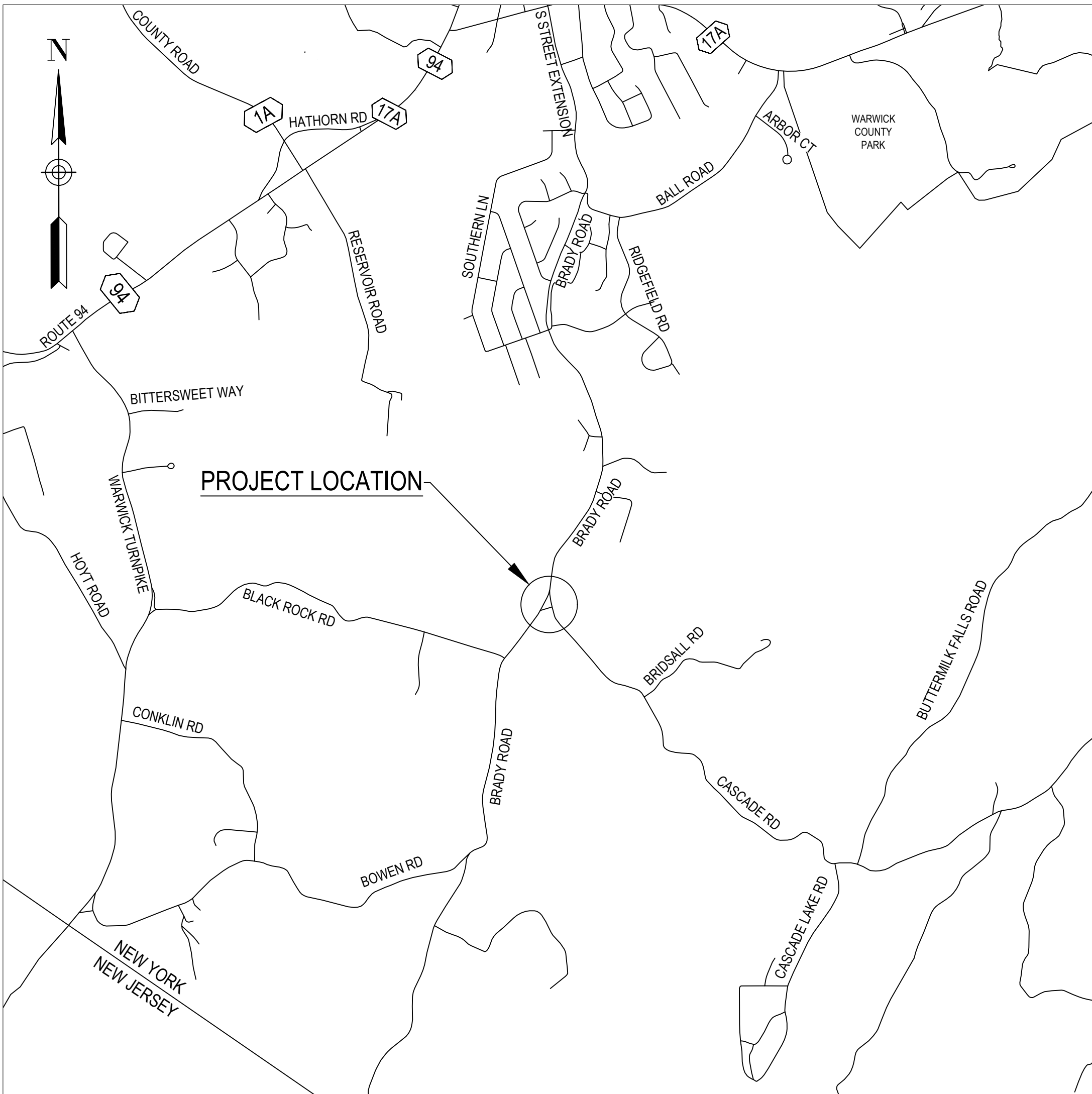


DEPARTMENT OF PUBLIC WORKS
TOWN OF WARWICK
ORANGE COUNTY, NEW YORK



Contract Drawings For

Cascade Road Culvert Replacement

Removal and Replacement of Existing Culvert

Project No.
10400319

Town of Warwick, NY
February 2025

INDEX OF DRAWINGS

SHEET	DESCRIPTION
01G-1.01	TITLE SHEET
01G-1.02	GENERAL NOTES AND ABBREVIATIONS
01G-1.03	ESTIMATE OF QUANTITIES
01G-1.04	SURVEY PLAN
01C-1.01	TYPICAL SECTIONS
01C-1.02	ROADWAY PLAN AND PROFILE
01C-1.03	CULVERT PLAN AND PROFILE
01C-1.04	GUIDE RAILING PLAN
01C-1.05	PAVEMENT LAYOUT PLAN
01C-1.06	CONSTRUCTION DETAILS - 1
01C-1.07	CONSTRUCTION DETAILS - 2
01C-1.08	EROSION CONTROL DETAILS
01C-1.09	DETOUR PLAN
01S-1.01	CULVERT EARTHWORK DETAILS
01S-1.02	PRECAST CULVERT PLAN AND ELEVATION
01S-1.03	LONGITUDINAL ELEVATION
01S-1.04	PRECAST WINGWALL DETAILS

RECOMMENDED BY:


BENJAMIN D. ASTORINO 02/19/25
TOWN OF WARWICK DATE
DEPARTMENT OF PUBLIC WORKS COMMISSIONER

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

DRAWINGS PREPARED BY:


JESSE R. JAECKEL, P.E. 02/19/25
HDR DATE
N.Y.S. P.E. NO. 092769

GENERAL NOTES:

1. DESIGN SPECIFICATIONS: NEW YORK STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES WITH ALL PROVISIONS IN EFFECT AS OF NOVEMBER 2022, AND NEW YORK PRESTRESSED CONCRETE CONSTRUCTION MANUAL 4TH EDITION, MARCH 2023.
2. FOOTINGS ARE DESIGNED USING AASHTO STANDARD SPECIFICATIONS, 17TH EDITION.
3. LIVE LOAD: HL-93
4. CONSTRUCTION AND MATERIALS SPECIFICATIONS: STANDARD SPECIFICATIONS, CONSTRUCTION AND MATERIALS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, OFFICE OF ENGINEERING, JANUARY 1, 2025 AND ANY ASSOCIATED ADDENDUMS.
5. CONTRACTOR'S FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF THE PRECAST THREE SIDED CULVERT AND PRECAST WINGWALLS BASED ON THE THREE SIDED CULVERT DESIGN DATA AND OTHER DETAILS PROVIDED IN THE PROJECT PLANS. CONTRACTOR TO TAKE NOTICE THAT THIS STRUCTURE MUST BE CONSTRUCTED IN ACCORDANCE WITH NYS DOT REGULATIONS AND SPECIFICATIONS. DRAWINGS SHALL BE STAMPED AND SIGNED BY A NY STATE REGISTERED PE.
6. THE CONTRACTOR SHALL PREPARE AND SUBMIT A LIFTING PLAN IN ACCORDANCE WITH NYS DOT SECTION 107-05 SAFETY AND HEALTH REQUIREMENTS, 107-05 P, TYPE A - LIFTS OVER 20,000 LBS REQUIRE P.E. STAMP, TYPE B - 5000 TO 20,000 LBS REQUIRE PREP BY COMPETENT PERSON.
7. ALL SHOP DRAWINGS SUBMITTED FOR THIS PROJECT SHALL BE IN US CUSTOMARY.
8. THE COST OF ALL JOINT MATERIAL SHALL BE INCLUDED IN THE UNIT PRICES BID FOR VARIOUS ITEMS IN THE CONTRACT, UNLESS OTHERWISE SPECIFIED IN THE PLANS.
9. THE CONTRACTOR SHALL PERFORM ALL WORK WITH CARE SO THAT ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE TOWN, WILL NOT BE DAMAGED. IF THE CONTRACTOR DAMAGES ANY MATERIALS WHICH ARE TO REMAIN IN PLACE, OR WHICH ARE TO REMAIN THE PROPERTY OF THE TOWN, THE DAMAGED MATERIALS SHALL BE REPAIRED OR REPLACED IN A MANNER SATISFACTORY TO THE TOWN ENGINEER AT THE EXPENSE OF THE CONTRACTOR.
10. NO PAYMENT WILL BE MADE FOR WORK CALLED FOR BY NOTES, ON THE PLANS, OR IN THE SPECIFICATIONS UNLESS PAYMENT IS SPECIFICALLY INDICATED BY AN ITEM NUMBER, THE COST OF WORK FOR WHICH NO PAYMENT IS INDICATED SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS ITEMS OF THE CONTRACT.
11. ALL WORK ZONE TRAFFIC CONTROL, INCLUDING MAINTENANCE AND PROTECTION OF TRAFFIC PROCEDURES AND ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL COMPLY WITH NEW YORK STATE MANUAL OF TRAFFIC CONTROL DEVICES OR AS MODIFIED BY THE ENGINEER TO SUIT FIELD CONDITIONS.
12. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615 AND FURNISHED AS GRADE 60.
13. ALL REINFORCING STEEL TO BE EPOXY COATED.
14. REINFORCING SHALL HAVE 3" COVER UNLESS NOTED OTHERWISE.
15. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT, DUE TO THE NATURE OF RECONSTRUCTION PROJECTS, THE EXACT EXTENT OF RECONSTRUCTION WORK CANNOT ALWAYS BE ACCURATELY DETERMINED PRIOR TO THE COMMENCEMENT OF WORK. THESE CONTRACT DOCUMENTS HAVE BEEN PREPARED BASED ON FIELD INSPECTIONS AND OTHER INFORMATION AVAILABLE AT THE TIME. ACTUAL FIELD CONDITIONS MAY REQUIRE MODIFICATIONS TO CONSTRUCTION DETAILS AND WORK QUANTITIES. THE CONTRACTOR SHALL PERFORM THE WORK IN ACCORDANCE WITH FIELD CONDITIONS.
16. BASED ON THE AVAILABLE DATA, THE DEPTH OF GROUND WATER IS APPROXIMATELY 8 FEET BELOW THE EXISTING ROADWAY ELEVATION AT THE CULVERT AND MAY VARY. THE COST OF DEWATERING SHALL BE INCLUDED IN VARIOUS ITEMS IN THE CONTRACT. SEE THE FOUNDATION DESIGN REPORT FOR CASCADE ROAD CULVERT REPLACEMENT BY TECTONIC ENGINEERING CONSULTANTS, GEOLOGISTS & LAND SURVEYORS, D.P.C. DATED JANUARY 2, 2024 FOR GROUNDWATER MANAGEMENT MEASURES.
17. CONTRACTOR SHALL PERFORM HIS OPERATIONS TO MINIMIZE AREAS OF DISTURBANCE. ALL DISTURBED AREAS SHALL BE FULLY RESTORED TO THE ORIGINAL CONDITION. FOR CULVERT WORK, COST OF TOP SOIL, PERMANENT SEEDING, ETC. SHALL BE INCLUDED IN THE VARIOUS PAYMENT ITEMS. FOR STREAM RESTORATION WORK, TOPSOIL AND SEEDING PAY ITEMS ARE INCLUDED.
18. THE CONTRACTOR SHALL PROTECT HIS WORKERS AT ALL TIMES IN CONFORMANCE WITH APPLICABLE OSHA REQUIREMENTS.
19. THE PROJECT IS ANTICIPATED TO BE AUTHORIZED UNDER NYSDEC ARTICLE 15 AND USACE PERMIT, NATIONWIDE PERMIT #3 (MAINTENANCE). COPIES OF THE PERMITS SHALL BE POSTED AT THE PROJECT SITE. THE WORK SHOULD BE COMPLETED FOLLOWING THE GENERAL, REGIONAL AND ANY PROJECT-SPECIFIC CONDITIONS IN THE PERMITS. THE ENGINEER SHALL BE NOTIFIED WHEN ANY PERMIT CONDITIONS CANNOT BE MET.
20. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN, IMPLEMENTATION, AND MAINTENANCE OF ALL SUPPORT OF EXCAVATION AND DEWATERING SYSTEMS REQUIRED FOR THE PROJECT.
21. CONTRACTOR SHALL SUBMIT A DEWATERING AND EROSION AND SEDIMENT CONTROL PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF WORK.
22. EROSION CONTROL MEASURES NOT LISTED FOR PAYMENT UNDER THE SPECIFIC ITEMS UNDER THIS CONTRACT SHALL BE INCLUDED UNDER THE VARIOUS PAY ITEMS WITHIN THIS CONTRACT.
23. IF THE CONTRACTOR EXPOSES TRANSITE PIPE, JOINT CAULKING, OR SIMILAR ITEMS DURING DEMOLITION WHICH MAY CONTAIN HAZARDOUS MATERIALS, THE MATERIALS SHALL BE TESTED AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
23. WORK OCCURRING AFTER SUNSET AND BEFORE SUNRISE SHALL BE CONSIDERED NIGHT TIME OPERATIONS. A NIGHT TIME LIGHTING PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO THE START OF WORK.

REMOVAL NOTES:

1. WHENEVER ITEMS IN THE CONTRACT REQUIRE MATERIALS TO BE REMOVED AND DISPOSED OF, THE COST OF SUPPLYING A DISPOSAL AREA AND TRANSPORTATION TO THAT AREA SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THOSE ITEMS.
2. THE EXISTING 60" HDPE CULVERT SHALL BE REMOVED UNDER ITEM 202.19.
3. PRIOR TO SUBMISSION OF THE BID THE CONTRACTOR SHALL SURVEY THE PROJECT SITE TO ESTIMATE THE REQUIRED AMOUNT OF TREE REMOVAL WITHIN THE TOWN OF WARWICK AND THE VILLAGE OF WARWICK RIGHT-OF-WAY NECESSARY TO COMPLETE THE WORK.
4. ALL TREES, SHRUBS AND BRUSH REQUIRED TO BE REMOVED TO COMPLETE ITEMS UNDER THIS CONTRACT SHALL BE INCLUDED IN CONTRACTOR BID AND WILL BE PAID FOR UNDER ITEM 201.06. ALL REMOVALS SHALL BE APPROVED BY THE ENGINEER IN ADVANCE.
5. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE REQUIREMENTS OF SUBSECTION 202-3.01 GENERAL AND SAFETY REQUIREMENTS. A REMOVAL PLAN SHALL BE SUBMITTED TO THE ENGINEER FIFTEEN (15) DAYS PRIOR TO BEGINNING DEMOLITION. THE REQUIREMENT THAT IT BE SIGNED BY A REGISTERED PROFESSIONAL ENGINEER IS WAIVED.
6. THE COST OF FURNISHING, INSTALLING, MAINTAINING, REMOVING AND DISPOSING OF ALL PLATFORMS, NETS, SCREENS, SHORING OR OTHER PROTECTIVE DEVICES SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE APPROPRIATE ITEMS OF THE CONTRACT.

UTILITY NOTES:

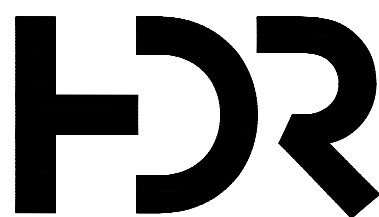
1. THE ACCURACY INDICATED FOR THE LOCATIONS OF OVERHEAD AND UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE DEFINED AS FOLLOWS:
- A. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF HIS OBLIGATIONS UNDER SECTIONS 660 THROUGH 680 OF THE STANDARD SPECIFICATIONS, NOR DOES IT RELIEVE THE UTILITY OWNERS OF THEIR OBLIGATION TO ACCURATELY LOCATE THEIR FACILITIES.
 - B. ALL KNOWN PUBLIC AND PRIVATE UTILITY LINES WITHIN OR ADJACENT TO THE SITE OF THE WORK AND SHOWN IN THEIR EXISTING APPROXIMATE LOCATIONS ON THE CONTRACT PLANS. THE CONTRACTOR IS CAUTIONED THAT THESE LOCATIONS ARE NOT GUARANTEED NOR IS THERE A GUARANTEE THAT ALL SUCH LINES IN EXISTENCE HAVE BEEN SHOWN ON THE PLANS.
 - C. ADDITIONAL UTILITY LINES, WHETHER ABANDONED OR IN SERVICE, MAY EXIST AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT HIS OPERATIONS AND TAKE THE NECESSARY PRECAUTIONS TO PREVENT INTERFERENCE WITH OR DAMAGE TO THESE OR OTHER FACILITIES DURING THE COURSE OF CONSTRUCTION.
 - D. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS AS TO PREVENT DAMAGE TO SUCH FACILITIES. HE SHALL MAKE SUCH EXPLORATIONS AS MAY BE NECESSARY TO DETERMINE THE DIMENSIONS AND LOCATIONS OF LINES THAT MAY BE SUBJECT TO DAMAGE. NOTIFICATION TO THE VARIOUS OWNERS OF FACILITIES SHALL BE IN ACCORDANCE WITH NEW YORK STATE INDUSTRIAL CODE 753, CURRENT EDITION.
 - E. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE EXACT LOCATION OF UTILITY LINES AND SHALL PROTECT AND SUPPORT IN A SUITABLE MANNER AT HIS OWN EXPENSE ALL UNDERGROUND UTILITIES ENCOUNTERED IN HIS EXCAVATING AND TRENCHING OPERATIONS. THE CONTRACTOR SHALL MAKE GOOD ANY DAMAGE TO THOSE UTILITIES CAUSED BY HIS OPERATIONS. IF THE NATURE OF THE DAMAGE IS SUCH AS TO ENDANGER THE SATISFACTORY OPERATIONS OF THE UTILITIES AND THE NECESSARY REPAIRS ARE NOT IMMEDIATELY MADE BY THE CONTRACTOR, THE WORK MAY BE DONE BY THE RESPECTIVE OWNING COMPANIES AND THE COST THEREOF CHARGED AGAINST THE CONTRACTOR.
 - F. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL MEET WITH ALL THE KNOWN PUBLIC AND PRIVATE UTILITY COMPANIES OCCUPYING THE WORK SITE. THE CONTRACTOR SHALL AT THIS MEETING INFORM THE UTILITY COMPANIES OF HIS SCHEDULE OF OPERATIONS AND SO COORDINATE HIS WORK WITH THESE COMPANIES.

STREAM PROTECTION NOTES:

1. ANY CONSTRUCTION IN THE STREAM MUST TAKE PLACE BETWEEN JUNE 1ST AND SEPTEMBER 30TH.
2. THE CREEK TRIBUTARY IS CLASSIFIED AS A CLASS AA (TS) WATERBODY AT THIS LOCATION.
3. STREAM FLOW SHALL BE MAINTAINED DURING THE WORK. CONTRACTOR SHALL PROVIDE METHOD OF MAINTAINING STREAM FLOW TO THE ENGINEER FOR APPROVAL PRIOR TO START OF CONSTRUCTION. THE COST OF MAINTAINING STREAM FLOW SHALL BE INCLUDED IN VARIOUS ITEMS IN THE CONTRACT.
4. DURING THE COURSE OF CONSTRUCTION, THE CONTRACTOR SHALL CONDUCT OPERATIONS IN SUCH A MANNER AS TO PREVENT ANY DAMAGE TO ANY STREAM FROM POLLUTION BY DEBRIS, SEDIMENTATION OR OTHER FOREIGN MATERIAL, OR FROM THE MANIPULATION OF EQUIPMENT AND/OR MATERIALS IN OR NEAR SUCH STREAMS. NO WATER SHALL BE RETURNED DIRECTLY TO THE STREAM WHICH HAS BEEN USED FOR WASH PURPOSES OR OTHER SIMILAR OPERATIONS WHICH CAUSE THE WATER TO BE CONTAMINATED WITH SAND, SILT, CEMENT, OIL, OR OTHER IMPURITIES. IF THE CONTRACTOR USES THE WATER FROM ANY STREAM, THEY SHALL CONSTRUCT AN INTAKE OR TEMPORARY DAM AS REQUIRED TO PROTECT AND MAINTAIN WATER RIGHTS AND SUSTAIN FISH LIFE DOWNSTREAM.
5. DURING REMOVAL OPERATIONS, THE CONTRACTOR SHALL NOT BE ALLOWED TO DROP CONCRETE WASTE, DEBRIS, AND OTHER MATERIAL INTO THE WATER COURSE. PLATFORMS, NETS, SCREENS, OR OTHER PROTECTIVE DEVICES SHALL BE USED TO CATCH THE MATERIAL IF THE ENGINEER DETERMINES THAT ADEQUATE PROTECTIVE DEVICES ARE NOT BEING EMPLOYED. THE WORK SHALL BE SUSPENDED UNTIL ADEQUATE PROTECTION IS PROVIDED. THE LOCATION FOR STOCKPILING OF MATERIAL SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER PRIOR TO REMOVAL OPERATIONS. STOCKPILING SHALL BE LOCATED OUTSIDE OF THE WATER COURSE AND EROSION CONTROL MEASURES SHALL BE DEPLOYED TO CONTAIN THE MATERIAL FROM MIGRATING.
6. THE EXISTING STREAMBED SHALL NOT BE DISTURBED BEYOND THE LIMITS SHOWN ON THE PLANS. STREAM DIVERSION OR CONTAINMENT METHODS SHOULD BE SIZED WITH REGARD TO THE SEASONAL FLOW OF THE STREAM. THE COST OF DEWATERING SHALL BE INCLUDED IN VARIOUS ITEMS IN THE CONTRACT.

