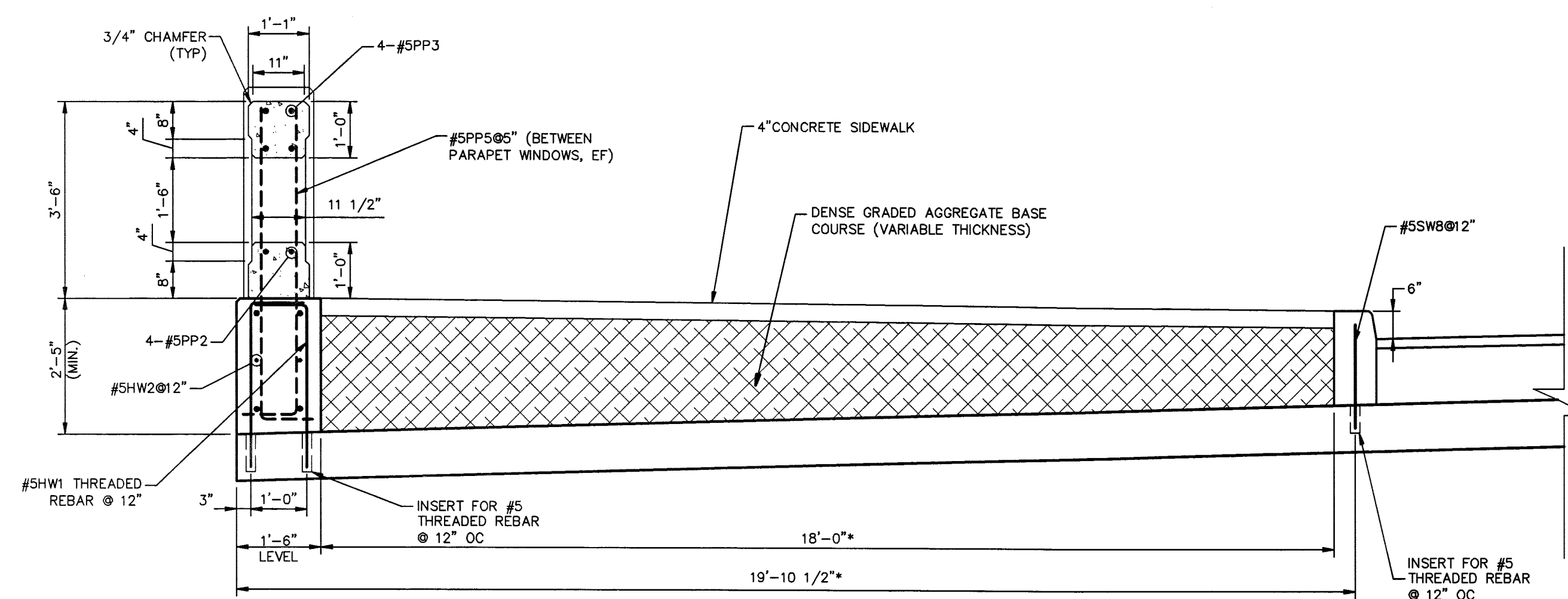
PARAPET ELEVATION (UPSTREAM FACE)
SCALE: 1/4" = 1'-0"



SECTION A-A (UPSTREAM SIDE)
SCALE: 1/2" = 1'-0"

