

**UTILITIES/AUTHORITIES**

**DEPARTMENT OF PUBLIC WORKS**  
CRANFORD DPW  
ROUND HOUSE, 364 NORTH AVENUE  
PHONE: (908) 709-7217  
CONTACT: ERIK HASTRUP

**T.V. CABLE SERVICE**  
COMCAST CABLEVISION OF NJ  
1800 RAHWAY AVENUE, UNION, NJ 07083  
PHONE: (908) 851-2258  
CONTACT: GEORGE PALYCA

**GAS SERVICE**  
ELIZABETHTOWN GAS COMPANY  
520 GREEN LANE, UNION, NJ 07083  
PHONE: (908) 662-8321  
CONTACT: GREGORY J. BALINT

**ELECTRIC SERVICE**  
PUBLIC SERVICE ELECTRIC AND GAS COMPANY  
472 WESTON CANAL ROAD, SOMERSET, NJ 08873  
PHONE: (732) 764-3067  
CONTACT: JOHN GRABENSTEIN

**WATER SERVICE**  
NEW JERSEY AMERICAN WATER COMPANY  
1341 NORTH AVENUE, PLAINFIELD, NJ 07061  
PHONE: (908) 791-3456  
CONTACT: MICHAEL F. BANGE

**TELEPHONE SERVICE**  
VERIZON COMMUNICATIONS  
290 WEST MOUNT PLEASANT AVENUE, FLOOR G,  
BUILDING 4, LIVINGSTON, NJ 07039  
PHONE: (973) 422-5156  
CONTACT: DARREN CRAY

SHEET NUMBER	DESCRIPTION
I	COVER
2	GENERAL NOTES & QUANTITIES
3-4	EXISTING CONDITIONS PLAN
5-8	DIMENSION PLAN
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13-14	FULL DEPTH RECONSTRUCTION MAP
15	SOIL EROSION & SEDIMENT CONTROL NOTES AND DETAILS
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**NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.**



1. ALL EXISTING FEATURES DEPICTED ON THIS PLAN ARE BASED ON INFORMATION FROM THE SURVEY ENTITLED "TOPOGRAPHIC SURVEY FOR SPRUCE STREET" FOR THE TOWNSHIP OF CRANFORD, PREPARED BY COLLIER ENGINEERING & DESIGN, DATED 01/24/23.
2. THE HORIZONTAL POSITION OF THIS SURVEY IS BASED ON GPS OBSERVATION AND IS RELATIVE TO NAD83 ADJUSTMENT.
3. THE ELEVATIONS SHOWN HEREON ARE RELATIVE TO NAVD88 ADJUSTMENT.
4. THE VERTICAL AND HORIZONTAL DATUM WERE ESTABLISHED AT THE PROJECT SITE BY USING GPS SURVEY METHODS.
5. UNDERGROUND UTILITIES AND FEATURES WERE MAPPED USING RADIO FREQUENCY PIPE AND CABLE LOCATORS (RFL) AND GROUND PENETRATING RADAR (GPR). OTHER BURIED UTILITIES MAY BE PRESENT BUT WERE NOT DETECTED DUE TO LIMITATIONS OF THE RFL AND GPR SYSTEMS, UNFAVORABLE SOIL CONDITIONS, SITE ACCESS, AND/OR DENSE UTILITY INFRASTRUCTURE; THEREFORE, 100% DETECTION IS NOT GUARANTEED. CAUTION SHOULD BE USED WHEN EXCAVATING IN THE VICINITY OF MAPPED FEATURES.
6. RIGHT OF WAY & LOT LINE SHOWN HEREON ARE APPROXIMATE PER TAX MAP SHEETS #13, 21, 22, 23 & 25, OF THE TOWNSHIP OF CRANFORD, UNION COUNTY, NEW JERSEY.

1. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION RELATED TO THE PROPOSED IMPROVEMENTS SHOWN HEREIN SHALL BE IN ACCORDANCE WITH THE FOLLOWING, UNLESS SPECIFICALLY AMENDED OR SUPPLEMENTED BY THE CONTRACT DOCUMENTS:
  - A. N.J. DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2019", AS CURRENTLY AMENDED;
  - B. N.J. DEPARTMENT OF TRANSPORTATION "STANDARD ROADWAY CONSTRUCTION/TRAFFIC CONTROL/BRIDGE CONSTRUCTION DETAILS, 2016", 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 BE USED FOR THE 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.
8. ACTUAL FIELD LIMITS OF MILLING, CURB AND SIDEWALK WORK WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
9. NO "SIDE PROJECTS" FOR RESIDENTS, UTILITIES OR BUSINESSES MAY BE CONSTRUCTED WITH MATERIAL PURCHASED FOR THE COMPLETION OF THE PROPOSED IMPROVEMENTS SHOWN HEREIN.
10. THE CONTRACTOR MUST REVIEW AND AGREE TO AS-BUILT QUANTITIES WITH THE ENGINEER.
11. THE ENGINEER MUST BE CONTACTED IMMEDIATELY UPON THE CONTRACTOR RECEIVING A COMPLAINT FROM ANY PERSON WITHIN THE PROJECT AREA OR MUNICIPAL OFFICIAL.
12. FLUSH CONCRETE CURB SHALL BE INSTALLED IN FRONT OF CURB RAMPS.

1. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ONE-CALL SERVICES AS REQUIRED BY THE STATE AND/OR LOCAL ORDINANCES PRIOR TO THE START OF CONSTRUCTION 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. 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.
5. WATER VALVE BOXES & GAS VALVE BOXES WITHIN THE ROADWAY SHALL BE RESET TO MEET PROPOSED GRADES.
6. MISCELLANEOUS UTILITY EQUIPMENT WITHIN THE SIDEWALK AND DRIVEWAYS SHALL BE RESET TO MEET PROPOSED GRADES DURING THE PROGRESS OF CURB, SIDEWALK AND DRIVEWAY CONSTRUCTION. NO SEPARATE PAYMENT WILL BE MADE.
7. THE CONTRACTOR SHALL TAKE PRECAUTION WHEN WORKING ADJACENT TO UTILITIES AND TEMPORARILY SUPPORT UTILITY POLES, IF REQUIRED, DURING THE PROGRESS OF WORK.
8. THE CONTRACTOR SHALL CLEAN AND MAINTAIN ALL STORM SEWER STRUCTURES, AS NECESSARY, FOR THE DURATION OF THE PROJECT.

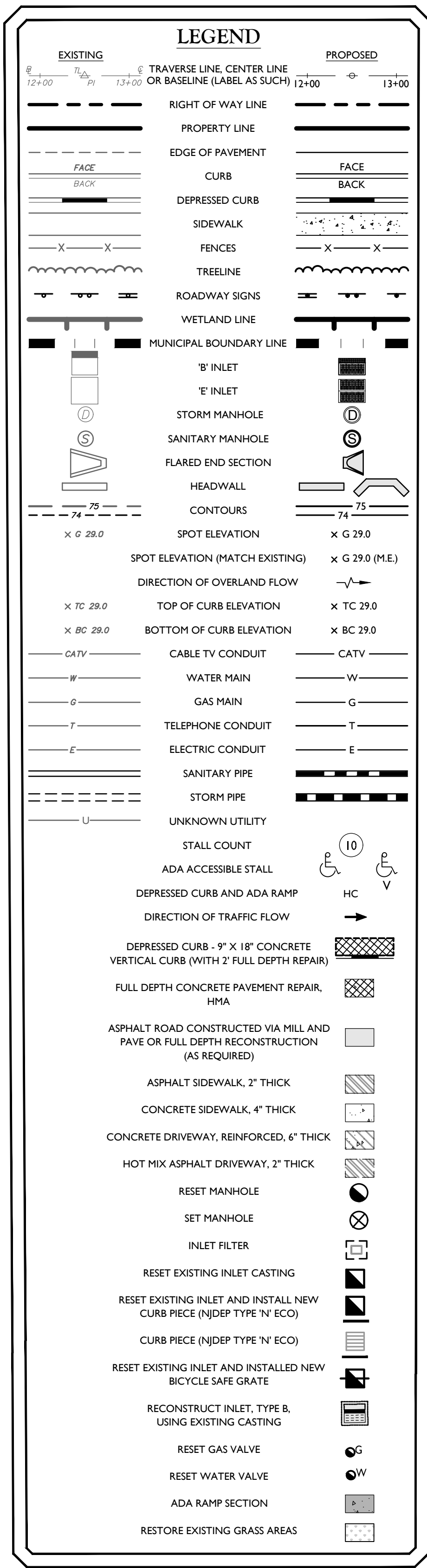
1. THE CONTRACTOR SHALL COORDINATE ALL TRAFFIC CONTROL MEASURES WITH THE LOCAL POLICE DEPARTMENT AND OWNER. TRAFFIC CONTROL DETAILS PROVIDED HEREIN ARE TYPICAL AND SUBJECT TO MODIFICATION BY THE LOCAL POLICE DEPARTMENT AND OWNER.
2. THE CONTRACTOR SHALL MAKE PROVISIONS FOR MATERIAL AND EQUIPMENT STORAGE. 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 WITH 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 AS REQUIRED BY THE LOCAL POLICE DEPARTMENT. IF REQUIRED, TEMPORARY NO PARKING SIGNS MUST BE POSTED AT LEAST FORTY-EIGHT (48) HOURS IN ADVANCE OF CONSTRUCTION.





1. THE CONTRACTOR SHALL WORK ON WEEKDAYS ONLY. APPROVAL TO WORK ON WEEKENDS MUST BE GRANTED BY THE LOCAL POLICE DEPARTMENT AND OWNER.
2. THE CONTRACTOR SHALL NOT COMMENCE ANY CONSTRUCTION RELATED ACTIVITIES BEFORE 7 AM ON WEEKDAYS. ALL CONSTRUCTION RELATED ACTIVITIES MUST BE FINISHED AND THE SITE SHALL BE CLEANED AND SECURED BY 5 PM DAILY.
3. ALL MOTORIZED EQUIPMENT USED IN CONSTRUCTION OR DEMOLITION ACTIVITIES SHALL BE OPERATED WITH A MUFFLER.

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 BY THE CONTRACTOR 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.
7. ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF OFF-SITE. NO EXCAVATED MATERIAL SHALL BE STOCKPILED AND STORED WITHIN THE PROJECT LIMITS.

1. ALL EXCAVATED MATERIALS ARE TO BE DISPOSED OF IN ACCORDANCE WITH APPROVED NJDOT AND NJDEP METHODS AND MEANS. 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.

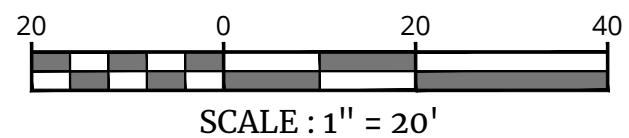
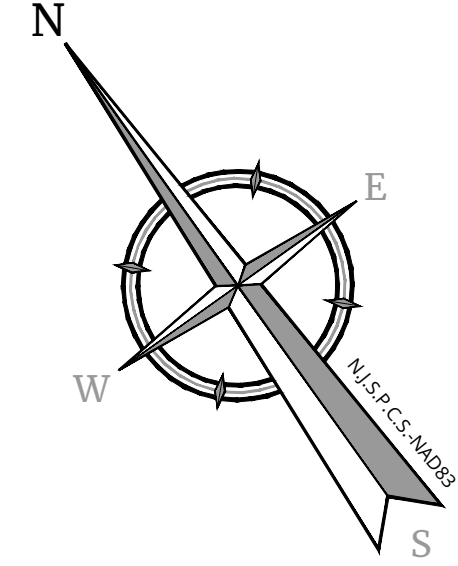
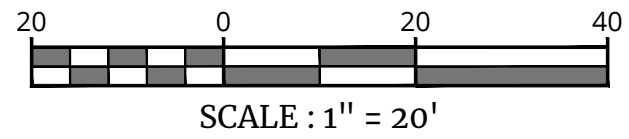
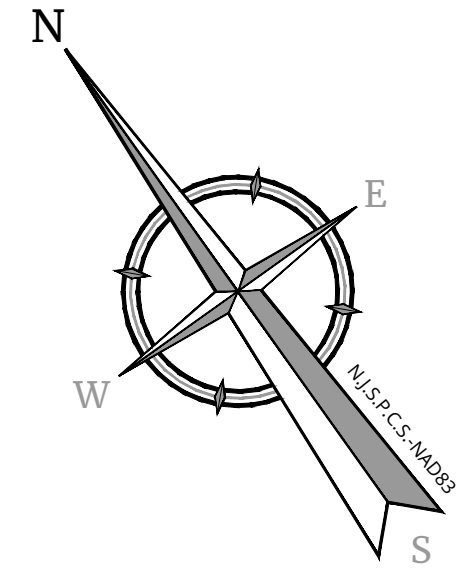
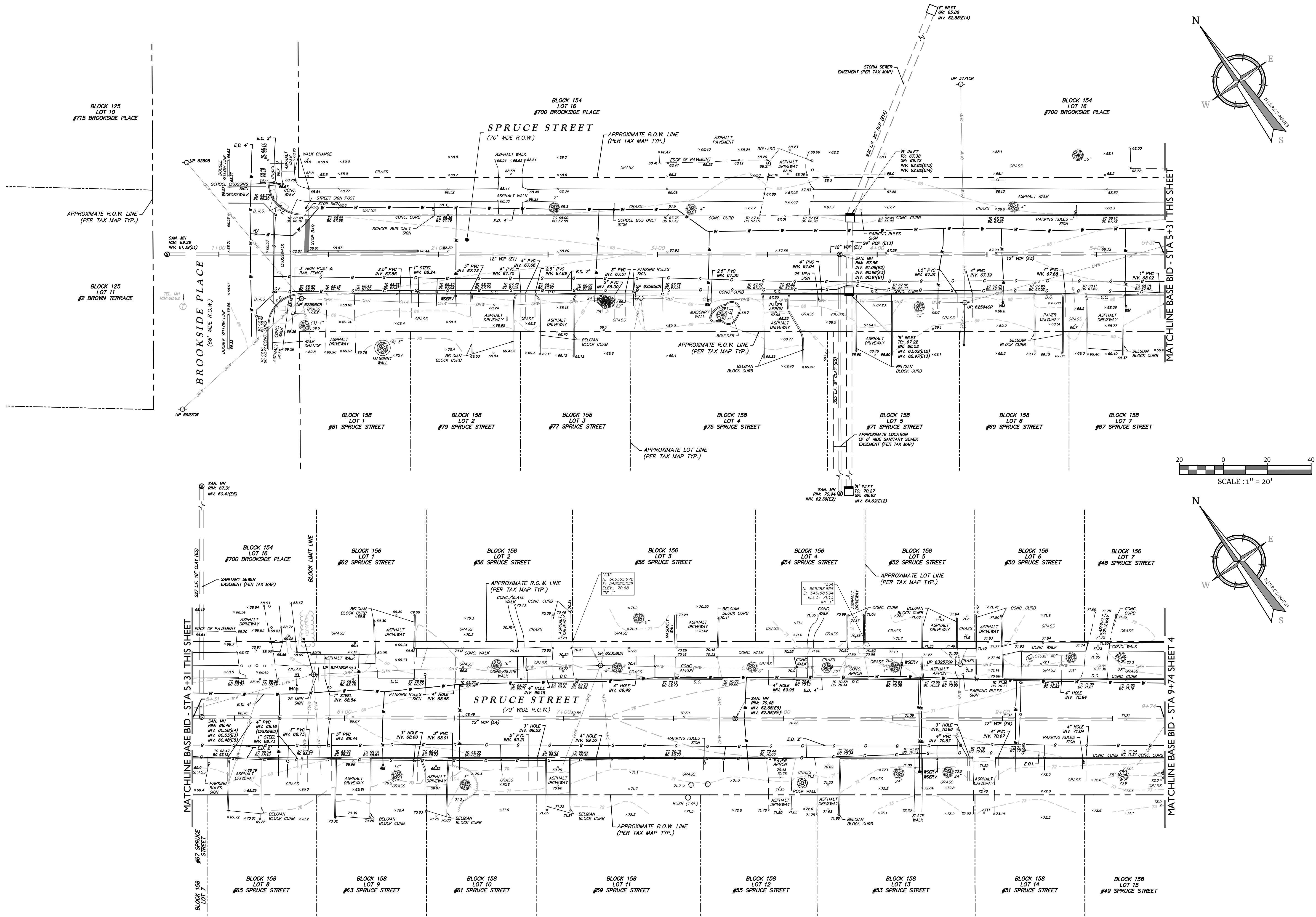
- | PAY ITEM NO. | BASE BID - NJDOT FY2022 - SPRUCE STREET IMPROVEMENTS    | UNIT   | TOTAL BASE BID QUANTITY |
|--------------|---|--------|-------------------------|
| 1            | INLET FILTER, TYPE 2, 2' X 4'                           | UNIT   | 4                       |
| 2            | BREAKAWAY BARRICADE                                     | UNIT   | 25                      |
| 3            | DRUM  | UNIT   | 50                      |
| 4            | TRAFFIC CONE  | UNIT   | 100                     |
| 5            | CONSTRUCTION SIGNS                                      | SF     | 250                     |
| 6            | POLICE TRAFFIC DIRECTORS                                | HOURL  | 480                     |
| 7            | FUEL PRICE ADJUSTMENT                                   | DOLLAR | 200                     |
| 8            | ASPHALT PRICE ADJUSTMENT                                | DOLLAR | 400                     |
| 9            | CLEARING SITE   | LS     | 1                       |
| 10           | EXCAVATION, TEST PIT                                    | CY     | 10                      |
| 11           | EXCAVATION, BORROW EXCAVATION AND GRADING, UNCLASSIFIED | LS     | 1                       |
| 12           | HMA MILLING, 3" OR LESS                                 | SY     | 7,411                   |
| 13           | HOT MIX ASPHALT PAVEMENT REPAIR                         | SY     | 2,338                   |
| 14           | TACK COAT   | GALLON | 1,114                   |
| 15           | HOT MIX ASPHALT 9.5M64 SURFACE COURSE                   | TON    | 1,114                   |
| 16           | FULL DEPTH CONCRETE PAVEMENT REPAIR, HMA                | SY     | 286                     |
| 17           | LEADER DRAIN, 4" POLYVINYL CHLORIDE PIPE                | LF     | 100                     |
| 18           | RESET EXISTING CASTING                                  | UNIT   | 3                       |
| 19           | BICYCLE SAFE GRATE (PHASE II STORMWATER COMPLANT GRATE) | UNIT   | 1                       |
| 20           | CURB PIECE (NJDEP TYPE 'N' ECO)                         | UNIT   | 3                       |
| 21           | REPAIR INTERIOR OF DRAINAGE STRUCTURE                   | UNIT   | 4                       |
| 22           | HOT MIX ASPHALT SIDEWALK, 2" THICK                      | SY     | 18                      |
| 23           | CONCRETE SIDEWALK, 4" THICK                             | SY     | 119                     |
| 24           | HOT MIX ASPHALT DRIVEWAY, 2" THICK                      | SY     | 275                     |
| 25           | HOT MIX ASPHALT DRIVEWAY, 6" THICK                      | SY     | 75                      |
| 26           | CONCRETE DRIVEWAY, REINFORCED, 6" THICK                 | SY     | 145                     |
| 27           | DETECTABLE WARNING SURFACE                              | SY     | 6                       |
| 28           | RESET PAVERS  | SY     | 47                      |
| 29           | 9" X 18" CONCRETE VERTICAL CURB                         | LF     | 2,039                   |
| 30           | GRANITE BLOCK CURB                                      | LF     | 100                     |
| 31           | TRAFFIC STRIPES, 4"                                     | LF     | 663                     |
| 32           | TRAFFIC MARKING LINES, 6"                               | LF     | 213                     |
| 33           | TRAFFIC MARKING LINES, 12"                              | LF     | 38                      |
| 34           | RESET MANHOLE, SANITARY SEWER, USING EXISTING CASTING   | UNIT   | 4                       |
| 35           | TOPSOIL SPREADING, 6" THICK                             | SY     | 1,038                   |
| 36           | FERTILIZING AND SEEDING, TYPE ERNMIX-106                | SY     | 1,038                   |
| 37           | STRAW MULCHING  | SY     | 1,038                   |