ABBREVIATIONS:

GENERAL		GENERAL	
R	BASELINE	PROP	PROPOSE
BW	BOTTOM OF WALL	R&D	REMOVE AND DISPOSE
C	CENTERLINE	R&R	REMOVE AND RESET
HDPE	HIGH DENSITY POLYETHYLENE	RET	RETAIN
INV	INVERT	SPA	SPACE
LF	LINEAR FEET	STA	STATION
MAX	MAXIMUM	TYP	TYPICAL
MIN	MINIMUM	TW	TOP OF WALL
OFF	OFFSET		

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PROJECT MANAGER	LAURA BARCA
PROJECT NUMBER	10400319



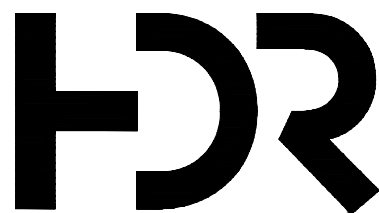
**TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS**

GENERAL NOTES AND ABBREVIATIONS CASCADE ROAD

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ESTIMATE OF QUANTITIES:

ESTIMATE OF QUANTITIES			
ITEM	DESCRIPTION	UNIT	QUANTITY
201.06	CLEARING AND GRUBBING	LS	1
202.100.1004	TIMBER REMOVAL	LF	35
202.19	REMOVAL OF SUBSTRUCTURES	CY	30
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	CY	105
203.03	EMBANKMENT IN PLACE (CULVERT)	CY	630
203.07	SELECT GRANULAR FILL	CY	50
207.21	GEOTEXTILE SEPARATION	SY	115
209.10	SEED AND MULCH - TEMPORARY	SY	190
209.13	SILT FENCE-TEMPORARY	LF	425
209.1901	ROLLED EROSION CONTROL PRODUCT, CLASS II TYPE A, INTERMEDIATE	SY	190
304.12	SUBBBASE COURSE, TYPE 2 (12" DEPTH)	CY	50
404.0683	6.3 F3 TOP COURSE ASPHALT, 80 SERIES COMPACTION (1 1/4" DEPTH)	TON	15
404.1279	12.5 F9 BINDER COURSE ASPHALT, 70 SERIES COMPACTION (2 1/2" DEPTH)	TON	30
404.3779	37.5 F9 BASE COURSE ASPHALT, 70 SERIES COMPACTION (4" DEPTH)	TON	45
407.0102	DILUTED TACK COACT	GAL	215
552.17	SHIELDS AND SHORING	SF	1440
553.030001	TEMPORARY WATERWAY DIVERSION STRUCTURE	EACH	1
556.0202	EPOXY-COATED BAR REINFORCEMENT FOR STRUCTURES (REBAR IN CLOSURE POUR #5 BARS)	LB	256
556.0202	EPOXY-COATED BAR REINFORCEMENT FOR STRUCTURES (WINGWALL UNIT REINFORCEMENT #4 BARS)	LB	1099
562.0101	PRECAST THREE SIDE STRUCTURE	SY	95
562.03	WINGWALL WITH FOOTING (CONCRETE)	SY	50
595.98200018	SPRAY-APPLIED WATERPROOF MEMBRANE	SF	855
606.10	BOX BEAM GUIDE RAILING	LF	230
606.100002	BOX BEAM GUIDE RAILING (SHOP BENT)	LF	15
606.100003	BOX BEAM GUIDE RAILING (SHOP MITERED)	LF	30
606.120101	BOX BEAM END PIECE	EA	1
606.120201	BOX BEAM GUIDE RAILING , END ASSEMBLY, TYPE IIA	EA	1
606.73	REMOVE AND DISPOSE OF BOX BEAM GUIDE RAIL	LF	120
606.22	ANCHORAGE UNITS FOR CORRUGATED BEAM GUIDE RAILING	EA	15
608.020102	ASPHALT SIDEWALKS, DRIVEWAYS AND BICYCLE PATHS,AND VEGETATION CONTROL STRIPS	TON	25
610.1402	4" TOPSOIL ROADSIDE	CY	20
610.1601	TURF ESTABLISHMENT - ROADSIDE	SY	150
615.01010108	MATERIAL FOR STREAM BED ESTABLISHMENT	CY	90
619.01	BASIC WORK ZONE TRAFFIC CONTROL	LS	1
619.04	TYPE III CONSTRUCTION BARRICADES	EA	8
619.0901	TEMPORARY PAVEMENT MARKINGS STRIPES (TRAFFIC PAINT)	LF	130
619.24	NIGHTTIME OPERATIONS (ENTIRE PROJECT)	LS	1
619.1712	TEMPORARY POSITIVE BARRIER - CATEGORY 2 (PINNING PERMITTED)	LF	90
620.04	STONE FILL - MEDIUM (GENERALLY 100 LB MIN., 6")	CY	20
620.0801	BEDDING MATERIAL, TYPE 1	CY	20
623.12	CRUSHED STONE (IN-PLACE MEASURE)	CY	35
625.01	SURVEY OPERATIONS	LS	1
627.50140008	CUTTING PAVEMENT	LF	90
637.11	ENGINEER'S FIELD OFFICE - TYPE 1	MNTH	4
637.34	OFFICE TECHNOLOGY AND SUPPLIES	DC	
685.0201	YELLOW EPOXY REFLECTORIZED PAVEMENT STRIPES - 15 MIL	LF	130
697.03	FIELD CHANGE PAYMENT	DC	
698.04	ASPHALT PRICE ADJUSTMENT	DC	
698.05	FUEL PRICE ADJUSTMENT	DC	
698.06	STEEL/IRON PRICE ADJUSTMENT	DC	
699.040001	MOBILIZATION	LS	1



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

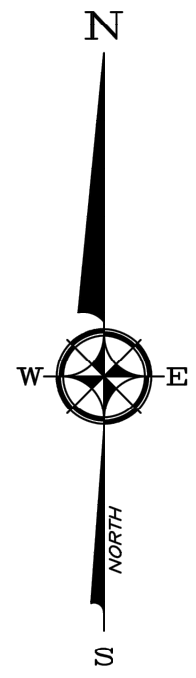
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TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

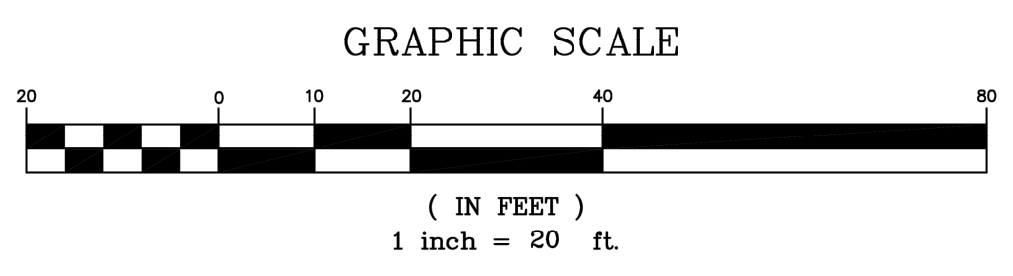
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CASCADE ROAD

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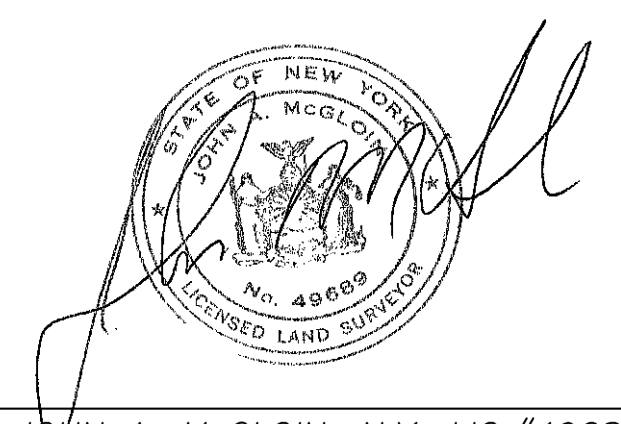


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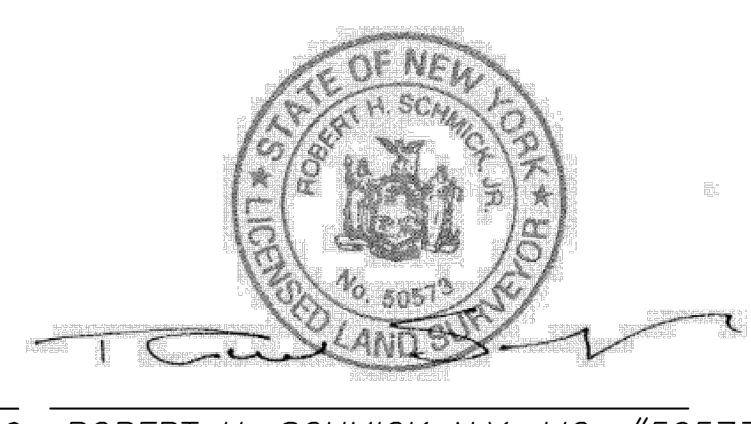
1. TAX MAP DESIGNATION: SECTION 64, BLOCK 1
2. UNLESS ILLUSTRATED AND NOTED BY POINT OF REFERENCE UNDERGROUND IMPROVEMENTS OR ENCROACHMENTS, IF ANY, ARE NOT SHOWN HEREON.
3. ELEVATION DATUM: PER BRADY ROAD CULVERT PROJECT DATED FEBRUARY 23, 2017



COPIES OF THIS SURVEY NOT BEARING THE EMBOSSED SEAL OF THE LAND SURVEYOR SHALL NOT BE VALID. GUARANTEES OF CERTIFICATIONS ARE NOT TRANSFERABLE TO ADDITIONAL INSTITUTIONS OR SUBSEQUENT OWNERS. UNAUTHORIZED ALTERATION OF THIS DOCUMENT, IN ANY WAY, CONSTITUTES A VIOLATION OF THE NEW YORK STATE EDUCATION LAW, SECTION 7209, SUB-DIVISION 2.

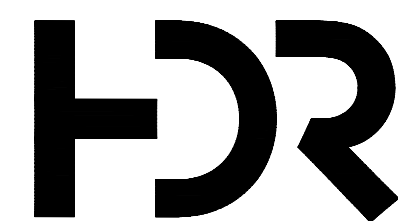


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WARWICK, NEW YORK 10990

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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

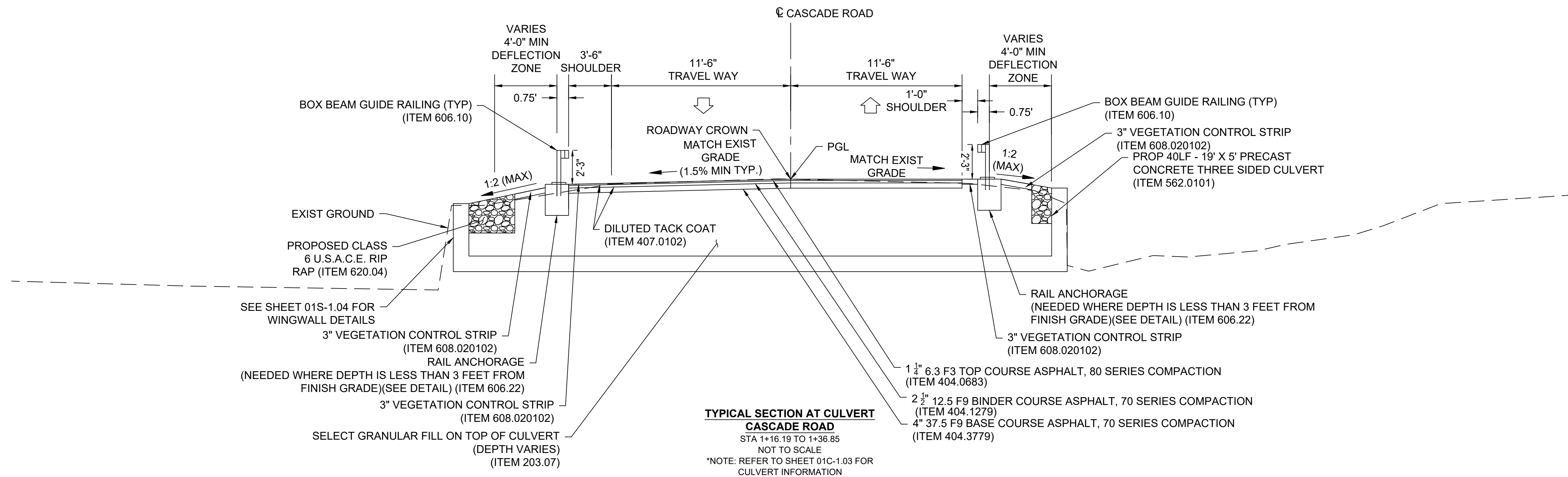
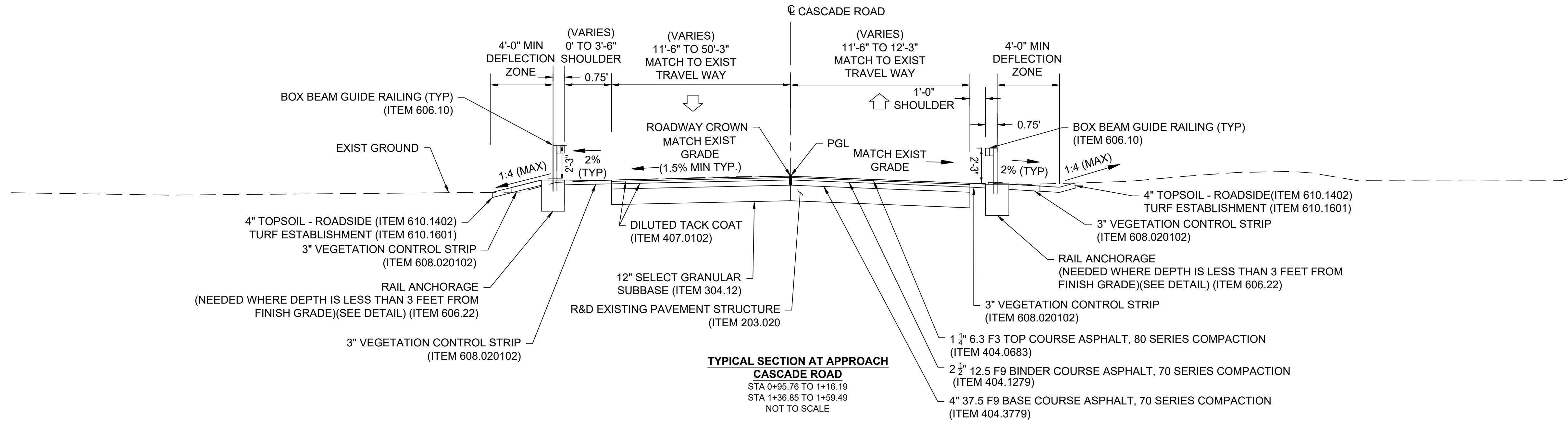
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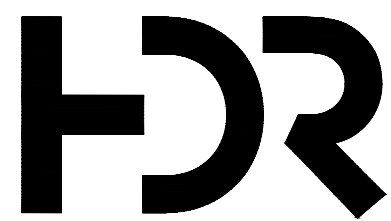
TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

TYPICAL SECTIONS
CASCADE ROAD

SHEET
01C-1.01



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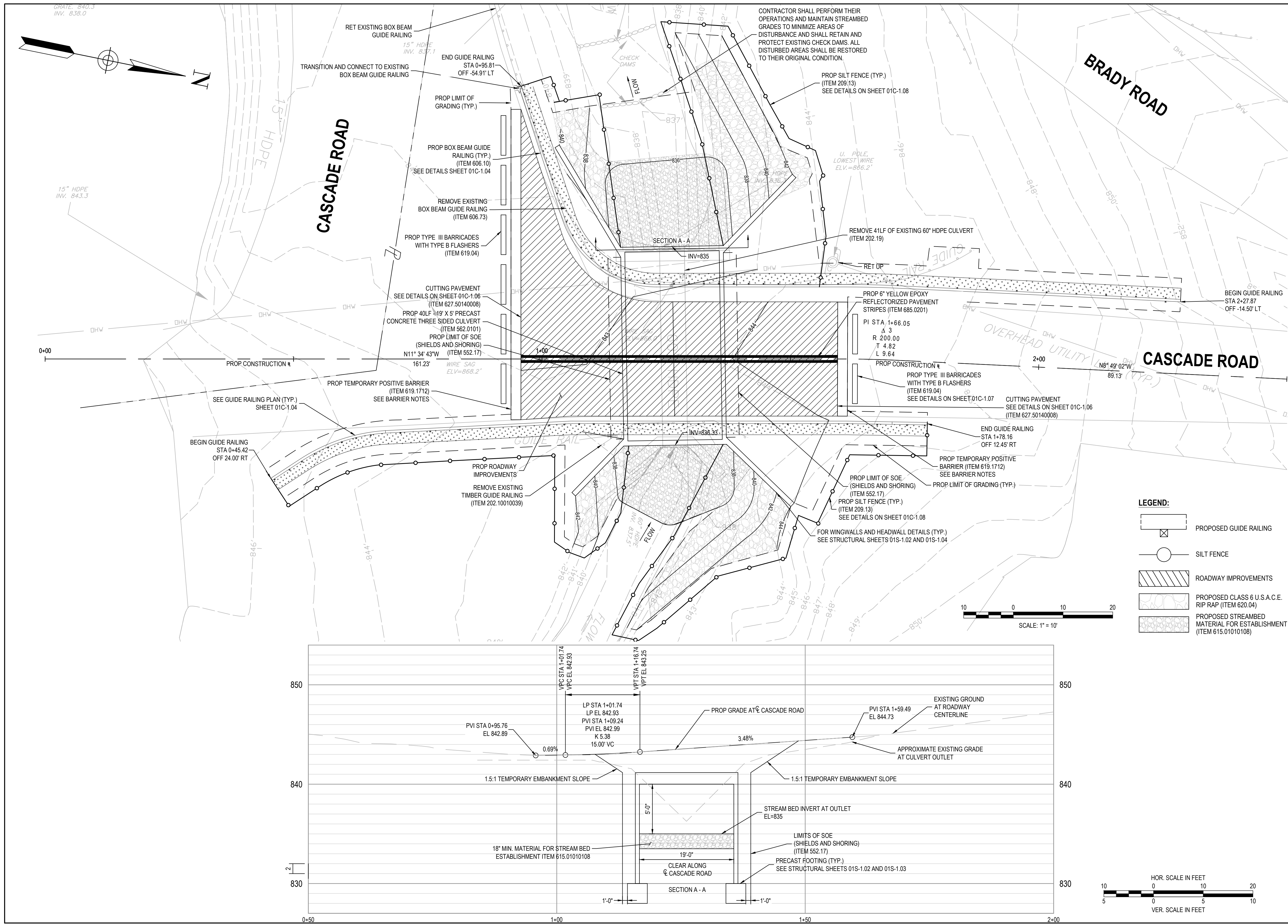
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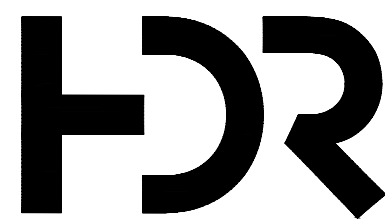
TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

ROADWAY PLAN AND PROFILE
CASCADE ROAD

SHEET
01C-1.02



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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

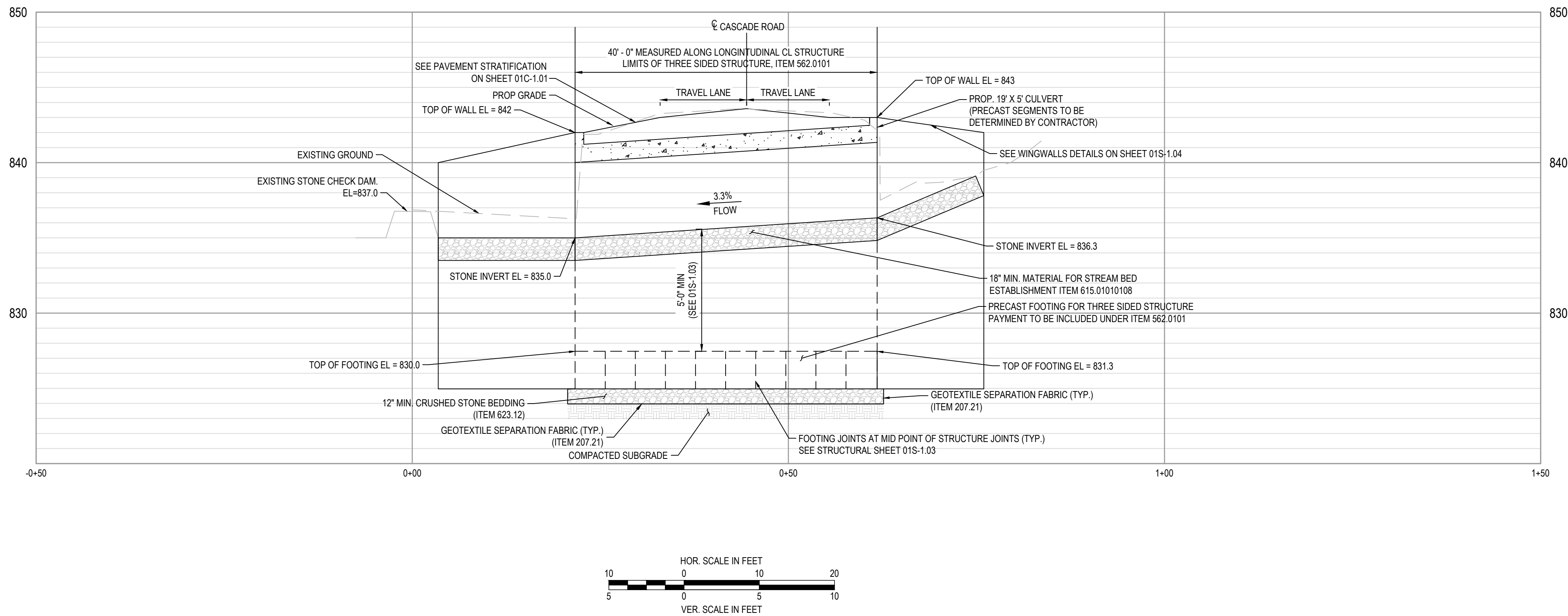
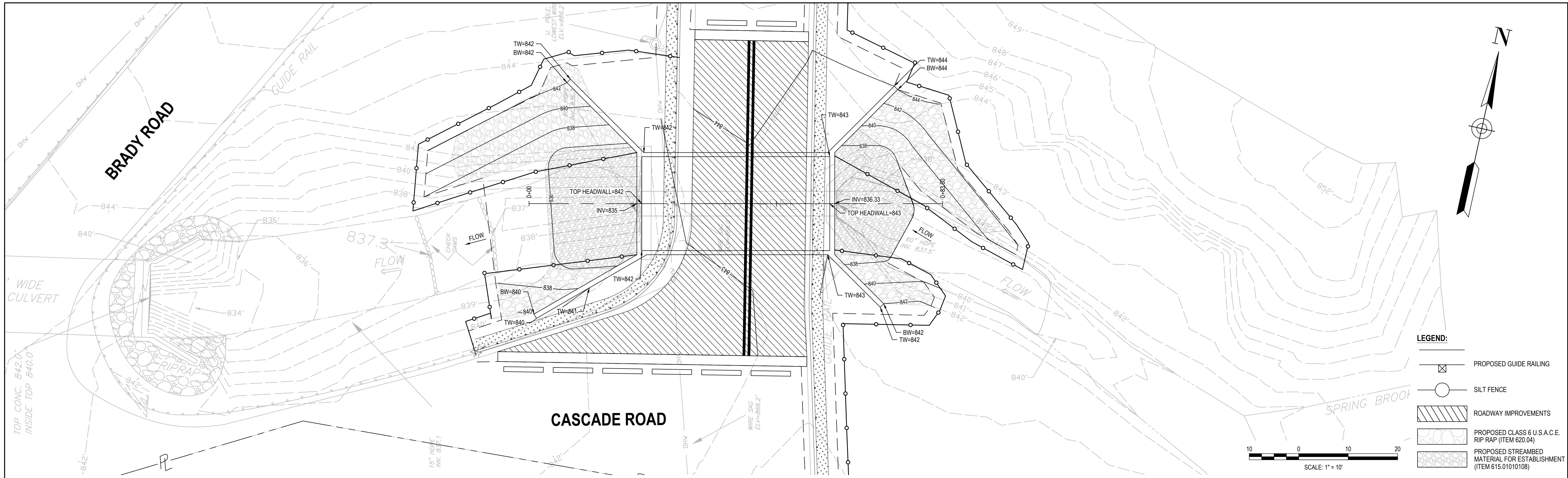
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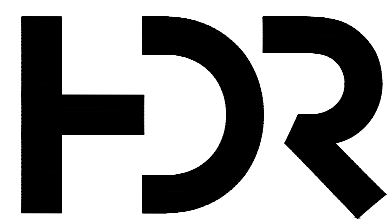
TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