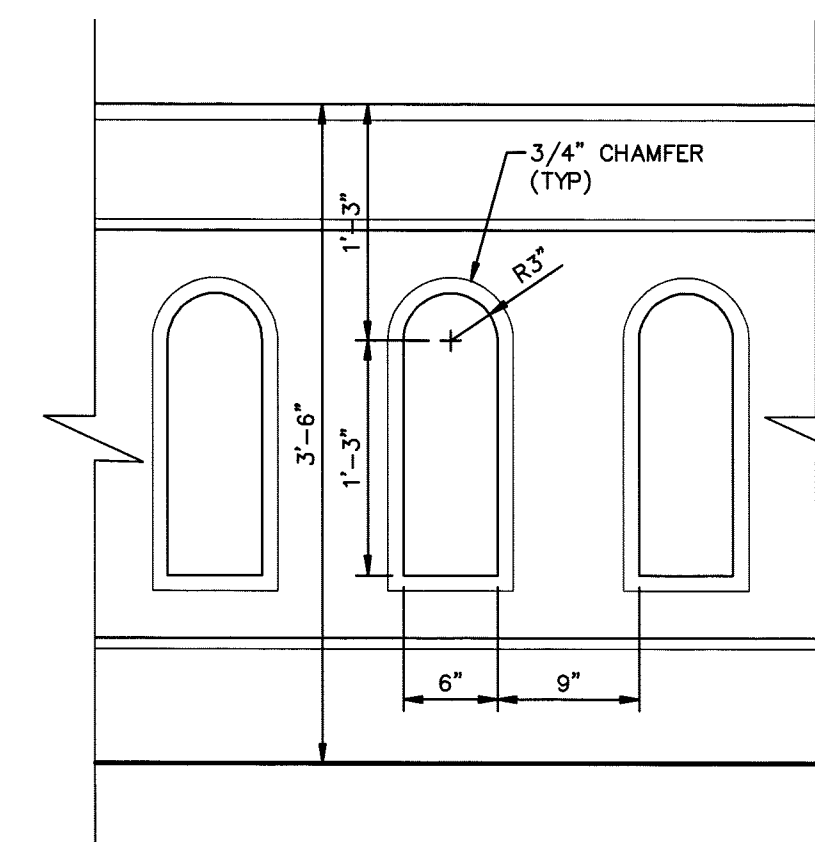
NOTE:
REINFORCEMENT OF THE PARAPET TO MATCH THE DOWNSTREAM SIDE UNLESS OTHERWISE NOTED.

