

UTILITIES / AUTHORITIES
<u>GAS SERVICE</u> ELIZABETHTOWN GAS COMPANY 520 GREEN LANE, UNION, NJ 7083 PHONE: (908) 662-8321 CONTACT: GREGORY J. BALINT
<u>CABLE SERVICE</u> COMCAST CABLEVISION OF NJ 800 RAHWAY AVENUE, UNION, NJ 07083 PHONE: (908) 851-2258 CONTACT: GEORGE PALYCA
<u>ELECTRIC SERVICE</u> PUBLIC SERVICE ELECTRIC AND GAS COMPANY 472 WESTON CANAL ROAD, SOMERSET, NJ 08873 PHONE: (732) 764-3067 CONTACT: JOHN GRABENSTEIN
<u>WATER SERVICE</u> NEW JERSEY AMERICAN WATER COMPANY 1341 NORTH AVENUE, PLAINFIELD, NJ 07061 PHONE: (908) 791-3456 CONTACT: MICHAEL F. BANGE
<u>TELEPHONE SERVICE</u> VERIZON COMMUNICATIONS 290 W. MT PLEASANT AVENUE, LIVINGSTON, NJ 07039 PHONE: (973) 422-5156 CONTACT: DARREN CRAY
<u>SEWER SERVICES</u> TWP OF CRANFORD SEWER DEPARTMENT ROUND HOUSE, 364 NORTH AVENUE PHONE: (908) 709-7217 CONTACT: ERIK HASTRUP
<u>RAHWAY VALLEY SEWERAGE AUTHORITY</u> 1050 EAST HAZELWOOD AVENUE, RAHWAY, NJ 07065 PHONE: (732) 388-0868 CONTACT: JOHN BUONOCORE

**RAHWAY VALLEY SEWERAGE AUTHORITY**  
1050 EAST HAZELWOOD AVENUE, RAHWAY, NJ 07065  
PHONE: (732) 388-0868  
CONTACT: JOHN BUONOCORE

PATRICIA DONAHUE, TOWNSHIP CLERK  
JAMIE CRYAN, TOWNSHIP ADMINISTRATOR


SHT. No.	DESCRIPTION
1	COVER
2	GENERAL NOTES & QUANTITIES
3 - 5	EXISTING CONDITIONS PLAN
6 - 9	DIMENSION PLAN
10 - 15	CROSS SECTIONS
16 - 17	FULL DEPTH RECONSTRUCTION MAP
18 - 21	CONSTRUCTION DETAILS
22 - 25	NJDOT TRAFFIC CONTROL DETAILS
26 - 36	NJDOT CONSTRUCTION DETAILS

NEW JERSEY DEPARTMENT OF TRANSPORTATION STANDARD  
SPECIFICATIONS 2019 WITH AMENDMENTS THERETO SHALL GOVERN

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FOR  
NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS



**MT. ARLINGTON OFFICE**  
 400 Valley Road  
 Suite 304  
 Mount Arlington, NJ 07856

Phone: 973.398.3110  
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SHEET TITLE:

COVER

SHEET NUMBER:  
1 of 36



1. EXISTING FEATURES SHOWN ON THIS PLAN WERE BASED ON INFORMATION FROM THE SURVEY ENTITLED "TOPOGRAPHIC SURVEY FOR BROOKSIDE PLACE" DATED 10/02/19, FOR THE TOWNSHIP OF CRANFORD, PREPARED BY MASER CONSULTING P.A., LAST REVISED 11/14/19.
2. SUPPLEMENTAL WATER LINE INFORMATION WAS BASED ON INFORMATION FROM THE PLAN ENTITLED "BROOKSIDE PLACE PHASE 2 - MAIN REPLACEMENT" DATED 6/19/19, FOR THE TOWNSHIP OF CRANFORD, PREPARED BY NEW JERSEY AMERICAN WATER.
3. SUPPLEMENTAL GAS LINE INFORMATION WAS BASED ON INFORMATION FROM THE PLAN ENTITLED "BROOKSIDE PLACE SURVEY CRANFORD" DATED 2/26/19, FOR THE TOWNSHIP OF CRANFORD, PREPARED BY ELIZABETHTOWN GAS.
4. THE HORIZONTAL POSITION OF THIS SURVEY IS BASED ON GPS OBSERVATIONS TIED TO THE KEYNET VIRTUAL REFERENCE STATION SYSTEM RELATIVE TO THE NEW JERSEY STATE PLANE COORDINATE SYSTEM, NAD 83. THE VERTICAL POSITION OF THE HEREON SURVEY IS BASED ON GPS OBSERVATIONS TIED TO THE KEYNET VIRTUAL REFERENCE STATION SYSTEM, ADJUSTED AND RELATIVE TO THE NORTH AMERICAN DATUM (NAVD 88).
5. ALL RIGHT-OF-WAY LINES, PROPERTY LINES, AND EASEMENTS ARE APPROXIMATE AND BASED UPON TAX MAPS.
6. THE LOCATION OF ALL UNDERGROUND UTILITIES AS SHOWN HEREON ARE APPROXIMATE AND ARE BASED ON VISIBLE ABOVE GROUND STRUCTURES AND UTILITY MARK OUTS. NO EXCAVATIONS WERE MADE DURING THE PROGRESS OF THIS SURVEY TO LOCATE BURIED UTILITIES/STRUCTURES. ADDITIONAL BURIED UTILITIES/STRUCTURES MAY BE ENCOUNTERED. THE CONTRACTOR SHALL HAVE ALL UNDERGROUND UTILITIES FIELD VERIFIED BY THE PROPER UTILITY COMPANIES BEFORE ANY CONSTRUCTION BEGINS.

1. ALL MATERIALS, WORKSMANSHIP, AND CONSTRUCTION RELATED TO THE PROPOSED IMPROVEMENTS SHOWN HEREIN SHALL BE IN ACCORDANCE WITH THE FOLLOWING UNLESS SPECIFICALLY AMENDED OR SUPPLEMENTED BY CONTRACT DOCUMENTS:
  - A. N.J. DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2007", AS CURRENTLY AMENDED;
  - B. N.J. DEPARTMENT OF TRANSPORTATION "STANDARD ROADWAY CONSTRUCTION - TRAFFIC CONTROL - BRIDGE CONSTRUCTION DETAILS, 2007", AS CURRENTLY AMENDED;
  - C. "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", AS CURRENTLY AMENDED;
  - D. CURRENT PREVAILING MUNICIPAL, COUNTY AND/OR STATE AGENCY SPECIFICATIONS, STANDARDS, CONDITIONS AND REQUIREMENTS;
  - E. CURRENT PREVAILING UTILITY COMPANY/AUTHORITY SPECIFICATIONS, STANDARDS, AND REQUIREMENTS;
  - F. CURRENT MANUFACTURER'S SPECIFICATIONS, STANDARDS AND REQUIREMENTS;
2. THE CONTRACTOR IS RESPONSIBLE FOR PROJECT SAFETY INCLUDING PROVISION OF ALL SAFETY DEVICES AND TRAINING REQUIRED.
3. THE CONTRACTOR IS RESPONSIBLE FOR THOROUGHLY EXAMINING THE PROJECT PLANS, SPECIFICATIONS, DETAILS, AND SITE. THE CONTRACTOR SHALL NOTIFY THE UNDERSIGNED PROFESSIONAL IMMEDIATELY IF ANY SITE CONDITIONS DIFFER MATERIALLY FROM THOSE REPRESENTED HEREIN.
4. THE CONTRACTOR SHALL OBTAIN PERMITS REQUIRED FOR THE PROPOSED IMPROVEMENTS.
5. ALL MATERIALS MUST BE AMERICAN MADE. THE CONTRACTOR MUST PROVIDE THE ENGINEER WITH SHIPPING AND DELIVERY TICKETS/RECEIPTS FOR ALL MATERIALS TO USED FOR CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
6. THE CONTRACTOR SHALL OBTAIN SHOP DRAWING APPROVAL PRIOR TO THE INSTALLATION OF EACH ITEM. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW AND APPROVAL AT LEAST TWO (2) WEEKS PRIOR TO ORDERING MATERIALS.
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL STAKEOUT AND LAYOUT, AS NECESSARY, TO CONSTRUCT THE PROPOSED IMPROVEMENTS IN STRICT CONFORMANCE WITH THE PROJECT PLANS, SPECIFICATIONS AND DETAILS. THESE DESIGN DRAWINGS HAVE NOT BEEN DRAFTED OVER A SURVEY BASE MAP.
8. THE CONTRACTOR MUST REVIEW AND AGREE TO AS-BUILT QUANTITIES WITH THE ENGINEER ON A WEEKLY BASIS.
9. THE ENGINEER MUST BE CONTACTED IMMEDIATELY UPON THE INSPECTOR OR CONTRACTOR RECEIVING A COMPLAINT FROM ANY PERSON WITHIN THE PROJECT AREA OR MUNICIPAL OFFICIAL.

1. CONTRACTOR IS RESPONSIBLE FOR CONTACTING ONE-CALL SERVICES AS REQUIRED BY STATE AND/OR LOCAL ORDINANCES PRIOR TO ANY EXCAVATION ACTIVITIES.
2. NOT ALL UTILITY POLES, UTILITY VALVES AND UTILITY LINES ARE SHOWN ON THE PLAN. THE CONTRACTOR SHALL FIELD VERIFY ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL CALL FOR A UTILITY MARK-OUT PRIOR TO THE START OF CONSTRUCTION (CALL 1-800-272-1000).
4. UTILITY RELOCATIONS SHOWN ON THE PLAN, IF ANY, ARE FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REPRESENT ALL REQUIRED WORK. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH ALL UTILITY COMPANIES/AUTHORITIES IMPACTED BY THE PROPOSED WORK AND PERFORMING UTILITY RELOCATIONS IN ACCORDANCE WITH THE REQUIREMENTS OF THE PERTINENT UTILITY COMPANIES/AUTHORITIES. NO SEPARATE PAYMENT SHALL BE MADE FOR COORDINATING AND PERFORMING UTILITY RELOCATIONS.
5. ALL UTILITY MANHOLES, VALVE BOXES, CLEANOUTS, METERS, ETC. SHALL BE RESET BY THE CONTRACTOR TO MEET PROPOSED ROAD, SIDEWALK AND DRIVEWAY GRADES. THE CONTRACTOR SHALL COORDINATE WITH IMPACTED UTILITY COMPANIES/AUTHORITIES AS NECESSARY..
6. THE CONTRACTOR SHALL TAKE PRECAUTION WHEN WORKING ADJACENT TO UTILITIES AND TEMPORARILY SUPPORT UTILITY POLES, IF REQUIRED, DURING THE PROGRESS OF WORK.
7. THE CONTRACTOR SHALL CLEAN AND MAINTAIN ALL STORM SEWER STRUCTURES, AS NECESSARY, FOR THE DURATION OF THE PROJECT.

1. THE CONTRACTOR SHALL COORDINATE ALL TRAFFIC CONTROL MEASURES WITH THE LOCAL POLICE DEPARTMENT AND OWNER. TRAFFIC CONTROL DETAILS PROVIDED HEREIN ARE TYPICAL AND SUBJECT TO MODIFICATION BY THE LOCAL POLICE DEPARTMENT AND OWNER.
2. THE CONTRACTOR SHALL MAKE PROVISIONS FOR MATERIAL AND EQUIPMENT STORAGE. NO EQUIPMENT OR MATERIALS SHALL BE STORED WITHIN THE R.O.W. WITHOUT EXPRESS WRITTEN CONSENT FROM THE LOCAL POLICE DEPARTMENT AND OWNER.
3. THE CONTRACTOR SHALL PREPARE AND SUBMIT A TRAFFIC CONTROL SCHEDULE AND STAGING PLAN TO THE LOCAL POLICE DEPARTMENT AND OWNER FOR REVIEW AND APPROVAL. THE PLAN MUST BE APPROVED BY THE LOCAL POLICE DEPARTMENT AND OWNER PRIOR TO THE START OF CONSTRUCTION.
4. THE CONTRACTOR SHALL NOTIFY THE OWNER AND LOCAL POLICE DEPARTMENT SEVENTY-TWO (72) HOURS PRIOR TO THE START OF ANY WORK.
5. THE CONTRACTOR SHALL COORDINATE WITH THE LOCAL POLICE DEPARTMENT TO DETERMINE THE NEED FOR POLICE TRAFFIC DIRECTORS. THE CONTRACTOR SHALL PROVIDE THE LOCAL POLICE DEPARTMENT WITHIN AT LEAST ONE (1) WEEK NOTICE PRIOR TO REQUESTING POLICE TRAFFIC DIRECTORS.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PLACING TEMPORARY NO PARKING SIGNS. SIGNS MUST BE OBTAINED FROM THE LOCAL POLICE DEPARTMENT, IF APPLICABLE. TEMPORARY NO PARKING SIGNS MUST BE POSTED AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE CONSTRUCTION.

1. THE CONTRACTOR SHALL INSTALL AND MAINTAIN SOIL EROSION AND SEDIMENT CONTROL MEASURES FOR THE DURATION OF THE PROJECT IN ACCORDANCE WITH THE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL MEASURES IN NEW JERSEY.
2. INLET FILTERS ARE TO BE INSTALLED ON ALL EXISTING AND NEW INLETS WITHIN THE PROJECT LIMITS AND IMMEDIATELY ADJACENT TO PROJECT LIMITS.
3. SILT FENCE SHALL BE INSTALLED AS DIRECTED IN THE FIELD BY THE ENGINEER, AS NECESSARY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING DUST CONTROL MEASURES, AS NECESSARY. ALL VEHICLES SHALL BE CLEAN AND ALL ROADWAYS SHALL BE MAINTAINED TO AVOID DUST POLLUTION.
5. THE CONTRACTOR SHALL PROTECT ALL TREES SCHEDULED TO REMAIN DURING CONSTRUCTION. DAMAGE TO EXISTING TREES WILL BE EVALUATED BY THE OWNER AND ENGINEER. DAMAGED TREES WILL BE REPLACED AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
6. WHERE EXISTING TREES AND ROOT SYSTEMS MAY CONFLICT WITH THE PROPOSED IMPROVEMENTS, THE CONTRACTOR MUST RETAIN A CERTIFIED TREE EXPERT TO EVALUATE TREES IN QUESTION. ALL EVALUATIONS SHALL BE IN WRITING AND SHALL ACCURATELY IDENTIFY THE TREE IN QUESTION BY STATION AND OFFSET (LEFT OR RIGHT). ALL EVALUATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

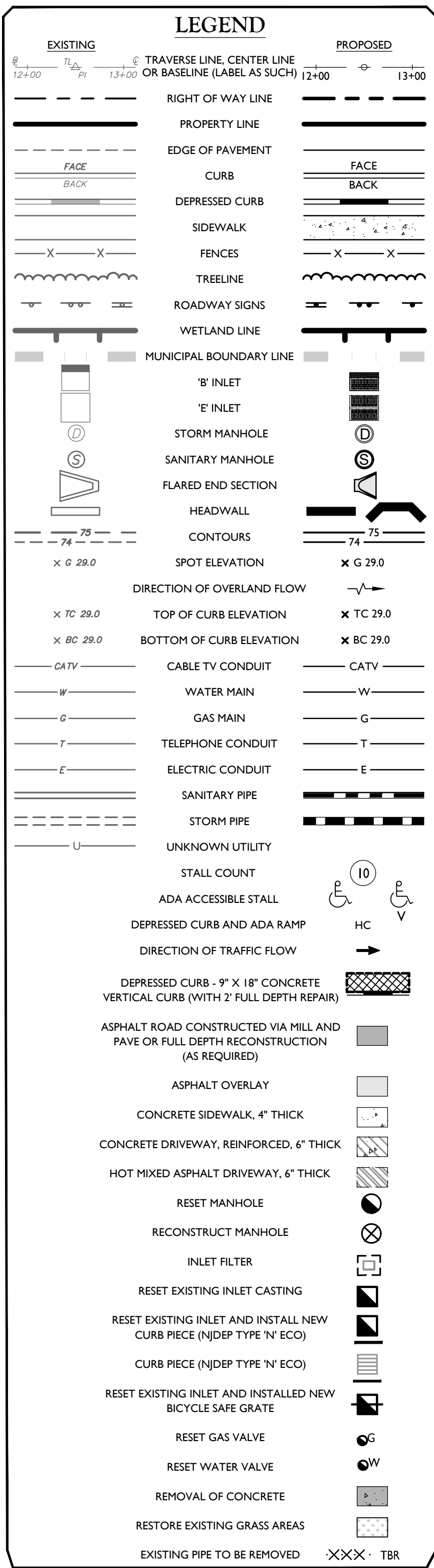
1. ALL EXCAVATED MATERIALS ARE TO BE DISPOSED OF IN ACCORDANCE WITH APPROVED NJDOT AND NJDEP MEANS & METHODS. THE CONTRACTOR MUST NOT DEPOSIT EXCESS MATERIALS WITHIN THE MUNICIPAL LIMITS WITHOUT EXPRESS PERMISSION OF THE OWNER.
2. ALL EXCAVATED AND DEMOLISHED MATERIALS, DEBRIS, AND EQUIPMENT, INCLUDING STONE, TOPSOIL, TREES, BLOCK AND CONCRETE FORMS, MUST BE REMOVED FROM THE PROJECT AREA AT THE CONCLUSION OF EACH DAY, UNLESS OTHERWISE APPROVED BY THE ENGINEER AND LOCAL POLICE DEPARTMENT.
3. THE CONTRACTOR SHALL NOTE THAT ROADWAY BASE MATERIAL MAY CONSIST OF COBBLESTONES, CONCRETE AND/OR ASPHALT. NO ADDITIONAL PAYMENTS WILL BE MADE TO CONTRACTOR FOR DAMAGES TO EQUIPMENT OR ADDITIONAL LABOR REQUIRED TO MAKE IMPROVEMENTS AS DESCRIBED ON PLANS DUE TO VARIATIONS IN ROADWAY BASE MATERIALS.
4. ALL EXISTING GRATES AND CASTINGS ARE THE PROPERTY OF THE MUNICIPALITY OR RESPECTIVE UTILITY AUTHORITY. ALL EXISTING GRATES AND CASTINGS THAT ARE TO BE REPLACED AS A PART OF THE PROPOSED IMPROVEMENTS SHALL BE RETURNED TO THE MUNICIPALITY OR RESPECTIVE UTILITY AUTHORITY.
5. THE CONTRACTOR MUST PROTECT CONCRETE UNTIL CONCRETE IS CURED. DAMAGED AND VANDALIZED CONCRETE SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. THE CONTRACTOR SHALL RESET ALL RAILINGS, GATES AND FENCES AS REQUIRED TO COMPLETE THE PROPOSED IMPROVEMENTS.
7. THE CONTRACTOR IS RESPONSIBLE TO REPLACE/RESET ANY SPRINKLERS DAMAGED/DISTURBED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.


1. THE CONTRACTOR SHALL MAINTAIN SAFE PEDESTRIAN AND VEHICULAR ACCESS TO ALL RESIDENCES AND BUSINESSES FOR THE DURATION OF THE PROJECT.
2. DURING DEMOLITION AND IMMEDIATELY AFTER POURING CONCRETE, THE CONTRACTOR MUST PLACE WOOD PLANKS, AT LEAST TWO (2) FT. WIDE, AT EACH ADJACENT BUILDING ENTRANCE TO ALLOW FOR SAFE ACCESS. PEDESTRIANS CANNOT BE EXPECTED TO CROSS OVER STONE, DIRT OR OTHER DEMOLISHED MATERIAL WITHOUT PLANKS. THE CONTRACTOR WILL NOT BE PERMITTED TO LEAVE THE SITE WITHOUT PLACING WOODEN ACCESS PLANKS TO PROVIDE SAFE ACCESS TO RESIDENCES AND BUSINESSES.
3. THE CONTRACTOR SHALL MAINTAIN VEHICULAR ACCESS TO ALL DRIVEWAYS DURING CONSTRUCTION. THE CONTRACTOR SHALL TEMPORARILY INSTALL AND MAINTAIN DENSE GRADED AGGREGATE OR HOT MIX ASPHALT TO PROVIDE A RIDING SURFACE FOR VEHICLE ACCESS TO EACH PROPERTY DURING CONSTRUCTION.
4. THE CONTRACTOR MUST ASSURE ACCESS FOR EMERGENCY VEHICLES AND GARBAGE COLLECTION VENDORS FOR THE DURATION OF THE PROJECT.
5. THE CONTRACTOR SHALL PROVIDE TEMPORARY ACCESSIBLE CURB RAMPS WITH HAND RAILS WHEN EXISTING ACCESSIBLE ACCESS IS REMOVED OR LIMITED DUE TO CONSTRUCTION.
6. NO SEPARATE PAYMENT SHALL BE MADE FOR THE PROVISION OF SAFE PEDESTRIAN AND VEHICULAR ACCESS AS DESCRIBED ABOVE AND AS DIRECTED IN THE FIELD BY THE ENGINEER.

1. THE CONTRACTOR MUST PROVIDE A SMOOTH SAWCUT EDGE WHERE PROPOSED PAVEMENT ABUTS EXISTING PAVEMENT.
2. THE CONTRACTOR SHALL MARK ALL RAISED UTILITY MANHOLES, INLETS AND VALVE BOXES THAT ARE EXPOSED AS A RESULT OF MILLING. IN ADDITION, THE CONTRACTOR SHALL INSTALL TEMPORARY PAVEMENT RAMPS AROUND RAISED UTILITIES AS DIRECTED BY THE ENGINEER WHERE SUCH UTILITIES MAY BE IN CONFLICT WITH VEHICULAR AND PEDESTRIAN TRAFFIC.

1. PRIOR TO FINAL ACCEPTANCE, ALL PROPERTY CORNERS OR MONUMENTS REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY A NEW JERSEY LICENSED LAND SURVEYOR AT NO ADDITIONAL COST TO THE OWNER.
2. THE CONTRACTOR MUST REPLACE ANY DAMAGED CONCRETE CURB AND SIDEWALK BEFORE ACCEPTANCE OF THE PROJECT BY THE OWNER.
3. ALL AREAS OUTSIDE OF THE PROJECT LIMITS THAT ARE DISTURBED AS RESULT OF CONSTRUCTION ACTIVITIES SHALL BE RESTORED AT NO ADDITIONAL COST TO THE OWNER PRIOR TO PROJECT ACCEPTANCE.
4. ALL GRASSED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED BY TOPSOILING, SEEDING, FERTILIZING AND MULCHING.

PAYITEM NO.	BASE BID - VARIOUS ROADWAY & DRAINAGE IMPROVEMENTS	TOTAL BASE BID QUANTITY	IF/WHERE DIRECTED QUANTITY	PLAN SHEET QUANTITY	BROOKSIDE PLACE PLAN QUANTITY SHEET 6	BROOKSIDE PLACE PLAN QUANTITY SHEET 7	BROOKSIDE PLACE PLAN QUANTITY SHEET 8	BROOKSIDE PLACE PLAN QUANTITY SHEET 9
1	CAUTION FLAG TYPE 1	LF 360	0	360	120	40	40	0
2	INLET FILTER TYPE 2	SF 150	0	150	0	40	40	70
3	BREAKAWAY BARRICADE	LN 25	25	0	0	0	0	0
4	ORUM	LN 50	50	0	0	0	0	0
5	TRAFFIC CONE	LN 50	50	0	0	0	0	0
6	CONSTRUCTION SIGNS	SF 250	250	0	0	0	0	0
7	POLICE TRAFFIC DIRECTORS	MAN HOUR 200	200	0	0	0	0	0
8	FUEL PRICE ADJUSTMENT	DOLLAR 2,500	2,500	0	0	0	0	0
9	ASPHALT PRICE ADJUSTMENT	DOLLAR 2,400	2,400	0	0	0	0	0
10	CLEARING SITE	LS 1	1	0	0	0	0	0
11	FILL ABANDONED WATER MAIN WITH CONTROLLED LOW STRENGTH MATERIAL	LS 1	1	0	0	0	0	0
12	EXCAVATION TEST PIT	CY 106	50	56	12	26	10	8
13	EXCAVATION UNCLASSIFIED	CY 779	779	212	249	243	175	0
14	REMOVAL OF PAVEMENT	SY 2,332	0	2,332	634	745	429	524
15	DEENSE GRADED ASPHALT BASE COURSE, 6" THICK	SY 1,903	0	1,903	634	745	0	524
16	HMA MILLING, 3" OR LESS	SY 1,617	0	1,617	114	174	3,461	0
17	HOT MIX ASPHALT 1.95MMA SURFACE COURSE	TON 1,287	0	1,287	231	269	336	461
18	HOT MIX ASPHALT 1.9MMA BASE COURSE	TON 702	702	191	224	128	158	158
19	15' REINFORCED CONCRETE, CLASS V	LF 180	180	0	0	0	0	0
20	18" REINFORCED CONCRETE PIPE, CLASS V	LF 867	0	867	0	505	362	38
21	24" POLYPROPYLENE LINE	LF 849	0	849	0	0	175	674
22	INLET, TYPE B	LN 5	5	0	4	1	1	1
23	MANHOLE, 5' DIAMETER	LN 1	0	1	0	0	1	0
24	3' X 3' MANHOLE	LN 2	0	2	0	0	2	0
25	RESET EXISTING CASTING	LN 1	0	1	0	0	1	0
26	BICYCLE SAFE GRATE (PHASE II) STORMWATER COMPLIANT GRATE)	LN 5	5	0	0	0	0	5
27	CURB PIECE (NUDE TYPE "E" ECO)	LN 5	0	5	0	0	0	5
28	REPAIR INTERIOR OF DRAINAGE STRUCTURE	LN 4	4	0	0	0	4	0
29	MANHOLE, DOGHOUSE, 3' DIAMETER	LN 1	0	1	0	0	0	1
30	INLET SP-1	LN 1	0	1	0	0	0	1
31	CONCRETE SIDEWALK, 4" THICK	SY 208	0	208	125	132	511	0
32	HOT MIX ASPHALT 1 DRIVEWAY, 2" THICK	SY 315	0	315	169	130	8	8
33	CONCRETE DRIVEWAY, REINFORCED, 6" THICK	SY 257	0	257	174	40	20	23
34	RETICULABLE WARNING SURFACE	SY 112	0	112	2	0	8	0
35	RESET PAVER DRIVEWAY	SY 69	0	69	0	69	0	0
36	9' X 18" CONCRETE VERTICAL CURB	LF 470	0	470	15	30	277	148
37	GRANITE CURB	LF 2,288	0	2,288	899	1,088	1,065	0
38	NON-VEGETATIVE SURFACE, POROUS HOT MIX ASPHALT, 6" THICK	SY 90	0	90	0	0	0	90
39	BEAM GUIDE RAIL	LF 175	0	175	0	0	0	175
40	TAKENID GUIDE RAIL TERMINAL	LN 1	0	1	0	0	1	0
41	BEAM GUIDE RAIL ANCHORAGE	LN 1	0	1	0	0	0	0
42	TRAFFIC STRIPES, 4"	LF 3,951	0	3,951	828	852	636	1,336
43	TRAFFIC MARKING LINES, 6"	LF 692	0	692	60	232	248	0
44	TRAFFIC MARKING LINES, 12"	LF 708	0	708	53	109	300	246
45	REGULATORY AND WARNING SIGNS	SF 3	0	3	0	0	0	3
46	6" DUCTILE IRON SENDER PIPE, CLASS S2	LF 35	0	35	0	0	0	35
47	RECONSTRUCT MANHOLE, SANITARY SEWER, USING EXISTING CAST IRON	LN 5	0	5	2	3	0	0
48	RESET MANHOLE, SANITARY SEWER, USING EXISTING CASTING	LN 5	0	5	2	3	0	0
49	TREE REMOVAL OVER 24" TO 36" DIAMETER	SY 2,499	0	2,499	1,135	1,155	185	24
50	TOPSOIL SPREADING, 4" THICK	SY 2,499	0	2,499	1,135	1,155	185	24
51	FERTILIZING AND SEEDING, TYPE ERMX-106	SY 2,499	0	2,499	1,135	1,155	185	24
52	GRAVIMILL	SY 1,498	0	1,498	1,135	1,155	24	24

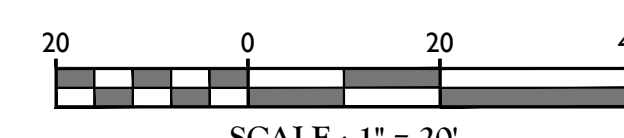
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<h1 style="margin: 0;">CONSTRUCTION PLANS</h1> <p style="margin: 10px 0 0 0;">FOR</p> <h2 style="margin: 0;">NJDOT FY 2019 - BROOKSIDE PLACE DRAINAGE IMPROVEMENTS</h2>			
<h3 style="margin: 0;">TOWNSHIP OF CRANFORD COUNTY OF UNION STATE OF NEW JERSEY</h3>			
		<p><b>MT. ARLINGTON OFFICE</b> 400 Valley Road Suite 304 Mount Arlington, NJ 07856</p> <p>Phone: 973.398.3110 Fax: 973.398.3199</p>	
<b>SCALE:</b> AS SHOWN	<b>DATE:</b> 1/30/20	<b>DRAWN BY:</b> BAK	<b>CHECKED BY:</b> PWJ
<b>PROJECT NUMBER:</b> CDT065		<b>DRAWING NAME:</b> C-COVER	
<p><b>SHEET TITLE:</b></p> <div style="text-align: center; padding: 20px 0;"><h2 style="margin: 0;">GENERAL NOTES &amp; QUANTITIES</h2></div>			
<p><b>SHEET NUMBER:</b></p> <div style="text-align: center; padding: 20px 0;"><span style="font-size: 2em; margin: 0 10px;">2</span> of <span style="font-size: 2em; margin: 0 10px;">36</span></div>			









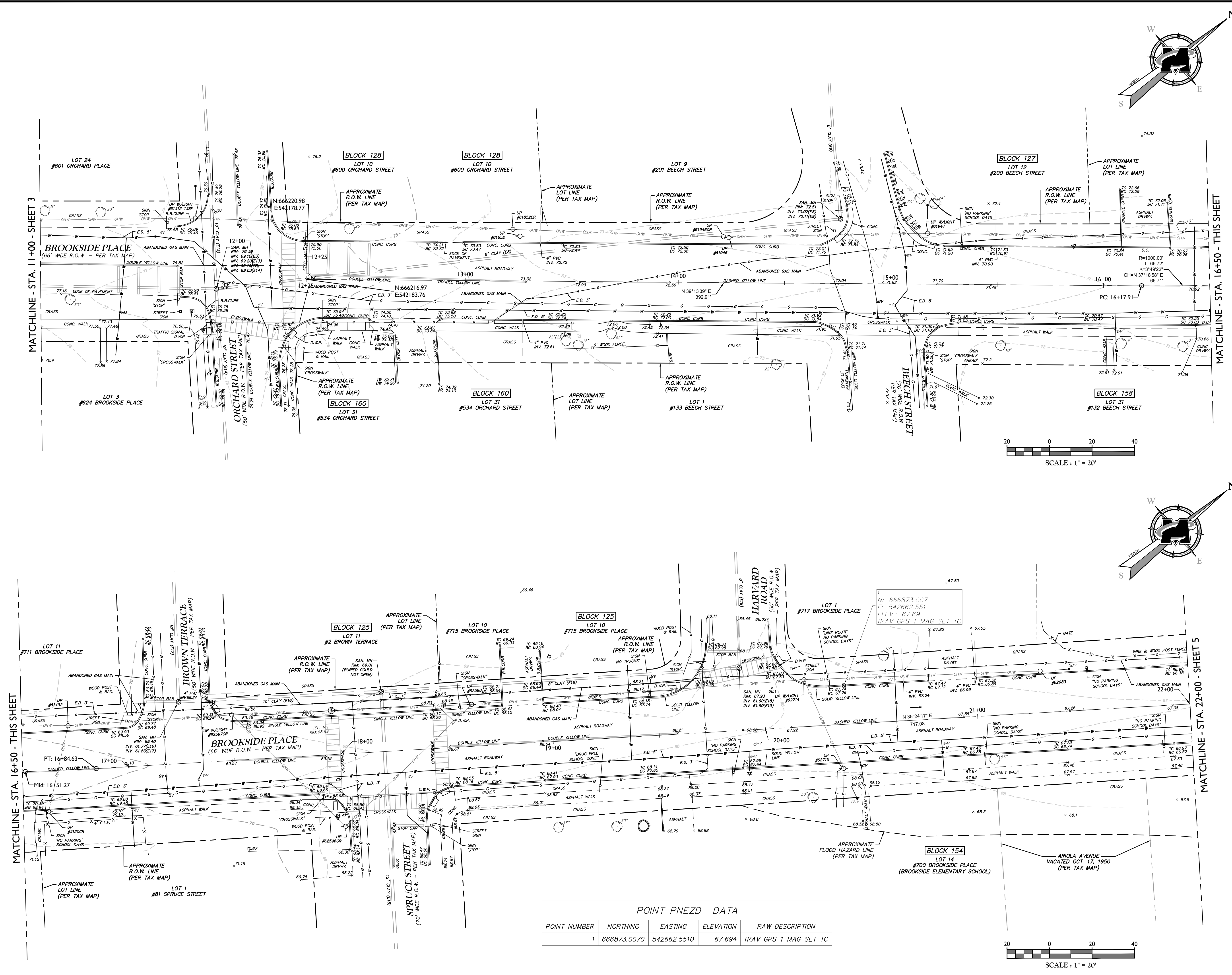
**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY

SCALE: AS SHOWN	DATE: 1/30/20	DRAWN BY: BAK	CHECKED BY: PWJ
PROJECT NUMBER: CDT065		DRAWING NAME: C-DEMO	

SHEET NUMBER:  
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**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

CONSTRUCTION PLANS

FOR

**NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS**

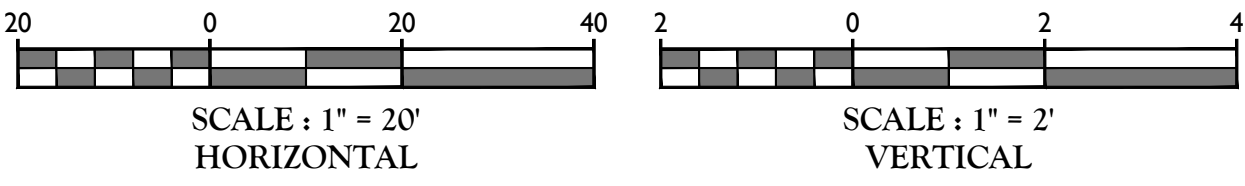
TOWNSHIP OF CRANFORD  
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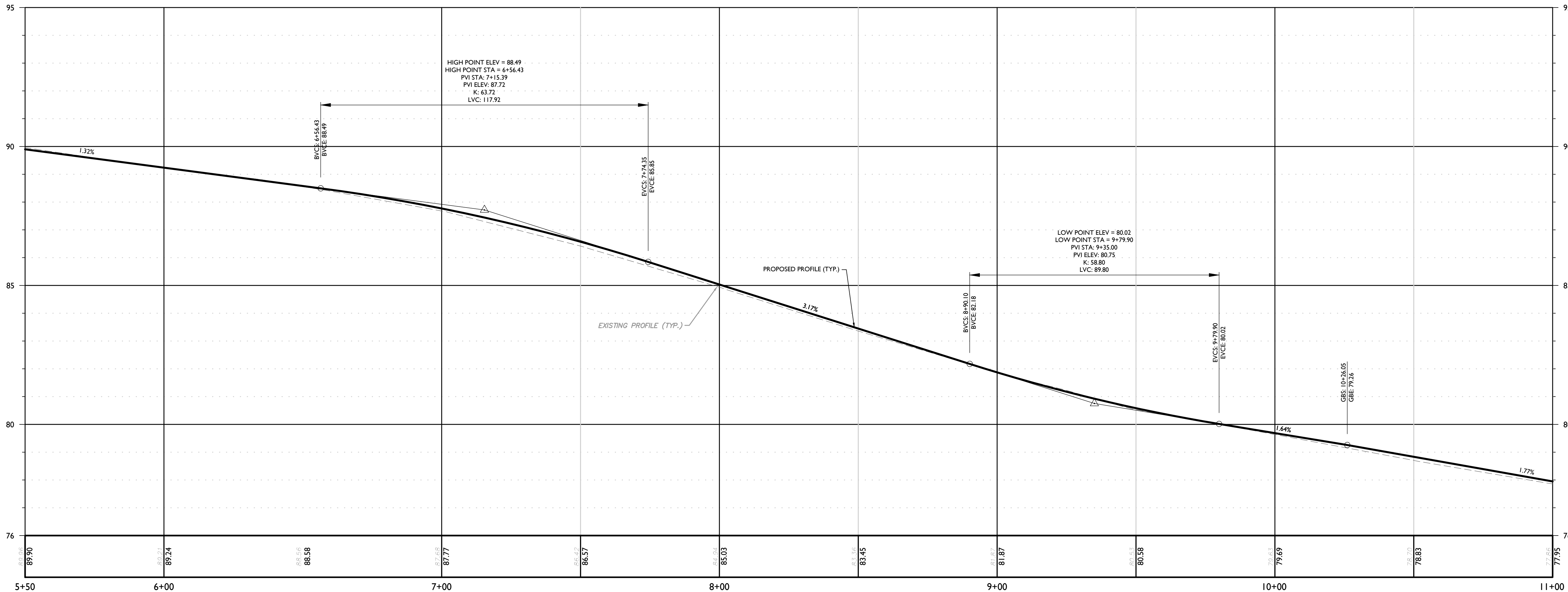
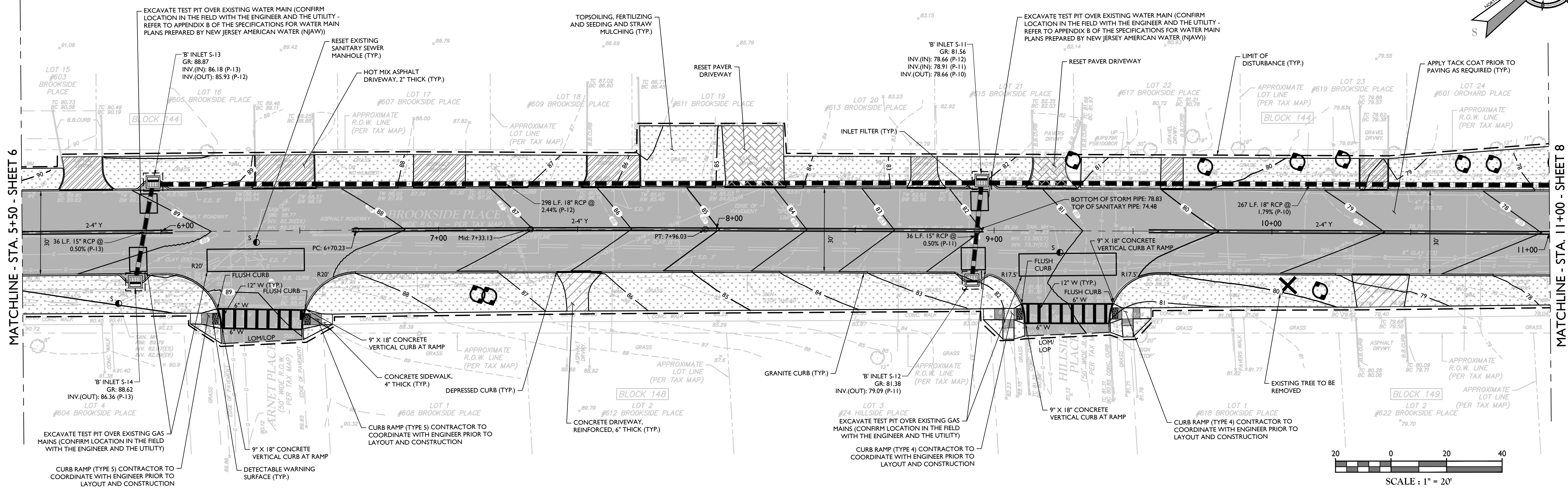
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SCALE: AS SHOWN	DATE: 1/30/20	DRAWN BY: BAK	CHECKED BY: PWJ
PROJECT NUMBER: CDT065		DRAWING NAME: C-LAYT	

SHEET TITLE:	<div style="border: 1px solid black; padding: 10px; text-align: center; font-size: 24px; font-weight: bold;">             DIMENSION PLAN           </div>
SHEET NUMBER:	<div style="border: 1px solid black; padding: 10px; text-align: center; font-size: 36px; font-weight: bold;">             6      of      36           </div>

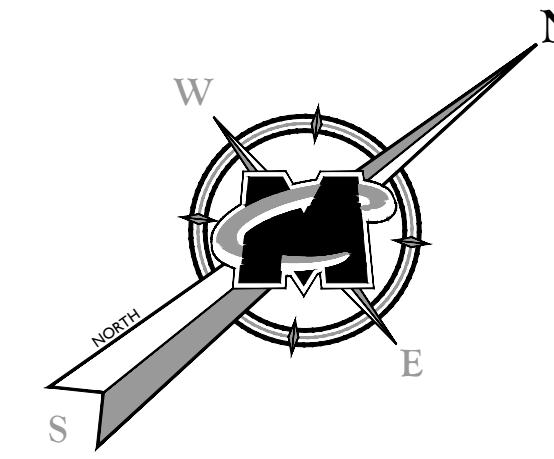
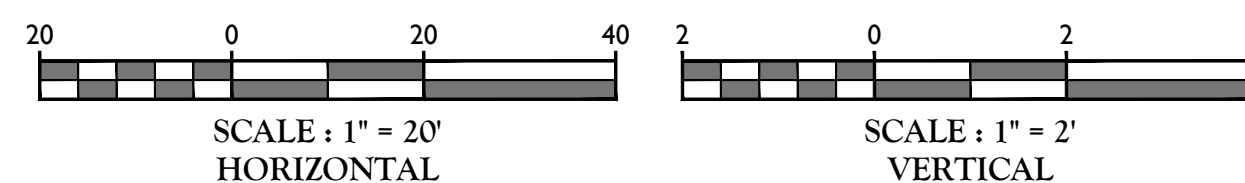






PROFILE OF BROOKSIDE PLACE ALIGNMENT  
HORIZONTAL : 1" = 20'  
VERTICAL : 1" = 2'

SOIL EROSION AND SEDIMENT CONTROL PLAN



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3	6/17/20	BAK	REVISED FOR SCD SUBMISSION
4	7/7/20	BAK	REVISED PER SCD COMMENTS
5	3/5/21	BAK	REVISED PER TOWNSHIP COMMENTS
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**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

CONSTRUCTION PLANS  
FOR  
NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS  
TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY

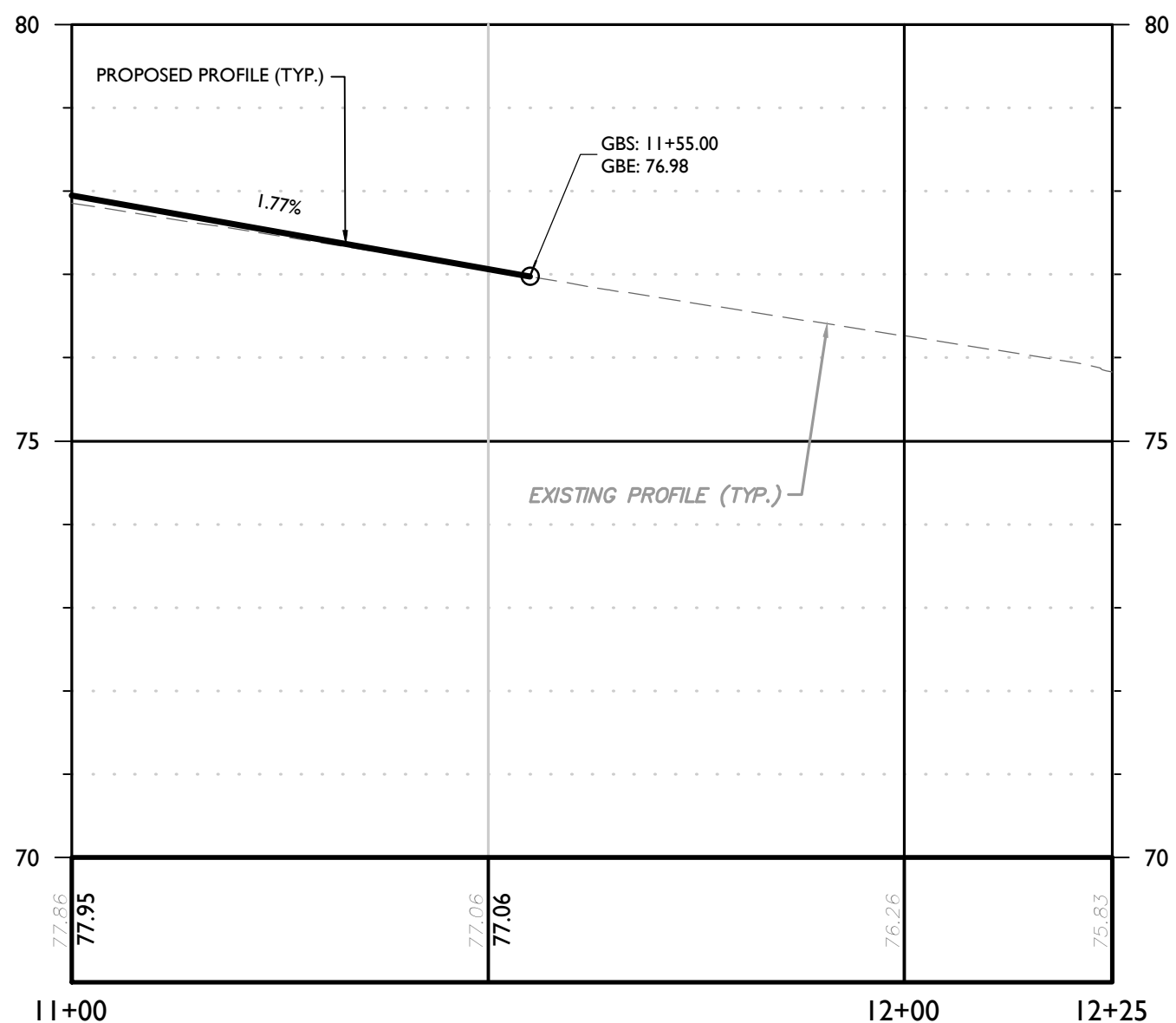
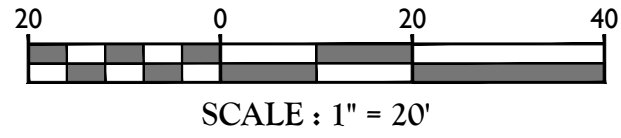
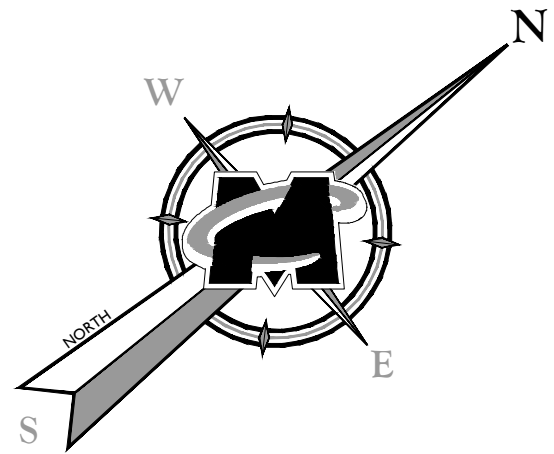
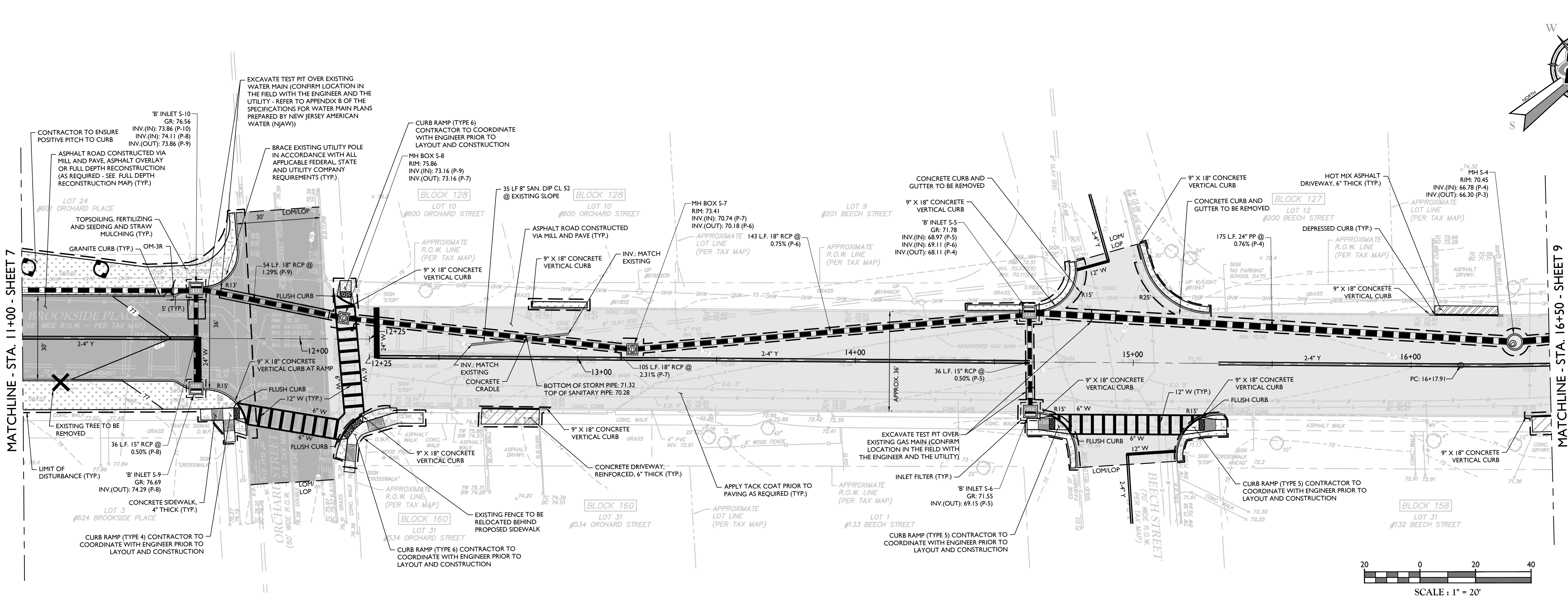
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400 Valley Road  
Suite 304  
Mount Arlington, NJ 07856  
Phone: 973.398.3110  
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PROJECT NUMBER:	DRAWING NAME:		
CDT065	C-LAYT		

SHEET NUMBER:  
**7 of 36**  
DIMENSION PLAN

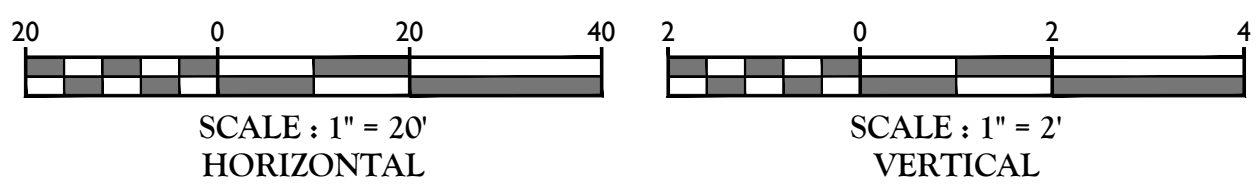
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.





PROFILE OF BROOKSIDE PLACE ALIGNMENT  
HORIZONTAL : 1" = 20'  
VERTICAL : 1" = 2'

SOIL EROSION AND SEDIMENT CONTROL PLAN



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4	7/7/20	BAK	REVISED PER SCD COMMENTS
5	3/3/21	BAK	REVISED PER TOWNSHIP COMMENTS
6			
7			
8			
9			
10			

**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

CONSTRUCTION PLANS  
FOR  
NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS  
TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
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PROJECT NUMBER:		DRAWING NAME:	
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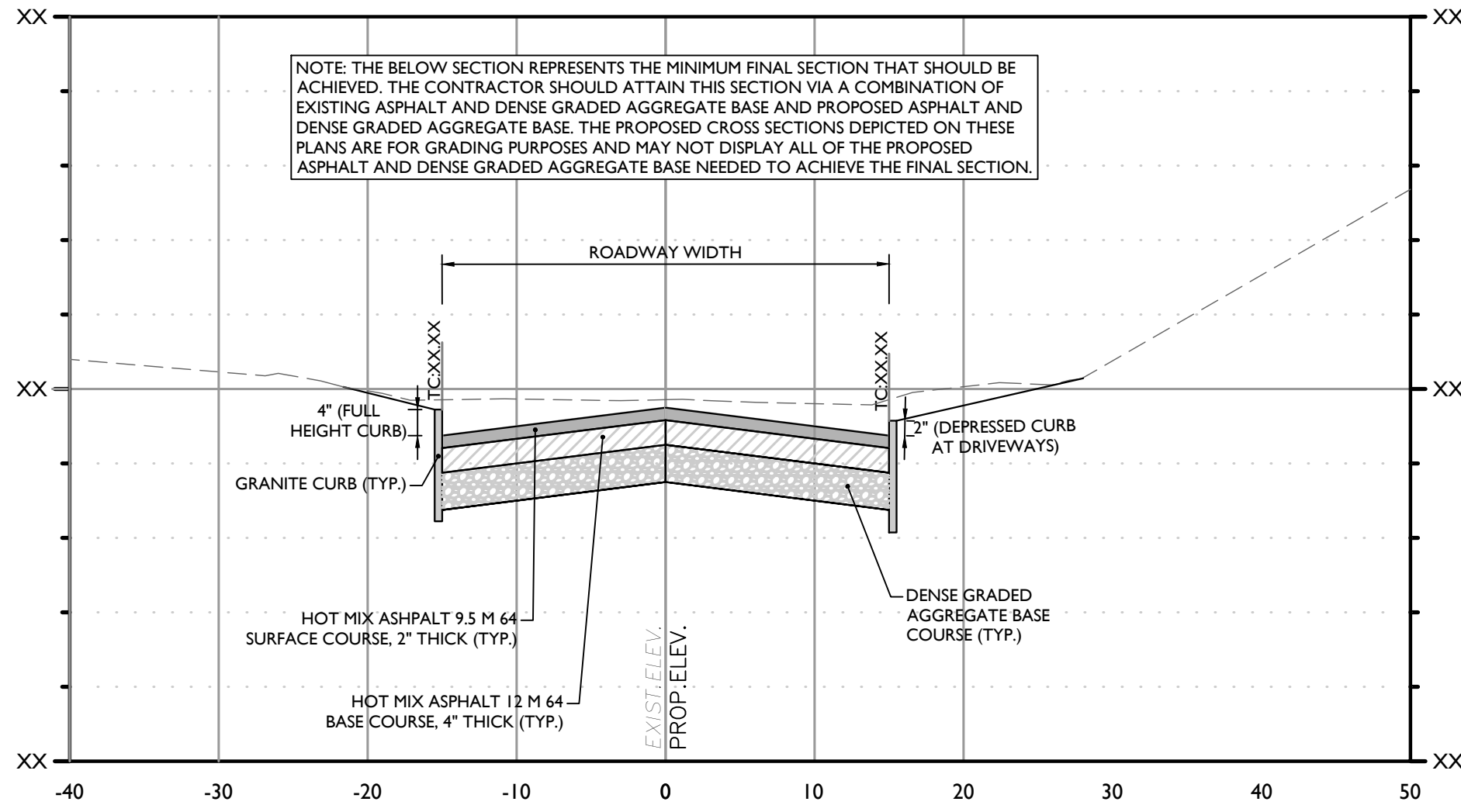
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SHEET NUMBER:  
8 of 36

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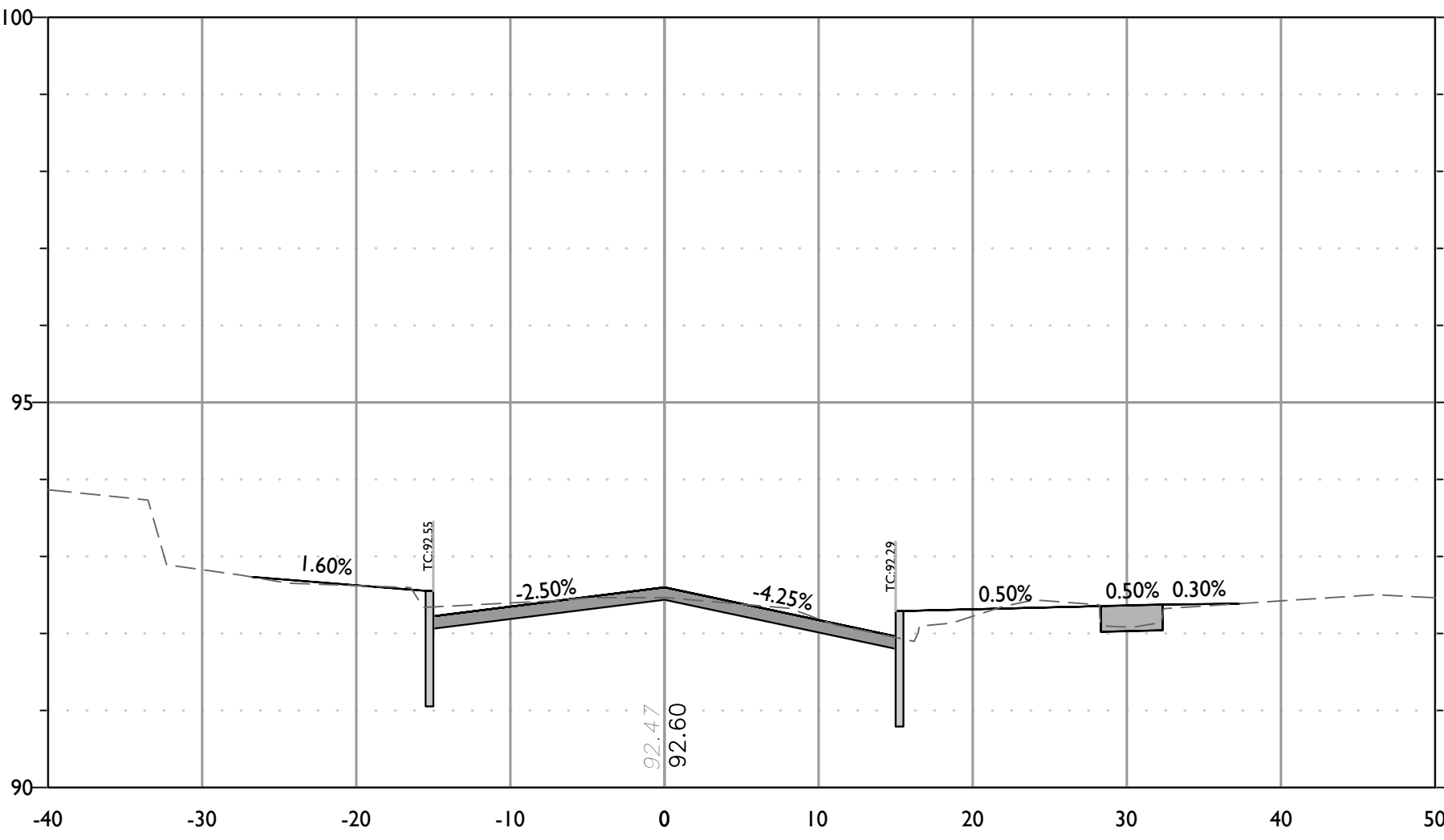




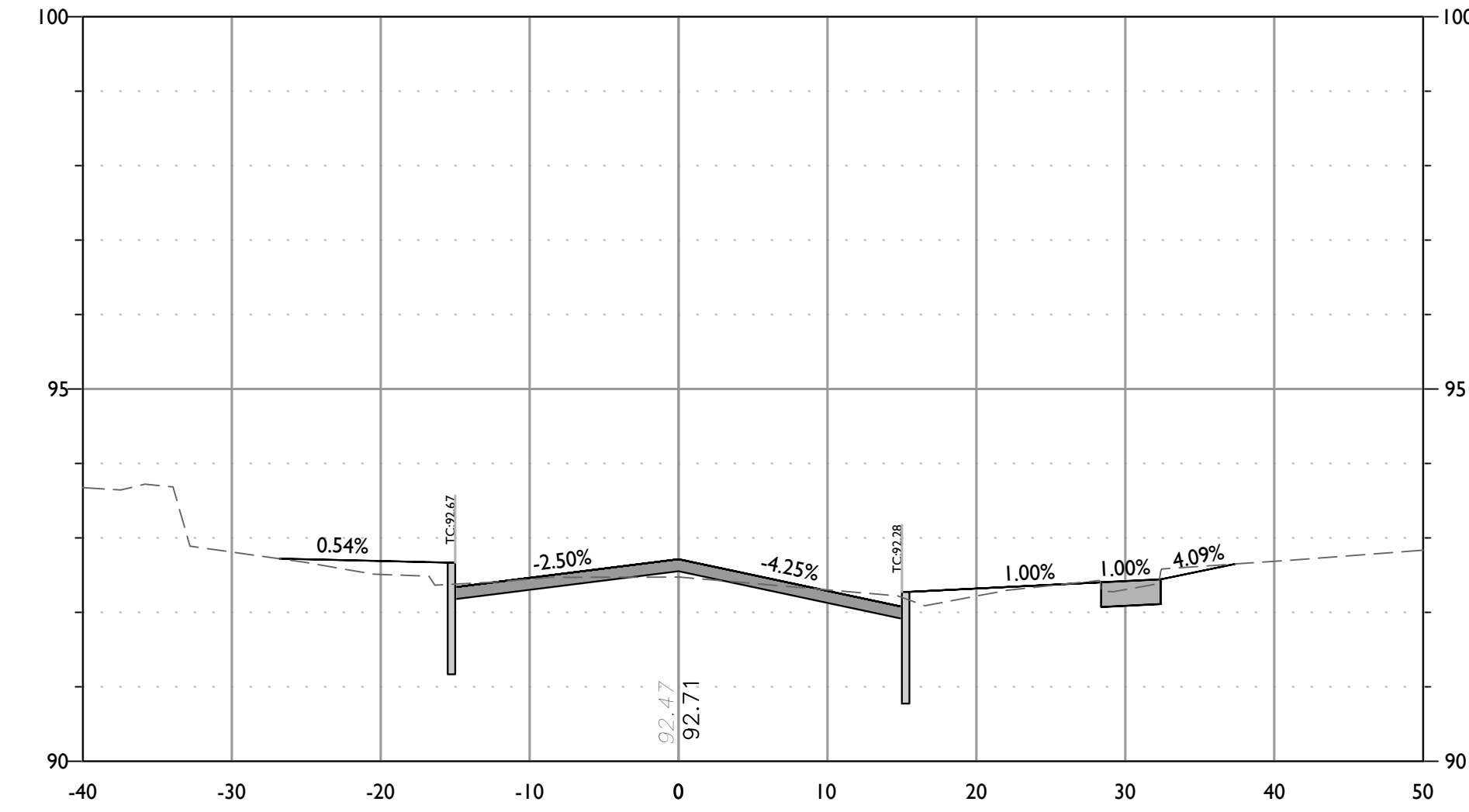




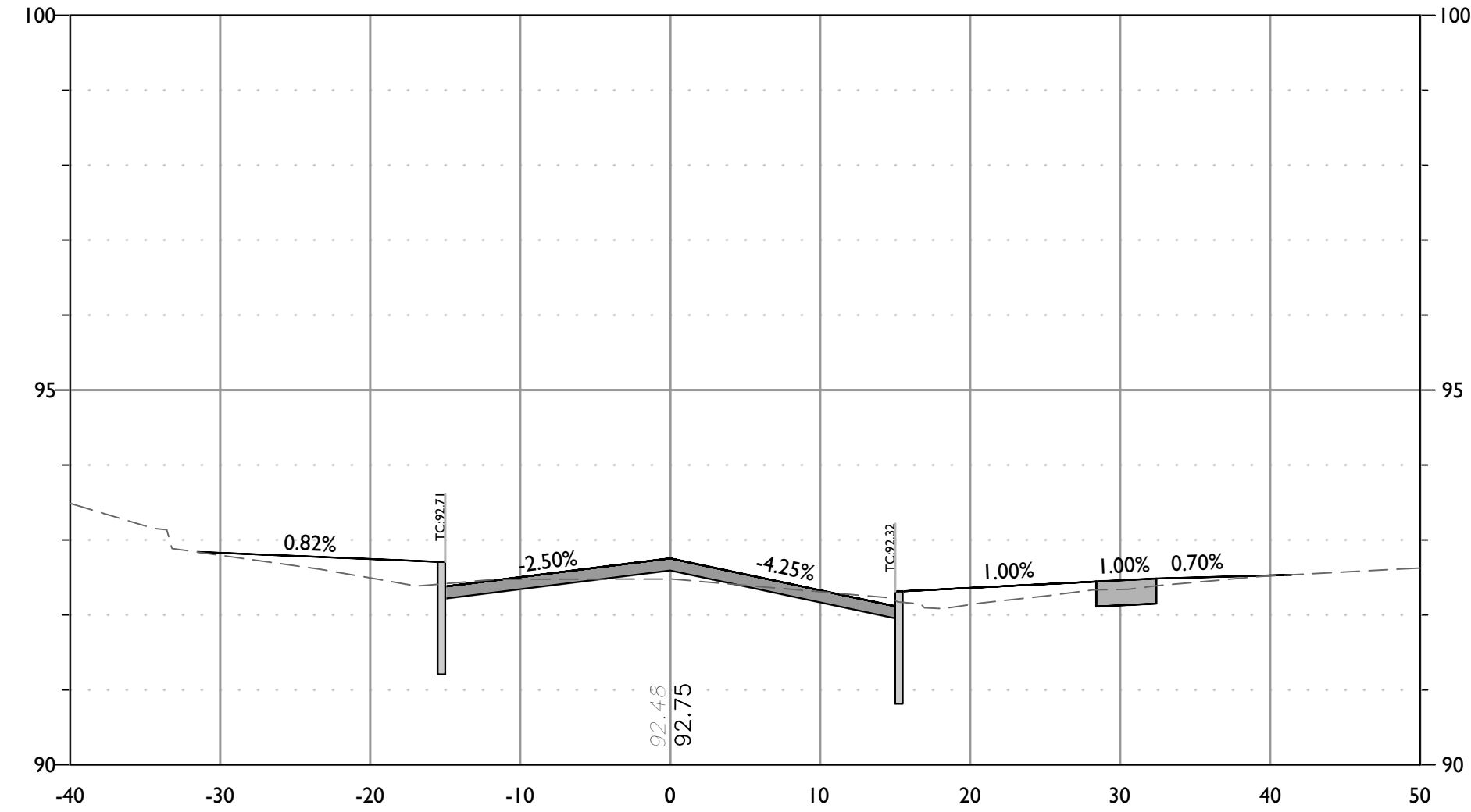
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STATION: XX+XX.XX  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



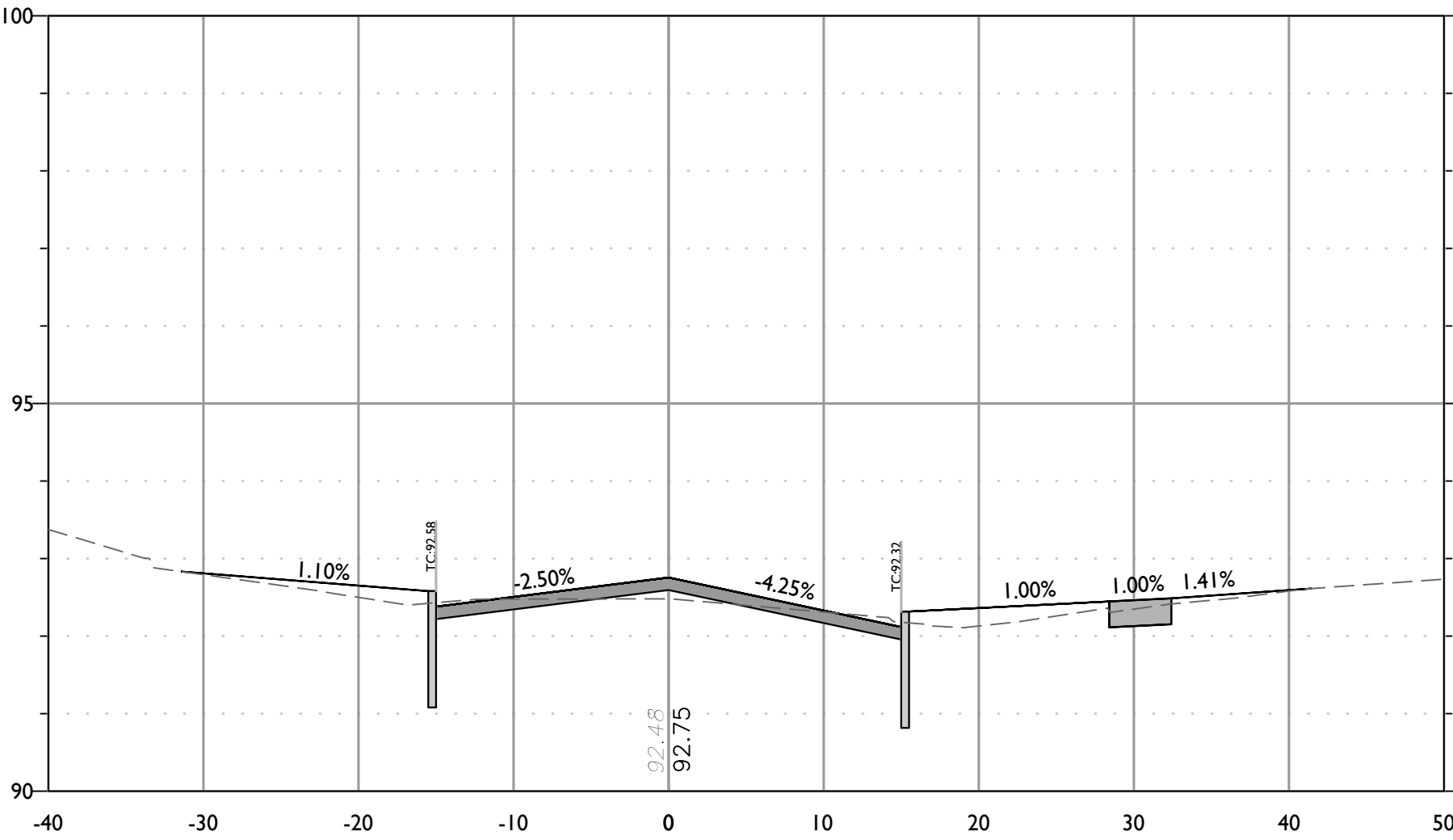
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VERTICAL : 1" = 2'