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Doing Business as					<div style="display: flex; align-items: center; justify-content: center;"></div>				
<div style="display: flex; align-items: center; justify-content: center;"><div style="text-align: center; width: 50px;"> Call before you dig.</div><div style="margin-left: 10px; font-size: x-small;">PROTECT YOURSELF ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DIGIT THE EARTH'S SURFACE ANYWHERE IN ANY STATE</div></div>									
FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT: WWW.CALL811.COM									
Carl P. O'Brien									
NEW JERSEY LICENSED PROFESSIONAL ENGINEER LICENSE NUMBER: GE45454 COLLIERS ENGINEERING & DESIGN, INC. N.J. C.O.A. #: 24GA27986500									
CONSTRUCTION PLANS									
FOR									
NJDOT FY2022- SPRUCE STREET IMPROVEMENTS									
(BROOKSIDE PLACE TO WEST END PLACE)									
TOWNSHIP OF CRANFORD UNION COUNTY NEW JERSEY									
<div style="display: flex; justify-content: space-around; align-items: center;"><div style="text-align: center;"> <b>Engineering &amp; Design</b></div><div style="text-align: center; font-size: small;">MT. ARLINGTON 400 Valley Road, Suite 204 Mt. Arlington, NJ 07856 Phone: 973.398.3110 COLLIERS ENGINEERING &amp; DESIGN, INC. DOING BUSINESS AS MASER CONSULTING</div></div>									
SCALE:		DATE:		DRAWN BY:		CHECKED BY:			
AS SHOWN		02/06/23		MIB		PMJ			
PROJECT NUMBER:		DRAWING NAME:							
CD70061		C-COVER							
GENERAL NOTES & QUANTITIES									
SHEET NUMBER: <div style="display: flex; justify-content: space-between; width: 100%;">2 of 26</div>									



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POINT PNEZD DATA				
POINT NUMBER	NORTHING	EASTING	ELEVATION	RAW DESCRIPTION
1232	666.365.9780	54.3060.0390	70.681	IPF 1"
1364	666288.8680	543168.9040	71.128	IPF 1"

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				1	2	3	4	5	6	7	8	9	10
1	04/26/23	MB	REVISED AS PER NOT COMMENTS										

*Carl P. O'Brien*  
Carl P. O'Brien  
NEW JERSEY LICENSED PROFESSIONAL ENGINEER  
LICENSE NUMBER: 645154  
COLLIERS ENGINEERING & DESIGN, INC.  
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS

FOR

NJDOT FY2022-  
SPRUCE STREET  
IMPROVEMENTS

(BROOKSIDE PLACE TO  
WEST END PLACE)

TOWNSHIP OF CRANFORD  
UNION COUNTY  
NEW JERSEY

Colliers  
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Phone: 973.398.3110  
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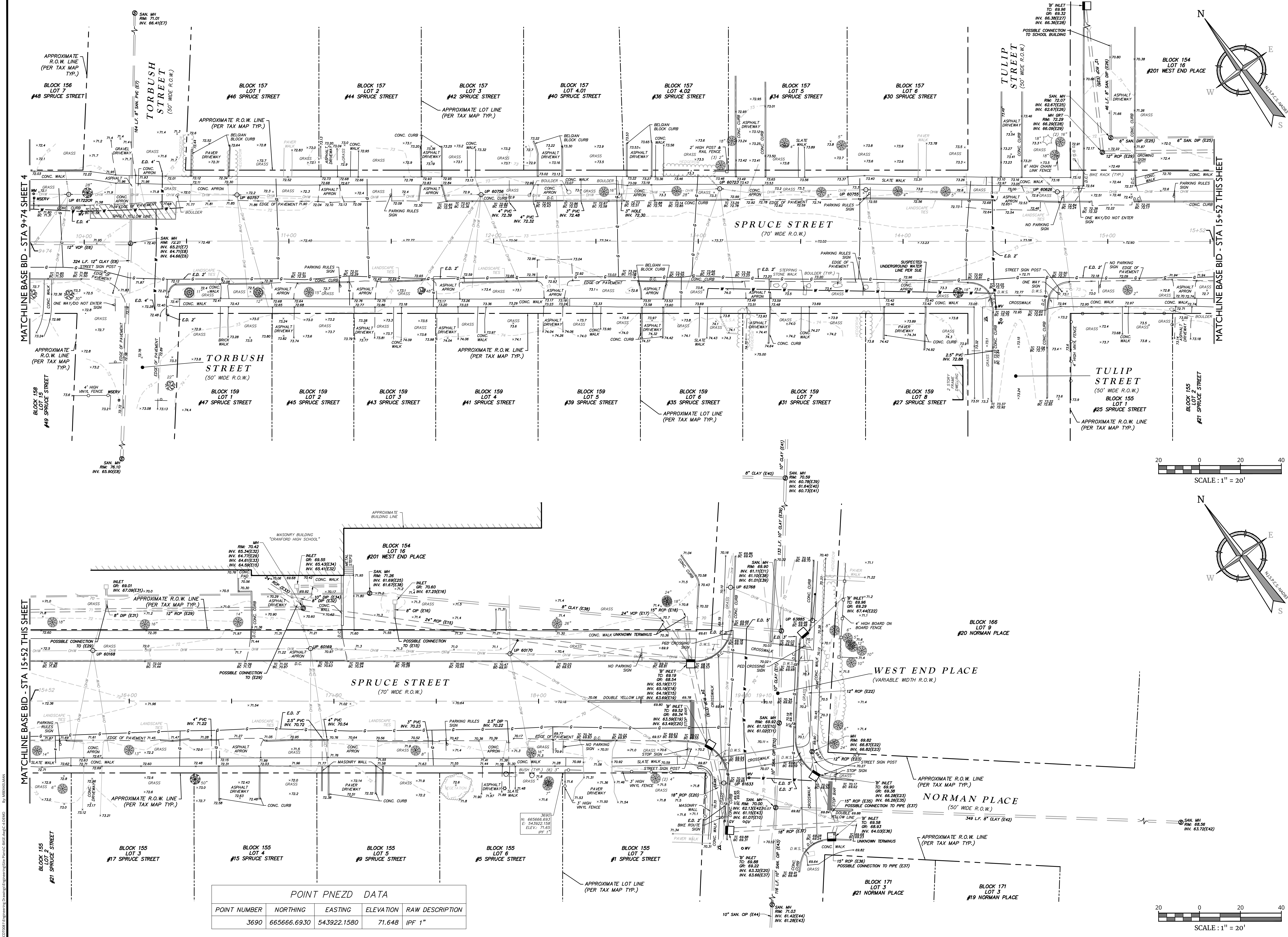
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AS SHOWN	02/06/23	MB	PWJ
PROJECT NUMBER:	DRAWING NAME:		
CDT0081	C-BASE		

SHEET TITLE  
EXISTING CONDITIONS PLAN

SHEET NUMBER  
3 of 26

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.





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REV.	DATE	DRAWN BY	DESCRIPTION
1	04/26/23	MB	REVISED AS PER NDOT COMMENTS

Carl P. O'Brien

Carl P. O'Brien

NEW JERSEY LICENSED PROFESSIONAL ENGINEER

LICENSE NUMBER: 645154

COLLIERS ENGINEERING & DESIGN, INC.

N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS

FOR

NJDOT FY2022-  
SPRUCE STREET  
IMPROVEMENTS

(BROOKSIDE PLACE TO  
WEST END PLACE)

TOWNSHIP OF CRANFORD  
UNION COUNTY  
NEW JERSEY

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Engineering & Design

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400 Valley Road,  
Suite 304  
Mt. Arlington, NJ 07856  
Phone: 973.398.3110  
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SCALE:	DATE:	DRAWN BY:	CHECKED BY:
AS SHOWN	02/06/23	MB	PWJ

PROJECT NUMBER:	DRAWING NAME:
CDT0081	C-BASE

SHEET TITLE

EXISTING CONDITIONS PLAN

SHEET NUMBER

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POINT PNEZD DATA

POINT NUMBER	NORTHING	EASTING	ELEVATION	RAW DESCRIPTION
3690	665666.6930	543922.1580	71.648	IPF 1"

SCALE: 1" = 20'

SCALE: 1" = 20'

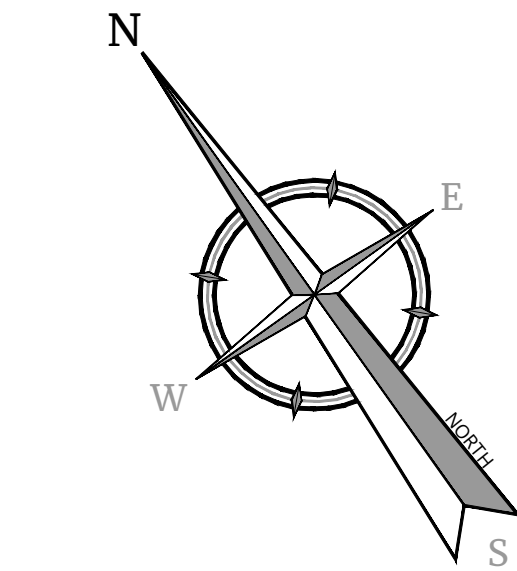
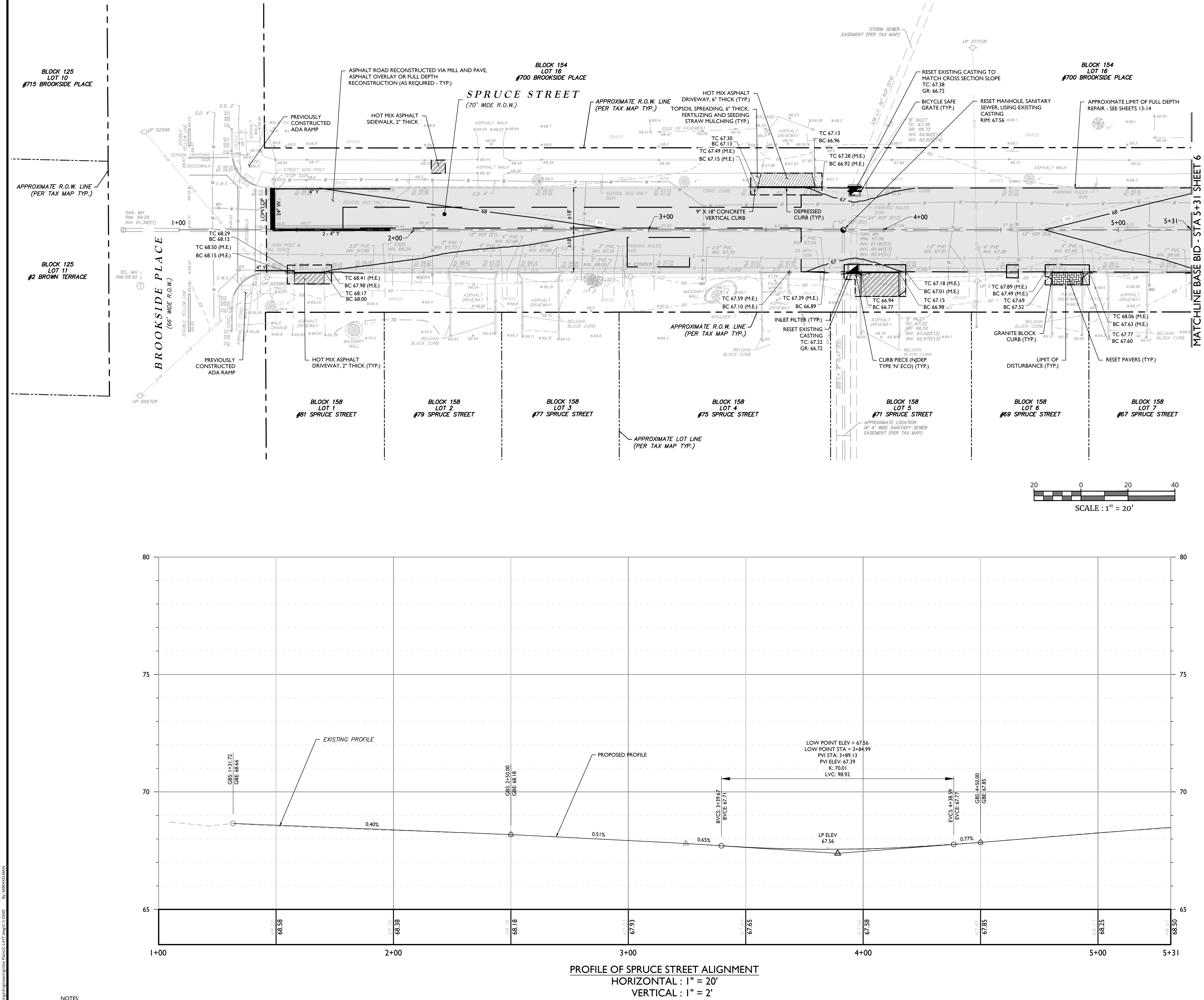
NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



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NOTES:  
1. THIS PROJECT IS EXEMPT FROM SOIL DE-COMPACTION REMEDIATION AND TESTING AS IT IS LOCATED IN AN URBAN REDEVELOPMENT AREA.