* DIMENSIONS ALONG SKEW

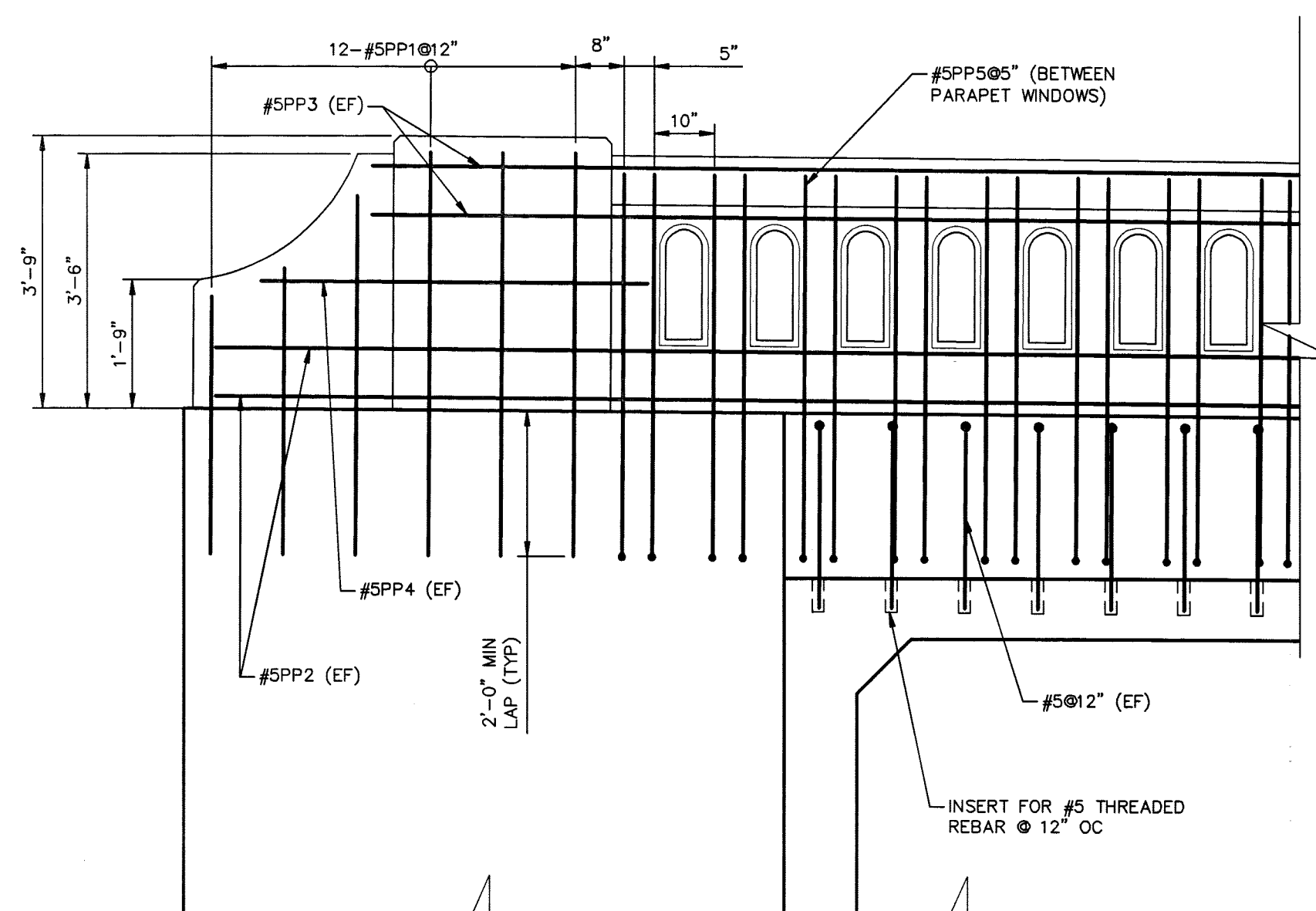


SECTION A-A (DOWNSTREAM SIDE)
SCALE: 1/2" = 1'-0"