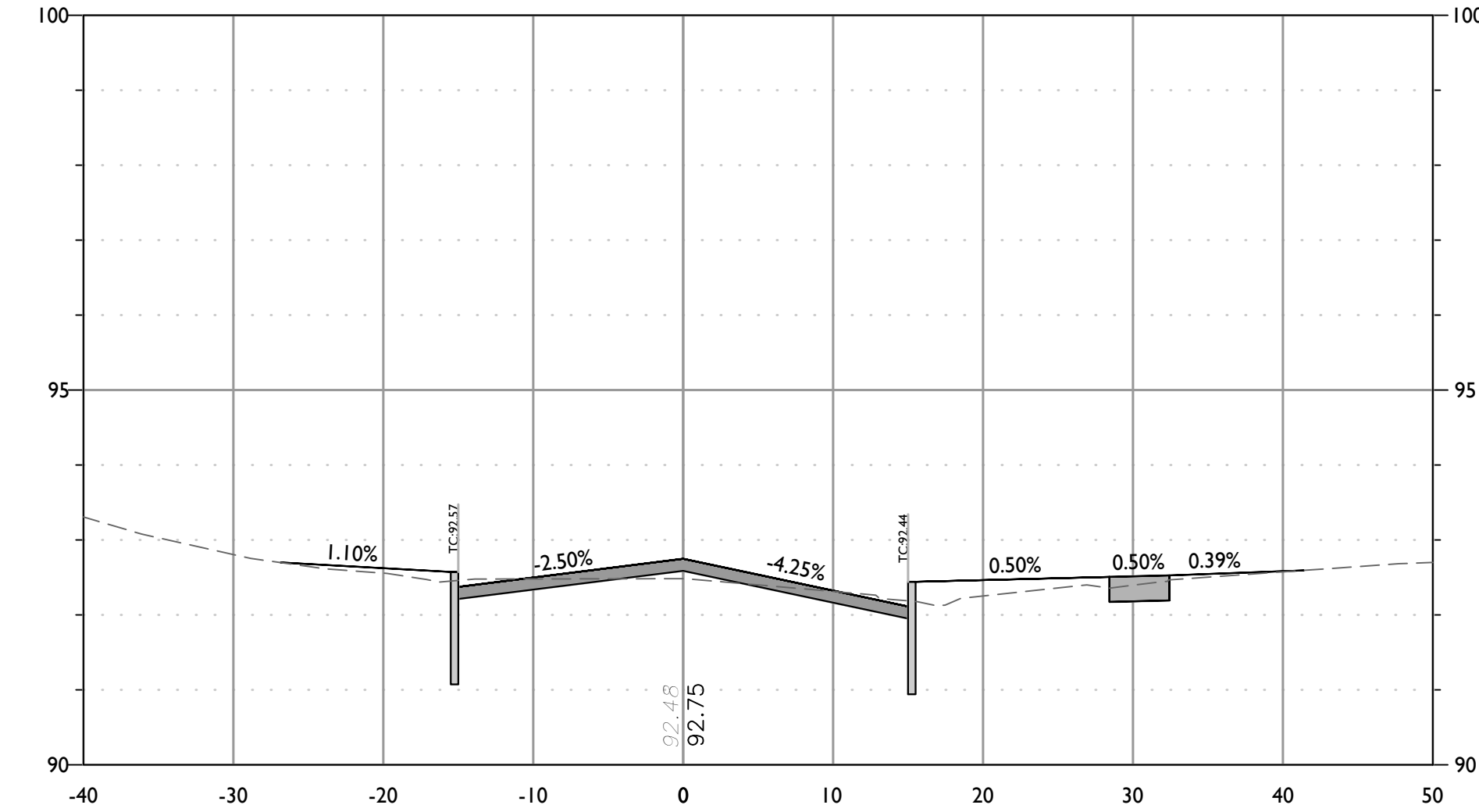
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VERTICAL : 1" = 2'



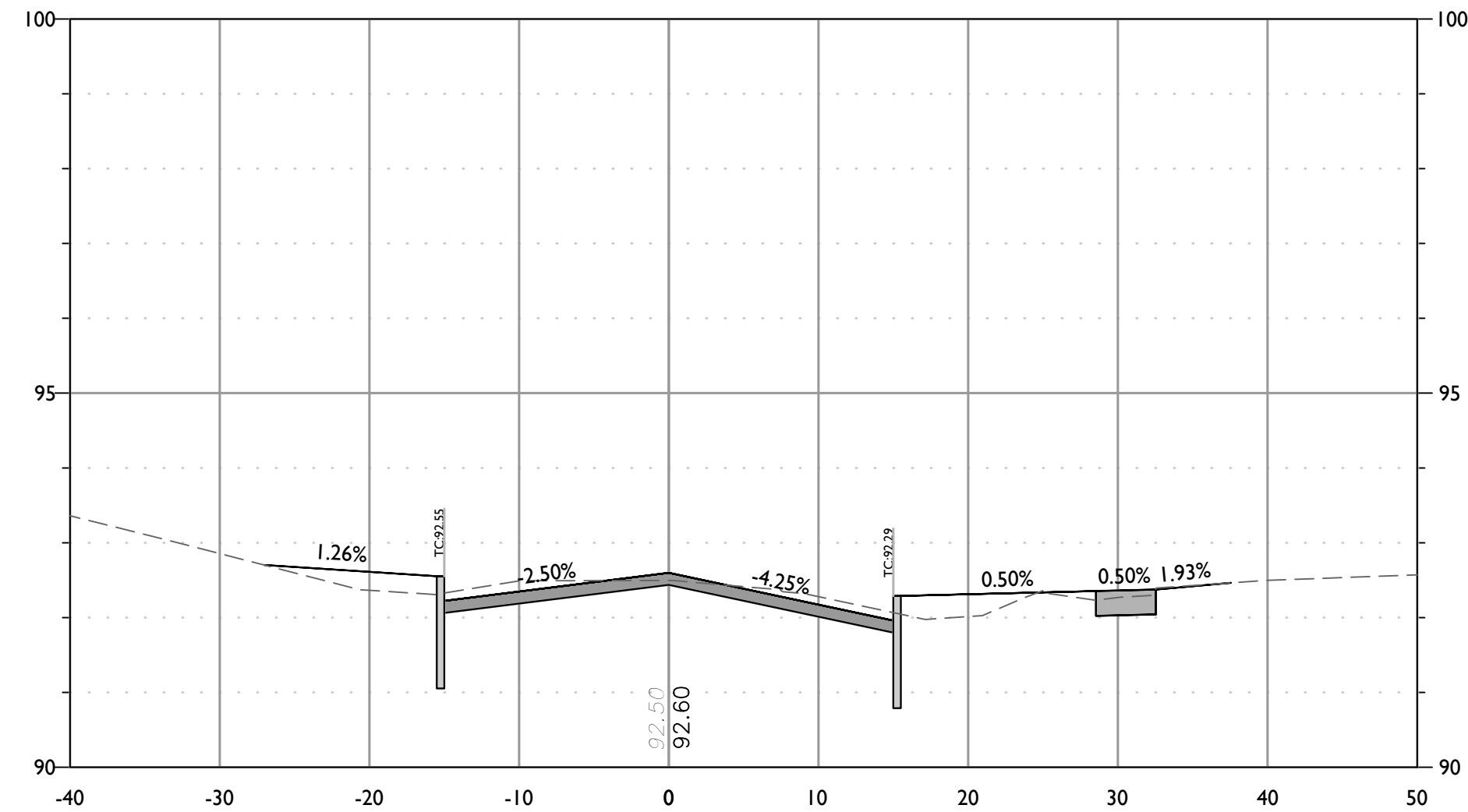
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STATION: 1+45  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



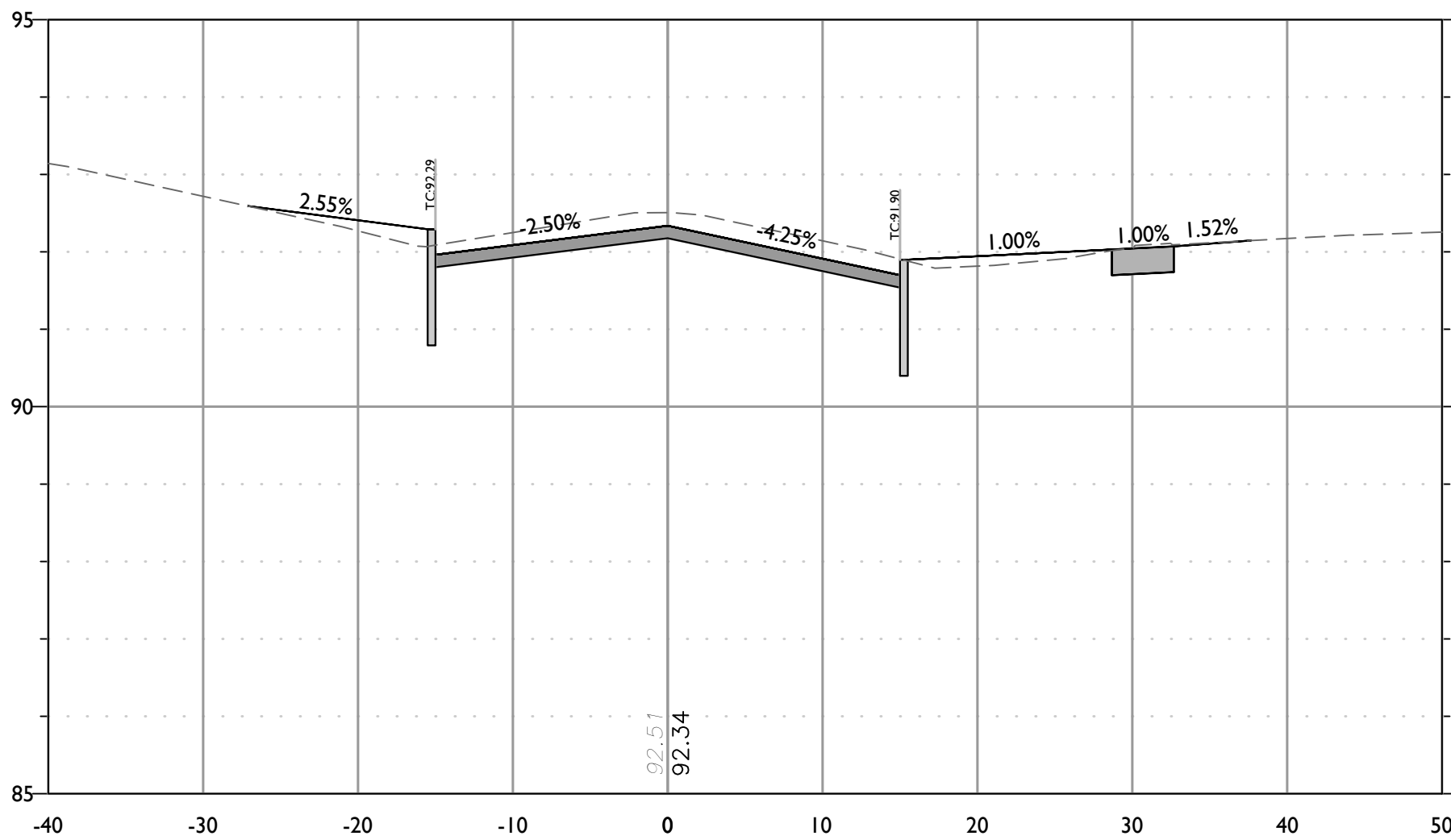
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



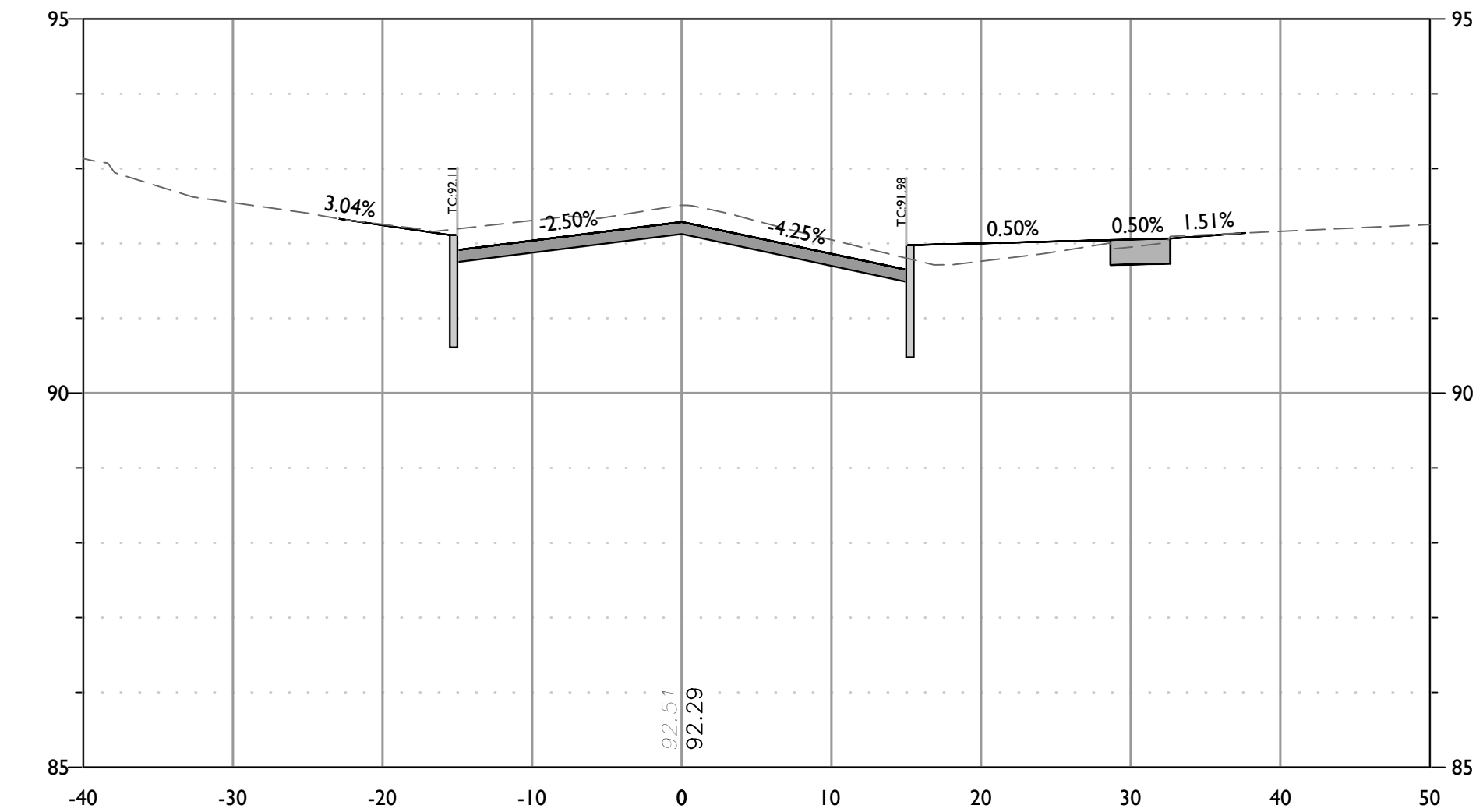
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STATION: 1+60  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



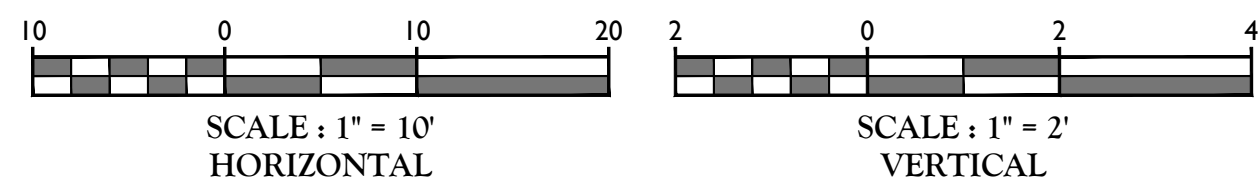
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STATION: 2+00  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 2+40  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 2+50  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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4	7/7/20	BAK	REVISED PER SCD COMMENTS
5	3/5/21	BAK	REVISED PER TOWNSHIP COMMENTS
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7			
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9			
10			

**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

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FOR  
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BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS  
TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY

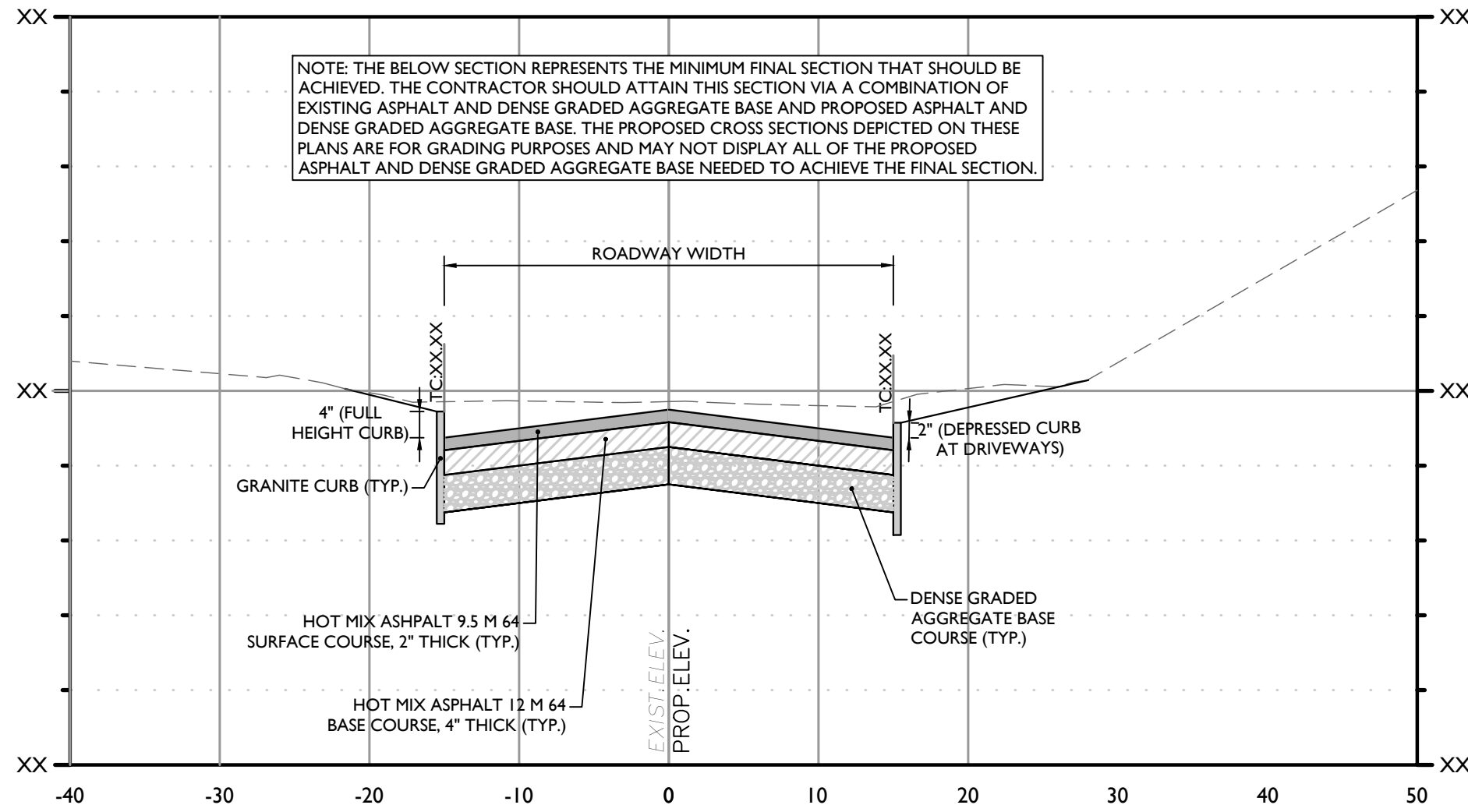
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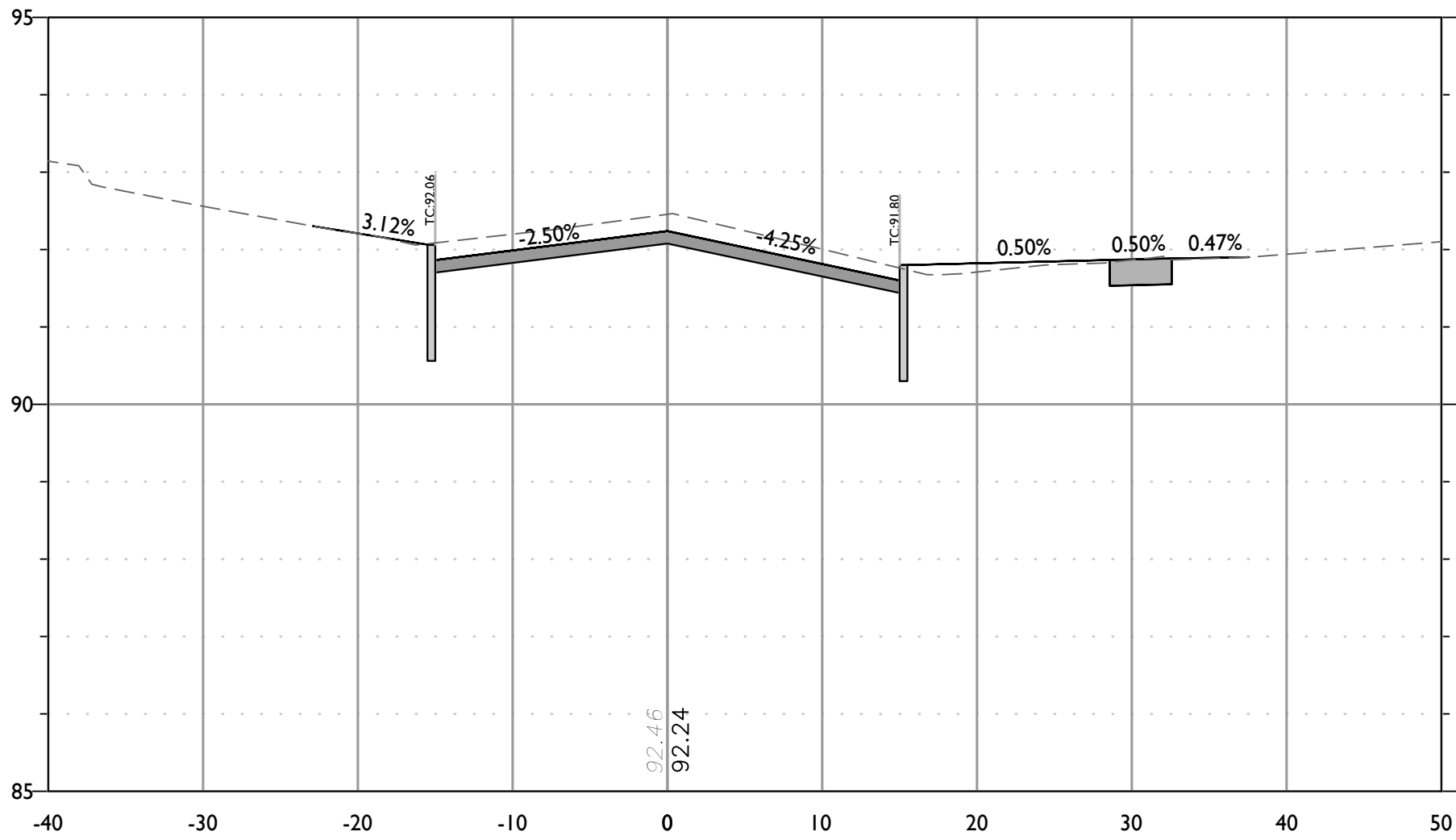
SHEET TITLE  
CROSS SECTIONS  
SHEET NUMBER:  
10 of 36

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

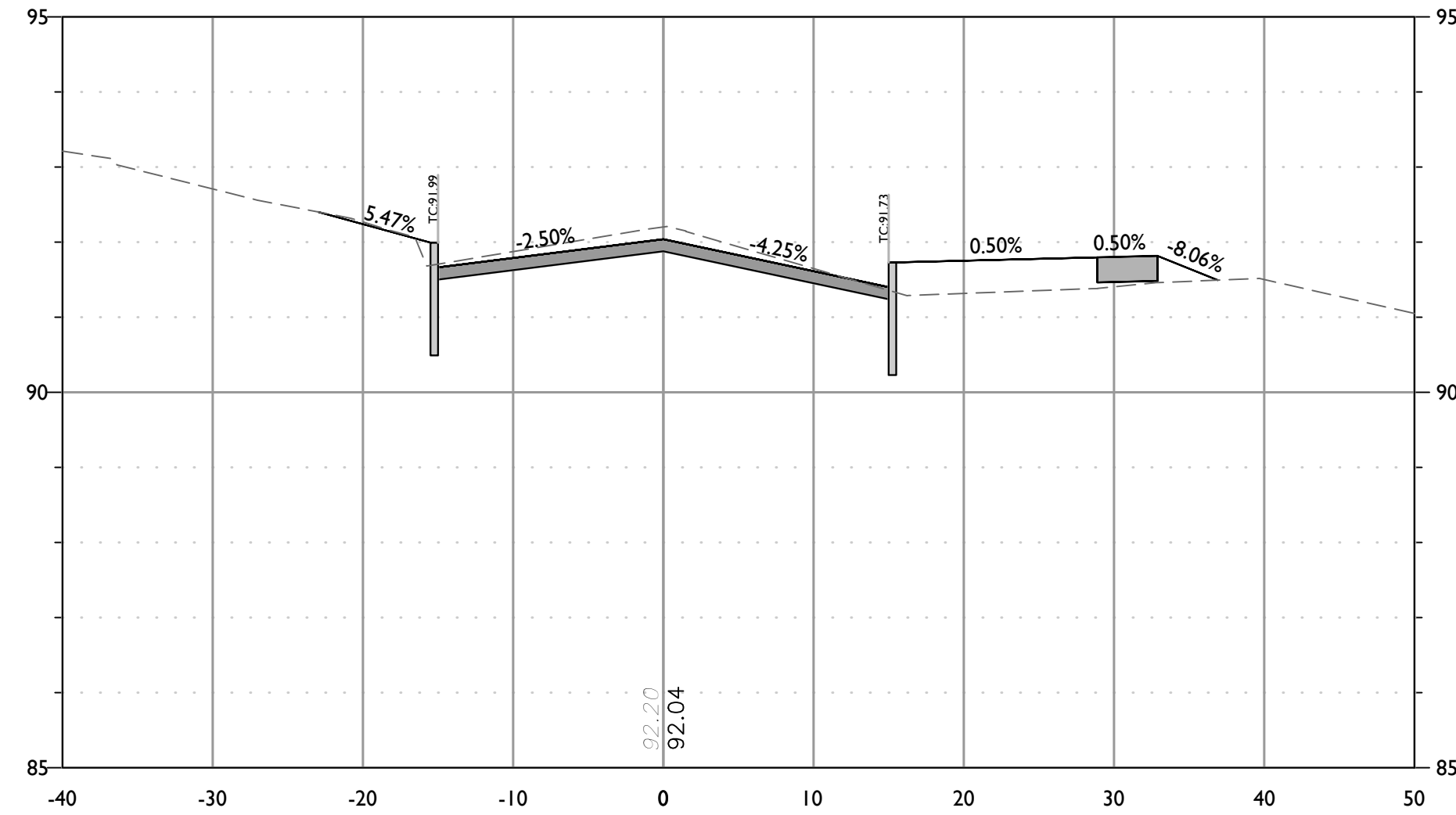




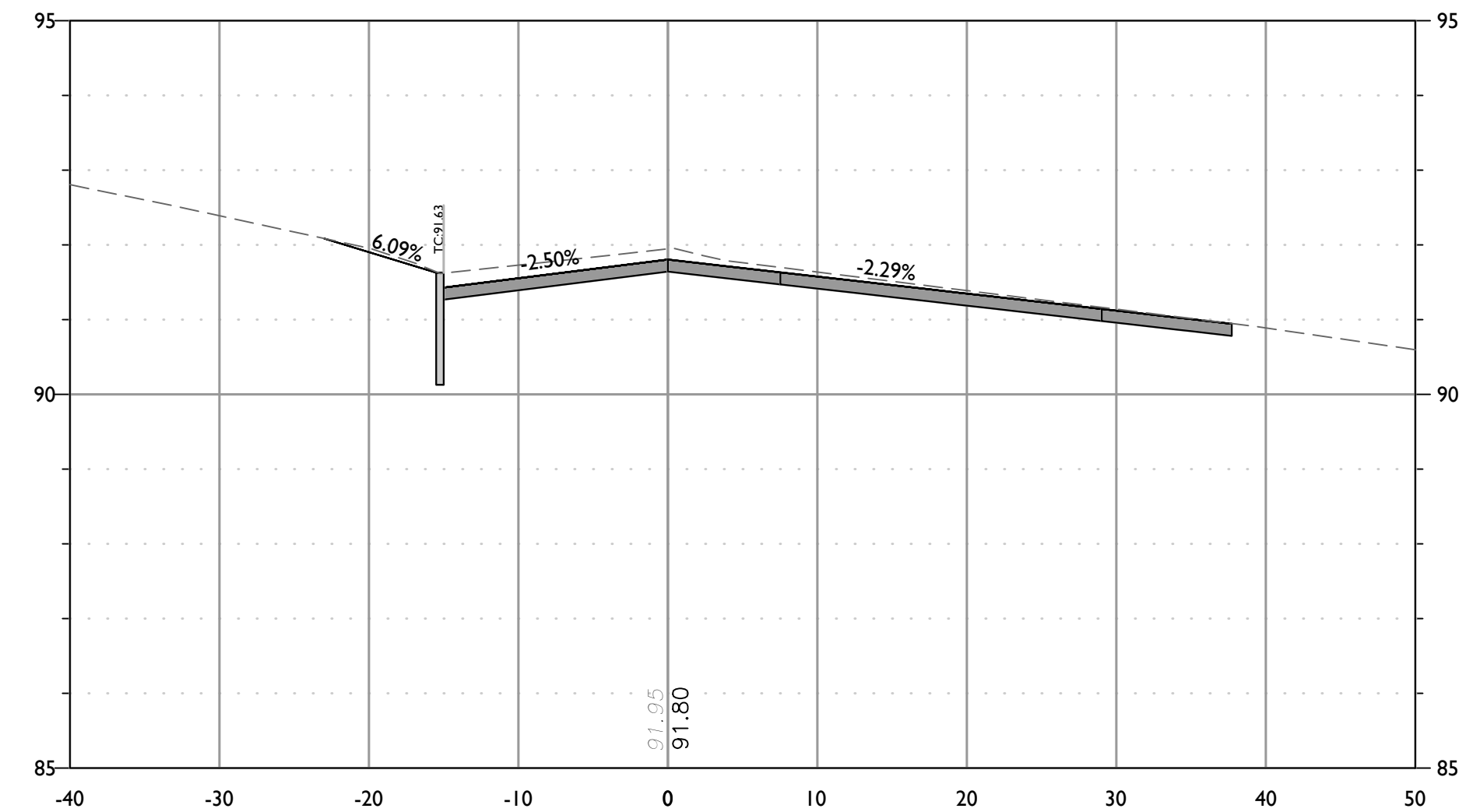
TYPICAL CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: XX+XX.XX  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



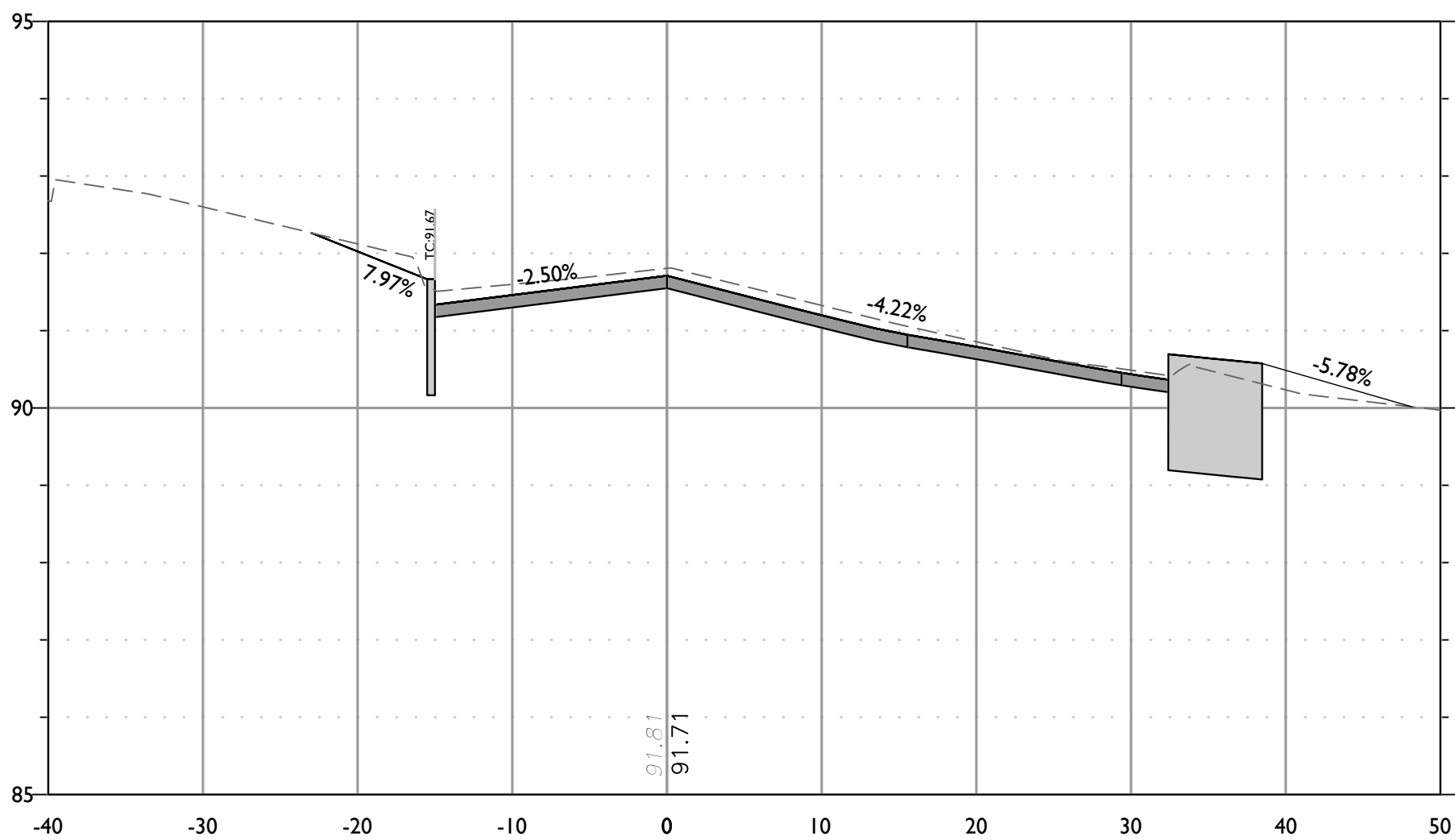
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



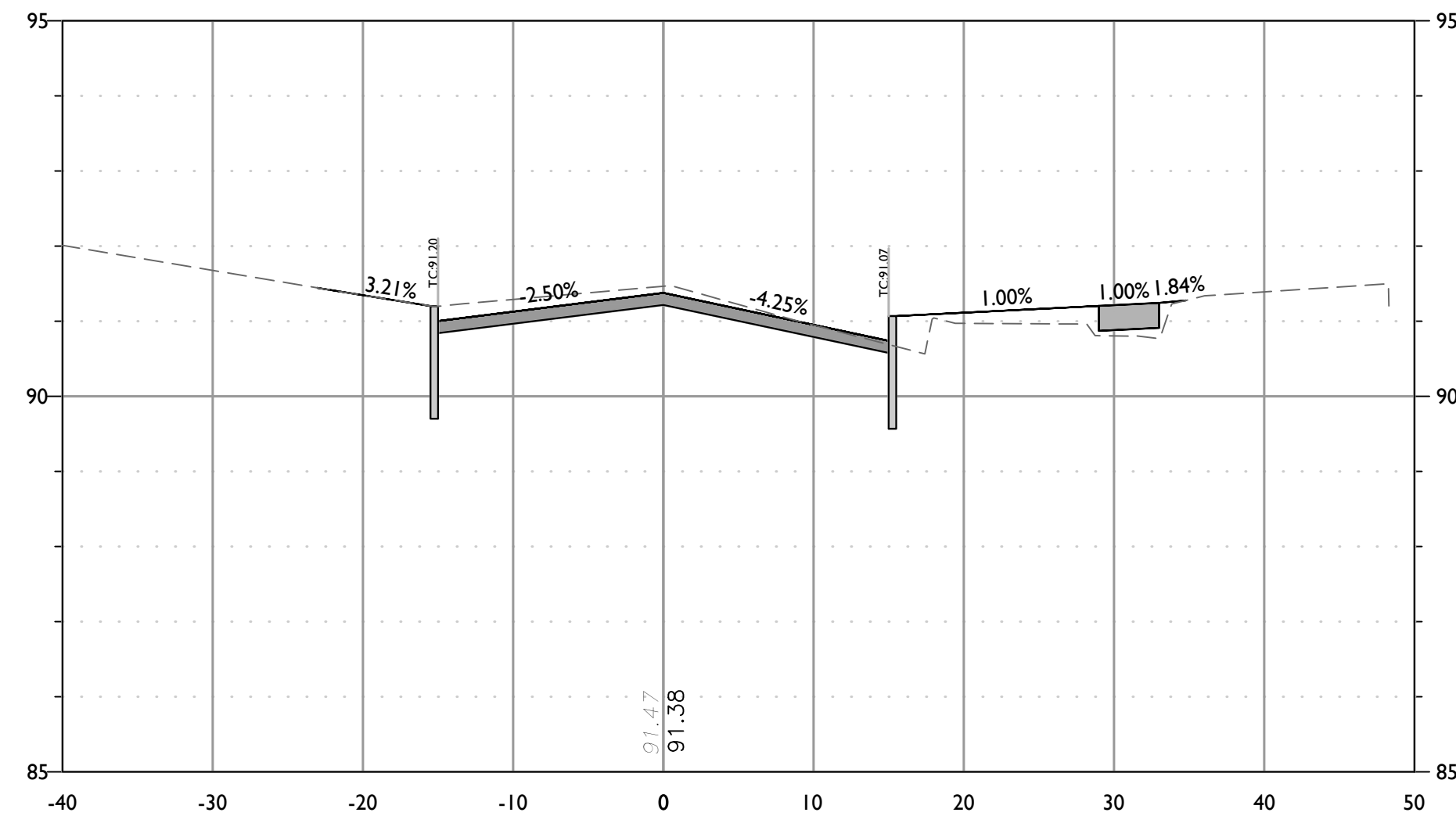
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STATION: 3+00  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



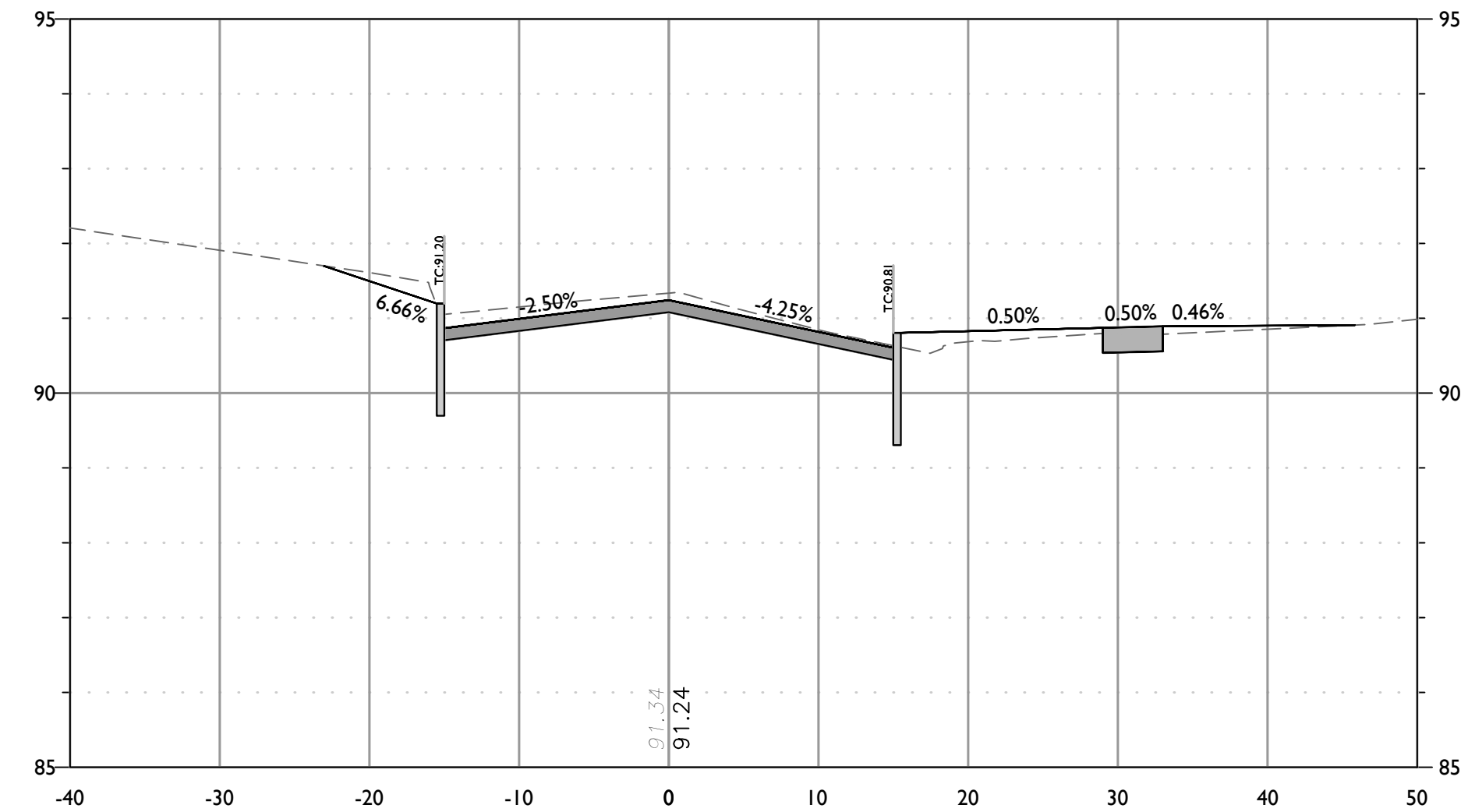
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STATION: 3+36.07  
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VERTICAL : 1" = 2'



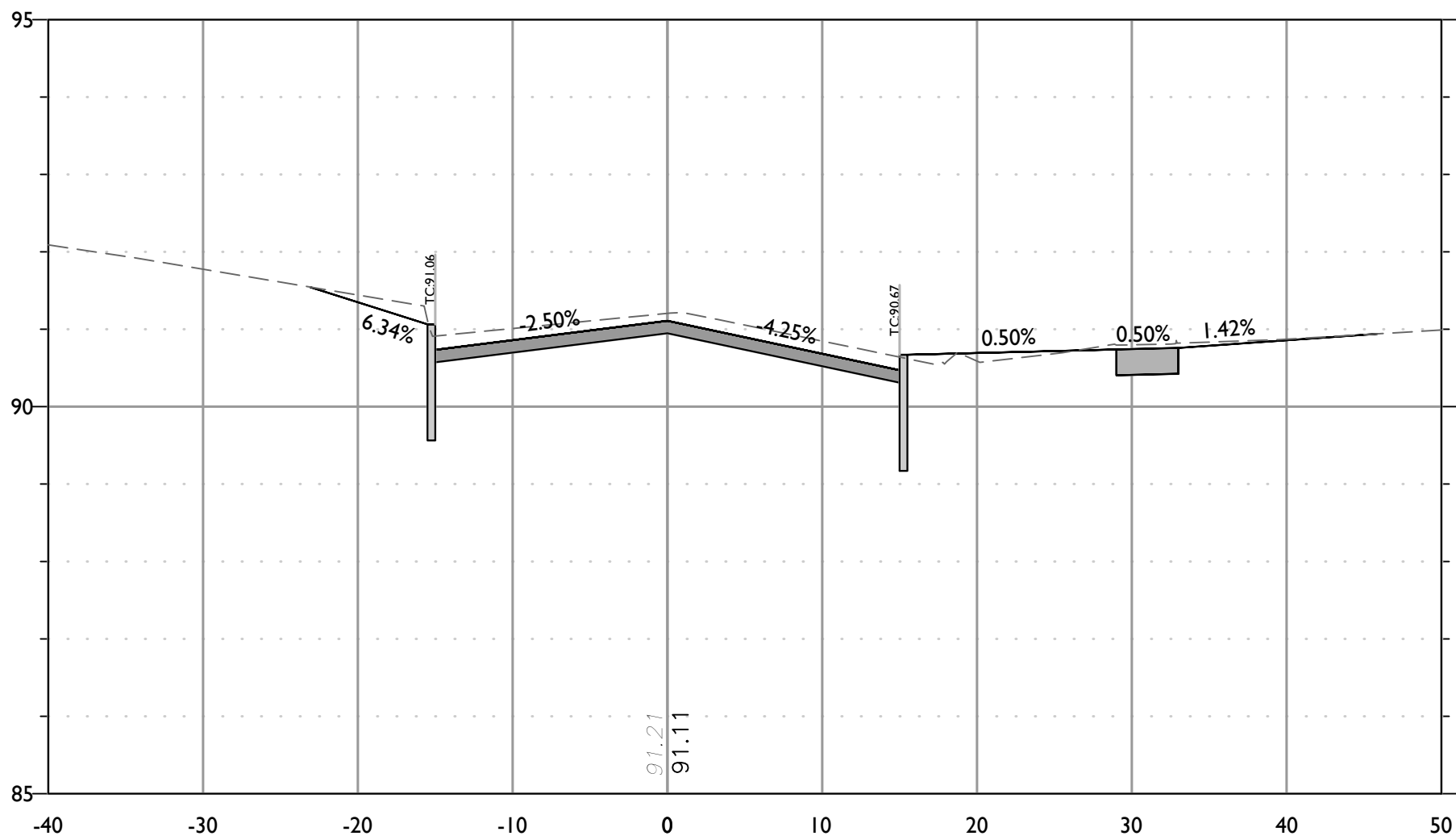
CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
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VERTICAL : 1" = 2'



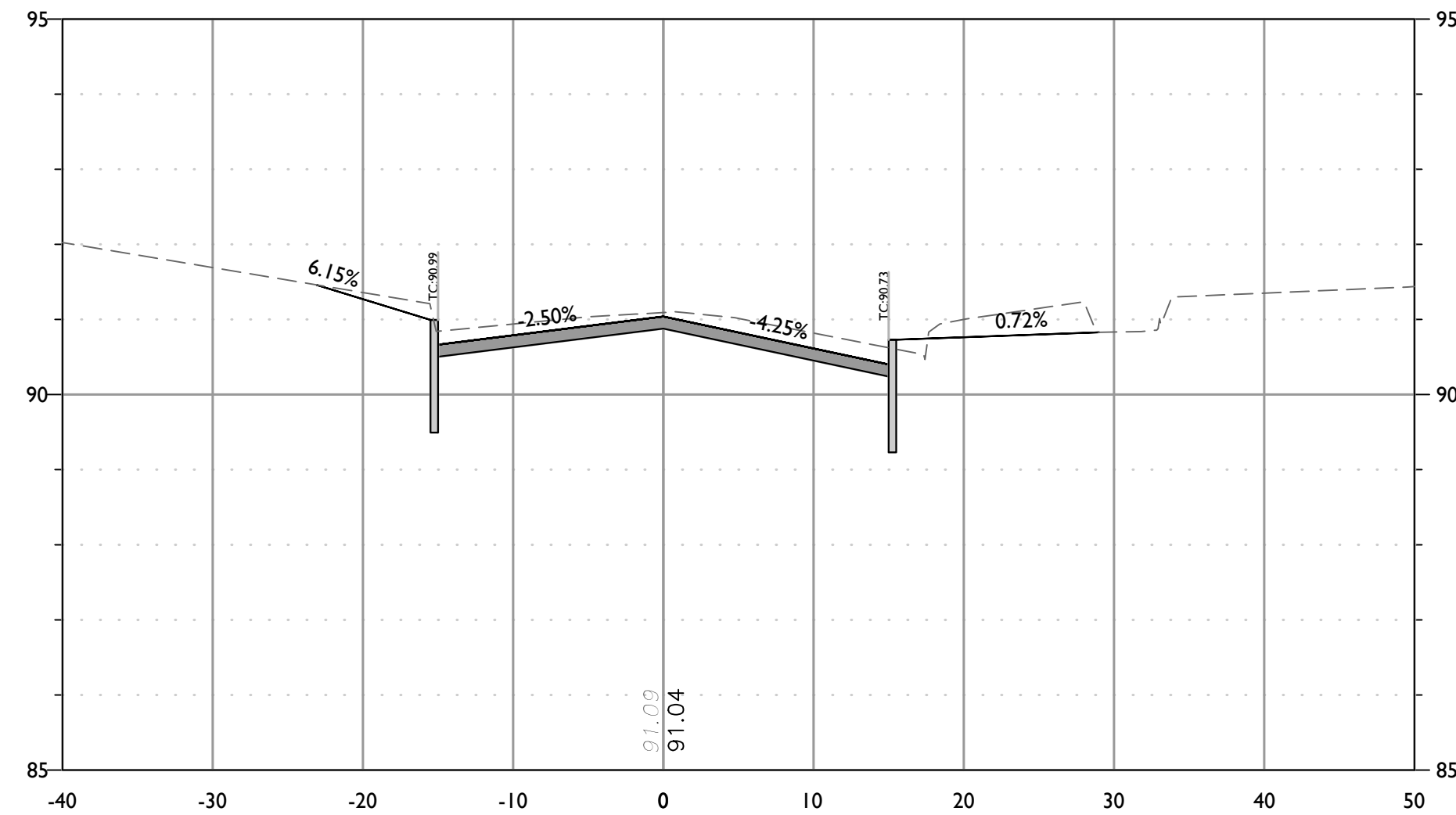
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



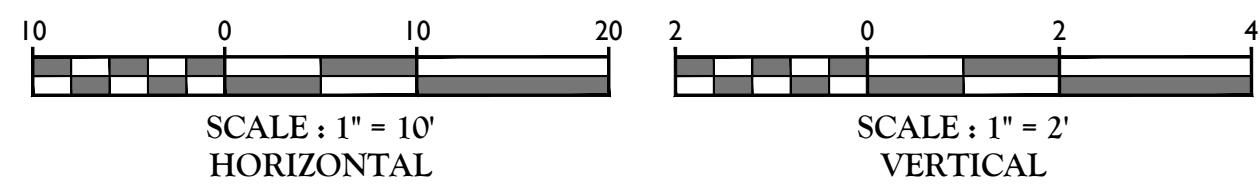
CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 4+20  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 4+40  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 4+50  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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5	3/5/21	BAK	REVISED PER TOWNSHIP COMMENTS
6			
7			
8			
9			
10			

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NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

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FOR  
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BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS  
TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY

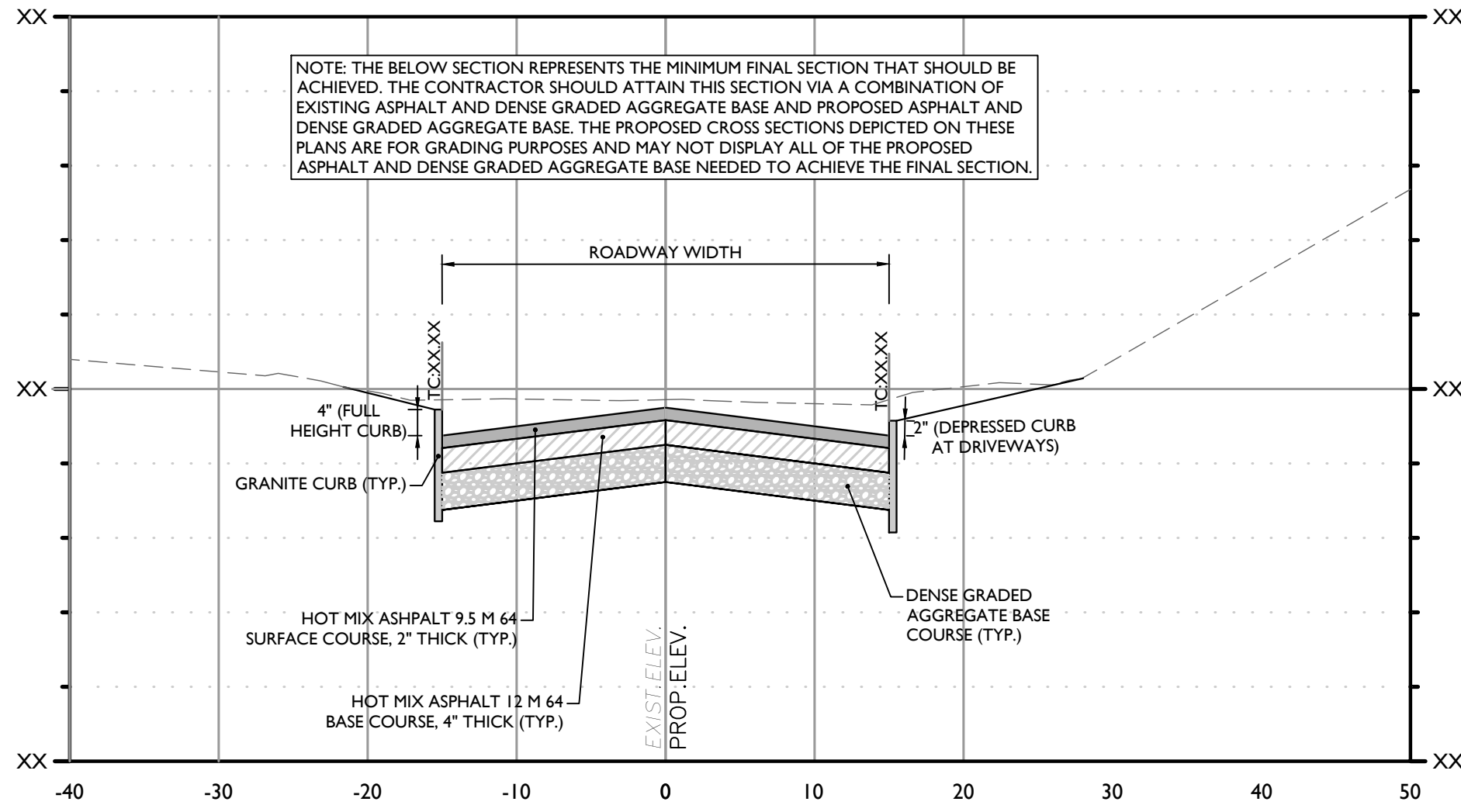
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AS SHOWN	1/30/20	BAK	PWJ

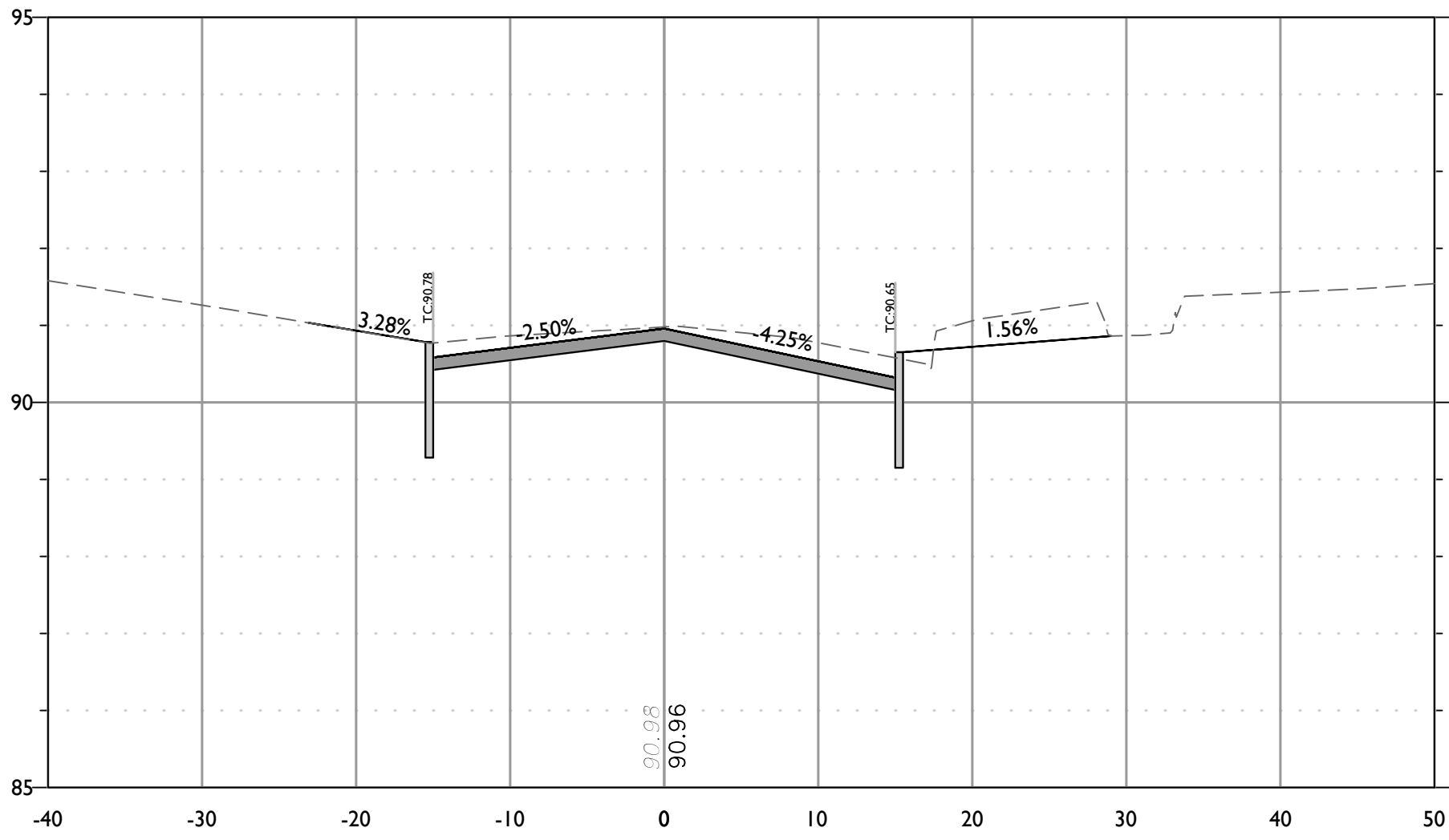
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SHEET TITLE:  
CROSS SECTIONS  
SHEET NUMBER:  
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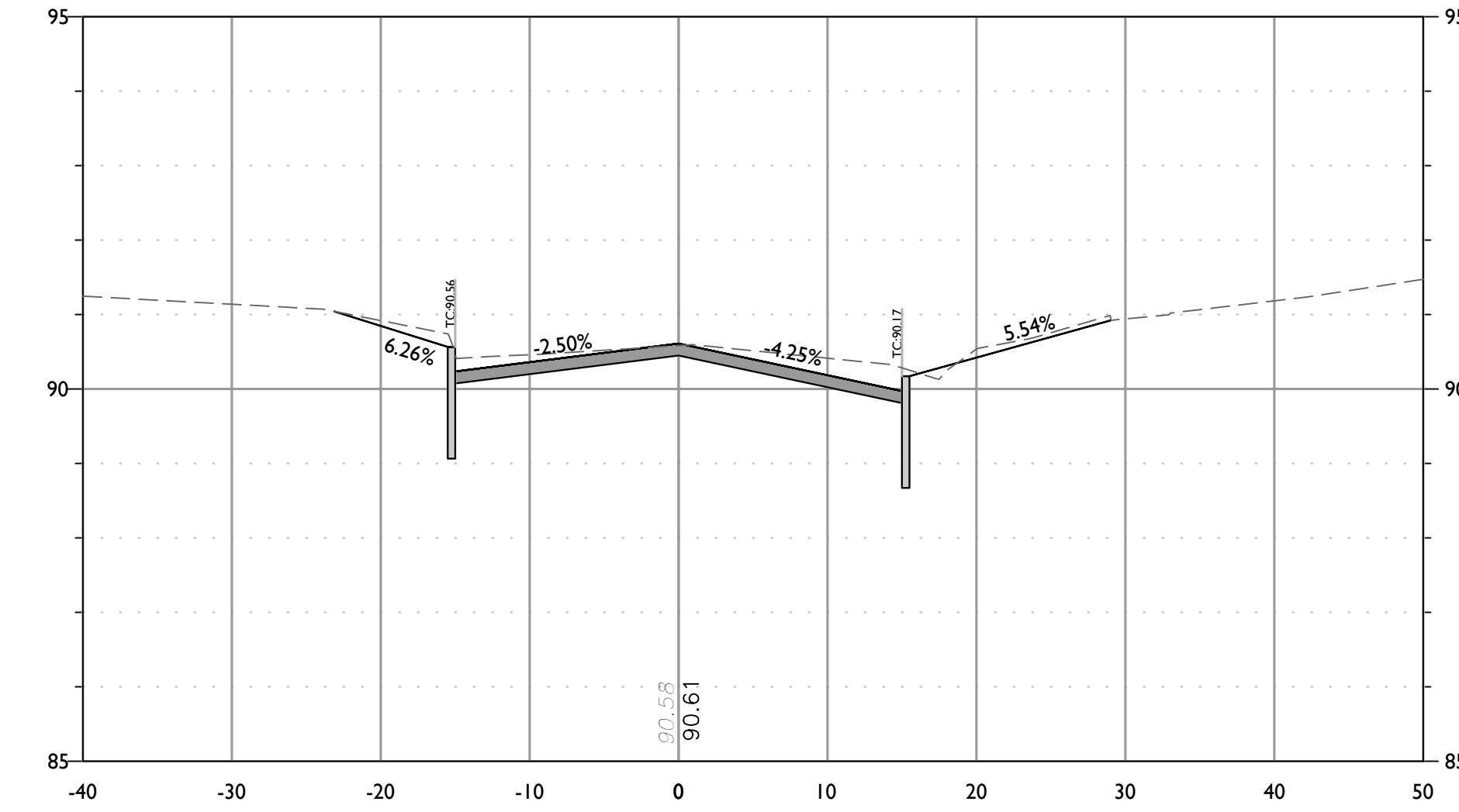




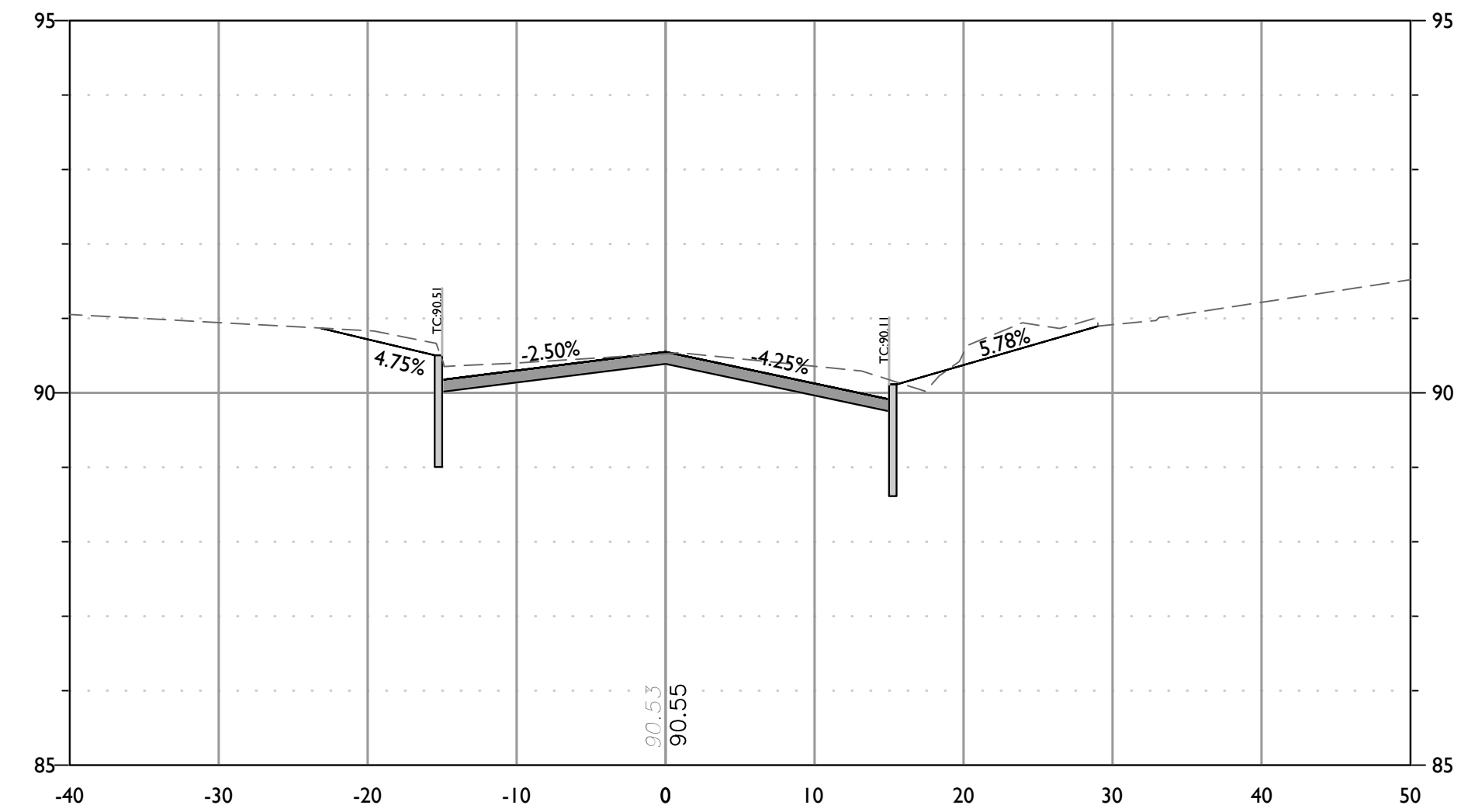
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STATION: XX+XX.XX  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



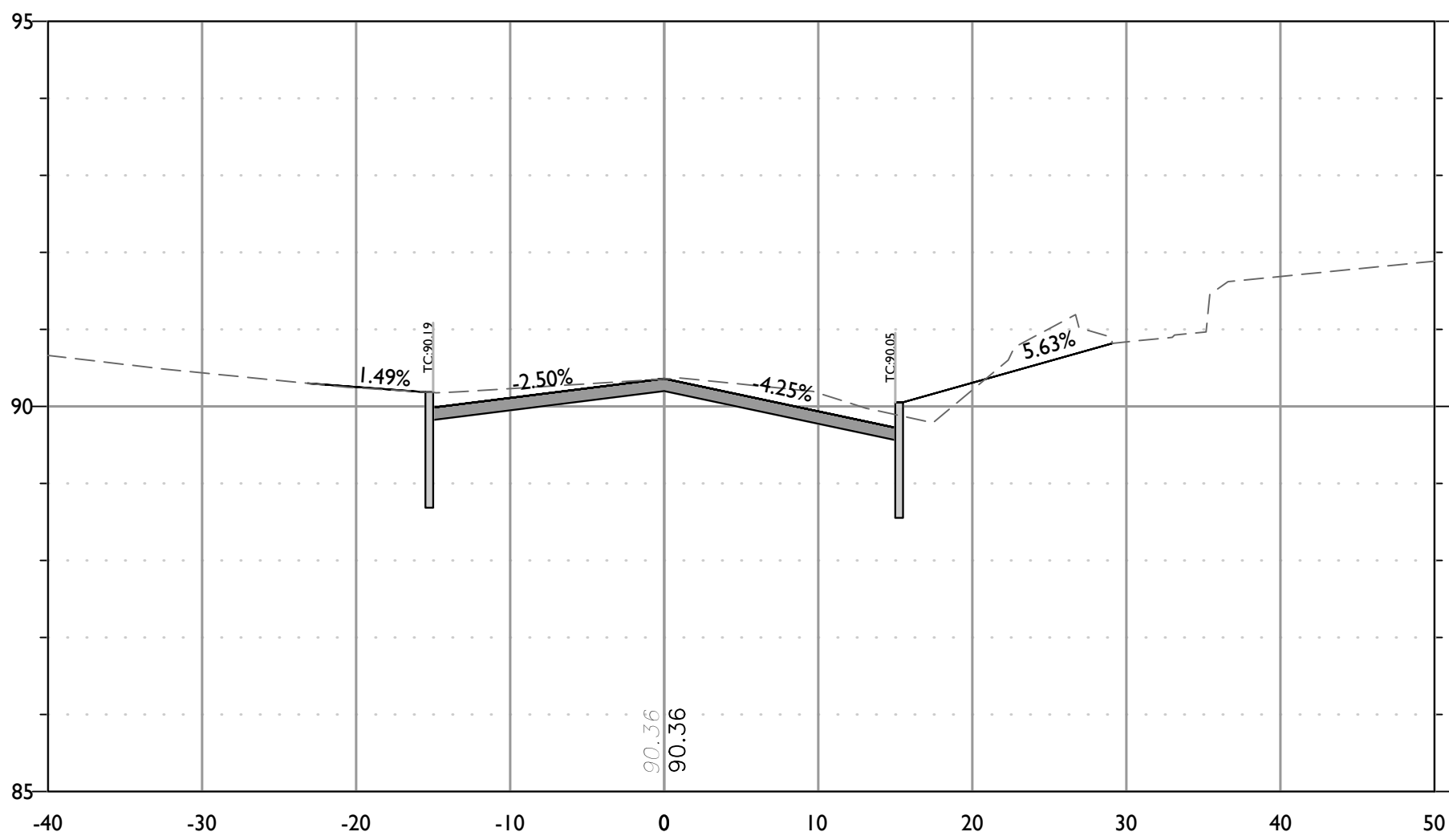
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VERTICAL : 1" = 2'