SOIL EROSION AND SEDIMENT CONTROL PLAN

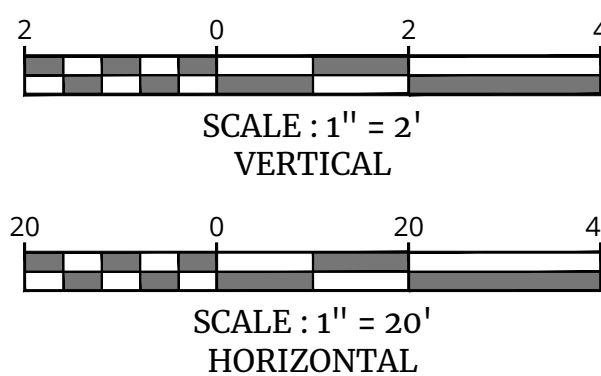


#### HATCH LEGEND

- ASPHALT ROAD RECONSTRUCTED VIA MILL AND PAVE, ASPHALT OVERLAY OR FULL DEPTH RECONSTRUCTION (AS REQUIRED - TYP.)
- HOT MIX ASPHALT SIDEWALK, 2" THICK
- CONCRETE SIDEWALK, 4" THICK
- HOT MIX ASPHALT DRIVEWAY, 2" THICK
- HOT MIX ASPHALT DRIVEWAY, 6" THICK
- CONCRETE DRIVEWAY, REINFORCED, 6" THICK
- RESET PAVERS
- RESTORATION USING TOPSOILING, 4" THICK FERTILIZING AND SEEDING, ERNMX-106 STRAW MULCHING

#### LINETYPE LEGEND

- APPROXIMATE LIMIT OF FULL DEPTH REPAIR - SEE SHEETS 13-14
- LIMIT OF DISTURBANCE



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LICENSE NUMBER: GE45154  
COLLIERS ENGINEERING & DESIGN, INC.  
N.J. C.O.A. #: 24GA27986500

#### CONSTRUCTION PLANS

FOR

**NJDOT FY2022-  
SPRUCES STREET  
IMPROVEMENTS**

(BROOKSIDE PLACE TO  
WEST END PLACE)

TOWNSHIP OF CRANFORD  
UNION COUNTY  
NEW JERSEY

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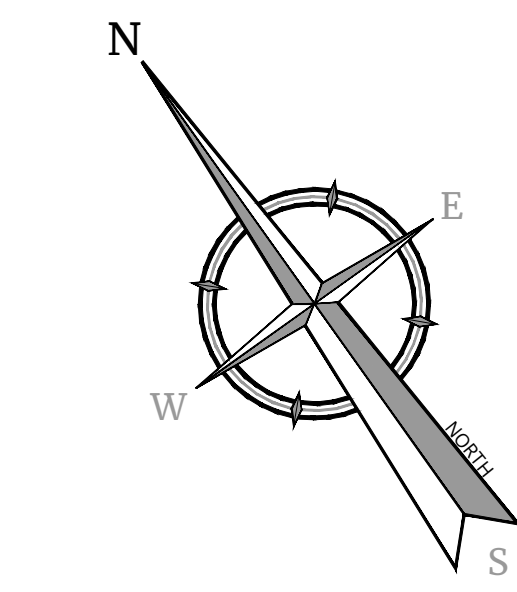
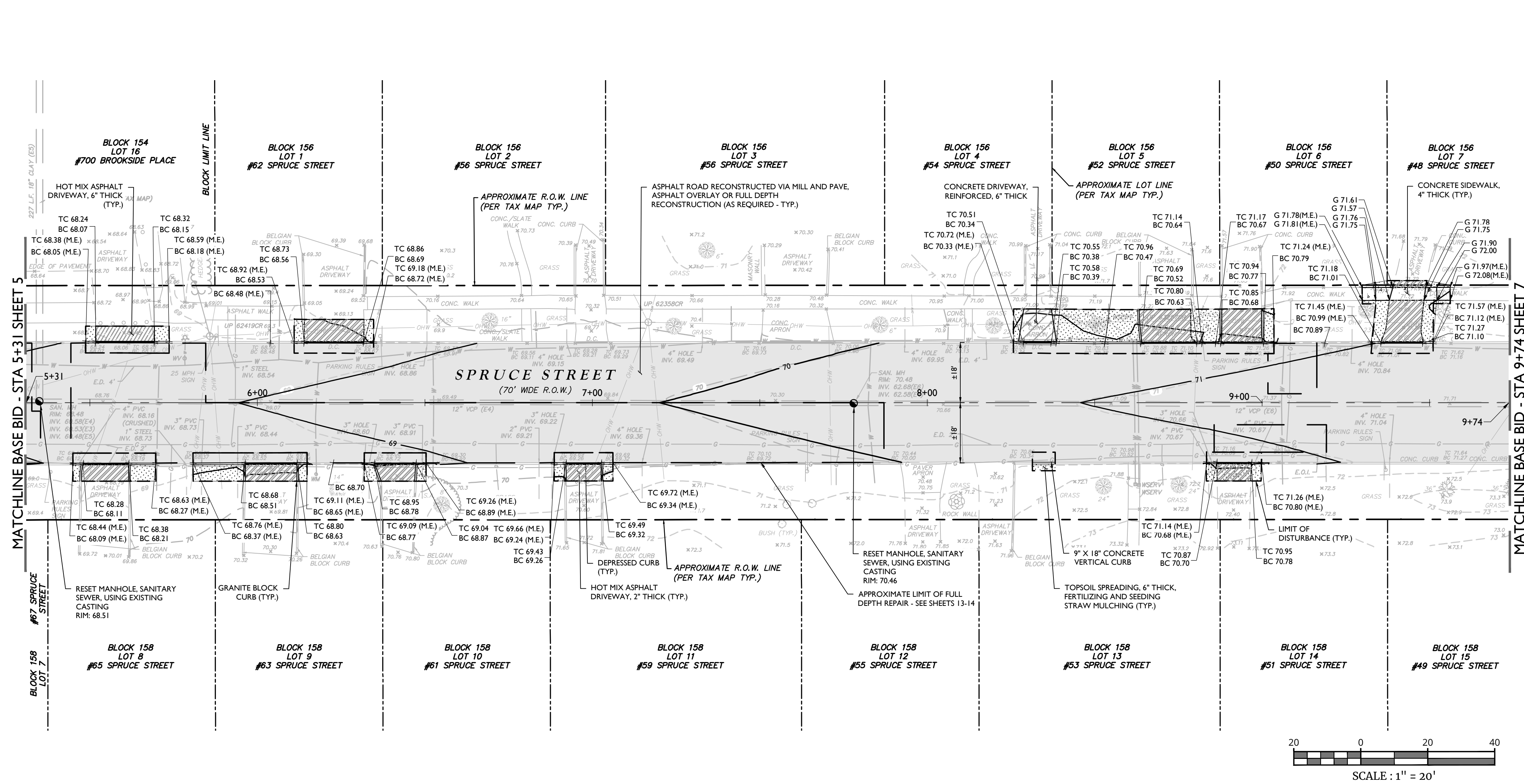
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AS SHOWN	02/06/23	MB	PWJ
PROJECT NUMBER:	DRAWING NAME:	SHEET TITLE:	SHEET NUMBER:
COT0081	C-LAYT	DIMENSION PLAN	5 of 26

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



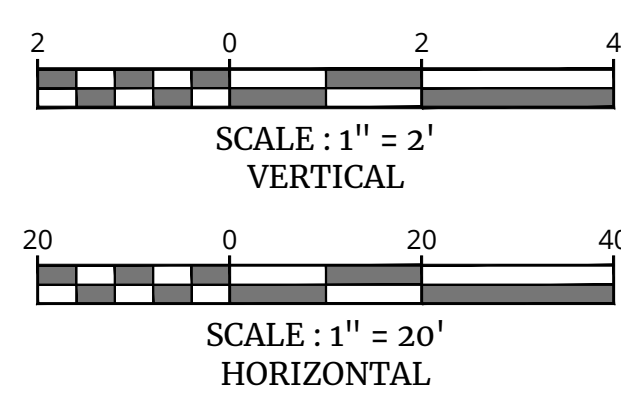
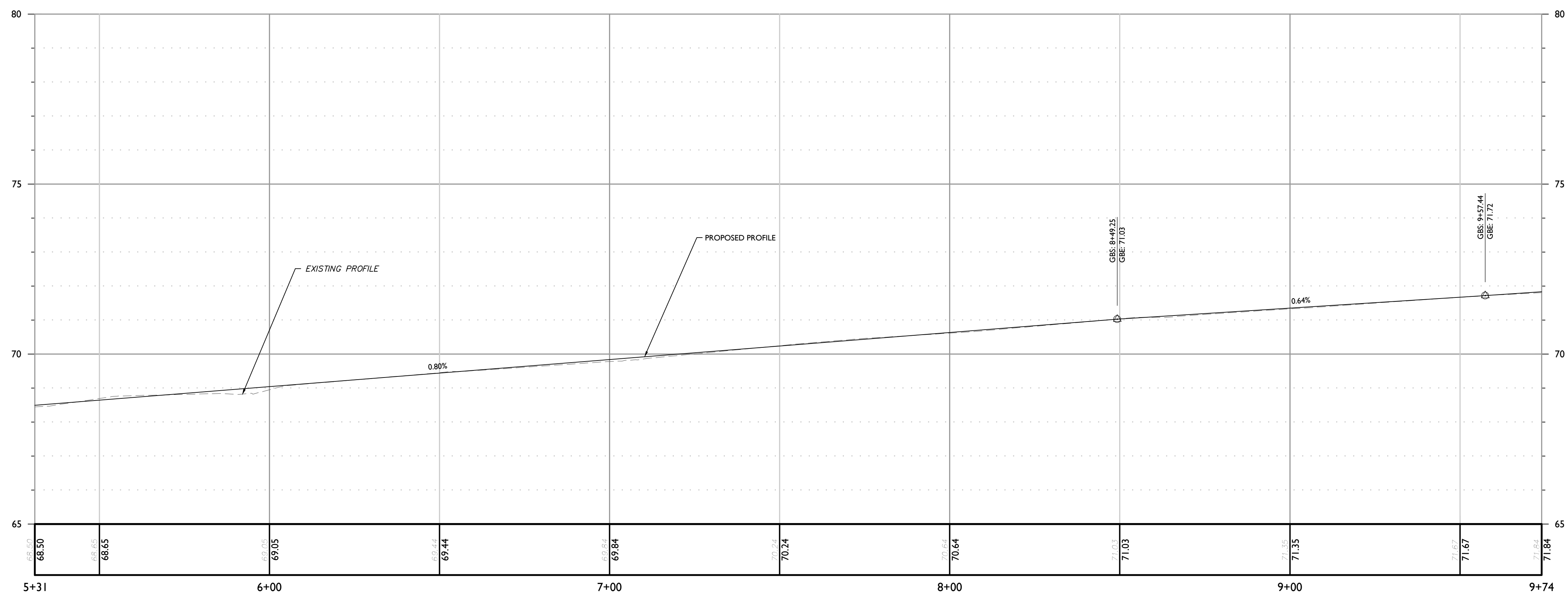
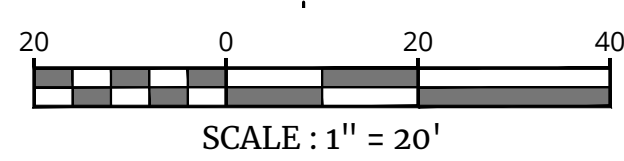


HATCH LEGEND

- ASPHALT ROAD RECONSTRUCTED VIA MILL AND PAVE, ASPHALT OVERLAY OR FULL DEPTH RECONSTRUCTION (AS REQUIRED - TYP.)
- HOT MIX ASPHALT SIDEWALK, 2" THICK
- CONCRETE SIDEWALK, 4" THICK
- HOT MIX ASPHALT DRIVEWAY, 2" THICK
- HOT MIX ASPHALT DRIVEWAY, 6" THICK
- CONCRETE DRIVEWAY, REINFORCED, 6" THICK
- RESET PAVERS
- RESTORATION USING TOPSOILING, 4" THICK FERTILIZING AND SEEDING, ERNMX-106 STRAW MULCHING

LINETYPE LEGEND

- APPROXIMATE LIMIT OF FULL DEPTH REPAIR - SEE SHEETS 13-14
- LIMIT OF DISTURBANCE



NOTES:  
1. THIS PROJECT IS EXEMPT FROM SOIL DE-COMPACTION REMEDIATION AND TESTING AS IT IS LOCATED IN AN URBAN REDEVELOPMENT AREA.

SOIL EROSION AND SEDIMENT CONTROL PLAN

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LICENSE NUMBER: GE45154

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CONSTRUCTION PLANS

FOR

NJDOT FY2022-  
SPRUCE STREET  
IMPROVEMENTS

(BROOKSIDE PLACE TO  
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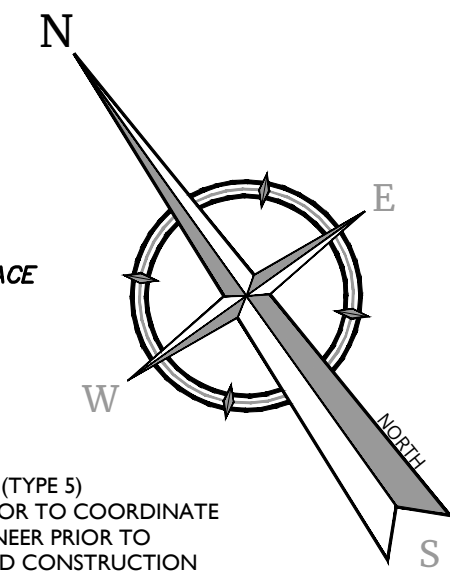
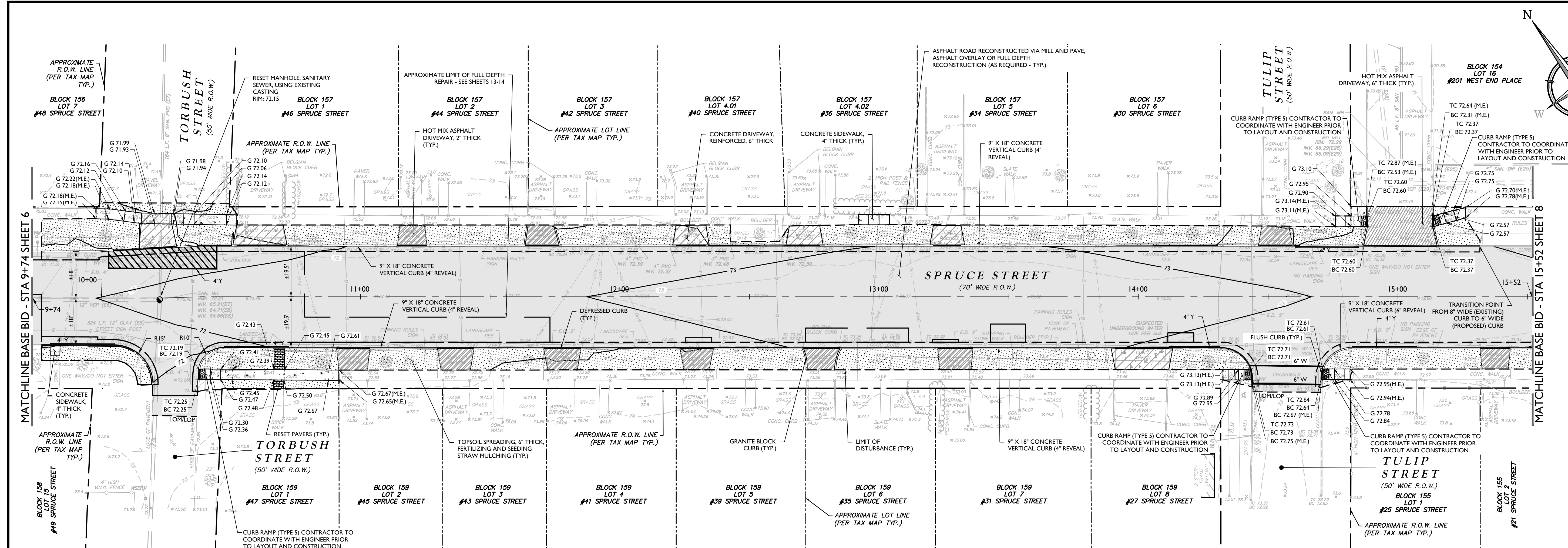
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COT0081	C-LAYT