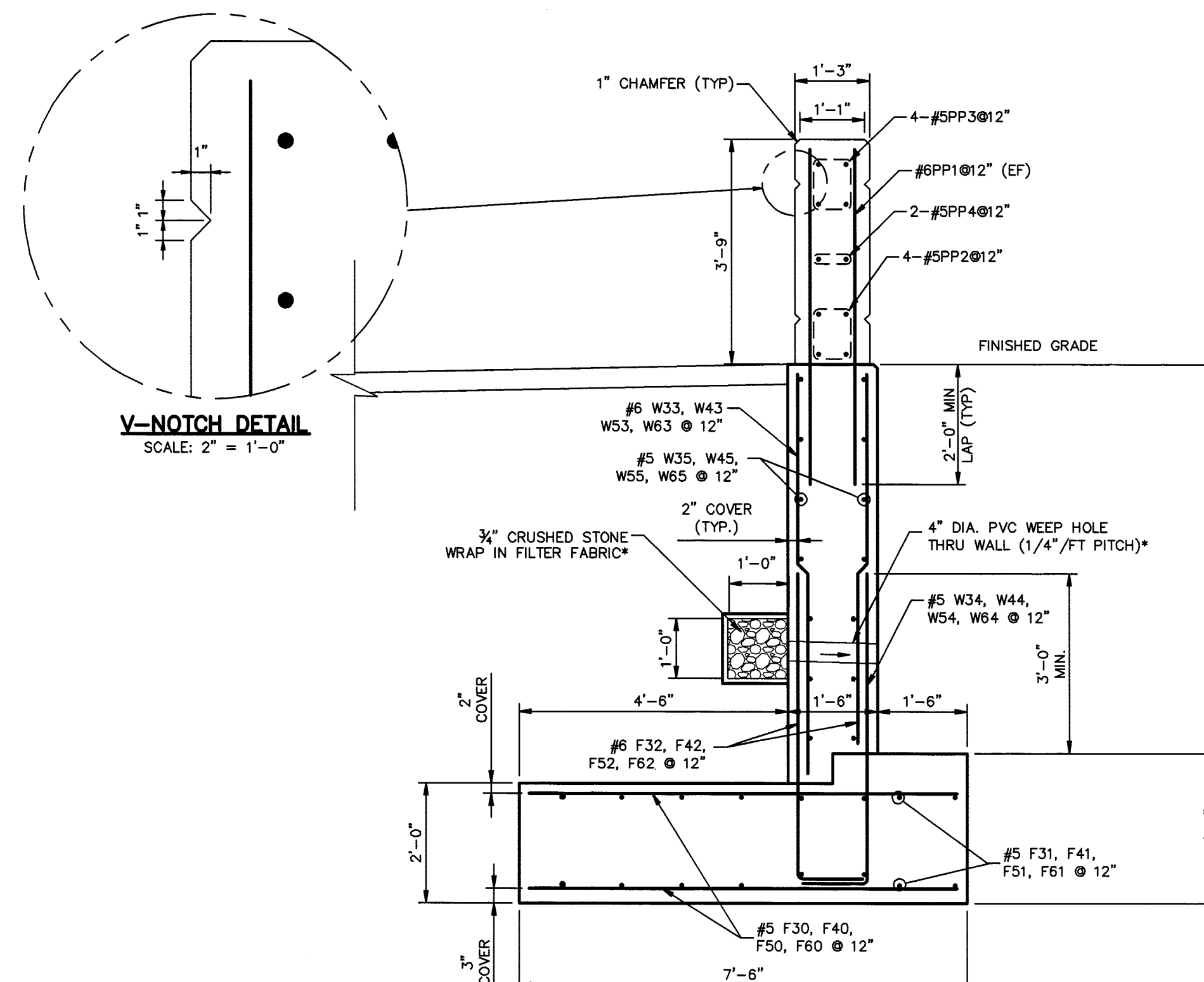
* DIMENSIONS ALONG SKEW



PARAPET WINDOW DETAIL
SCALE: 1" = 1'-0"



TYPICAL PARAPET REINFORCEMENT
SCALE: 1/2" = 1'-0"



V-NOTCH DETAIL
SCALE: 2" = 1'-0"

SECTION B-B
SCALE: 1/2" = 1'-0"

* COST OF 3/4" CRUSHED STONE, FILTER FABRIC, 4" PVC WEEP HOLE TO BE INCLUDED IN "CONCRETE WING WALL" PAY ITEM.

COUNTY OF UNION, DIVISION OF ENGINEERING
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REPLACEMENT OF HILLSIDE AVENUE
CULVERT STRUCTURE No. SP17
OVER STREAM 10-32
IN SPRINGFIELD TOWNSHIP

UNION COUNTY NEW JERSEY

MISCELLANEOUS DETAILS - 1

scale: AS SHOWN drawn by SG checked by date December 2012

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NY010139

BAR LIST-PARAPET AND SIDEWALK							
MK	BAR SIZE	NO REQ'D	TOTAL LENGTH	TYPE	A	B	REMARKS
SW3	#5	11	18'-4"	STRAIGHT			
SW4	#5	18	10'-8"	STRAIGHT			
SW5	#5	4	10'-8"	STRAIGHT			
SW6	#5	12	1'-0"	STRAIGHT			
SW7	#5	22	2'-4"	TYPE IV-A	1'-4"	1'-0"	THREADED HOOK
SW8	#5	11	1'-10"	STRAIGHT			THREADED
HW1	#5	22	3'-10"	TYPE IV-A	2'-10"	1'-0"	THREADED HOOK
HW2	#5	6	10'-8"	STRAIGHT			
PP1	#6	48	5'-6"	STRAIGHT			LENGTH VARIES
PP2	#5	8	26'-11"	STRAIGHT			
PP3	#5	8	22'-6"	STRAIGHT			LENGTH VARIES
PP4	#5	8	5'-4"	STRAIGHT			
PP5	#5	52	4'-11"	TYPE III	3'-11"	1'-0"	UPSTREAM
PP5	#5	52	6'-3"	TYPE III	5'-3"	1'-0"	DOWNSTREAM