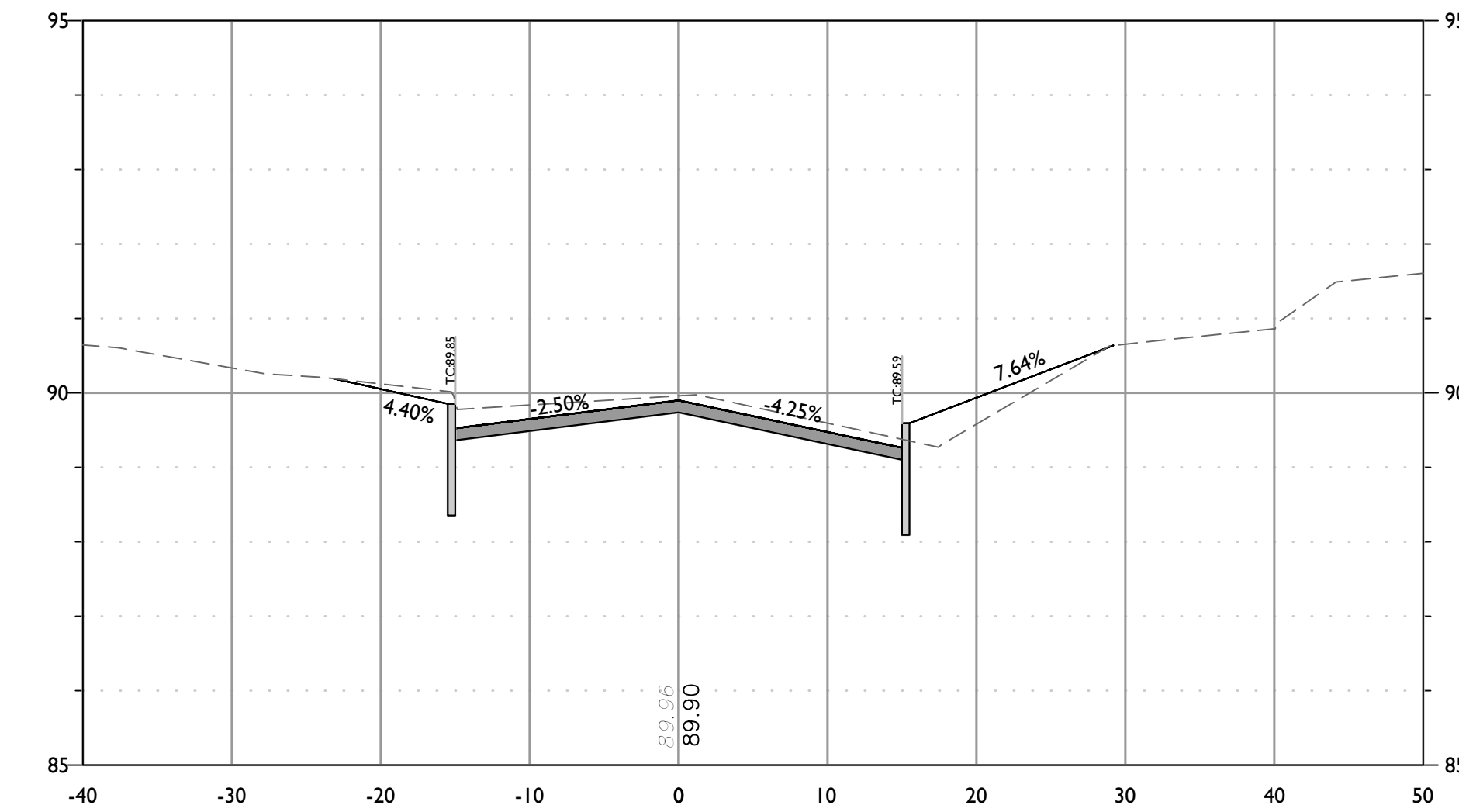
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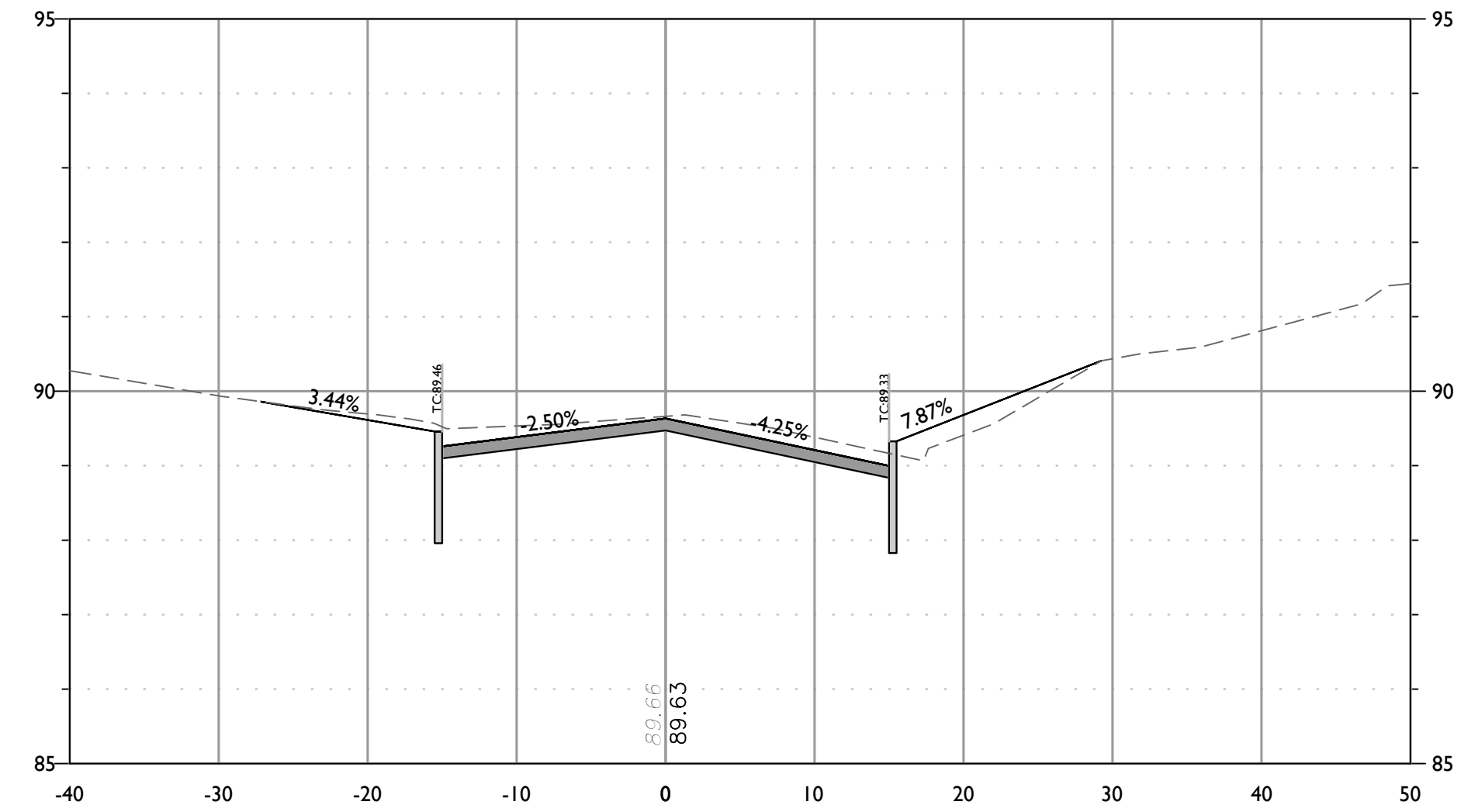
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VERTICAL : 1" = 2'



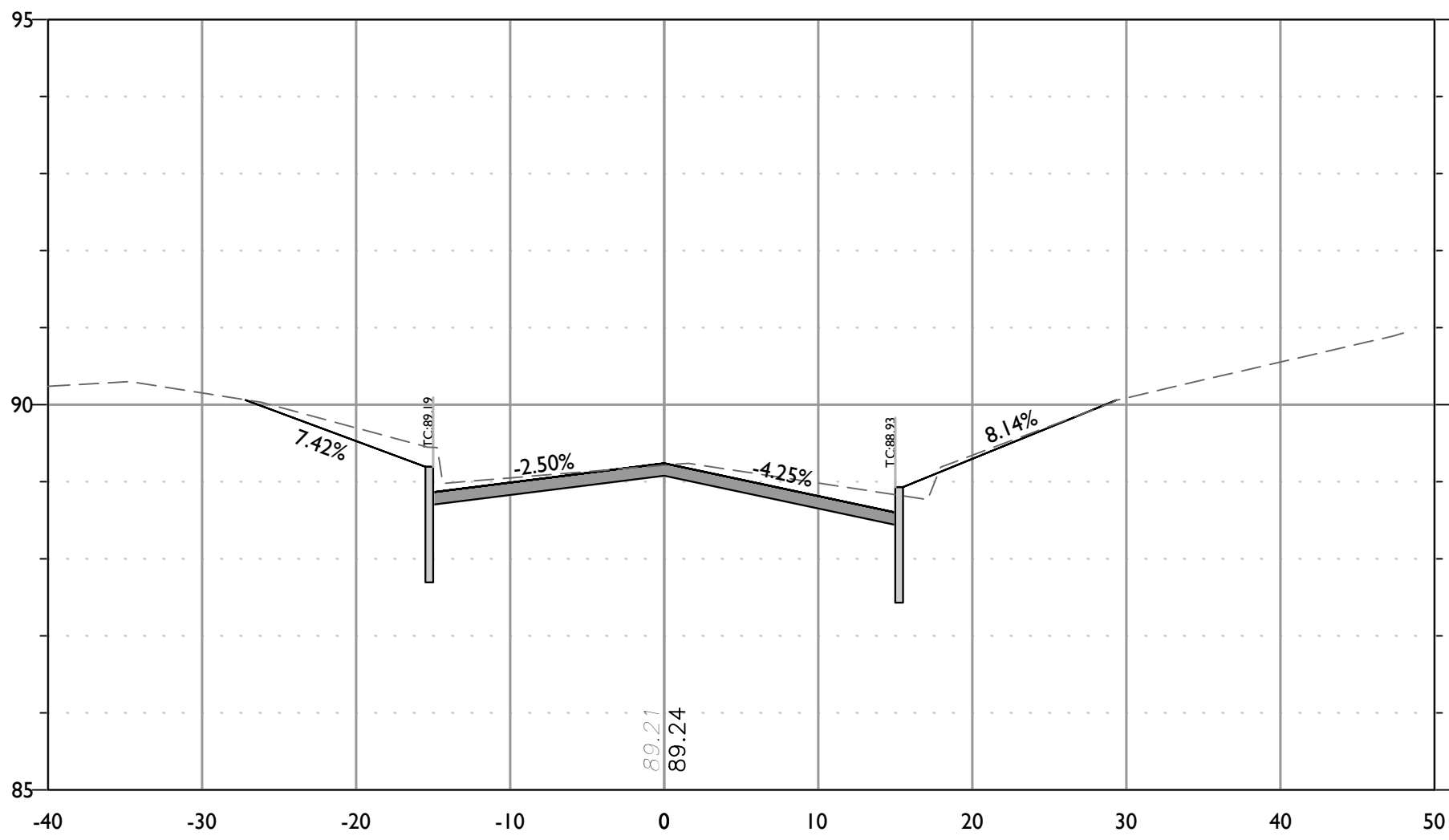
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STATION: 5+15  
HORIZONTAL : 1" = 10'  
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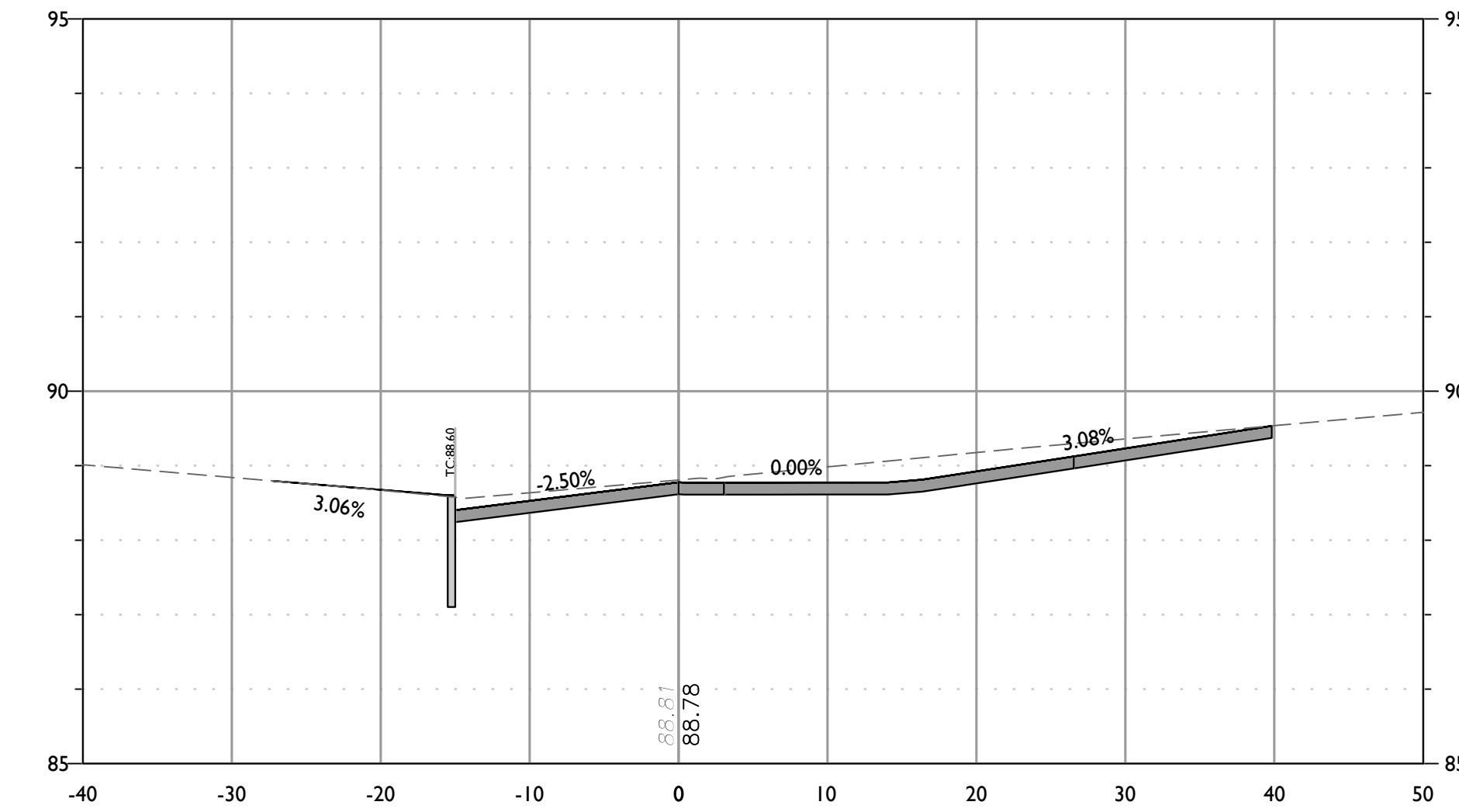
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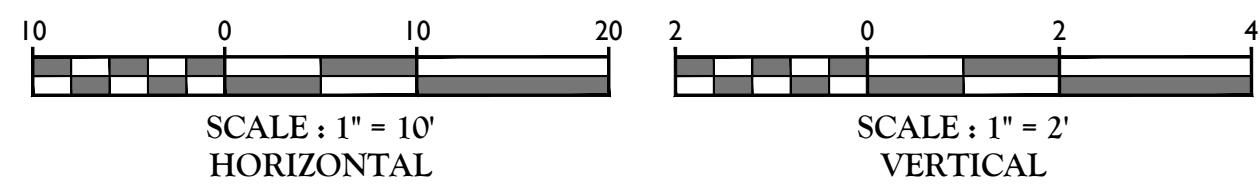
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STATION: 5+70  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 6+00  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 6+35  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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4	7/7/20	BAK	REVISED PER SCD COMMENTS
5	3/5/21	BAK	REVISED PER TOWNSHIP COMMENTS

CARL P. O'BRIEN  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

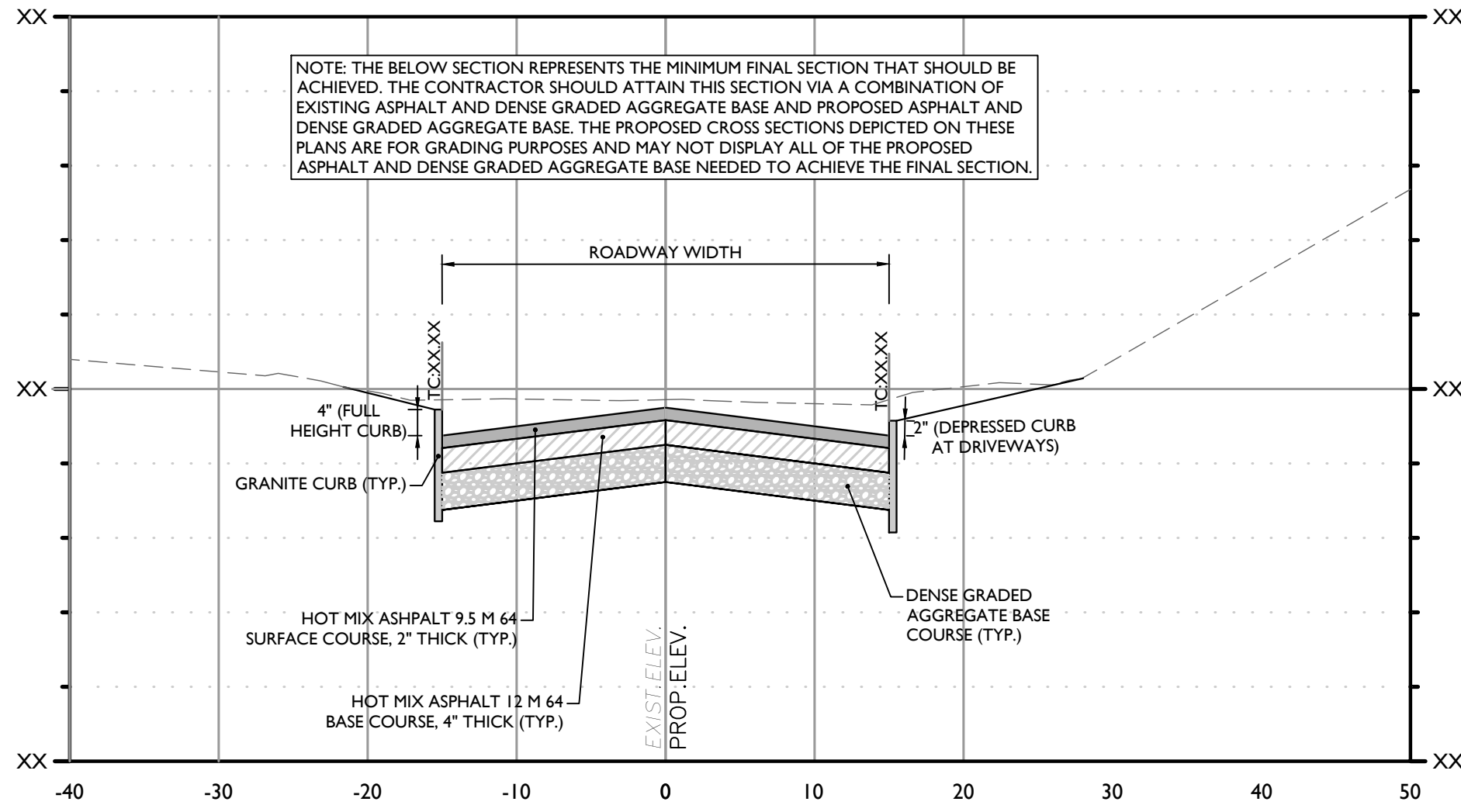
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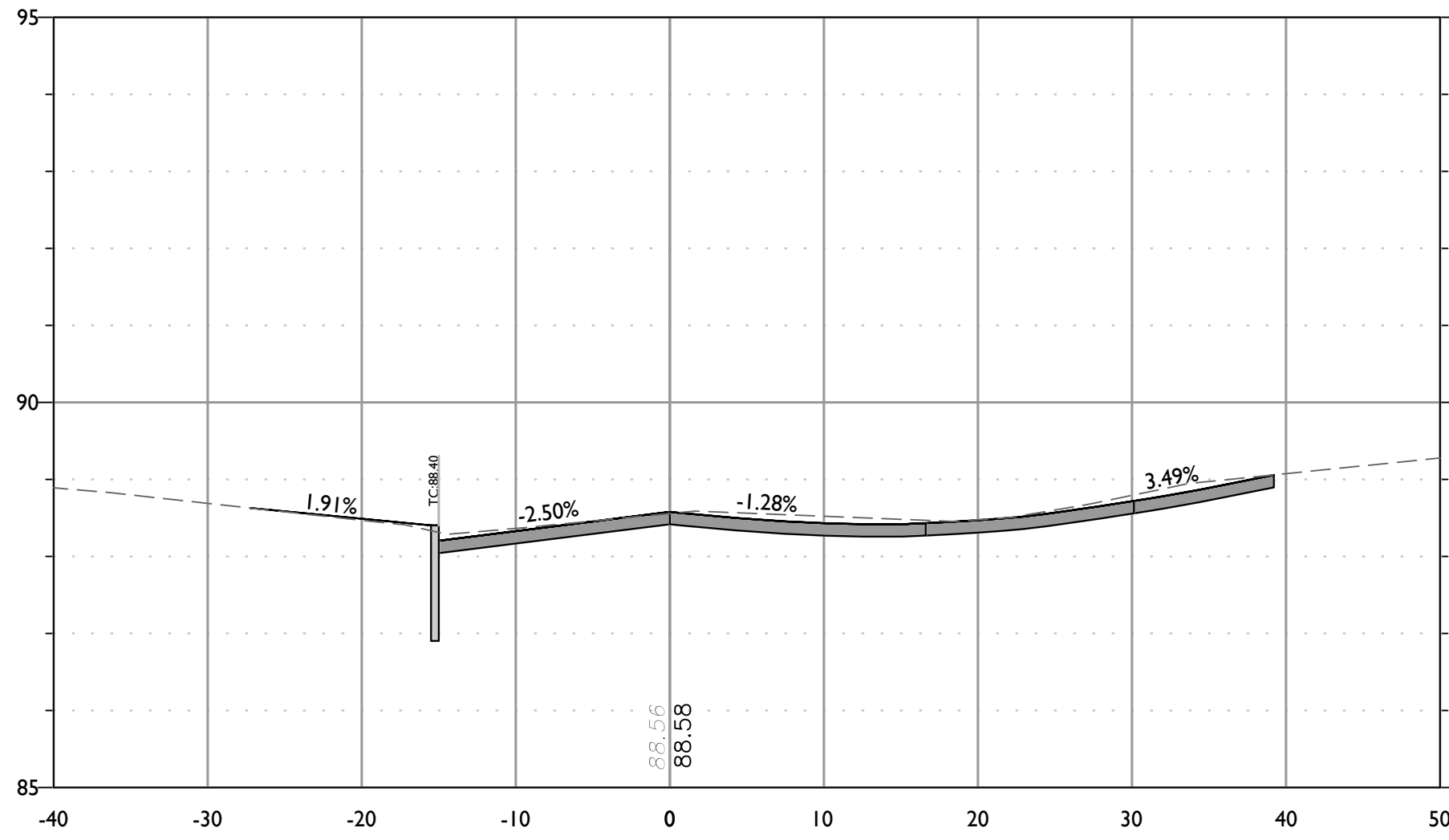
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AS SHOWN	1/30/20	BAK	PWJ
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CDT065		CLAYT	

CROSS SECTIONS  
SHEET NUMBER:  
12 of 36

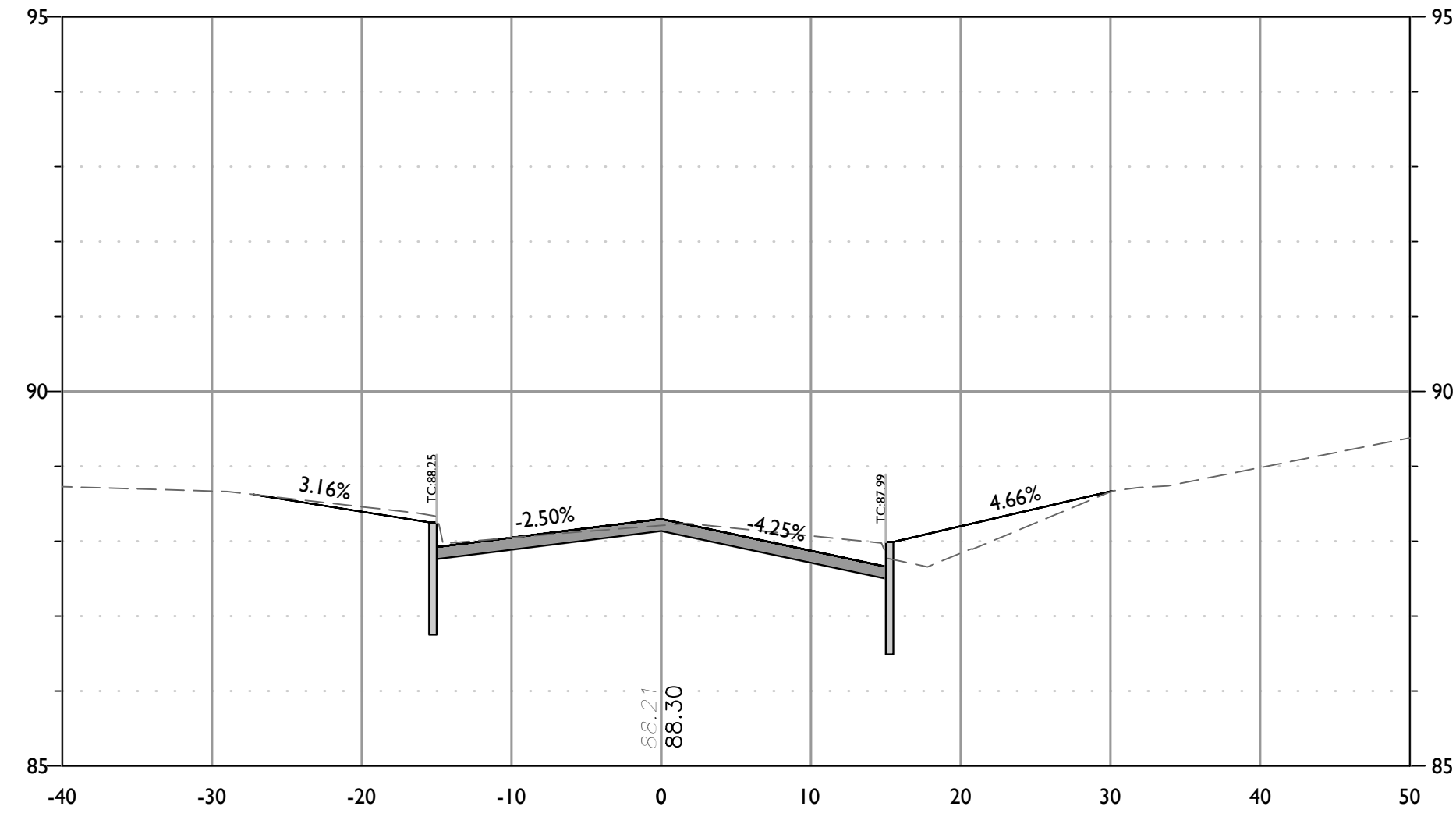




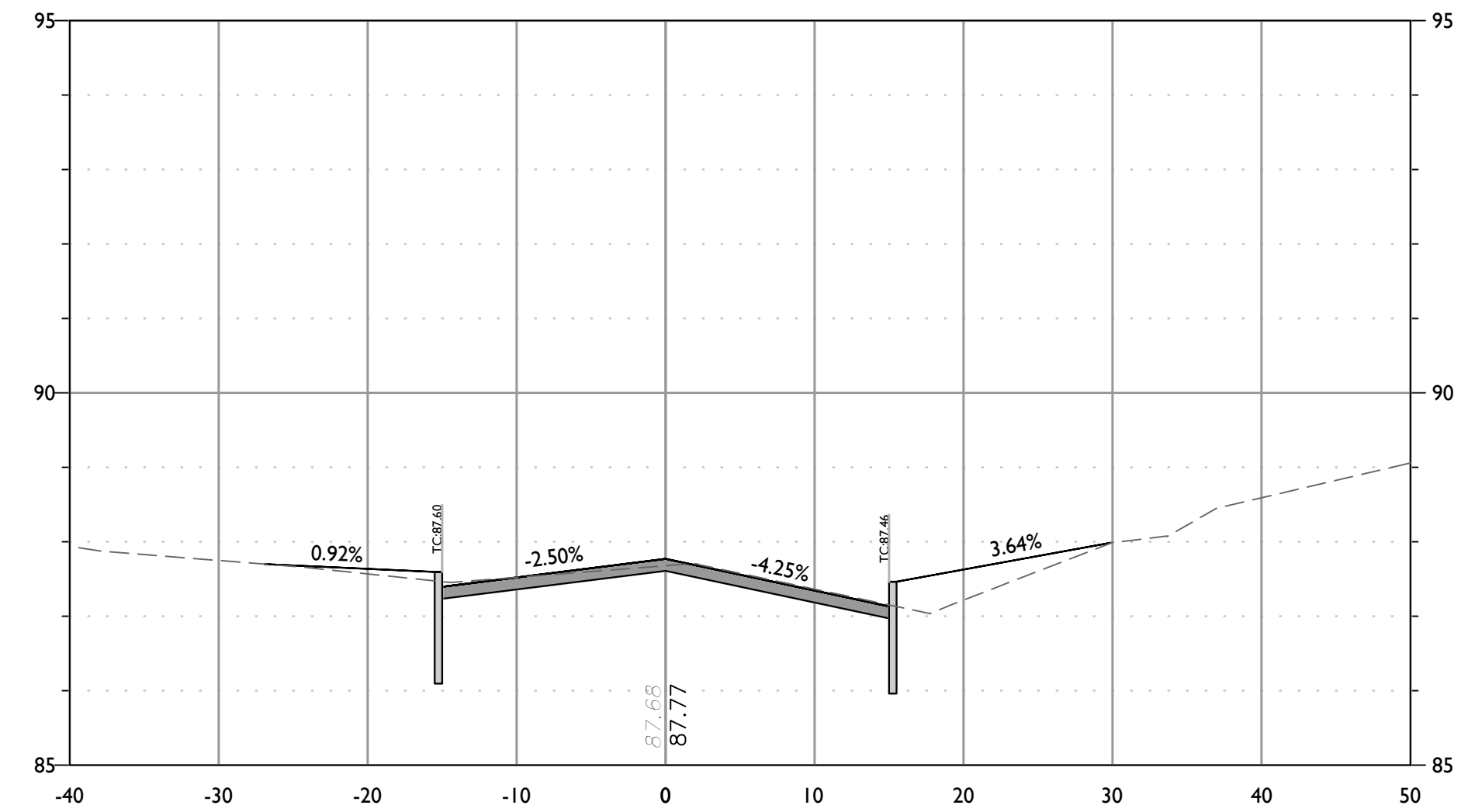
TYPICAL CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: XX+XX.XX  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



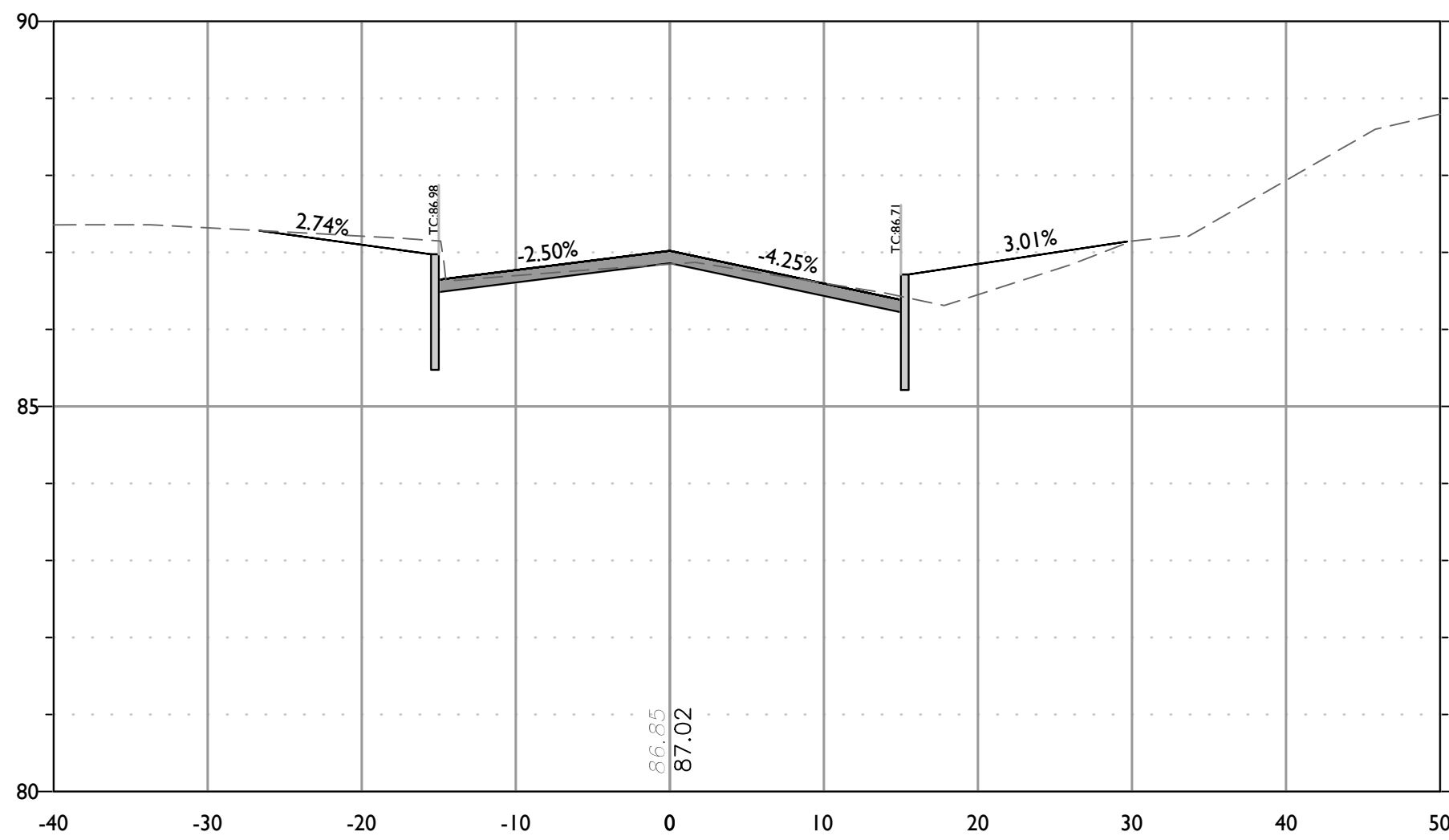
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STATION: 6+50  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



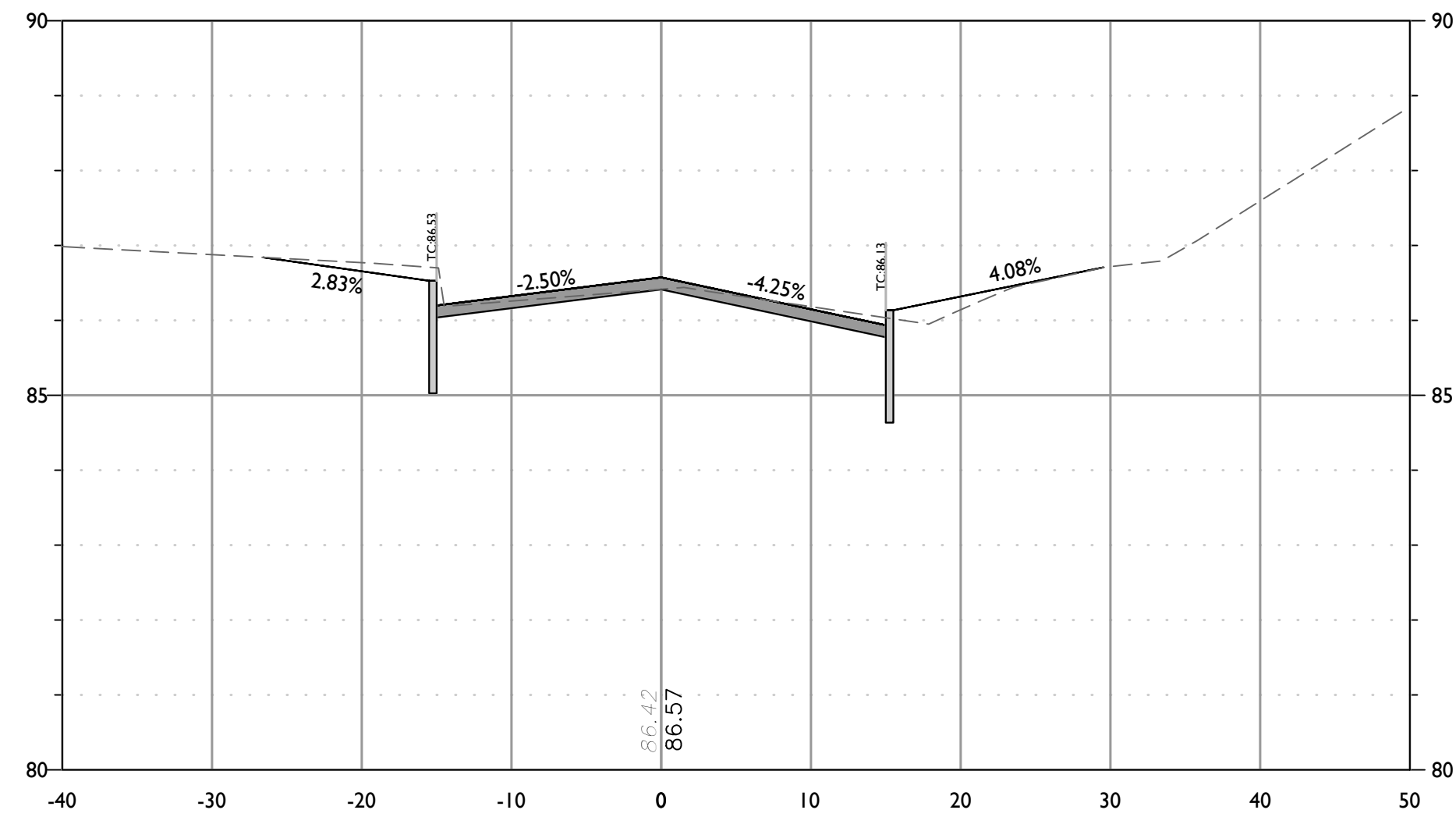
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VERTICAL : 1" = 2'



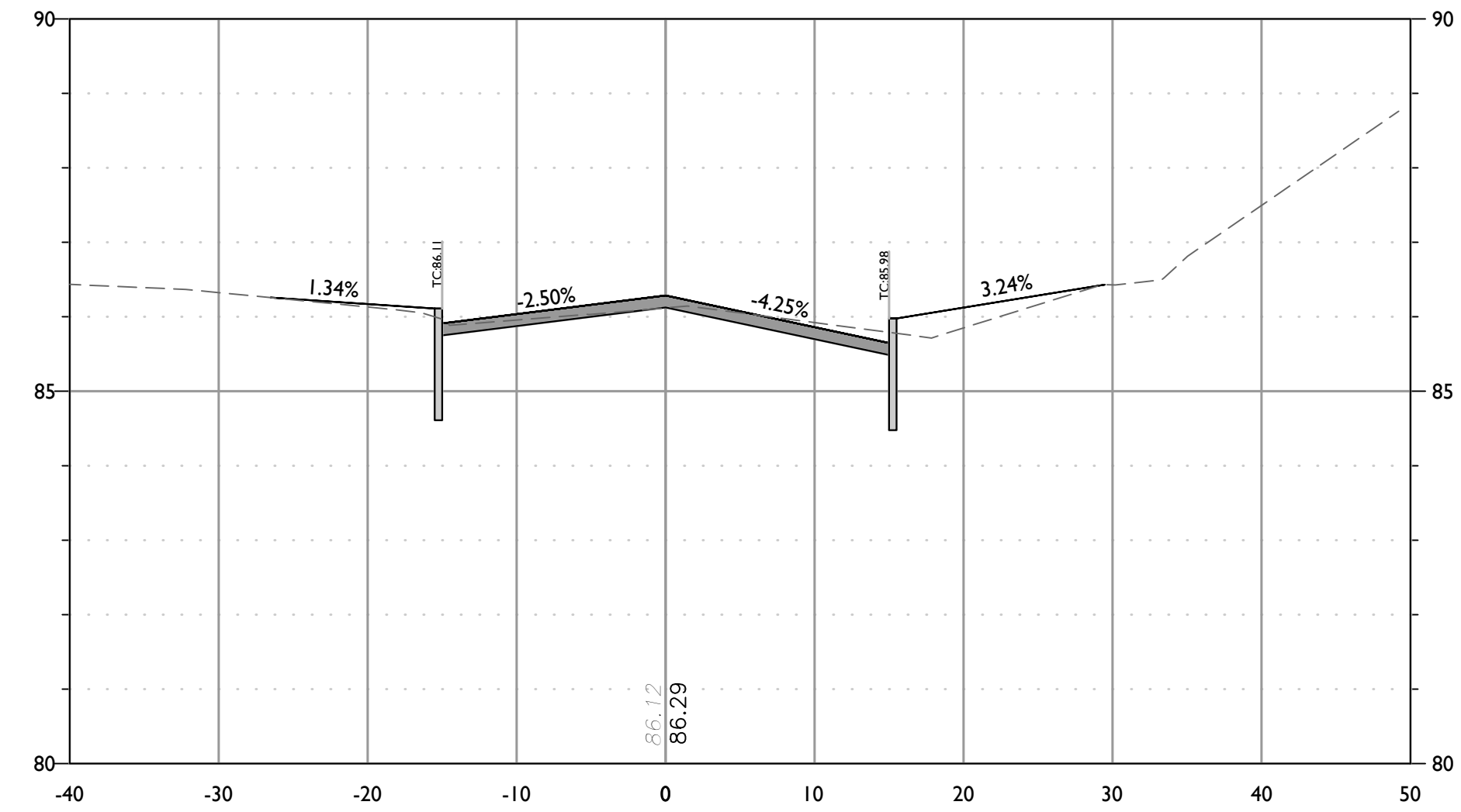
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STATION: 7+00  
HORIZONTAL : 1" = 10'  
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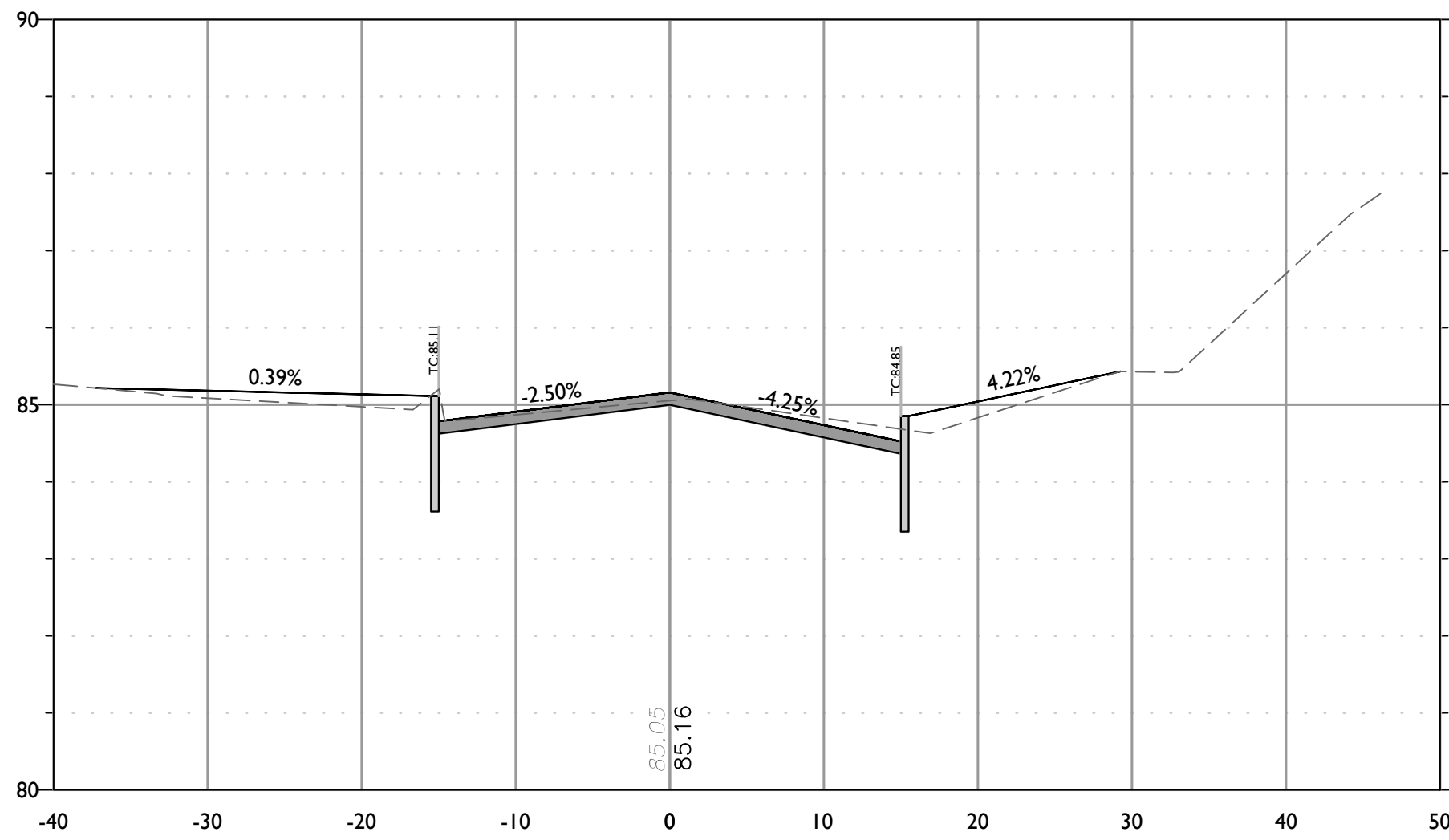
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VERTICAL : 1" = 2'



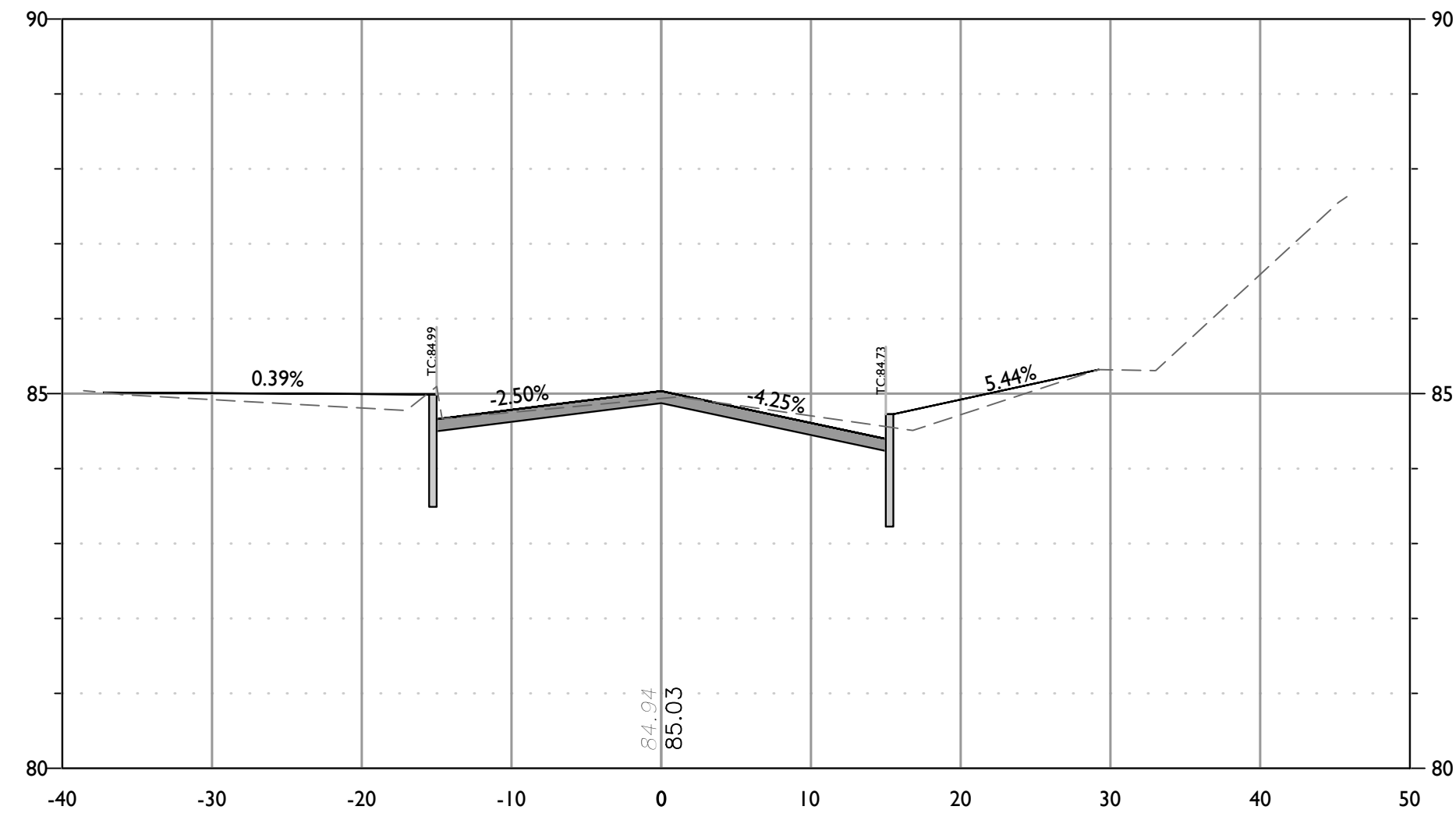
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STATION: 7+50  
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VERTICAL : 1" = 2'



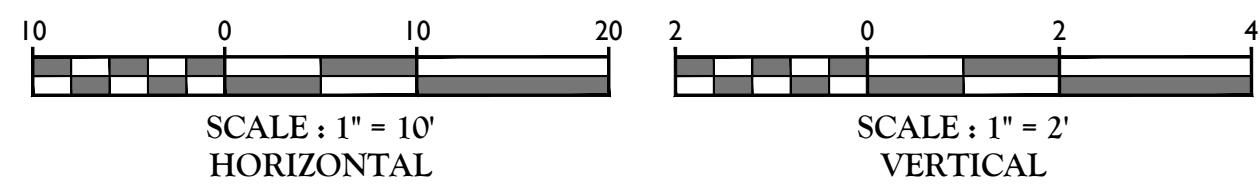
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STATION: 7+60  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 7+96.03  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 8+00  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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1	6/8/20	BAK	REVISED PER NDOT COMMENTS
2	6/15/20	BAK	REVISED PER CURB CHANGES
3	6/17/20	BAK	REVISED FOR SCD SUBMISSION
4	7/7/20	BAK	REVISED PER SCD COMMENTS
5	3/5/21	BAK	REVISED PER TOWNSHIP COMMENTS
6			
7			
8			
9			
10			

**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

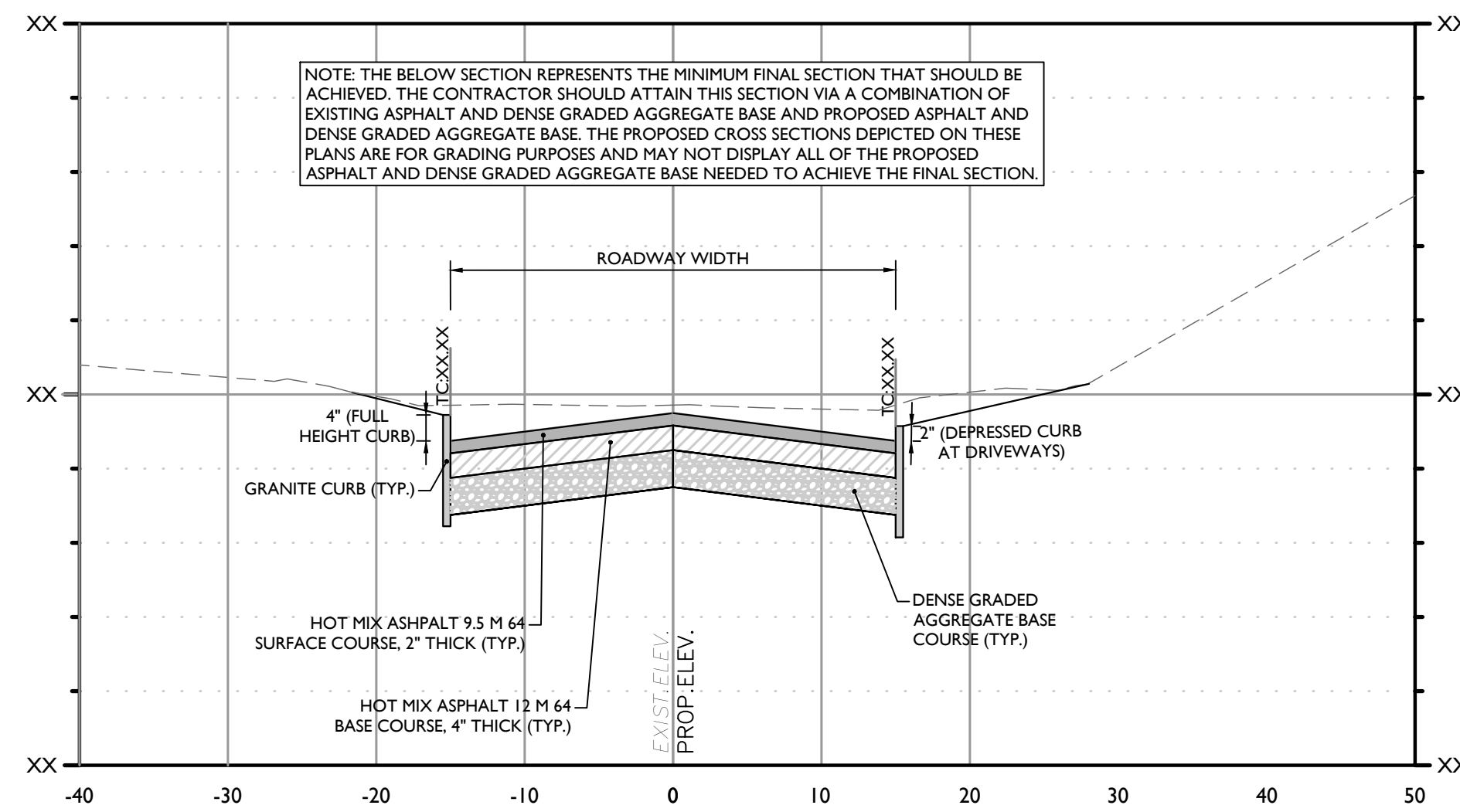
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FOR  
NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS  
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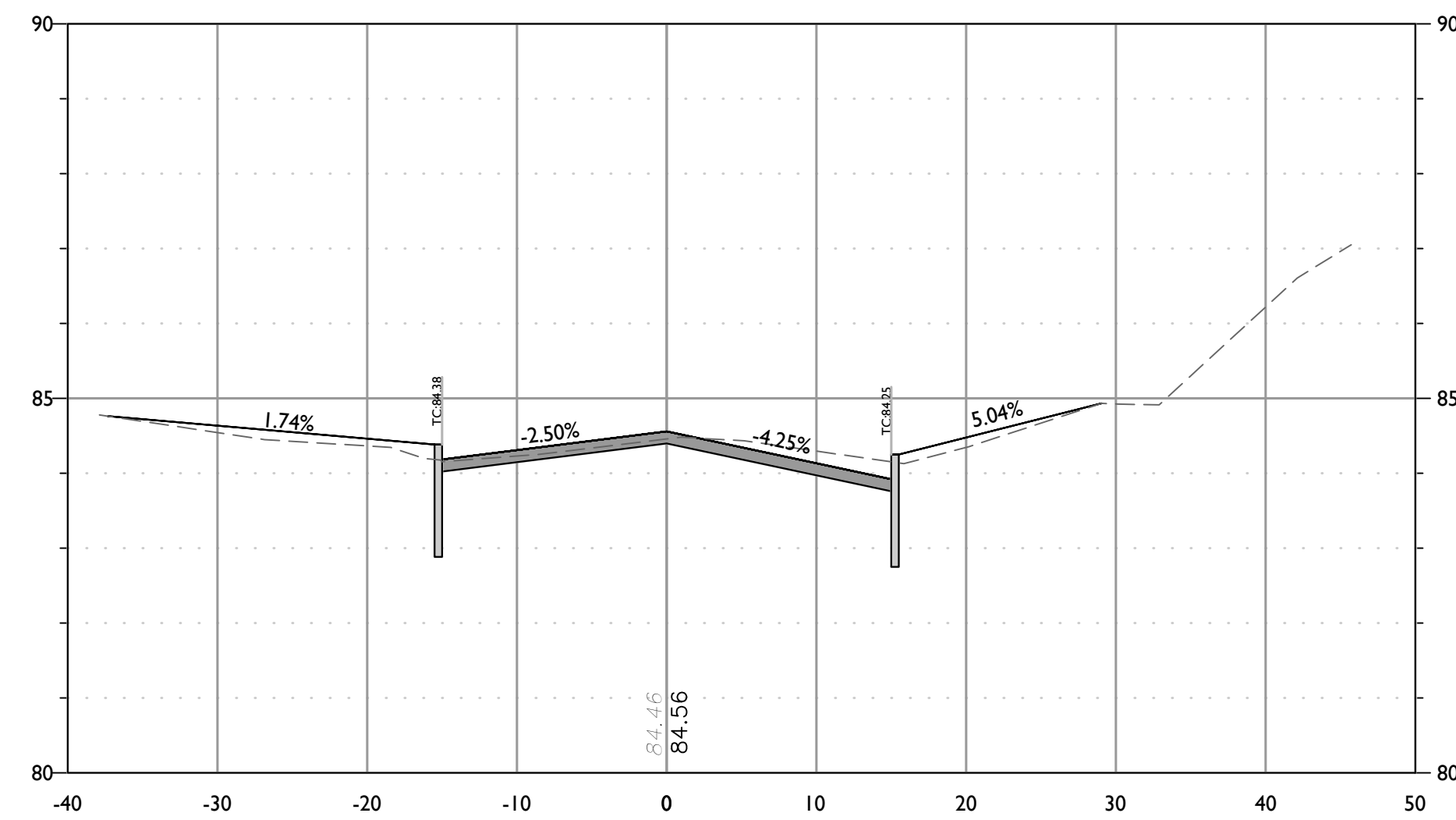
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AS SHOWN	1/30/20	BAK	PWJ
PROJECT NUMBER:	DRAWING NAME:	CDT065	CLAYT

SHEET TITLE  
CROSS SECTIONS  
SHEET NUMBER:  
13 of 36

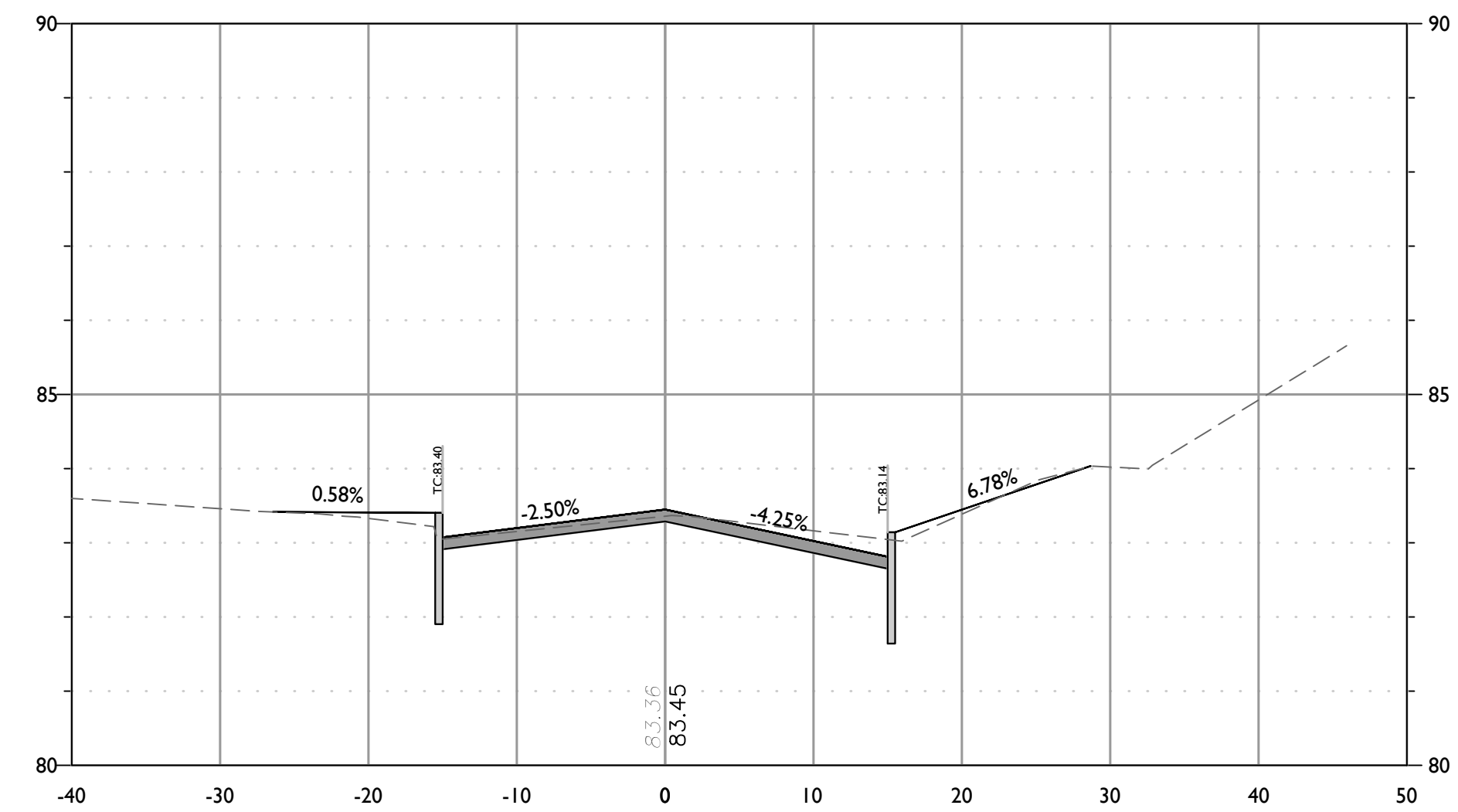




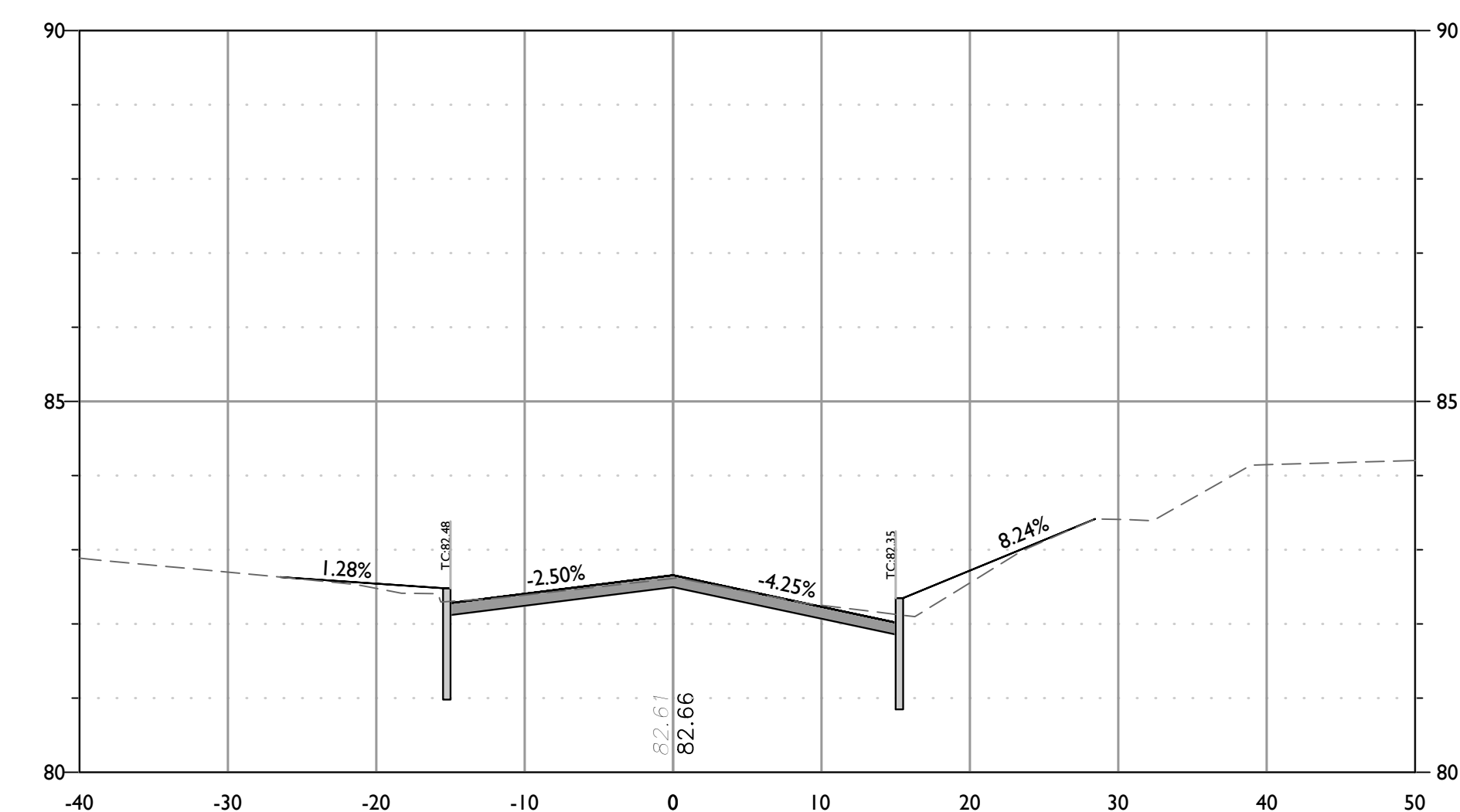
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STATION: XX+XX.XX  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



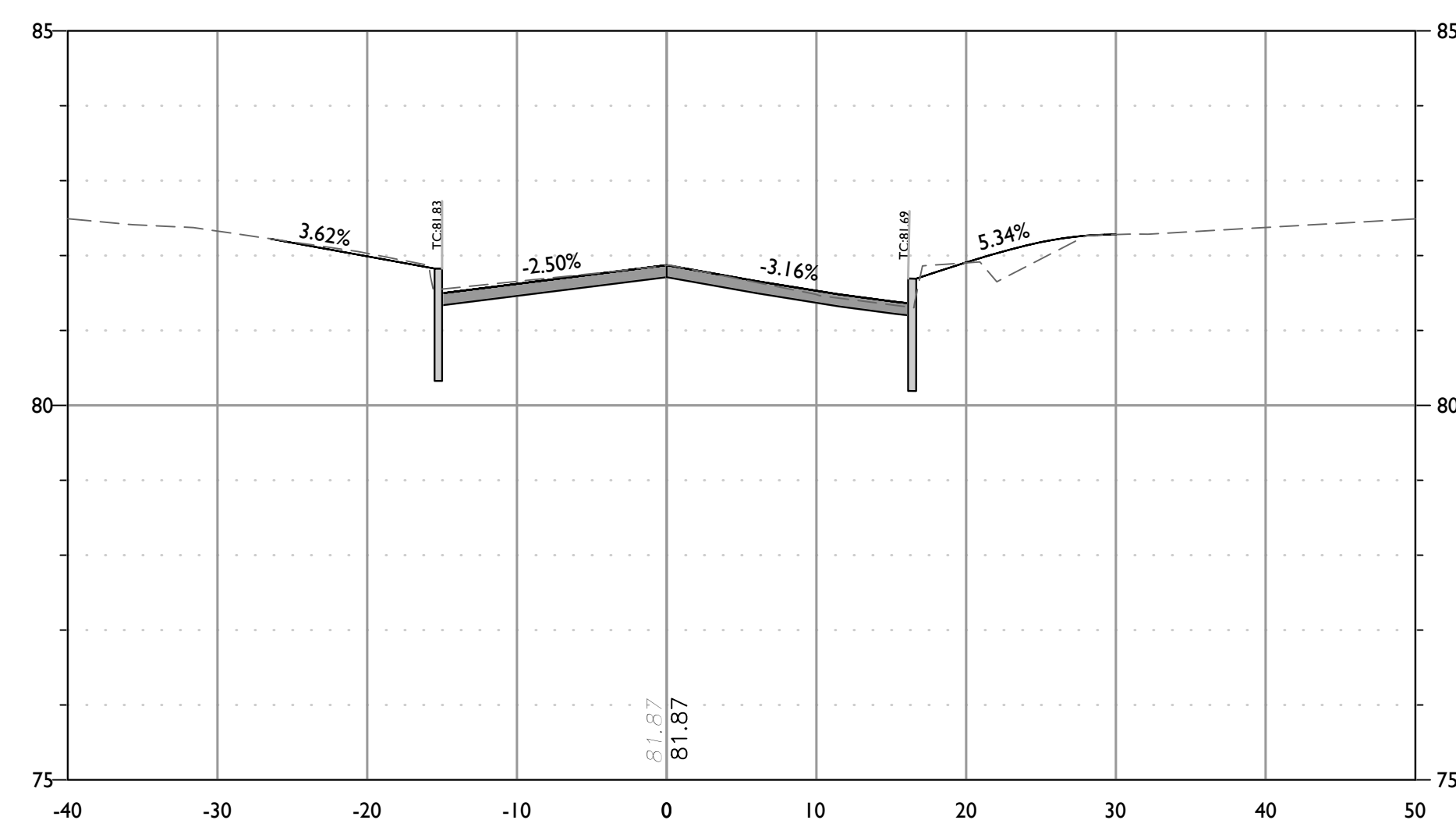
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VERTICAL : 1" = 2'