SHEET TITLE:
DIMENSION PLAN

SHEET NUMBER:
6 of 26

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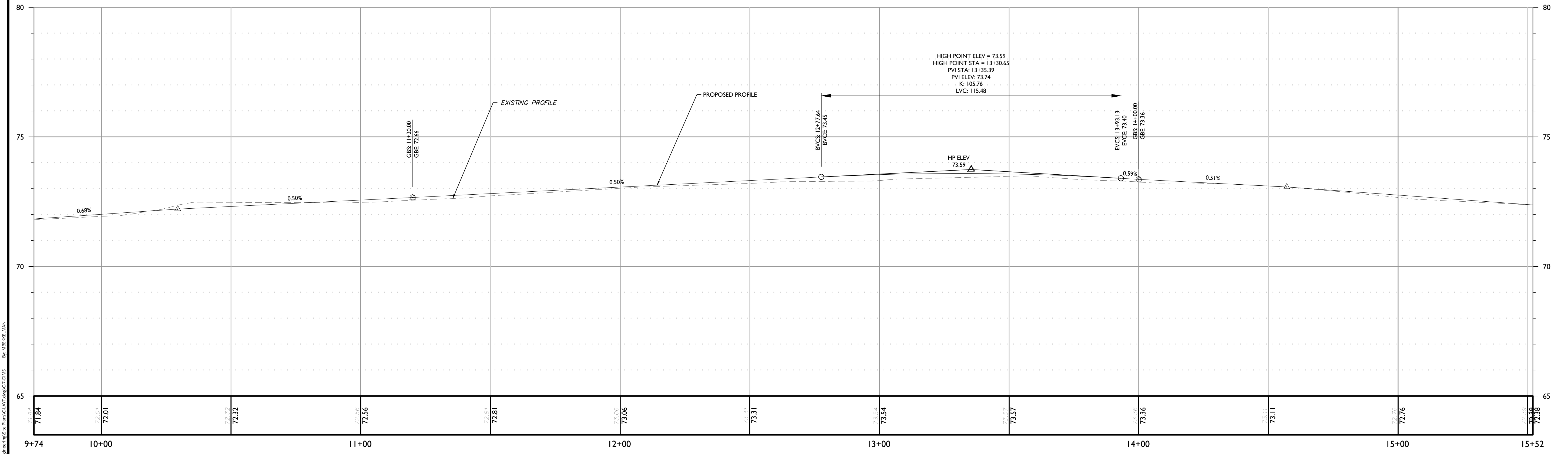
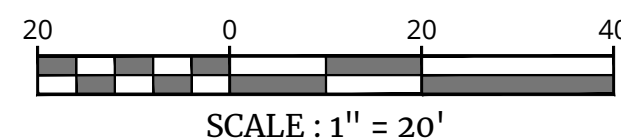


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- ASPHALT ROAD RECONSTRUCTED VIA MILL AND PAVE, ASPHALT OVERLAY OR FULL DEPTH RECONSTRUCTION (AS REQUIRED - TYP.)
- CONCRETE SIDEWALK, 4" THICK
- HOT MIX ASPHALT DRIVEWAY, 6" THICK
- RESET PAVERS
- HOT MIX ASPHALT SIDEWALK, 2" THICK
- HOT MIX ASPHALT DRIVEWAY, 2" THICK
- CONCRETE DRIVEWAY, REINFORCED, 6" THICK
- RESTORATION USING TOPSOILING, 4" THICK FERTILIZING AND SEEDING, ERNMX-106 STRAW MULCHING

LINETYPE LEGEND

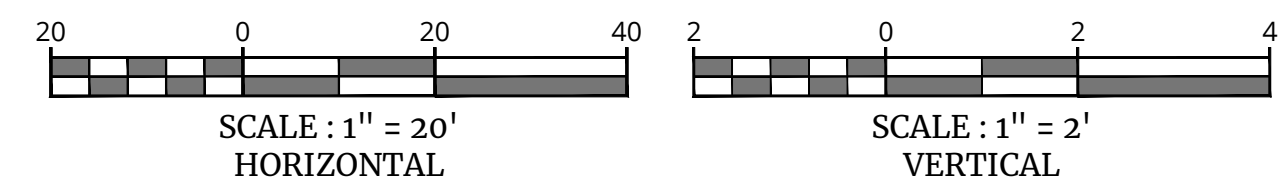
- APPROXIMATE LIMIT OF FULL DEPTH REPAIR - SEE SHEETS 13-14
- LIMIT OF DISTURBANCE



PROFILE OF SPRUCE STREET ALIGNMENT  
HORIZONTAL : 1" = 20'  
VERTICAL : 1" = 2'

NOTES:  
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SOIL EROSION AND SEDIMENT CONTROL PLAN



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PROJECT NUMBER:	DRAWING NAME:
CDT0081	C-LAYT

SHEET TITLE:
DIMENSION PLAN

SHEET NUMBER:
7 of 26

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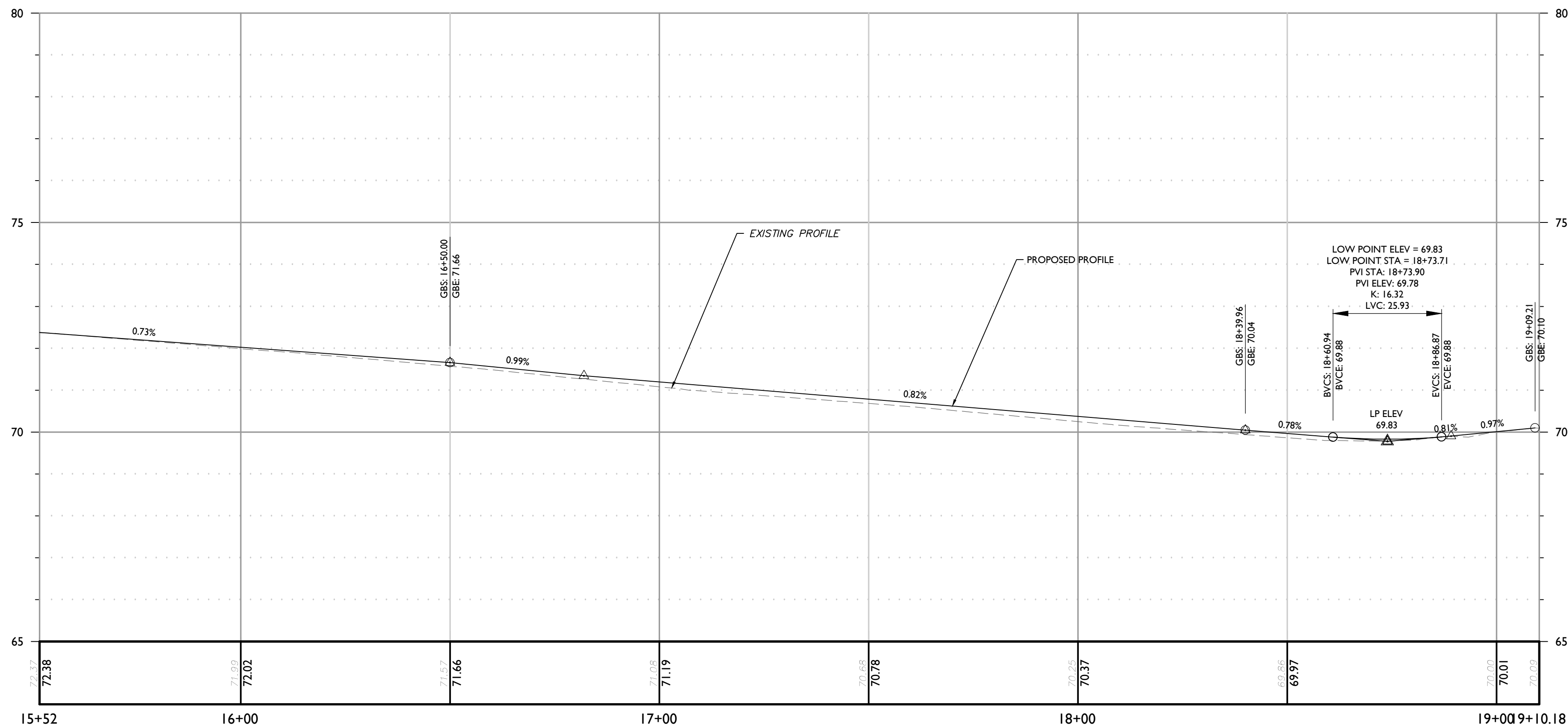


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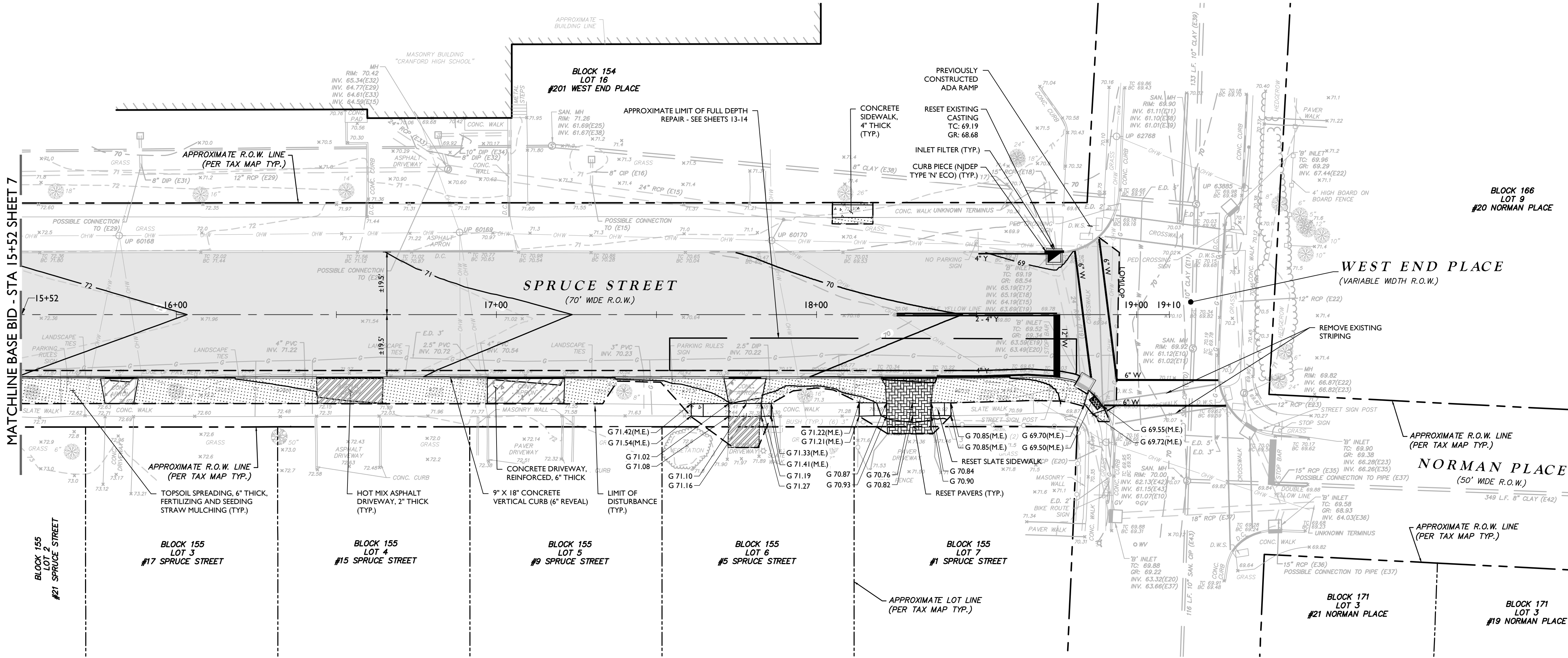
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SOIL EROSION AND SEDIMENT CONTROL PLAN



MATCHLINE BASE BID - STA 15+52 SHEET 7

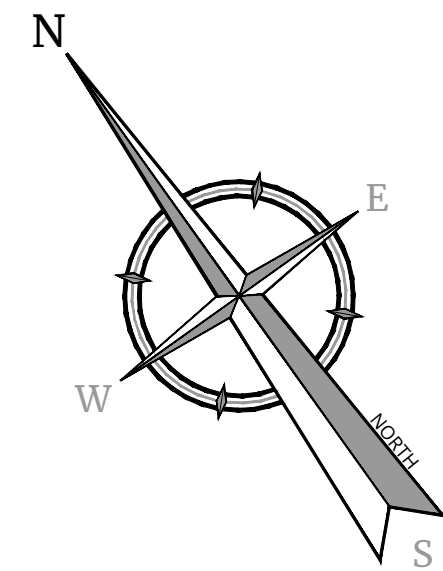
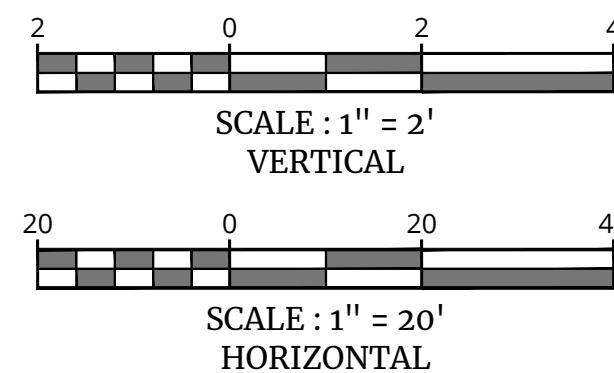