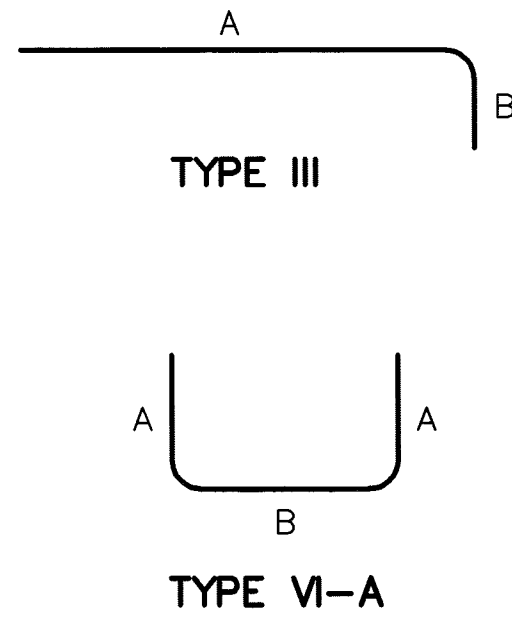
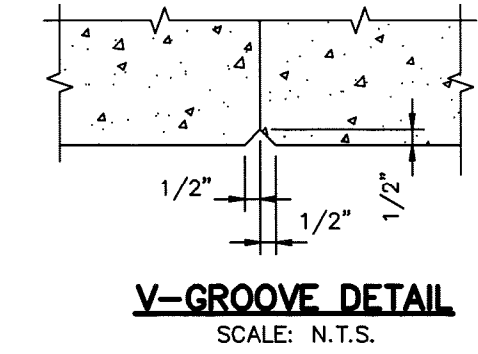
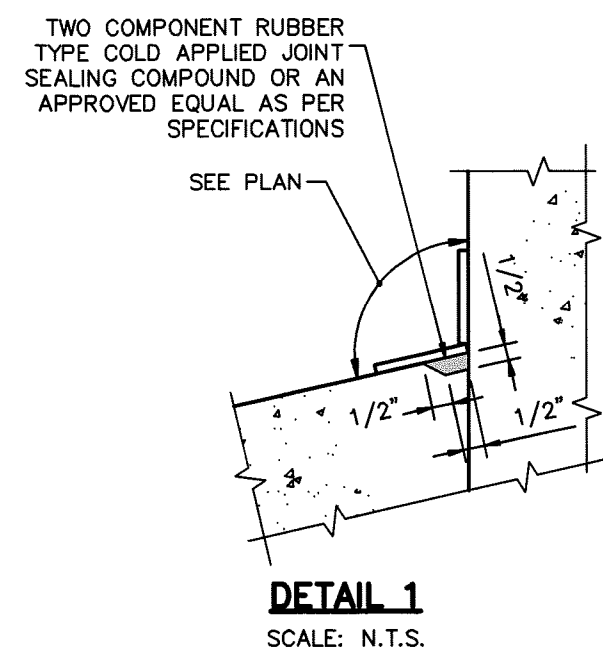
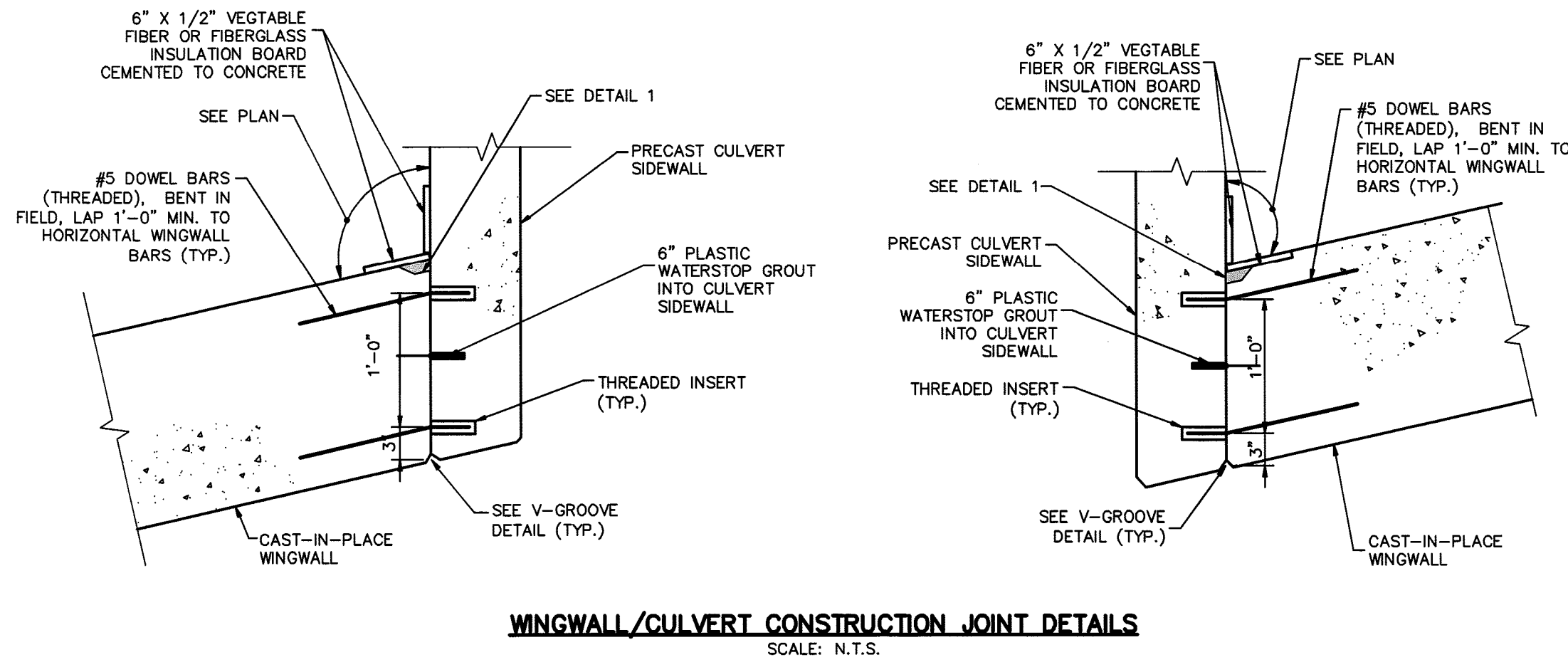
BAR LIST – NORTHEAST WINGWALL							
MK	BAR SIZE	NO REQ'D	TOTAL LENGTH	TYPE	A	B	REMARKS
F30	#5	18	7'-2"	STRAIGHT			
F31	#5	14	7'-5"	STRAIGHT			
F32	#6	18	6'-3"	TYPE III	5'-3"	1'-0"	
W33	#6	9	7'-8"	STRAIGHT			
W34	#5	9	8'-2"	STRAIGHT			
W35	#5	18	7'-11"	STRAIGHT			
W36	#5	12	1'-10"	STRAIGHT			THREADED