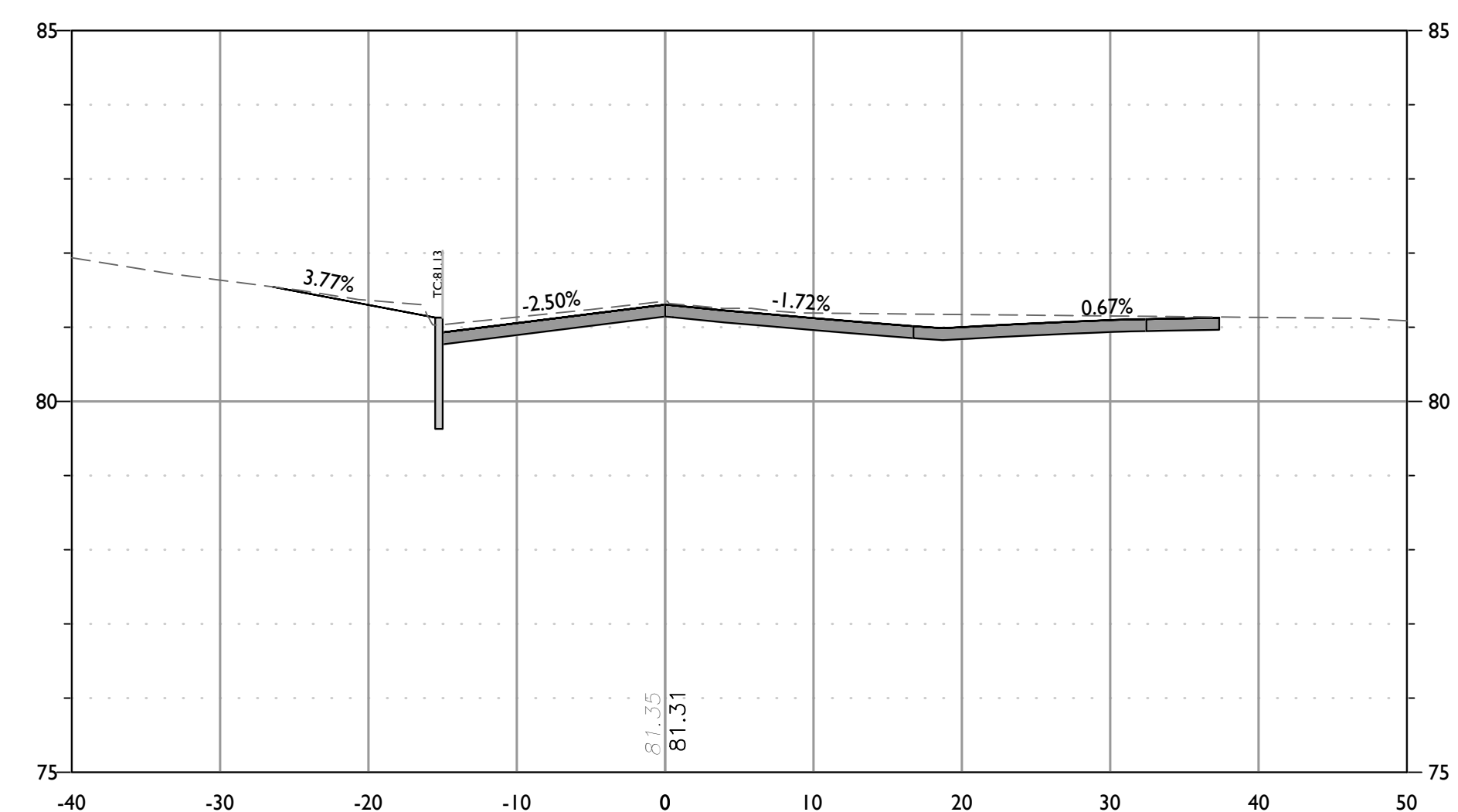
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STATION: 8+50  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



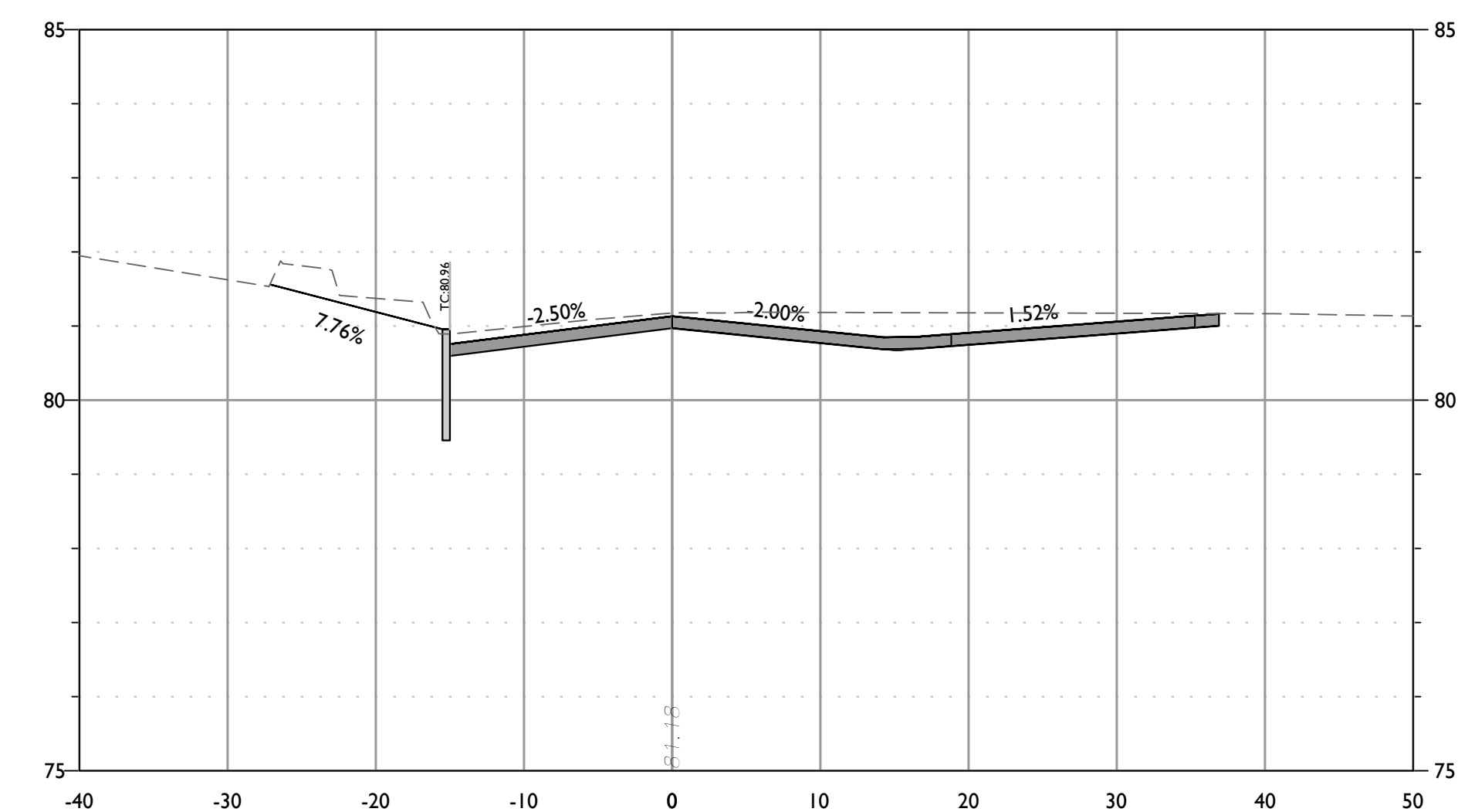
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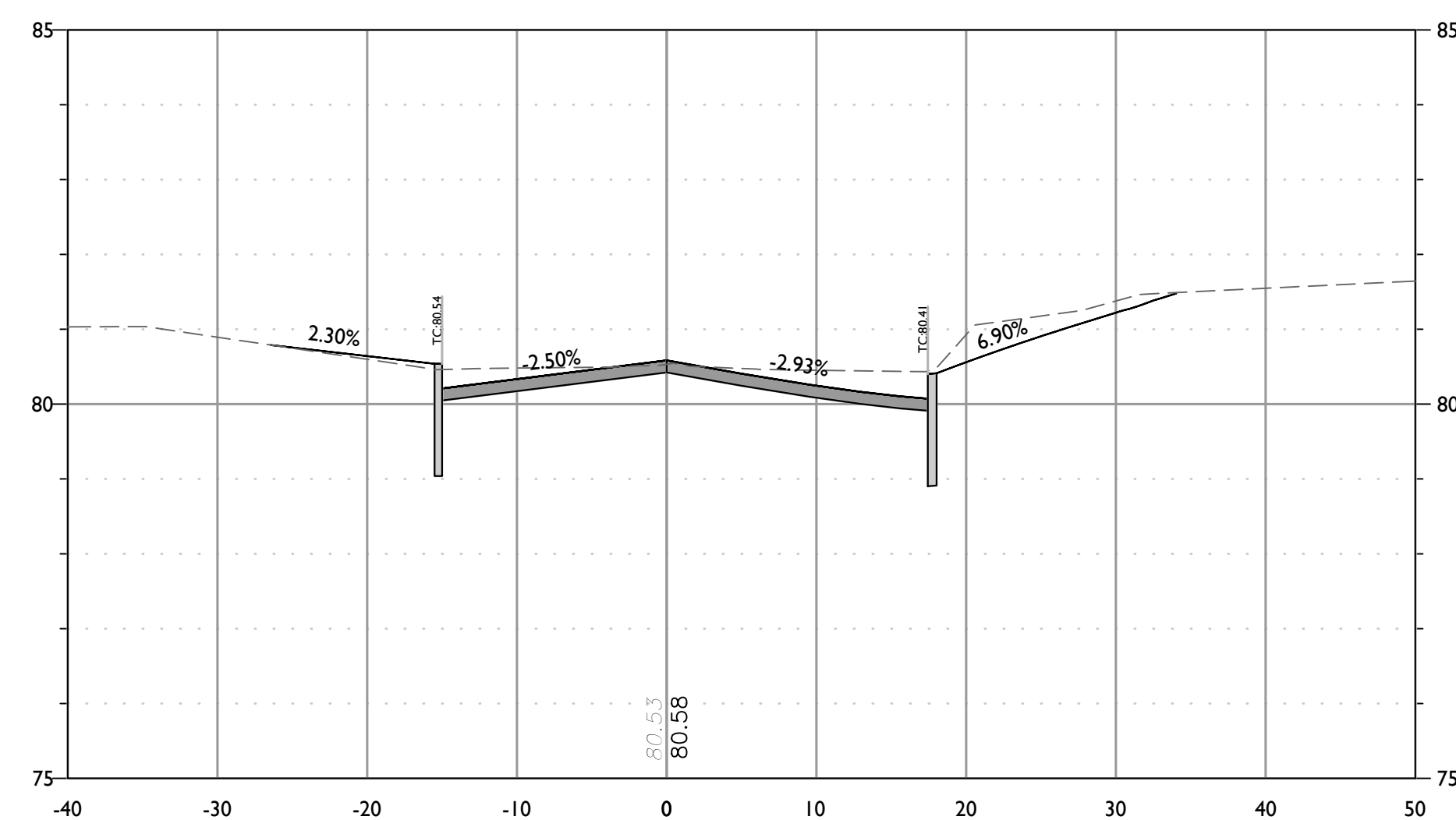
CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 9+00  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



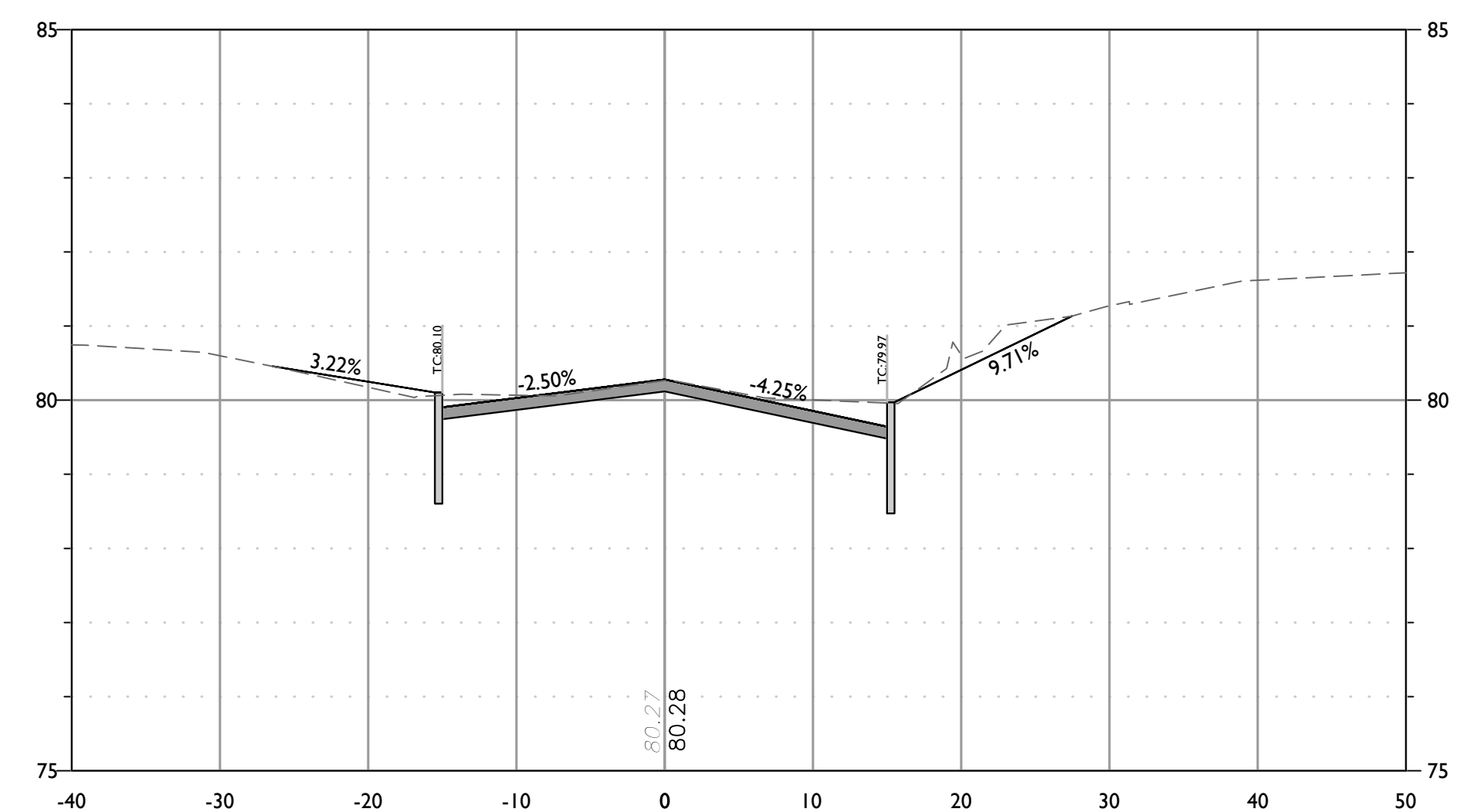
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VERTICAL : 1" = 2'



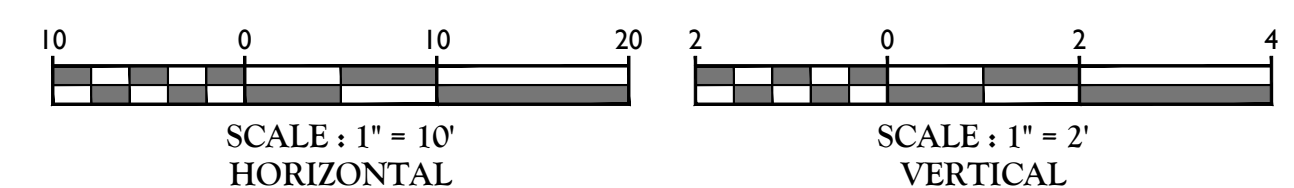
CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 9+26.66  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 9+50  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 9+65  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

## CONSTRUCTION PLANS

FOR  
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BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS

TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY



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PROJECT NUMBER:		DRAWING NAME:	
CDT065		C-LAYT	

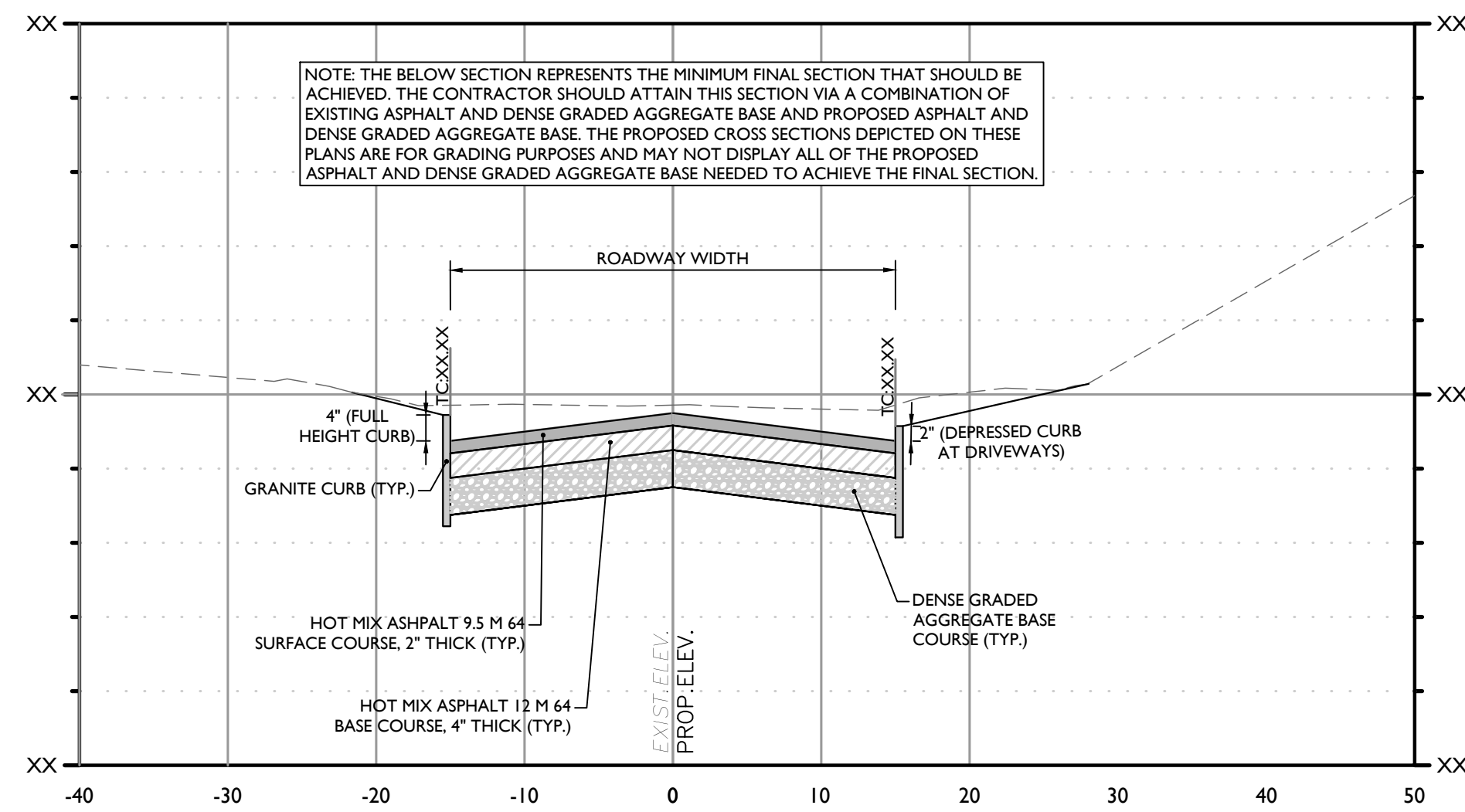
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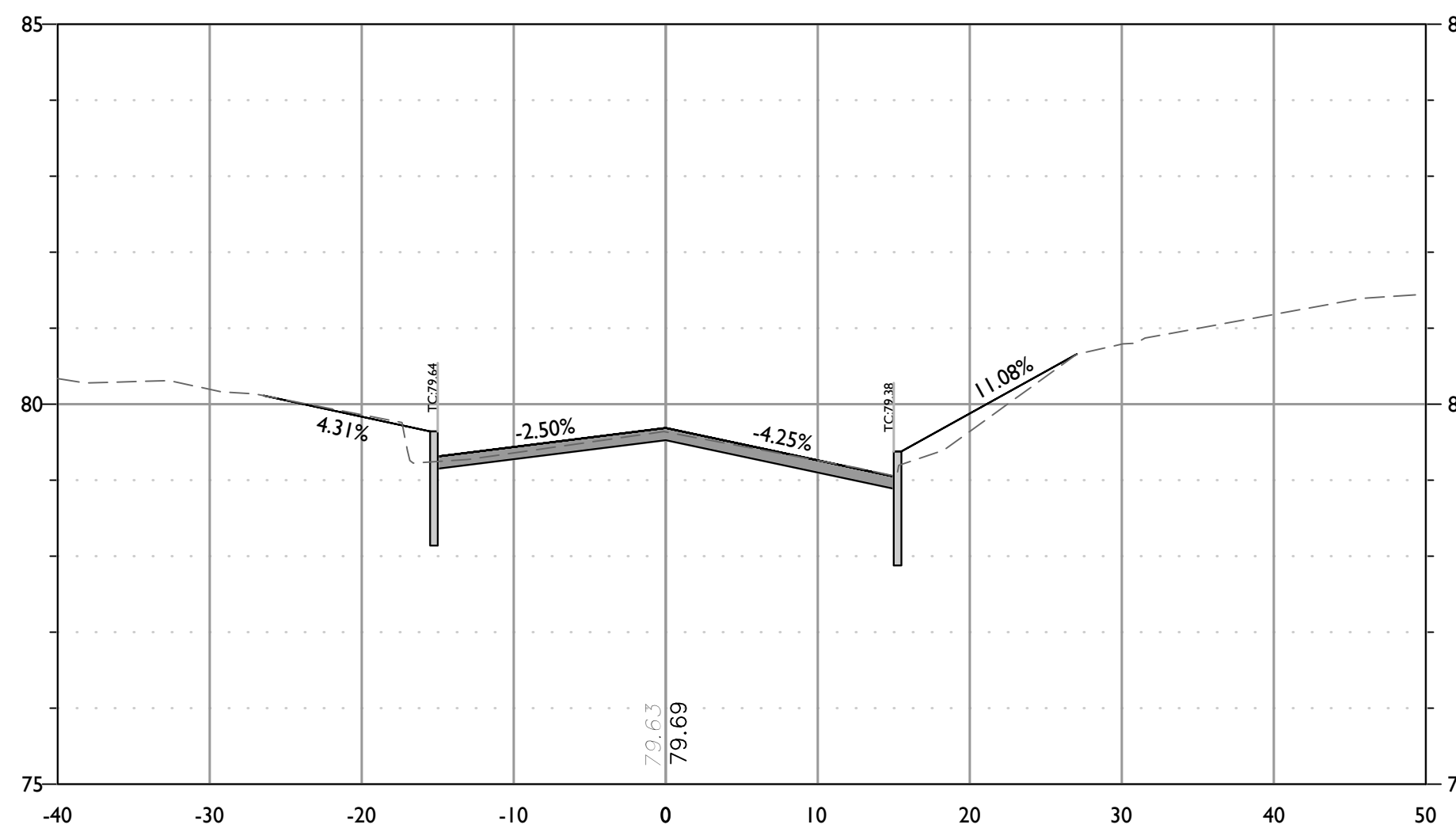
14 of 36

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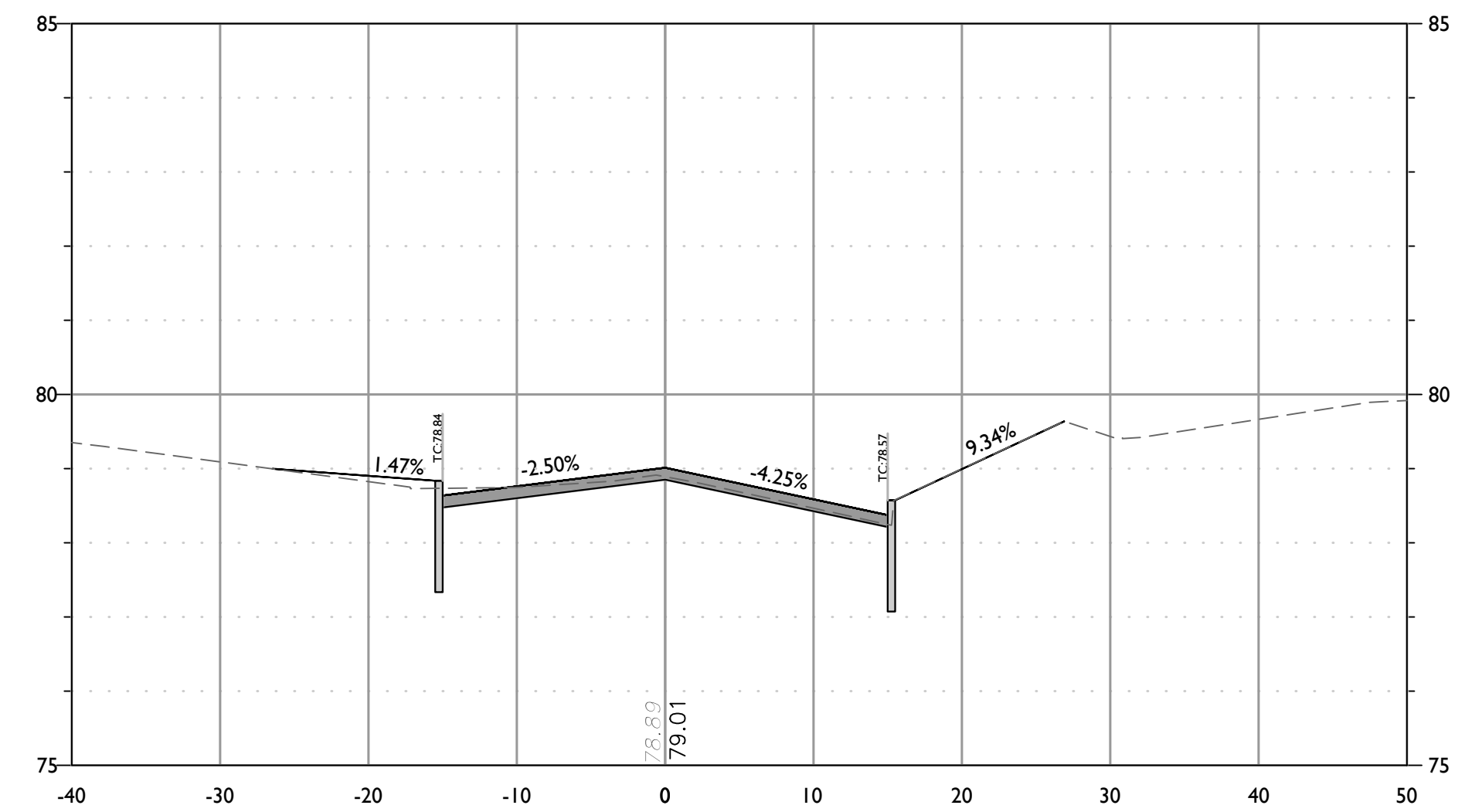




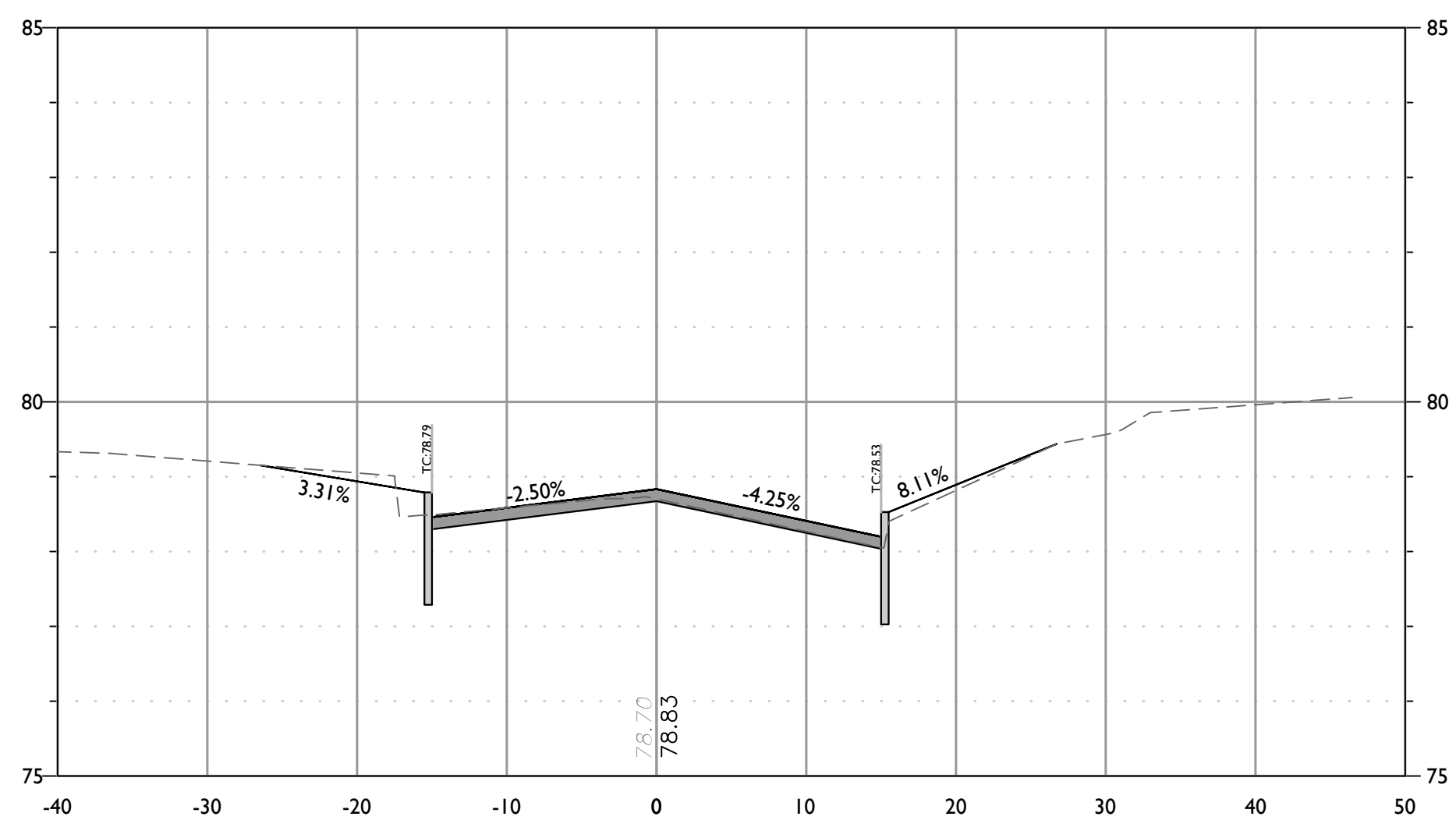
TYPICAL CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: XX+XX.XX  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



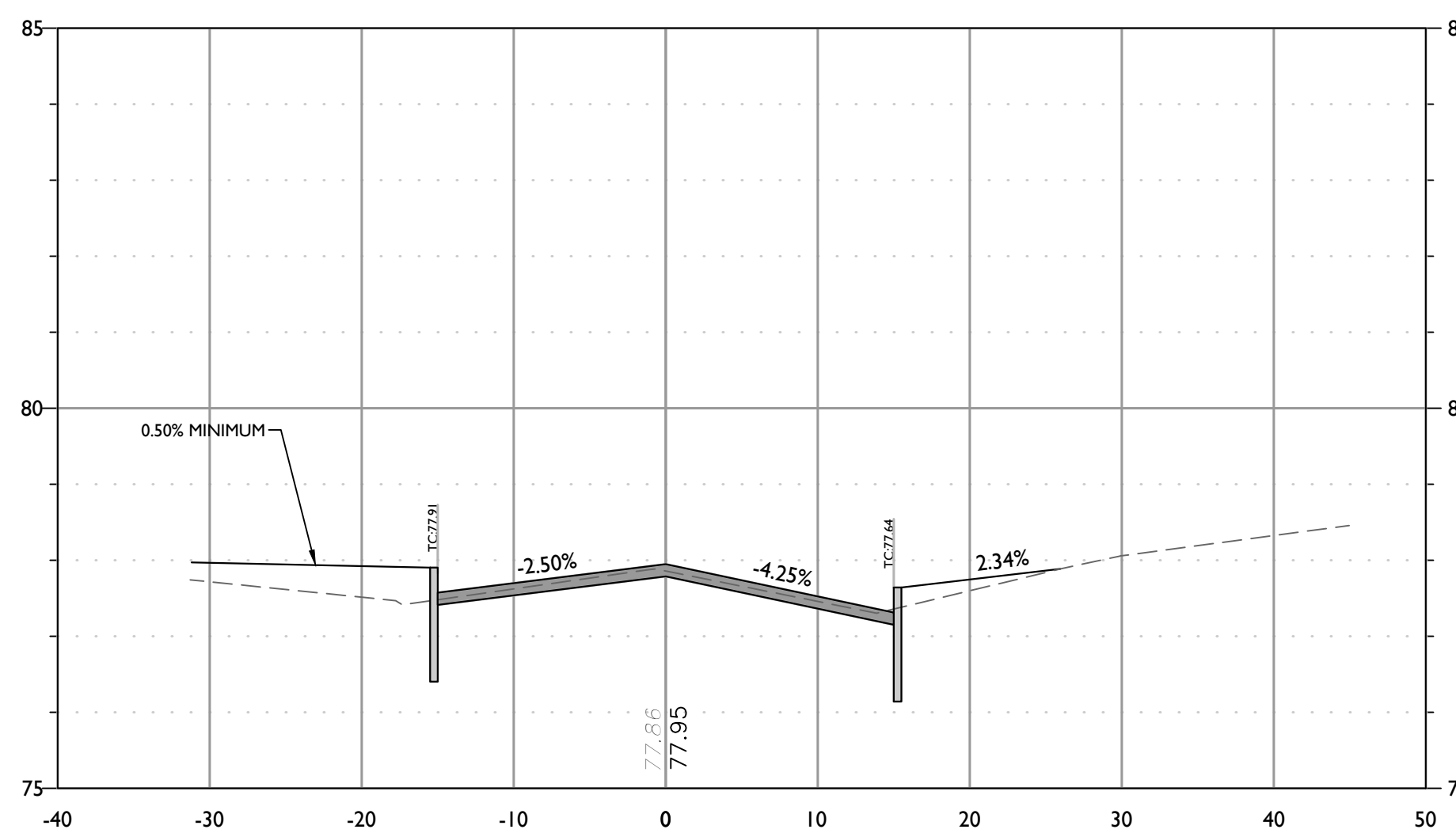
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



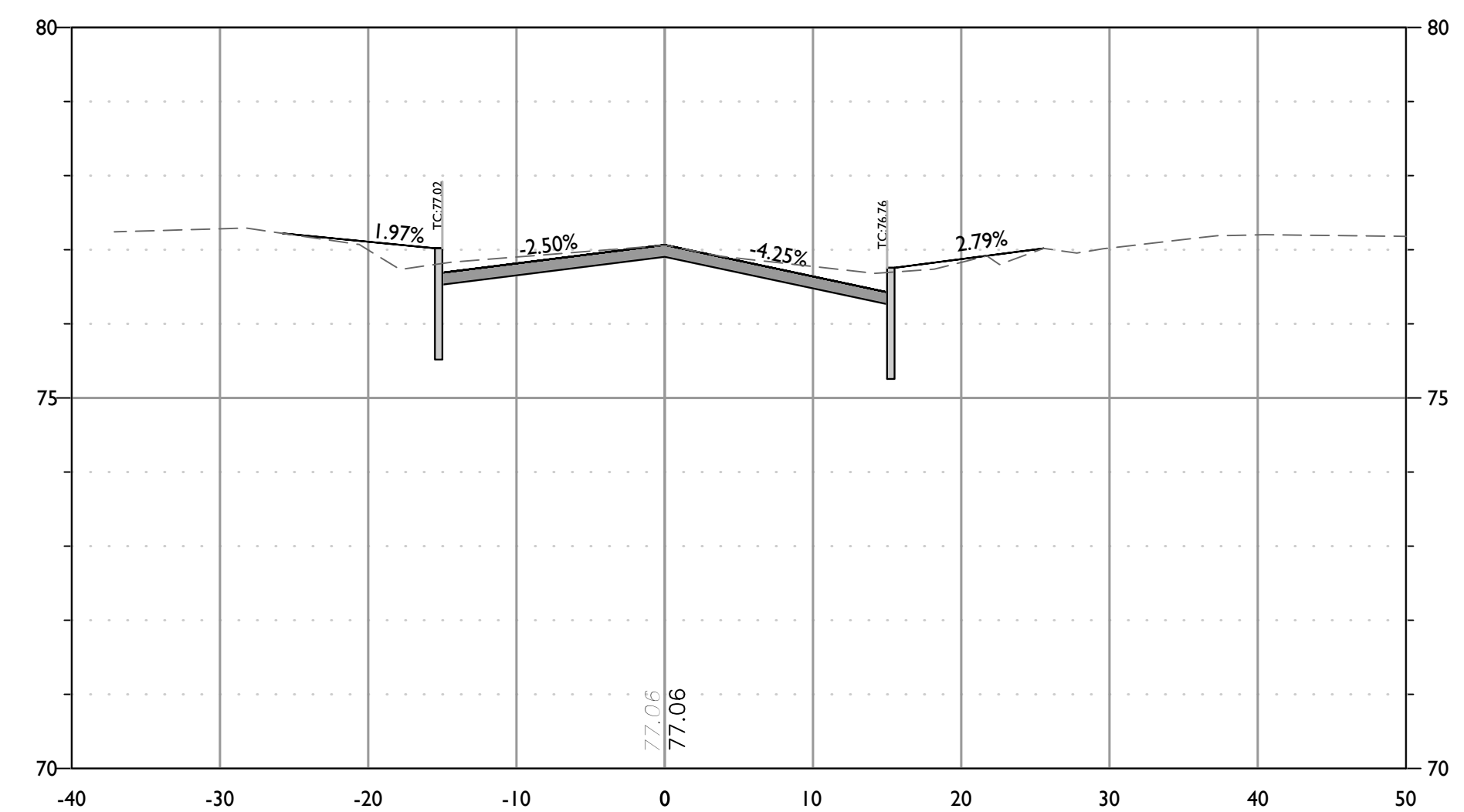
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



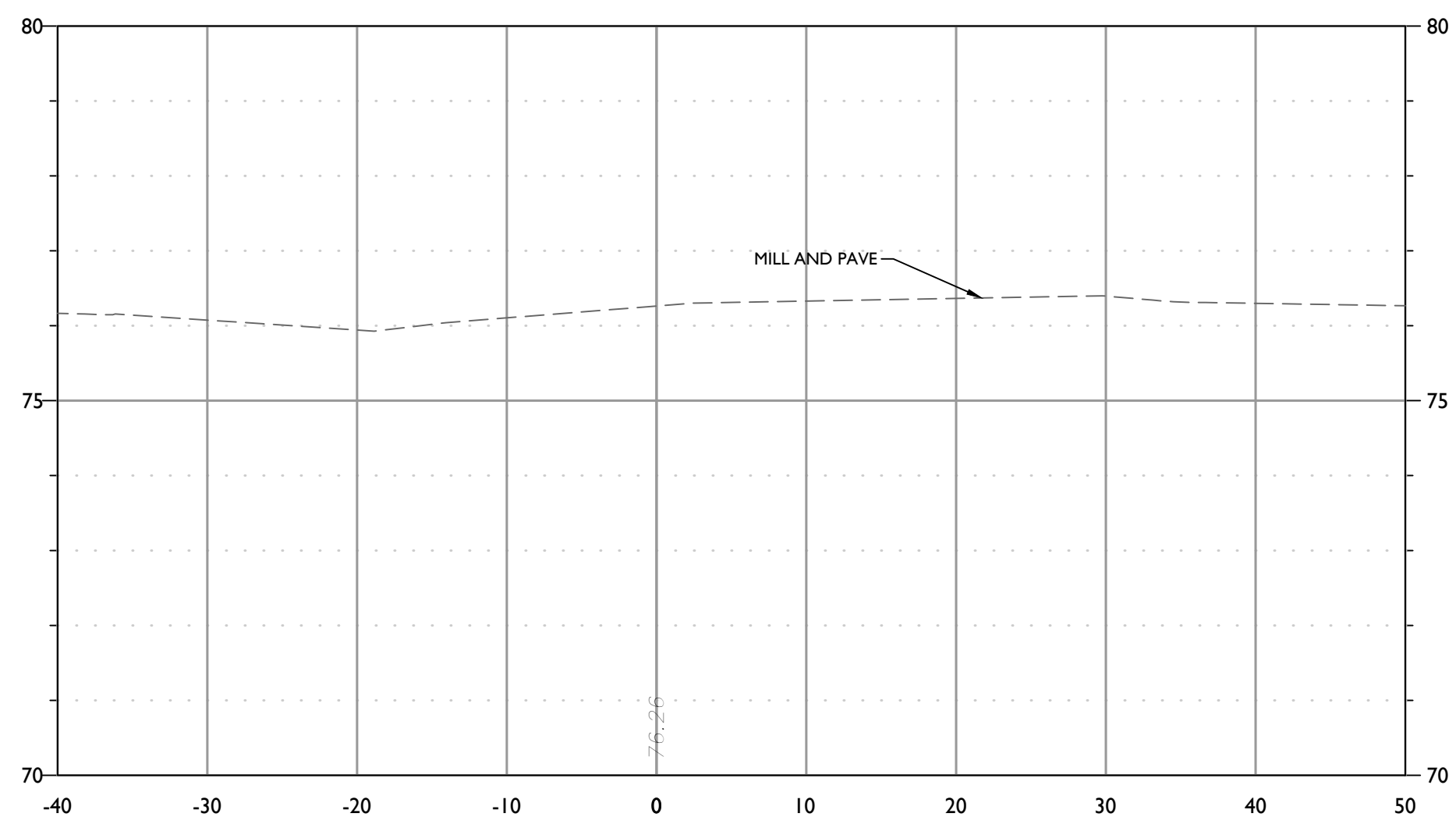
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



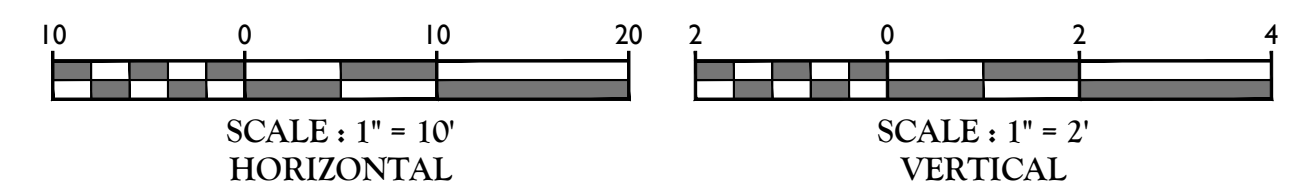
CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 11+00  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 11+50  
HORIZONTAL: 1" = 10'  
VERTICAL: 1" = 2'



CROSS SECTION OF BROOKSIDE PLACE ALIGNMENT  
STATION: 12+00  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

## CONSTRUCTION PLANS

FOR  
NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS

TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY



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PROJECT NUMBER:		DRAWING NAME:	
CDT065		C-LAYT	

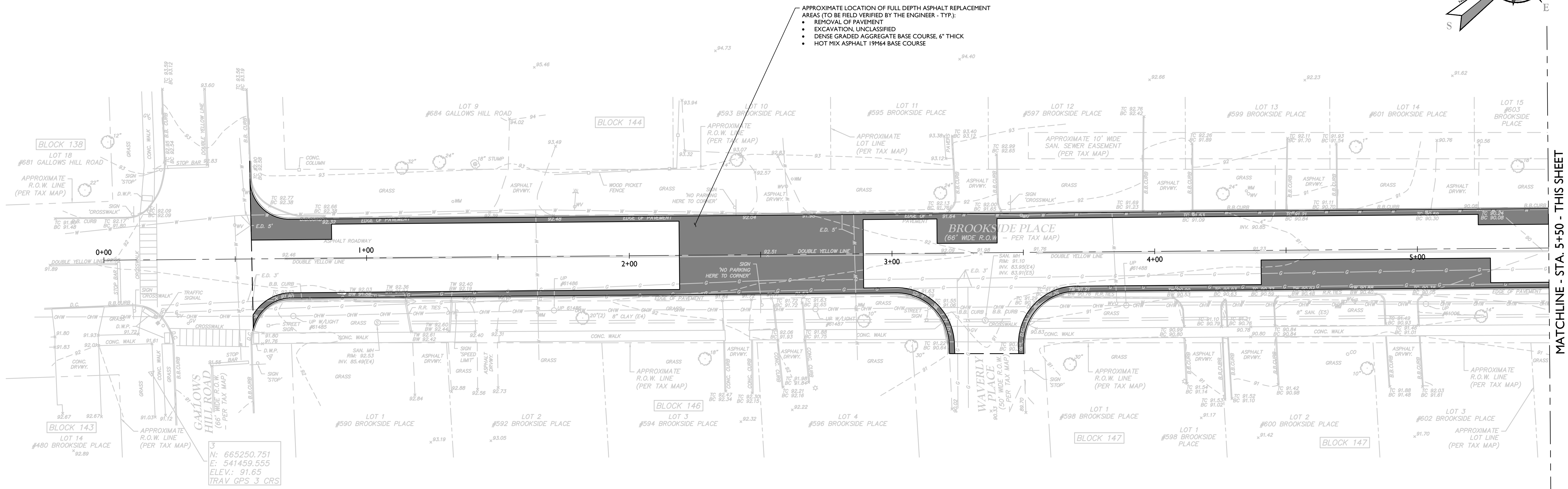
## CROSS SECTIONS

SHEET NUMBER:

15 of 36



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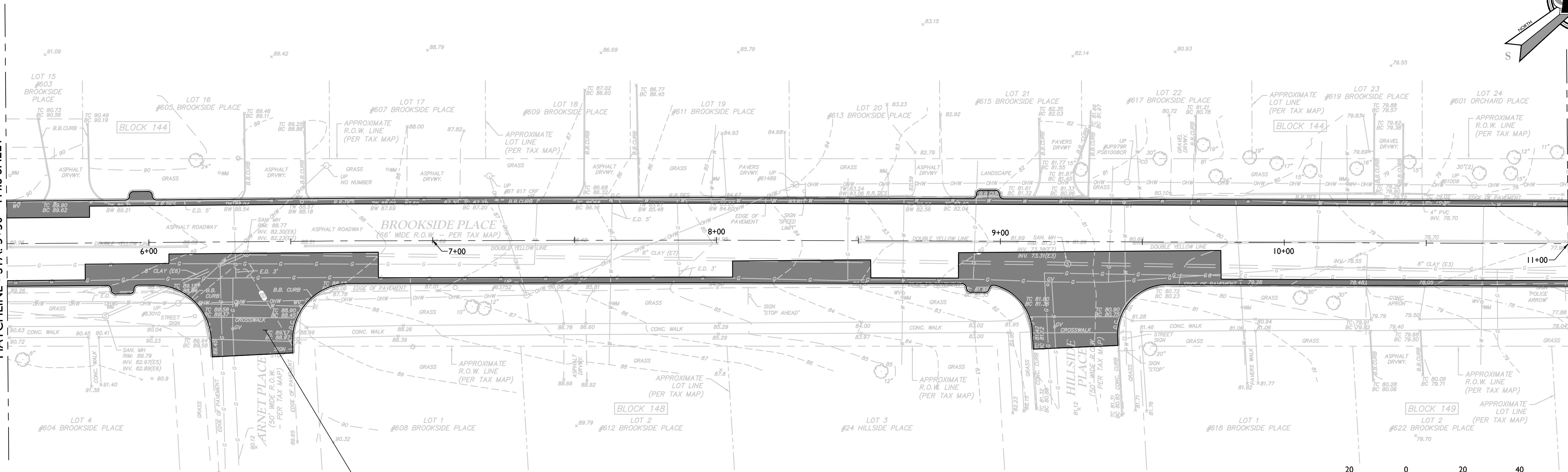


- NOTES:
1. AREAS WITHIN PROJECT LIMITS NOT DEPICTED ON THESE FULL DEPTH RECONSTRUCTION MAP PLANS MAY REQUIRE FULL DEPTH PAVEMENT REPAIR. ALL FULL DEPTH RECONSTRUCTION AREAS WILL ULTIMATELY BE DETERMINED DURING CONSTRUCTION.
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20 0 20 40  
SCALE : 1" = 20'

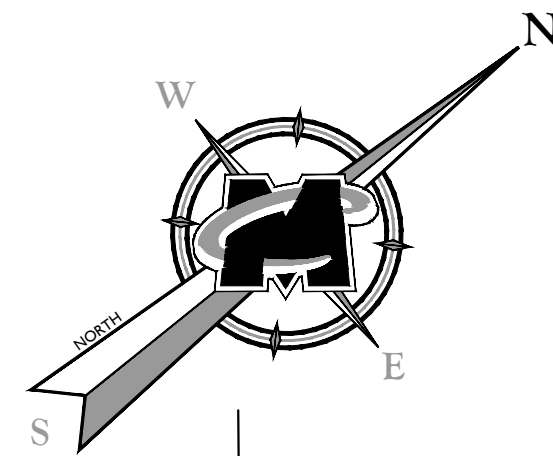
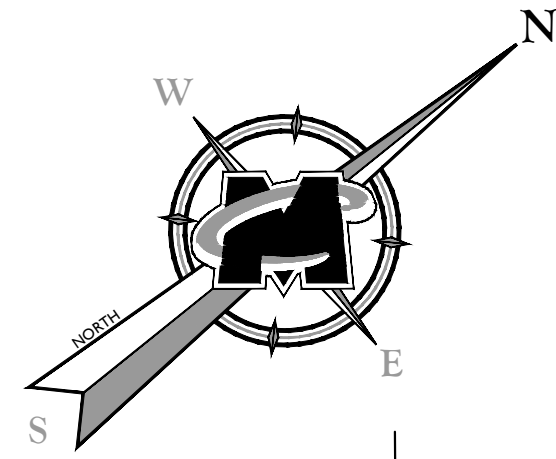
MATCHLINE - STA. 5+50 - THIS SHEET

MATCHLINE - STA. 11+00 - SHEET 17



20 0 20 40  
SCALE : 1" = 20'

- APPROXIMATE LOCATION OF FULL DEPTH ASPHALT REPLACEMENT AREAS (TO BE FIELD VERIFIED BY THE ENGINEER - TYP.):
- REMOVAL OF PAVEMENT
  - EXCAVATION UNCLASSIFIED
  - DENSE GRADED AGGREGATE BASE COURSE, 6" THICK
  - HOT MIX ASPHALT 19M64 BASE COURSE



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5	3/5/21	BAK	REVISED PER TOWNSHIP COMMENTS
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**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

CONSTRUCTION PLANS  
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BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS  
TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY

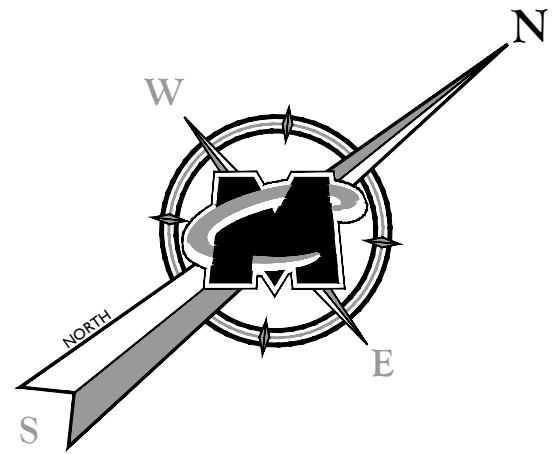
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PROJECT NUMBER:	DRAWING NAME:		
CDT065	CLAYT.PAVE		

SHEET TITLE  
**FULL DEPTH  
RECONSTRUCTION MAP**  
SHEET NUMBER:  
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CARL P. O'BRIEN

NEW JERSEY PROFESSIONAL ENGINEER - LICENSE NUMBER: GE45154

CONSTRUCTION PLANS

FOR

NJDOT FY 2019 -

BROOKSIDE PLACE

DRAINAGE

IMPROVEMENTS

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AS SHOWN

DATE:

1/30/20

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BAK

CHECKED BY:

PWJ

PROJECT NUMBER:

CDT065

DRAWING NAME:

C-LAYT-PAVE

SHEET TITLE:

FULL DEPTH RECONSTRUCTION MAP

SHEET NUMBER:

17 of 36

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SOMERSET-UNION SOIL CONSERVATION  
DISTRICT NOTES

MCNJ-SOIL-NOTE-1013

MOD: 07/07/20  
05/01/17

1. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
2. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
3. ANY STOCKPILE OR DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 14 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO NJ STATE STANDARDS
4. PERMANENT VEGETATION SHALL BE SEEDDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED
5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
6. A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OR PRELIMINARY GRADING.
7. IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES, ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE NJ STATE STANDARDS.
8. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E. SLOPES GREATER THAN 3:1)
9. TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 5'X30'X6" PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.
10. AT THE TIME WHEN THE 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 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.
11. IN THAT NJS4 424-39 ET SEQ. REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES, ALL SITE WORK FOR SITE PLANS 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.
12. CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
13. ANY CHANGES TO THE CERTIFIED SOIL EROSION AND SEDIMENT CONTROL PLAN WILL REQUIRE THE SUBMISSION OF REVISED SOIL EROSION AND SEDIMENT CONTROL PLANS TO THE DISTRICT FOR RECERTIFICATION. THE REVISED PLANS MUST MEET ALL CURRENT NJ STATE SOIL EROSION & SEDIMENT CONTROL STANDARDS.
14. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
15. MULCHING TO THE NJ STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONALS ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING.
16. CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF CONSTRUCTION PROJECT.
17. THE DEVELOPER SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.
18. HYDRO SEEDING IS A TWO- STEP PROCESS. THE FIRST STEP INCLUDES SEED, FERTILIZER, LIPE, ETC., ALONG WITH MINIMAL AMOUNTS OF MULCH TO PROMOTE CONSISTENCY, GOOD SEED TO SOIL CONTACT, AND GIVE A VISUAL INDICATION OF COVERAGE UPON COMPLETION OF SEEDING OPERATION. HYDROMULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDROMULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE NJ STANDARDS.
19. UNFILTERED DEWATERING IS NOT PERMITTED. NECESSARY PRECAUTIONS MUST BE TAKEN DURING ALL DEWATERING OPERATIONS TO MINIMIZE SOIL TRANSFER. ANY DEWATERING METHODS USED MUST BE IN ACCORDANCE WITH THE STANDARD FOR DEWATERING.
20. TOPSOIL STOCKPILE PROTECTION
  - 20.a. APPLY GROUND LIMESTONE AT A RATE OF 90 LBS. PER 1000 SQ. FT.
  - 20.b. APPLY FERTILIZER (10-20-10) AT A RATE 11 LBS. PER 1000 SQ. FT.
  - 20.c. APPLY PERENNIAL RYEGRASS SEED AT 1 LB. PER 1000 SQ. FT. AND ANNUAL RYEGRASS SEED AT 1 LB. PER 1000 SQ. FT.
  - 20.d. MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS. PER 1000 SQ. FT.
  - 20.e. APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.
  - 20.f. PROPERLY ENTRENCH A SILT FENCE AT THE BOTTOM OF THE STOCKPILE.
21. TEMPORARY STABILIZATION SPECIFICATIONS
  - 21.a. APPLY GROUND LIMESTONE AT A RATE OF 90 LBS. PER 1000 SQ. FT.
  - 21.b. APPLY FERTILIZER (10-20-10) AT A RATE 11 LBS. PER 1000 SQ. FT.
  - 21.c. APPLY PERENNIAL RYEGRASS SEED AT 1 LB. PER 1000 SQ. FT. AND ANNUAL RYEGRASS SEED AT 1 LB. PER 1000 SQ. FT.
  - 21.d. MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS. PER 1000 SQ. FT.
  - 21.e. APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.
22. PERMANENT STABILIZATION SPECIFICATIONS
  - 22.a. APPLY TOPSOIL TO A DEPTH OF 5-INCHES (UNSETTLED)
  - 22.b. APPLY GROUND LIMESTONE AT A RATE OF 90 LBS. PER 1000 SQ. FT.
  - 22.c. APPLY FERTILIZER (10-20-10) AT A RATE 11 LBS. PER 1000 SQ. FT.
  - 22.d. APPLY PERENNIAL RYEGRASS SEED AT 1 LB. PER 1000 SQ. FT. AND ANNUAL RYEGRASS SEED AT 1 LB. PER 1000 SQ. FT.
  - 22.e. MULCH STOCKPILE WITH STRAW OR HAY AT A RATE OF 90 LBS. PER 1000 SQ. FT.
  - 22.f. APPLY A LIQUID MULCH BINDER OR TACK TO STRAW OR HAY MULCH.

NOTE: 72 HOURS PRIOR TO ANY SOIL DISTURBANCE, NOTICE IN WRITING, SHALL BE GIVEN TO THE UNION COUNTY SOIL CONSERVATION DISTRICT AND A PRE-CONSTRUCTION MEETING HELD.

PERMANENT SEEDING SPECIFICATIONS

1. SITE PREPARATION

- A. INSTALL EROSION CONTROL MEASURES AND FACILITIES SUCH AS SILT FENCE, DIVERSIONS, SEDIMENT BASINS, CHANNEL, STABILIZATION, ETC. SEE STANDARDS 11 THROUGH 42.
- B. GRADE AS NEEDED AND FEASIBLE TO PERMIT THE USE OF CONVENTIONAL EQUIPMENT FOR SEEDBED PREPARATION, SEEDING, MULCH APPLICATION, MULCH ANCHORING AND MAINTENANCE. ALL GRADING SHOULD BE DONE IN ACCORDANCE WITH THE STANDARD FOR LAND GRADING.

2. SEEDBED PREPARATION

- A. APPLY A UNIFORM 5 INCHES (UNSETTLED) OF TOPSOIL IN ACCORDANCE WITH THE STANDARD FOR TOPSOILING OVER ALL DISTURBED AREAS. SOILS WITH A PH OF 4.0 OR LESS OR CONTAINING IRON SULFIDE SHALL BE COVERED WITH A MINIMUM DEPTH OF 12 INCHES OF SOIL HAVING PH OF 5.0 OR MORE IN ACCORDANCE WITH THE STANDARD FOR MANAGEMENT OF HIGH ACID PRODUCING SOIL.
- B. TOPSOIL SHOULD BE HANDLED ONLY WHEN DRY ENOUGH TO WORK WITHOUT DAMAGING SOIL STRUCTURE.
- C. APPLY GROUND LIMESTONE AND FERTILIZER ACCORDING TO SOIL TEST RECOMMENDATIONS SUCH AS OFFERED BY RUTGERS CO-OPERATIVE EXTENSION. SOIL SAMPLE MAILERS ARE AVAILABLE FROM THE LOCAL RUTGERS COOPERATIVE EXTENSION OFFICES. FERTILIZER SHALL BE APPLIED AT THE RATE OF 500 POUNDS PER ACRE OR 11 POUNDS PER 1,000 SQUARE FEET OF 10-20-10 OR EQUIVALENT WITH 50% WATER INSOLUBLE NITROGEN UNLESS A SOIL TEST INDICATES OTHERWISE. APPLY LIMESTONE IN ACCORDANCE WITH THE TABLE BELOW AND THE RESULTS OF SOIL TESTING. CALCIUM CARBONATE IS THE EQUIVALENT AND STANDARD FOR MEASURING THE ABILITY OF LIMING MATERIALS TO NEUTRALIZE SOIL ACIDITY AND SUPPLY CALCIUM AND MAGNESIUM TO GRASSES AND LEGUMES. THE TABLE BELOW IS A GENERAL GUIDELINE FOR LIMESTONE APPLICATION RATES.

LIMESTONE APPLICATION RATE BY SOIL TEXTURE	SOIL TEXTURE	TONS/ACRE	LBS/1,000 SQ. FT.
D. IMMEDIATELY PRIOR TO SEEDING AND TOPSOIL APPLICATION, THE SURFACE SHOULD BE SCARIFIED 6" TO 12" WHERE THERE HAS BEEN SOIL COMPACTION. THIS PRACTICE IS PERMISSIBLE ONLY WHERE THERE IS NO DANGER TO UNDERGROUND UTILITIES (CABLES, IRRIGATION SYSTEMS, ETC.)	CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
	SANDY LOAM, LOAM, SILT LOAM	2	90
	LOAMY SAND, SAND	1	45

- E. WORK LIPE AND FERTILIZER INTO THE SOIL TO A DEPTH OF APPROXIMATELY 4 INCHES. THE FINAL HARROWING OR DISC OPERATION SHOULD BE ON THE GENERAL CONTOUR. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEEDBED IS PREPARED.

- F. REMOVE FROM THE SURFACE ALL STONES 2 INCHES OR LARGER IN ANY DIMENSION AND OTHER DEBRIS SUCH AS WIRE, TREE ROOTS, PIECES OF CONCRETE, CLODS LUMPS OR OTHER UNSUITABLE MATERIAL.

3. SEEDING

- A. SELECT THE SEED MIXTURE AS SPECIFIED ON THIS SHEET AND APPLY AS NOTED WITHIN THE DATES SPECIFIED IN THE STANDARD.
- B. CONVENTIONAL SEEDING IS PERFORMED BY APPLYING SEED UNIFORMLY BY HAND, CYCLONE (CENTRIFUGAL) SEEDER, DROP SEEDER, DRILL OR CULTIPACKER SEEDER. EXCEPT FOR DRILLED, HYDROSEEDING OR CULTIPACKED SEEDINGS, SEED SHALL BE INCORPORATED INTO THE SOIL WITHIN 24 HOURS OF SEEDBED PREPARATION TO A DEPTH OF 1/4 TO 1/2 INCH, BY RAKING OR DRAGGING. DEPTH OF SEED PLACEMENT MAY BE 1/4 INCH DEEPER ON COARSE TEXTURED SOIL.
- C. HYDROSEEDING IS A BROADCAST SEEDING METHOD USUALLY INVOLVING A TRUCK OR TRAILER MOUNTED TANK, WITH AN AGITATION SYSTEM AND MOUNTED TANK, WITH AN AGITATION SYSTEM AND HYDRAULIC PUMP FOR MIXING SEED, WATER AND FERTILIZER AND SPRAYING THE MIX ONTO THE PREPARED SEEDBED. MULCH SHALL NOT BE INCLUDED IN THE TANK WITH SEED. SHORT FIBERED MULCH MAY BE APPLIED WITH A HYDROSEDER FOLLOWING SEEDING. (ALSO SEE SECTION 4 MULCHING BELOW) HYDROSEEDING IS NOT A PREFERRED SEEDING METHOD BECAUSE SEED AND FERTILIZER ARE APPLIED TO THE SURFACE AND NOT INCORPORATED INTO THE SOIL. POOR SEED TO SOIL CONTACT OCCURS REDUCING SEED GERMINATION AND GROWTH. HYDROSEEDING MAY BE USED FOR AREAS TOO STEEP FOR CONVENTIONAL EQUIPMENT TO TRAVERSE OR TOO OBSTRUCTED WITH ROCKS, STUMPS, ETC.
- D. AFTER SEEDING, FIRING THE SOIL WITH A CORRUGATED ROLLER WILL ASSURE GOOD SEED-TO-SOIL CONTACT, RESTORE CAPILLARITY AND IMPROVE SEEDLING EMERGENCE. THIS IS THE PREFERRED METHOD. WHEN PERFORMED ON THE CONTOUR, SHEET EROSION WILL BE MINIMIZED AND WATER CONSERVATION ON SITE WILL BE MAXIMIZED.

4. MULCHING

- A. MULCHING IS REQUIRED ON ALL SEEDING.
- B. STRAW OR HAY - UNROTTED SMALL GRAIN STRAW, HAY FREE OF SEEDS, OR OR SALT HAY TO BE APPLIED AT THE RATE OF 1-1/2 TO 2 TONS PER ACRE (70 TO 90 POUNDS PER 1,000 SQUARE FEET), EXCEPT THAT WHERE A CRIMPER IS USED INSTEAD OF A LIQUID MULCH-BINDER (TACKIFYING OR ADHESIVE AGENT), THE RATE OF APPLICATION IS 3 TONS PER ACRE. MULCH CHOPPER-BLOWERS MUST NOT GRIND THE MULCH. HAY MULCH IS NOT RECOMMENDED FOR ESTABLISHING FINE TURF OR LAWNS DUE TO THE PRESENCE OF WEED SEED. STRAW OR HAY MULCH MUST BE ANCHORED IMMEDIATELY AFTER PLACEMENT USING PEG AND TWINE, MULCH NETTING, MECHANICAL CRIMPER OR LIQUID MULCH BINDERS IN ACCORDANCE WITH THE STANDARD.
- C. WOOD-FIBER OR PAPER-FIBER MULCH - SHALL BE MADE FROM WOOD, PLANT FIBERS OR PAPER CONTAINING NO GROWTH OR GERMINATION INHIBITING MATERIALS. USED AT THE RATE OF 1,500 POUNDS PER ACRE OR AS RECOMMENDED BY THE PRODUCT MANUFACTURER) AND MAY BE APPLIED BY A HYDROSEDER. THIS MULCH SHALL NOT BE MIXED IN THE TANK WITH SEED. USE IS LIMITED TO FLATTER SLOPES AND DURING OPTIMUM SEEDING PERIODS IN SPRING AND FALL.

DUST CONTROL NOTES

THE FOLLOWING METHODS SHOULD BE CONSIDERED FOR CONTROLLING DUST:

MULCHES

SEE STANDARD FOR STABILIZATION WITH MULCHES ONLY. (PAGE 5-1 OF "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY", LATEST EDITION)

VEGETATIVE COVER

SEE STANDARD FOR TEMPORARY VEGETATIVE COVER (PAGE 7-1 OF "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY", LATEST EDITION), PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION (PAGE 4-1 OF "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY", LATEST EDITION), AND PERMANENT STABILIZATION WITH SOD (PAGE 6-1 OF "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY", LATEST EDITION).

SPRAY-ON ADHESIVES

ON MINERAL SOILS (NOT EFFECTIVE ON MUCK SOILS). KEEP TRAFFIC OFF THESE AREAS.

TABLE 16-1: DUST CONTROL MATERIALS			
MATERIAL	WATER DILUTION	TYPE OF NOZZLE	APPLY GALLONS/ACRE
ANIAONIC ASPHALT EMULSION	7:1	COARSE SPRAY	1200
LATEX EMULSION	12.5:1	FINE SPRAY	235
RESIN IN WATER	4:1	FINE SPRAY	300
POLYACRYLAMIDE (PAM) - SPRAY ON			
POLYACRYLAMIDE (PAM) - DRY SPRAY			
ACIDULATED SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200

TILLAGE

TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHisel-TYPE PLOWS SPACED ABOUT 12 INCHES APART, AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.

SPRINKLING

SITE IS SPRINKLED UNTIL THE SURFACE IS WET.

BARRIERS

SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY, AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING.

CALCIUM CHLORIDE

SHALL BE IN THE FORM OF LOOSE, DRY GRANULATES OF FLAKES FINE ENOUGH TO FEED THROUGH COMMONLY USED SPREADERS AT A RATE THAT WILL KEEP SURFACE MOIST BUT NOT CAUSE POLLUTION OR PLANT DAMAGE. IF USED ON STEEPER SLOPES, THEN USE OTHER PRACTICES TO PREVENT WASHING INTO STREAMS OR ACCUMULATION AROUND PLANTS.

STONE

COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.