CULVERT PLAN AND PROFILE
CASCADE ROAD

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01C-1.03



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PROJECT MANAGER LAURA BARCA

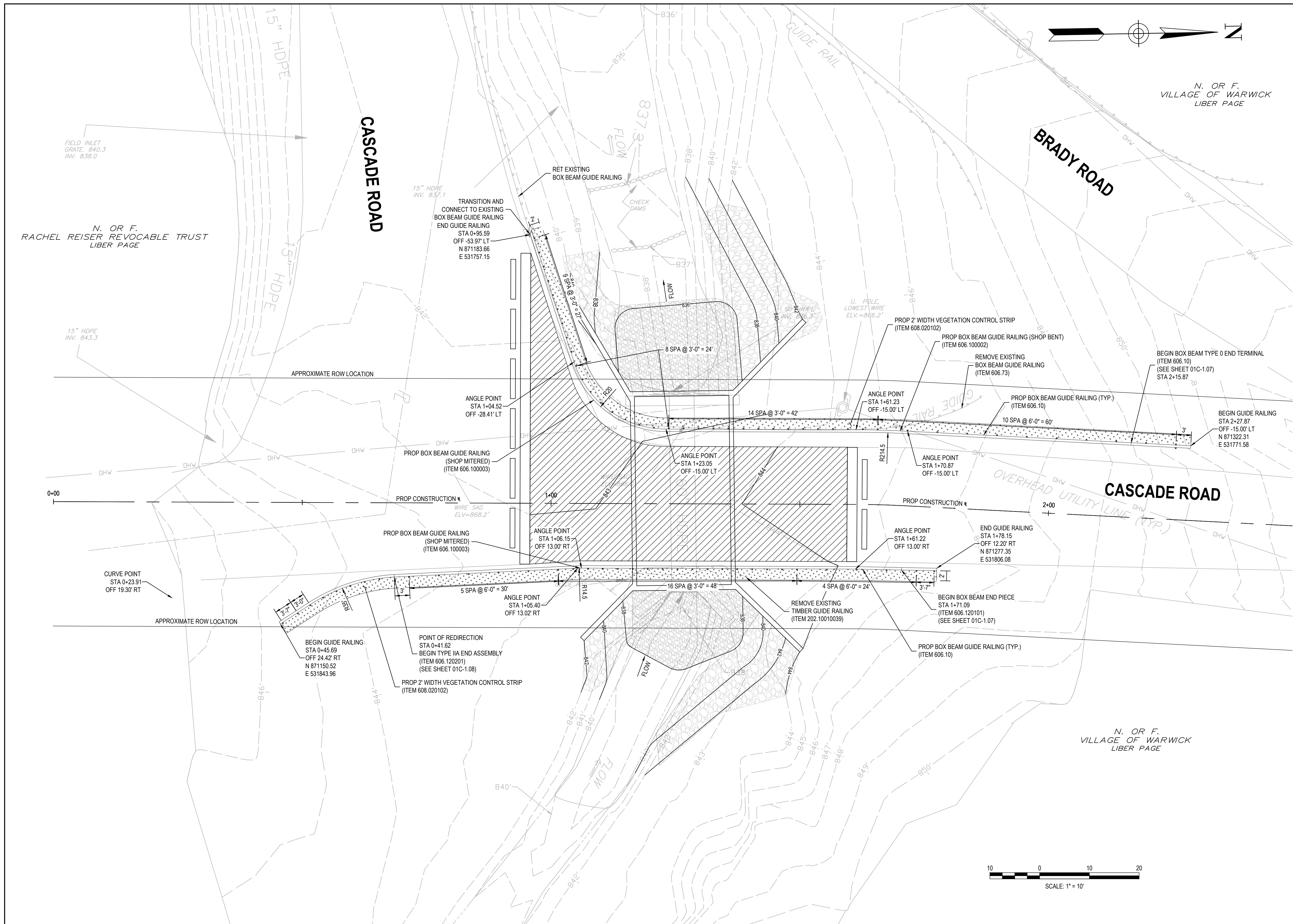
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TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

GUIDE RAILING PLAN
CASCADE ROAD

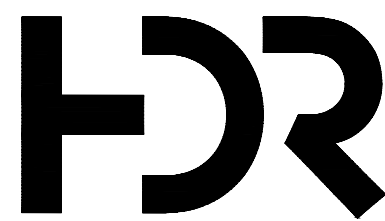
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01C-1.04



GUIDERAILING NOTES

1. POST SPACING SHALL BE 6'-0" EXCEPT WHERE REDUCED POST SPACING IS INDICATED ON THE CONTRACT PLANS. FOR RUNS UNDER 130 FEET IN LENGTH, BACKUP POSTS ARE REQUIRED TO REDUCE POST SPACING TO 3'-0" AND SHALL BE FASTENED TO RAILING, EXCEPT AT SPLICE LOCATIONS.
2. THE LINE OF BOX BEAM GUIDE RAILING, WHEN COMPLETED, SHALL PRESENT A SMOOTH AND PLEASING GRADE LINE IN BOTH HORIZONTAL AND VERTICAL PLANES. BOX BEAM WITH RADIUS OF 720'-0" OR LESS SHALL BE SHOP WORKED TO THE REQUIRED CURVATURE. PAYMENT FOR SUCH CURVED LENGTHS SHALL BE MADE UNDER THE APPROPRIATE ITEM.
3. THE END MAY BE EXTENDED BY ONE 18'-0" STRAIGHT SECTION, PLACED BETWEEN THE CURVED SECTION AND THE END PIECE, TO MOVE THE END CLOSER TO THE EDGE OF THE CLEAR ZONE. PAYMENT SHALL BE MADE UNDER THE APPROPRIATE ITEM.
4. BACKUP MAY REMAIN IN PLACE.
5. THE RAILING MOUNTING HEIGHT OF ALL GUIDE RAILING OR MEDIAN BARRIER PLACED BEHIND CURB (REGARDLESS OF THE CURB HEIGHT OR SPEED) SHALL BE MEASURED FROM THE PAVEMENT SURFACE WHEN THE OFFSET IS 12" OR LESS AND TO THE GROUND SURFACE UNDER THE FACE OF THE RAILING WHEN THE OFFSET IS GREATER.
6. FOR DESIGN SPEEDS UNDER 50 MPH THE POINT OF REDIRECTION WILL BE AT THE POINT OF TANGENCY.

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ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA

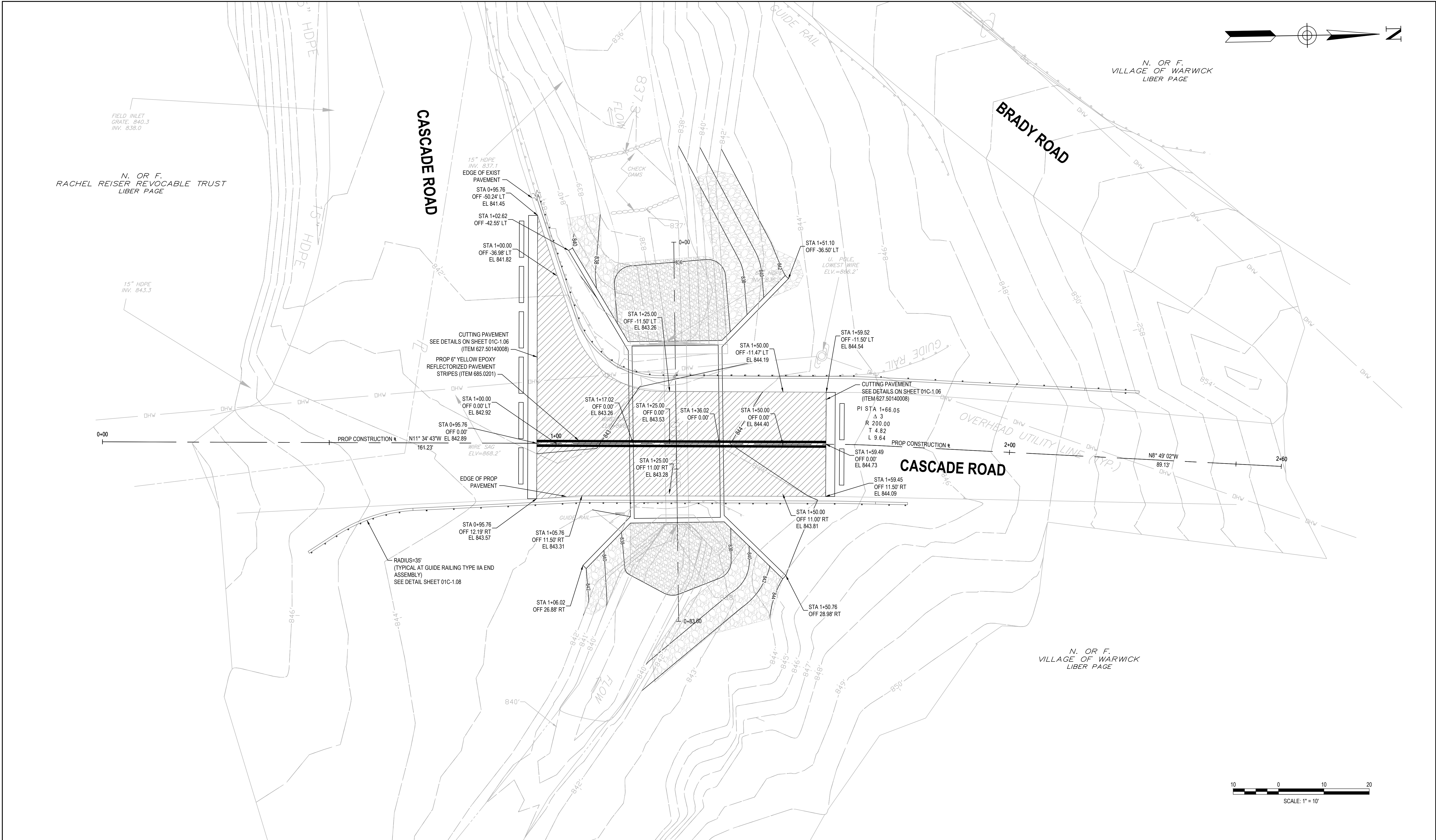
PROJECT NUMBER	10400319



TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

PAVEMENT LAYOUT PLAN
CASCADE ROAD

SHEET
01C-1.05





1. ASPHALT OVERLAY SPLICES SHALL BE USED AT: ENDS OF ASPHALT OVERLAY HIGHWAY SECTIONS, MAJOR INTERSECTIONS, AND OTHER LOCATIONS INDICATED IN THE PLANS.
2. THE TRANSITION LENGTH IN FEET SHALL NOT BE LESS THAN THE VALUE OBTAINED BY MULTIPLYING THE EFFECTIVE OVERLAY THICKNESS IN INCHES (DIFFERENCE BETWEEN THE EXISTING AND THE OVERLAD ELEVATIONS) BY THE K VALUE FROM THE TABLE FOR THE POSTED SPEED OF THE HIGHWAY. THE MINIMUM TRANSITION LENGTH IS 30':
- EXAMPLE: IF THE POSTED SPEED IS 55 MPH,
EFFECTIVE OVERLAY THICKNESS = 2"
THEN THE MINIMUM TRANSITION LENGTH
= 2 INCHES X 30 FT/IN = 60 FEET
- | K VALUE TABLE FT/IN | | | | | | | |
|---------------------|-------|-------|-------|-------|-------|-------|-------|
| POSTED SPEED
MPH | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| K | 16.67 | 19.17 | 21.67 | 24.17 | 27.50 | 30.00 | 32.50 |
3. ALL SURFACES OF THE ASPHALT OVERLAY SPLICE TRANSITION AREA SHALL BE CLEANED AND TACK-COATED PRIOR TO ASPHALT PLACEMENT. THE COST OF MILLING REBATES AND TACK COAT IN THE ASPHALT OVERLAY SPLICE TRANSITION AREA SHALL BE PAID FOR UNDER THEIR RESPECTIVE ITEMS. COST OF LEAVING A NEAT EDGE SHALL BE INCLUDED IN THE MILLING ITEM.
4. SAW CUTS SHALL BE MADE SO THAT SURFACE RUNOFF IS DIRECTED TO THE EDGE OF PAVEMENT.
5. IN THE TRANSITION AREA, PAVEMENT COURSES OTHER THAN THE TOP COURSE SHALL BE FEATHERED OUT USING TOP COURSE OR OTHER APPROPRIATE MATERIAL. PAYMENT SHALL BE MADE UNDER THE APPROPRIATE ITEM.
6. SEE STANDARD SHEET 402-01 IN BOOK 1 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



- ### DETAIL "A" - PLAN VIEW

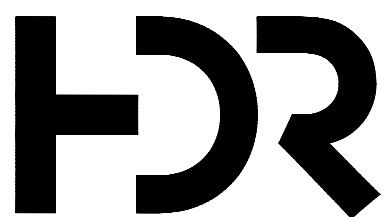


1. POSTS 2, AND 4 SHALL BE EXTRA LONG POSTS. POSTS 3, 5, 6, 7, 8, AND 9 SHALL BE STANDARD LENGTH.
2. POSTS 2 AND 4 SHALL BE FASTENED TO THE RAIL USING DETAIL "A".
3. FOR SIDE SLOPES 1:5 OR FLATTER, THE 18" OF CURVED BOX BEAM MAY BE PROVIDED IN A CURVED PORTION OF A 24' OR 36" PIECE. OTHERWISE, AN 18" SECTION IS TO BE SPLICED AT THE POINT OF TANGENCY.
4. THE DRAWING INDICATES THE TERMINAL INSTALLED ON LEVEL GROUND. WHEN INSTALLED OVER A SLOPE OR DITCH, THE TERMINAL END SHOULD BE PUSHED DOWN WITH THE EQUIVALENT OF APPROXIMATELY 100 LBS EFFORT TO DEPRESS THE TERMINAL DOWN.
5. POSTS 3, 5, AND 7 SHALL NOT BE CONNECTED TO BOX BEAM GUIDE RAIL. HOWEVER, FOR RUNS LESS THAN 130' IN LENGTH, ALL BACKUP POSTS SHALL BE FASTENED TO THE RAIL.
6. FOR DESIGN SPEEDS UNDER 50 MPH THE POINT OF REDIRECTION WILL BE AT THE POINT OF TANGENCY.
7. SEE STANDARD SHEET 606-04 IN BOOK 2 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



1. SEE STANDARD SHEET 606-04 IN BOOK 2 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.

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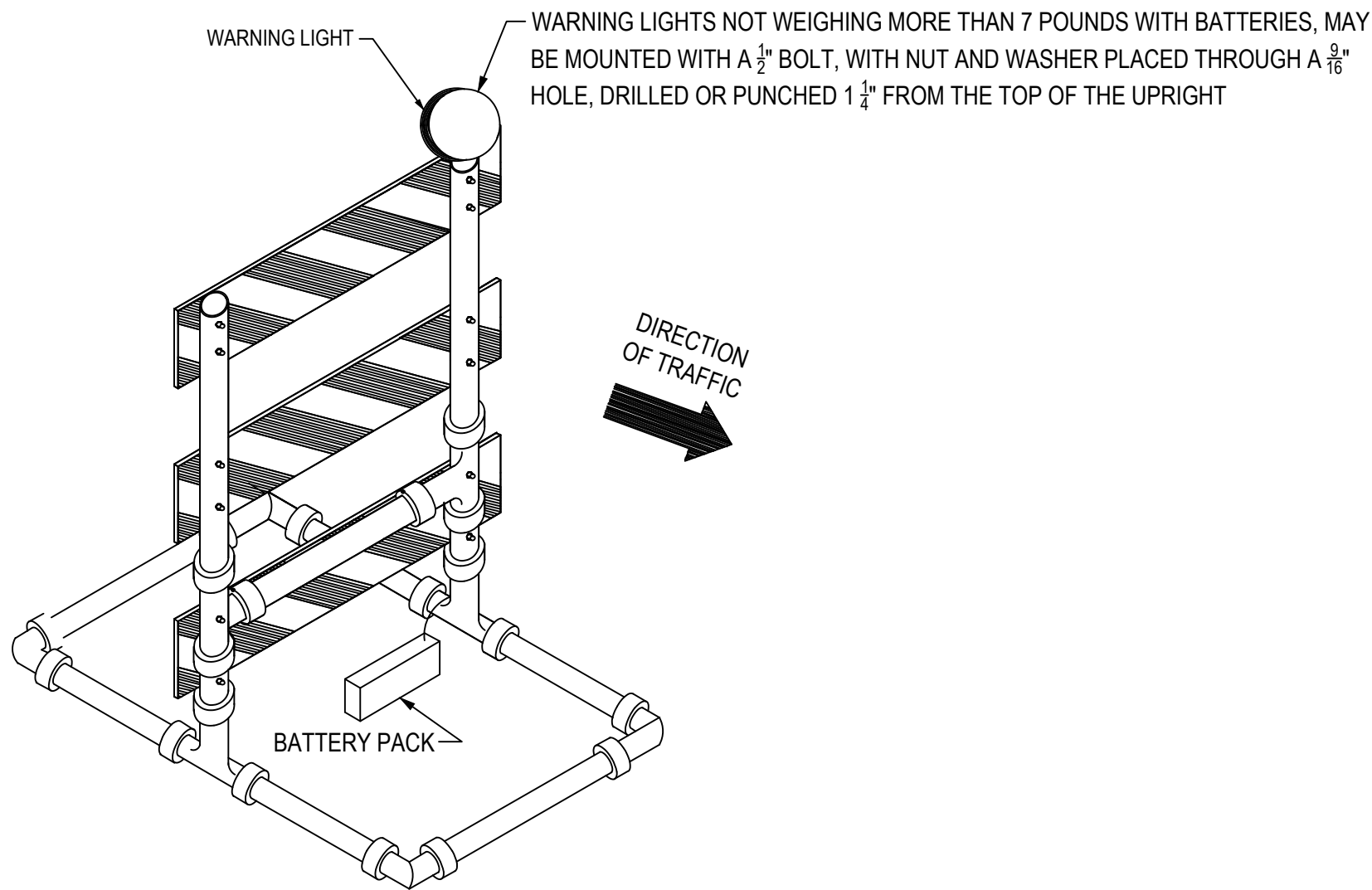
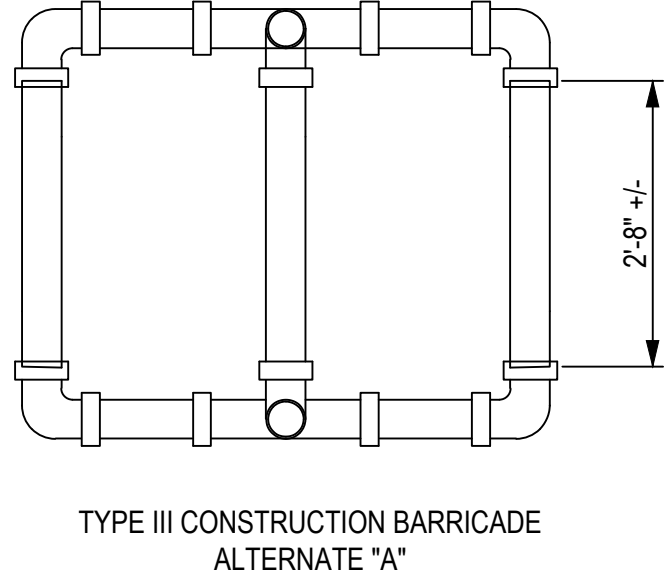
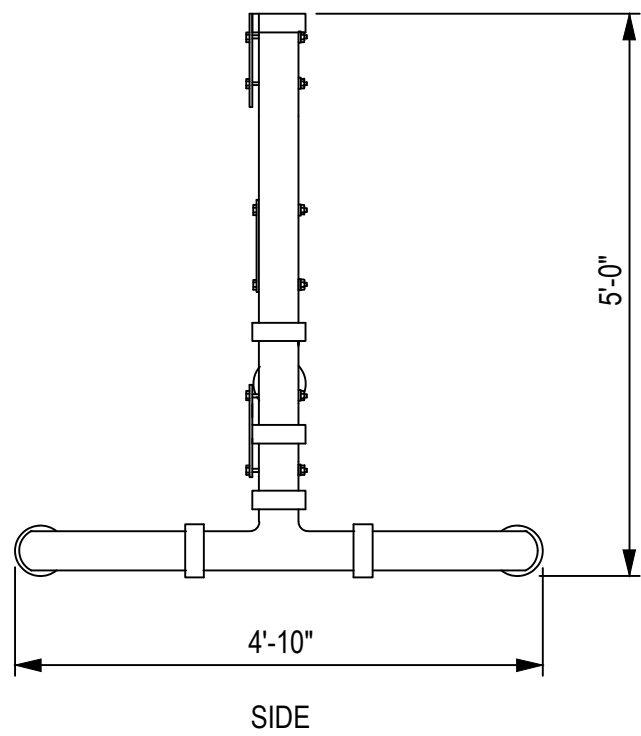
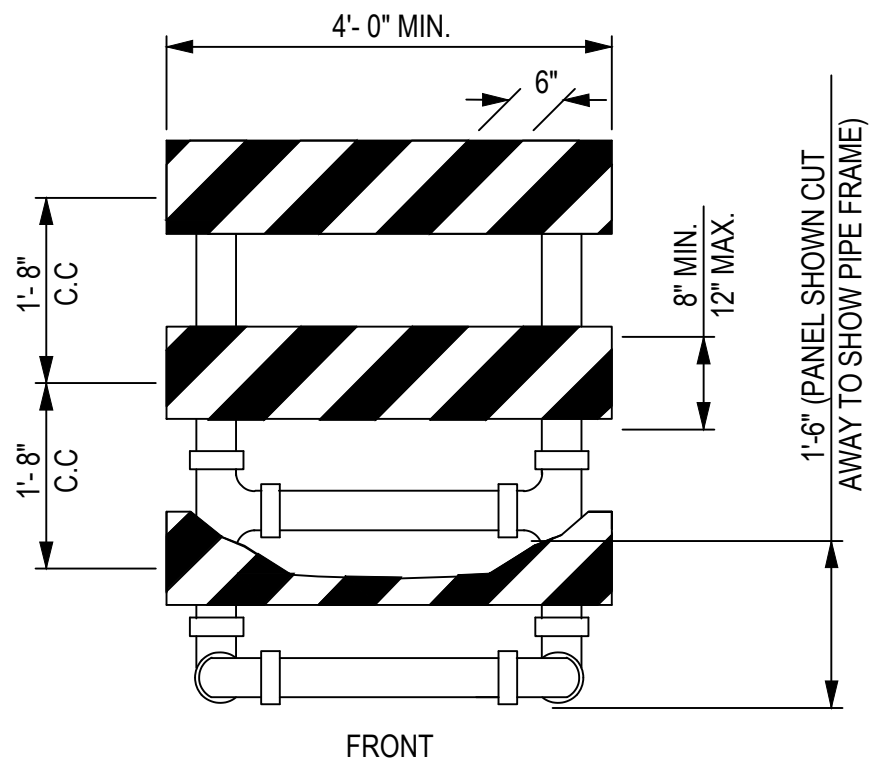
PROJECT NUMBER	10400319



TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION DETAILS - 2
CASCADE ROAD

SHEET
01C-1.07

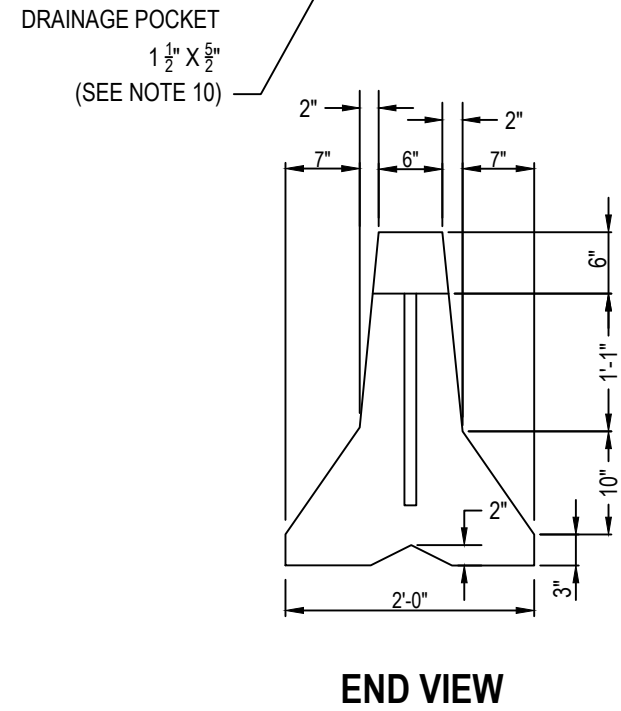
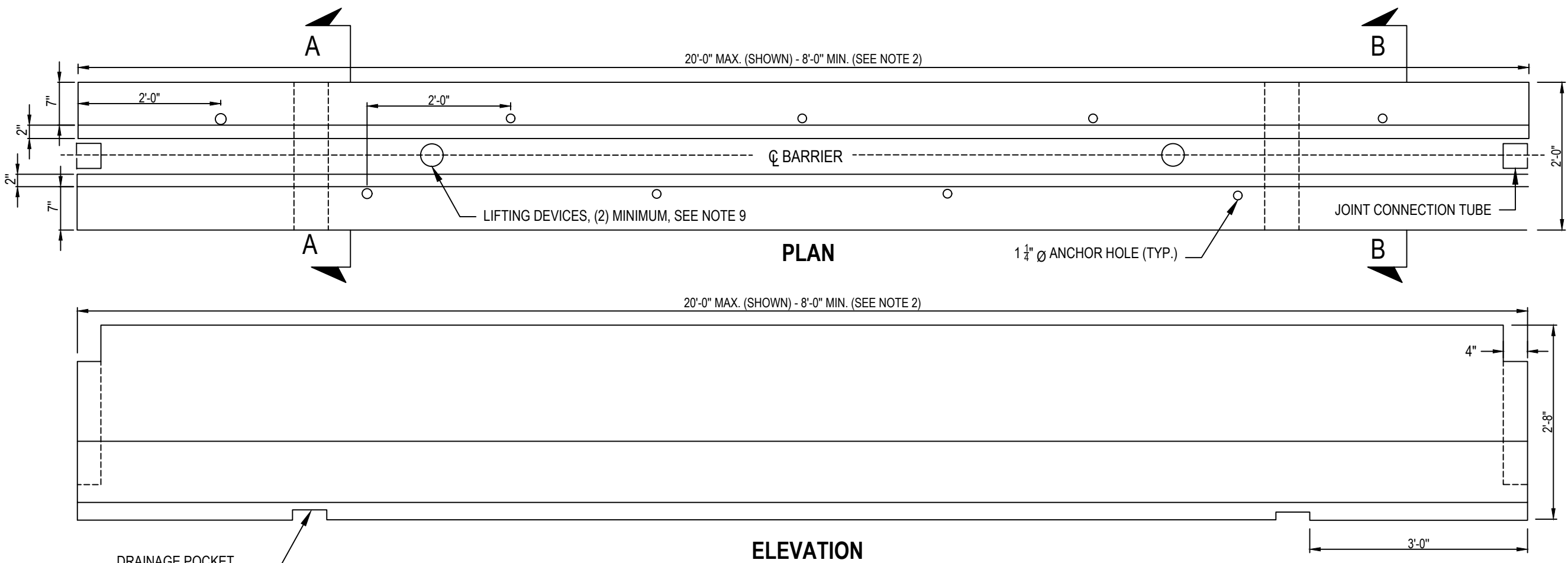


DETAILS FOR FASTENING LIGHTS
ON TOP OF BARRICADE

NOT TO SCALE

NOTES:

- THE DETAILS AND MATERIALS FOR TYPE III CONSTRUCTION BARRICADES ARE NCHRP 350 APPROVED. IF THE CONTRACTOR ELECTS TO USE AN ALTERNATE DESIGN OR MATERIALS, THE ALTERNATIVE SHALL BE NCHRP 350 APPROVED.
- THE ALTERNATES SHOWN ON SHEET 619-002 IN THE NY STANDARD SHEETS ARE EQUALLY ACCEPTABLE AND THE CONTRACTOR MAY USE ANY ONE OR A MIXTURE OF TYPES.
- PANELS SHALL HAVE 6" WIDE REFLECTORIZED ORANGE AND WHITE DIAGONAL STRIPES OF TYPE I OR TYPE III SHEETING SLOPING AT AN ANGLE OF 45° IN ACCORDANCE WITH \$729-08, TYPE III CONSTRUCTION BARRICADES. THE STRIPES SHALL SLOPE DOWNWARD TOWARD THE SIDE ON WHICH TRAFFIC IS TO PASS.
- BALLAST MAY BE PLACED ON THE BASE MEMBERS OF THE BARRICADE. BALLAST SHALL NOT EXTEND INTO THE ACCESSIBLE PASSAGE WIDTH OF 5' WHERE BARRICADES ARE USED TO CHANNELIZE PEDESTRIANS.
- PANELS FOR BARRICADES MAY BE WOOD, PLASTIC, OR ALUMINUM. PIPE FOR BARRICADES SHALL USE SDR SIZES 21 TO 32.5.
- WHEN THE BATTERY AND LIGHT WEIGH MORE THAN 7 LBS, THE BATTERY SHALL BE MOUNTED ON THE BOTTOM OF THE BARRICADE.
- ALL PIPES SHALL BE WHITE. WHITE FITTINGS ARE PREFERRED, BLACK MAY BE USED. ALL JOINTS IN ALTERNATE "A" SHALL BE GLUED WITH A SOLVENT CEMENT COMPATIBLE WITH THE P.V.C. PIPE.
- ALL JOINTS IN ALTERNATE "B" SHALL BE FREE TO SEPARATE UPON VEHICLE IMPACT. SHADED PIPES AND FITTINGS SHALL BE TIED TOGETHER WITH A MINIMUM 3/16" DIA. NYLON, OR EQUIVALENT ROPE THREADED INTO THE PIPE AND FITTING INTERIOR.
- IF BARRICADES ARE USED TO TEMPORARILY CHANNELIZE PEDESTRIANS, THERE SHALL BE A CONTINUOUS DETECTABLE BOTTOM AND TOP RAILS WITH NO GAP BETWEEN INDIVIDUAL BARRICADES TO BE DETECTABLE TO BLIND OR VISUALLY IMPAIRED USERS OF LONG CANES. THE BOTTOM OF THE BOTTOM RAIL SHALL BE NO HIGHER THAN 2" ABOVE THE GROUND AND THE TOP OF THE TOP RAIL SHALL BE NO LOWER THAN 3' ABOVE THE GROUND.
- SEE STANDARD SHEET 619-002 IN BOOK 3 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



FULL SECTION BAR LIST								
MARK	SIZE	NUMBER PER SECTION	LENGTH	TYPE	A	B	C	LOCATION
4B1	4	6	4'-11"	I	0'-5"	2'-4"	0'-1"	STIRRUPS
4B4	4	1 PER RECESS	3'-1"	II	0'-4"	1'-3 1/2"		ANCHOR RECESS HOOPS
4B5	4	SEE TABLE	4'-11"	I	0'-5"	2'-4"	0'-1"	STIRRUPS
6B2	6	2	SEE NOTE 7	STR.				LONGITUDINAL (TOP)
6B3	6	2	SEE NOTE 7	STR.				LONGITUDINAL (BOTTOM)
6B4	6	2	1'-2"	STR.				TRANSVERSE (BOTTOM)
6B5	6	2	0'-6"	STR.				TRANSVERSE (TOP)

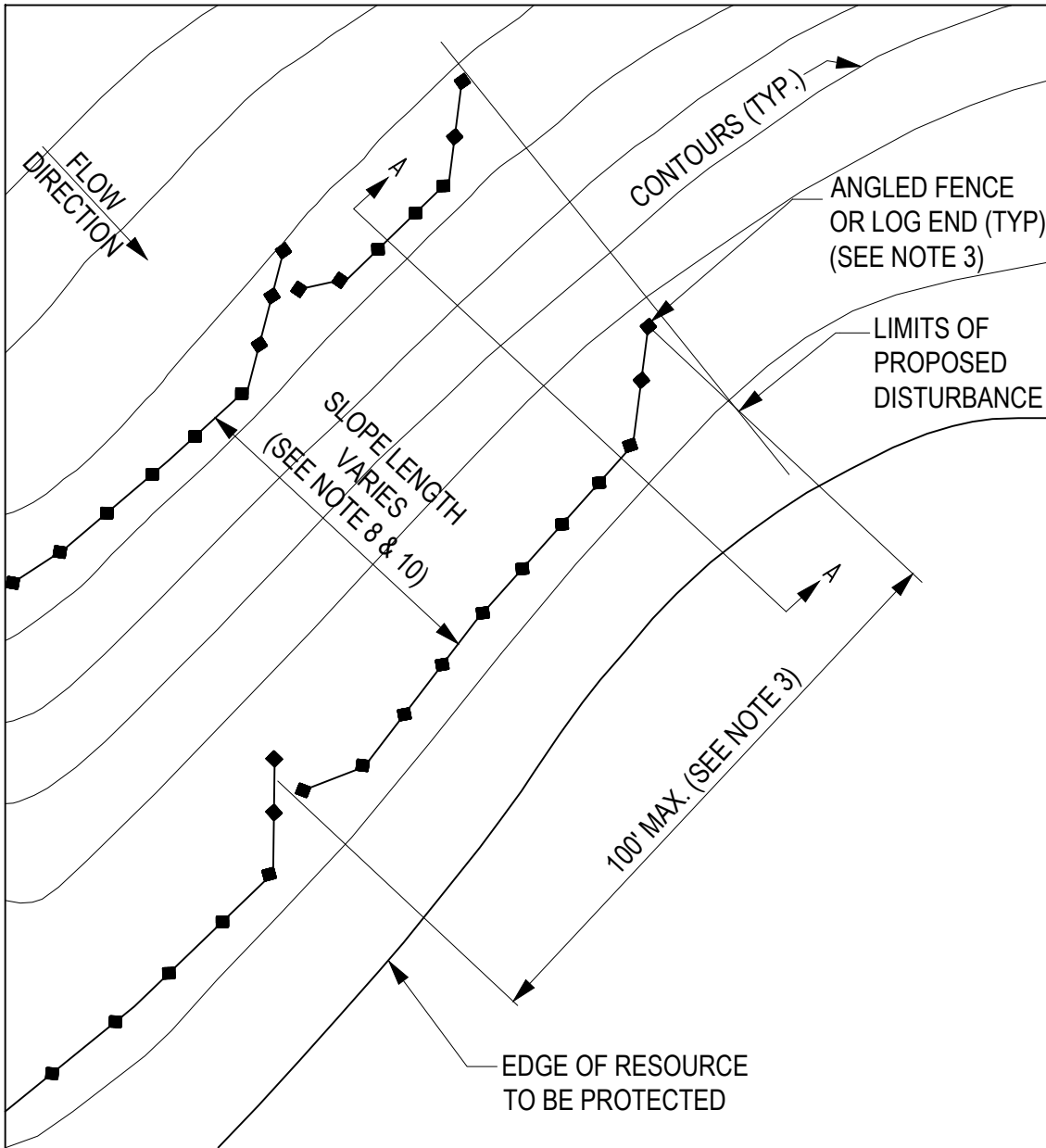
4B5 BAR LOCATION TABLE		
NOMINAL LENGTH OF BARRIER UNIT	X	NO. EACH SECTION
20'	6'-11"	2
18'	6'-5"	2
16'	5'-11"	2
14'	7'-0"	1
12'	6'-0"	1
10'	5'-0"	1
8'	N/A	0
"X" DISTANCE FROM END OF BARRIER TO 4B5 BAR		

TEMPORARY POSITIVE BARRIER

NOT TO SCALE

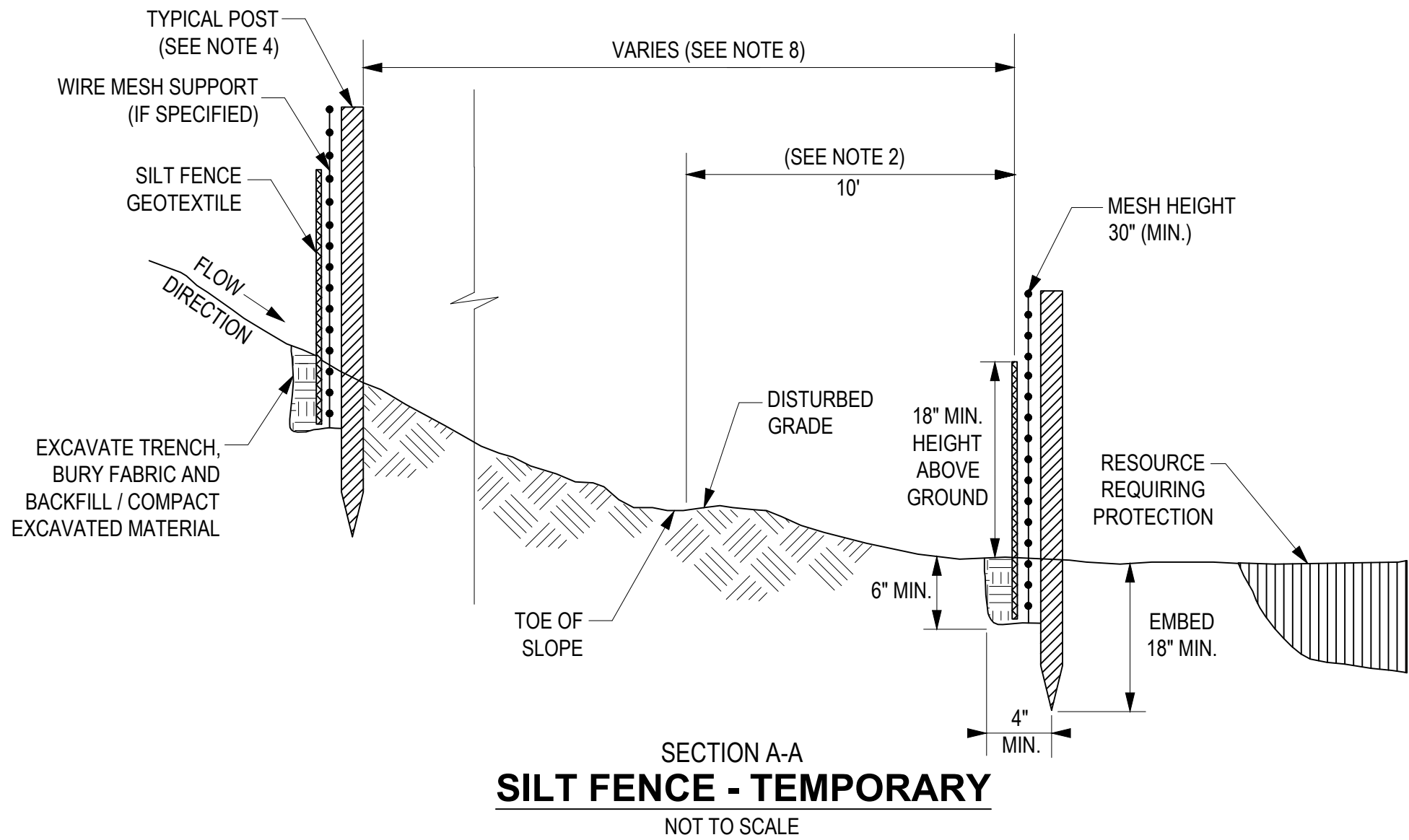
NOTES:

- TEMPORARY POSITIVE BARRIER SHALL BE PRECAST IN ACCORDANCE WITH THE REQUIREMENTS OF \$704-05 PRECAST CONCRETE BARRIER.
- TEMPORARY POSITIVE BARRIER SHALL BE PRECAST UNITS OF ONE OF THE FOLLOWING NOMINAL LENGTHS 8', 10', 12', 14', 16', 18', 20'.
- STEEL PLATE REINFORCEMENT SHALL BE ASTM A36M, A572M, GRADE 345 STEEL, TUBE REINFORCEMENT SHALL BE ASTM A500, GRADE B OR C, AND REINFORCING BARS SHALL BE A615, GRADE 420. EPOXY BARS ARE NOT REQUIRED.
- ALL WELDING SHALL BE PERFORMED BY A WELDER QUALIFIED IN ACCORDANCE WITH SECTION 8 OF THE NYS STEEL CONSTRUCTION MANUAL.
- SURFACES TO BE WELDED SHALL BE FREE OF SLAG, RUST, MOISTURE, GREASE OR ANY OTHER MATERIAL THAT WILL PREVENT PROPER WELDING OR PRODUCE OBJECTIONABLE FUMES.
- WELDING SHALL BE SHIELDED METAL ARC WELDING USING PROPERLY DRIED 5/32" E7018 ELECTRODES CONFORMING TO THE REQUIREMENTS OF SECTION 7 OF THE NYS STEEL CONSTRUCTION MANUAL.
- THE LENGTH OF THE 6B2 AND 6B3 BARS WILL VARY WITH THE LENGTH OF THE BARRIER SEGMENT.
- CONCRETE CLEAR COVER FOR REINFORCING BARS SHALL BE 1/2" (MIN.) UNLESS OTHERWISE SPECIFIED.
- A MINIMUM OF (2) TWO RECESSED LIFTING DEVICES, EACH WITH THE CAPACITY TO LIFT A MASS OF 6 TONS (MINIMUM), SHALL BE INSTALLED ON EACH SEGMENT. SEGMENT MASS IS APPROXIMATELY 400 LBS/FT.
- ONE DRAINAGE POCKET SHALL BE INCLUDED IN THE CENTER OF 8'-0" AND 10'-0" SEGMENTS, TWO DRAINAGE POCKETS IN ALL OTHER SEGMENTS.
- CONNECTION KEY COVER PLATE SHALL BE INSTALLED FLUSH WITH THE BARRIER TOP..
- 1" ASTM A36M ANCHOR PINS SHALL BE PLACED IN FOUR ANCHOR HOLES OF EACH SEGMENT TO BE PINNED. PINS SHALL BE PLACED ON THE WORKZONE SIDE OF THE BARRIER, UNLESS OTHERWISE SPECIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER.
- BASED ON SEGMENT LENGTH AND MAXIMUM JOINT ROTATION, TEMPORARY POSITIVE BARRIER CANNOT BE INSTALLED ON RADII TIGHTER THAN THE FOLLOWING MINIMUMS: 8' 92', 10' 115', 12' 138', 14' 161', 16' 184', 18' 207', 20' - 230'.
- SEE STANDARD SHEET 619-001 IN BOOK 3 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