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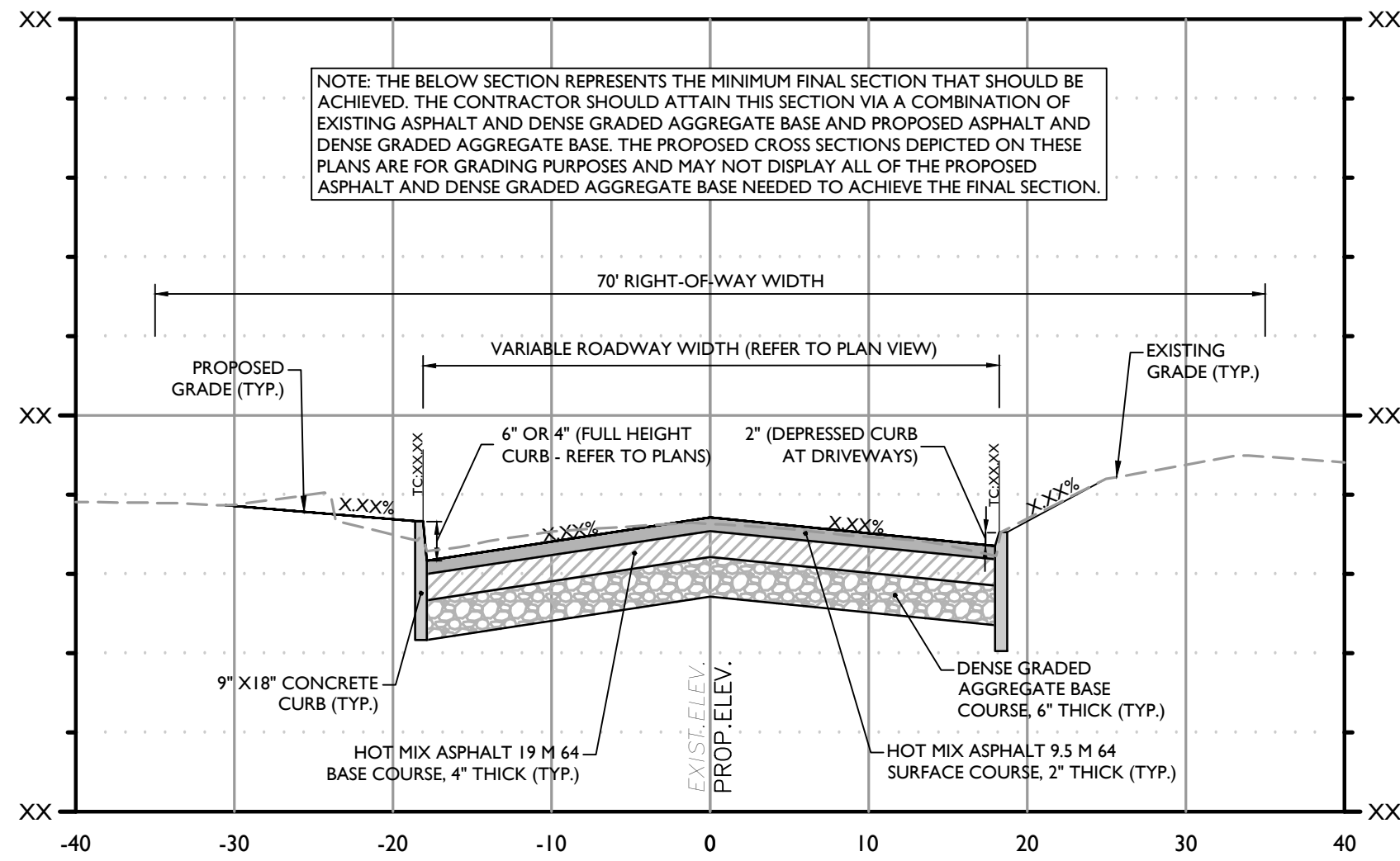
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PROJECT NUMBER: COT0081	DRAWING NAME: C-LAYT		

SHEET TITLE:  
DIMENSION PLAN

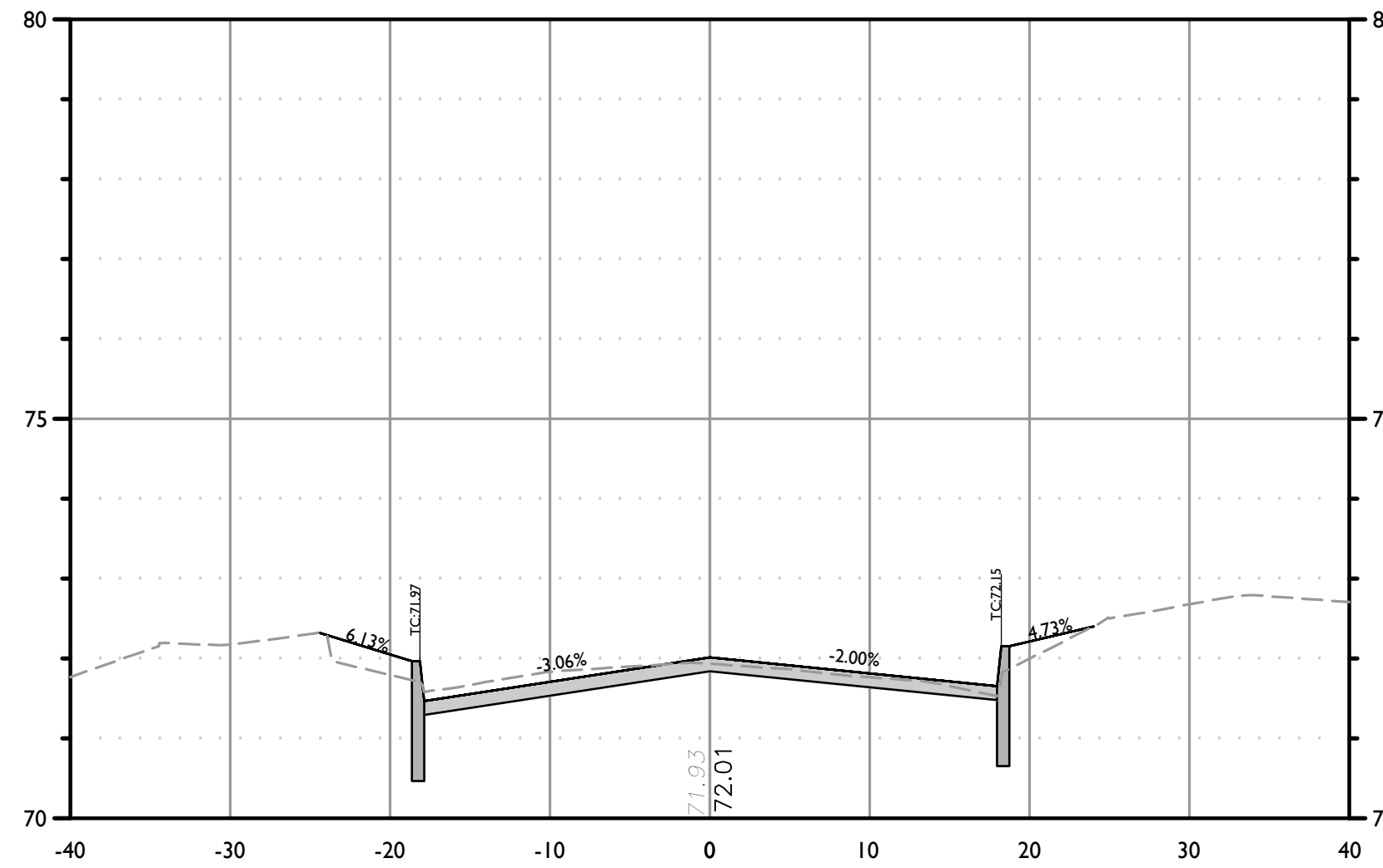
SHEET NUMBER:  
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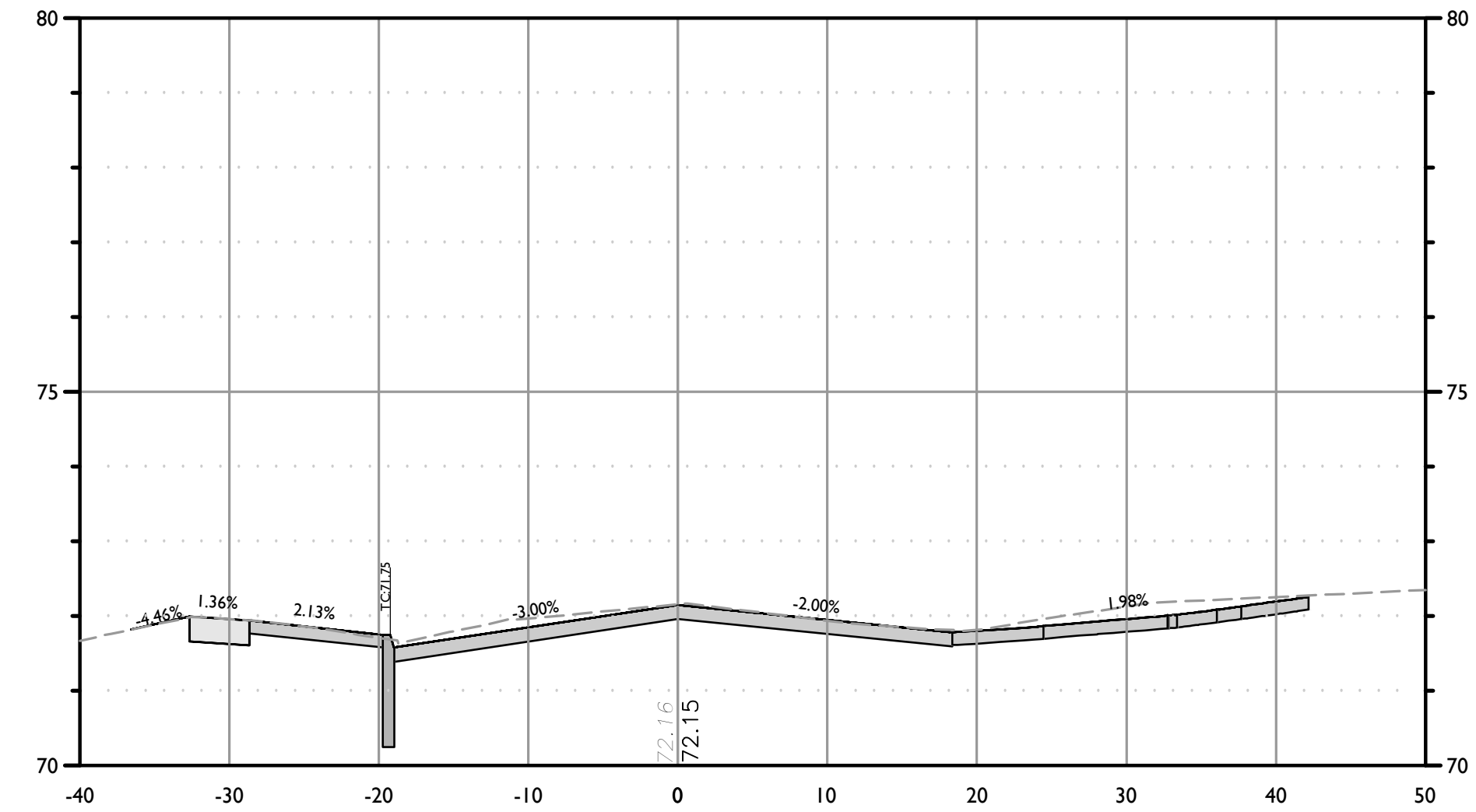




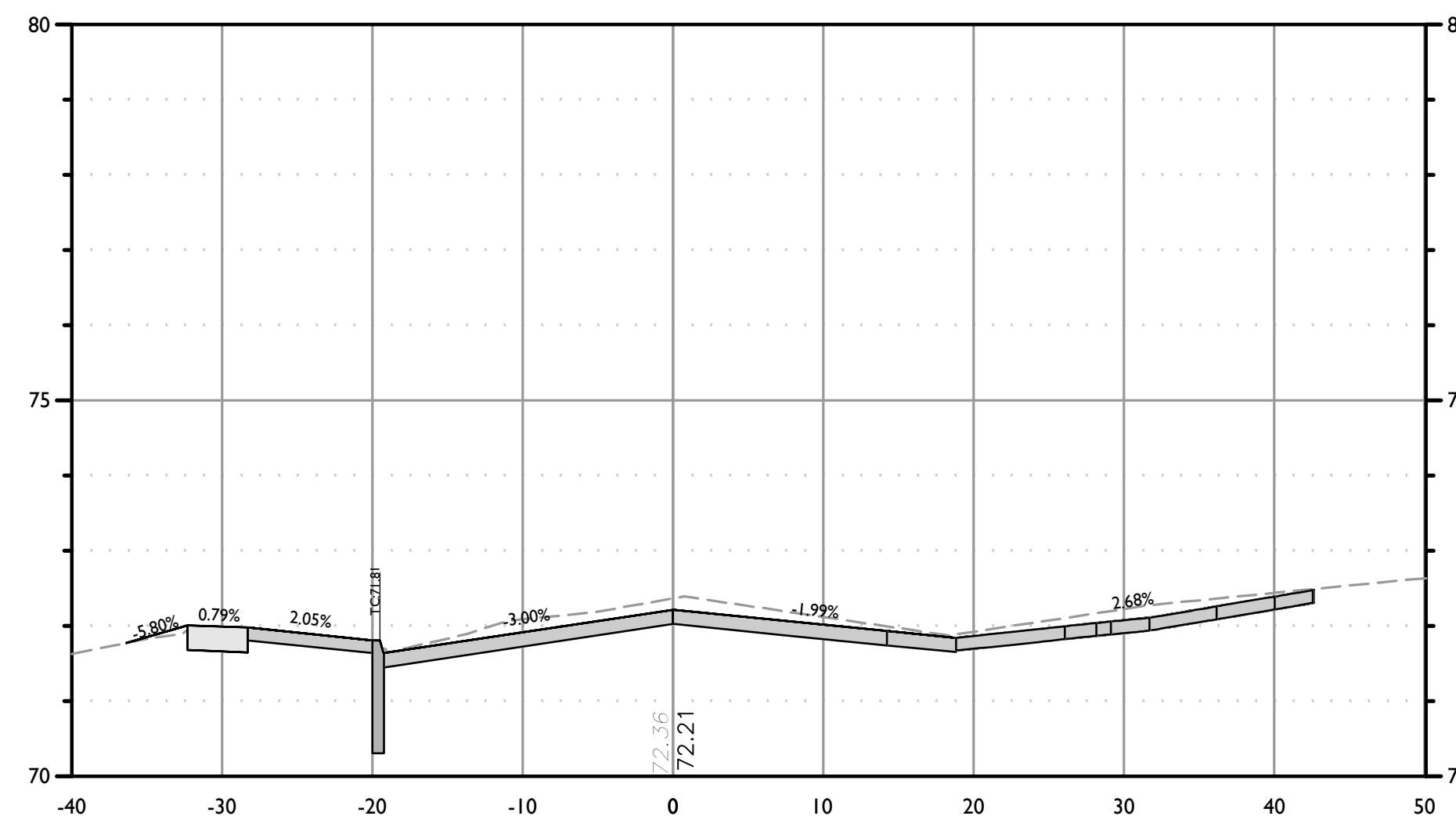
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STATION: XX+XX.XX  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



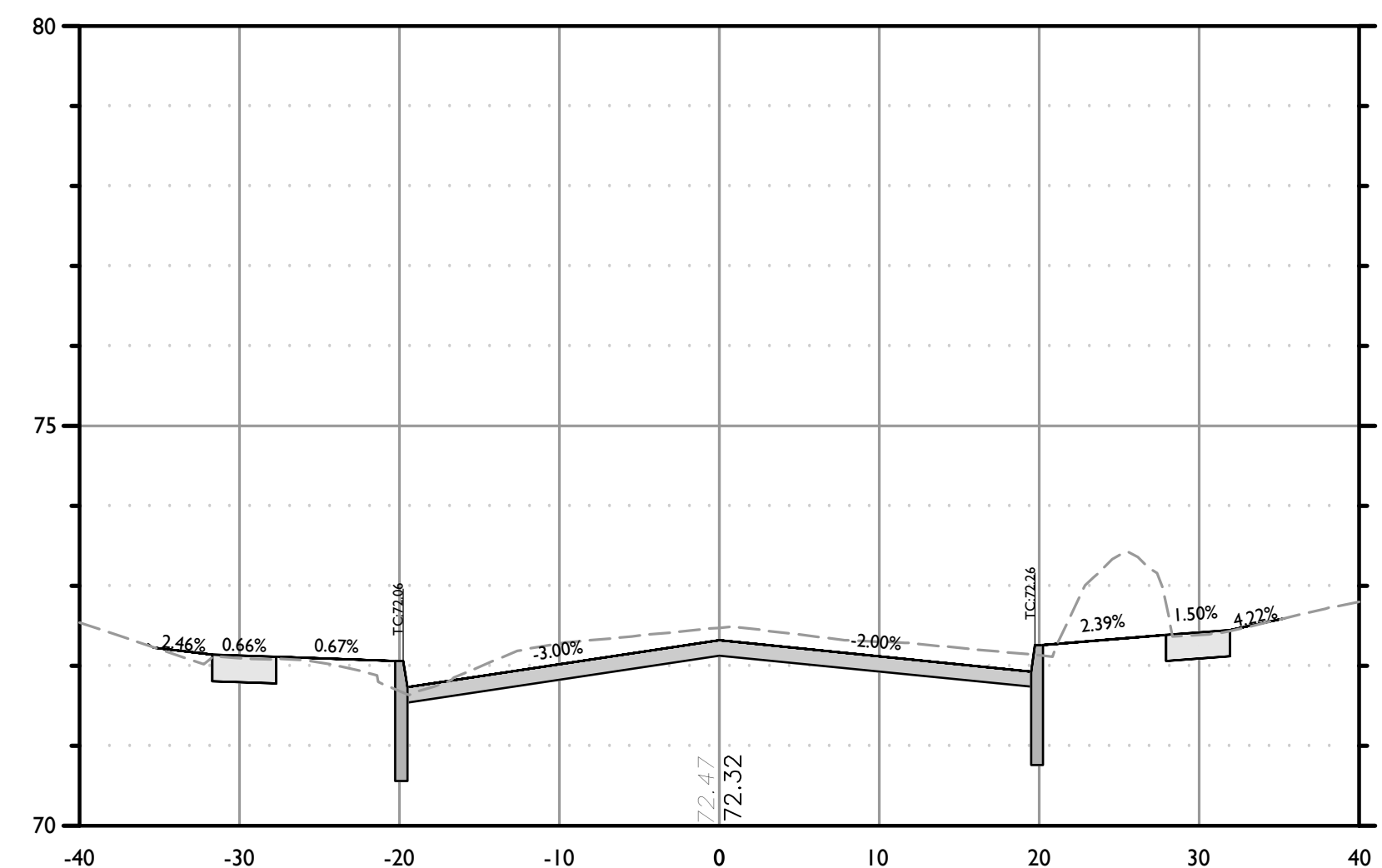
CROSS SECTION OF SPRUCE STREET ALIGNMENT  
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