CONSTRUCTION SEQUENCE

IMPLEMENTATION OF SOIL EROSION & SEDIMENT CONTROL MEASURES INCLUDING:

- INLET FILTERS
- SILT FENCE

CONSTRUCT IMPROVEMENTS:

- SITE CLEARING
- COMPLETE MILLING OPERATIONS
- COMPLETE GRADING
- INSTALL CURBING AND DRAINAGE
- PAVEMENT IMPROVEMENTS
- UNIFORMLY APPLY TOPSOIL TO AN AVERAGE DEPTH OF 5", MINIMUM OF 4" FIRMED IN PLACE
- FERTILIZING, SEEDING AND STRAW MULCHING
- REMOVAL OF SOIL EROSION & SEDIMENT CONTROL MEASURES

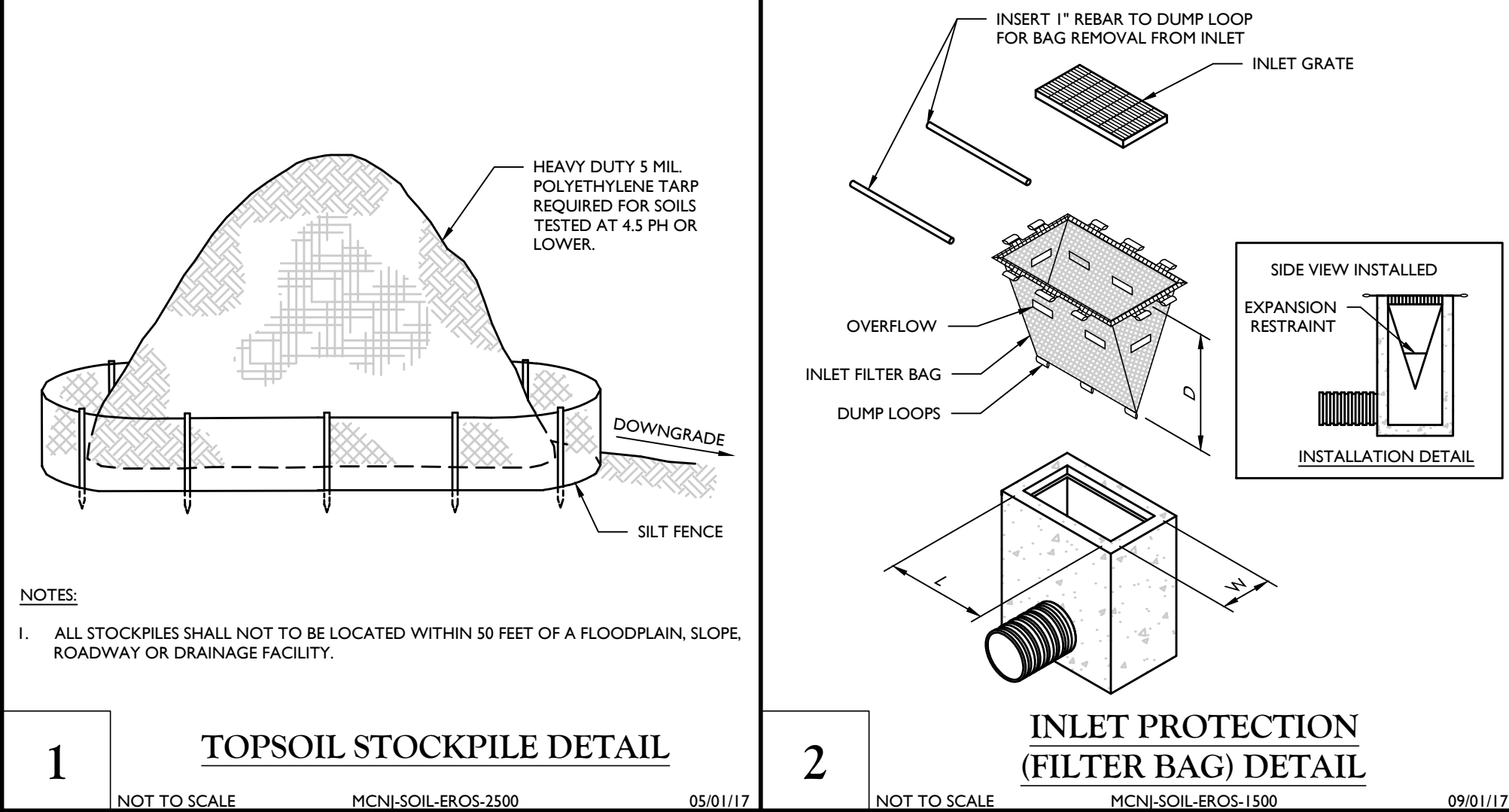
NOTE: TOTAL ESTIMATED PROJECT DURATION: 10 WEEKS

THIS SCHEDULE IS FOR SOIL EROSION AND SEDIMENT CONTROL PURPOSES ONLY.

STOCKPILE

1. ALL EXCAVATED MATERIAL EXCEPT TOPSOIL SHALL BE DISPOSED OF OFF-SITE. NO EXCAVATED MATERIAL EXCEPT TOPSOIL SHALL BE STOCKPILED AND STORED WITHIN THE PROJECT LIMITS.

TOTAL PROJECT AREA OF DISTURBANCE = 75,208 SF OR 1.73 ACRES



NOTES:

1. ALL STOCKPILES SHALL NOT TO BE LOCATED WITHIN 50 FEET OF A FLOODPLAIN, SLOPE, ROADWAY OR DRAINAGE FACILITY.

1

TOPSOIL STOCKPILE DETAIL

NOT TO SCALE

MCNJ-SOIL-EROS-2500

05/01/17

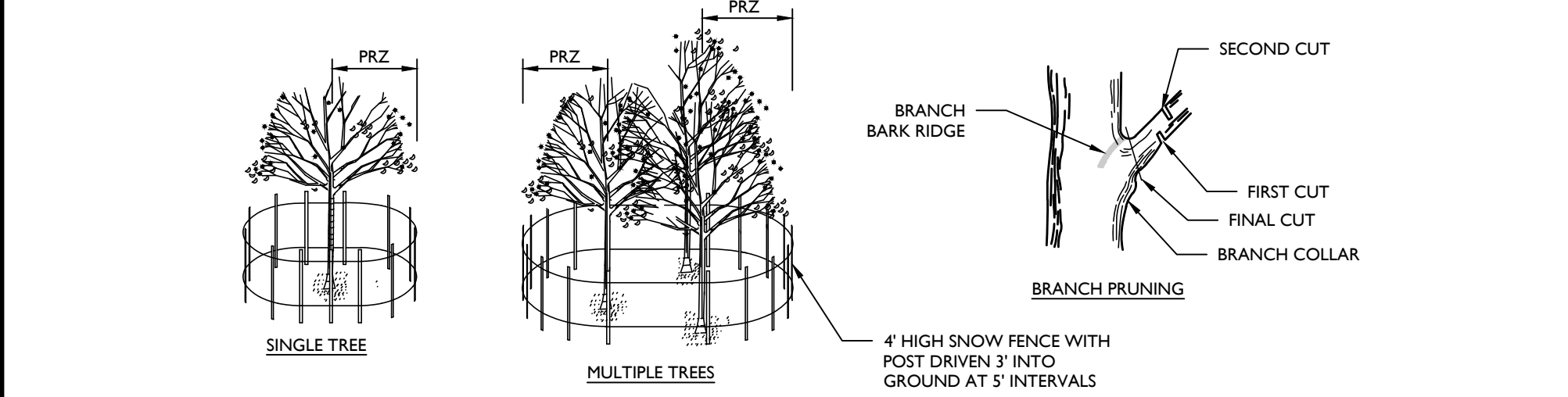
2

INLET PROTECTION (FILTER BAG) DETAIL

NOT TO SCALE

MCNJ-SOIL-EROS-1500

09/01/17



NOTES:

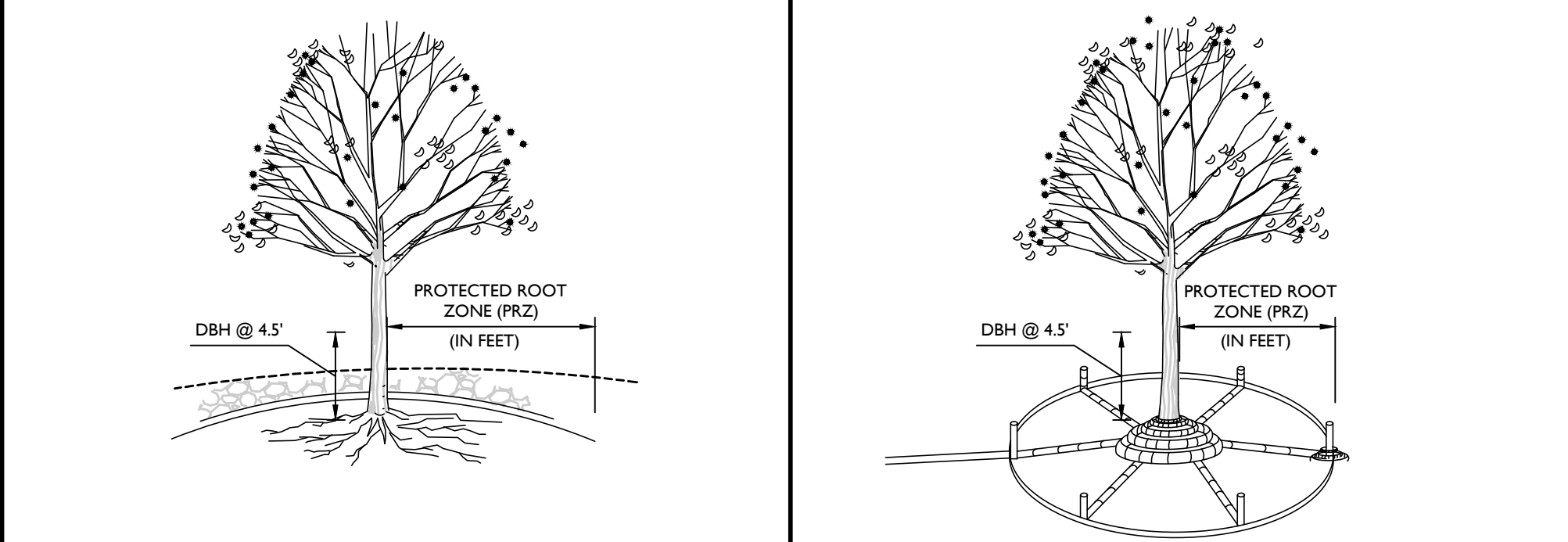
1. PROTECTIVE FENCING IS TO BE ERECTED PRIOR TO CONSTRUCTION AND MAINTAINED DURING CONSTRUCTION AS DIRECTED BY THE LANDSCAPE ARCHITECT, SOIL CONSERVATION DISTRICT AND/OR MUNICIPAL ENGINEER.
2. NO CONSTRUCTION ACTIVITY IS PERMITTED WITHIN THE PROTECTIVE FENCING.
3. AS CONSTRUCTION NEARS COMPLETION THE FENCING WILL BE REMOVED AS DIRECTED.
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 CRITICAL ROOT ZONE CALCULATION (CRZ) FOR CORRECT PLACEMENT OF TREE PROTECTION.
6. BOX TREES WITHIN 25 FEET OF A BUILDING SITE TO PREVENT MECHANICAL INJURY. FENCING OR OTHER BARRIER SHOULD BE INSTALLED BEYOND THE CRITICAL ROOT ZONE.
7. BOARDS WILL NOT BE NAILED TO TREES DURING BUILDING OPERATIONS.
8. FEEDER ROOTS SHOULD NOT BE CUT IN AN AREA INSIDE THE PROTECTED ROOT ZONE (PRZ) OR CRITICAL ROOT ZONE (CRZ). TREE ROOT SYSTEM COMMONLY EXTEND BEYOND THE DRAIN LINE.
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. THERE SHOULD BE NO FLUSH CUTS. FLUSH CUTS DESTROY A MAJOR DEFENSE SYSTEM OF THE TREE. NO TREE PAINT SHALL BE APPLIED. 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 ROT. REMOVAL OF A "V" CROTCH SHOULD BE CONSIDERED FOR FREE STANDING SPECIMEN TREES TO AVOID FUTURE SPLITTING DAMAGE.
11. CRITICAL ROOT ZONE (CRZ) OR PROTECTED ROOT ZONE (PRZ) CALCULATION: MEASURE DHB OF THE TREE (DIAMETER OF TREE IN BREAST HEIGHT OR 4.5' ABOVE GROUND ON THE UPHILL SIDE) IN INCHES. CRZ OR PRZ = DHB TIMES 1.5 (FOR OLD/UNHEALTHY/SENSITIVE TREES) OR DHB X 1.0 (FOR YOUNG/HEALTHY/TOLERANT TREES), EXPRESS IN FEET.

3

NOT TO SCALE

MCNJ-SOIL-EROS-2100

05/01/17



NOTES:

1. MEASURE THE DBH (DIAMETER OF TREE AT BREAST HEIGHT, 4.5' ABOVE GROUND ON THE UPHILL SIDE) IN INCHES.
2. PROTECTED ROOT ZONE (PRZ) = CRITICAL ROOT ZONE IN FEET = DBH (INCHES) X 1.5' (FOR OLD/SENSITIVE TREES) OR DBH X 1.0 (FOR YOUNG/TOLERANT TREES)
3. TILE AND GRAVEL WILL ALLOW AIR CIRCULATION TO ROOT ZONE UNDER A FILL.

4

NOT TO SCALE

MCNJ-SOIL-EROS-2101

05/01/17

5

NOT TO SCALE

MCNJ-SOIL-EROS-2102

05/01/17

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1	4/8/20		BAK			2	6/15/20			3	6/17/20		
2	6/15/20		BAK			3	6/17/20			4	7/7/20		
3	6/17/20		BAK			4	7/7/20			5	3/5/21		
4	7/7/20		BAK			5	3/5/21						

**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: G645154

CONSTRUCTION PLANS  
FOR  
NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS

TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY

**MT. ARLINGTON OFFICE**  
400 Valley Road  
Suite 304  
Mount Arlington, NJ 07856  
Phone: 973.398.3110  
Fax: 973.398.3199

SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	1/30/20	BAK	PWJ
PROJECT NUMBER:	CDDT65	DRAWING NAME:	C-DTLS

SHEET TITLE:  
CONSTRUCTION DETAILS

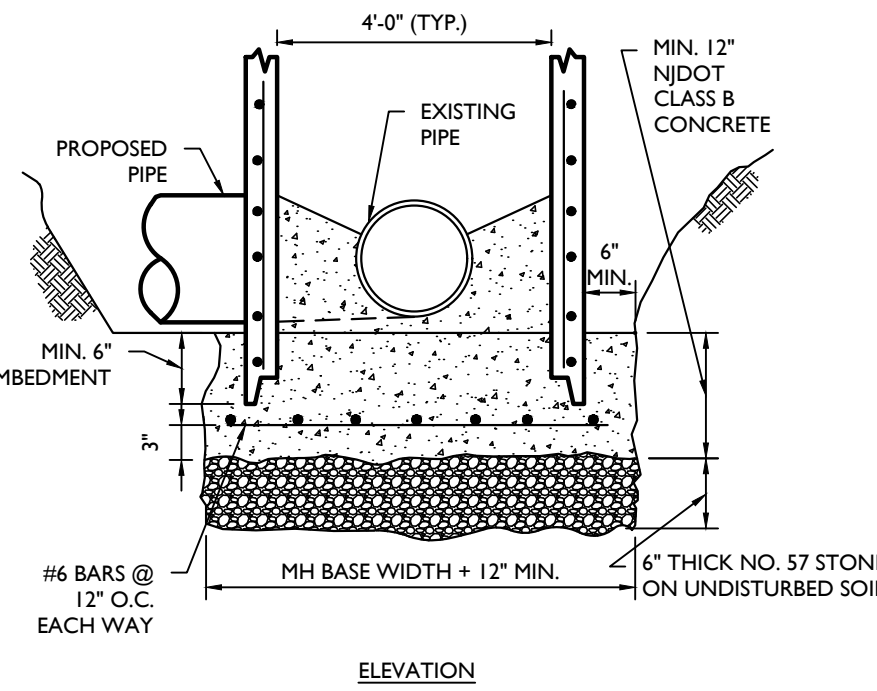
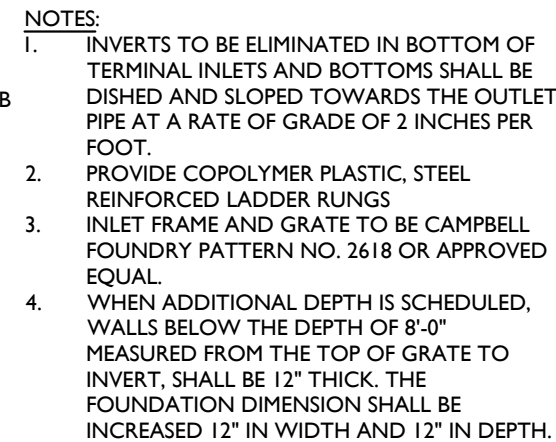
SHEET NUMBER:
18 of 36

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.









- I. ENSURE PIPE BEDDING INSTALLED AS PER SANITARY SEWER TRENCH DETAIL AND IS INSTALLED UNDERNEATH FLEXIBLE COUPLING WITH STAINLESS STEEL SHEET RING.

PROPOSED PIPE CONNECTION TO EXISTING PIPE  
N.T.S.



- I. TO BE CONSTRUCTED WHERE SHOWN ON THE PLANS OR WHERE CLEARANCE BETWEEN SANITARY SEWER PIPE AND WATER MAIN IS LESS THAN 10' HORIZONTAL AND 18" VERTICALLY OR AS DIRECTED IN THE FIELD BY THE ENGINEER.



N.T.S.

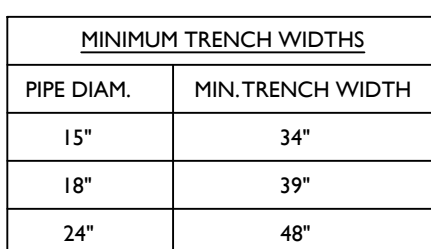


- NOTES:
1. INVERTS TO BE ELIMINATED IN BOTTOM OF TERMINAL INLETS. BOTTOMS SHALL BE DISHED AND SLOPED TOWARD THE OUTLET PIPE AT A RATE OF GRATE OF 2 INCHES PER FOOT.
  2. INLETS SHALL BE CONSTRUCTED OF PRECAST CONCRETE.
  3. PROVIDE 7" DIA. X7' X 12" ALUMINUM FLARED RUNGS, 12" O.C. OR COPOLYMER POLYPROPYLENE PLASTIC STEPS WITH 1/2" DIA. GRATE 60 STEEL REINF. MA INDUSTRIES P52-PP OR P52-B WITH PRECAST PRESS HIT INSERTS, 12" O.C.
  4. INLET FRAMES AND GRATES TO BE PRECAST CONCRETE. 1230A, SQUARE FLANGE FLARED TYPE FRAME OR APPROVED EQUAL.
  5. WHEN ADDITIONAL DEPTH IS SCHEDULED, WALLS BELOW THE DEPTH OF 8'-0" MEASURED FROM THE TOP OF GRATE TO INVERT, SHALL BE 12" IN WIDTH AND 12" IN LENGTH.
  6. CONCRETE STRUCTURES SHALL BE WITHIN AND ANSHU TO HS-20 LIVE LOAD CONDITIONS.

MANHOLE BOX (3' X 3')  
NTS



1. MANHOLES SHALL BE CONSTRUCTED OF PRECAST CONCRETE.
2. CASTINGS OF PRECAST MANHOLES SHALL BE ADJUSTED TO GRADE WITH PRECAST CONCRETE GRADE RINGS, AS REQUIRED
3. 12 INCHES MAXIMUM.
3. WHERE EXISTING PIPE IS TO BE CONNECTED TO NEW MANHOLE, 5 FEET OF NEW PIPE AND COUPLINGS SHALL BE
4. INCLUDED IN COST OF MANHOLE.
4. PRECAST MANHOLES SHALL MEET THE REQUIREMENTS OF ASTM C-478, "PRECAST REINFORCED CONCRETE MANHOLE SECTIONS."
5. REINFORCED CONCRETE STRUCTURES SHALL WITHSTAND AASHTO HS-20 LIVE LOAD CONDITIONS.
6. PROVIDE PRECAST MANHOLE SLAB IN LIEU OF STANDARD PRECAST TOP SECTION FOR MANHOLES HAVING 6'-9" DEPTH OR LESS.



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N.T.C.



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**811**

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SURFACE ANYWHERE IN ANY STATE

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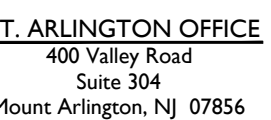
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REV	DATE	DRAWN BY	DESCRIPTION
1	6/3/20	BAK	REVISED PER NDOT COMMENTS
2	6/15/20	BAK	REVISED PER CURB CHANGES
3	6/17/20	BAK	REVISED FOR SCD SUBMISSION
4	7/7/20	BAK	REVISED PER SCD COMMENTS
5	3/5/21	BAK	REVISED PER TOWNSHIP COMMENTS
6			
7			
8			
9			
10			

**CARL P. O'BRIEN**  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

FOR  
NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS

TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY



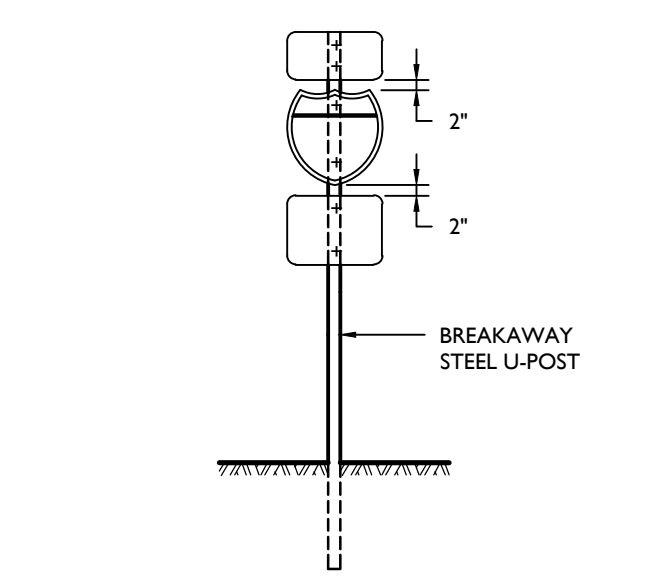
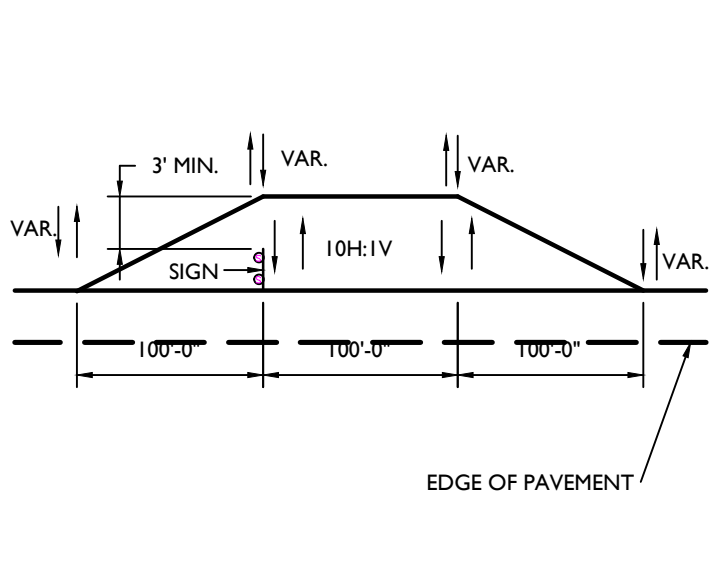
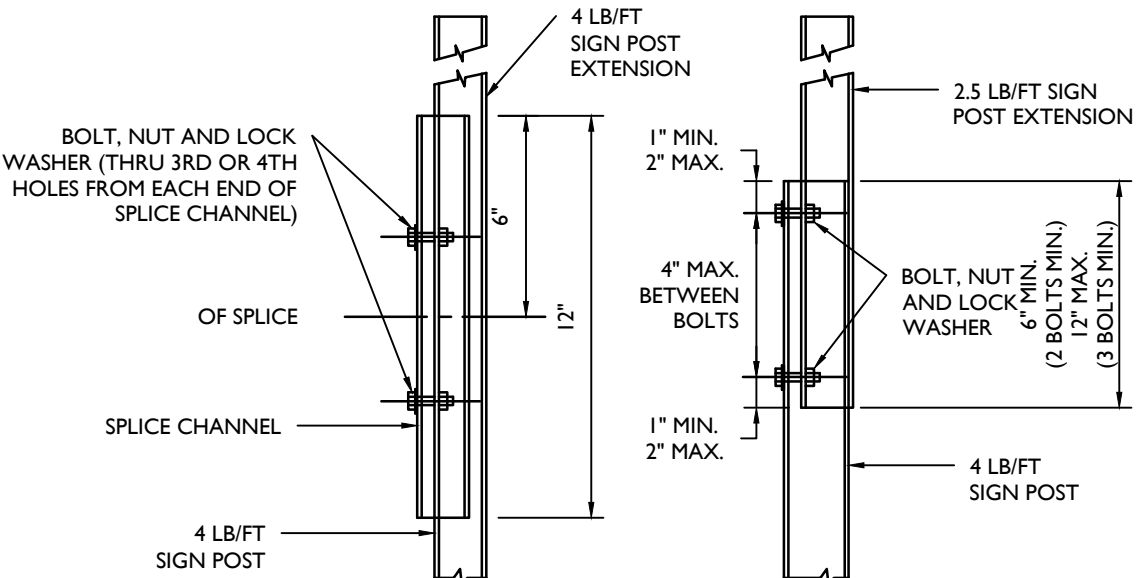
Phone: 973.398.3110  
Fax: 973.398.3199

SCALE: AS SHOWN	DATE: 1/30/20	DRAWN BY: BAK	CHECKED BY: PWJ
PROJECT NUMBER: CDT065		DRAWING NAME: C-DTLS	

## SHEET NUMBER:

20 of 36



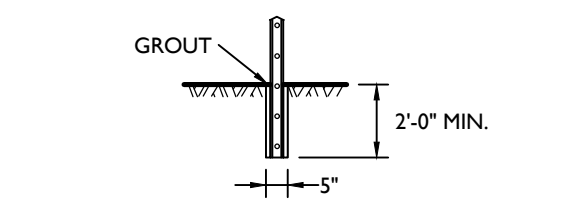


## SOIL EROSION AND SEDIMENT CONTROL NOTES

- ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY MAJOR SOIL DISTURBANCES, OR IN THEIR PROPER SEQUENCE AND MAINTAINED UNTIL PERMANENT PROTECTION IS ESTABLISHED.
- ANY DISTURBED AREAS THAT WILL BE LEFT EXPOSED MORE THAN 30 DAYS AND NOT SUBJECT TO CONSTRUCTION TRAFFIC, WILL IMMEDIATELY RECEIVE A TEMPORARY SEEDING. IF THE SEASON PREVENTS THE ESTABLISHMENT OF A TEMPORARY COVER, THE DISTURBED AREAS WILL BE MULCHED WITH STRAW, OR EQUIVALENT MATERIAL, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO NJ STATE STANDARDS.
- PERMANENT VEGETATION SHALL BE SEED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY.
- A SUB-BASE COURSE WILL BE APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING AND INSTALLATION OF IMPROVEMENTS IN ORDER TO STABILIZE STREETS, ROADS, DRIVEWAYS AND PARKING AREAS. IN AREAS WHERE NO UTILITIES ARE PRESENT, THE SUB-BASE SHALL BE INSTALLED WITHIN 15 DAYS OR PRELIMINARY GRADING.
- IMMEDIATELY FOLLOWING INITIAL DISTURBANCE OR ROUGH GRADING ALL CRITICAL AREAS SUBJECT TO EROSION (I.E. STEEP SLOPES, ROADWAY EMBANKMENTS) WILL RECEIVE A TEMPORARY SEEDING IN COMBINATION WITH STRAW MULCH OR A SUITABLE EQUIVALENT, AT A RATE OF TWO (2) TONS PER ACRE, ACCORDING TO THE NJ STATE STANDARDS.
- ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E. SLOPES GREATER THAN 3:1).
- NOT IN PROJECT.
- THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.
- AT THE TIME WHEN THE 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 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.
- IN THAT NJSA 4:24-39 ET SEQ., REQUIRES THAT NO CERTIFICATE OF OCCUPANCY BE ISSUED BEFORE THE PROVISIONS OF THE CERTIFIED PLAN FOR SOIL EROSION AND SEDIMENT CONTROL HAVE BEEN COMPLIED WITH FOR PERMANENT MEASURES, ALL SITE WORK FOR SITE PLANS 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.
- CONDUIT OUTLET PROTECTION MUST BE INSTALLED AT ALL REQUIRED OUTFALLS PRIOR TO THE DRAINAGE SYSTEM BECOMING OPERATIONAL.
- NOT IN PROJECT.
- THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED OF ANY CHANGES IN OWNERSHIP.
- MULCHING TO THE NJ STANDARDS IS REQUIRED FOR OBTAINING A CONDITIONAL REPORT OF COMPLIANCE. CONDITIONALS ARE ONLY ISSUED WHEN THE SEASON PROHIBITS SEEDING.
- CONTRACTOR IS RESPONSIBLE FOR KEEPING ALL ADJACENT ROADS CLEAN DURING LIFE OF CONSTRUCTION PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMEDIATING ANY EROSION OR SEDIMENT PROBLEMS THAT ARISE AS A RESULT OF ONGOING CONSTRUCTION AT THE REQUEST OF THE SOMERSET-UNION SOIL CONSERVATION DISTRICT.
- NOT IN PROJECT.

## CONCRETE INSTALLATION DETAIL

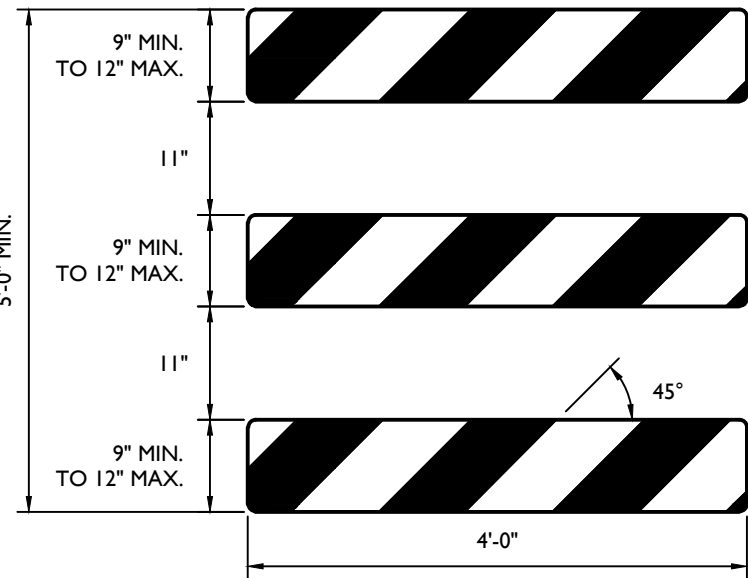
N.T.S. CD-612-4.1



## ROCK INSTALLATION DETAIL

N.T.S. CD-612-4.1

- NOTES:
- THE 9" MIN. X 48", OR 12" MAX. X 48" BARRICADE RAILS SHALL BE FABRICATED FROM 0.125" MAX. PLASTIC SHEETING AND SHALL BE ATTACHED, 4 PER RAIL, WITH 1 INCH NO. 14 PAN HEAD METAL SCREWS OR PLASTIC RIVETS. ALL CORNERS SHALL BE ROUNDED.
  - ORANGE AND SILVER (WHITE) STRIPES SHALL BE RETROREFLECTIVE SHEETING, ASTM D 4956 TYPE III, AS SHOWN FOR CONSTRUCTION SIGNS. ALTERNATE ORANGE AND SILVER (WHITE) STRIPES 6" WIDE SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS.
  - IF NECESSARY, THE SANDBAGS SHALL BE FABRICATED AND PLACED ACCORDING TO THE MANUFACTURES RECOMMENDATION.
  - THE FRAMING FOR BARRICADE PANELS SHALL BE NCHRP-350 CRASHED TESTED AND FHWA APPROVED.

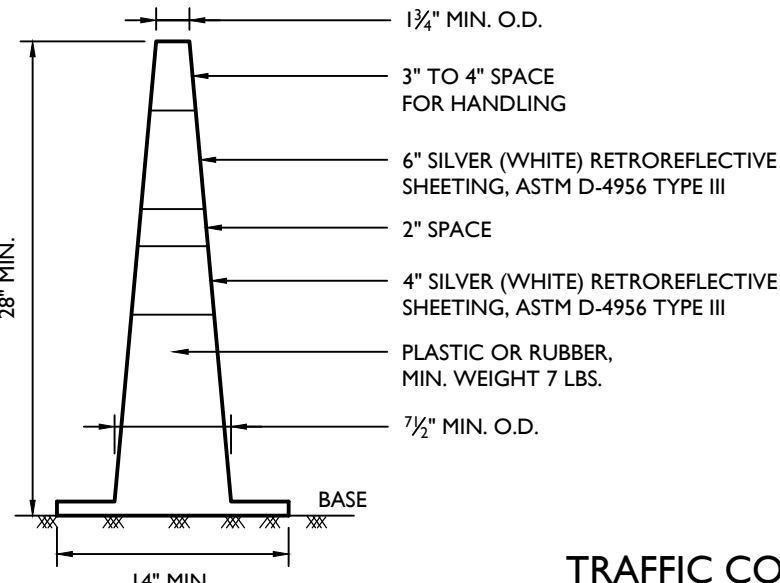


TYPE III BARRICADE - FRONT VIEW

## BREAKAWAY BARRICADES

N.T.S.

CD-159-1.3



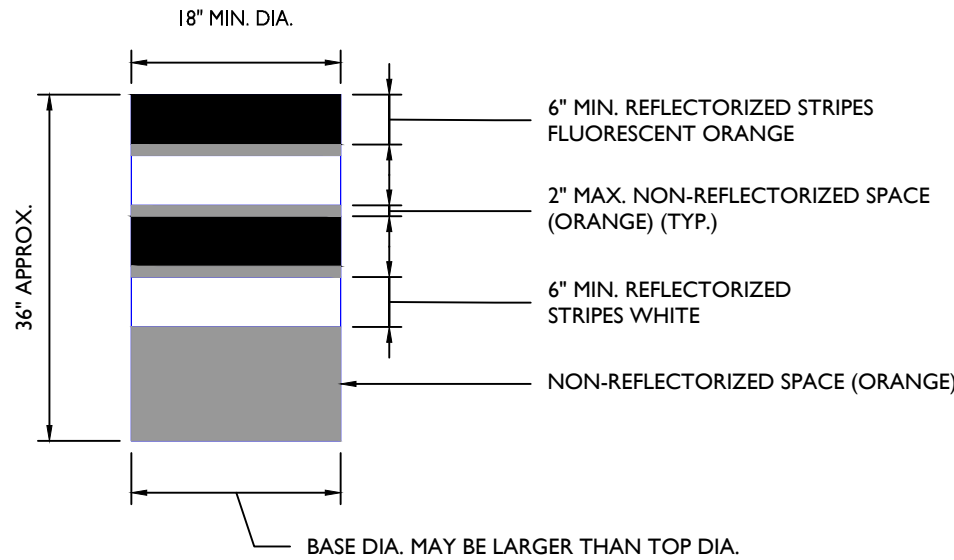
## TRAFFIC CONE DETAIL

N.T.S.

DRUMS SHALL BE MADE OF ORANGE PLASTIC WITH A MINIMUM OF FOUR ALTERNATE FLUORESCENT ORANGE AND WHITE RETROREFLECTIVE STRIPES. IF THERE ARE NON-REFLECTORIZED SPACES BETWEEN THE STRIPES, THEY SHALL BE NO MORE THAN 2" WIDE. RETROREFLECTIVE SHEETING FOR STRIPES SHALL CONFORM WITH ASTM D 4956 TYPE VII OR VIII WITH S2 REQUIREMENTS.

THE TOP OF THE DRUM SHALL NOT BE OPEN. DRUMS SHALL BE CONSTRUCTED TO INHIBIT ROLLING IF KNOCKED OVER.

THE REFLECTORIZED AREA OF DRUMS SHALL BE ROUND EXCEPT THAT OTHER SHAPES, WHICH PROVIDE THE SAME VISIBILITY AS AN 18 INCH DIAMETER ROUND DRUM REGARDLESS OF ORIENTATION, MAY BE USED.



DRUM  
N.T.S.

CD-159-1.1

WHEN BALLAST IS REQUIRED BY THE ENGINEER, SAND SHALL BE USED. THE MAXIMUM WEIGHT OF THE BALLAST SHALL BE 50 LBS. AND BE LOCATED APPROXIMATELY AT GROUND LEVEL. ALTERNATE TYPES OF BALLAST SHALL BE APPROVED BY THE ENGINEER.

## SIGN NOTES:

- DIMENSIONS, COLORS AND DETAILS OF VARIOUS SIZE SIGNS, AND ACCESSORY PANELS TO FOLLOW STANDARDS IN THE CURRENT "STANDARD HIGHWAY SIGN PUBLICATION" AND THE CURRENT "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS".
- (S) REPRESENTS A SPECIAL SIZE SIGN.
- LETTERS AND NUMERALS SHALL CONFORM TO THE CURRENT MANUAL "STANDARD ALPHABETS FOR HIGHWAY SIGNS" U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.
- THE CONTRACTOR SHALL OBTAIN THE APPROVAL OF THE ENGINEER FOR THE DISTANCE TO BE USED ON THE ADVANCE WARNING SIGNS, AND FOR THE SPEED LIMIT TO BE USED ON THE R-2-1 SIGN.
- DISTANCE LEGEND: SIGN NUMBER FOLLOWED BY LETTER & DISTANCE

LETTER	DISTANCE
A	1500'
B	1000'
C	500'
D	— MILE
E	— MILES AHEAD
F	AHEAD

## BACKING MATERIAL:

- ALUMINUM SHALL BE FLAT SHEET OF ALLOY AND TEMPER 5052-H38 OR 6061-T6:
  - 0.10" THICK FOR ALL CONSTRUCTION SIGNS EXCEPT SIGNS SHOWN MOUNTED ON BREAKAWAY BARRICADES.
  - 0.024" THICK FOR ALL CONSTRUCTION SIGNS SHOWN MOUNTED ON BREAKAWAY BARRICADES.

## TEMPORARY SIGN SUPPORTS:

- SIGN SUPPORTS SHALL BE OF WELL SEASONED LUMBER, S4S, FREE OF SPLITS, KNOTS AND WARPS, OR OF STEEL COMPONENTS.
- WOOD POSTS SHALL HAVE A UNIFORM CROSS-SECTION AND SHALL NOT EXCEED THE FOLLOWING DIMENSIONS FOR:

SINGLE POST = 4" x 6"

TWO POSTS = 3" x 6" OR 4" x 5"

THREE POSTS = 3" x 5" OR 4" x 4"

4" X 6" WOOD POSTS SHALL BE MODIFIED BY DRILLING 1/8" INCH DIAMETER HOLES 4 INCHES AND 18 INCHES ABOVE THE GROUND LINE AND PERPENDICULAR TO THE ROADWAY CENTERLINE.
- NO BRACING IS PERMITTED. VERTICAL CLEARANCES FOR SIGNS MOUNTED ON WOOD SUPPORTS SHALL BE 7 FOOT MINIMUM. EMBEDMENT DEPTH FOR THE WOOD POST SHALL NOT EXCEED 3.5 FEET.
- STEEL POSTS SHALL BE IN ACCORDANCE WITH THE STANDARD DETAIL FOR U-POST SIGN SUPPORT.
- TEMPORARY SIGN SUPPORTS NOT MEETING THIS CRITERIA SHALL BE SHIELDED BY A LONGITUDINAL BARRIER OR CRASH CUSHIONS.
- WOOD POSTS TO BE USED ONLY ON TEMPORARY SIGN SUPPORT.

## SIGN FACES:

- SIGN FACES SHALL BE ASTM D 4956 TYPE VII OR VIII FLUORESCENT ORANGE SHEETING.

## FASTENING:

- ALL SIGNS SHALL BE SECURELY FASTENED TO THEIR SUPPORTS WITH BOLTS, NUTS AND WASHERS IN ACCORDANCE WITH THE SPECIFICATIONS.

CD-159-6.1

## MAINTENANCE AND PROTECTION OF TRAFFIC NOTES:

- ALL DEVICES AND PROCEDURES FOR THE MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR STREETS AND HIGHWAYS. THE CONTRACTOR SHALL PLAN AND CARRY OUT HIS WORK TO PROVIDE FOR THE CONVENIENT AND SAFE PASSAGE OF ALL VEHICULAR AND PEDESTRIAN TRAFFIC.
- CONTRACTOR TO DEVELOP DETAILED MAINTENANCE AND PROTECTION OF TRAFFIC PLAN FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL FOLLOW THE RECOMMENDED TRAFFIC CONTROL PROCEDURES. IF THE CONTRACTOR DESIRES TO CHANGE THE PROCEDURE, HE SHALL PRESENT HIS CHANGES IN WRITING TO THE ENGINEER FOR REVIEW AND APPROVAL. THERE MAY BE UTILITY RELOCATIONS, ADJUSTMENTS AND IMPROVEMENTS WHICH ARE NECESSITATED BY THE PROPOSED CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH EACH OF THE UTILITY COMPANIES LOCATED WITHIN THE PROJECT.
- THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING MAINTENANCE AND PROTECTION OF TRAFFIC THROUGHOUT THE DURATION OF CONSTRUCTION. THE COSTS FOR THE INDIVIDUAL DEVICES USED TO MAINTAIN AND PROTECT TRAFFIC SHALL BE INCLUDED IN THE UNIT PRICES BID FOR THE SPECIFIC TRAFFIC CONTROL DEVICES IN THE PROPOSAL. NO ADDITIONAL PAYMENT WILL BE MADE FOR RELOCATING THE DEVICES AS REQUIRED, OR AS DIRECTED BY THE ENGINEER, DURING THE COURSE OF CONSTRUCTION.
- THE CONTRACTOR WILL NOT BE PERMITTED TO CLOSE DOWN THE ENTIRE STREET. THE CONTRACTOR SHALL PROVIDE MEANS OF ACCESS AT ALL TIMES FOR PEDESTRIANS AND VEHICULAR TRAFFIC AT ALL PRIVATE DRIVEWAYS AND OCCUPIED BUILDINGS AFFECTED BY THE WORK OF THIS CONTRACT. DURING CONSTRUCTION, IN THE VICINITY OF A DRIVEWAY, THE ACCESS WIDTH AT THE DRIVEWAY ENTRANCE SHALL BE PLAINLY MARKED BY LIGHTS, BARRICADES OR OTHER SUCH DEVICES APPROVED BY THE ENGINEER.
- DURING CONSTRUCTION, ALL ROADS SHALL BE PROPERLY MAINTAINED TO ACCOMMODATE EMERGENCY VEHICLES AT ALL TIMES.
- ALL BARRICADES SHALL BE TYPE III BREAKAWAY BARRICADES.
- FILL MATERIAL FOR ESCAPE RAMPS SHALL BE ON-SITE MATERIAL. ALL COSTS FOR STORING, PLACING, MOVING, AND REMOVING FILLET MATERIAL SHALL BE INCLUDED IN THE PRICE BID FOR THE VARIOUS ITEMS IN THE PROPOSAL.



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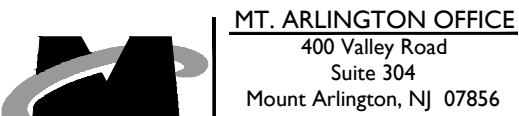
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2	6/15/20	BAK	REVISED PER CLRB CHANGES	2	6/15/20	BAK	REVISED FOR SCD SUBMISSION
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4	7/7/20	BAK	REVISED PER SCD COMMENTS	4	7/7/20	BAK	REVISED PER TOWNSHIP COMMENTS
5	3/3/21	BAK	REVISED PER TOWNSHIP COMMENTS	5	3/3/21	BAK	REVISED PER TOWNSHIP COMMENTS

CARL P. O'BRIEN  
NEW JERSEY PROFESSIONAL  
ENGINEER - LICENSE NUMBER: GE45154

## CONSTRUCTION PLANS

FOR  
NJDOT FY 2019 -  
BROOKSIDE PLACE  
DRAINAGE  
IMPROVEMENTS

TOWNSHIP OF CRANFORD  
COUNTY OF UNION  
STATE OF NEW JERSEY



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PROJECT NUMBER:	DRAWING NAME:		
CDT065	C-DTLS		

SHEET TITLE:  
CONSTRUCTION DETAILS

SHEET NUMBER:  
21 of 36



LEGEND	
	BREAKAWAY BARRICADES
	BREAKAWAY BARRICADES WITH SIGN
	CONSTRUCTION SIGNS
	DRUMS
	CONE
	PRECAST CONCRETE CURB CONSTRUCTION BARRIER (TYPE SPECIFIED)
	DIRECTION OF TRAFFIC FLOW
	TRAFFIC DIRECTOR, FLAGGER
	TRAILER MOUNTED MOUNTED ARROW BOARD SHOWING CAUTION MODE
 LEFT      RIGHT      BOTH	ILLUMINATED FLASHING ARROW MOUNTED ON TOWING VEHICLE SHOWING ARROW PATTERN (Left, Right, Both)
	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND ARROW BOARD SHOWING CAUTION MODE
 LEFT      RIGHT      BOTH	TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND ARROW BOARD SHOWING ARROW PATTERN (Left, Right, Both)
	TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM
	TEMPORARY CRASH CUSHION, (all other approved)
	BUFFER ZONE
	WORK AREA
	PAINT STRIPING TRUCK OR OTHER OPERATING VEHICLE

- ADVANCE WARNING SIGNS DISTANCES, AND TAPER LENGTHS MAY BE EXTENDED, AT DIRECTION OF THE DEPARTMENT, TO ADJUST FOR REDUCED VISIBILITY DUE TO HORIZONTAL AND VERTICAL CURVATURE OF THE ROADWAY.
2. THE APPROXIMATE LOCATIONS OF THE ILLUMINATED FLASHING ARROW BOARDS ARE SHOWN ON THE TRAFFIC CONTROL PLANS. THESE LOCATIONS MAY BE MODIFIED AS APPROVED BY RE. TO ADJUST FOR VISIBILITY DUE TO HORIZONTAL OR VERTICAL CURVATURE OF THE ROADWAY OR TO POSITION AT A SAFER LOCATION. ILLUMINATED FLASHING ARROW BOARDS ARE TO BE USED FOR TEMPORARY LANE CLOSINGS AND AT LOCATIONS SHOWN ON THE TRAFFIC CONTROL PLANS.
3. PRIOR TO ANY ROAD CONSTRUCTION, TRAFFIC CONTROL SIGNS AND DEVICES SHALL BE IN PLACE.
4. RAMPS AND/OR SIDE STREETS ENTERING THE ROADWAY AFTER THE FIRST ADVANCE WARNING SIGN SHALL BE PROVIDED WITH AT LEAST ONE W20-IF SIGN (ROAD WORK AHEAD) AS A MINIMUM.
5. ALL EXISTING ROAD SIGNS, PAVEMENT MARKINGS AND/OR PLOWABLE PAVEMENT REFLECTORS WHICH CONFLICT WITH THE PROPOSED TRAFFIC CONTROL PLAN SHALL BE COVERED, REMOVED OR RELOCATED AS DIRECTED BY THE RE.
6. CONFLICTING OR NON-OPERATING SIGNAL INDICATIONS ON EITHER THE EXISTING, TEMPORARY, OR PROPOSED TRAFFIC SIGNAL SYSTEMS SHALL BE BAGGED OR COVERED.
7. MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES - PART VI "STANDARDS AND GUIDES FOR TRAFFIC CONTROL FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY, AND INCIDENT MANAGEMENT OPERATIONS", UNLESS OTHERWISE NOTED IN THE PLANS AND SPECIFICATIONS.
8. CONSTRUCTION SIGN W99-2 (GIVE US A BRAKE) SHALL BE LOCATED 200 FEET IN ADVANCE OF PROJECT LIMITS.
9. A W1-6 (ARROW) SIGN MOUNTED ON A BREAKAWAY BARRICADE AND CENTERED ON THE CLOSED WIDTH SHALL BE LOCATED 100 FEET BEYOND EACH INTERSECTION OR MAIN ACCESS POINT WITHIN THE AREA OF A LANE OR SHOULDER CLOSURE.
10. CONSTRUCTION SIGNS R11-4 (ROAD CLOSED TO THRU TRAFFIC) SHALL BE PLACED AT THE INTERSECTING STREETS WHICH ARE CLOSED TO TRAFFIC BECAUSE OF CONSTRUCTION.
11. CONSTRUCTION SIGNS W8-9A (SYMBOL FOR UNEVEN PAVEMENT) AND W8-14A (GROOVED PAVEMENT) SHALL BE USED WHEN SUCH PAVEMENT CONDITIONS EXIST. THE PLACEMENT OF THESE SIGNS SHALL BE AS DIRECTED BY THE RE.
12. MOVING WORK AREAS IN A LANE CLOSURE REQUIRE A TRAILER MOUNTED ILLUMINATED FLASHING ARROW TO REMAIN AT THE END OF THE TAPER, THE TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION THAT SHALL MOVE WITH THE WORK AREAS TO KEEP A 70 FEET MIN. AND 150 FEET MAX. BUFFER IN ADVANCE OF EACH WORK AREA.
13. THE CONTRACTOR SHALL SUBMIT A PLAN FOR THE SAFE ACCESS OF CONSTRUCTION VEHICLES THROUGHOUT THE WORK SITE WHERE SPACE CONSTRAINTS PREVENT THE USE OF LANE CLOSURES. THE PLAN SHALL BE SUBMITTED TO THE RE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
14. TRAFFIC SAFETY SERVICES SHALL BE USED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR TRAFFIC CONTROL.
15. ALL EXCAVATED AREAS WITHIN OR ADJACENT TO THE ROADWAY SHALL BE BACKFILLED AND PLACED ON AT LEAST 6H : 1V SLOPE BEFORE THE END OF EACH WORK DAY. OTHER EXCAVATED AREA WITHIN THE CLEAR ZONE SHALL BE BACKFILLED.
16. WHERE REQUIRED, THE CONTRACTOR SHALL MAKE PROVISIONS FOR MAINTAINING PEDESTRIAN CROSSING LOCATIONS AND TYPE AS DIRECTED BY THE RE.
17. BITUMINOUS CONCRETE PLACED DURING THE VARIOUS CONSTRUCTION STAGES SHALL BE TRANSITIONED ON A MINIMUM 20H : 1V SLOPE TO MEET THE ADJACENT EXISTING GRADE AT THE LONGITUDINAL AND TRANSVERSE LIMITS OF THE STAGE CONSTRUCTION AREAS UNLESS OTHERWISE NOTED ON THE STAGE CONSTRUCTION PLANS.
18. THE PLACEMENT AND OR RELOCATION OF PRECAST CONCRETE CURB, CONSTRUCTION BARRIER SHALL BE DONE DURING APPROVED OFF-PEAK HOURS WHEN TRAFFIC MAY BE REDUCED TO ONE LANE IN EACH DIRECTION.
19. CONSTRUCTION ZONE SPEED LIMIT WILL BE DETERMINED BY THE TRAFFIC SIGNAL & SAFETY ENGINEERING, REGIONAL TRAFFIC ENGINEER - WORK ZONE, AT THE TIME OF OR DURING CONSTRUCTION, AS REQUESTED BY THE R.E..
20. THE SPEED LIMIT, R2-1 (BLACK ON WHITE) WITH ADDED WORK ZONE PLATE (BLACK ON ORANGE) SIGNS SHALL BE LOCATED THROUGH WORK AREAS AS DIRECTED BY THE TRAFFIC SIGNAL & SAFETY ENGINEERING REGIONAL TRAFFIC ENGINEER - WORK ZONE
21. THE REDUCED SPEED AHEAD SIGN, W3-5(S) (BLACK ON ORANGE) SHALL BE LOCATED IN ADVANCE OF SPEED LIMIT R2-1 SIGNS WHICH REDUCE THE NORMAL POSTED SPEED LIMIT THROUGH THE CONSTRUCTION ZONE.
22. TRAFFIC FINES DOUBLED IN WORK AREA R(N)J5-17(S) , 4 FEET BY 2.5 FEET SIGN SHALL BE LOCATED 500 FEET AFTER THE FIRST ADVANCE WARNING SIGN, (W20 SERIES) AT EACH WORK AREA LOCATED WITHIN URBAN AREAS. THIS SIGN SHALL ALSO BE USED ON PROJECTS REQUIRING MOVING OPERATIONS IN WHICH CASE THE SIGN SHALL BE MOUNTED ON A SLOW MOVING CONSTRUCTION VEHICLE.
23. THE FINAL HMA SURFACE PAVEMENT SHALL NOT BE CONSTRUCTED UNTIL THE FINAL STAGE OF THE PROJECT UNLESS OTHERWISE DIRECTED BY THE RE OR INDICATED ON THE PLANS. MANHOLES AND INLETS SHALL BE SET TO FINISHED GRADE AND TEMPORARY PAVEMENT RAMPS ARE TO BE CONSTRUCTED AROUND THEM WITH A MINIMUM 20H : 1V SLOPE IN ALL DIRECTIONS USING HOT MIX ASPHALT PAVEMENT. THIS TEMPORARY MATERIAL WILL BE REMOVED IMMEDIATELY PRIOR TO PLACING THE SURFACE COURSE.

- ## B. ADVANCE NOTICES

FOR THE INITIAL START OF WORK THAT REQUIRES "IMPACTS TO NORMAL TRAFFIC FLOW", THE CONTRACTOR SHALL NOTIFY THE RE IN WRITING, ON THE ADVANCE FORM TO-103 PROVIDED BY THE DEPARTMENT OF THE PROPOSED DATE. THE NOTICE SHALL BE SUBMITTED AT LEAST SEVEN (7) CALENDAR DAYS, BUT NOT MORE THAN SIXTY (60) CALENDAR DAYS BEFORE THE PROPOSED DATE. START OF WORK THAT REQUIRES NORMAL TRAFFIC FLOW WILL NOT BE PERMITTED PRIOR TO THE DATE STATED IN THE NOTICE. THE CONTRACTOR SHALL CONFIRM, IN WRITING TO THE RE THE PROPOSED DATE SEVEN (AND/OR FOURTEEN) CALENDAR DAYS BEFORE THE STARTING DATE. ESABISHING THE TRAFFIC CONTROL MEASURES FOR THE TRAFFIC IMPACTS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE RE IF THE PROPOSED ESTABLISHMENT CAN NOT BE COMPLETED ON THE PROPOSED DATE.

FOR A "PERMANENT LANE CLOSURE", THE CONTRACTOR SHALL NOTIFY THE RE IN WRITING, ON ADVANCE FORM TO-103, OF THE PROPOSED DATE A NEW TRAFFIC PATTERN WILL BE ESTABLISHED. THE NOTICE SHALL BE SUBMITTED AT LEAST TWENTY-EIGHT CALENDAR DAYS, BUT NOT MORE THAN SIXTY CALENDAR DAYS, IN ADVANCE OF THE PROPOSED DATE. START OF A NEW TRAFFIC PATTERN WILL NOT BE PERMITTED PRIOR TO THE DATE STATED IN THE NOTICE. THE CONTRACTOR SHALL CONTINUE TO MAINTAIN THE PROPOSED TRAFFIC PATTERN FOR THE NEW TRAFFIC PATTERN LEVEL (AND/OR FOURTEEN) DAYS BEFORE STARTING TRAFFIC CONTROL MEASURES FOR THE ESTABLISHMENT OF THE NEW PATTERN. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE RE IF THE PROPOSED ESTABLISHMENT CAN NOT BE COMPLETED ON THE PROPOSED DATE.

STARTING THE ESTABLISHMENT OF A NEW PERMANENT TRAFFIC PATTERN SHALL BEGIN NO EARLIER THAN 11:00 PM FRIDAY AND SHALL BE COMPLETED AND READY FOR OPERATIONS BY 6:00 PM THE FOLLOWING SUNDAY. THE ESTABLISHMENT SHALL BE COMPLETED IN ACCORDANCE WITH THE LANE CLOSURE HOURS SPECIFIED IN THE CONTRACT.

ADVANCE NOTICES SENT PRIOR TO THE PRE-CONSTRUCTION MEETING SHALL BE ADDRESSED TO THE CONTACT PERSON AS SPECIFIED IN SUBSECTION 101.04 OF THE SPECIAL PROVISIONS.

### C. PROGRESS NOTICES

ALL "IMPACTS TO NORMAL TRAFFIC FLOW" SCHEDULED FOR THE SEVEN DAY PERIOD STARTING ON THE FOLLOWING MONDAY SHALL BE SUBMITTED TO THE RE BY 9:00 AM OF EACH FRIDAY ON WEEKLY FORM TO-101 PROVIDED BY THE DEPARTMENT.

EACH DAY OF "TEMPORARY LANE CLOSURES" SHALL BE SUBMITTED TO THE RE BY 9:00 AM THE DAY IN ADVANCE OF THE START OF THOSE OPERATIONS ON DAILY FORM TO-102 PROVIDED BY THE DEPARTMENT.

"TEMPORARY LANE CLOSURES" FOR WEEKENDS SHALL BE SUBMITTED TO THE RE BY 9:00 AM ON THE IMMEDIATELY PRECEDING FRIDAY ON THE DAILY FORM TO-102 PROVIDED BY THE DEPARTMENT.

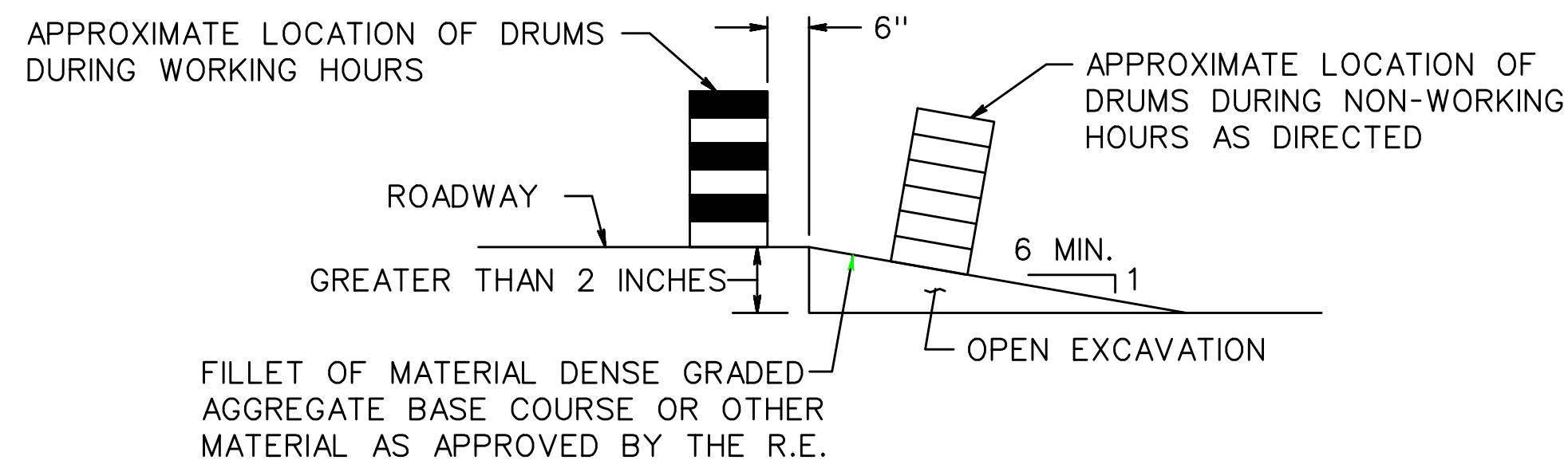
#### D. CHANGES TO THE SCHEDULED CLOSURES

REQUEST FOR A CHANGE TO THE TRAFFIC CONTROL REQUIREMENTS IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED IN WRITING TO THE RE AS FOLLOWS:

CHANGES TO THE SCHEDULED HOURS FOR "TEMPORARY LANE CLOSURES" SHALL BE SUBMITTED TO THE R.E. AT LEAST EIGHT CALENDAR DAYS IN ADVANCE OF WHEN THE CHANGE IS PROPOSED TO START.

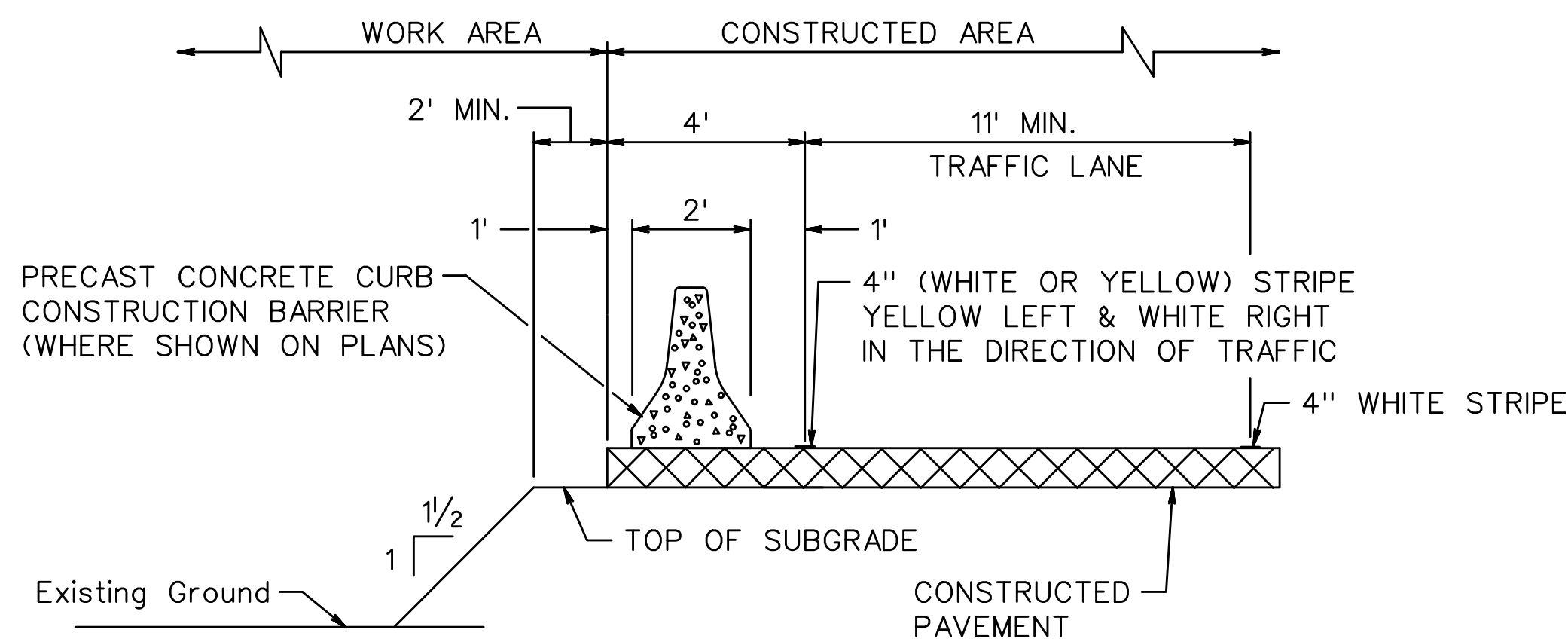
OTHER PROPOSED CHANGES TO "TEMPORARY LANE CLOSURES" AND ALL CHANGES TO "PERMANENT LANE CLOSURES" SHALL BE SUBMITTED TO THE RE AS SPECIFIED IN THE SPECIFICATIONS.





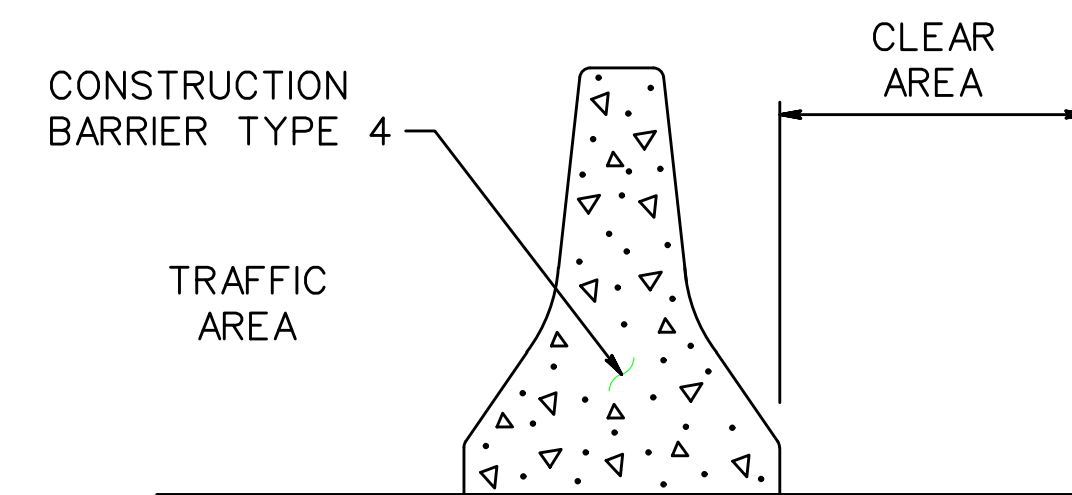
NOTE:  
ESCAPE RAMPS MUST BE CONSTRUCTED AND MAINTAINED DURING NON-WORKING HOURS WHERE A VERTICAL DROP GREATER THAN 2 INCHES EXISTS ADJACENT TO TRAVELED LANE.

ESCAPE RAMP DETAIL



TYPICAL SECTION

PLACEMENT OF PRECAST CONCRETE CONSTRUCTION BARRIER



- NOTES:
- CHANGES TO THE PROPOSED JOINT CLASS AT ANY LOCATION MUST BE APPROVED BY THE DEPT.
  - NO ROADWAY DROP OFFS, OBSTRUCTIONS, STORAGE OF MATERIALS OR WORK WILL BE PERMITTED IN THE CLEAR AREA UNLESS APPROVED BY THE R.E.

STAGE	LOCATION		JOINT CLASS
	RTE.	STA. TO	

JOINT CLASS	CLEAR AREA
A	20 INCHES
B	16 INCHES
C	11 INCHES

CONSTRUCTION BARRIER, TYPE 4  
JOINT CLASS AND CLEAR AREA

REGULATORY APPROACH SPEED OF TRAFFIC MILES/HOUR	RECOMMENDED SIGHT DISTANCE TO BEGINNING OF CHANNELIZING TAPERS		
	DESIRABLE		MINIMUM
	RURAL FEET	URBAN FEET	RURAL AND URBAN FEET
25	375	525	150
30	450	625	200
35	525	725	250
40	600	825	325
45	675	925	400
50	750	1025	475
55	875	1150	550
60	1000	1275	650
65	1050		725

- NOTES:
- AVOIDANCE MANEUVER IS FOR A SPEED, PATH, AND/OR DIRECTION CHANGE PRIOR TO THE BEGINNING OF CHANNELIZING TAPERS.
  - RECOMMENDED DISTANCES BETWEEN TWO SEPARATE LANE CLOSURES SHALL BE DOUBLE THE VALUES SHOWN ABOVE.
  - RURAL AND URBAN ROAD DESIGNATIONS SHALL BE AS DEFINED IN THE NJDOT STATE HIGHWAY STRAIGHT LINE DIAGRAMS.
  - DESIRABLE VALUES SHALL BE PROVIDED WHEREVER POSSIBLE. IF IT IS NOT FEASIBLE OR PRACTICAL TO PROVIDE DESIRABLE VALUES BECAUSE OF HORIZONTAL OR VERTICAL CURVATURE OR IF RELOCATION OF THE TAPER IS NOT POSSIBLE, THEN MINIMUM VALUES CAN BE APPLIED. WHEN MINIMUM VALUES ARE USED, SPECIAL ATTENTION SHOULD BE GIVEN TO THE USE OF SUITABLE TRAFFIC CONTROL DEVICES FOR PROVIDING ADVANCED WARNING OF THE CONDITIONS THAT ARE LIKELY TO BE ENCOUNTERED.
  - TAPERS SHALL BE LOCATED TO MAXIMIZE THE VISIBILITY OF THEIR TOTAL LENGTH.

RECOMMENDED TAPER LENGTH AND SPACING FOR CHANNELIZING TAPERS					RECOMMENDED SPACING ALONG TANGENTS	
REGULATORY APPROACH SPEED OF TRAFFIC MILES/HOUR	MINIMUM TAPER RATIO IN LENGTH PER FOOT OF WIDTH	MINIMUM TAPER LENGTH L - FOR LANE WIDTHS			MAXIMUM DEVICE (B) SPACING ALONG TAPERS IN FEET	MAXIMUM DEVICE (D) SPACING ALONG TANGENTS IN FEET
		10'	11'	12'		
25	10.5:1	105	115	125	25	50
30	15:1	150	165	180	30	60
35	20.5:1	205	225	245	35	70
40	27:1	270	300	325	40	80
45	45:1	450	495	540	45	90
50	50:1	500	550	600	50	100
55	55:1	550	605	660	55	110
60	60:1	600	660	720	60	120
65	65:1	650	715	780	65	130

NOTE:  
THE MAXIMUM DEVICE SPACING ALONG CURVES SHALL BE AS DEFINED FOR TAPERS (B) IN THE ABOVE TABLE.

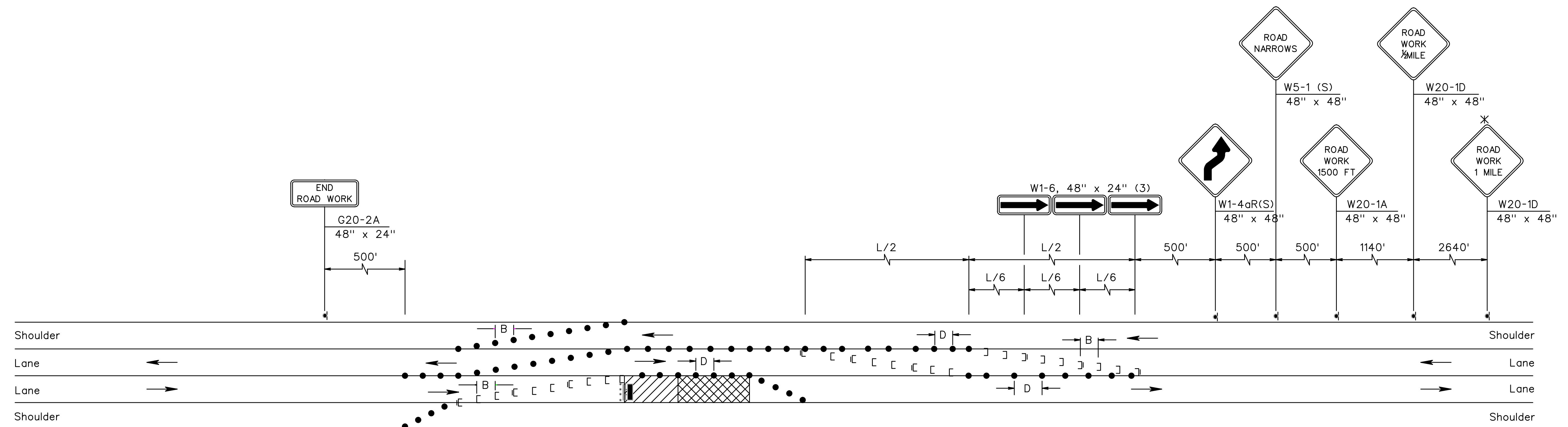
N.T.S.