BAR LIST – NORTHWEST WINGWALL							
MK	BAR SIZE	NO REQ'D	TOTAL LENGTH	TYPE	A	B	REMARKS
F40	#5	18	7'-2"	STRAIGHT			
F41	#5	16	7'-5"	STRAIGHT			
F42	#6	18	6'-3"	TYPE III	5'-3"	1'-0"	
W43	#6	9	7'-7"	STRAIGHT			
W44	#5	9	8'-1"	STRAIGHT			
W45	#5	18	7'-11"	STRAIGHT			
W46	#5	12	1'-10"	STRAIGHT			THREADED

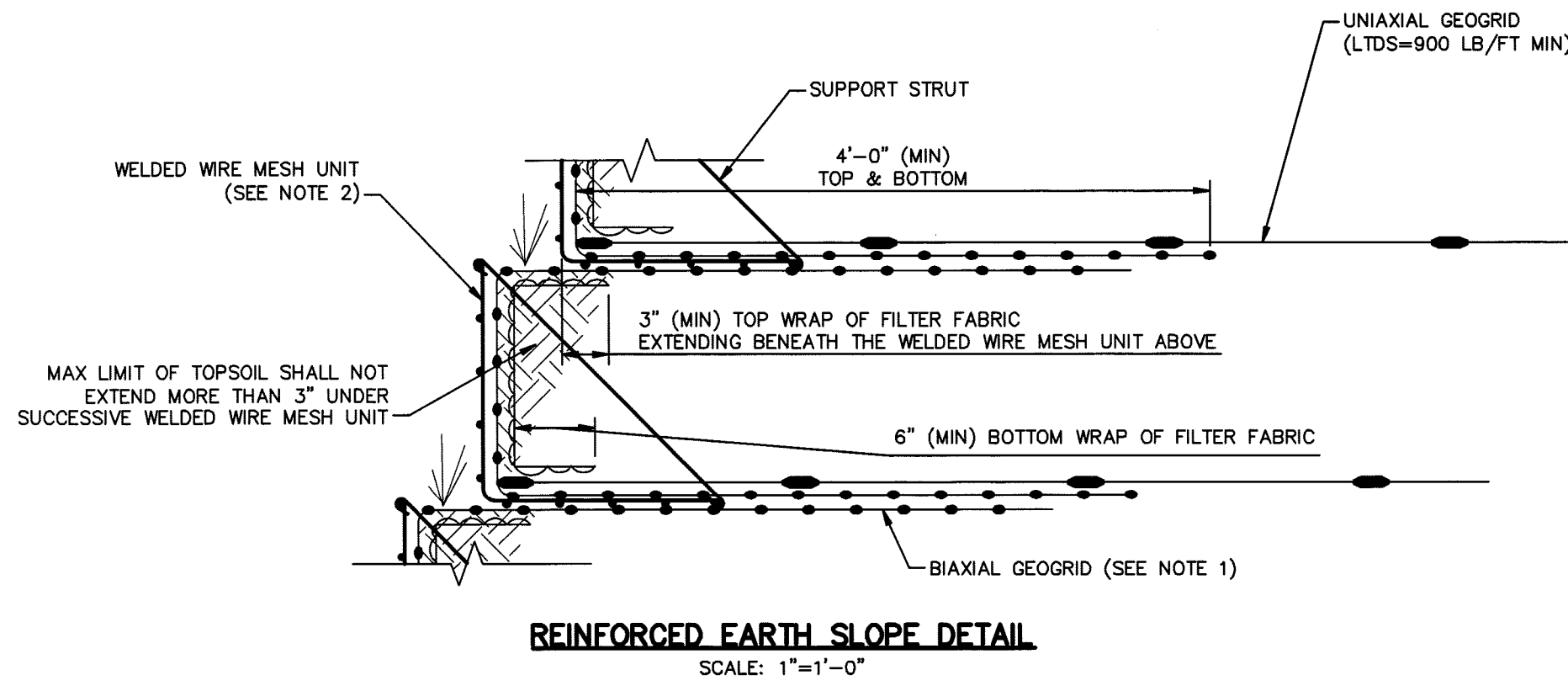