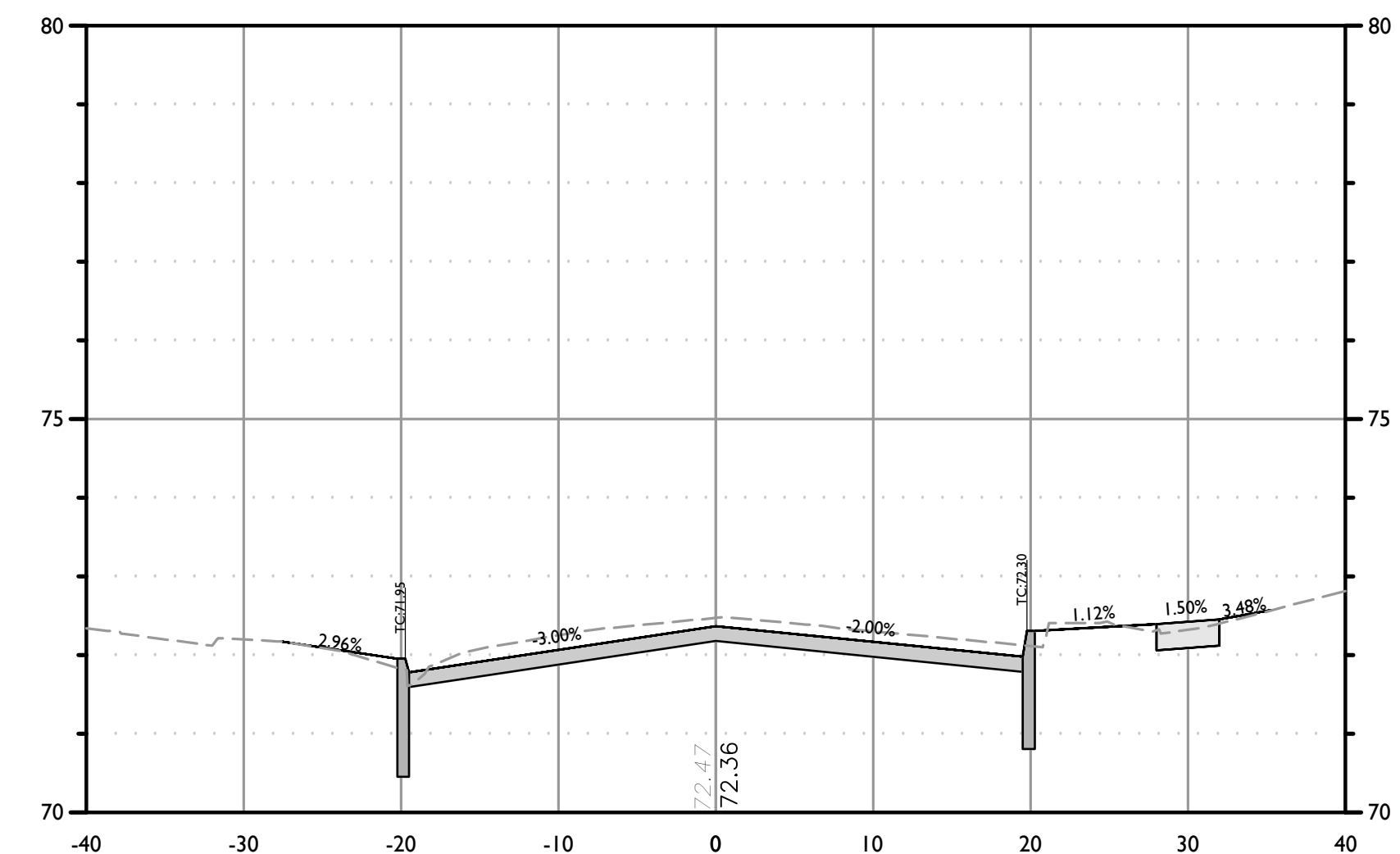
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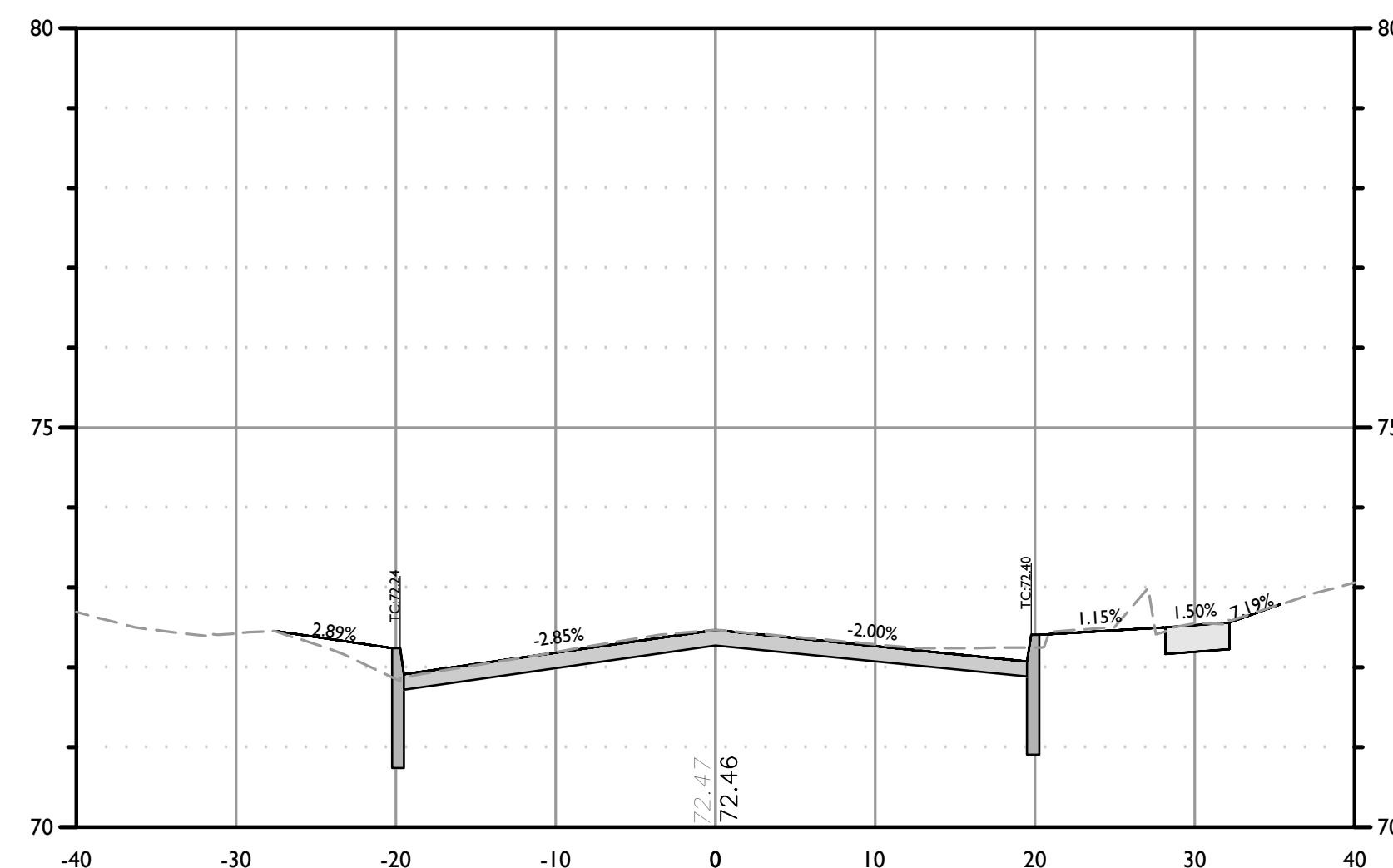
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



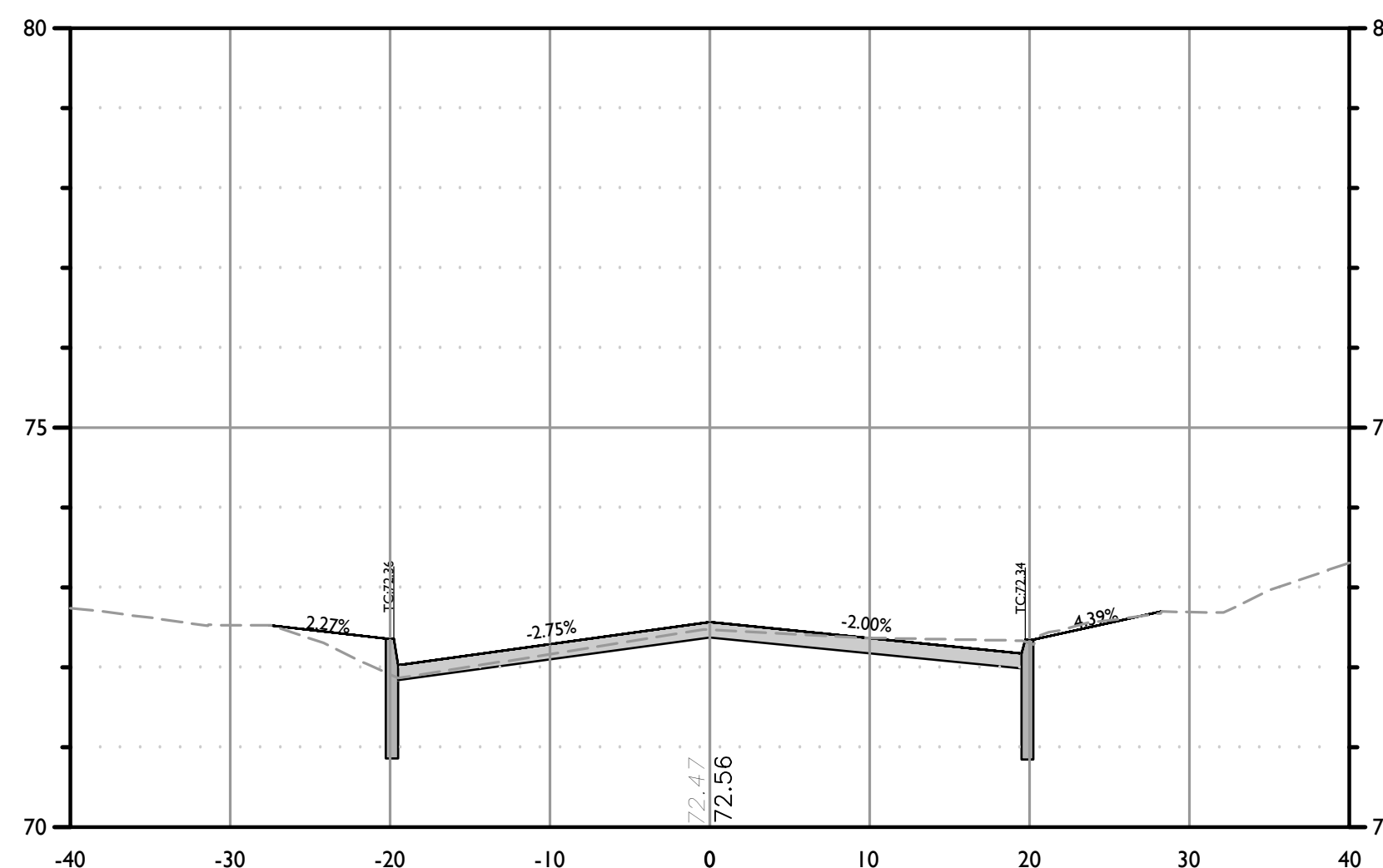
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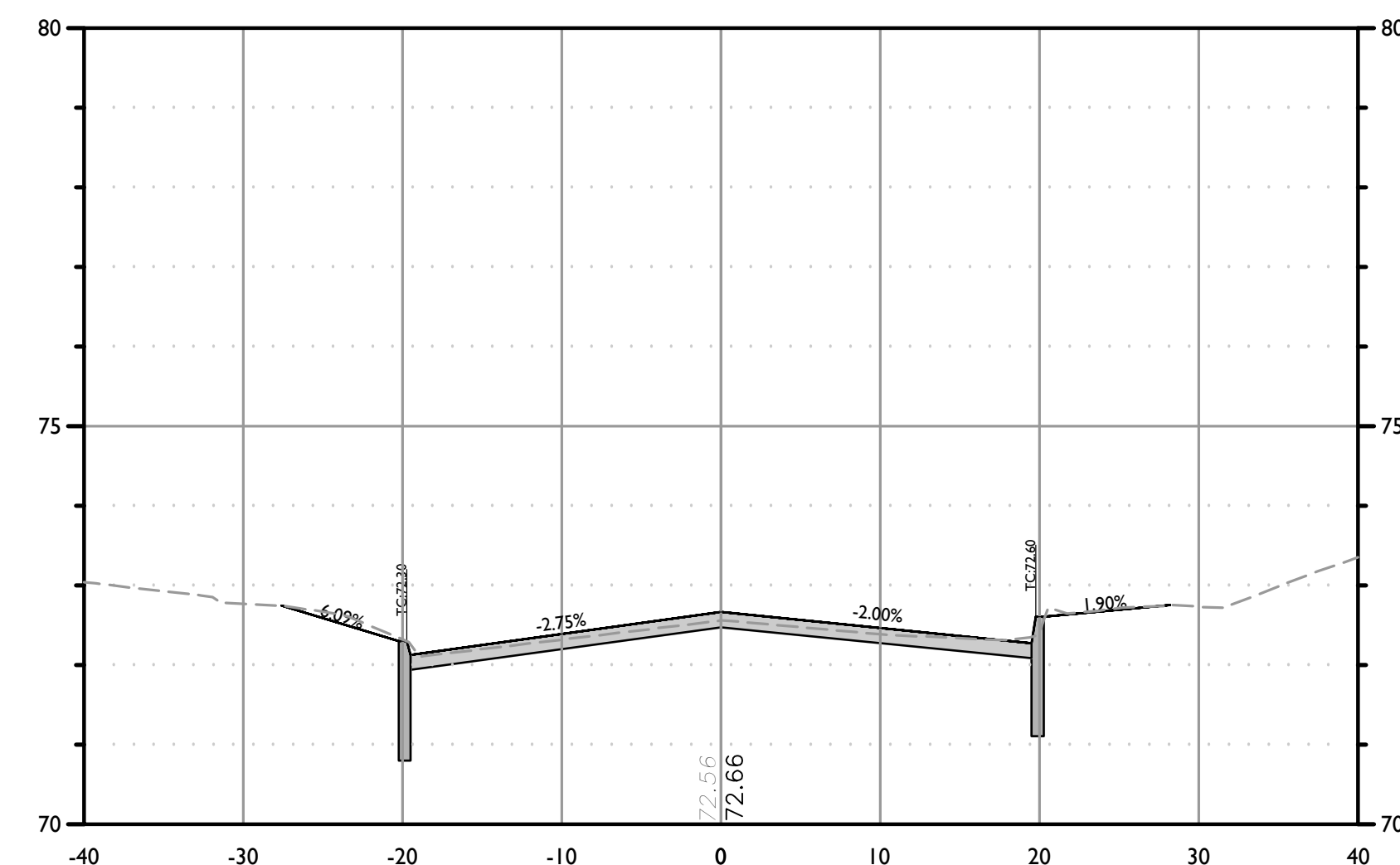
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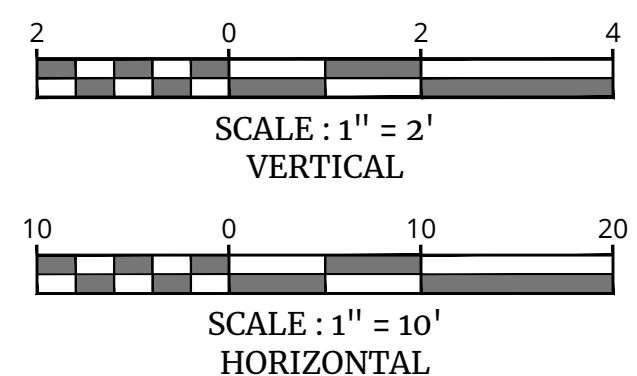
CROSS SECTION OF SPRUCE STREET ALIGNMENT  
STATION: 10+80  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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