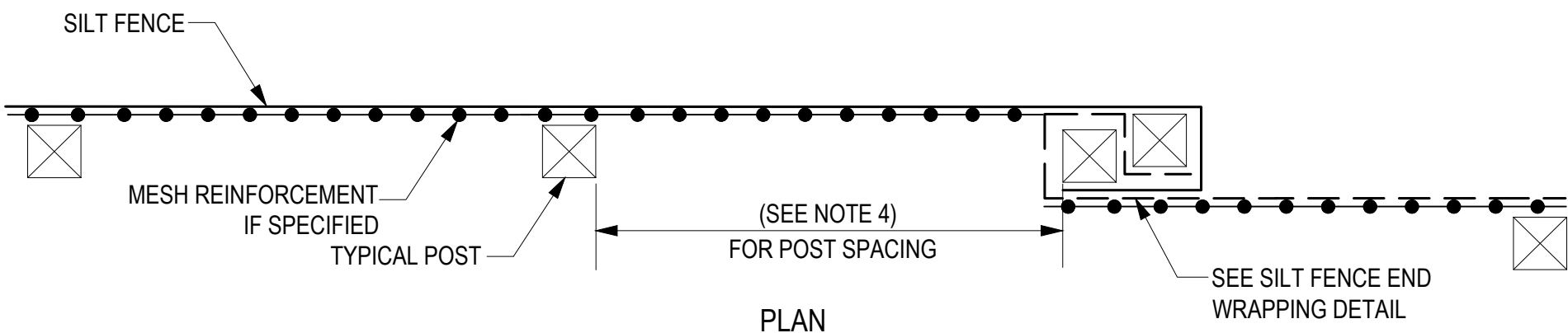
PLAN
EXAMPLE LAYOUT OF SILT FENCE OR SEDIMENT FILTER LOG
NOT TO SCALE

- NOTES:
- SEE STANDARD SHEET 209-01 IN BOOK 1 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



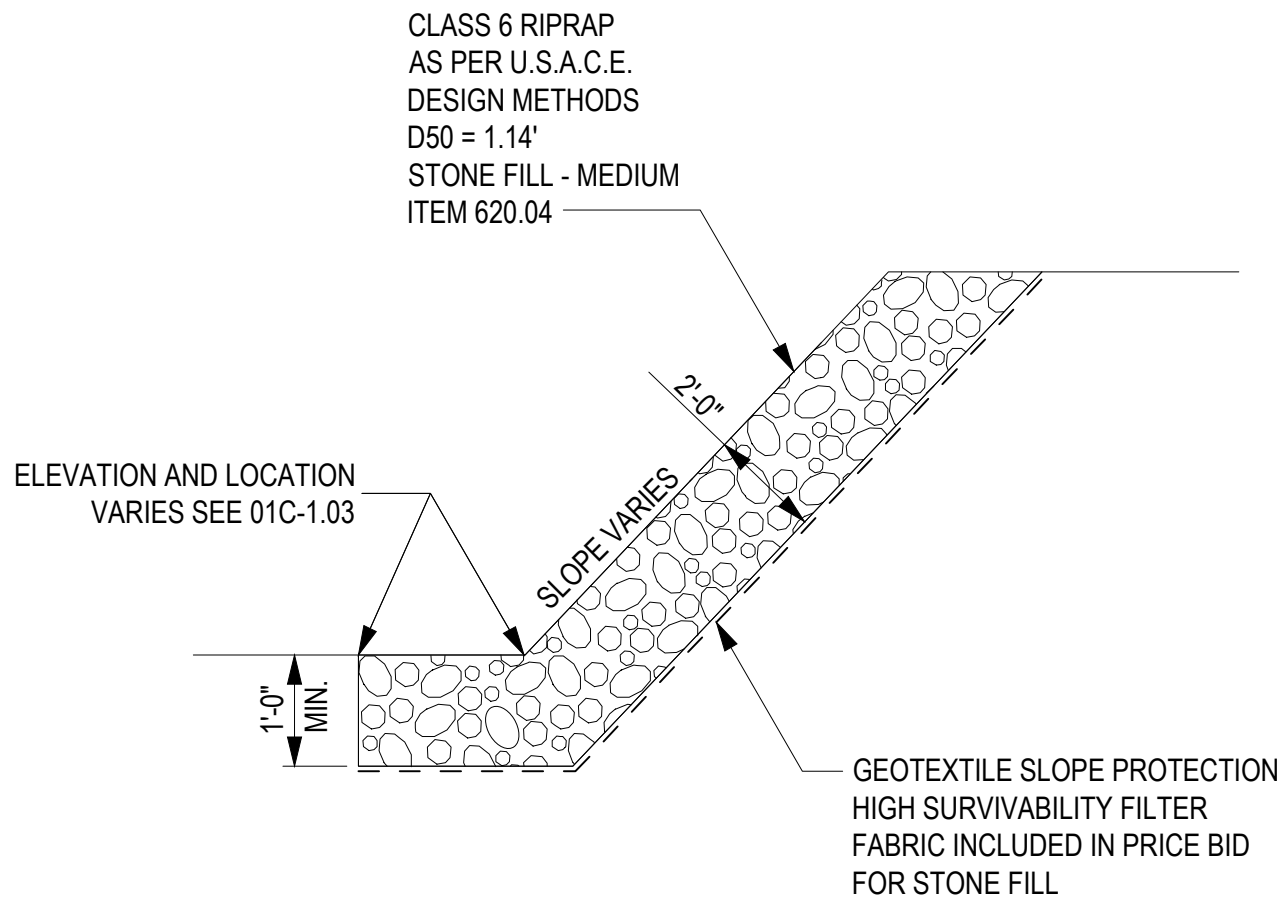
SECTION A-A
SILT FENCE - TEMPORARY
NOT TO SCALE

- NOTES:
- SEE STANDARD SHEET 209-01 IN BOOK 1 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.

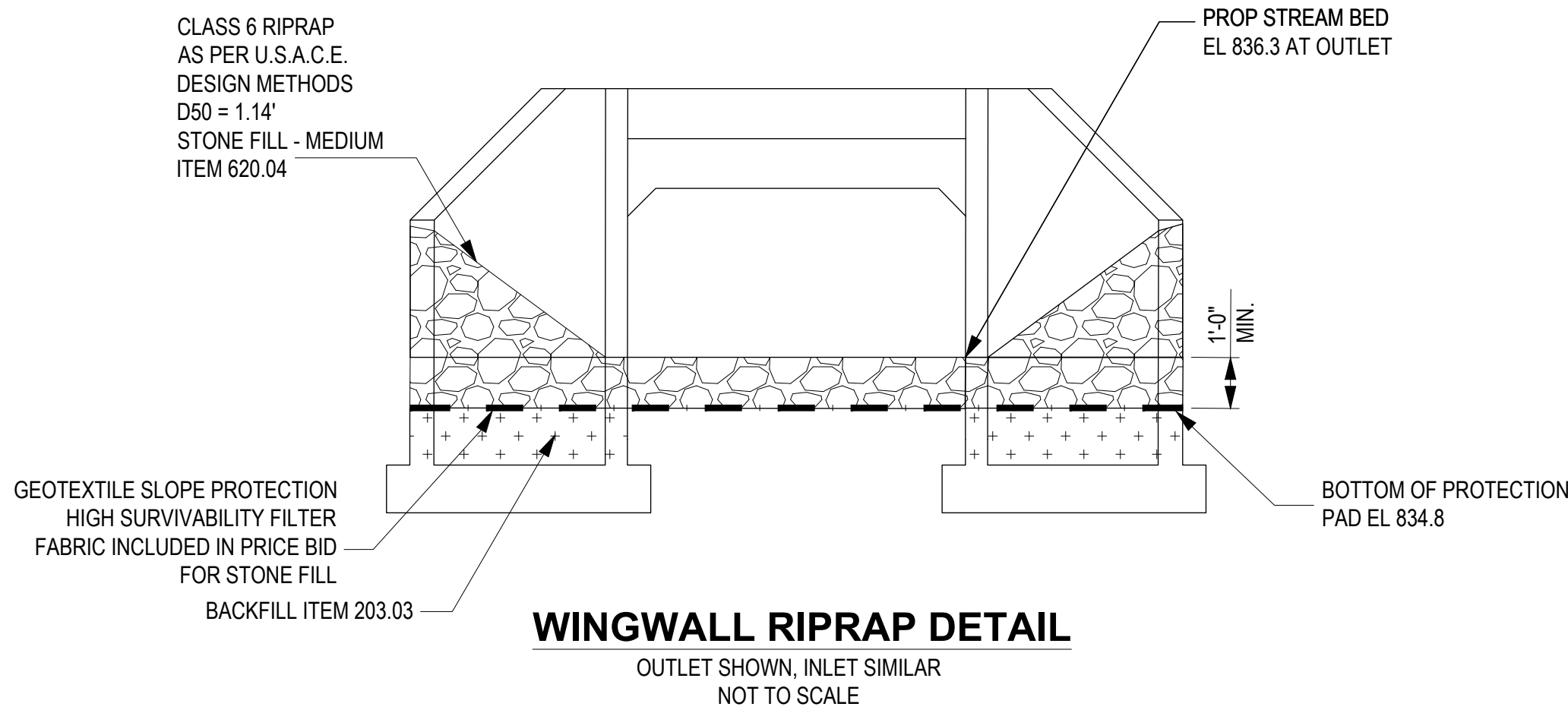


PLAN
SILT FENCE PLACEMENT
NOT TO SCALE

- NOTES:
- SEE STANDARD SHEET 209-01 IN BOOK 1 OF 4 OF THE NEW YORK STANDARD SHEETS DATED MAY 01, 2024.



RIPRAP SLOPE PROTECTION
NOT TO SCALE



WINGWALL RIPRAP DETAIL
OUTLET SHOWN, INLET SIMILAR
NOT TO SCALE

EROSION CONTROL NOTES:

- FULL SEDIMENT CONTROL MEASURES WILL BE INCORPORATED INTO THE PROJECT CONSTRUCTION. THESE PRACTICES WILL BE IN ACCORDANCE WITH THOSE SET FORTH IN THE NEW YORK STATE DEPT. OF ENVIRONMENTAL CONSERVATION PUBLICATION TITLED "NEW YORK STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL".
- CONTRACTOR SHALL PERFORM HIS OPERATIONS TO MINIMIZE AREAS OF DISTURBANCE. ALL DISTURBED AREAS SHALL BE FULLY RESTORED TO THE ORIGINAL CONDITION. THE COST TO PERFORM THIS WORK SHALL BE INCLUDED IN VARIOUS ITEMS THROUGHOUT THIS CONTRACT. NO SEPARATE PAYMENT WILL BE MADE FOR RESTORATION WORK.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A SAFE AND DRY EXCAVATION FOR THE SUBSTRUCTURE REMOVAL AND INSTALLATION. THE COST OF ANY BRACING, CONNECTIONS, MATERIALS, DEWATERING, AND OTHER EQUIPMENT OR OPERATIONS NECESSARY TO CREATE AND/OR MAINTAIN THESE CONDITIONS SHALL BE INCLUDED IN THE COST OF THE VARIOUS ITEMS IN THE CONTRACT.
- CONTRACTOR TO SUBMIT DEWATERING AND EROSION AND SEDIMENT CONTROL PLANS TO BE APPROVED BY ENGINEER PRIOR TO START OF WORK.
- EROSION CONTROL MEASURES ARE TO BE INSTALLED PRIOR TO ANY GROUND DISTURBANCE AND SHALL INCLUDE ALL NECESSARY ITEMS: SILT FENCE, STRAW BALE DIKES, TURBIDITY CURTAIN, DIVERSION SWALE/DIKES AND ANY OTHER TEMPORARY EROSION CONTROL MEASURES NECESSARY TO PREVENT MIGRATION OF ANY SEDIMENT FROM THE PROJECT AREA. SEE STREAM RESTORATION PLAN SHEET 13 OF 16 FOR APPROXIMATE LOCATION OF SILT FENCE. SILT FENCE TO BE PAID FOR UNDER ITEM 209.13. OTHER ITEMS NECESSARY FOR EROSION CONTROL TO BE INCLUDED IN THE COST OF VARIOUS ITEMS IN THE CONTRACT.
- SILT FENCE SHALL BE INSTALLED ON DOWNSLOPE EDGE OF SOIL DISTURBED BY THIS PROJECT. UPON FINAL GRADING THE DISTURBED SOIL WILL BE SEEDED AND MULCHED, AND THE MULCH WILL BE MAINTAINED UNTIL SOIL IS FULLY VEGETATED.
- CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO AVOID CONTAMINATION OF THE STREAM BY FRESH CONCRETE AND CONCRETE LEACHATE.
- DEBRIS AND EXCESS MATERIALS FROM CONSTRUCTION SHALL BE COMPLETELY REMOVED FROM THE BED AND BANKS OF THE STREAM.
- CONTRACTOR SHALL PLACE RIPRAP AS SHOWN ON THE PLANS AT THE DIRECTION OF THE ENGINEER.

CONSTRUCTION NOTES

- SILT FENCE OR SEDIMENT FILTER LOGS SHALL BE INSTALLED ON A LINE OF EQUAL ELEVATION (CONTOUR). IT MAY BE INSTALLED AT INTERMEDIATE POINTS UP SLOPES AS WELL AS AT THE BOTTOM.
- FOR LOCATIONS THAT WARRANT PLACEMENT OF SILT FENCE OR SEDIMENT FILTER LOGS AT THE BASE OF SLOPES, SILT FENCE OR SEDIMENT FILTER LOGS SHALL BE PLACED A MINIMUM OF 10 FEET FROM THE TOE OF THE SLOPE, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF THE SEDIMENT CONTAINMENT AREA.
- THE ENDS OF A ROW OF SILT FENCE OR SEDIMENT FILTER LOGS SHALL BE ANGLED UP SLOPE TO PREVENT CHANNELIZED FLOW FROM BEING CONVEYED PAST THE ENDS OF THE FENCE. A SECTION OF SILT FENCE OR SEDIMENT FILTER LOGS SHOULD NOT EXCEED 100 FEET IN LENGTH.
- WOOD POSTS FOR SILT FENCE SHALL HAVE A CROSS-SECTION AREA OF 3.5 SQUARE INCHES OR STEEL POSTS SHALL BE "T" OR "U" SHAPE AND 1.33 POUNDS/FEET (MINIMUM) FOR STEEL. SPACING FOR THE PROVIDED SILT FENCE POSTS SHALL BE AS DESIGNATED ON THE DEPARTMENT APPROVED LIST FOR SILT FENCE. THE LENGTH OF SILT FENCE POSTS SHALL BE 40 INCHES. WOOD POSTS FOR SEDIMENT FILTER LOGS SHALL BE NOMINAL 2X2. THE LENGTH OF FILTER LOG POSTS SHALL BE 16" GREATER THAN THE DIAMETER OF THE LOG.
- THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 6" BELOW GROUND. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSLOPE SIDE OF THE FABRIC.
- WHERE ENDS OF GEOTEXTILE FABRIC COME TOGETHER, THEY SHALL BE OVERLAPPED AND FOLDED AND STAPLED TO PREVENT SEDIMENT BYPASS, OR THE END POSTS OF TWO SECTIONS SHALL BE WRAPPED AS SHOWN IN THE DETAIL FOR SILT FENCE END WRAPPING.
- SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE-HALF OF THE ABOVE GROUND HEIGHT OR WHEN BULGES DEVELOP IN THE FABRIC. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.
- THE FOLLOWING ARE MAXIMUM SLOPE LENGTHS (DISTANCE BETWEEN ROWS) FOR SILT FENCE INSTALLATION:

SILT FENCE MAXIMUM SLOPE LENGTH (FEET)			
SLOPE	STEEPNESS	STANDARD**	REINFORCED***
*5-10%	20:1 TO 10:1	125	250
10-20%	10:1 TO 5:1	100	150
20-33%	5:1 TO 3:1	60	80
33-50%	3:1 TO 2:1	40	70
>50%	> 2:1	20	30

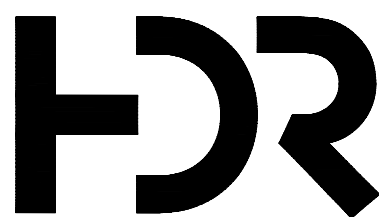
* FOR SLOPES LESS THAN 5% SILT FENCE IS NOT REQUIRED UNLESS IN SENSITIVE AREAS OR HIGHLY ERODIBLE SOILS.

** STANDARD SILT FENCE IS FABRIC ROLLS STAPLED TO WOODEN POSTS DRIVEN 18 INCHES INTO THE GROUND.

*** REINFORCED SILT FENCE IS FABRIC PLACED AGAINST WELDED WIRE MESH WITH ANCHORED STEEL POSTS DRIVEN 18 INCHES INTO THE GROUND.

- INSTALLATION OF SILT FENCE OR SEDIMENT LOG, INCLUDING EXCAVATION, BACKFILL, AND COMPACTION OF SOIL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM.
- SEDIMENT FILTER LOG POSTS SHALL BE SPACED NO MORE THAN 10 FEET APART. ENDS OF LOGS SHALL BE OVERLAPPED BY 24 INCHES AND STAKED SIDE BY SIDE. THE MAXIMUM SLOPE LENGTH (DISTANCE BETWEEN ROWS) SHALL NOT EXCEED THE FOLLOWING LIMITS:

SEDIMENT FILTER LOG MAX SLOPE LENGTH (FEET)							
DIA. (IN.)	SLOPE %						
	2	5	10	20	25	33	50
12	250	225	125	65	50	40	25
18	275	250	150	70	55	45	30
24	350	275	200	130	100	60	35



ISSUE	DATE	DESCRIPTION

PROJECT MANAGER LAURA BARCA	
PROJECT NUMBER	10400319

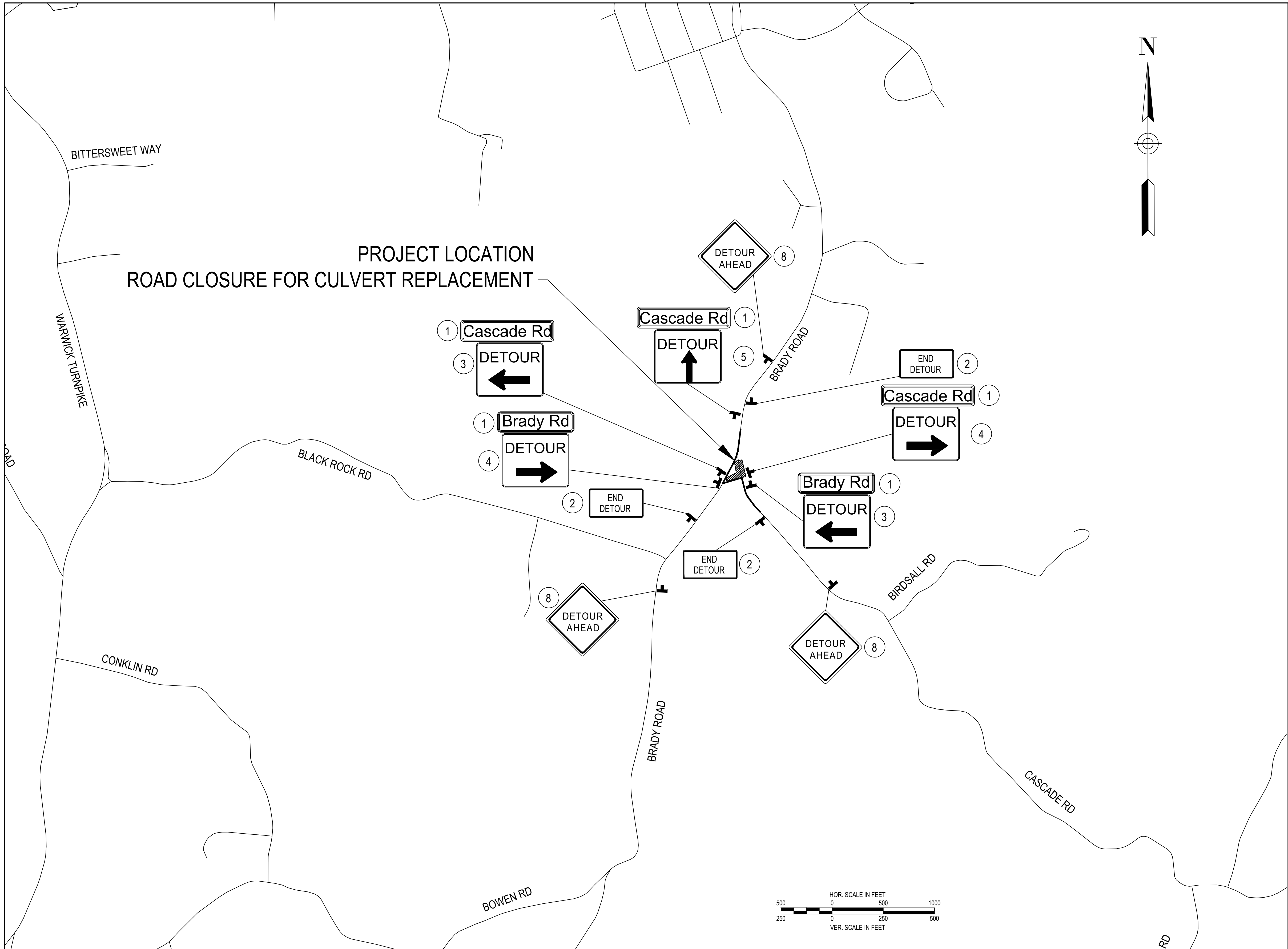


TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

EROSION CONTROL DETAILS
CASCADE ROAD

SHEET
01C-1.08

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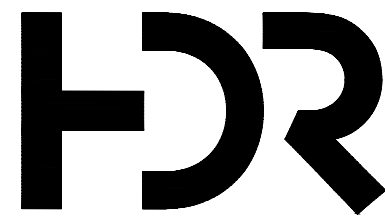
MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

1. MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE COMPLIED WITH THROUGHOUT THE LENGTH AND DURATION OF THE CONTRACT IN ACCORDANCE WITH "THE NEW YORK STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" AND THE CONTRACT DOCUMENTS.
2. DISTANCES SHOWN ARE APPROXIMATE ONLY AND MAY BE REVISED BY THE ENGINEER TO MEET FIELD CONDITIONS (DRIVEWAYS, HIGHWAY ALIGNMENT, ETC.)
3. THE SIGNING SHOWN IS A MINIMUM ONLY, ADDITIONAL SIGNING MAY BE REQUIRED TO MEET TRAFFIC AND/OR FIELD CONDITIONS. ANY ADDITIONAL SIGNS UP TO 6, TO BE PROVIDED AT NO ADDITIONAL COST.
4. DURING NON-WORKING HOURS, ALL CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE STORED IN THE CLOSED PORTION OF THE ROADWAY BEHIND THE CONCRETE BARRIERS.
5. WORK ZONE TRAFFIC CONTROL, INCLUDING NECESSARY SIGNS, ETC. AND REMOVAL, STORAGE AND REINSTALLING EXISTING SIGNS PAID FOR UNDER ITEM 619.01.
6. NO ADDITIONAL PAYMENT WILL BE MADE FOR MOVEMENT OF TEMPORARY POSITIVE BARRIERS AFTER INITIAL PLACEMENT. COST FOR MOVEMENT OF EXISTING TEMPORARY POSITIVE BARRIERS SHALL BE CONSIDERED AS PART OF THE MOBILIZATION COST.
7. TYPE B FLASHERS SHALL BE MOUNTED ON SIGN TYPE 6 AND MAINTAINED FOR THE DURATION OF THE ROAD CLOSURE, TO BE INCLUDED IN ITEM 619.01.

LEGEND:

- DETOUR ROUTE DIRECTIONS
— DETOUR ROUTE

SIGN	NO. REQ'D.	SIGN NO.	TEXT	SIZE
①	2	D3-1a	Brady Rd	VARIES" X 12"
①	3	D3-1a	Cascade Rd	VARIES" X 12"
②	3	M4-8a	END DETOUR	30" X 24"
③	2	M4-9L	DETOUR ←	30" X 24"
④	2	M4-9R	DETOUR →	30" X 24"
⑤	1	M4-9S	DETOUR ↑	30" X 24"
⑥	1	R2-10f	LOCAL TRAFFIC ONLY NO ACCESS TO BRADY ROAD OR S STREET EXT	48" X 36"
⑦	1	R11-2	ROAD CLOSED	48" X 30"
⑧	3	W20-2	DETOUR AHEAD	36" X 36"



ISSUE	DATE	DESCRIPTION

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PROJECT NUMBER	10400319

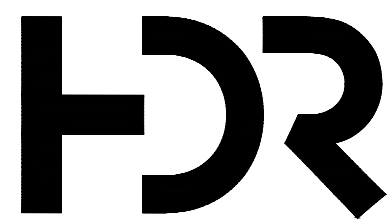


TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

DETOUR PLAN
CASCADE ROAD

SHEET
01C-1.09

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ISSUE	DATE	DESCRIPTION

LAURA BARCA



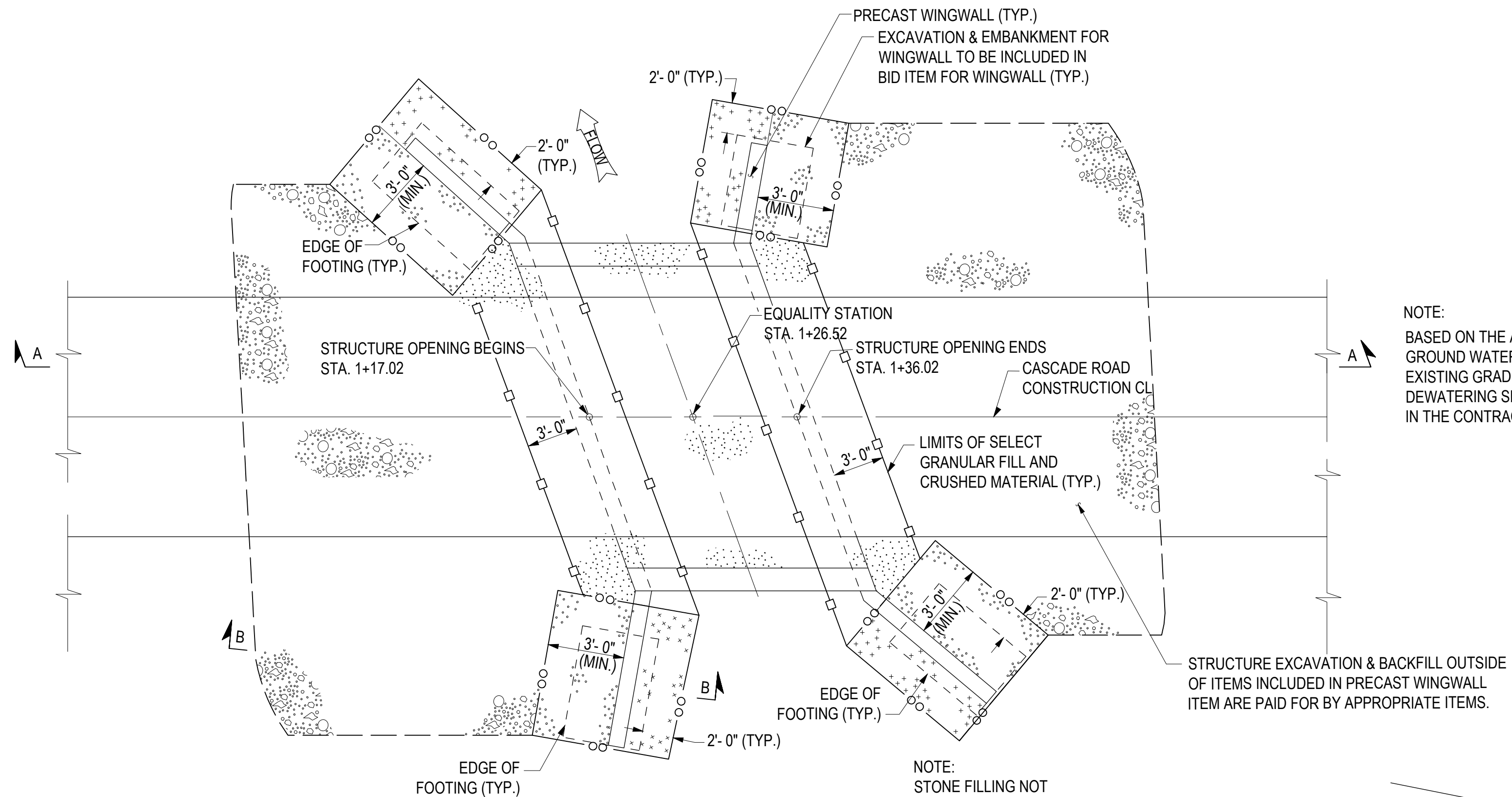
TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

CULVERT EARTHWORK DETAILS
CASCADE ROAD

SHEET
01S-1.01

LEGEND

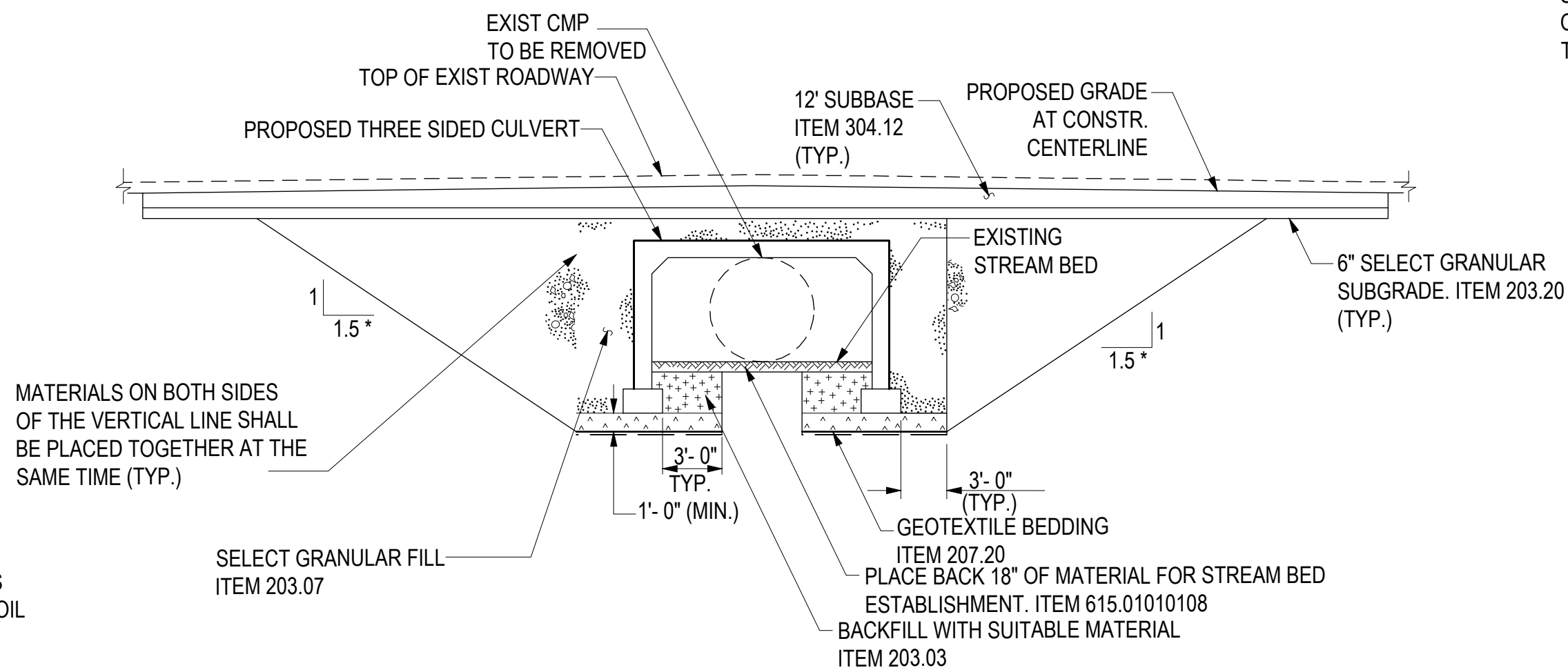
- EXISTING GROUND SURFACE
 - SELECT GRANULAR FILL, (ITEM 203.07).
 - EMBANKMENT IN PLACE, (ITEM 203.03).
 - BACKFILL WITH SUITABLE EXCAVATED MATERIAL AS APPROVED BY THE ENGINEER UNDER ITEM 203.03.
 - CRUSHED MATERIAL MEETING THE REQUIREMENTS OF MATERIAL DESIGNATION 703-0201, 703-0202 OR 703-0204 WITH A PRIMARY SIZE DESIGNATION OF 2. (ITEM 623.12)
 - CONTROLLED LOW STRENGTH MATERIAL (CLSM) MEETING THE REQUIREMENTS OF SECTION 204. CLSM SHALL BE DESIGNED SO THAT IT FLOWS INTO THE VOIDS OF THE CRUSHED MATERIAL AND SETS UP SUFFICIENTLY WITHIN 24 HOURS TO ALLOW PLACEMENT OF ADDITIONAL MATERIAL. COST TO BE INCLUDED IN PRECAST ITEMS.
 - AREA ENCLOSED WITHIN THESE LINES DESIGNATES PAYMENT LINES FOR STRUCTURE EXCAVATION AND BACKFILL TO BE PAID FOR BY APPROPRIATE ITEMS.
 - WORK ENCLOSED WITHIN THE AREA OUTLINED BY THESE LINES SHALL BE PAID FOR IN THE CONTRACTOR PRICE BID FOR THE WINGWALL ITEM 562.03.
 - LIMITS OF SELECT GRANULAR FILL AND CRUSHED MATERIAL.
- METHOD OF EXCAVATION AND BACKFILL WITHIN THESE TWO LIMITS SHALL BE AS FOLLOWS:
- STRUCTURE EXCAVATION - EXCAVATE IN ACCORDANCE WITH ITEM 206.01
 - BACKFILL - BACKFILL IN ACCORDANCE WITH SELECT GRANULAR FILL WITH ITEM 203.07
 - SUITABLE EXCAVATED MATERIAL AND CRUSHED MATERIAL MEETING THE REQUIREMENTS OF MATERIAL DESIGNATION 703-0201, 703-0202 OR 703-0204 WITH A PRIMARY SIZE DESIGNATION OF 2.



PLAN

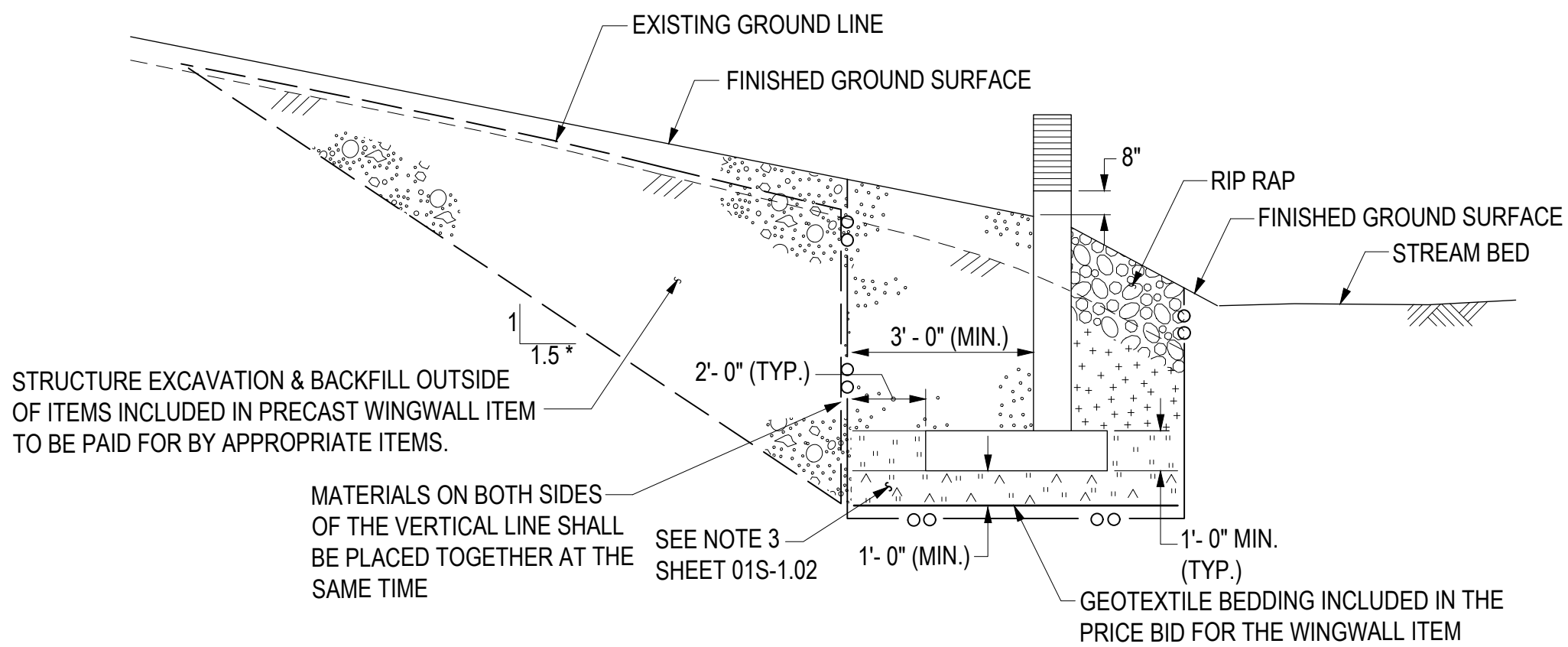
NOT TO SCALE

EARTHWORK DETAILS ARE GENERIC VIEWS OF STRUCTURE. SEE SHEETS 01S-1.02 TO 01S-1.04 FOR CULVERT DIMENSIONS AND DETAILS.



SECTION A-A

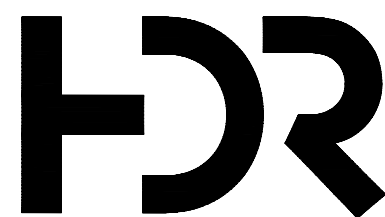
NOT TO SCALE



SECTION B-B PRECAST CANTILEVER WINGWALL

NOT TO SCALE

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ISSUE	DATE	DESCRIPTION
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PROJECT NUMBER	10400319
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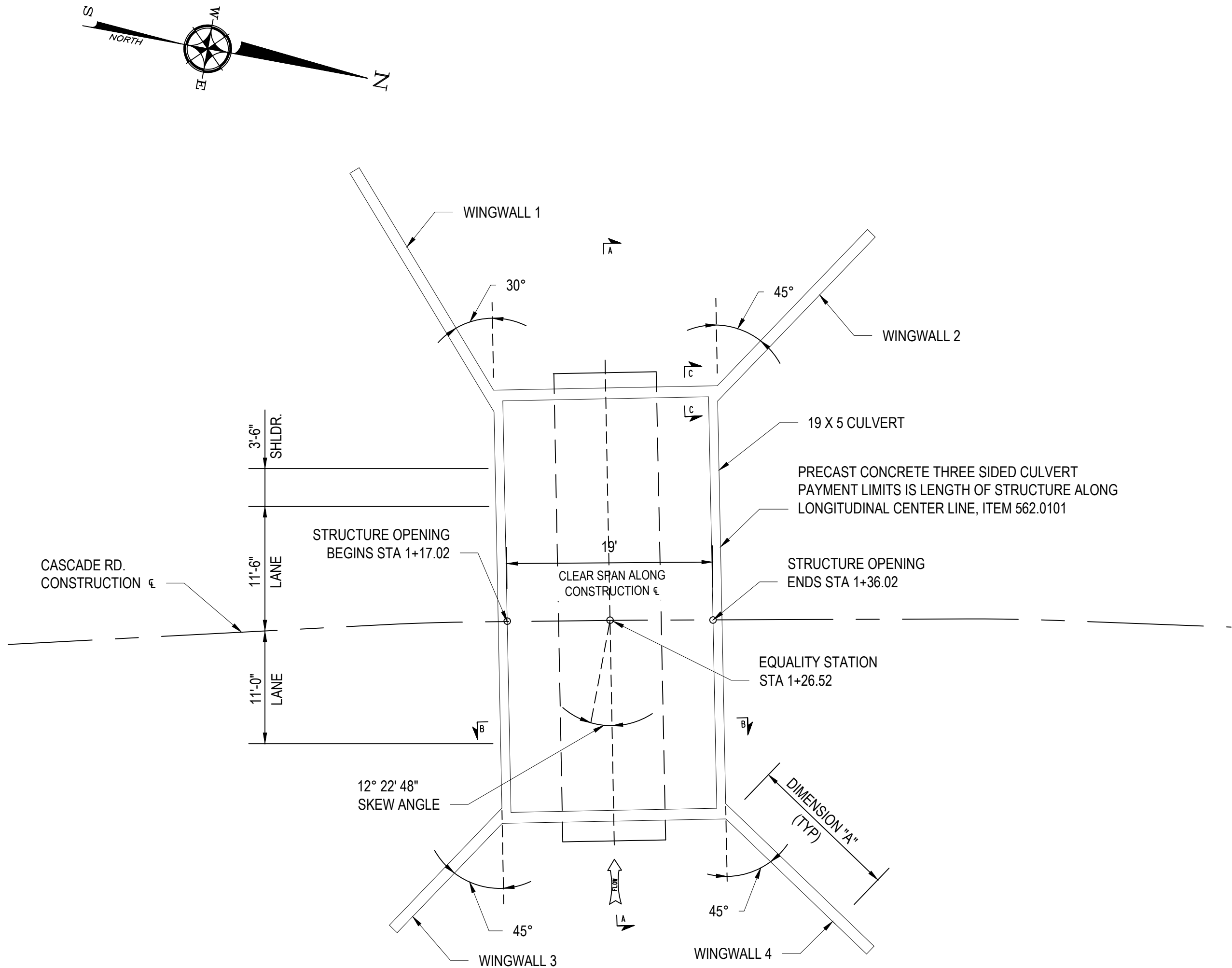
LAURA BARCA



TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

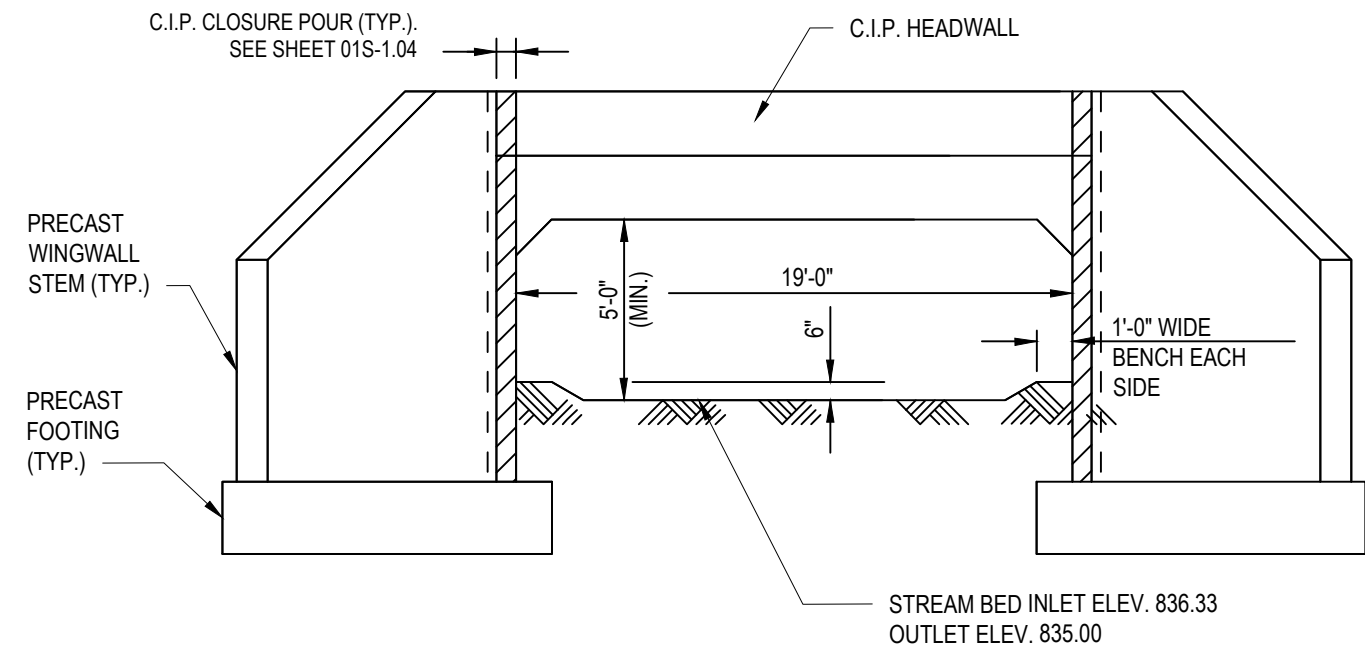
PRECAST CULVERT PLAN AND
ELEVATION
CASCADE ROAD

SHEET
01S-1.02



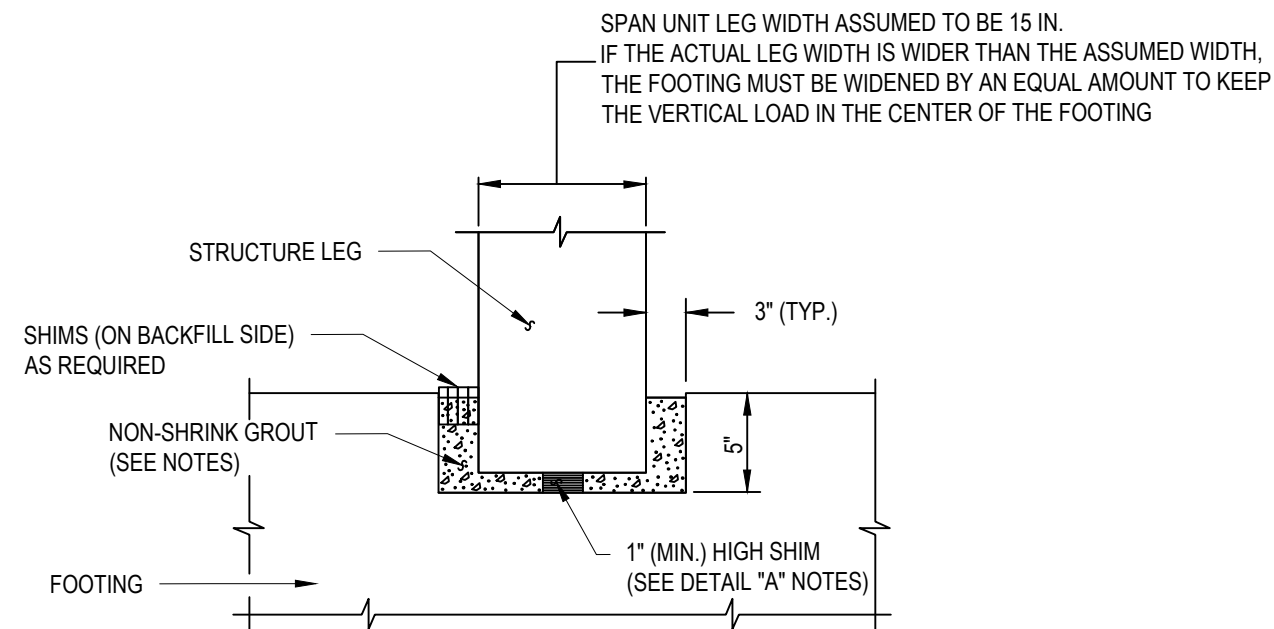
PLAN VIEW - CASCADE ROAD

SCALE: 1" = 10'



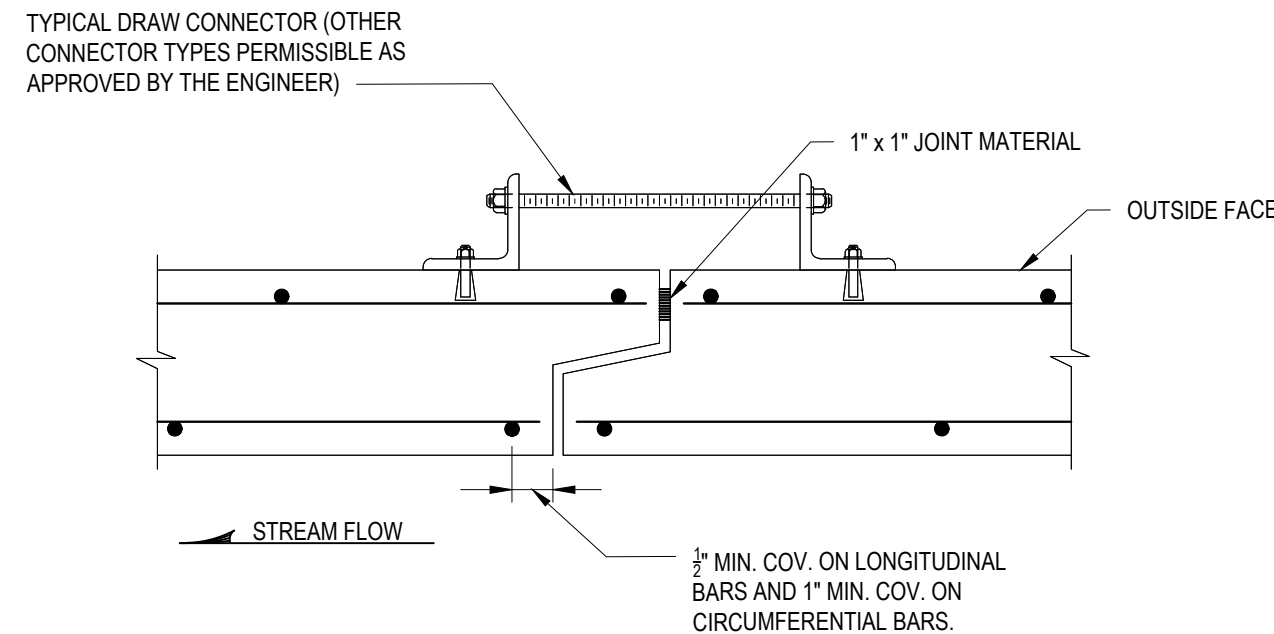
TYPICAL CULVERT ELEVATION

NOT TO SCALE



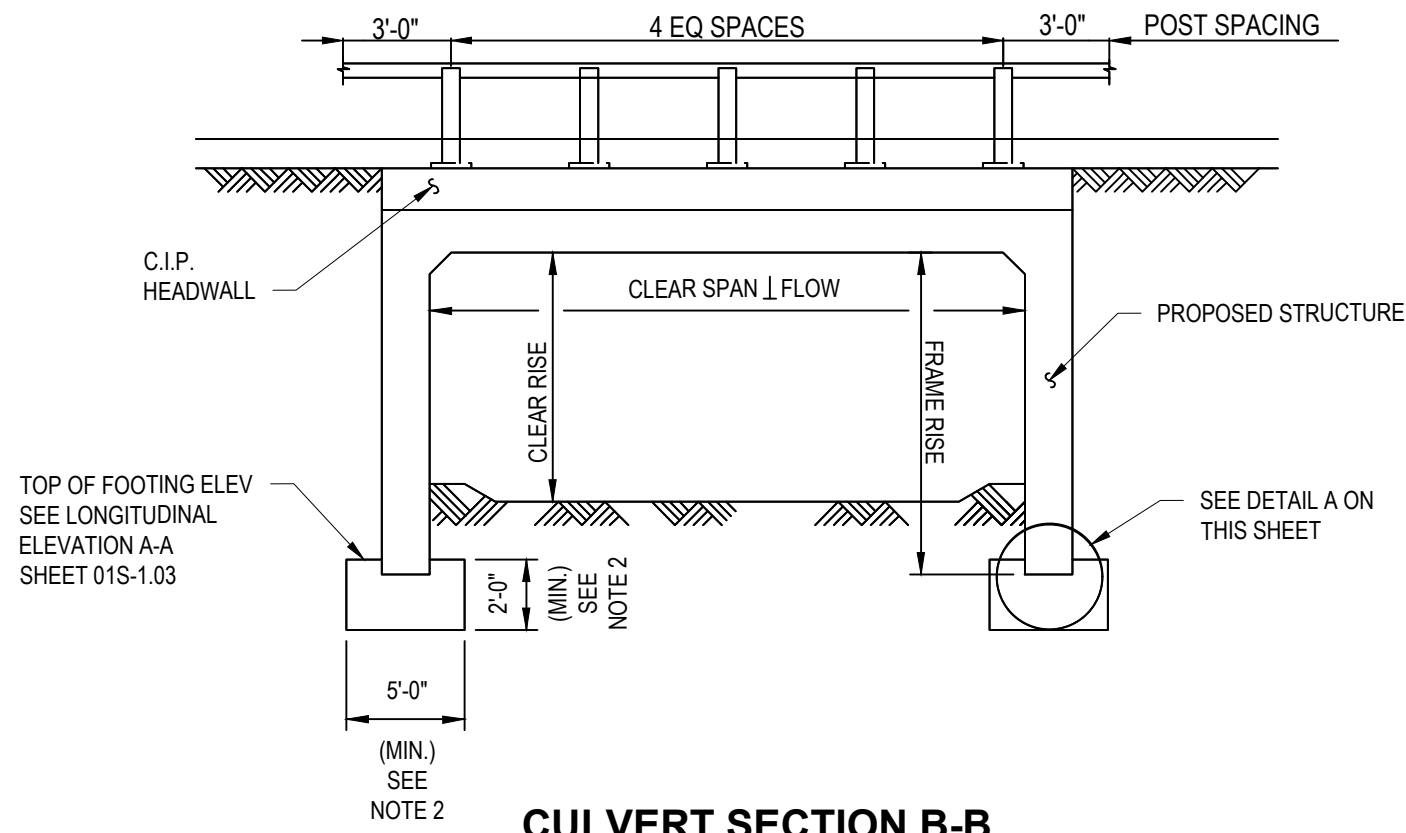
DETAIL "A" NOTES:

- ADDITIONAL SHIMS ARE ALLOWED AT THE CONTRACTORS OPTION AS APPROVED BY THE ENGINEER.
- SHIMS SHALL BE GALVANIZED METAL.
- GROUT SHALL MEET THE REQUIREMENTS OF NYS DOT STANDARD SPECIFICATIONS 701-05 OR 701-06



ADJACENT UNIT JOINT DETAIL

NOT TO SCALE



CULVERT SECTION B-B

NOT TO SCALE

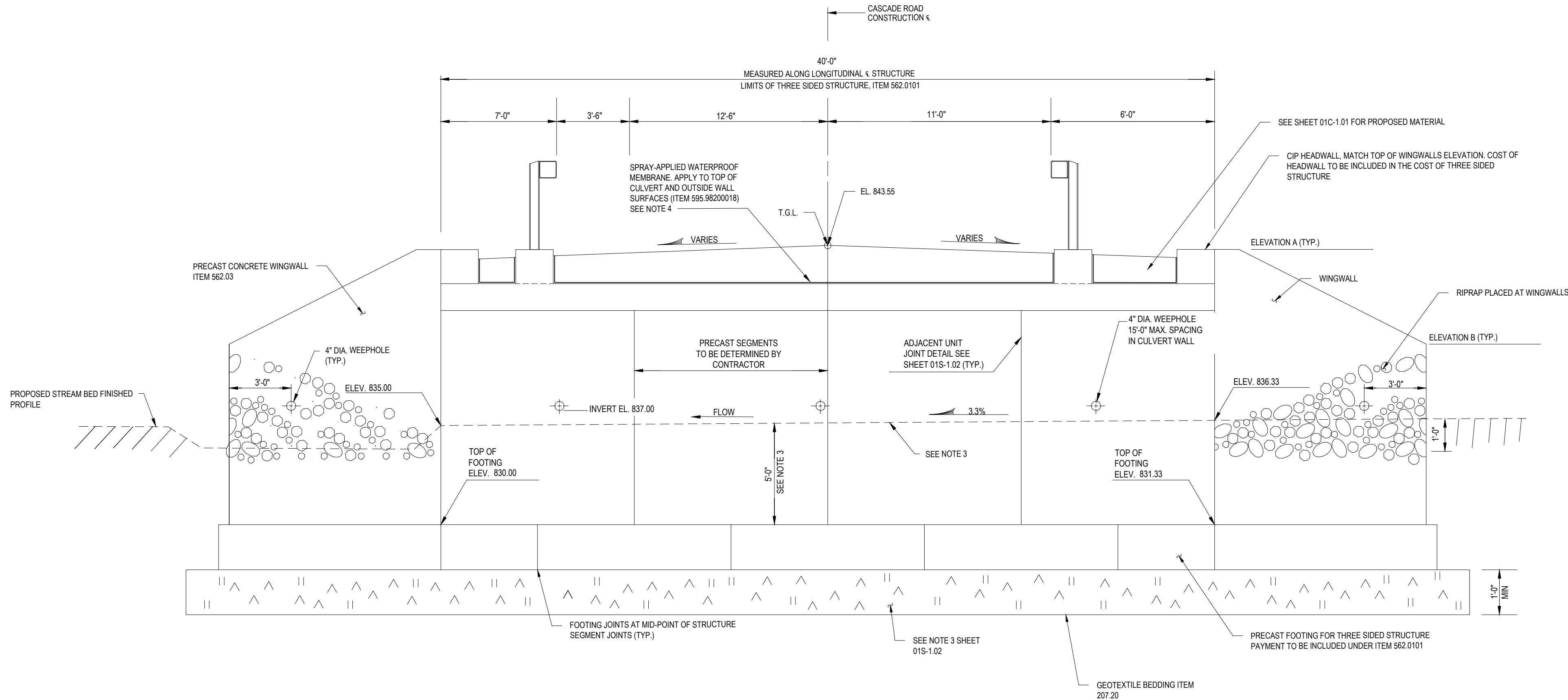
THREE SIDED STRUCTURE DESIGN DATA	
CLEAR SPAN, ft.	19' - 0"
CLEAR RISE, ft.	5' - 0"
FRAME RISE, ft.	10' - 0"
*MIN. FILL HEIGHT, ft.	0' - 6"
*MAX. FILL HEIGHT, ft.	4' - 0"
(CSKEW) SKEW ANGLE TO CL OF ROADWAY, DEG.	12° 22' 48"
LIVE LOAD	HL-93
RAILING / BARRIER TEST LEVEL	TL-1

* BASED ON ASSUMED TOP SLAB THICKNESS OF 20".
FABRICATOR SHALL ADJUST BASED ON ACTUAL TOP SLAB THICKNESS.

*ASSUMED FOOTING LOADS		GEOTECHNICAL WINGWALL DESIGN DATA	
VERTICAL KIP/FT	19.01	ALLOWABLE BEARING CAPACITY, ksf	6.0 ksf
HORIZONTAL KIP/FT	4.90	SOIL UNIT WT., pcf	140 PCF
* FOR THREE SIDED STRUCTURE AND FOOTING SELF WEIGHT. ALSO INCLUDES FILL ON TOP SLAB.		FRICTION ANGLE, DEG.	36°
		COEFFICIENT OF SLIDING FRICTION	0.35

NOTES:

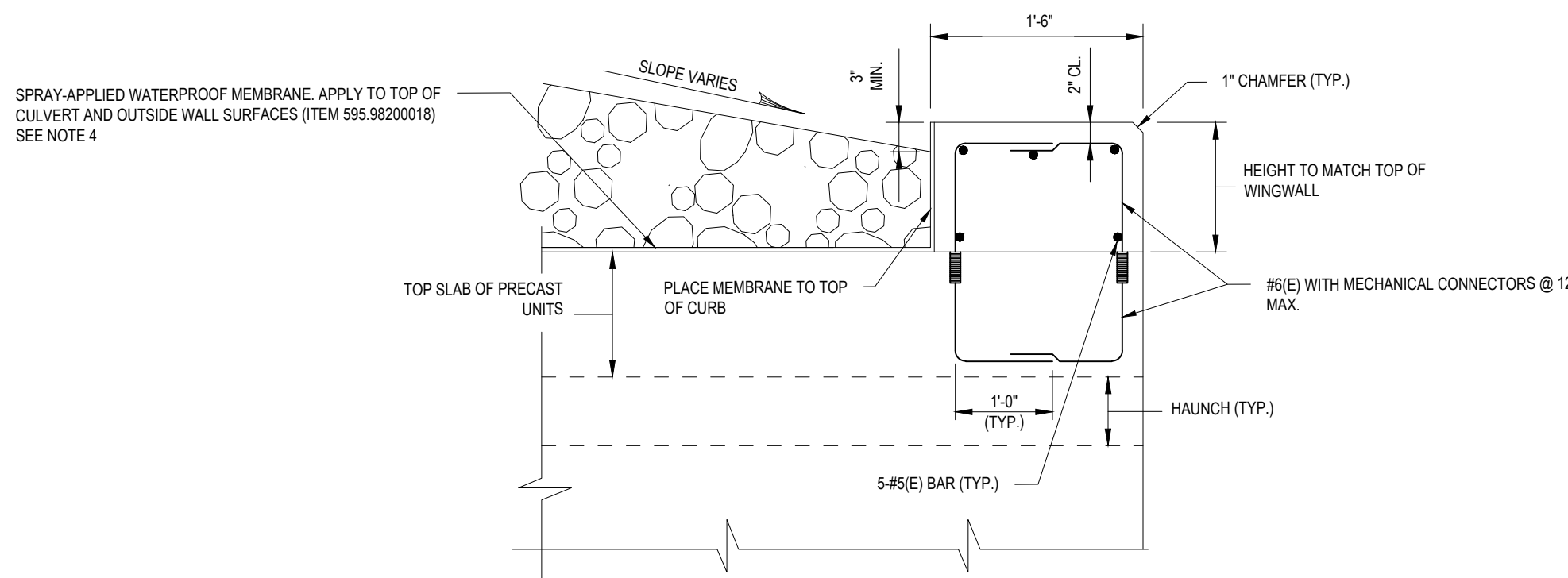
- THE LENGTH OF EACH CULVERT SEGMENT SHALL BE DETERMINED BY THE CONTRACTOR. IF STAGED CONSTRUCTION IS EMPLOYED, THE PRECAST BOX CULVERT SEGMENT LENGTH MUST BE COMPATIBLE WITH STAGING REQUIREMENTS.
- PRECAST FOOTING FOR CULVERT SHALL BE DESIGNED AND SIZED BY CONTRACTOR'S FABRICATOR.
- PRECAST FOOTINGS AND WINGWALLS SHALL BE PLACED ON A LEVELING BED OF CRUSHED MATERIAL MEETING THE REQUIREMENTS OF MATERIAL DESIGNATION 703-0201, 703-0202 OR 703-0204 WITH A PRIMARY SIZE DESIGNATION OF 2. AFTER PLACING AND LEVELING THE PRECAST UNITS, THE AREAS BENEATH AND BEHIND THE UNITS SHALL BE GROUTED WITH CONTROLLED LOW STRENGTH MATERIAL MEETING THE REQUIREMENTS OF SECTION 204.
- PRECAST FOOTING JOINTS MUST BE AT THE MID-POINT OF THE STRUCTURE SEGMENT JOINTS.
- FOR LONGITUDINAL ELEVATION A-A AND SECTION C-C SEE SHEET 01S-1.03
- DETAILS ON THE DRAWINGS LABELED AS "NOT TO SCALE" ARE INTENTIONALLY DRAWN NOT TO SCALE FOR VISUAL CLARITY. ALL OTHER DETAILS, FOR WHICH NO SCALE IS SHOWN, ARE DRAWN PROPORTIONAL AND ARE FULLY DIMENSIONED.
- SEE SHEET 01S-1.04 FOR WINGWALL DIMENSION A.