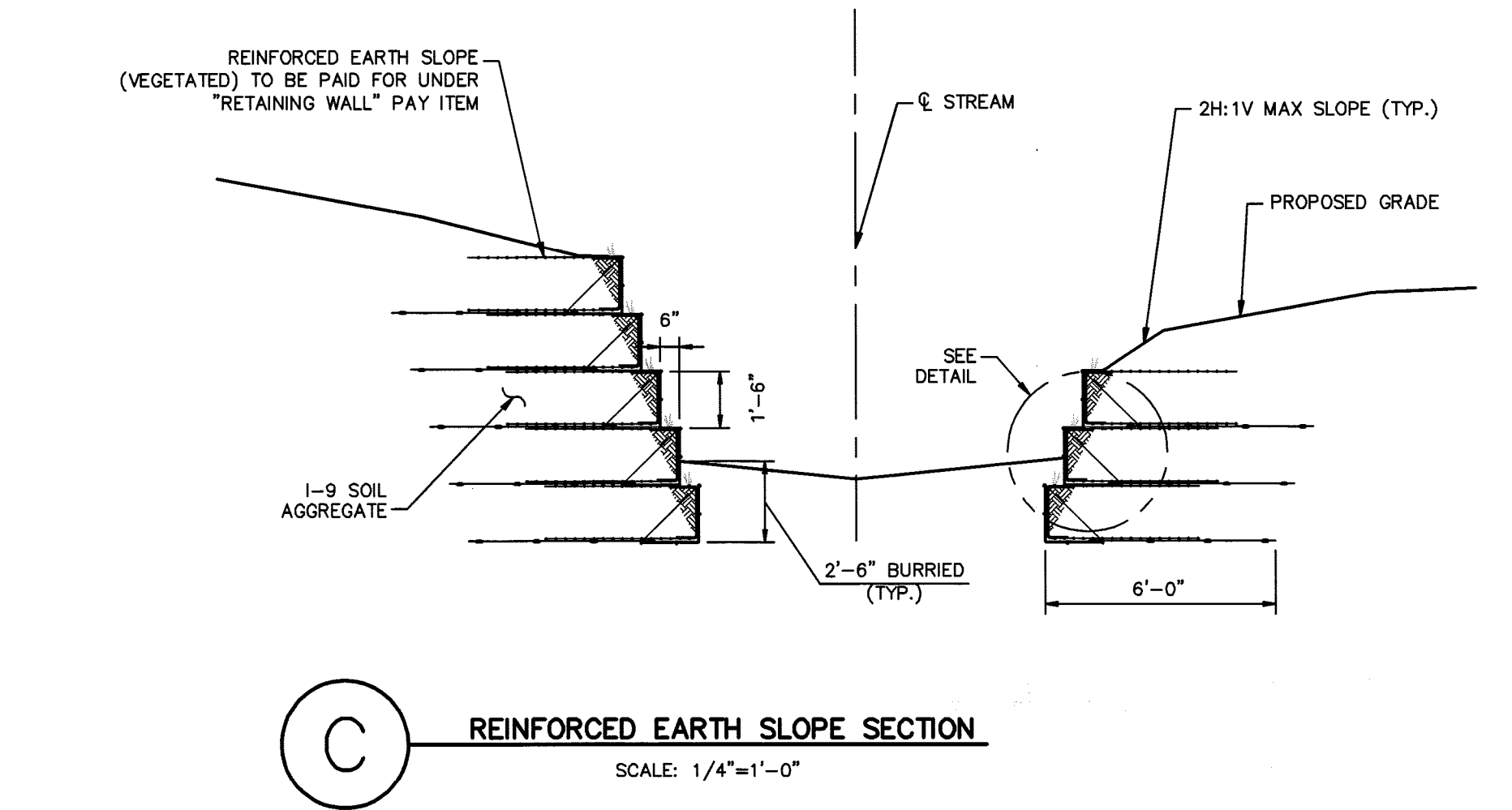
BAR LIST – SOUTHEAST WINGWALL							
MK	BAR SIZE	NO REQ'D	TOTAL LENGTH	TYPE	A	B	REMARKS
F50	#5	18	7'-2"	STRAIGHT			
F51	#5	16	7'-5"	STRAIGHT			
F52	#6	18	6'-3"	TYPE III	5'-3"	1'-0"	
W53	#6	9	6'-0"	STRAIGHT			
W54	#5	9	6'-6"	STRAIGHT			
W55	#5	16	7'-11"	STRAIGHT			
W56	#5	12	1'-10"	STRAIGHT			THREADED