CROSS SECTION OF SPRUCE STREET ALIGNMENT  
STATION: 11+20  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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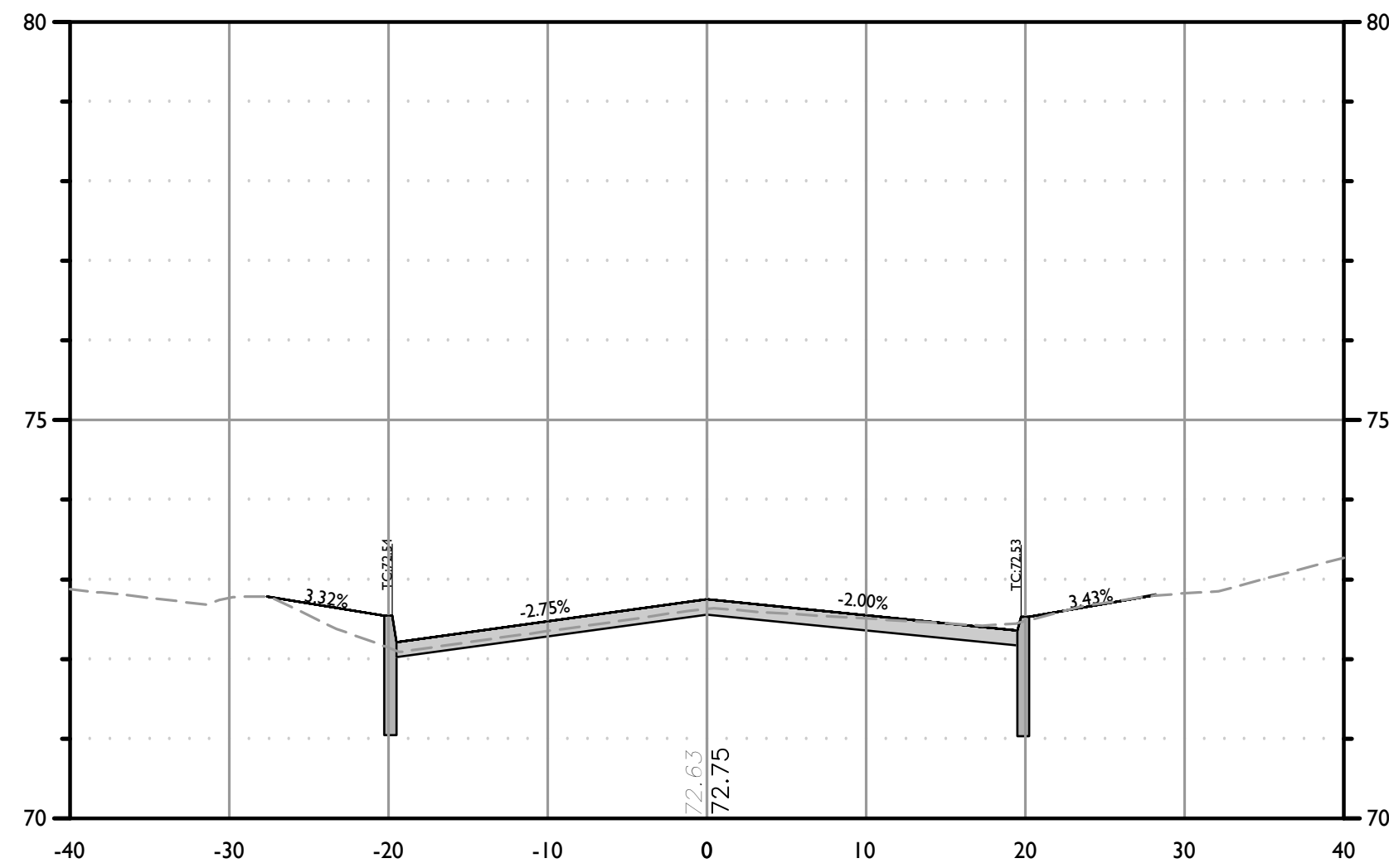
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DATE: 02/06/23  
DRAWN BY: MIB  
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PROJECT NUMBER: CDT0081  
DRAWING NAME: C-LAYT

SHEET TITLE:  
CROSS SECTIONS

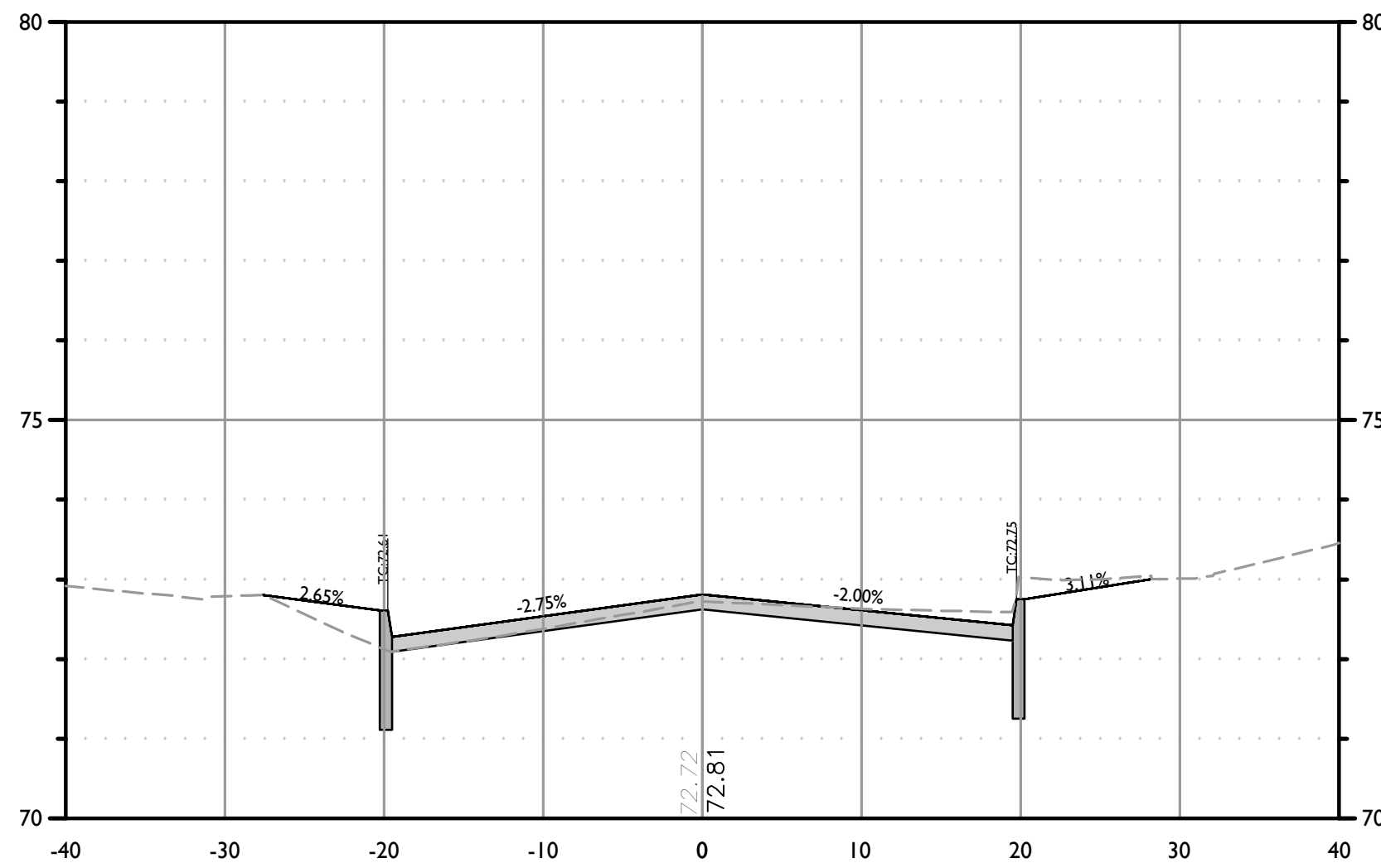
SHEET NUMBER:  
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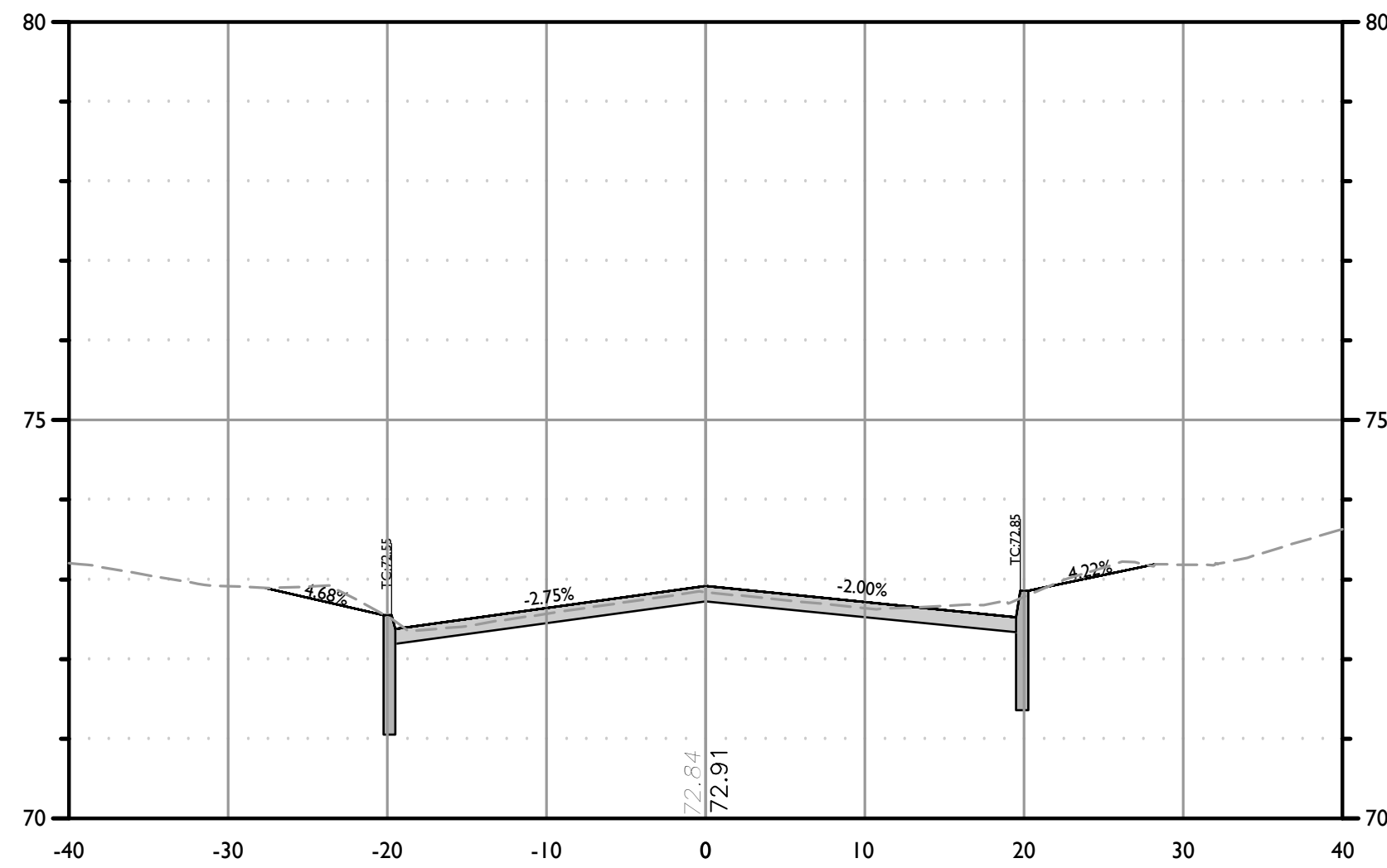




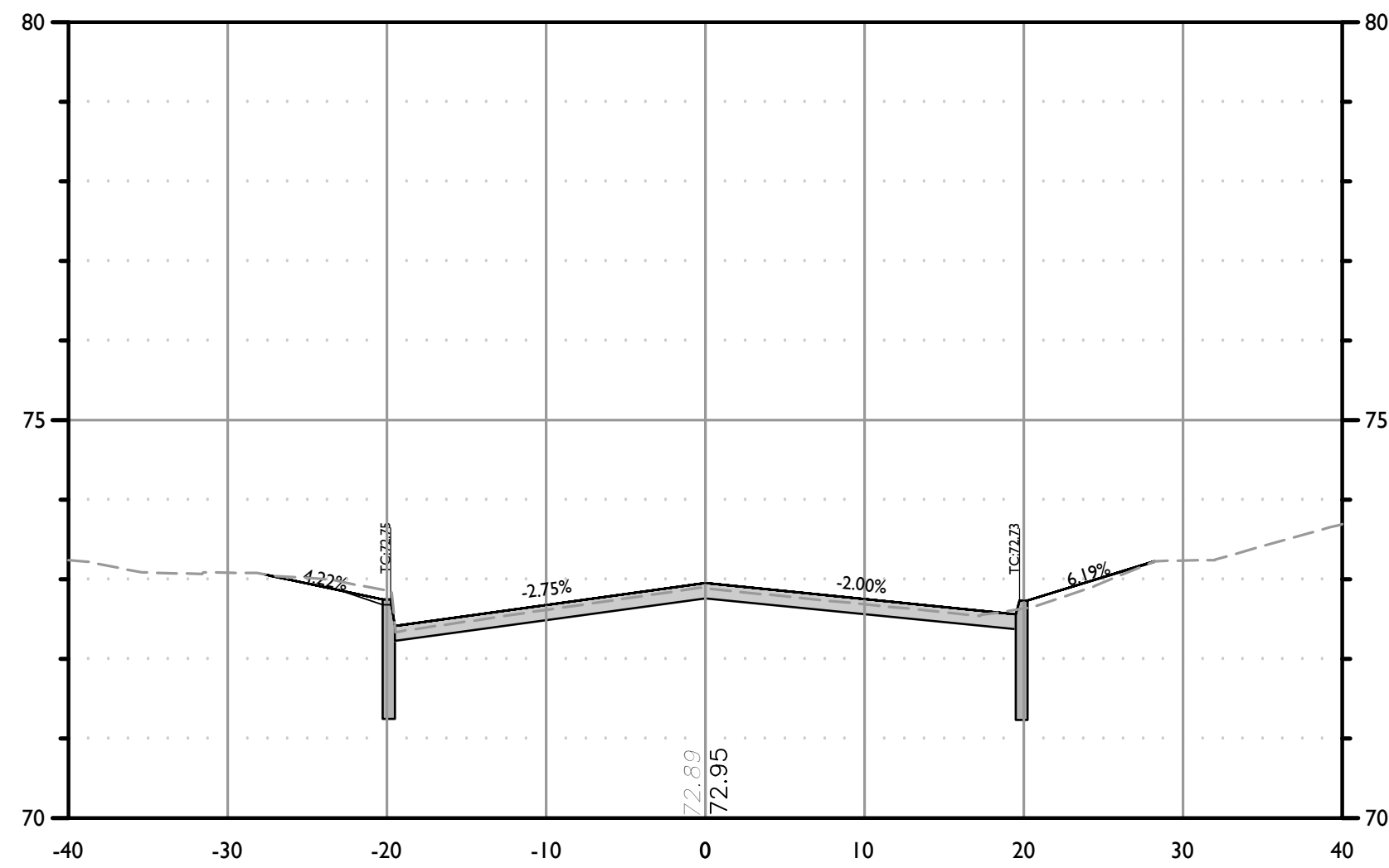
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STATION: 11+37  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