TCD-2

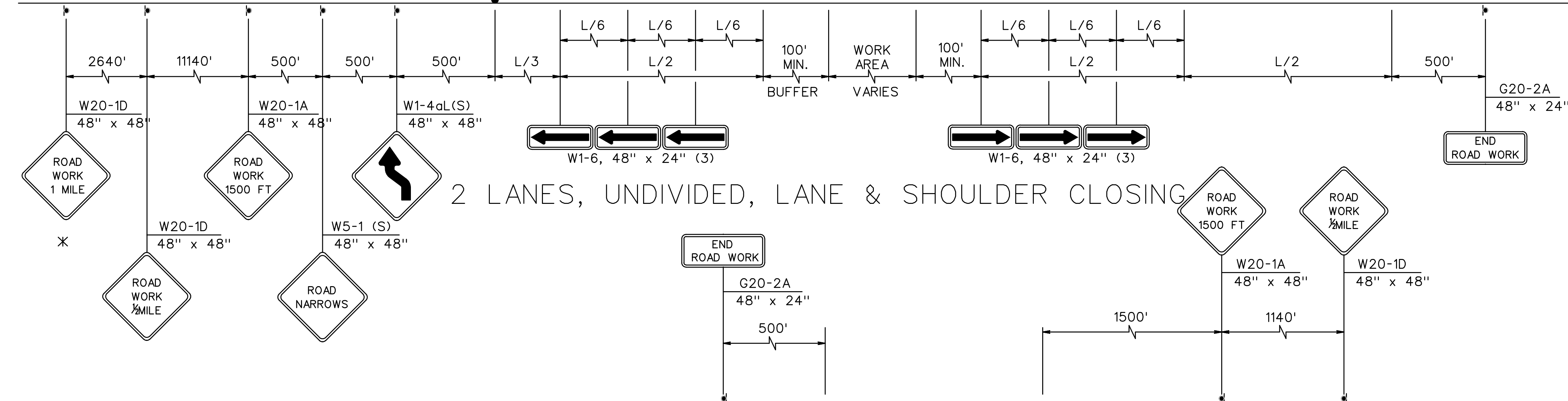
NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS





2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING

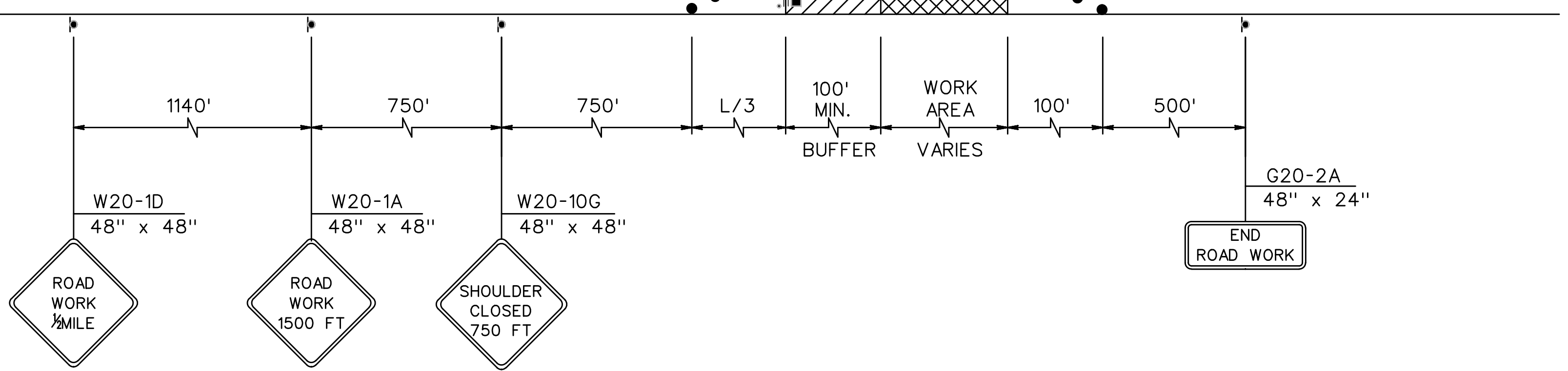


\* THIS SIGN SHALL BE INSTALLED FOR ROADS WITH A SPEED LIMIT OF 45 M.P.H. OR GREATER UNLESS OTHERWISE DIRECTED BY THE RE.

NOTE:  
SEE RECOMMENDED TAPER LENGTH AND SPACING TABLE ON SHEET TCD-2 FOR VALUES OF L, B AND D.

N.T.S.

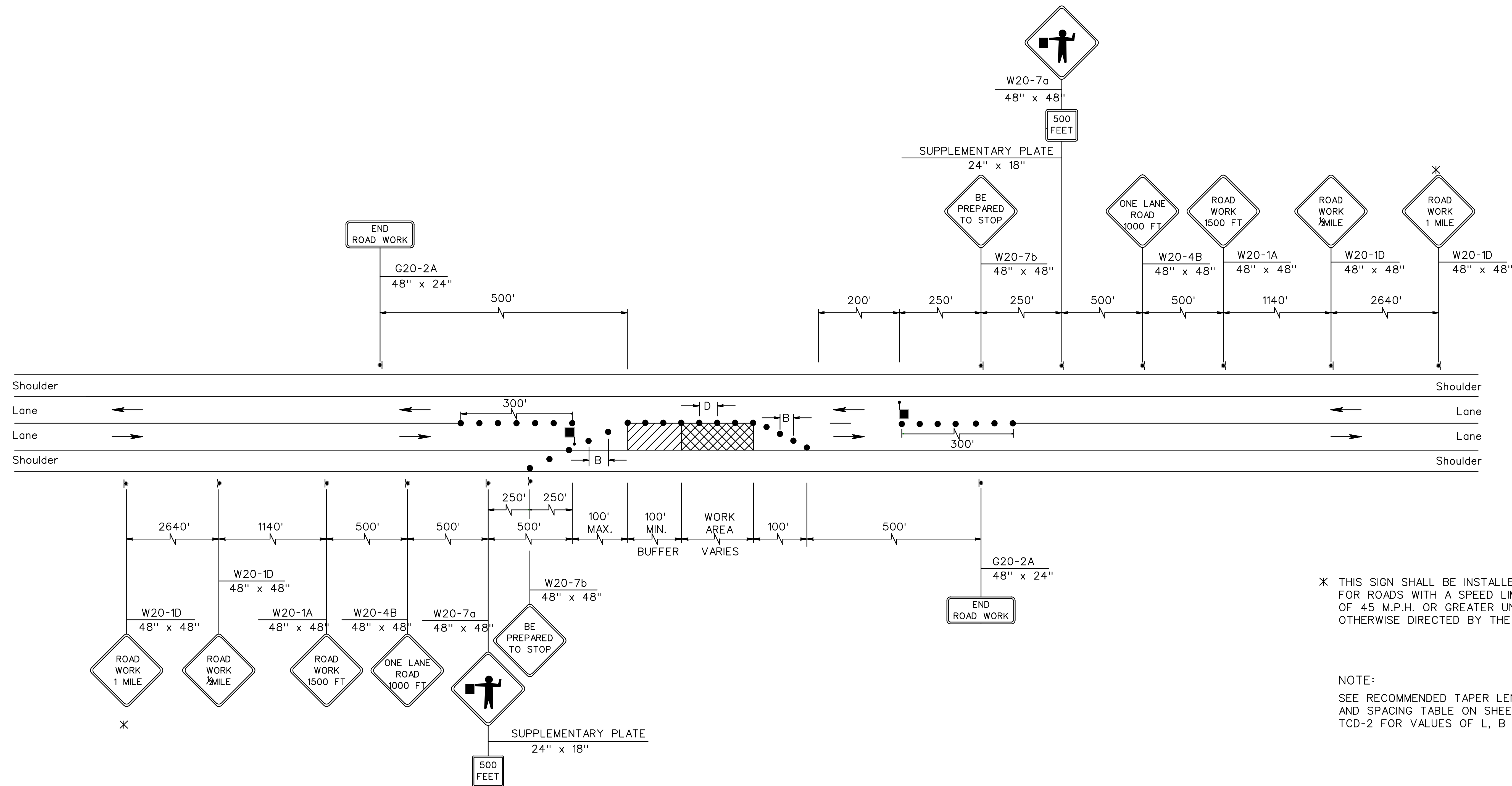
**DO NOT STOP ON TRACKS**  
24" x 30"  
**R8-8 SIGN DETAIL**  
NOT TO SCALE



2 LANES, UNDIVIDED, SHOULDER CLOSING

TCD-3  
NEW JERSEY DEPARTMENT OF TRANSPORTATION  
TRAFFIC CONTROL DETAILS





2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING

N.T.S.

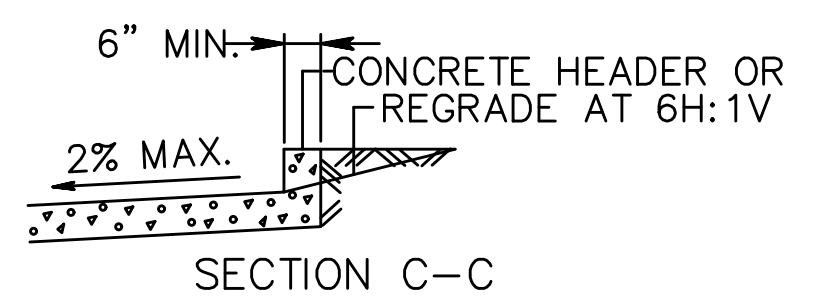
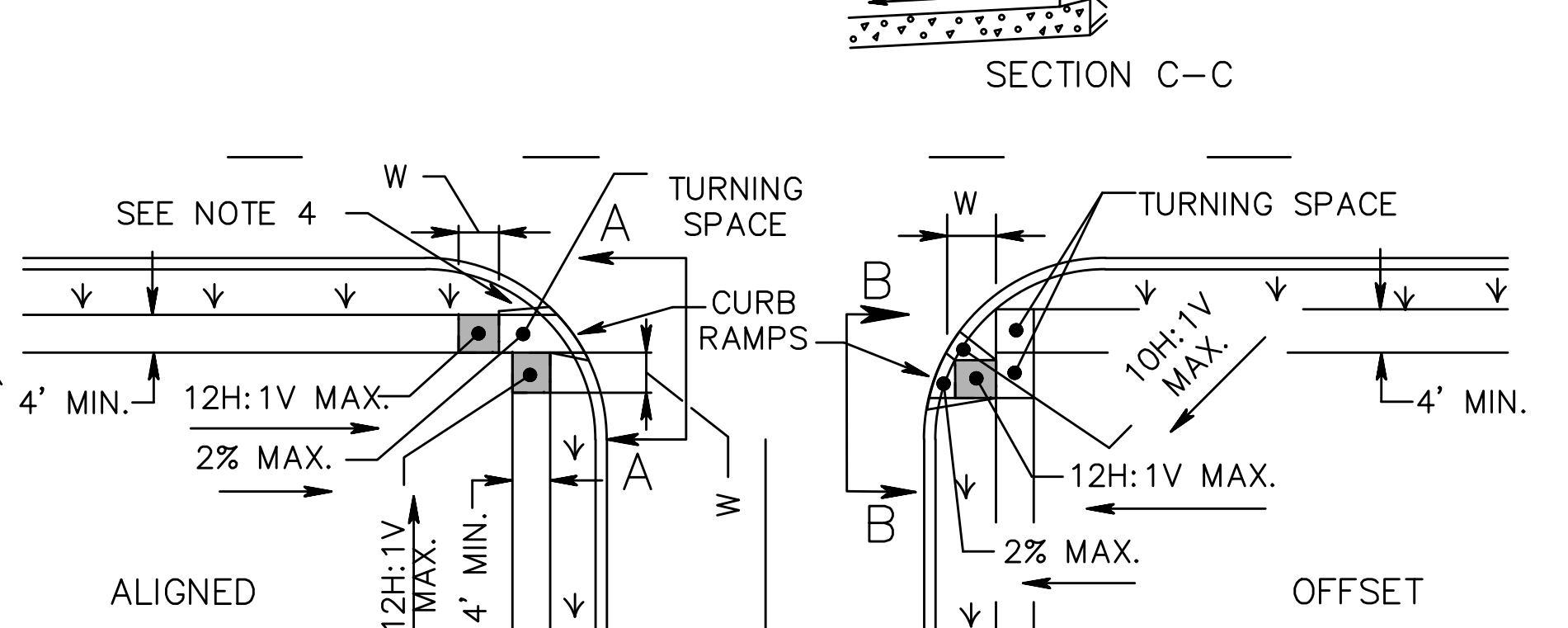
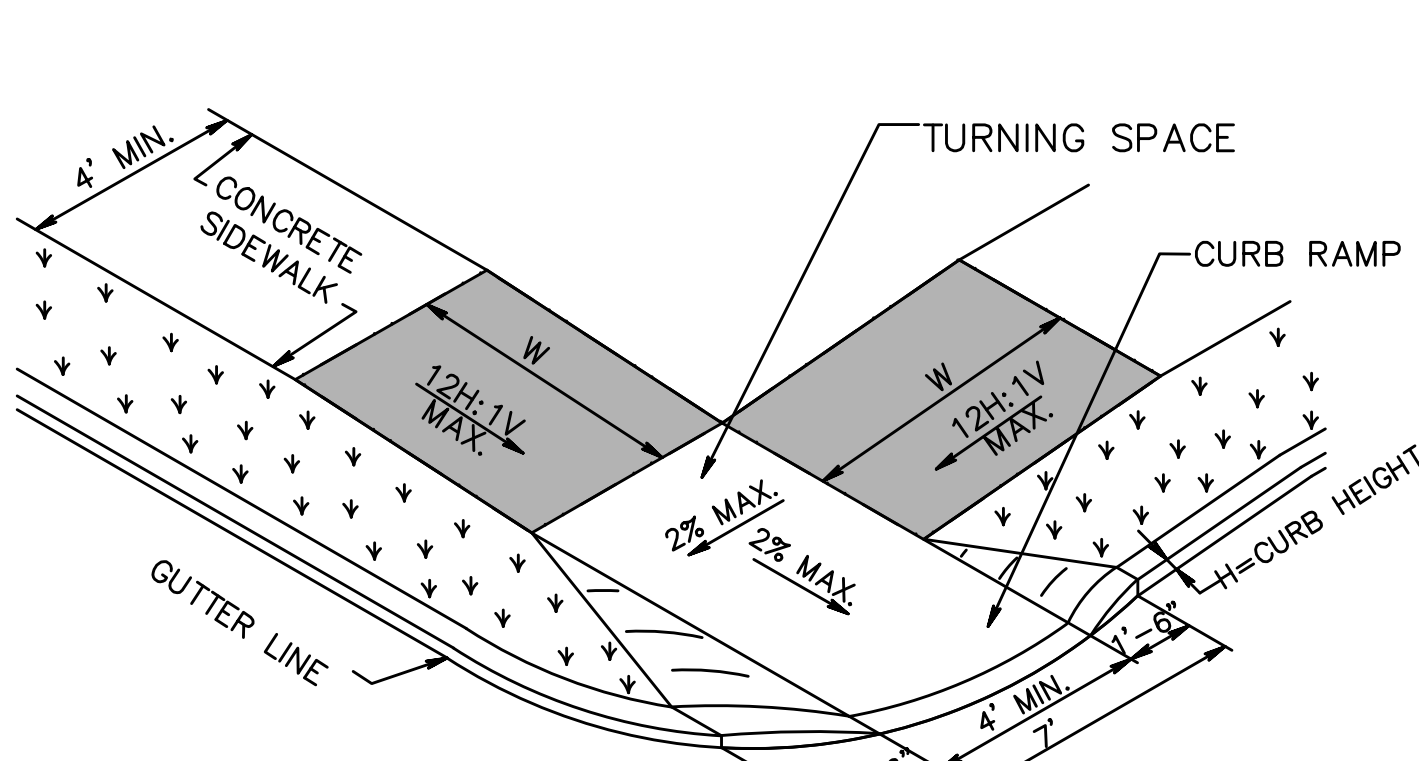
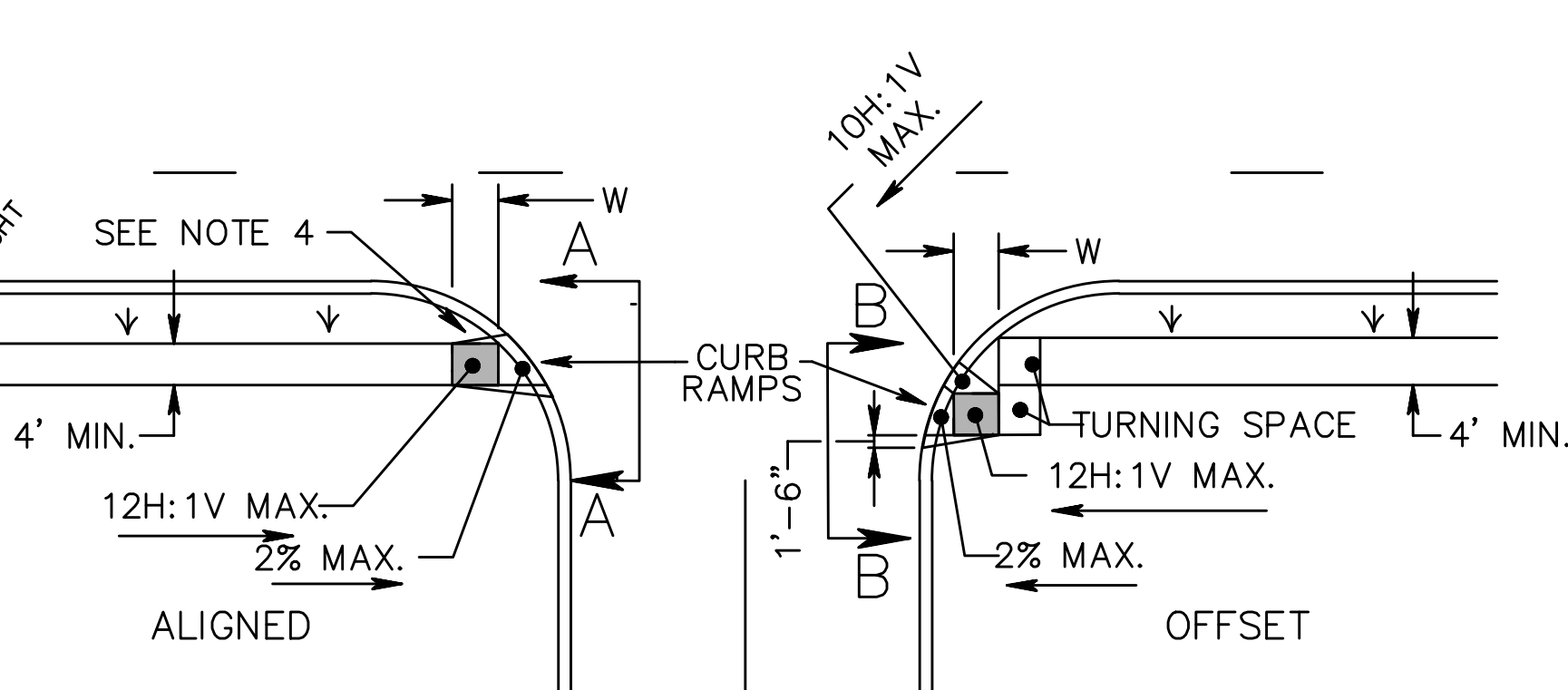
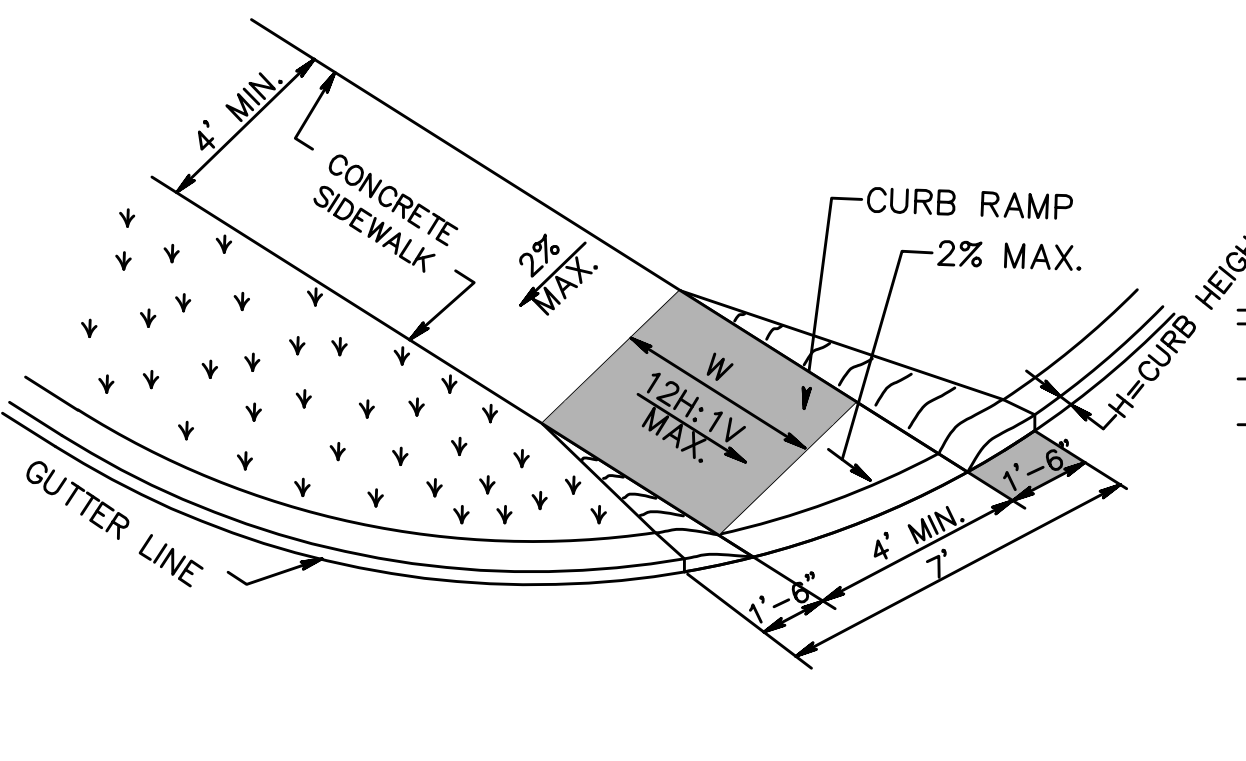
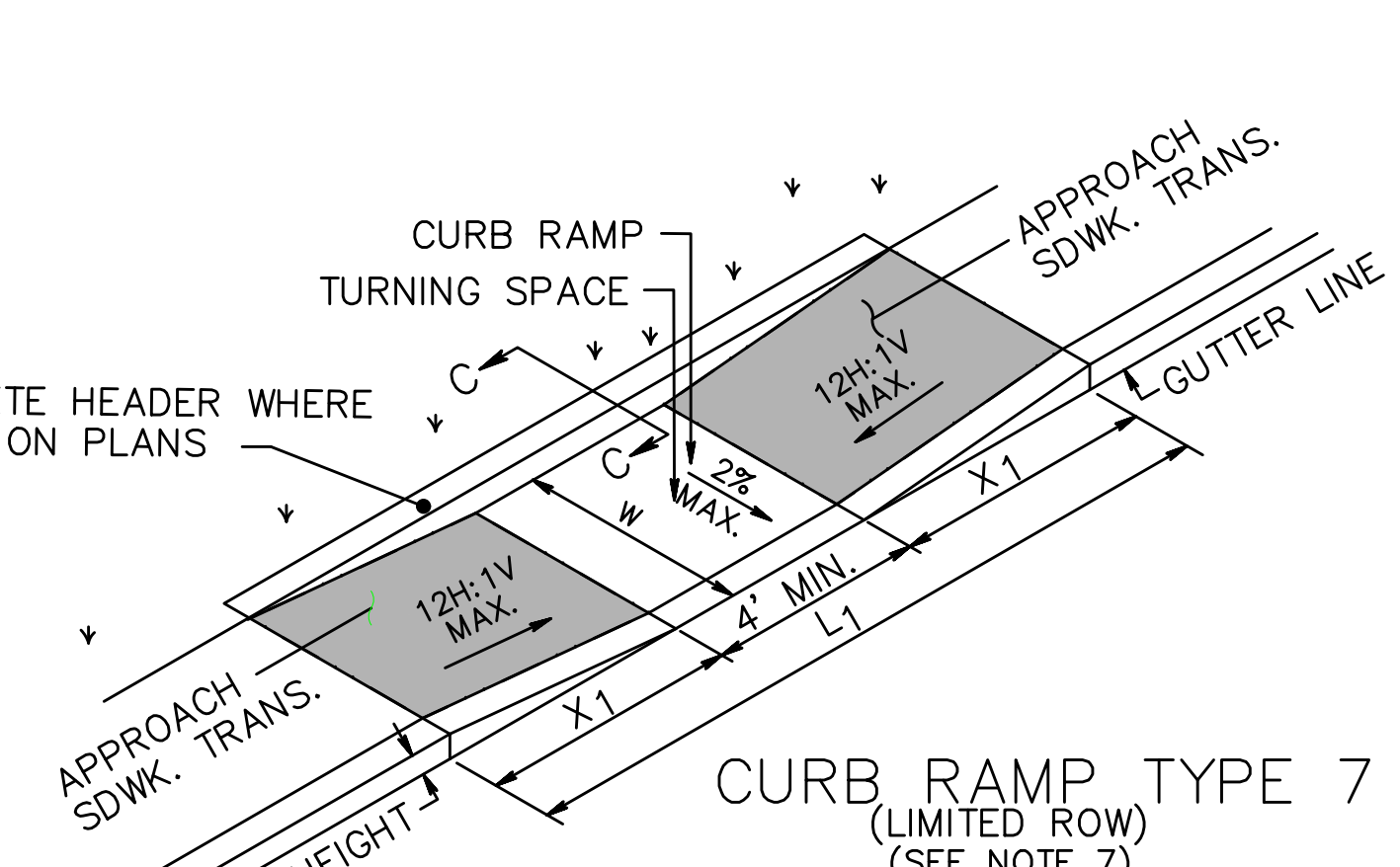
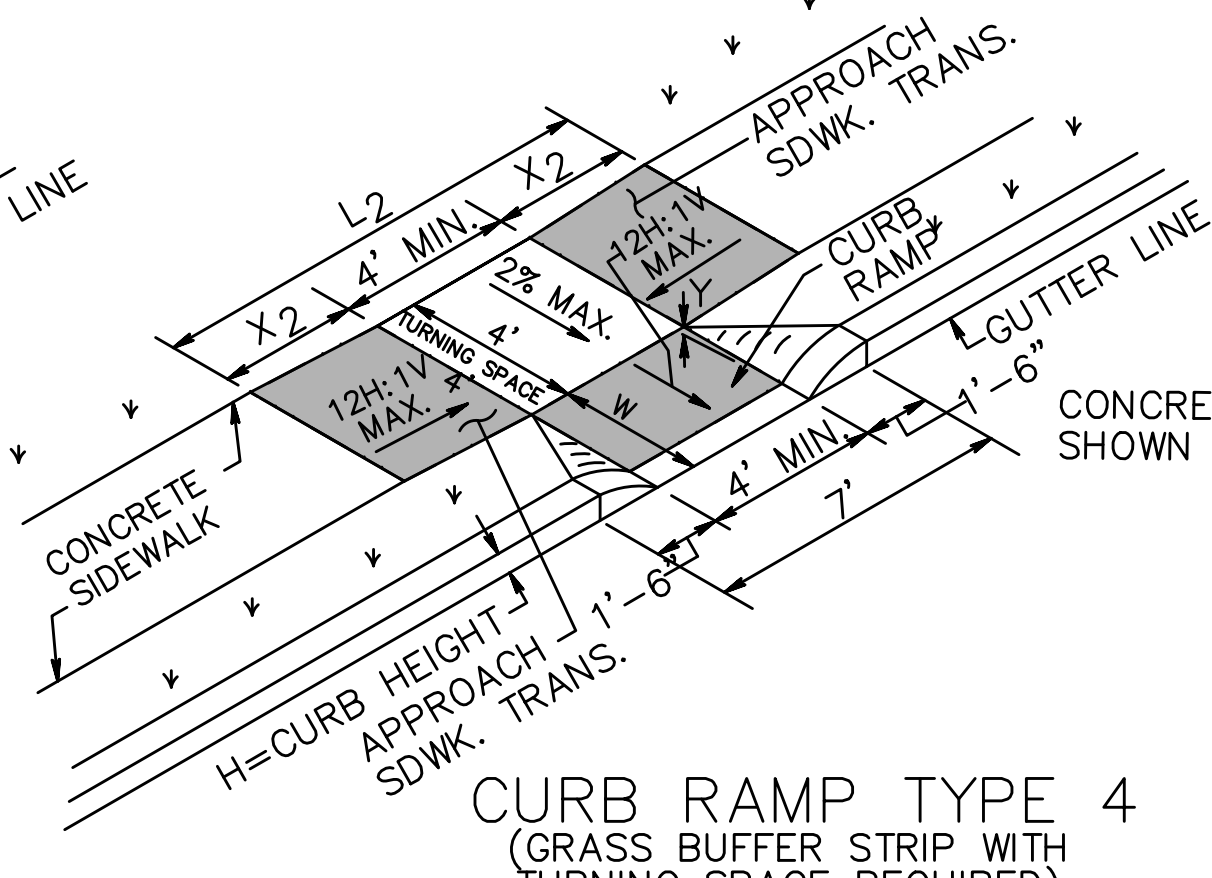
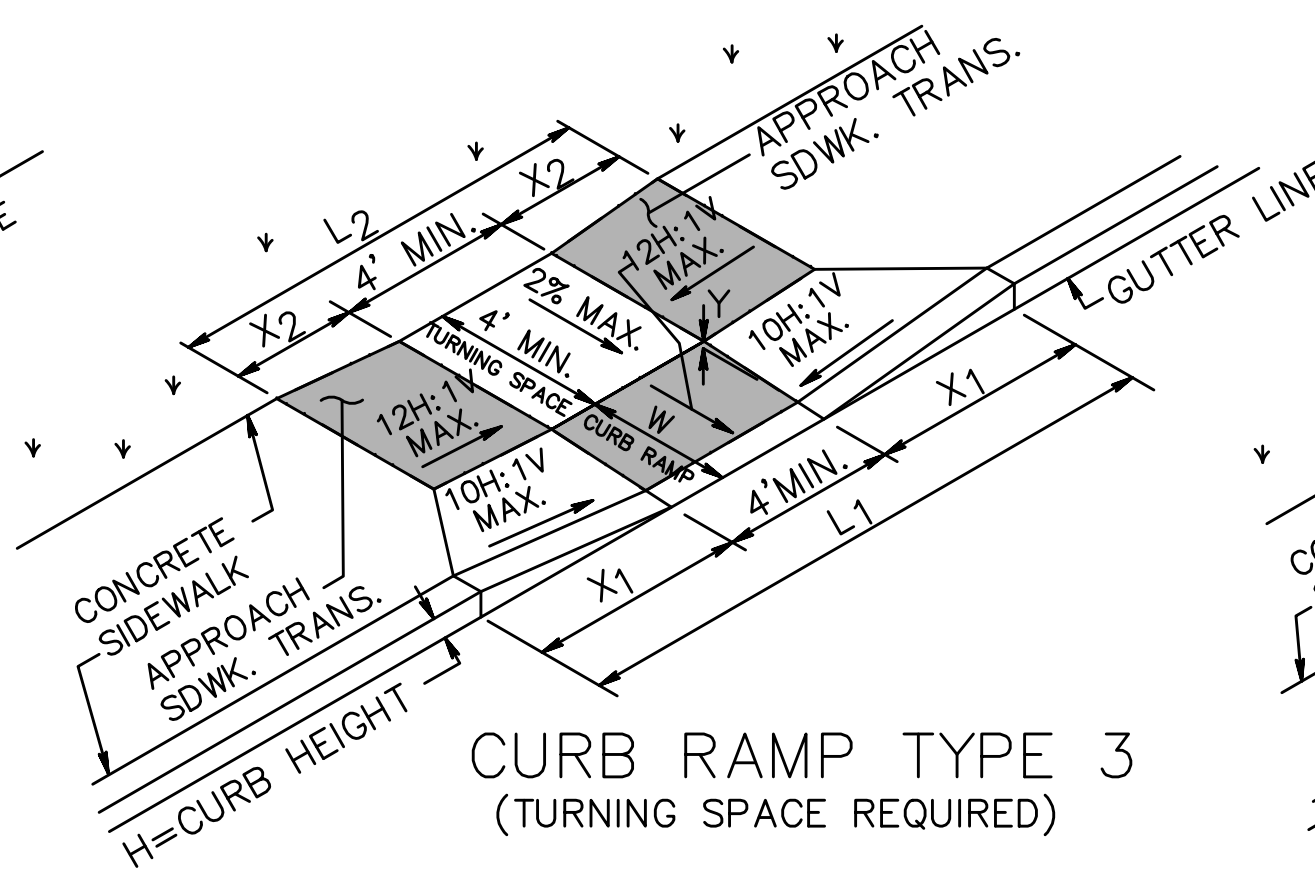
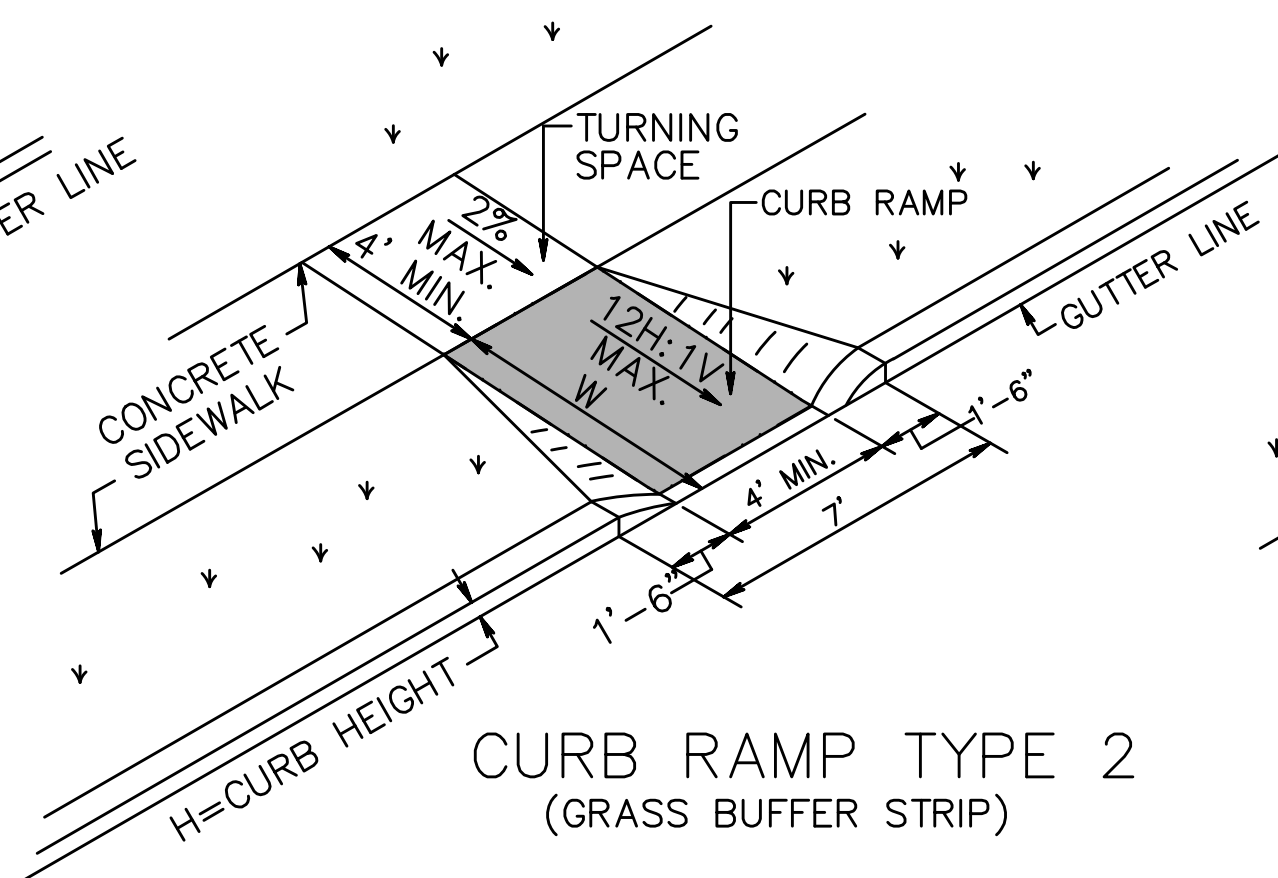
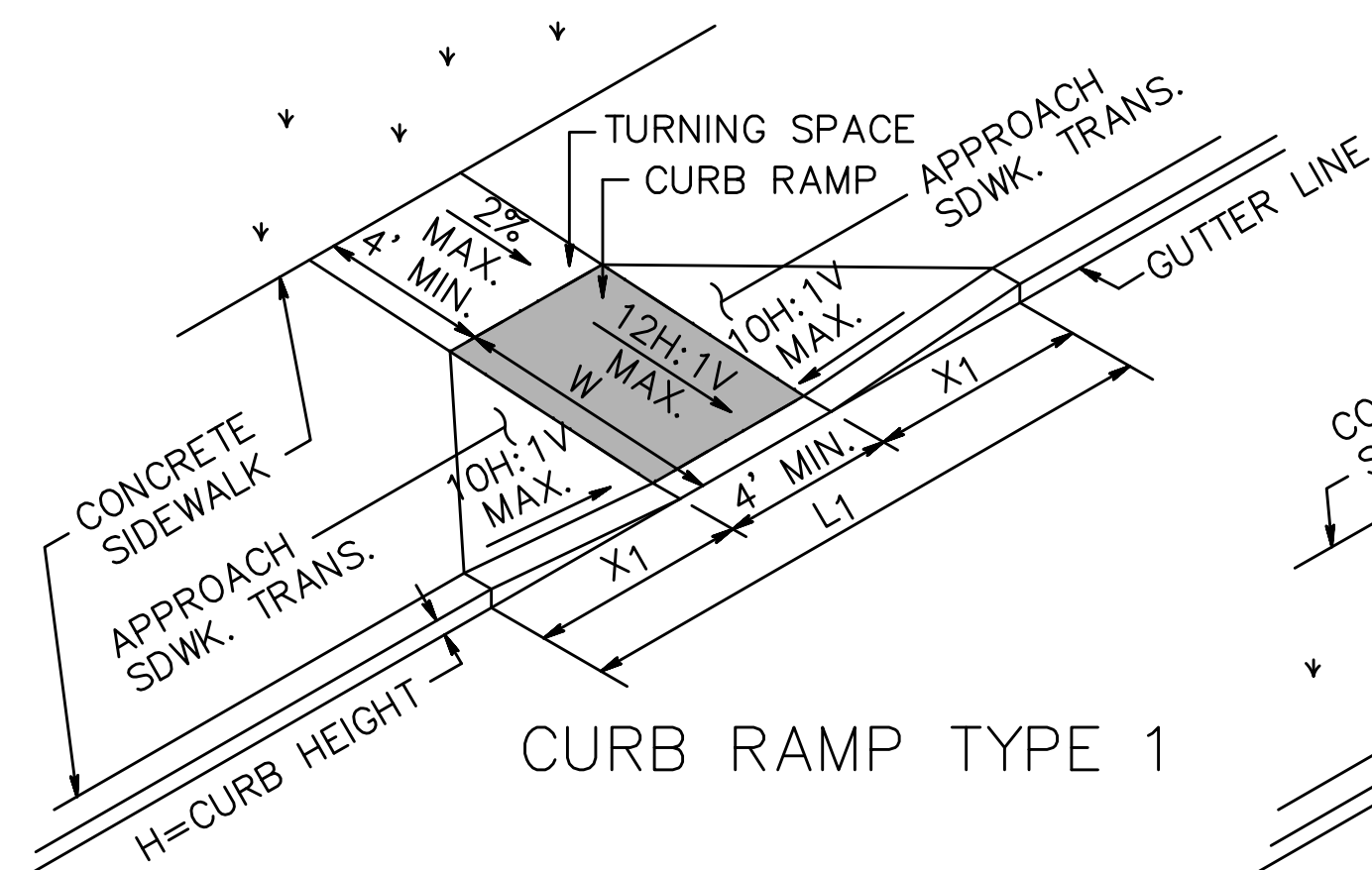
TCD-4

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

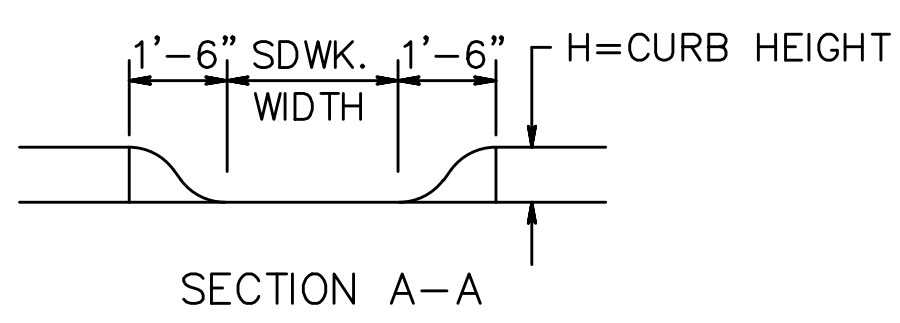
25  
36



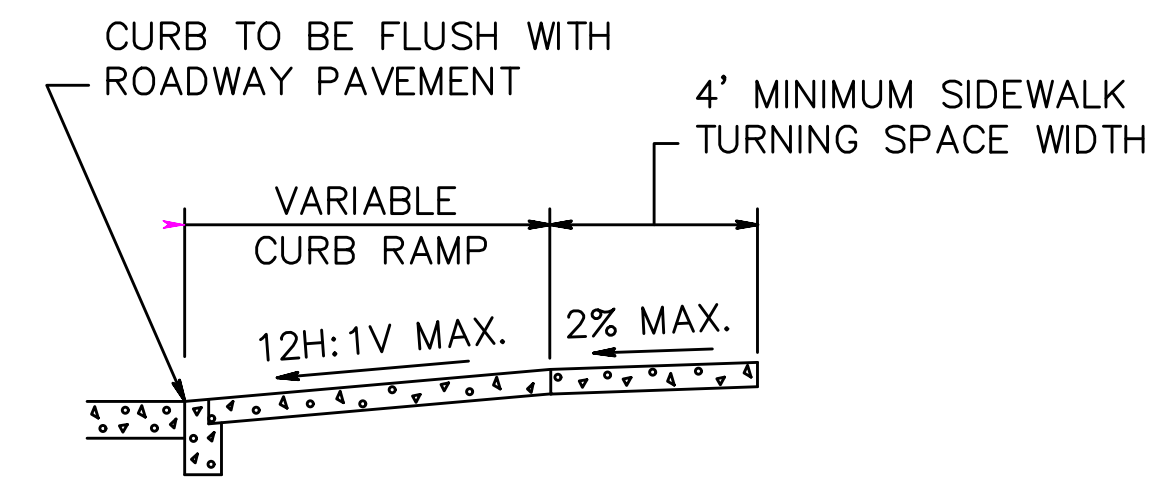
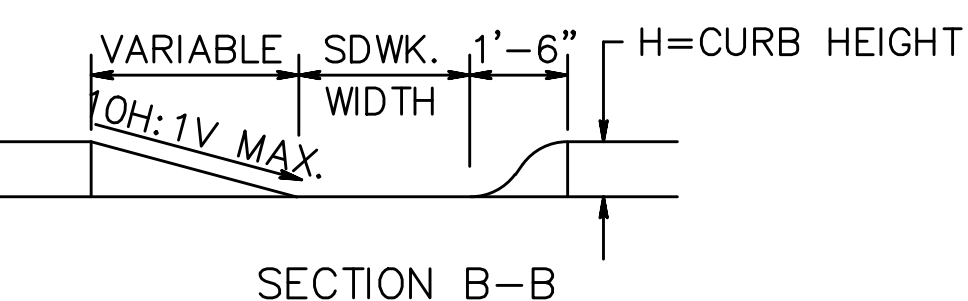


CURB RAMP TYPE 5

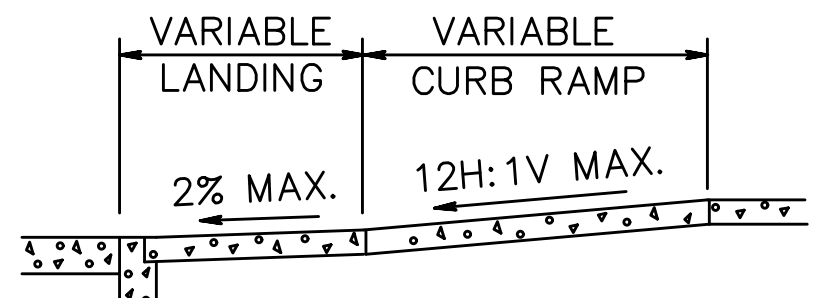
CURB RAMP TYPE 6



NOTE:  
CURB RAMP OPENING TO BE FLUSH WITH ROADWAY PAVEMENT (CURB RAMP TYPES 5 & 6).



SECTION THROUGH CURB RAMPS 1 THROUGH 4

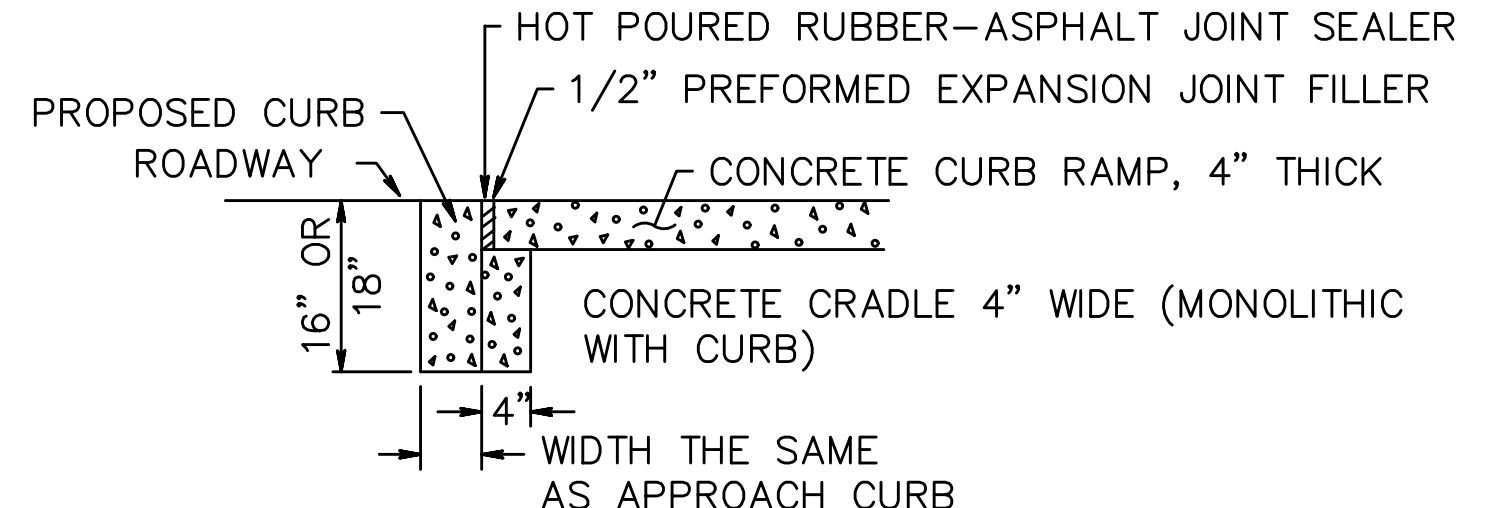


SECTION THROUGH CURB RAMPS 5 AND 6

- NOTES:
1. KEEP TURNING SPACE, APPROACH SIDEWALK TRANSITIONS, AND CURB RAMP CLEAR OF OBSTRUCTIONS THAT PROTRUDE ABOVE THE SIDEWALK.
  2. FOR DIMENSIONS SEE CD-606-1B AND CD-606-1C.
  3. CURB (DROPPED CURB) GUTTERLINE TO BE FLUSH WITH ROADWAY PAVEMENT A MINIMUM OF 4 FEET AT ALL CURB RAMPS.
  4. FOR CURB RAMP TYPES 5 AND 6, IF A GRASS BUFFER DOES NOT EXIST, SLOPE CURB TO EQUAL SLOPE OF ADJACENT CURB RAMP.
  5. SIDEWALK AND CURB RAMP WITHIN AREA ENCLOSED BY HEAVY LINES INDICATES THE PAY LIMIT FOR CONCRETE SIDEWALK OF THE APPROPRIATE ADJACENT THICKNESS.
  6. CURB AND HEADER WITHIN AREA ENCLOSED BY HEAVY LINES INDICATES THE PAY LIMIT FOR VERTICAL CURB OR SLOPING CURB OF THE APPROPRIATE ADJACENT SIZE AND KIND.
  7. WHERE THE DISTANCE FROM THE GUTTER LINE TO THE OUTSIDE EDGE OF SIDEWALK IS 6 FEET OR LESS, USE CURB RAMP TYPE 7, INSTEAD OF CURB RAMP TYPE 1 THROUGH 4.
  8. CROSSWALKS AND STOP LINES MAY BE MARKED OR UNMARKED. SEE PLANS.
  9. DIMENSIONS SHOWN IN TABLES ARE FOR 3 INCH TO 9 INCH CURB HEIGHTS. WHERE THE CURB HEIGHTS ARE OTHER THAN WHAT IS PROVIDED IN THE TABLES, THE DIMENSIONS OF THE RAMPS WILL HAVE TO BE CALCULATED BASED ON CROSS SLOPES SHOWN.
  10. THE 12H:1V MAX SLOPE IS THE RUNNING SLOPE FOR CURB RAMPS, BUT ONLY THE 12H:1V SLOPE MEASURED AS X<sub>2</sub> IS THE RUNNING SLOPE FOR TYPE 3 AND TYPE 4 CURB RAMPS. ENSURE THE RUNNING SLOPE OF CURB RAMPS DOES NOT REQUIRE ITS LENGTH TO EXCEED 15 FEET. THE RUNNING SLOPE MAY EXCEED THE 12H:1V MAX SLOPE SO AS NOT TO EXCEED THE 15 FEET MAXIMUM LENGTH.

CURB RAMP NOTES:

1. THE MAXIMUM CROSS SLOPE OF SIDEWALKS SHALL BE 2%.
2. THE MAXIMUM LONGITUDINAL TRANSITION SLOPE OF SIDEWALKS SHALL BE 5%.
3. THE MAXIMUM LONGITUDINAL SLOPE OF CURB RAMPS SHALL BE 8%.
4. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE ALONG ALL SIDEWALKS, CURB RAMPS AS WELL ADJACENT TO ALL SIDEWALKS. STORMWATER RUNOFF SHALL NOT BE BLOCKED BY SIDEWALKS OR CURBS.
5. FOR TYPE 5 & TYPE 6 RAMPS, LEADING EDGE OF DETECTABLE WARNING SURFACE MUST BE LOCATED A MAXIMUM OF 5 FEET FROM EDGE OF TRAVELWAY - THIS REQUIREMENT MAY WARRANT MULTIPLE DETECTABLE WARNING SURFACES FOR A SINGLE RAMP.
6. THERE MUST BE A MINIMUM OF 24 INCH OF DETECTABLE WARNING SURFACE IN THE DIRECTION OF PEDESTRIAN TRAVEL, THE FULL WIDTH OF THE SIDEWALK - THIS REQUIREMENT MAY WARRANT MULTIPLE DETECTABLE WARNING SURFACES FOR A SINGLE RAMP.
7. A MINIMUM 4' X 4' LANDING AREA, GRADED AT A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS, MUST BE PROVIDED AT THE TOP OF EVERY RAMP.



DROPPED CURB AND CRADLE

CONCRETE SIDEWALK  
(PUBLIC SIDEWALK CURB RAMP)  
N.T.S.

CD-606-1

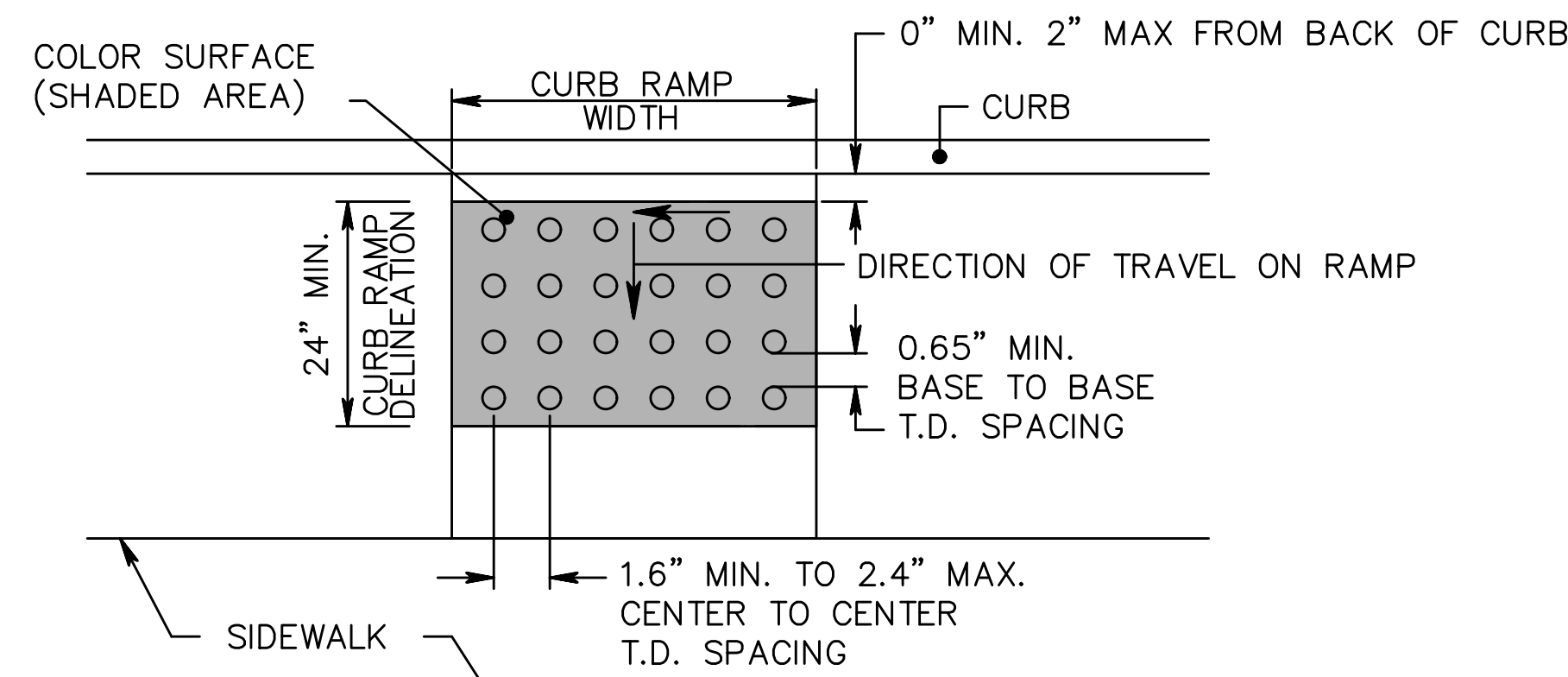
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

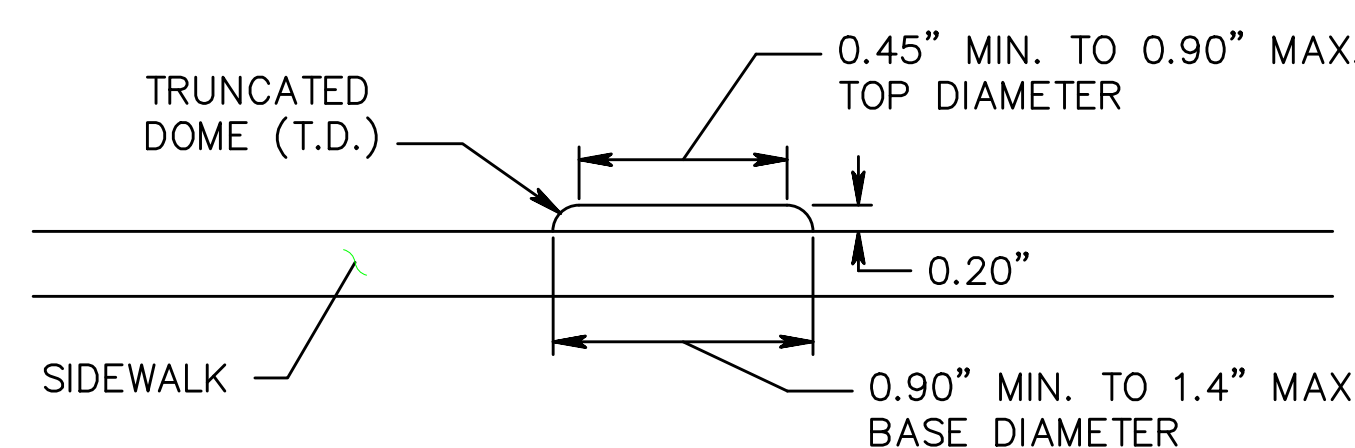
CURB RAMPS

CD-606-1.1



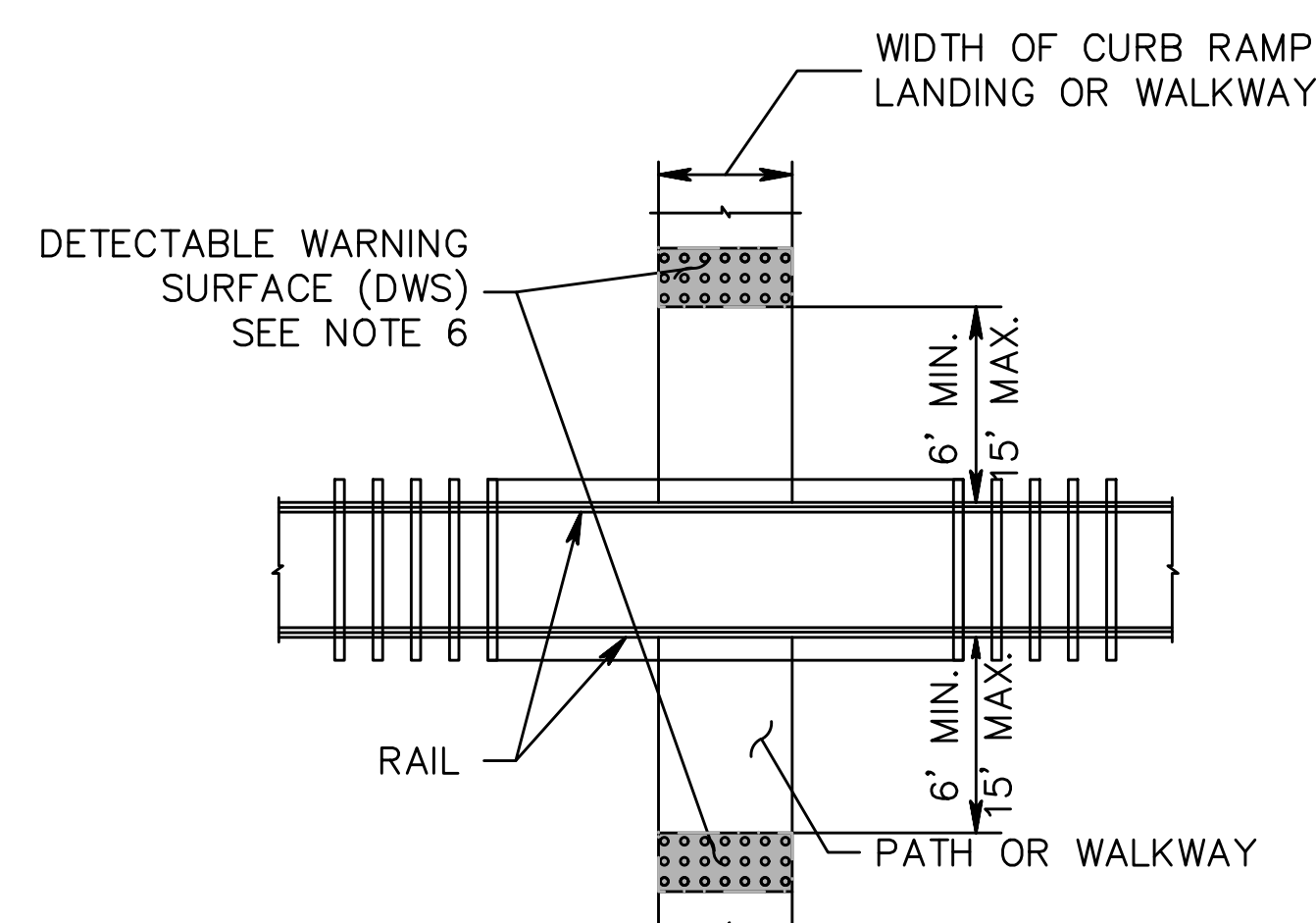
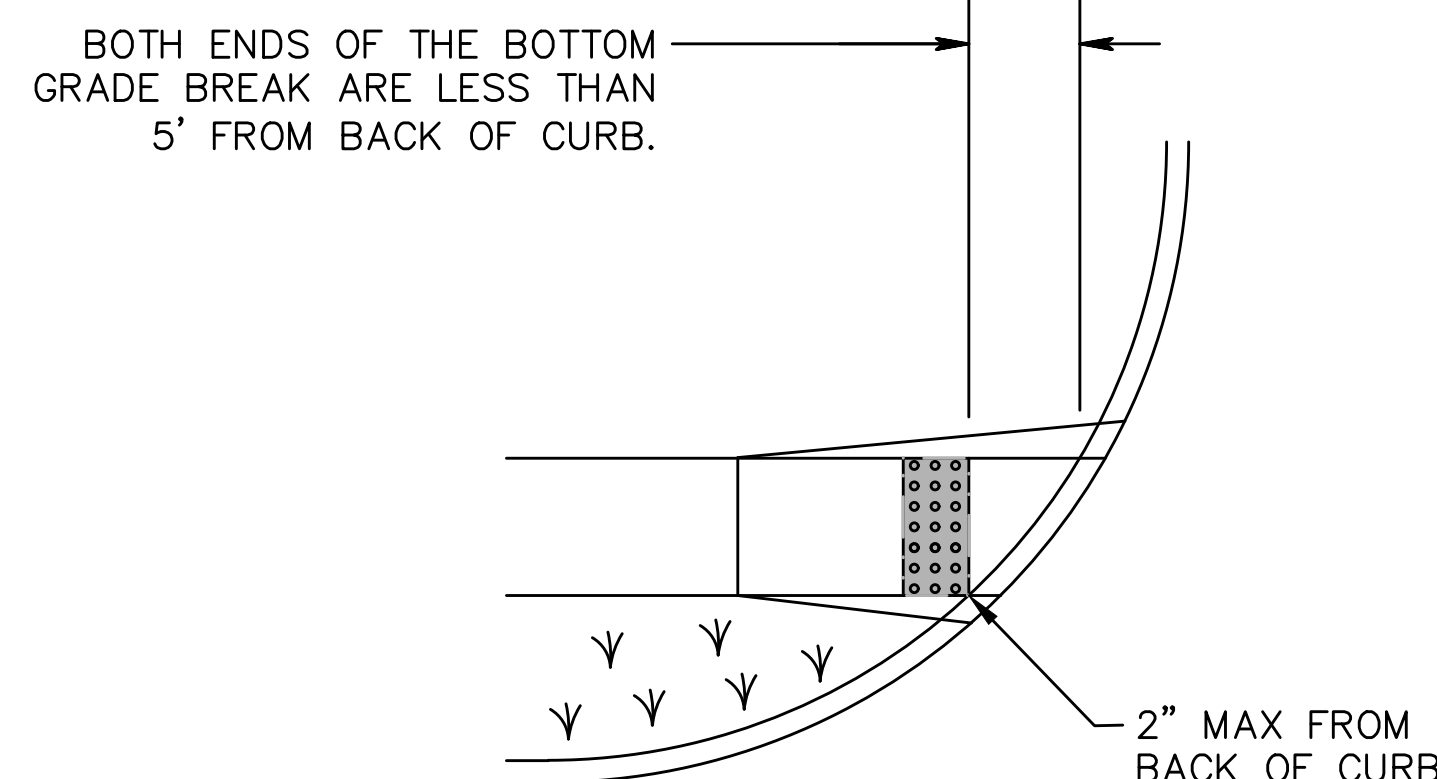


PLAN VIEW

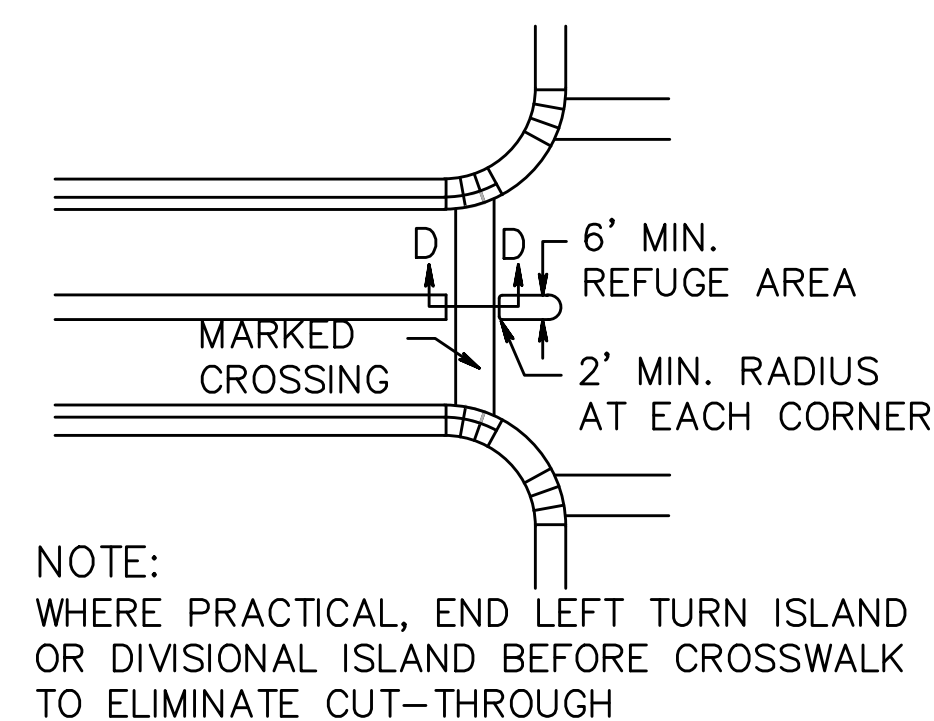


ELEVATION

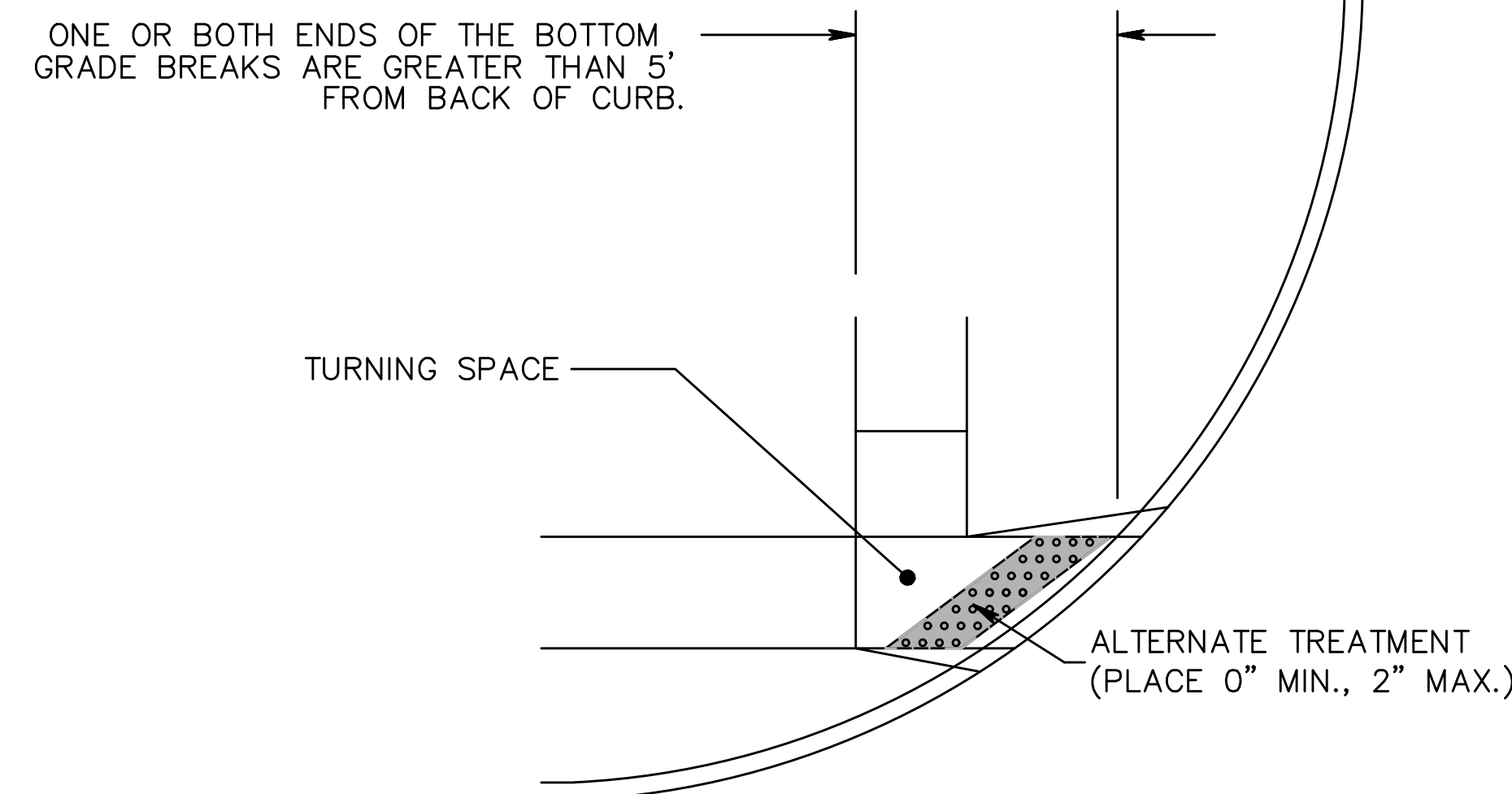
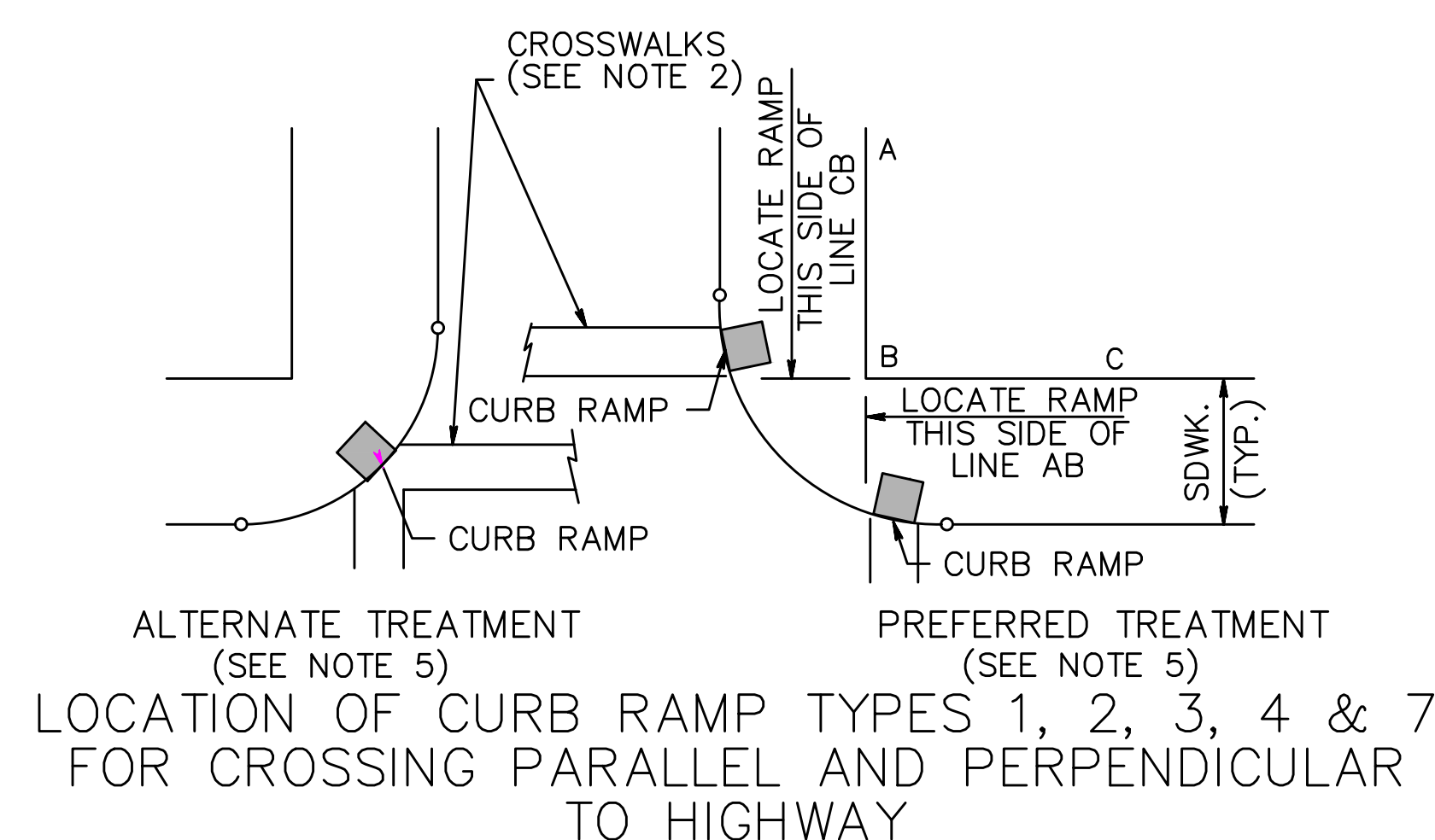
## DETECTABLE WARNING SURFACE



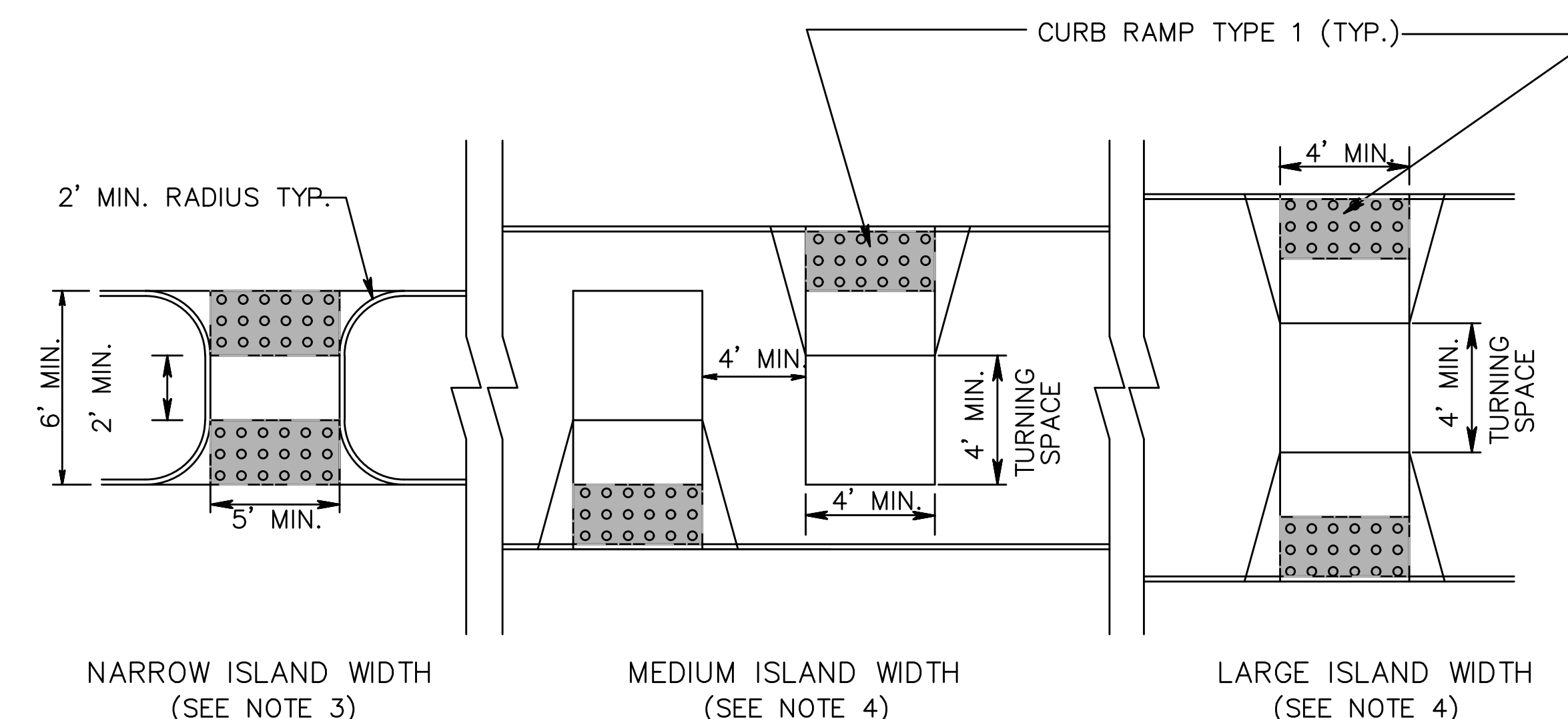
## PEDESTRIAN RAILROAD CROSSING



## PEDESTRIAN REFUGE ISLAND WALKWAY OPENING AT INTERSECTIONS



## PLACEMENT OF DETECTABLE WARNING SURFACE FOR CURB RAMP TYPE 5 AND 6



## PEDESTRIAN REFUGE ISLAND

## DETECTABLE WARNING SURFACE N.T.S.

- NOTES:
1. KEEP TURNING SPACE, APPROACH SIDEWALK TRANSITIONS, AND CURB RAMP CLEAR OF OBSTRUCTIONS THAT PROTRUDE ABOVE THE SIDEWALK.
  2. CROSSWALKS AND STOP LINES MAY BE MARKED OR UNMARKED, SEE PLANS.
  3. FOR NARROW ISLAND WIDTH, SEE PEDESTRIAN REFUGE ISLAND WALKWAY OPENING AT INTERSECTIONS DETAIL.
  4. FOR MEDIUM AND LARGE ISLAND WIDTH, SEE CURB RAMP TYPE 1 ON CD-606-1.
  5. CONSTRUCT CURB RAMP TYPES 1, 2, 3, 4 & 7 PERPENDICULAR TO CURBLINE, AS SHOWN.
  6. IF A CURB RAMP IS REQUIRED, THE LOCATION OF THE DETECTABLE WARNING SURFACE MUST BE AT THE BOTTOM OF THE RAMP AND WITHIN THE REQUIRED DISTANCE FROM THE RAIL.