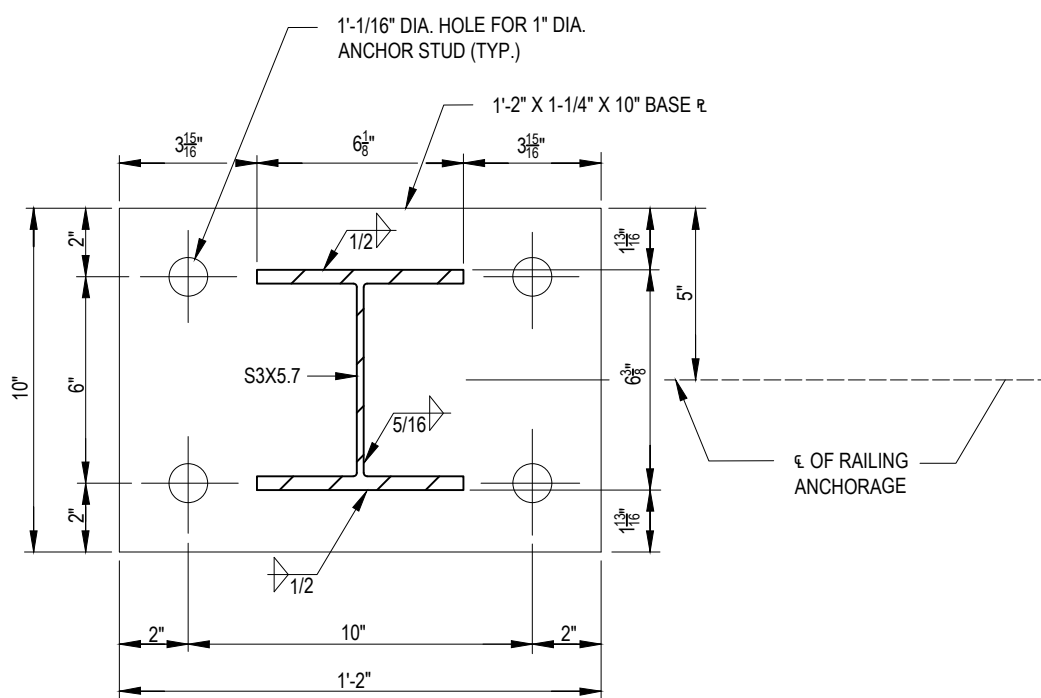
LONGITUDINAL ELEVATION A-A
NOT TO SCALE

NOTES:

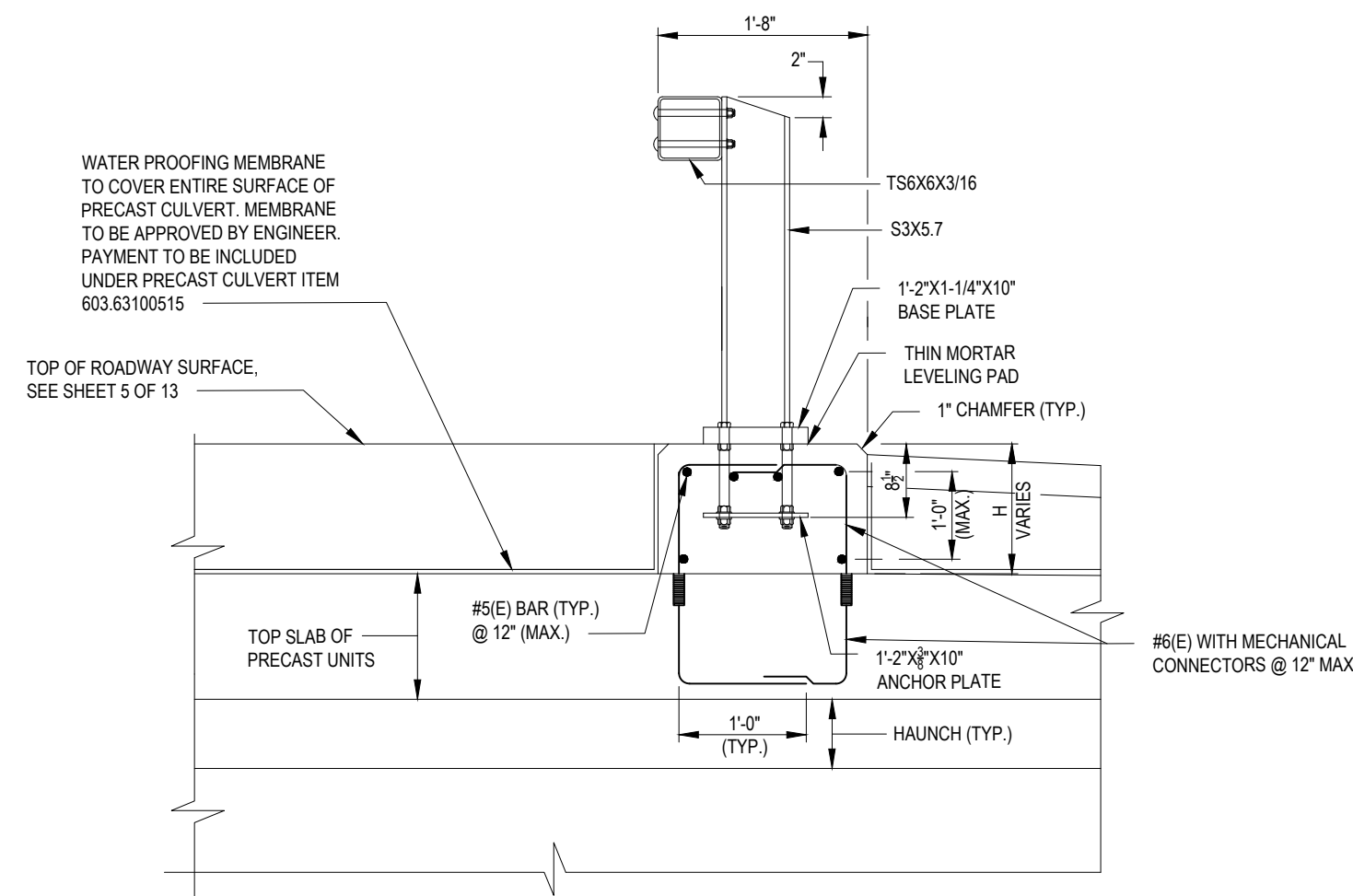
1. DETAILS ON THE DRAWINGS LABELED AS "NOT TO SCALE" ARE INTENTIONALLY DRAWN NOT TO SCALE FOR VISUAL CLARITY. ALL OTHER DETAILS, FOR WHICH NO SCALE IS SHOWN, ARE DRAWN PROPORTIONAL AND ARE FULLY DIMENSIONED.
2. FOR WINGWALL DIMENSIONS AND ELEVATIONS SEE SHEET 01S-1.04.
3. PLACE MATERIAL FOR STREAM BED ESTABLISHMENT, ITEM 615.01010108, WITHIN THE NEW CULVERT TO THE STREAM ELEVATIONS SHOWN.
4. SPECIAL CARE SHALL BE GIVEN WITH REGARDS TO THE APPLICATION OF THE SPRAY-APPLIED WATERPROOF MEMBRANE (ITEM 595.98200018) AT AND AROUND THE JOINTS AND TYPICAL DRAW CONNECTIONS (SEE DETAIL SHEET 01S-1.02) AS ORDERED BY THE ENGINEER.



SECTION C-C
HEADWALL DETAIL
NOT TO SCALE



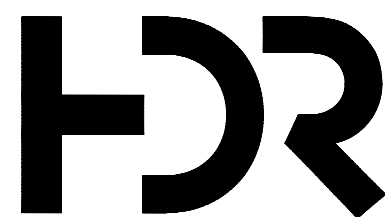
BASE PLATE DETAIL
NOT TO SCALE



RAIL ANCHORAGE DETAIL
NOT TO SCALE

NOTES:

1. WHERE DEPTH IS LESS THAN 3 FT FROM FINISHED GRADE, CONTRACTOR SHALL ANCHOR GUIDERAIL TO HEADWALL PER DETAIL ABOVE.



ISSUE	DATE	DESCRIPTION

	LAURA BARCA
PROJECT NUMBER	10400319

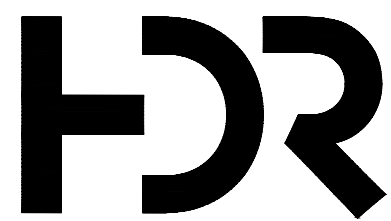


TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

LONGITUDINAL ELEVATION
CASCADE ROAD

SHEET
01S-1.03

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ISSUE	DATE	DESCRIPTION
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PROJECT NUMBER	10400319
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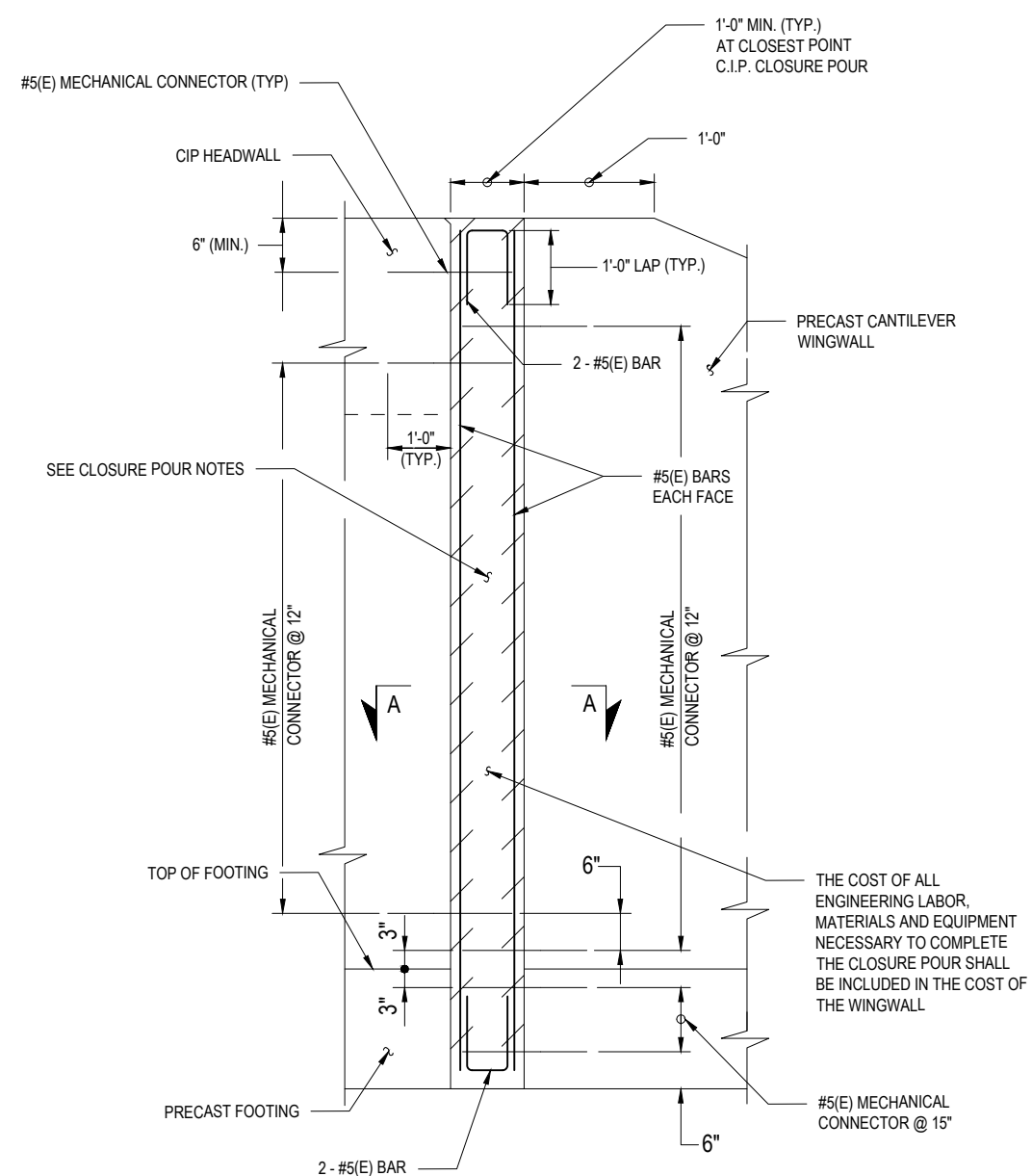
LAURA BARCA



TOWN OF WARWICK
DEPARTMENT OF PUBLIC WORKS

PRECAST WINGWALL DETAILS
CASCADE ROAD

SHEET
01S-1.04

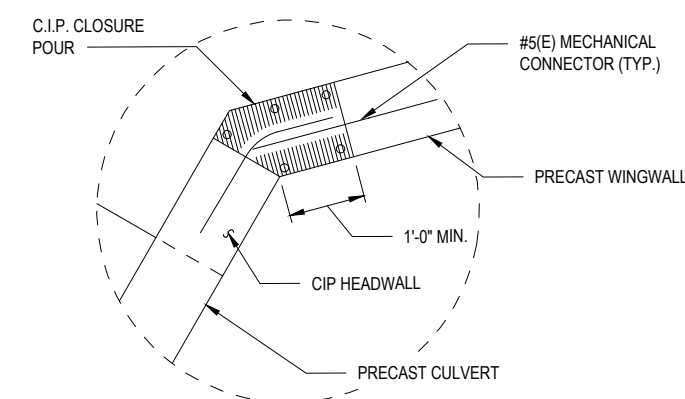


CLOSURE POUR DETAIL
NOT TO SCALE

CLOSURE POUR NOTES:

1. THE CLOSURE POUR MAY BE CAST WITH THE HEADWALL AFTER PRECAST WINGWALLS HAVE BEEN PLACED.

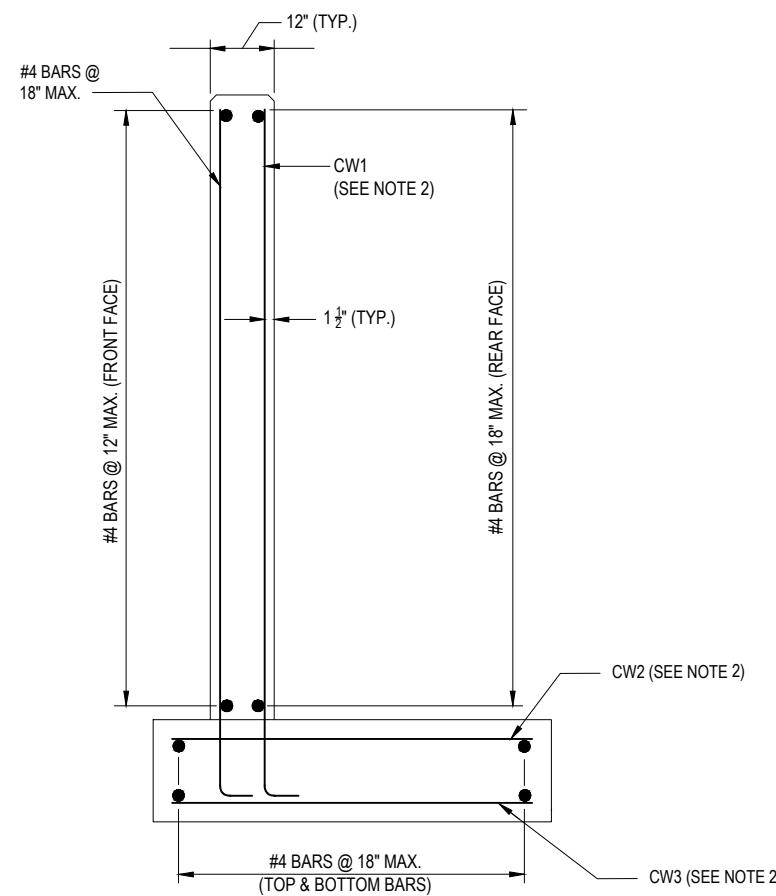
THE COST OF ALL ENGINEERING LABOR, MATERIALS AND EQUIPMENT NECESSARY TO COMPLETE THE CLOSURE POUR SHALL BE INCLUDED IN THE COST OF THE WINGWALL.



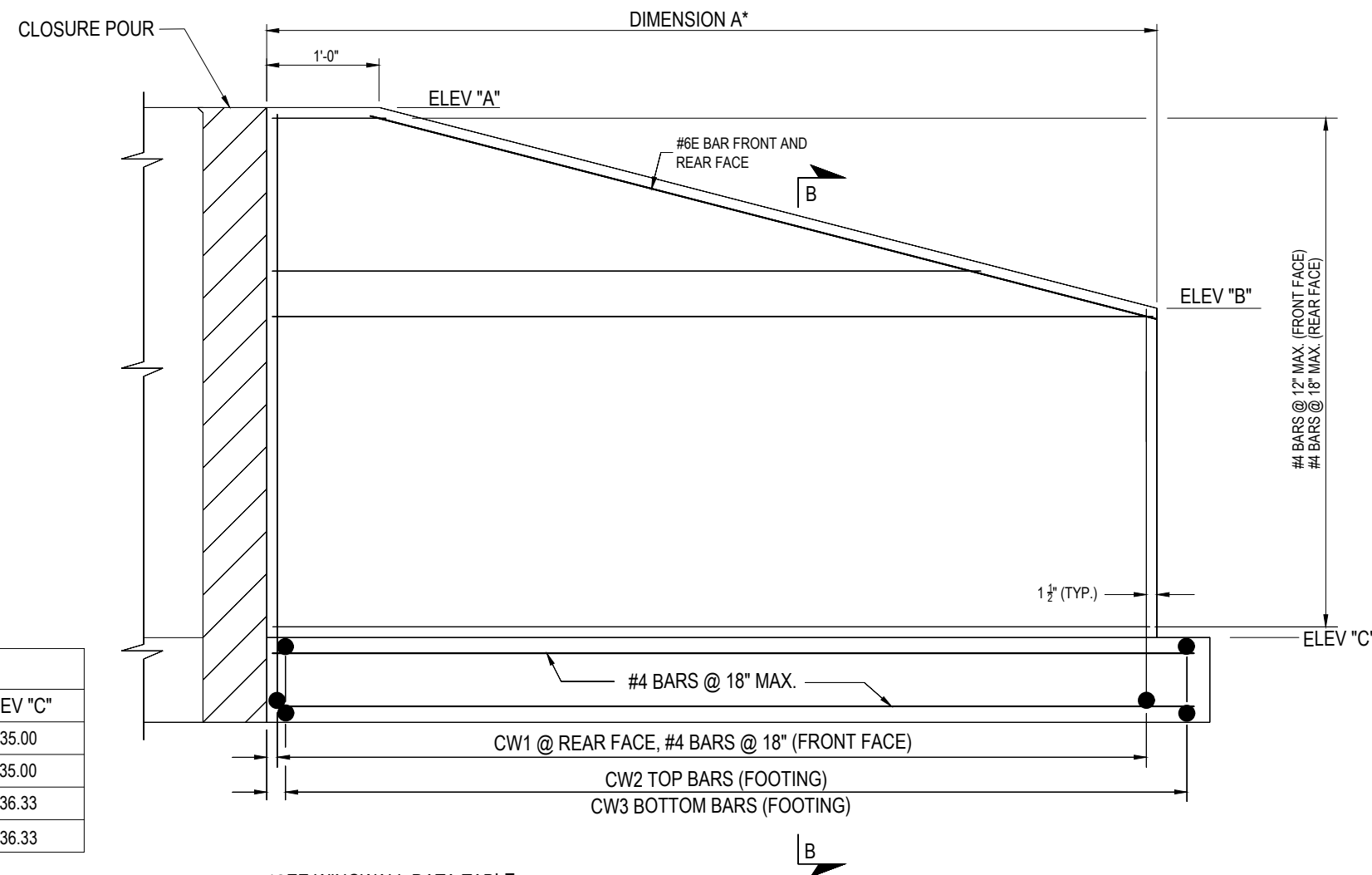
SECTION A-A
NOT TO SCALE

WINGWALL DATA				
LOCATION	DIMENSION "A"	ELEV "A"	ELEV "B"	ELEV "C"
WINGWALL 1	24'-0"	842.00	842.00	835.00
WINGWALL 2	20'-0"	842.00	842.00	835.00
WINGWALL 3	14'-0"	843.00	843.00	836.33
WINGWALL 4	18'-0"	844.00	844.00	836.33

DIMENSION "A" MEASURED ALONG FRONT FACE OF WINGWALL.



SECTION B-B
WINGWALL UNIT REINFORCEMENT
NOT TO SCALE



*SEE WINGWALL DATA TABLE.

TYPICAL WALL UNIT REINFORCING
NOT TO SCALE

NOTES:

1. ACTUAL WALL AND FOOTING THICKNESS, REINFORCEMENT SIZE AND SPACINGS TO BE DETERMINED BY FABRICATORS ENGINEER.
2. BAR SIZE AND SPACING CALLED OUT AS CW TO BE DETERMINED BY FABRICATOR.
3. TALL WALLS MAY USE A DOWEL BAR IN FOOTING LAPPED TO A VERTICAL BAR.
4. ALL REINFORCEMENT COVER ON PRECAST UNITS SHALL BE 2" UNLESS OTHERWISE NOTED.
5. ALL REINFORCEMENT COVER ON CAST IN PLACE CONCRETE SHALL BE 2" UNLESS OTHERWISE NOTED.
6. ALL REINFORCING SHALL BE EPOXY COATED.
7. DETAILS ON THE DRAWINGS LABELED AS "NOT TO SCALE" ARE INTENTIONALLY DRAWN NOT TO SCALE FOR VISUAL CLARITY. ALL OTHER DETAILS, FOR WHICH NO SCALE IS SHOWN, ARE DRAWN PROPORTIONAL AND ARE FULLY DIMENSIONED.
8. CLOSURE POUR CONCRETE FINISHED SURFACE SHALL BE CONSISTENT WITH PRECAST CONCRETE UNITS TO PROVIDE UNIFORM FINISH