BAR LIST – SOUTHWEST WINGWALL							
MK	BAR SIZE	NO REQ'D	TOTAL LENGTH	TYPE	A	B	REMARKS
F60	#5	18	7'-2"	STRAIGHT			
F61	#5	16	7'-5"	STRAIGHT			
F62	#6	18	6'-3"	TYPE III	5'-3"	1'-0"	
W63	#6	9	6'-5"	STRAIGHT			
W64	#5	9	6'-11"	STRAIGHT			
W65	#5	14	7'-11"	STRAIGHT			
W66	#5	12	1'-10"	STRAIGHT			THREADED

FOOTING BAR LIST								
MK	BAR SIZE	NO REQ'D	TOTAL LENGTH	TYPE	A	B	C	REMARKS
F11	#5	404	5'-6"	STRAIGHT				
F12	#4	20	104'-0"	STRAIGHT				TOTAL LENGTH INCLUDED LAPS AS NEEDED
F13	#5	404	5'-4"	TYPE III	4'-4"	1'-0"		
F14	#5	202	3'-8"	TYPE IV-A	1'-0"	1'-8"		
F15	#4	16	104'-0"	STRAIGHT				TOTAL LENGTH INCLUDED LAPS AS NEEDED

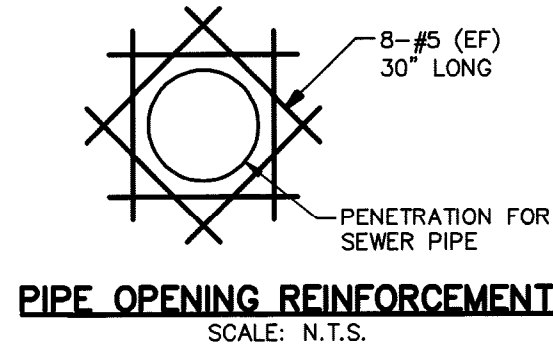


BAR TYPES



REINFORCED EARTH SLOPE NOTES:

1. BIAXIAL GEOGRID:
APERTURE DIMENSION = 1.0"
ULTIMATE TENSILE STRENGTH = 850 LB/FT (MIN)
2. WELDED WIRE MESH SHALL BE FABRICATED FROM GALVANIZED STEEL.
3. TOPSOIL IN REINFORCED EARTH SLOPE SHALL BE PAID FOR UNDER "TOPSOILING 4\"
4. WELDED WIRE MESH AND SOIL REINFORCEMENT SHALL BE INSTALLED AS DIRECTED BY MANUFACTURER.



PIPE OPENING REINFORCEMENT
SCALE: N.T.S.

COUNTY OF UNION, DIVISION OF ENGINEERING THOMAS MINEO, P.E., COUNTY ENGINEER	
REPLACEMENT OF HILLSIDE AVENUE CULVERT STRUCTURE No. SP17 OVER STREAM 10-32 IN SPRINGFIELD TOWNSHIP	
UNION COUNTY	NEW JERSEY
MISCELLANEOUS DETAILS - 2	
scale: AS SHOWN drawn by: SG checked by: date: December 2012	
 NABIL M. GHANEIM PROFESSIONAL ENGINEER NEW JERSEY LIC. NO. GC36407	 RED BANK OFFICE 331 Newnam Springs Road Suite 205 Red Bank, N.J. 07701 Phone: (732) 385-1660 Fax: (732) 385-1664
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