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS

CD-606-1.1A



CURB RAMP TYPE 1

0.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	2.50	2.50	9.00
4	4	3.33	3.33	10.67
5	5	4.17	4.17	12.33
6	6	5.00	5.00	14.00
7	7	5.83	5.83	15.67
8	8	6.67	6.67	17.33
9	9	7.50	7.50	19.00

1.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	2.78	2.27	9.05
4	4	3.70	3.03	10.73
5	5	4.63	3.79	12.42
6	6	5.56	4.55	14.10
7	7	6.48	5.30	15.78
8	8	7.41	6.06	17.47
9	9	8.33	6.82	19.15

2.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	3.13	2.08	9.21
4	4	4.17	2.78	10.94
5	5	5.21	3.47	12.68
6	6	6.25	4.17	14.42
7	7	7.29	4.86	16.15
8	8	8.33	5.56	17.89
9	9	9.38	6.25	19.63

3.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	3.57	1.92	9.49
4	4	4.76	2.56	11.33
5	5	5.95	3.21	13.16
6	6	7.14	3.85	14.99
7	7	8.33	4.49	16.82
8	8	9.52	5.13	18.65
9	9	10.71	5.77	20.48

4.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	4.17	1.79	9.95
4	4	5.56	2.38	11.94
5	5	6.94	2.98	13.92
6	6	8.33	3.57	15.90
7	7	9.72	4.17	17.89
8	8	11.11	4.76	19.87
9	9	12.50	5.36	21.86

5.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	5.00	1.67	10.67
4	4	6.67	2.22	12.89
5	5	8.33	2.78	15.11
6	6	10.00	3.33	17.33
7	7	11.67	3.89	19.56
8	8	13.33	4.44	21.78
9	9	15.00	5.00	24.00

6.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	6.25	1.56	11.81
4	4	8.33	2.08	14.42
5	5	10.42	2.60	17.02
6	6	12.50	3.13	19.63
7	7	14.58	3.65	22.23
8	8	15.00	4.17	23.17
9	9	15.00	4.69	23.69

0.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	8.33	1.47	13.80
4	4	11.11	1.96	17.07
5	5	13.89	2.45	20.34
6	6	15.00	2.94	21.94
7	7	15.00	3.43	22.43
8	8	15.00	3.92	22.92
9	9	15.00	4.41	23.41

CURB RAMP TYPE 2

0.0% GUTTER LINE PROFILE								
H INCHES	W FEET	X1u FEET	X1L FEET	L1 FEET	Y INCHES	X2u FEET	X2L FEET	L2 FEET
3	2.5	2.50	2.50	9.00	2.5	1.10	1.10	6.20
4		3.33	3.33	10.67		2.10	2.10	8.20
5		4.17	4.17	12.33		3.10	3.10	10.20
6		5.00	5.00	14.00		4.10	4.10	12.20
7		5.83	5.83	15.67		5.10	5.10	14.21
8		6.67	6.67	17.33		6.10	6.10	16.21
9		7.50	7.50	19.00		7.10	7.10	18.21
3	3.0	*	*	*	3.0	*	*	*
4		3.33	3.33	10.67		1.72	1.72	7.44
5		4.17	4.17	12.33		2.72	2.72	9.44
6		5.00	5.00	14.00		3.72	3.72	11.45
7		5.83	5.83	15.67		4.72	4.72	13.45
8		6.67	6.67	17.33		5.72	5.72	15.45
9		7.50	7.50	19.00		6.72	6.72	17.45
3	3.5	*	*	*	3.5	*	*	*
4		3.33	3.33	10.67		1.34	1.34	6.68
5		4.17	4.17	12.33		2.34	2.34	8.68
6		5.00	5.00	14.00		3.34	3.34	10.69
7		5.83	5.83	15.67		4.34	4.34	12.69
8		6.67	6.67	17.33		5.34	5.34	14.69
9		7.50	7.50	19.00		6.34	6.34	16.69
3	4.0	*	*	*	4.0	*	*	*
4		*	*	*		*	*	*
5		4.17	4.17	12.33		1.96	1.96	7.92
6		5.00	5.00	14.00		2.96	2.96	9.93
7		5.83	5.83	15.67		3.96	3.96	11.93
8		6.67	6.67	17.33		4.96	4.96	13.93
9		7.50	7.50	19.00		5.96	5.96	15.93

4.0% GUTTER LINE PROFILE								
H INCHES	W FEET	X1u FEET	X1L FEET	L1 FEET	Y INCHES	X2u FEET	X2L FEET	L2 FEET
3	2.5	4.17	1.79	9.95	2.5	2.12	0.74	6.86
4		5.56	2.38	11.94		4.04	1.42	9.46
5		6.94	2.98	13.92		4.85	2.28	11.13
6		8.33	3.57	15.90		6.41	3.02	13.43
7		9.72	4.17	17.89		7.98	3.75	15.73
8	3.0	11.11	4.76	19.87	3.0	9.54	4.49	18.03
9		12.50	5.36	21.86		11.10	5.22	20.33
3		4.17	1.79	9.95		1.39	0.49	5.88
4		5.56	2.38	11.94		3.31	1.16	4.48
5		6.94	2.98	13.92		5.24	1.84	11.08
6	3.5	8.33	3.57	15.90	3.5	5.24	2.52	13.68
7		9.72	4.17	17.89		9.09	3.19	16.28
8		11.11	4.76	19.87		11.02	3.87	18.88
9		12.50	5.36	21.86		12.94	4.54	21.48
3		*	*	*		*	*	*
4	4.0	5.56	2.38	11.94	4.0	2.58	0.91	7.49
5		6.94	2.98	13.92		4.51	1.58	10.09
6		8.33	3.57	15.90		6.43	2.26	12.69
7		9.72	4.17	17.89		8.36	2.93	15.29
8		11.11	4.76	19.87		10.28	3.61	17.89
9	4.0	12.50	5.36	21.86	4.0	12.20	4.29	20.49
3		*	*	*		*	*	*
4		5.56	2.38	11.94		1.85	0.65	6.50
5		6.94	2.98	13.92		3.78	1.33	9.10
6		8.33	3.57	15.90		5.70	2.00	11.70
7	4.0	9.72	4.17	17.89	4.0	7.62	2.68	14.30
8		11.11	4.76	19.87		9.55	3.35	16.90
9		12.50	5.36	21.86		11.47	4.03	19.50

CURB RAMP TYPE 2

0.0% GUTTER LINE PROFILE				
H INCHES	W FEET	X1u FEET	X1L FEET	Lz FEET
3	3	1.50	1.50	7.00
4	4	1.50	1.50	7.00
5	5	1.50	1.50	7.00
6	6	1.50	1.50	7.00
7	7	1.50	1.50	7.00
8	8	1.50	1.50	7.00
9	9	1.50	1.50	7.00

1.0% GUTTER LINE PROFILE								
H INCHES	W FEET	X1u FEET	X1L FEET	L1 FEET	Y INCHES	X2u FEET	X2L FEET	L2 FEET
3	2.5	2.78	2.27	9.05	2.5	1.25	0.98	6.24
4		3.70	3.03	10.73		2.39	1.18	8.27
5		4.63	3.79	12.42		3.53	2.77	10.30
6		5.56	4.55	14.10		4.66	3.66	12.33
7		6.48	6.06	15.78		5.80	4.56	14.36
8	3.0	7.41	6.06	17.47	3.0	6.94	5.45	16.39
9		8.33	6.82	19.15		8.07	6.34	18.42
3		2.78	2.27	9.05		0.82	0.64	5.46
4		3.70	3.03	10.73		1.96	1.54	7.49
5		4.63	3.79	12.42		3.09	2.43	9.52
6	3.5	5.56	4.55	14.10	3.5	4.23	3.32	11.55
7		6.48	6.06	15.78		4.23	4.22	13.58
8		7.41	6.06	17.47		5.37	5.11	15.61
9		8.33	6.82	19.15		7.64	6.00	17.64
33		*	*	*		*	*	*
4	4.0	3.70	3.03	10.73	4.0	1.53	1.20	6.72
5		4.63	3.79	12.42		2.66	2.09	8.75
6		5.56	4.55	14.10		3.80	2.98	10.78
7		6.48	6.06	15.78		4.94	3.88	12.81
8		7.41	6.06	17.47		6.07	4.77	14.84
9	4.0	8.33	6.82	19.15	7.21	5.66	16.87	
33	4.0	*	*	*	4.0	*	*	*
4		3.70	3.03	10.73		1.09	0.86	5.95
5		4.63	3.79	12.42		2.23	1.75	7.98
6		5.56	4.55	14.10		3.37	2.65	10.01
7		6.48	6.06	15.78		4.50	3.54	12.04
8	4.0	7.41	6.06	17.47	4.0	5.64	4.43	14.07
9		8.33	6.82	19.15		6.78	5.32	16.01



CURB RAMP TYPE 4

0.0% GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X2u FEET	X2L FEET	Lz FEET
3	2.5	2.5	1.10	1.10	6.20
4			2.10	2.10	8.20
5			3.10	3.10	10.20
6			4.10	4.10	12.20
7			5.10	5.10	14.21
8			6.10	6.10	16.21
9			7.10	7.10	18.21
3	3.0	3.0	**	**	**
4			1.72	1.72	7.44
5			2.72	2.72	9.44
6			3.72	3.72	11.45
7			4.72	4.72	13.45
8			5.72	5.72	15.45
9			6.72	6.72	17.45
3	3.5	3.5	**	**	**
4			1.34	1.34	6.68
5			2.34	2.34	8.68
6			3.34	3.34	10.69
7			4.34	4.34	12.69
8			5.34	5.34	14.69
9			6.34	6.34	16.69
3	4.0	4.0	**	**	**
4			**	**	**
5			1.96	1.96	7.92
6			2.96	2.96	9.93
7			3.96	3.96	11.93
8			4.96	4.96	13.93
9			5.96	5.96	15.93

4.0% GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X2u FEET	X2L FEET	Lz FEET
3	2.5	2.5	2.12	0.74	6.86
4			4.04	1.42	9.46
5			5.97	2.10	12.06
6			7.89	2.77	14.66
7			9.82	3.45	17.26
8			11.74	4.12	19.87
9			13.67	4.80	22.47
3	3.0	3.0	1.39	0.49	5.88
4			3.31	1.16	8.48
5			5.24	1.84	11.08
6			7.16	2.52	13.68
7			9.09	3.19	16.28
8			11.01	3.87	18.88
9			12.94	4.54	21.48
3	3.5	3.5	0.66	0.23	4.89
4			2.58	0.91	7.49
5			4.51	1.58	10.09
6			6.43	2.26	12.69
7			8.36	2.93	15.29
8			10.28	3.61	17.89
9			12.20	4.29	20.49
3	4.0	4.0	**	**	**
4			1.85	0.65	6.50
5			3.78	1.33	9.10
6			5.70	2.00	11.70
7			7.62	2.68	14.30
8			9.55	3.35	16.90
9			11.47	4.03	19.50

1.0% GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X2u FEET	X2L FEET	Lz FEET
3	2.5	2.5	1.25	0.98	6.24
4			2.39	1.88	8.27
5			3.53	2.77	10.30
6			4.66	3.66	12.33
7			5.80	4.56	14.36
8			6.94	5.45	16.39
9			8.07	6.34	18.42
3	3.0	3.0	0.82	0.64	5.46
4			1.96	1.54	7.49
5			3.09	2.43	9.52
6			4.23	3.32	11.55
7			5.37	4.22	13.58
8			6.50	5.11	15.61
9			7.64	6.00	17.64
3	3.5	3.5	0.39	0.30	4.69
4			1.53	1.20	6.72
5			2.66	2.09	8.75
6			3.80	2.98	10.78
7			4.94	3.88	12.81
8			6.07	4.77	14.84
9			7.21	5.66	16.87
3	4.0	4.0	**	**	**
4			1.09	0.86	5.95
5			2.23	1.75	7.98
6			3.37	2.65	10.01
7			4.50	3.54	12.04
8			5.64	4.43	14.07
9			6.78	5.32	16.10

5.0% GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X2u FEET	X2L FEET	Lz FEET
3	2.5	2.5	2.76	0.69	7.44
4			5.26	1.31	10.57
5			7.76	1.94	13.70
6			10.26	2.56	16.83
7			12.77	3.19	19.95
8			15.00	3.81	22.81
9			15.00	4.44	23.44
3	3.0	3.0	1.80	0.45	6.26
4			4.31	1.08	9.38
5			6.81	1.70	12.51
6			9.31	2.33	15.64
7			11.81	2.95	18.77
8			14.32	3.58	21.89
9			15.00	3.87	23.20
3	3.5	3.5	0.85	0.21	5.07
4			3.36	0.84	8.20
5			5.86	1.46	11.32
6			8.36	2.09	14.45
7			10.86	2.71	17.58
8			13.37	3.34	20.71
9			15.00	3.96	22.96
3	4.0	4.0	**	**	**
4			2.41	0.60	7.01
5			4.91	1.23	10.14
6			7.41	1.85	13.26
7			9.91	2.48	16.39
8			12.42	3.10	19.52
9			14.92	3.73	22.65

2.0% GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X2u FEET	X2L FEET	Lz FEET
3	2.5	2.5	1.45	0.89	6.34
4			2.77	1.69	8.46
5			4.08	2.50	10.58
6			5.40	3.31	12.71
7			6.72	4.12	14.83
8			8.03	4.92	16.95
9			9.35	5.73	19.08
3	3.0	3.0	0.95	0.58	5.53
4			2.27	1.39	7.65
5			3.58	2.20	9.78
6			4.90	3.00	11.90
7			6.22	3.81	14.02
8			7.53	4.62	16.15
9			8.85	5.42	18.27
3	3.5	3.5	0.45	0.28	4.72
4			1.77	1.08	6.85
5			3.08	1.89	8.97
6			4.40	2.70	11.09
7			5.72	3.50	13.22
8			7.03	4.31	15.34
9			8.35	5.12	17.46
3	4.0	4.0	**	**	**
4			1.27	0.78	6.04
5			2.58	1.58	8.16
6			3.90	2.39	10.29
7			5.22	3.20	12.41
8			6.53	4.00	14.53
9			7.85	4.81	16.66

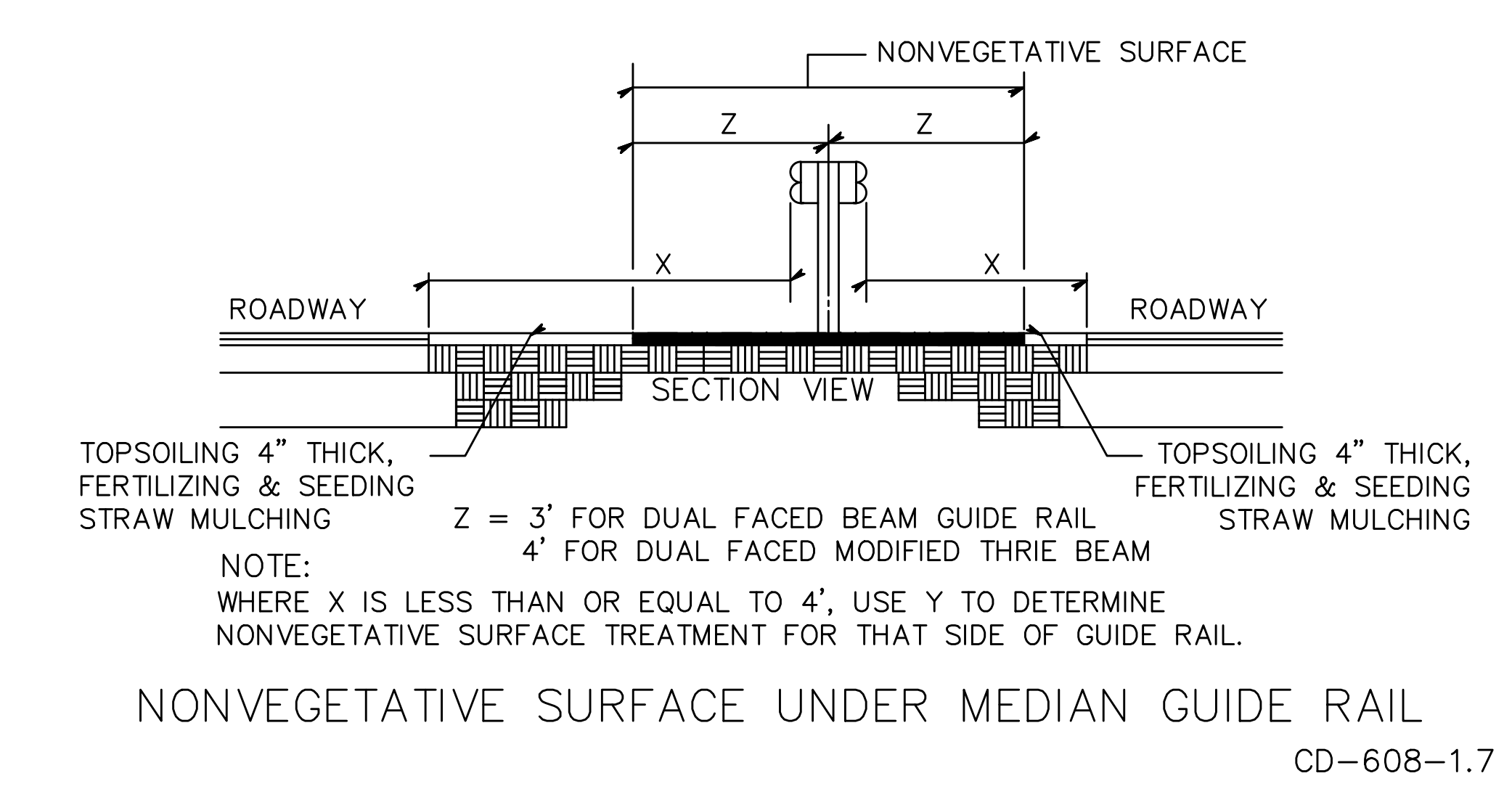
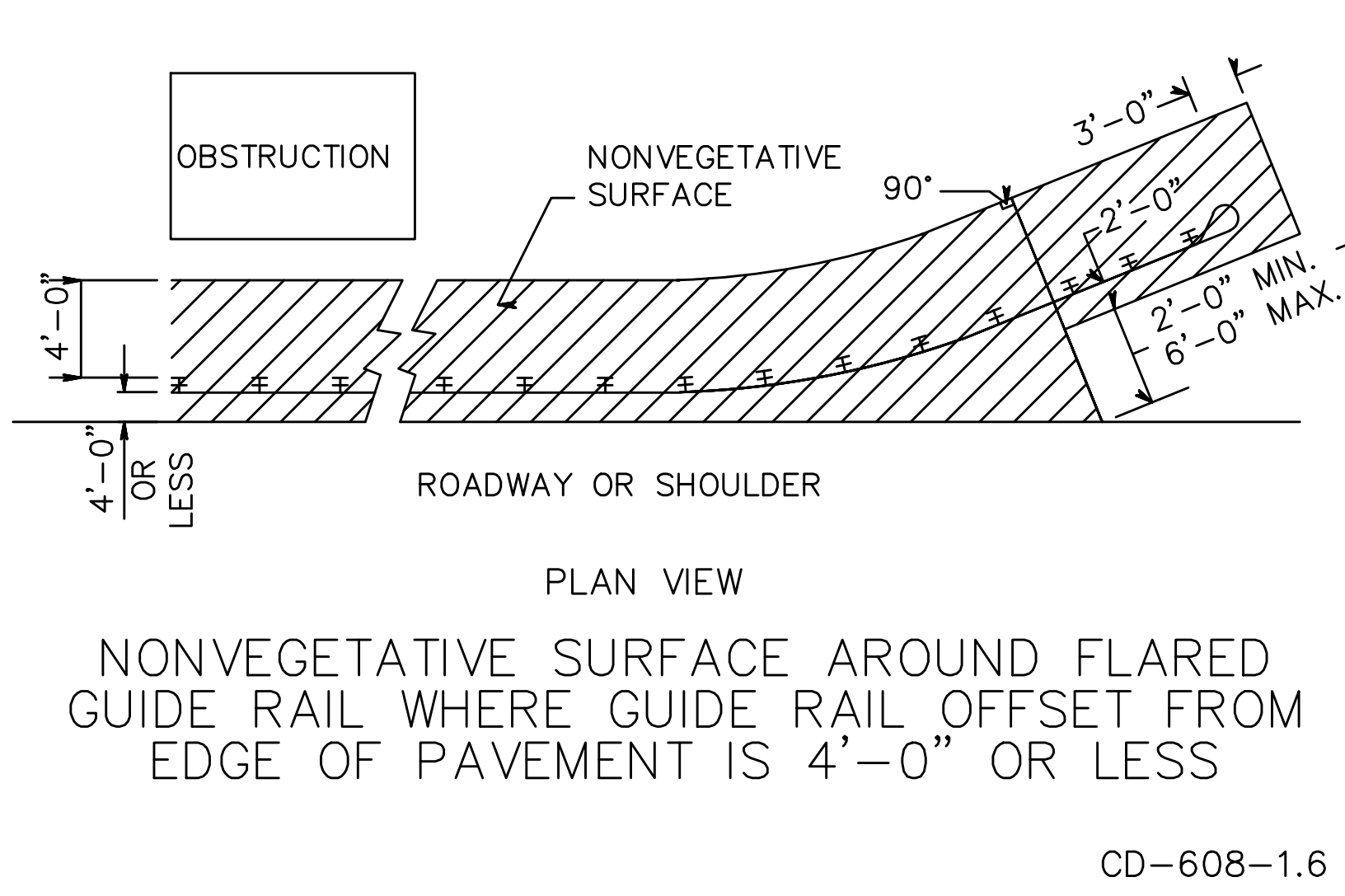
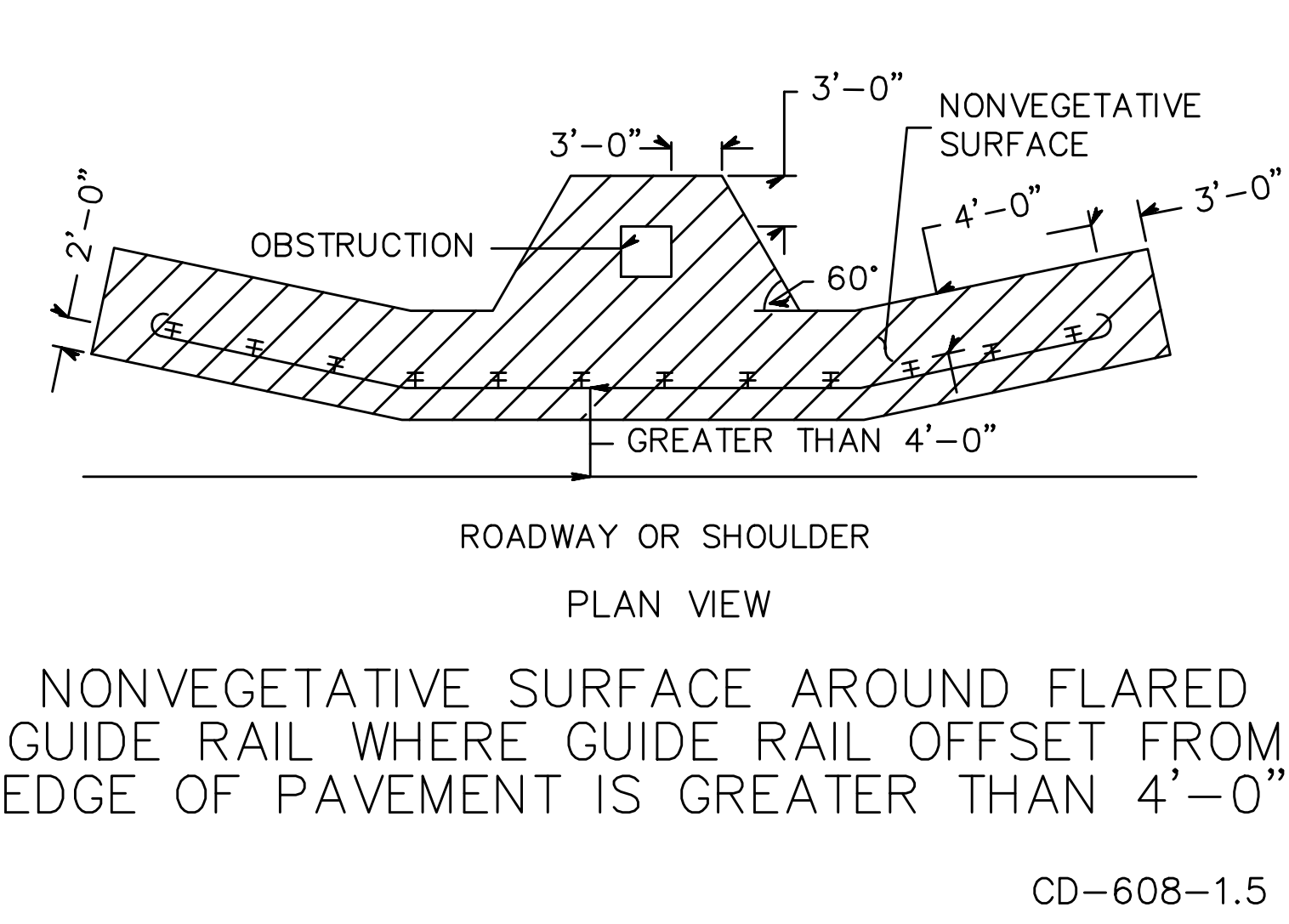
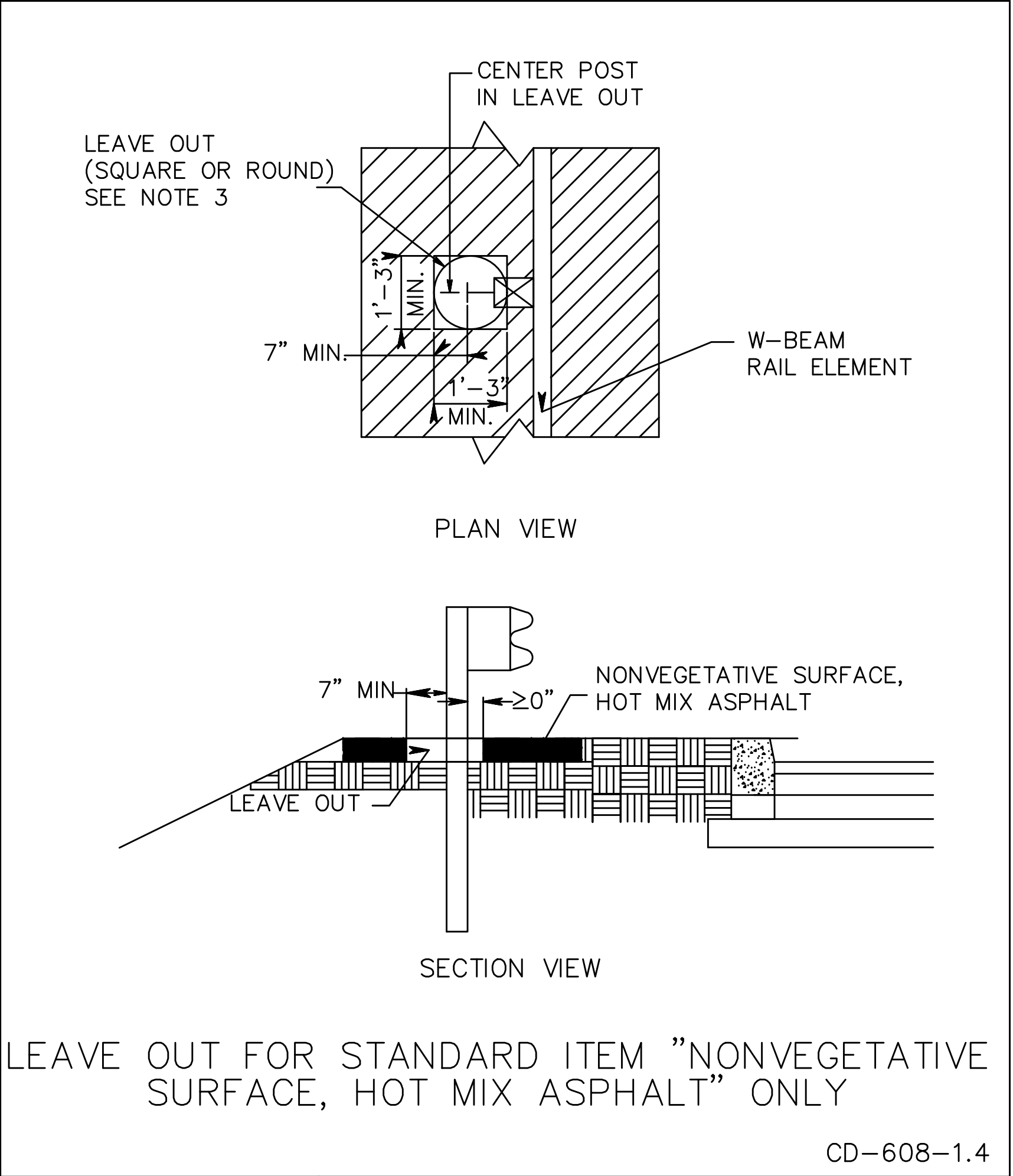
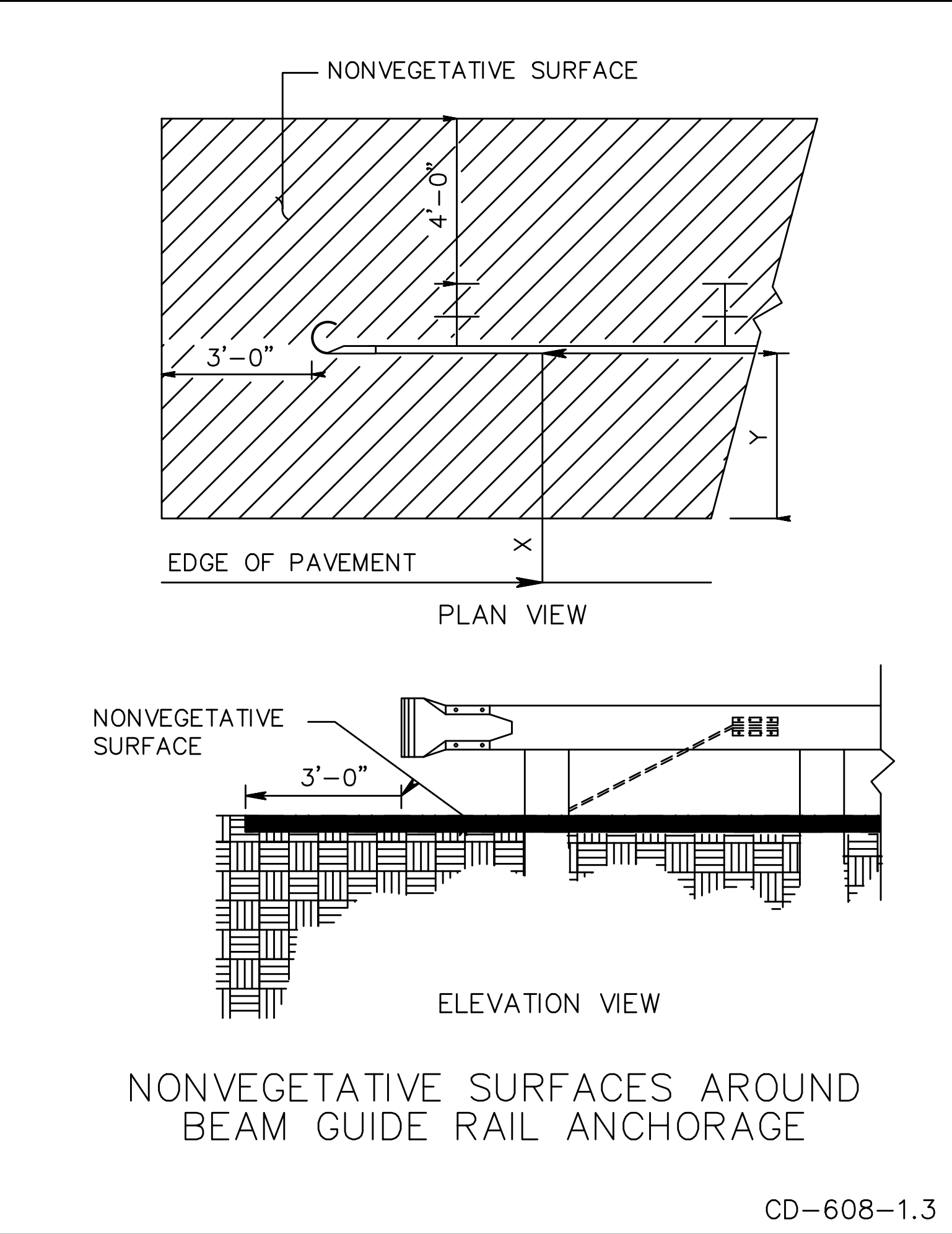
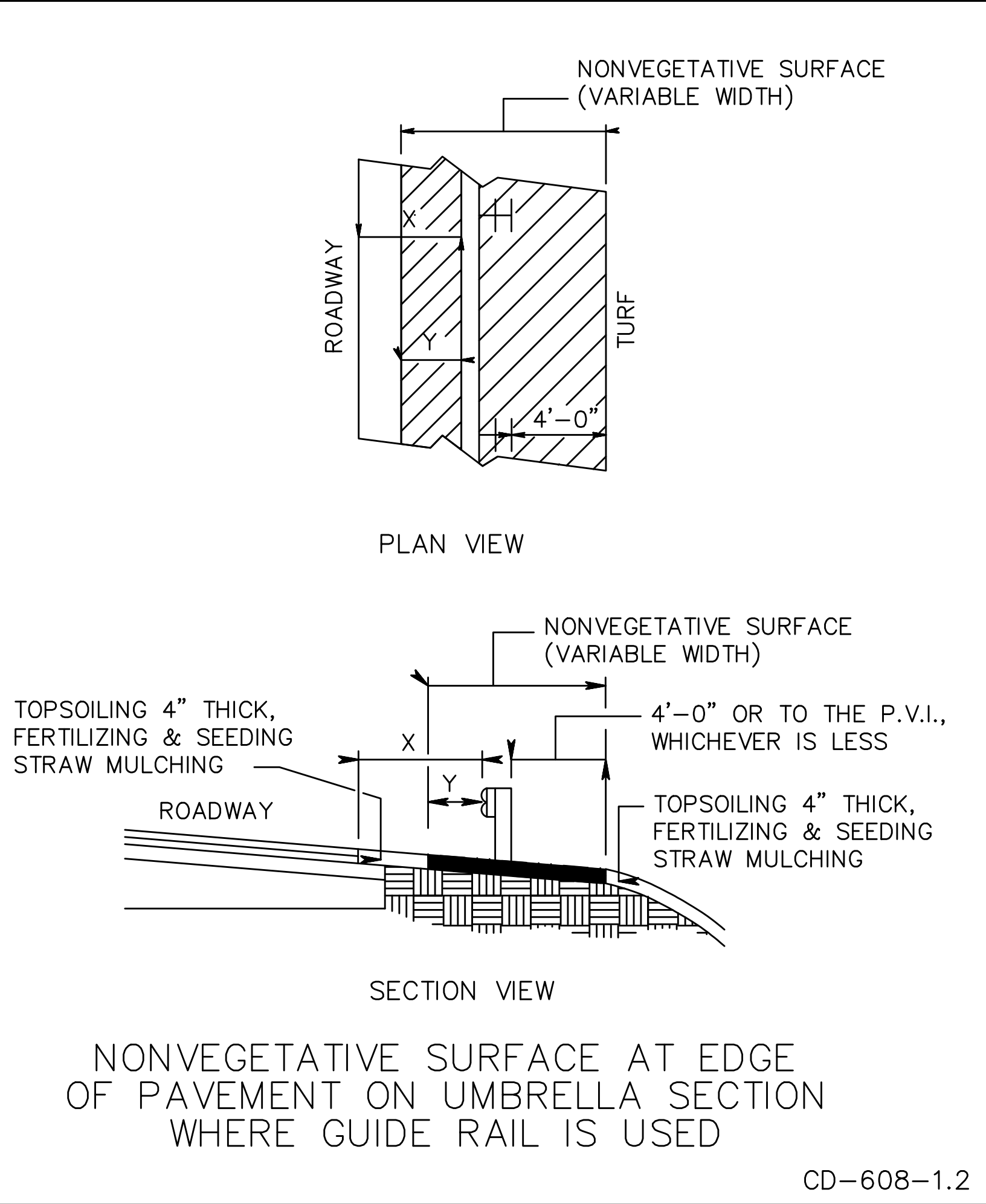
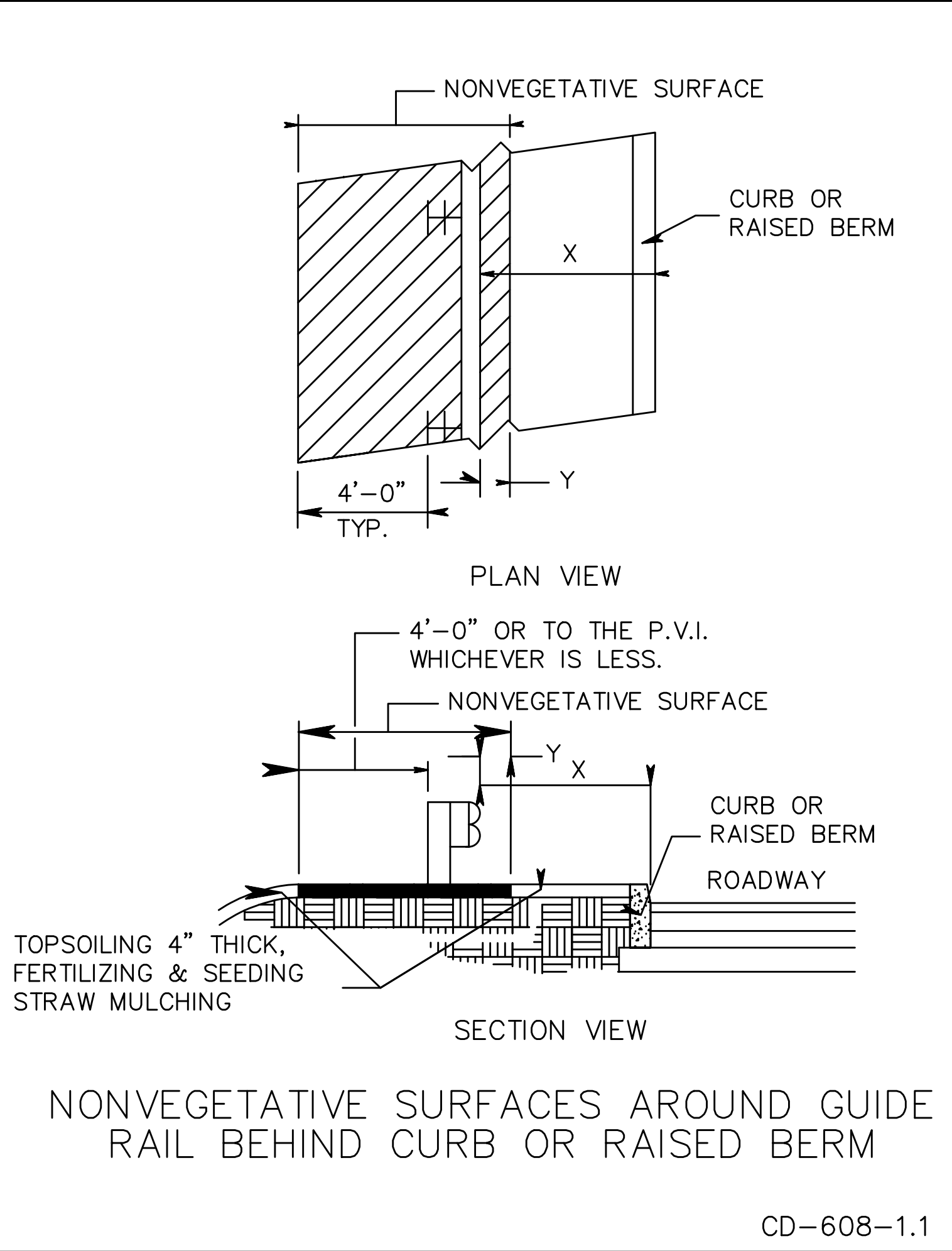
6.0% GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X2u FEET	X2L FEET	Lz FEET
3	2.5	2.5	3.94	0.64	8.58
4			7.51	1.22	12.74
5			11.09	1.80	16.89
6			14.67	2.38	21.05
7			15.00	2.97	21.97
8			15.00	3.55	22.55
9			15.00	4.13	23.13
3	3.0	3.0	2.58	0.42	7.0
4			6.16	1.00	11.16
5			9.73	1.58	15.31
6			13.31	2.16	19.47
7			15.00	2.75	21.75
8			15.00	3.33	22.33
9			15.00	3.91	22.91
3	3.5	3.5	1.22	0.20	5.42
4			4.80	0.78	9.58
5			8.37	1.36	13.74
6			11.95	1.94	17.89
7			15.00	2.52	21.52
8			15.00	3.11	22.11
9			15.00	3.69	22.69
3	4.0	4.0	**	**	**
4			3.44	0.56	8.00
5			7.02	1.14	12.16
6			10.59	1.72	16.31
7			14.17	2.30	20.47
8			15.00	2.89	21.89
9			15.00	3.47	22.47

3.0% GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X2u FEET	X2L FEET	Lz FEET
3	2.5	2.5	1.72	0.81	6.53
4			3.28	1.55	8.83
5			4.85	2.28	11.13
6			6.41	3.02	13.43
7			7.98	3.75	15.73
8			9.54	4.49	18.03
9			11.10	5.22	20.33
3	3.0	3.0	1.13	0.53	5.66
4			2.69	1.27	7.96
5			4.25	2.00	10.26
6			5.82	2.74	12.55
7			7.38	3.47	14.85
8			8.94	4.21	17.15
9			10.51	4.94	19.45
3	3.5	3.5	0.53	0.25	4.78
4			2.10	0.99	7.08
5			3.66	1.72	9.38
6			5.22	2.46	11.68
7			6.79	3.19	13.98
8			8.35	3.93	16.28
9			9.91	4.66	18.58
3	4.0	4.0	**	**	**
4			1.50	0.71	6.21
5			3.07	1.44	8.51
6			4.63	2.18	10.81
7			6.19	2.91	13.11
8			7.76	3.65	15.41
9			9.32	4.38	17.71

7.0% GUTTER LINE PROFILE						
H INCHES	W FEET	Y INCHES	X2u FEET	X2L FEET	Lz FEET	
3	2.5	2.5	6.90	0.60	11.50	
4			13.16	1.14	18.31	
5			15.00	1.69	20.69	
6			15.00	2.23	21.23	
7			15.00	2.77	21.77	
8			15.00	3.32	22.32	
9			15.00	3.86	22.86	
3	3.0	3.0	4.52	0.39	8.91	
4			10.78	0.94	15.72	
5			15.00	1.48	20.48	
6			15.00	2.02	21.02	
7			15.00	2.57	21.57	
8			15.00	3.11	22.11	
9			15.00	3.65	22.65	
3	3.5	3.5	2.14	0.19	6.32	
4			8.40	0.73	13.13	
5			14.67	1.27	19.94	
6			15.00	1.82	20.82	
7			15.00	2.36	21.36	
8			15.00	2.90	21.90	
9			15.00	3.45	22.45	
3	4.0	4.0	**	**	**	
4			6.03	0.52	10.55	
5			12.29	1.07	17.36	
6			15.00	1.61	20.61	
7			15.00	2.15	21.15	
8			15.00	2.70	21.70	
9			15.00	3.24	22.24	

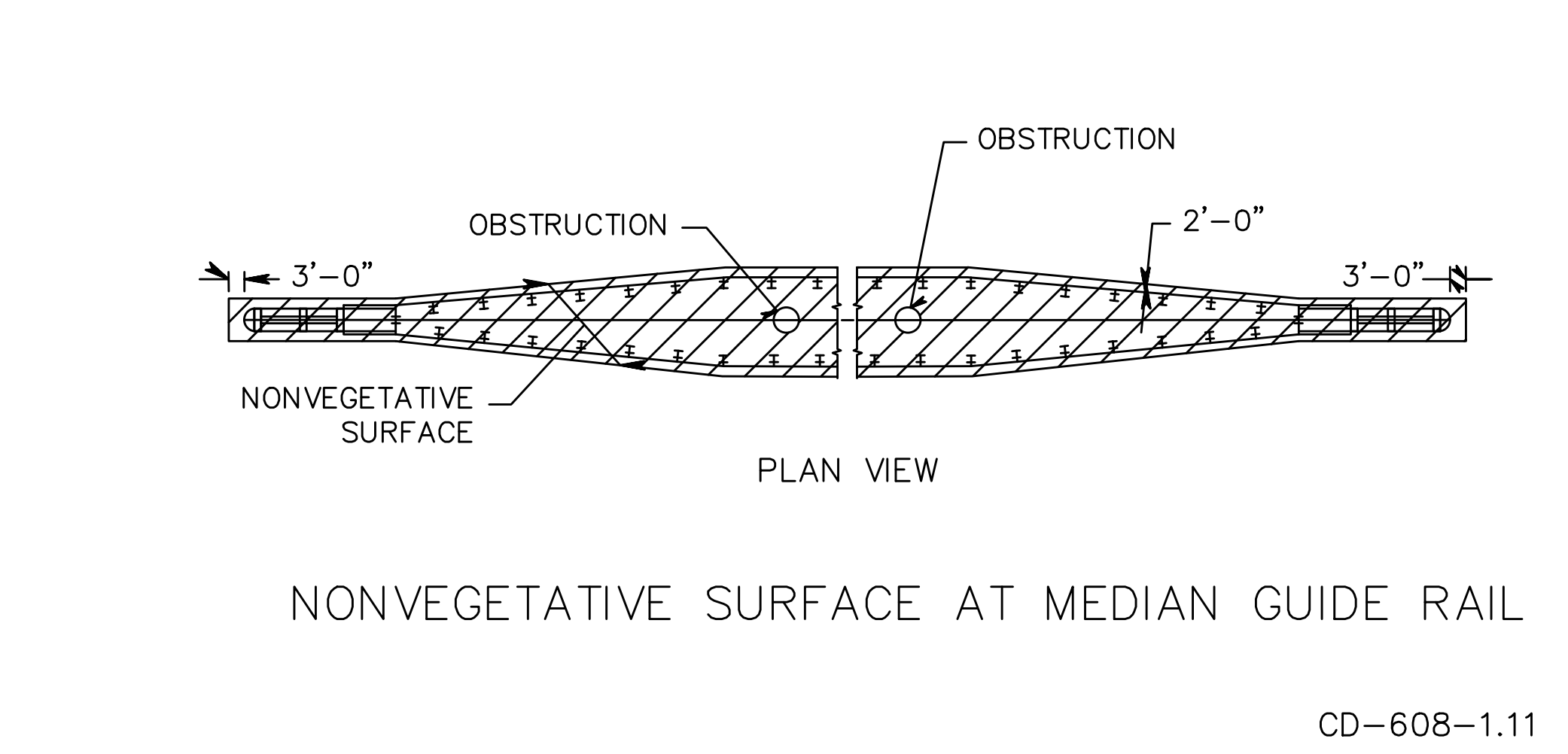
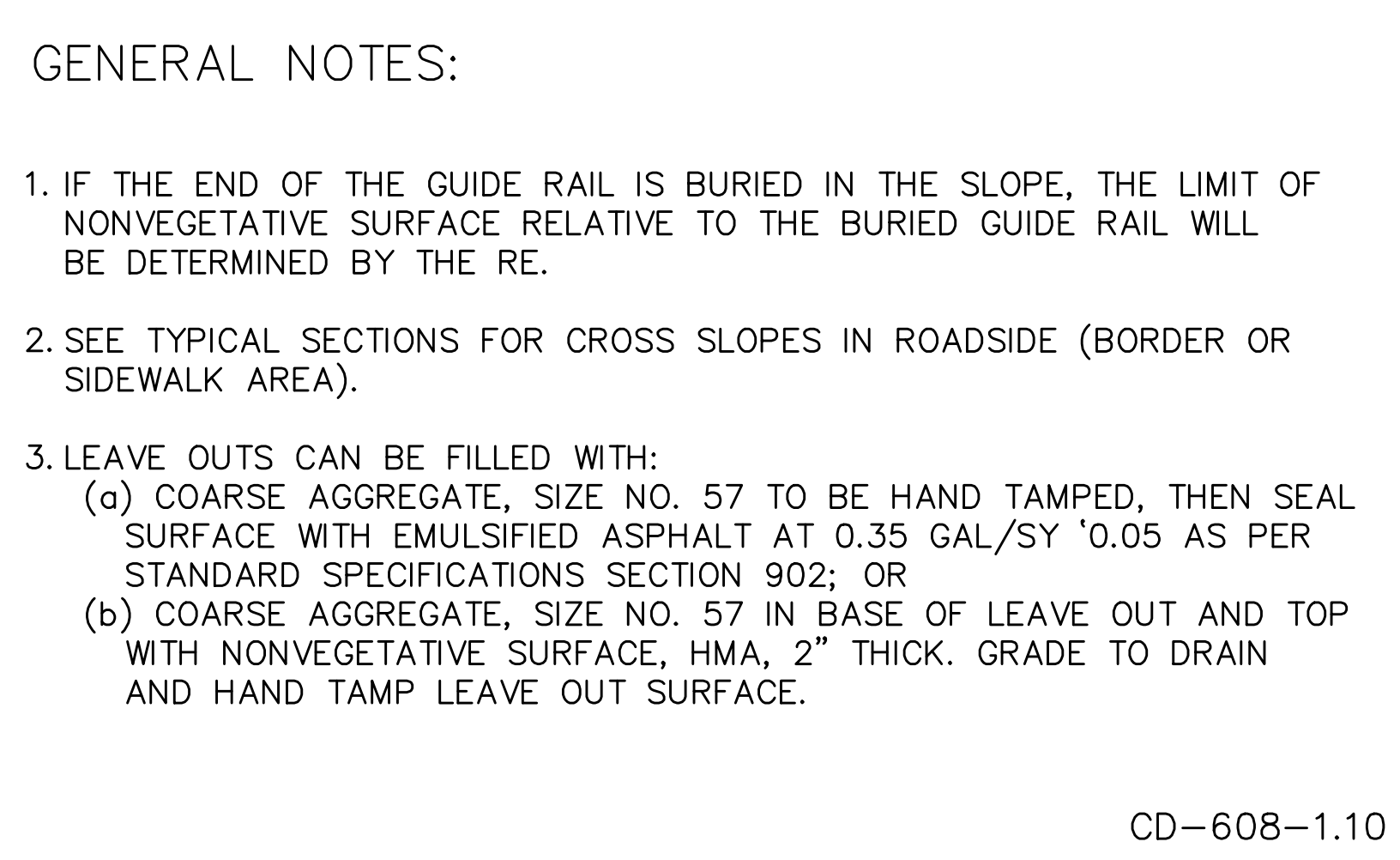
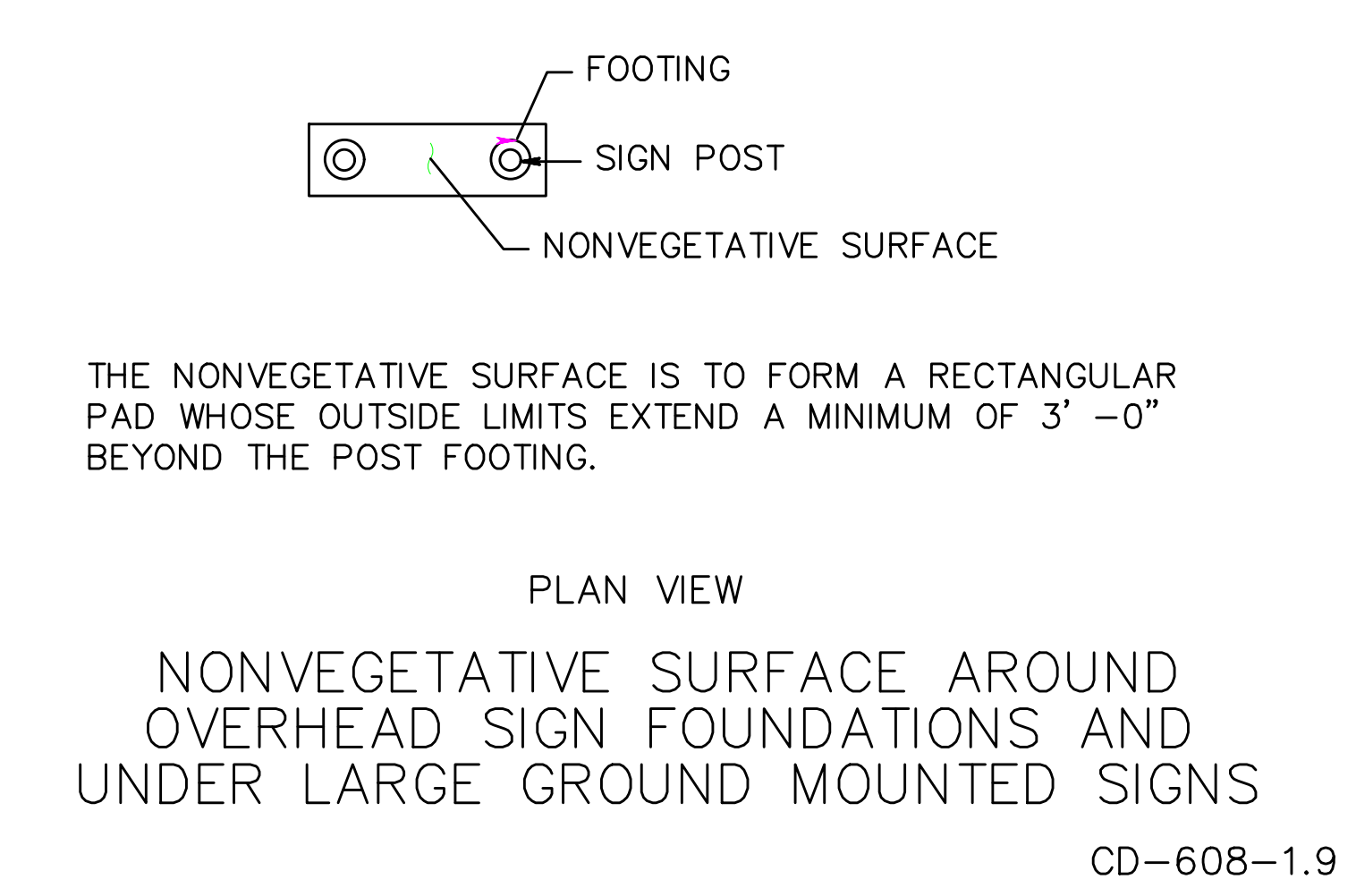


BDC7D-02-REVISIONS TO CD-608-1  
BDC7D-01- ORIGINAL SHEET



X	Y
GUIDE RAIL OFFSET FROM EDGE OF PAVEMENT	WIDTH OF NONVEGETATIVE SURFACE IN FRONT OF GUIDE RAIL
GREATER THAN 4'-0" LESS THAN OR EQUAL TO 4'-0"	2'-0" Y=X

CD-608-1.8



NONVEGETATIVE SURFACE  
N.T.S.

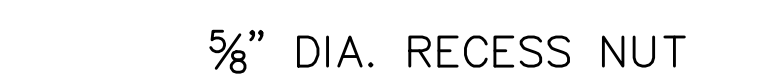
CD-608-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

30  
36





SPLICE & RAIL NUT & BOLT

BEAM GUIDE RAIL  
(MASH TL-3)

N.T.S.

CD-609-1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS



W6x8.5 OR W6x9 STEEL POST

6' POST



6"x8"x14" BLOCKOUT



NOTES:

1. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
2. FURNISH RAIL ELEMENTS SHOPCURVED, CONCAVE OR CONVEX, FOR RADII BETWEEN 20 AND 150 FEET.
3. WHERE TRANSITIONING TO EXISTING GUIDE RAIL, AN END TERMINAL, OR A CRASH CUSHION MOUNTED AT A HEIGHT OTHER THAN 2'-7", THE VERTICAL TRANSITION TO BE ACCOMPLISHED IN A MINIMUM LENGTH OF 12'-6" FOR EACH 2" OF VERTICAL CHANGE. SEE CD-609-8.
4. INSTALL AN END TERMINAL AS SHOWN ON THE PLANS. USE THE END SECTION (ROUNDED) ON THE END OF THE RAIL ELEMENT WHERE DUAL FACED BEAM GUIDE RAIL ENDS AND SINGLE FACED BEAM GUIDE RAIL BEGINS.

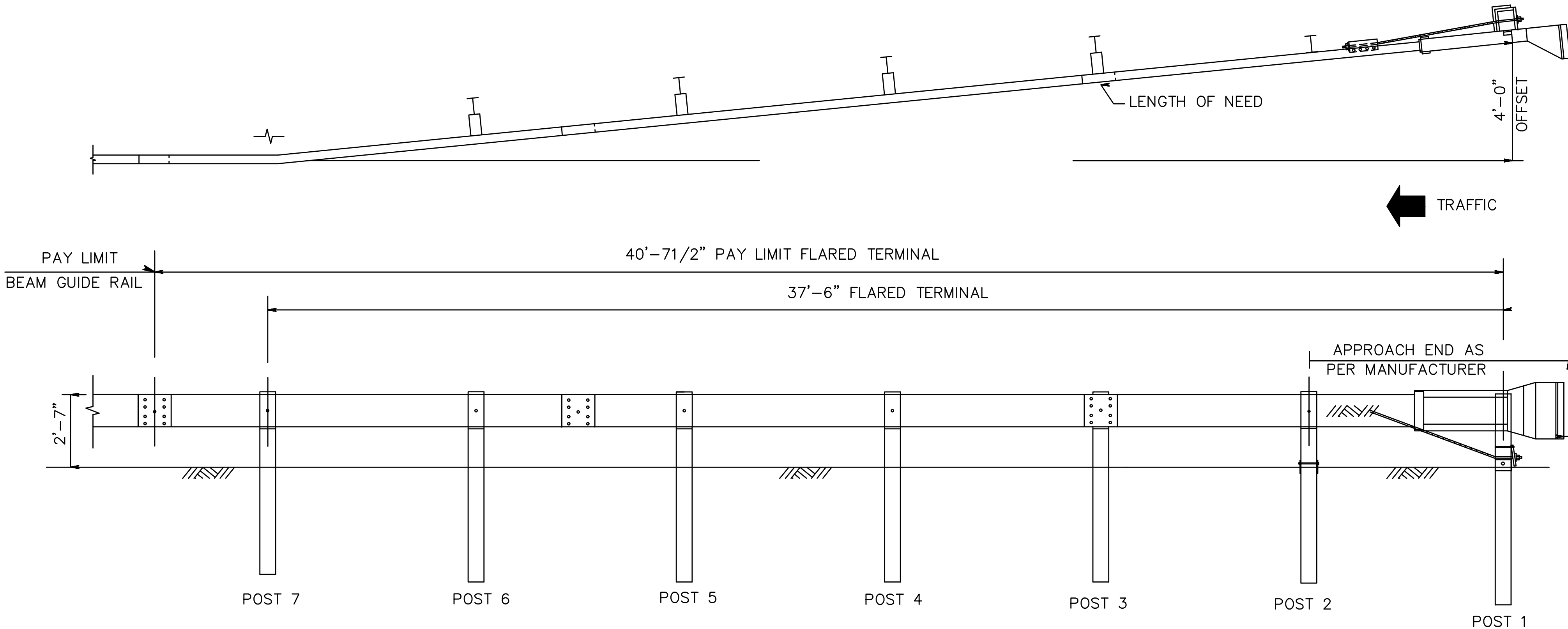
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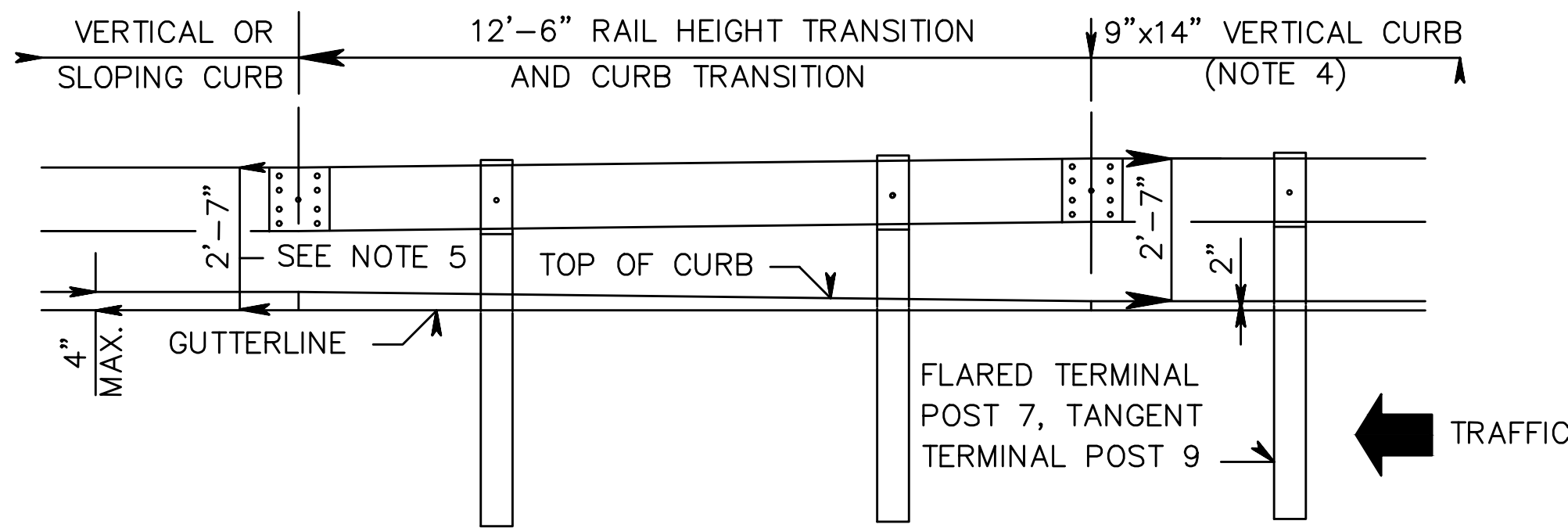




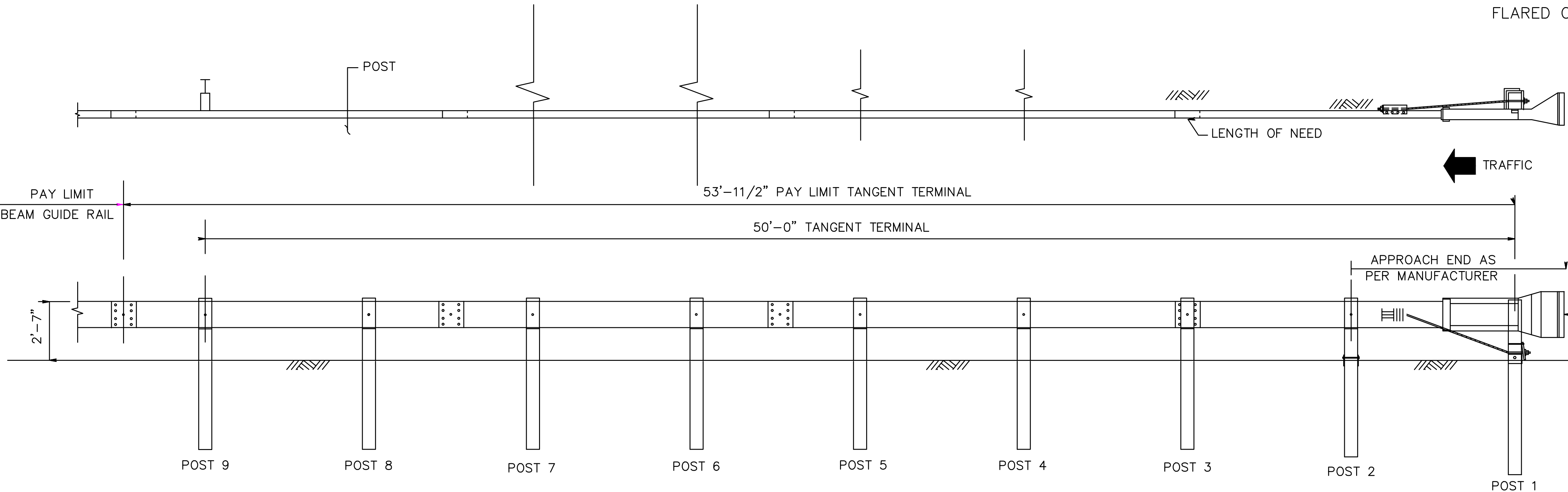
- NOTES:
- 1. NUMBER OF POSTS, TYPE OF POST, POST SPACING, FLARE RATE, AND MATERIALS TO BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE DEPARTMENT'S QUALIFIED PRODUCTS LIST.
  - 2. WHERE GUIDE RAIL IS INSTALLED FLUSH WITH THE GUTTER LINE, CONSTRUCT THE TANGENT TERMINAL WITH A STRAIGHT FLARE FOR ITS ENTIRE LENGTH TO PROVIDE A ONE FOOT OFFSET SO THAT THE EXTRUDER HEAD DOES NOT PROTRUDE INTO THE ROADWAY.
  - 3. WHERE THE DOWNSTREAM GUIDE RAIL IS ON A HORIZONTAL CURVE, CONSTRUCT THE FLARED OR TANGENT TERMINAL IN A STRAIGHT LINE AS SHOWN ON THIS DETAIL (DO NOT FOLLOW THE HORIZONTAL CURVE).
  - 4. 9"x14" CONCRETE VERTICAL CURB SHALL CONTINUE FOR THE ENTIRE LENGTH OF THE TERMINAL AND FOR A MINIMUM OF 75 FEET IN ADVANCE OF POST #1. SEE CD-607-2 FOR CURB TRANSITION DETAILS.
  - 5. WHERE GUIDE RAIL IS OFFSET 4 FEET OR MORE FROM THE GUTTERLINE (CD-609-8A) RAIL HEIGHT IS MEASURED FROM THE GROUND LINE ALONG THE ENTIRE LENGTH OF THE CURB TRANSITION AND THE FLARED OR TANGENT TERMINAL.



FLARED GUIDE RAIL TERMINAL



FLARED OR TANGENT TERMINAL WITH CURB



TANGENT GUIDE RAIL TERMINAL

FLARED GUIDE RAIL  
TERMINAL AND  
TANGENT GUIDE  
RAIL TERMINAL  
(MASH TL-3)  
N.T.S.

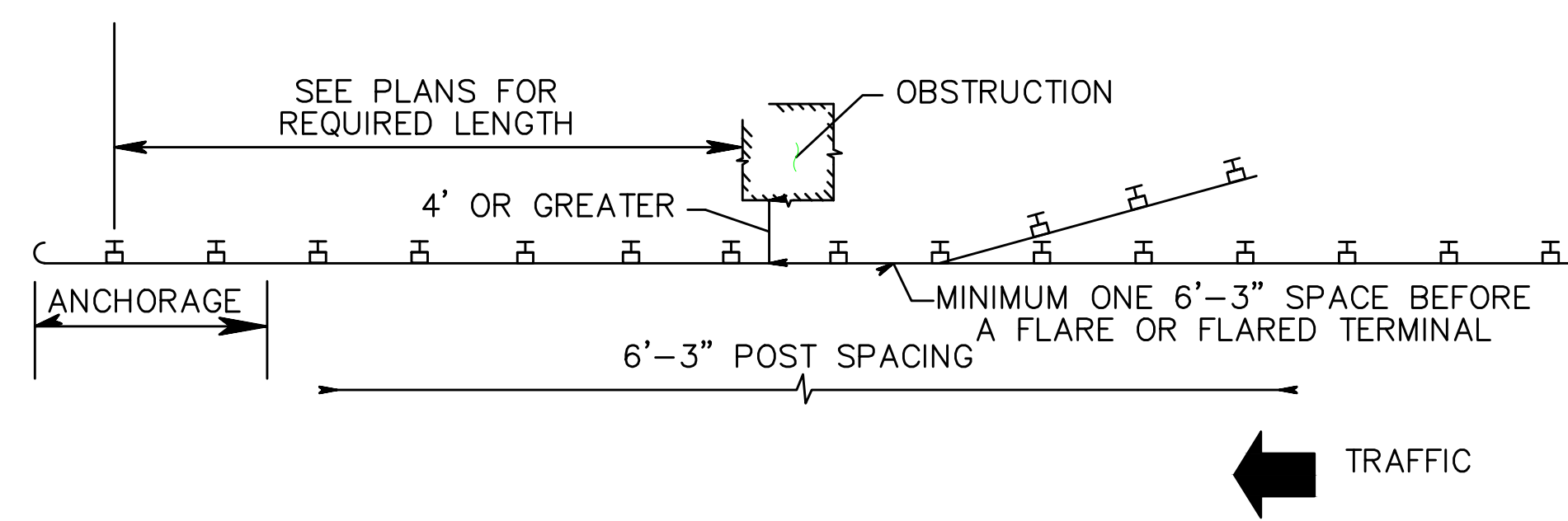
CD-609-5  
NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

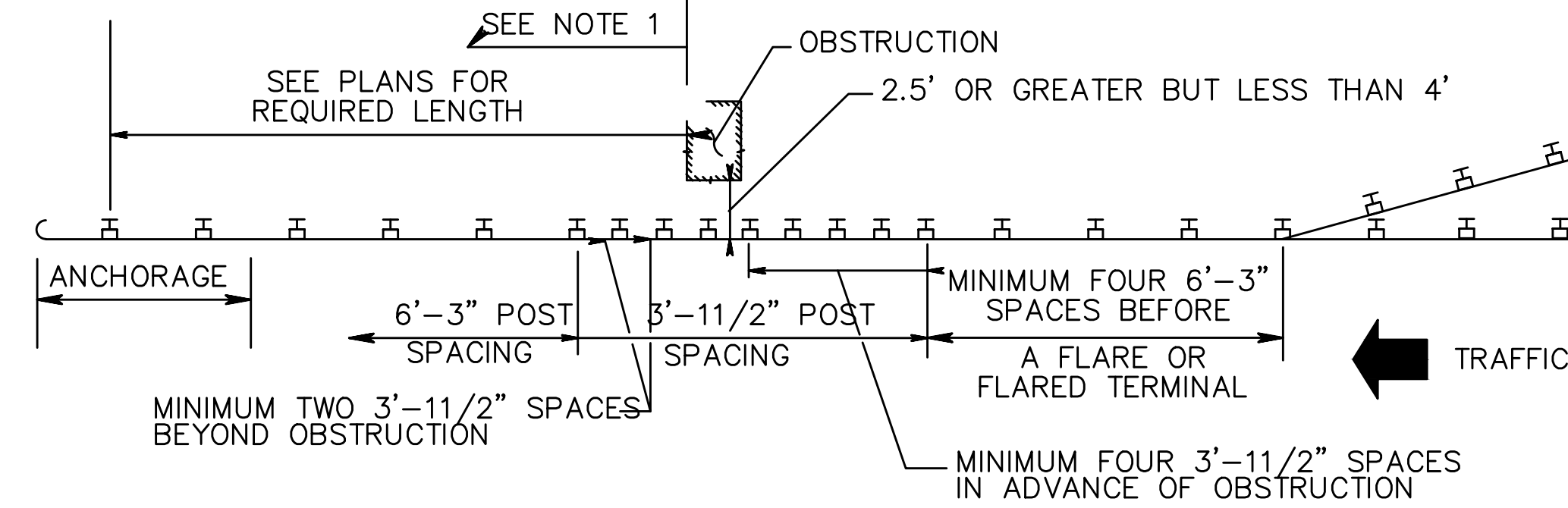
CD-609-5.1

BDC17D-10-TERMINAL WITH CURB ADDED  
BDC17D-02-REVISIONS TO CD-609-5  
BDC16D-01-ORIGINAL SHEET



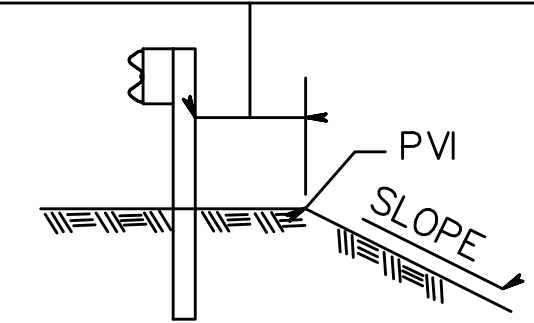


WHERE CLEARANCE FROM FACE OF RAIL TO OBSTRUCTION IS 4' OR GREATER (SEE NOTE 2)



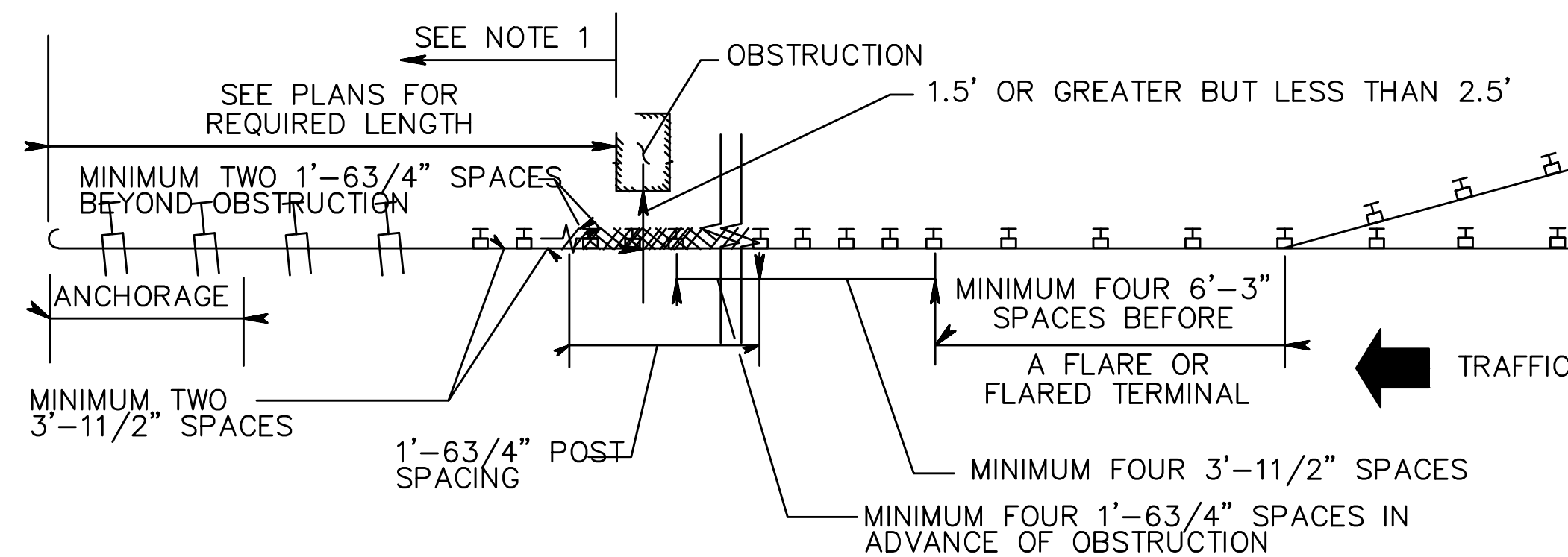
WHERE CLEARANCE FROM FACE OF RAIL TO OBSTRUCTION IS 2.5' OR GREATER BUT LESS THAN 4' (SEE NOTE 2)

DISTANCE FROM BACK OF POST TO PVI	SLOPE	ADDITIONAL POST LENGTH
IF LESS THAN 2' BUT GREATER OR EQUAL TO 1'	6:1 OR FLATTER STEEPER THAN 6:1 TO 3:1 STEEPER THAN 3:1 TO 2:1	NO CHANGE 1' 2'
IF LESS THAN 1'	6:1 OR FLATTER STEEPER THAN 6:1 TO 3:1 STEEPER THAN 3:1 TO 2:1	1' 2' 3'



## ADDITIONAL LENGTH BEAM GUIDE RAIL POSTS

CD-609-8.2



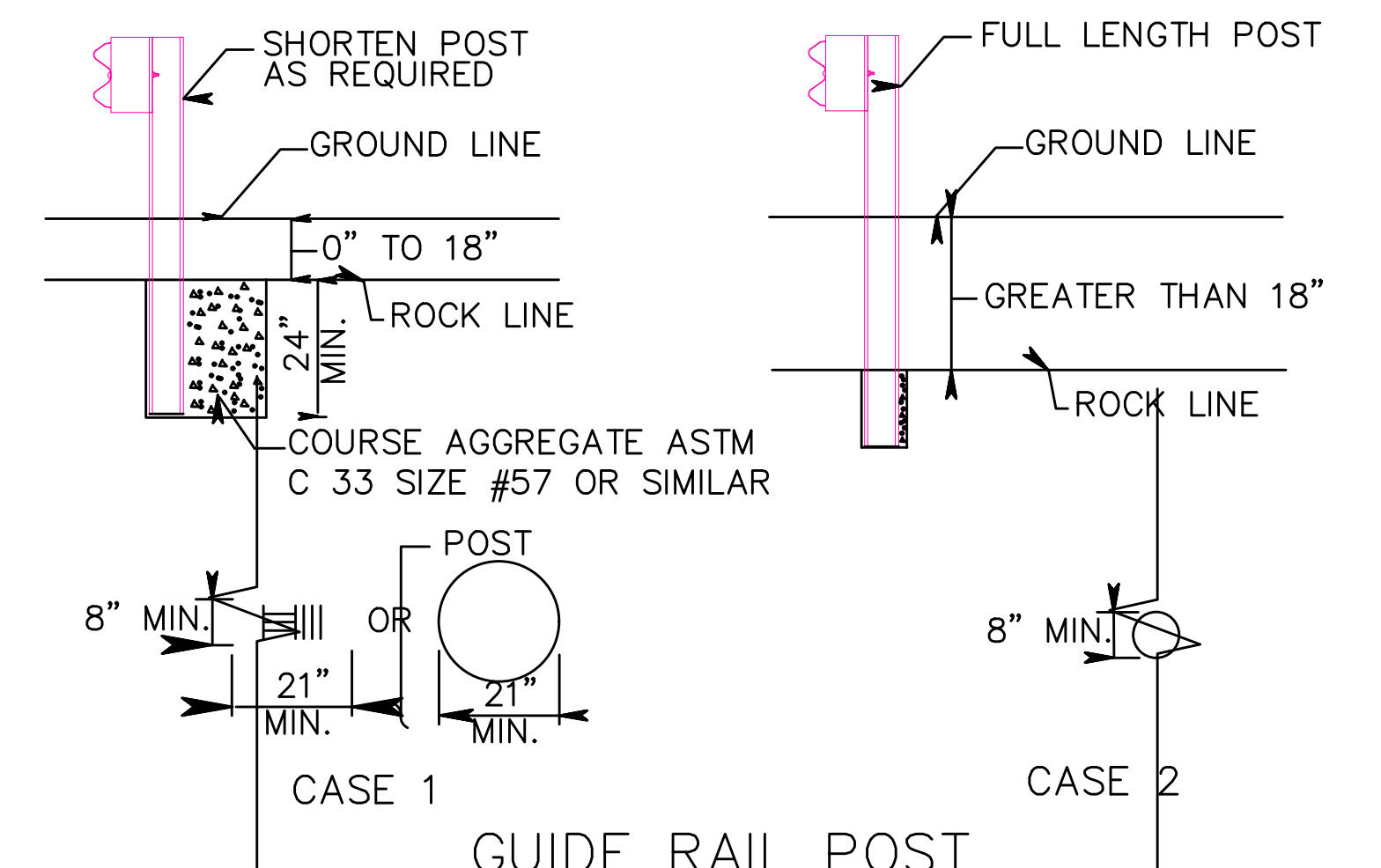
WHERE CLEARANCE FROM FACE OF RAIL TO OBSTRUCTION IS 1.5' OR GREATER BUT LESS THAN 2.5' (SEE NOTE 2)

### NOTES:

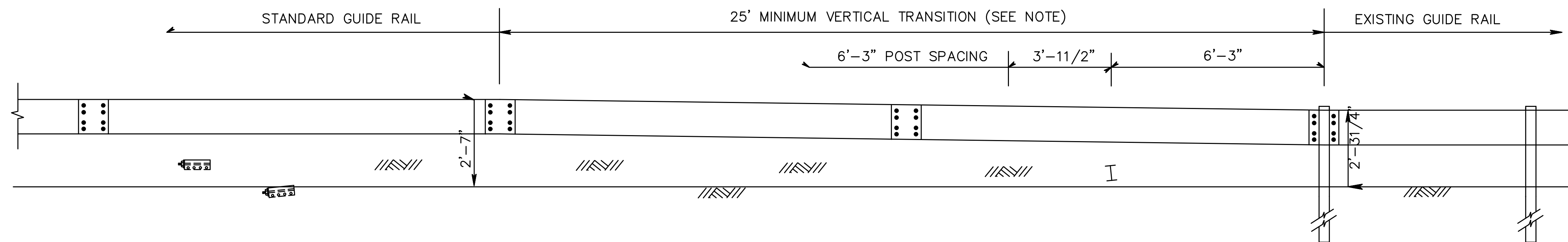
- WHERE AN APPROACH END TREATMENT AT THE TRAILING END OF GUIDE RAIL IS SHOWN ON THE PLANS, THE POST SPACING REQUIREMENTS SHALL BE THE SAME AS THE APPROACH END.
- IN A FILL SECTION WHERE THE DISTANCE FROM THE BACK OF THE POST TO THE PVI IS LESS THAN 1', AND THE SLOPE IS STEEPER THAN 3:1, THE MINIMUM CLEARANCE FROM THE FACE OF THE RAIL TO AN OBSTRUCTION IS INCREASED BY 1' DUE TO INCREASED POST DEFLECTION.
- ADDITIONAL POSTS AND BLOCKOUTS WILL BE PAID FOR UNDER PAY ITEM "BEAM GUIDE RAIL POST".

## CLEARANCE FROM FACE OF RAIL TO OBSTRUCTION

CD-609-8.1



CD-609-8.3



### NOTE:

WHERE TRANSITIONING TO EXISTING GUIDE RAIL, AN END TERMINAL, OR A CRASH CUSHION MOUNTED AT A HEIGHT OTHER THAN 2'-7", THE VERTICAL TRANSITION SHALL BE ACCOMPLISHED IN A MINIMUM LENGTH OF 12'-6" FOR EACH 2" OF VERTICAL CHANGE.

## VERTICAL TRANSITION TO EXISTING 27 1/4" HIGH GUIDE RAIL

CD-609-8.4

## BEAM GUIDE RAIL TREATMENTS

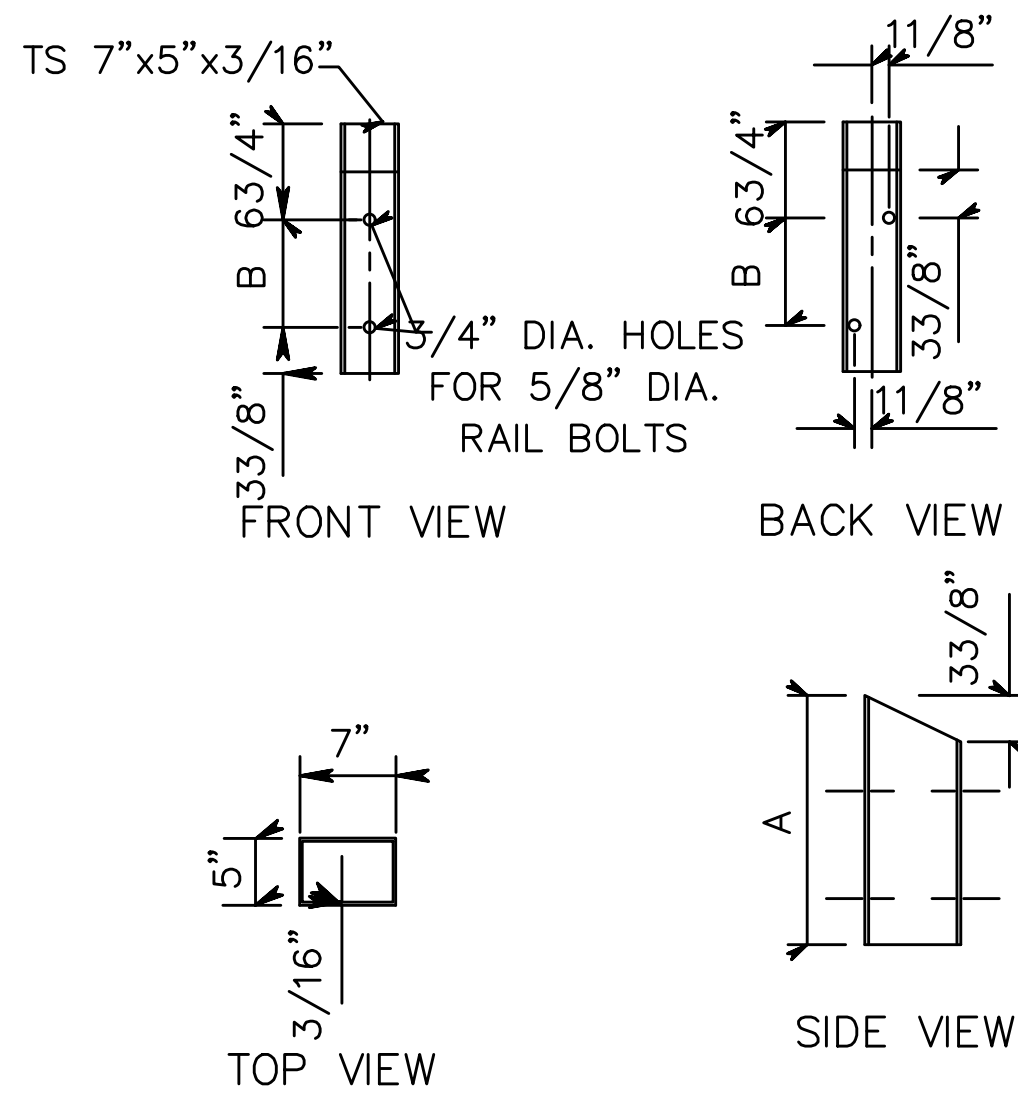
N.T.S.

CD-609-8

NEW JERSEY DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION DETAILS



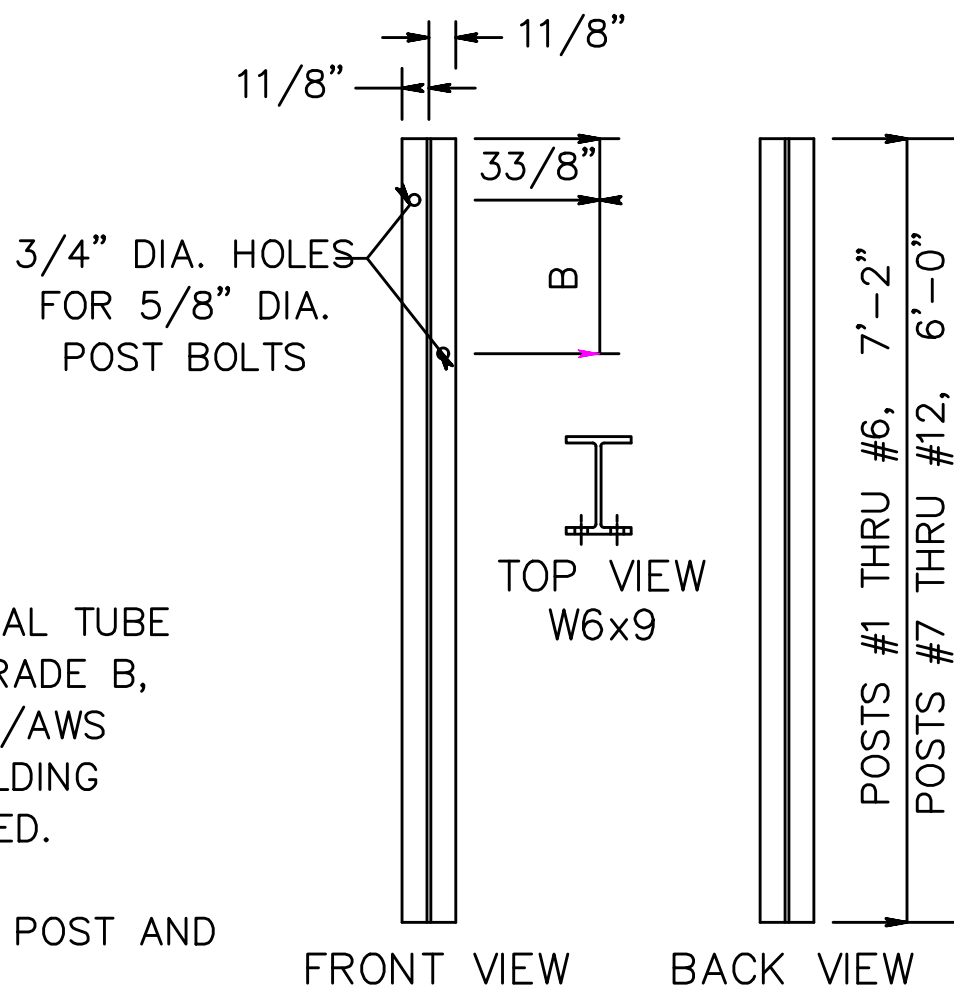


DIM.	POSTS #1 - #11	POST #12
A	1'-53/4"	1'-17/8"
B	75/8"	33/4"

BLOCKOUT DIMENSIONS

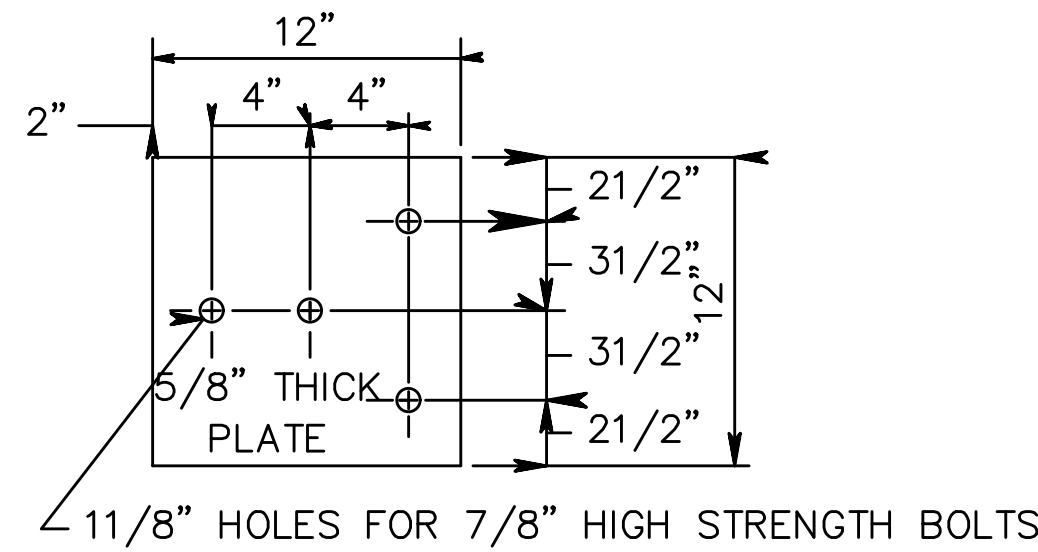
NOTES:

- STEEL FOR STRUCTURAL TUBE TO BE ASTM A500 GRADE B, WELDED AS PER ANSI/AWS D1.1 STRUCTURAL WELDING CODE, AND GALVANIZED.
- SEE CD-609-18 FOR POST AND RAIL BOLT DETAILS.

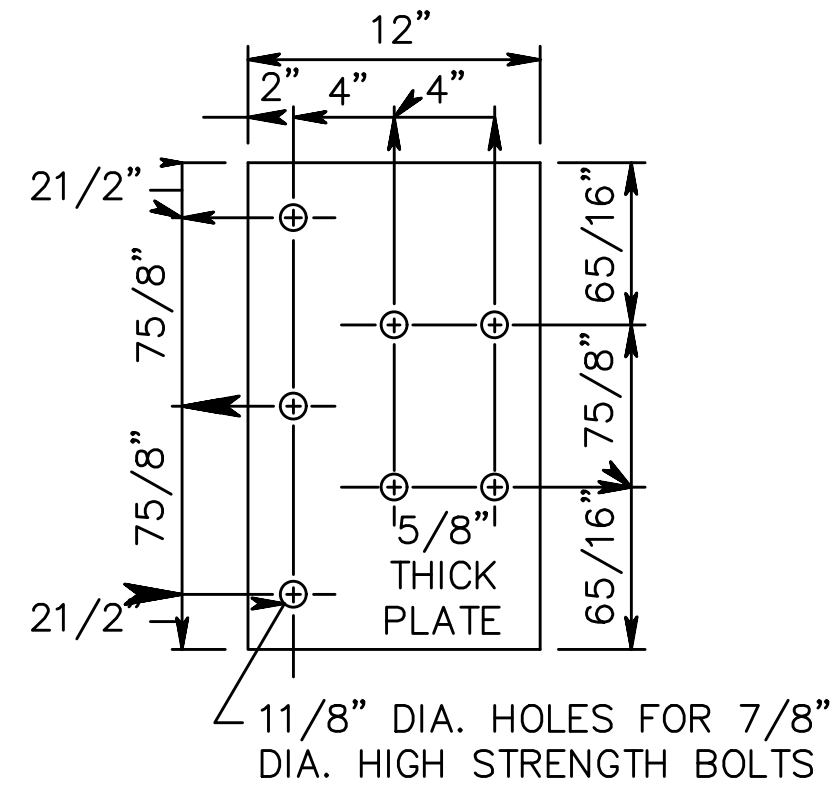


POSTS - TL-3 ATTACHMENTS  
(CD-609-14, 15, 16, 17, 17B, 17C)

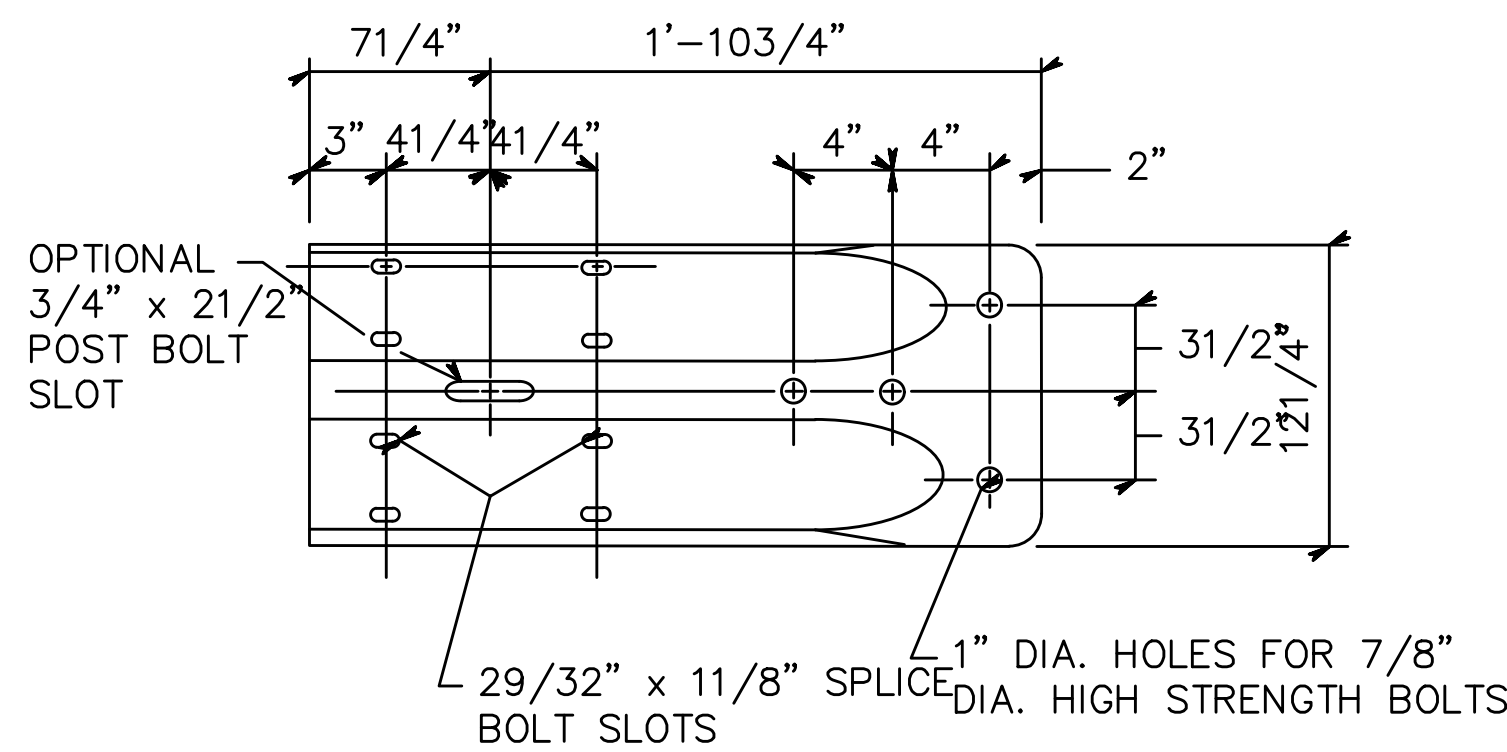
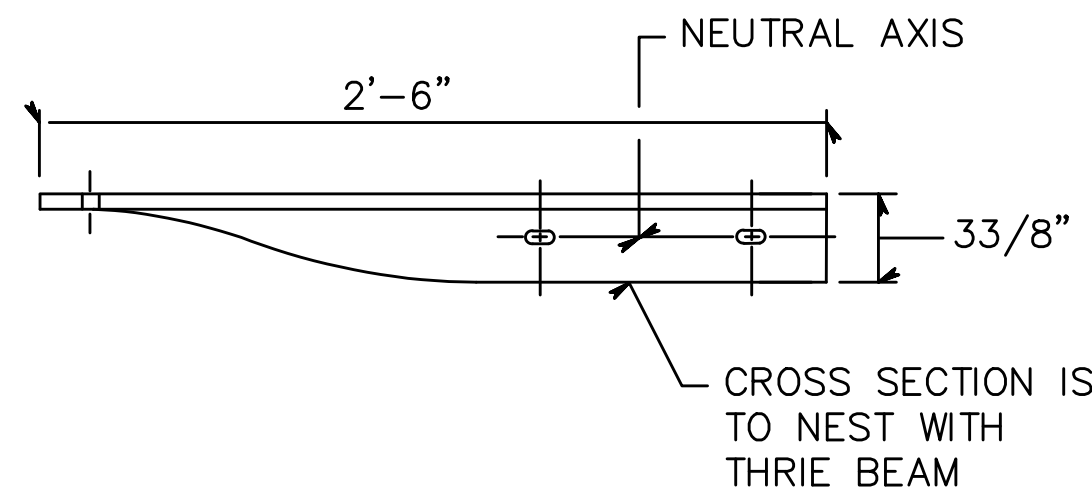
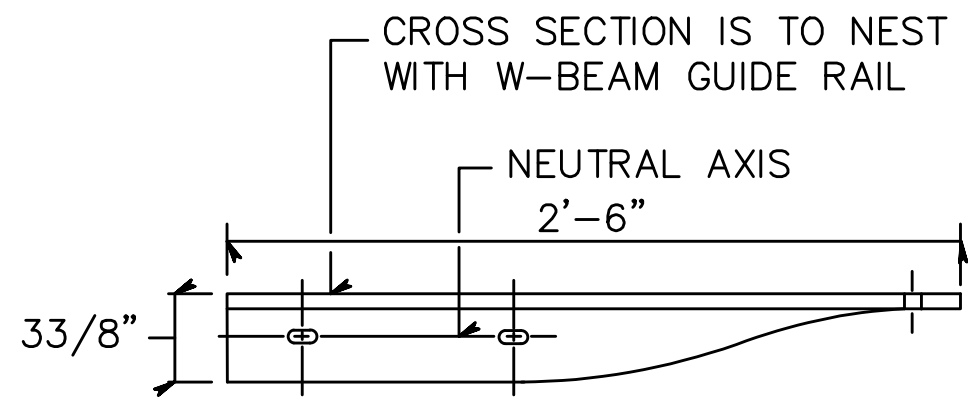
STRUCTURAL TUBE BLOCKOUTS  
TL-3 ATTACHMENTS  
(CD-609-14, 15, 16, 17, 17B, 17C)



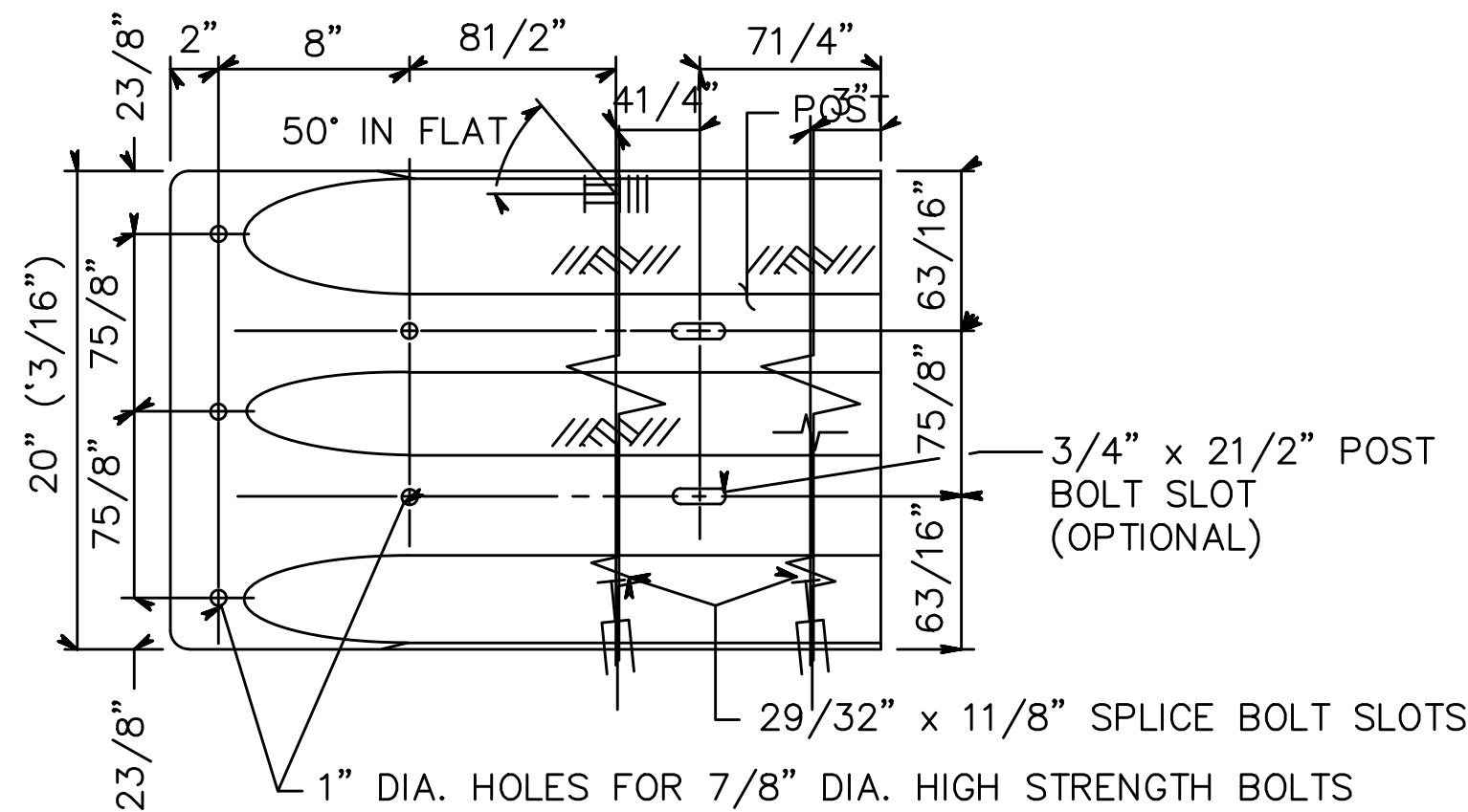
BACKUP PLATE FOR W-BEAM  
TERMINAL CONNECTOR



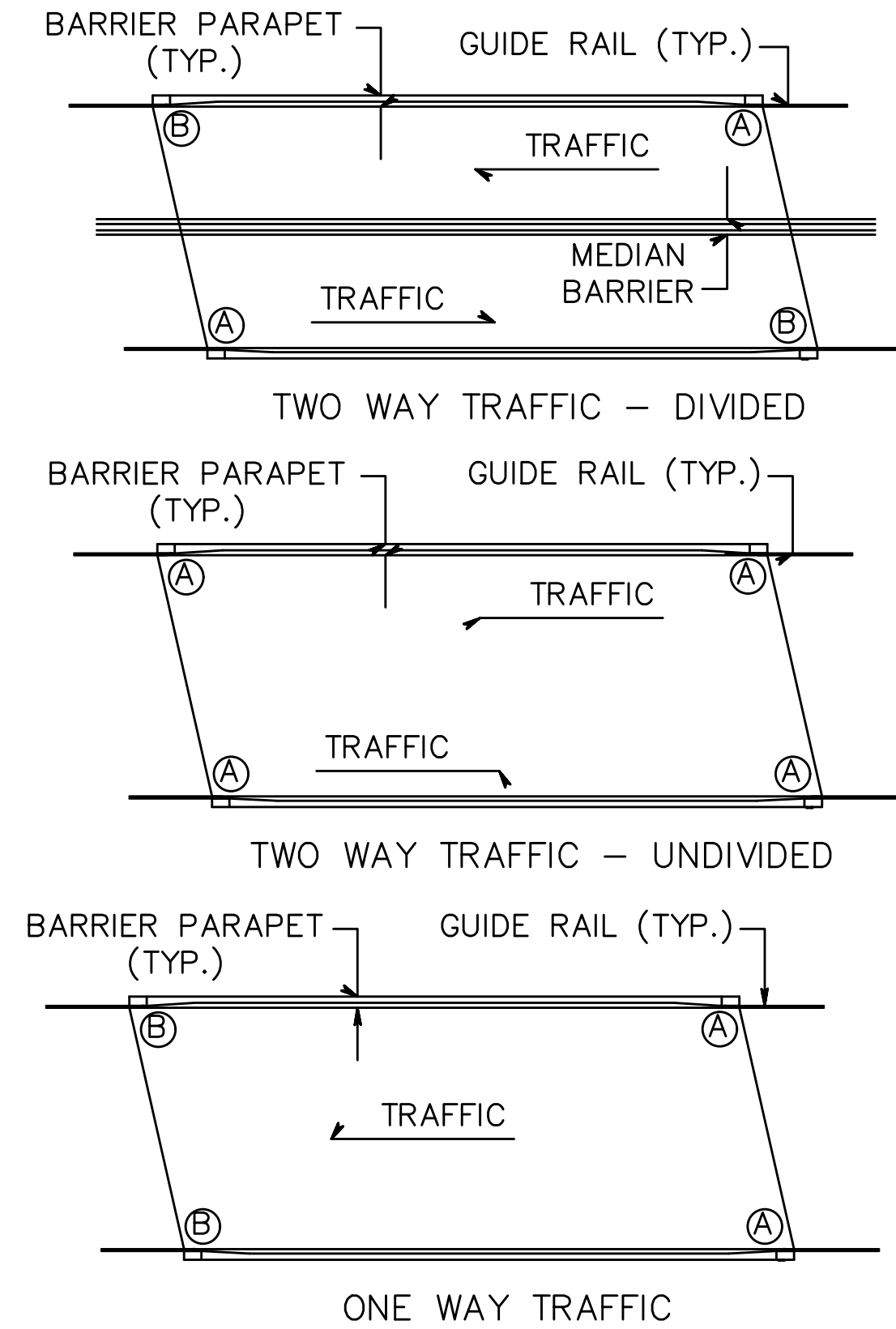
BACKUP PLATE FOR THRIE  
BEAM TERMINAL CONNECTOR



W-BEAM TERMINAL CONNECTOR



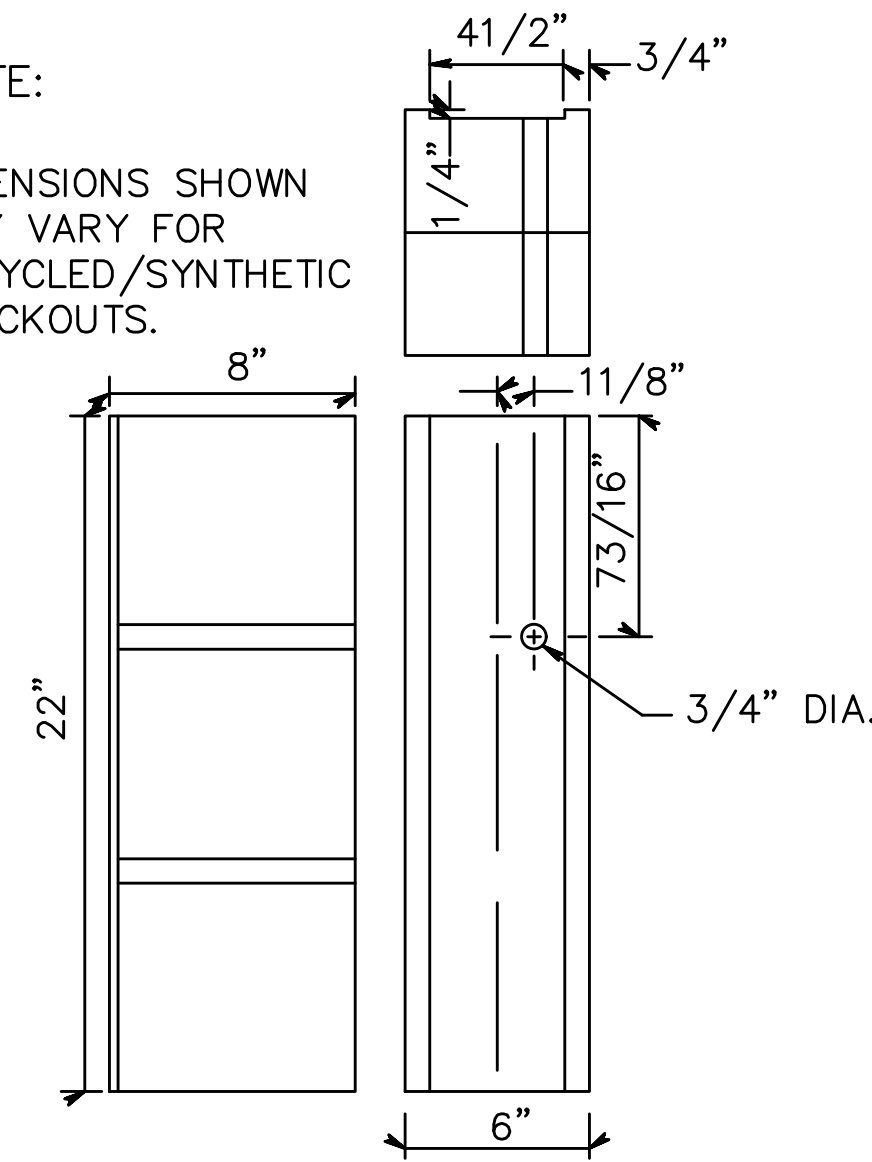
THRIE BEAM TERMINAL CONNECTOR



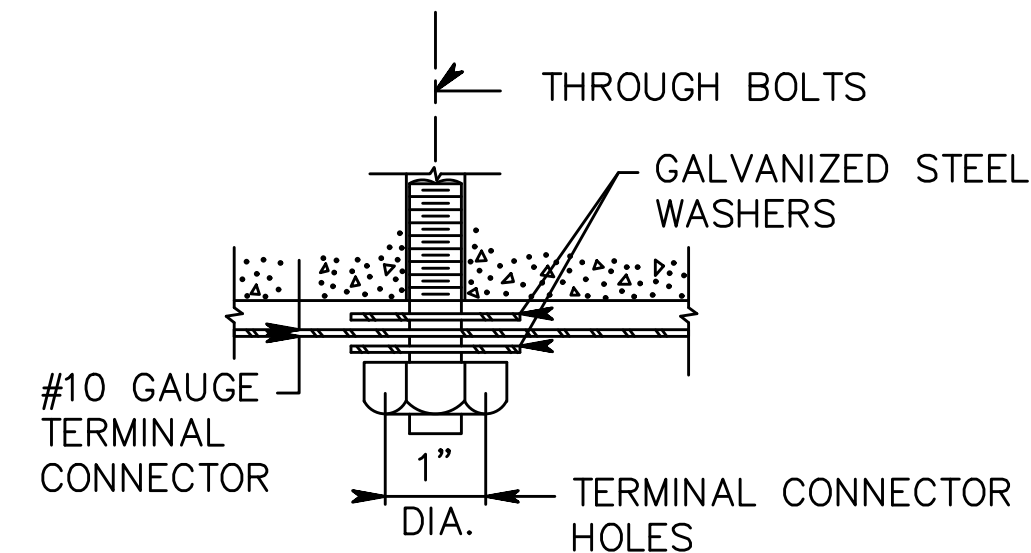
BRIDGE ATTACHMENT TYPES

NOTE:

DIMENSIONS SHOWN  
MAY VARY FOR  
RECYCLED/SYNTHETIC  
BLOCKOUTS.



APPROVED RECYCLED/  
SYNTHETIC MATERIALS  
6"x8"x22" BLOCKOUT  
TL-2 ATTACHMENTS  
(CD-609-15A, 15B,  
16A, 17A, 17D, 17E)



TERMINAL ANCHORAGE

GENERAL NOTES FOR TL-2 & TL-3 ATTACHMENTS (CD-609-14 THRU CD-609-17E)

- THIS GUIDE RAIL TRANSITION IS APPROPRIATE FOR CONNECTION TO A VERTICAL CONCRETE SHAPE AND SHOULD NOT BE CONNECTED DIRECTLY TO A CONCRETE SAFETY SHAPE. CONCRETE SAFETY BARRIER SHOULD BE TRANSITIONED TO A VERTICAL SHAPE AT THE GUIDE RAIL CONNECTION.
- FOR RECOMMENDED ATTACHMENT, REFER TO "BRIDGE ATTACHMENT TYPES", THIS SHEET.
- ALL CROSS SLOPES BETWEEN THE PAVEMENT EDGE AND POSTS TO BE 10H:1V OR FLATTER.
- EMBANKMENT MATERIAL CONFORMING TO THE NJDOT STANDARD SPECIFICATIONS SECTION 203 TO EXTEND AT A 2% SLOPE FOR A MINIMUM OF 2'-0" BEHIND THE POSTS AT WHICH POINT A SLOPE OF NO STEEPER THAN 2H:1V SHOULD EXTEND A MINIMUM OF 4'-0" FURTHER.
- LOCATE DRAINAGE INLETS AND ELECTRICAL JUNCTION BOXES ON APPROACHES SO AS NOT TO INTERFERE WITH GUIDE RAIL POST SPACING.
- STRUCTURAL STEEL PLATES AND SHAPES TO CONFORM TO AASHTO M270 AND BE GALVANIZED PER AASHTO M111.
- HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS TO CONFORM TO AASHTO M164. ZINC COATED BOLTS, NUTS AND WASHERS TO BE TREATED ACCORDING TO AASHTO M232M.
- THE THICKNESS OF THRIE-BEAM AND W-BEAM RAIL ELEMENTS IS 12-GAUGE UNLESS OTHERWISE NOTED.
- FOR ADDITIONAL THRIE BEAM AND W-BEAM DETAILS REFER TO CD-609-1 AND CD-609-18.
- CONCRETE LIP CURB TO BE PAID UNDER 9"x16" CONCRETE VERTICAL CURB (SEE CD-607-1.9).
- W-BEAM AND THRIE BEAM TERMINAL CONNECTORS USE AASHTO M180 MECHANICAL PROPERTIES FOR BEAM & TRANSITION SECTIONS.

GENERAL NOTES FOR TL-3 ATTACHMENTS (CD-609-14, 15, 16, 17, 17B & 17C)

- AT TYPE (A) ATTACHMENTS, THRIE BEAM RAIL ELEMENT WILL REQUIRE ADDITIONAL RAIL BOLT SLOTS FOR POST #1, #3, #5, #7 AND #9. HOLES ARE TO BE SHOP PUNCHED OR DRILLED BEFORE GALVANIZATION. NO FIELD DRILLING IS PERMITTED.
- POSTS 1 THRU 6 TO BE 7'-2" LONG WITH 4'-10" POST EMBEDMENT. POSTS 7 THRU 12 TO BE 6'-0" LONG WITH 3'-8" POST EMBEDMENT.
- WHEN THE CONFIGURATION OF BRIDGE ABUTMENTS AND WINGWALLS DO NOT ACCOMMODATE THE INSTALLATION OF POST 1, THE POST MAY BE ATTACHED TO THE ABUTMENT HEADER WITH THE USE OF A BASE PLATE.
- STRUCTURAL TUBE BLOCKOUTS ARE TO BE USED FOR POSTS 1 THRU 12.

BEAM GUIDE RAIL  
ATTACHMENTS  
(MASH TL-2 & TL-3)

N.T.S.

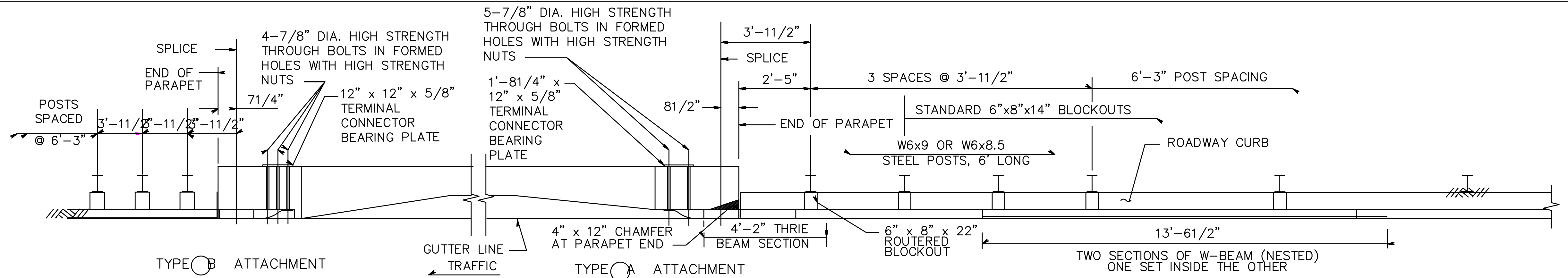
CD-609-13

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

CD-609-13.1

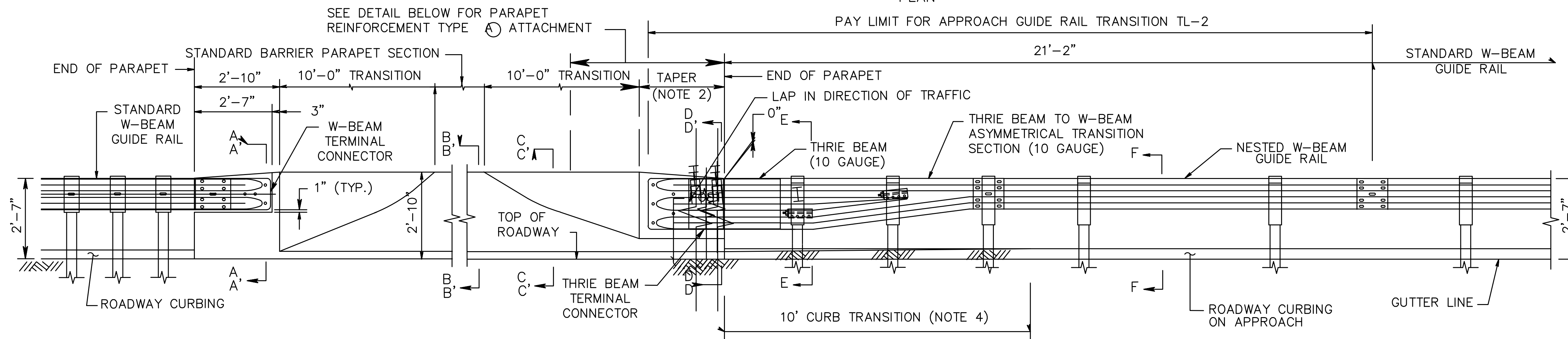




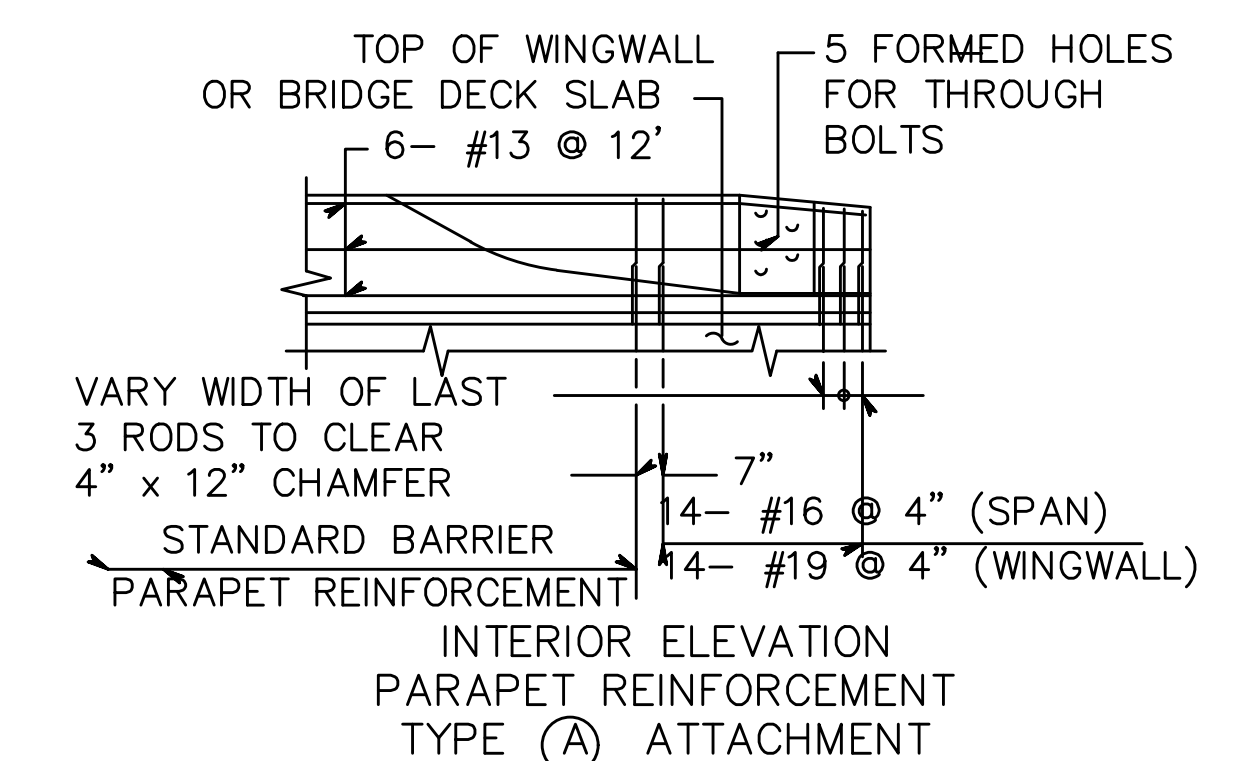
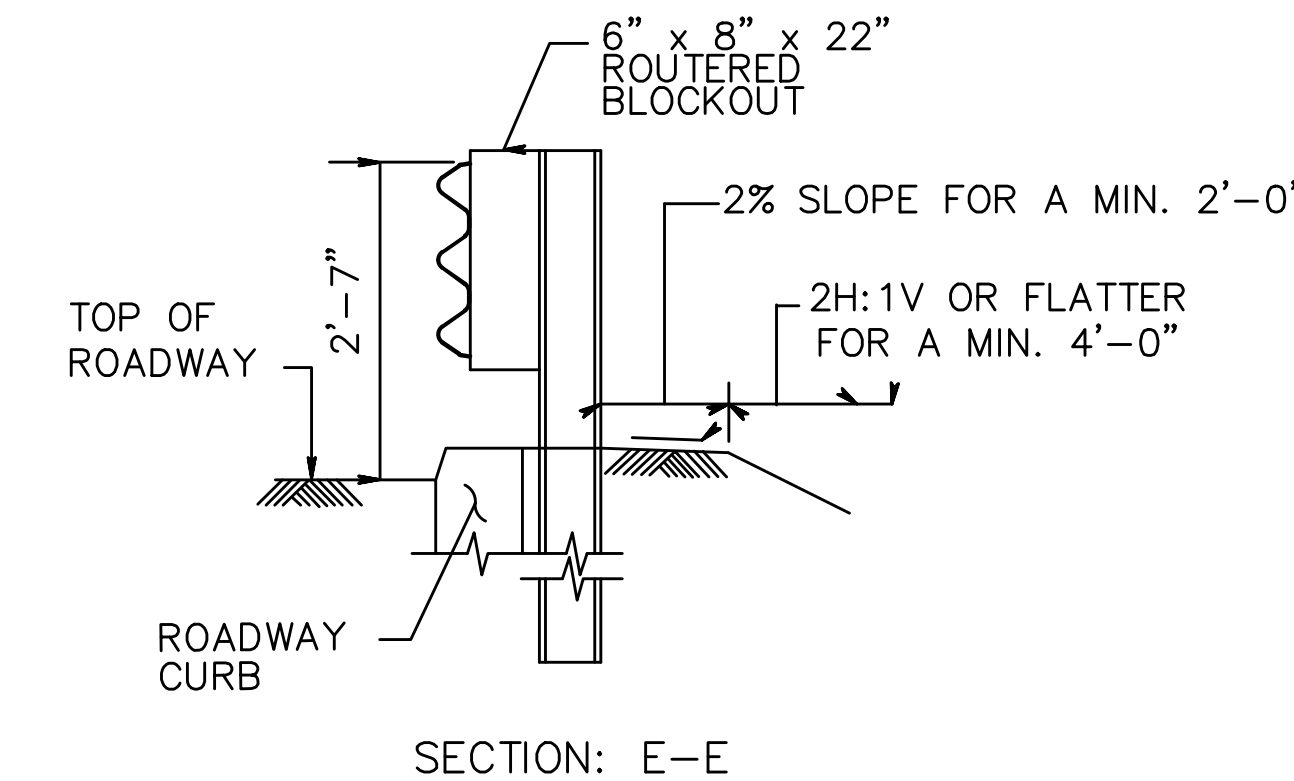
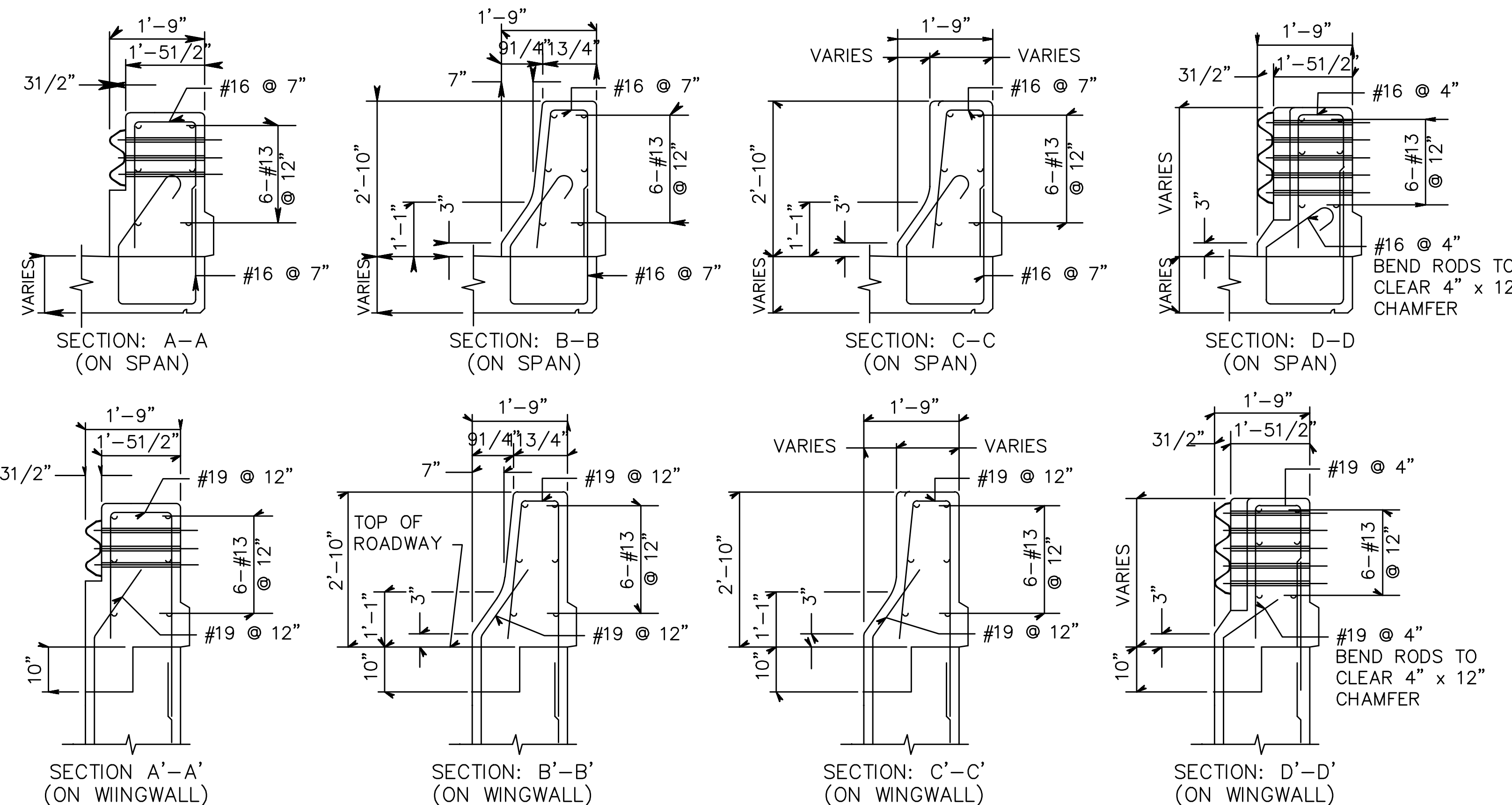
NOTES:

1. SEE CD-609-13 FOR ADDITIONAL NOTES AND DETAILS.
2. THE MINIMUM TAPER LENGTH IS BASED ON PARAPET HEIGHT. THE TAPER MUST BE 5:1 OR FLATTER WITH 8:1 DESIRABLE. SEE BRIDGE PLANS FOR TAPER LENGTH.
3. REINFORCEMENT STEEL IS IN METRIC UNITS.
4. TRANSITION LAST 10 FEET OF ROADWAY CURBING TO MATCH BARRIER PARAPET SHAPE.
5. FOR ADDITIONAL PARAPET DETAILS & DIMENSIONS, SEE BCD-507-3.4.

PLAN



ELEVATION



BEAM GUIDE RAIL ATTACHMENTS

N.T.S.

CD-609-17E

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

GUIDE RAIL ATTACHMENT - DESIGN SPEED 45 MPH OR LESS (MASH TL-2)  
EXISTING NJ BARRIER PARAPET (WITH ROADWAY CURBING ON APPROACH)

CD-609-17E.1