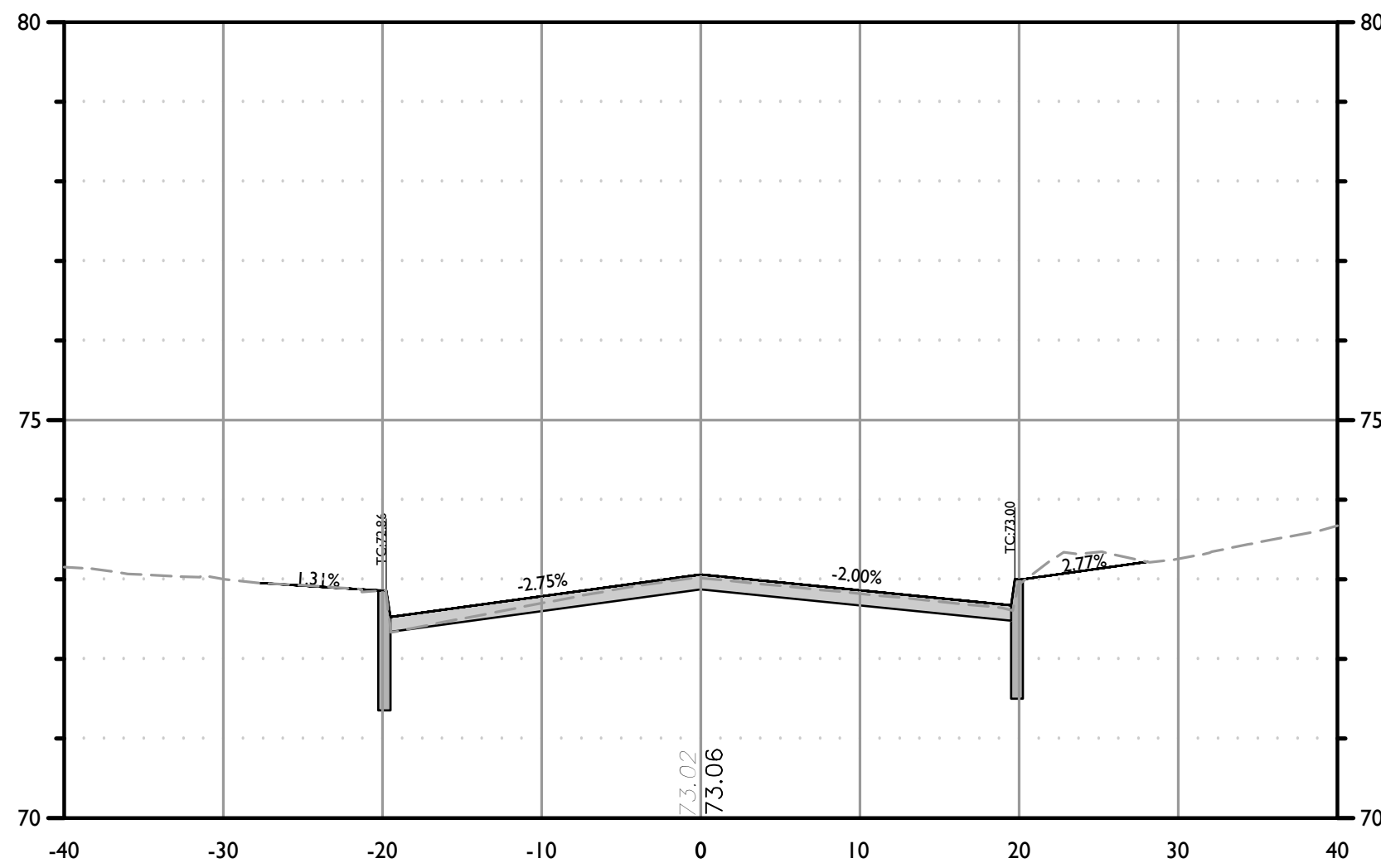
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VERTICAL : 1" = 2'



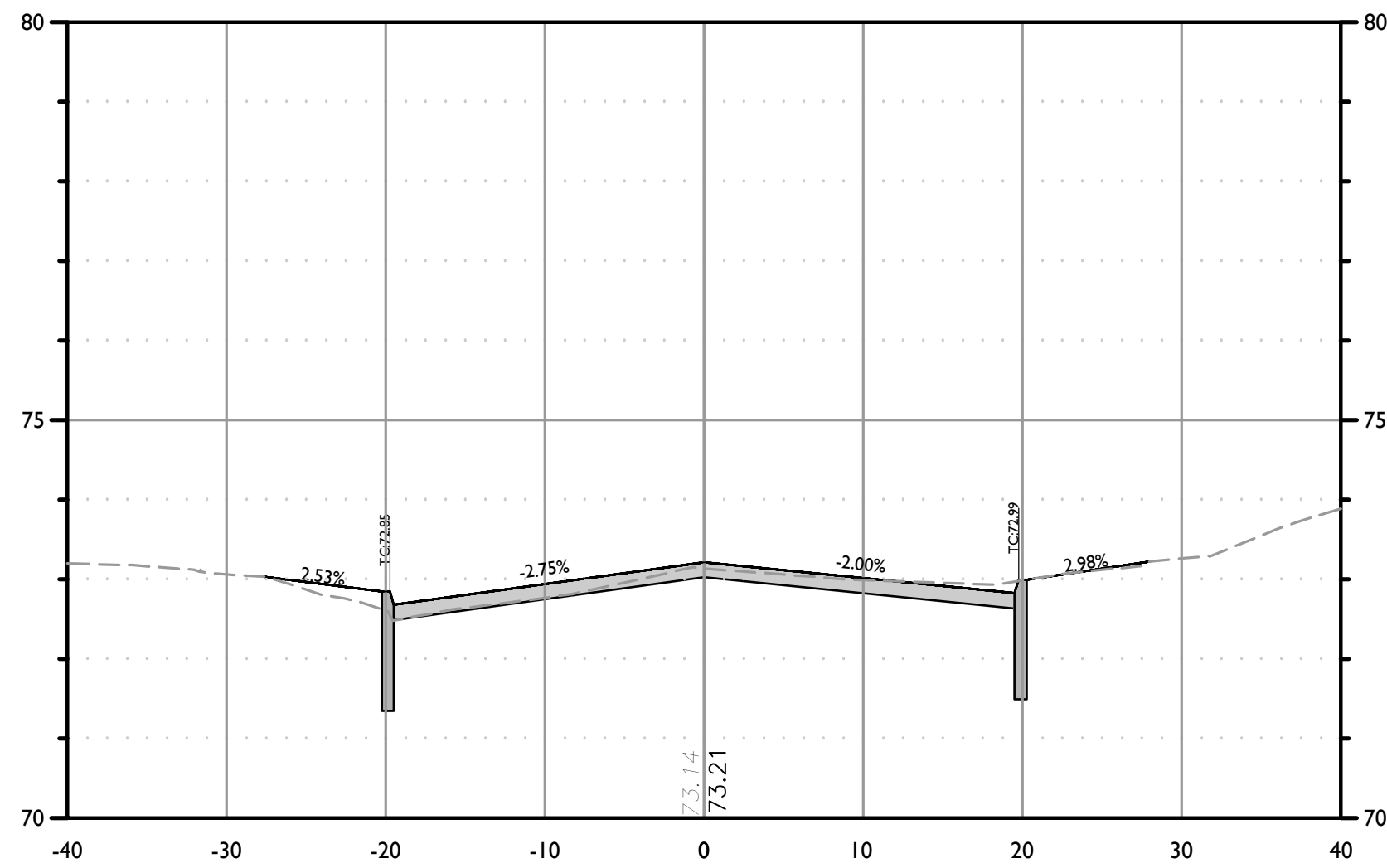
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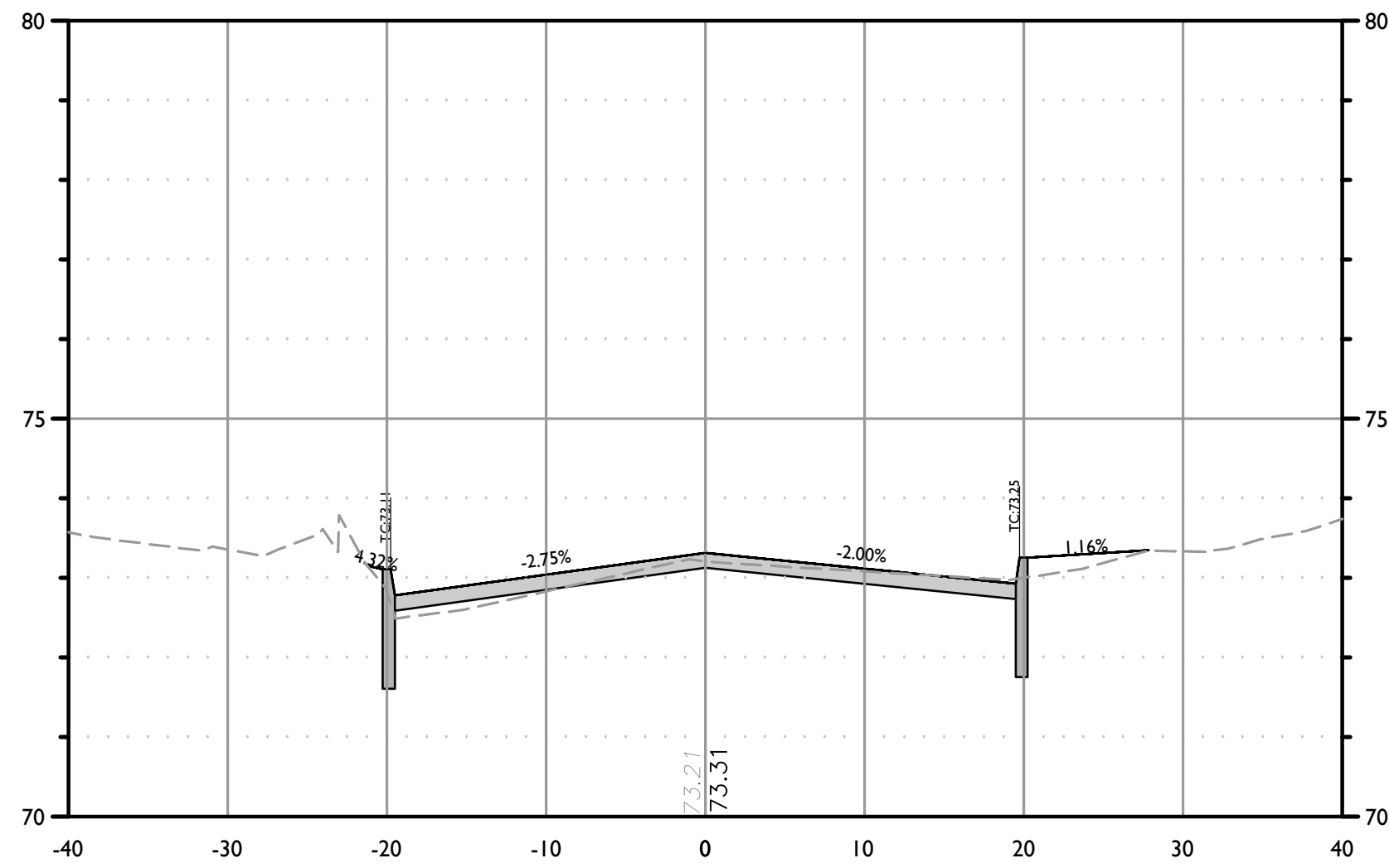
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HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



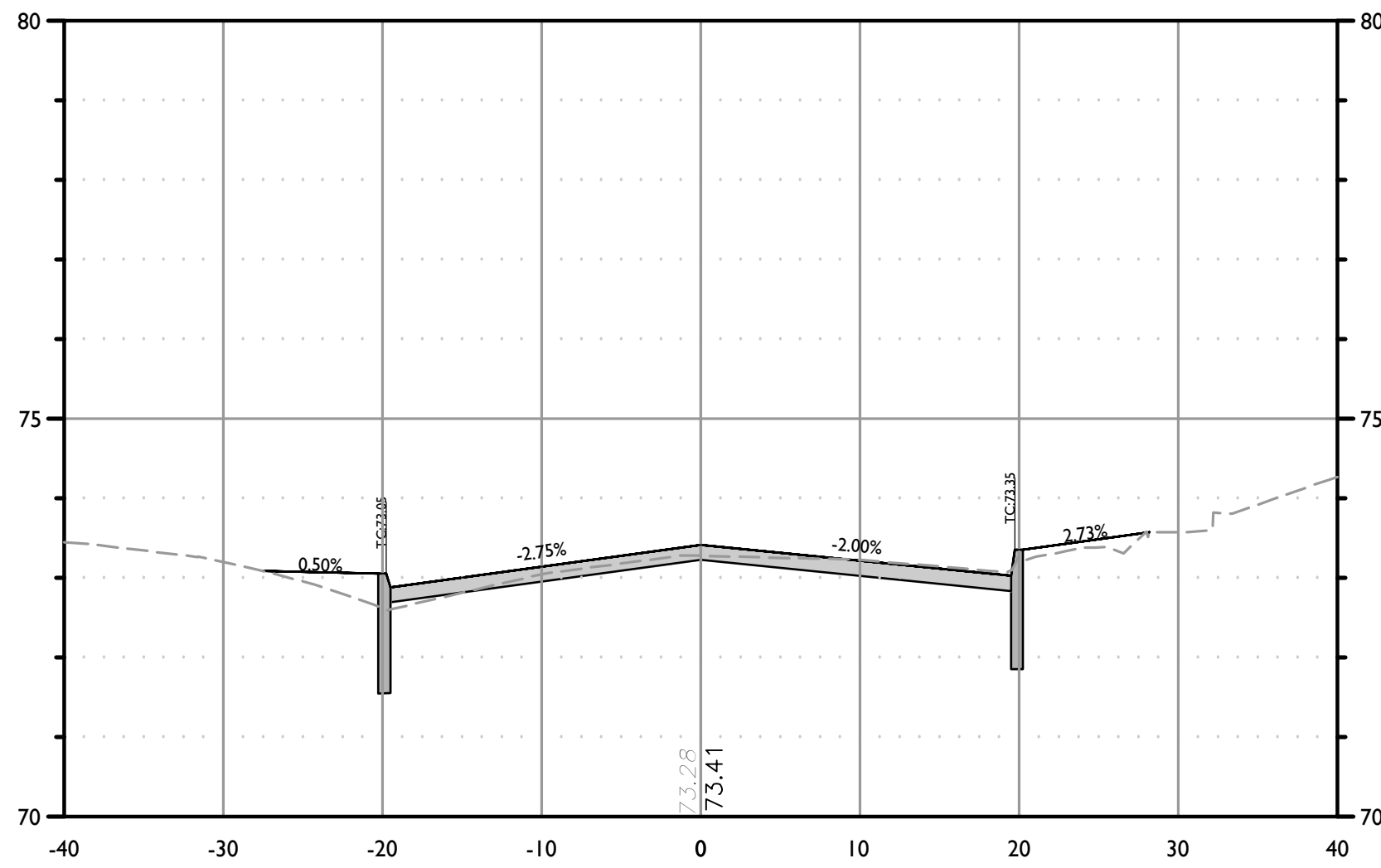
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STATION: 12+00  
HORIZONTAL : 1" = 10'  
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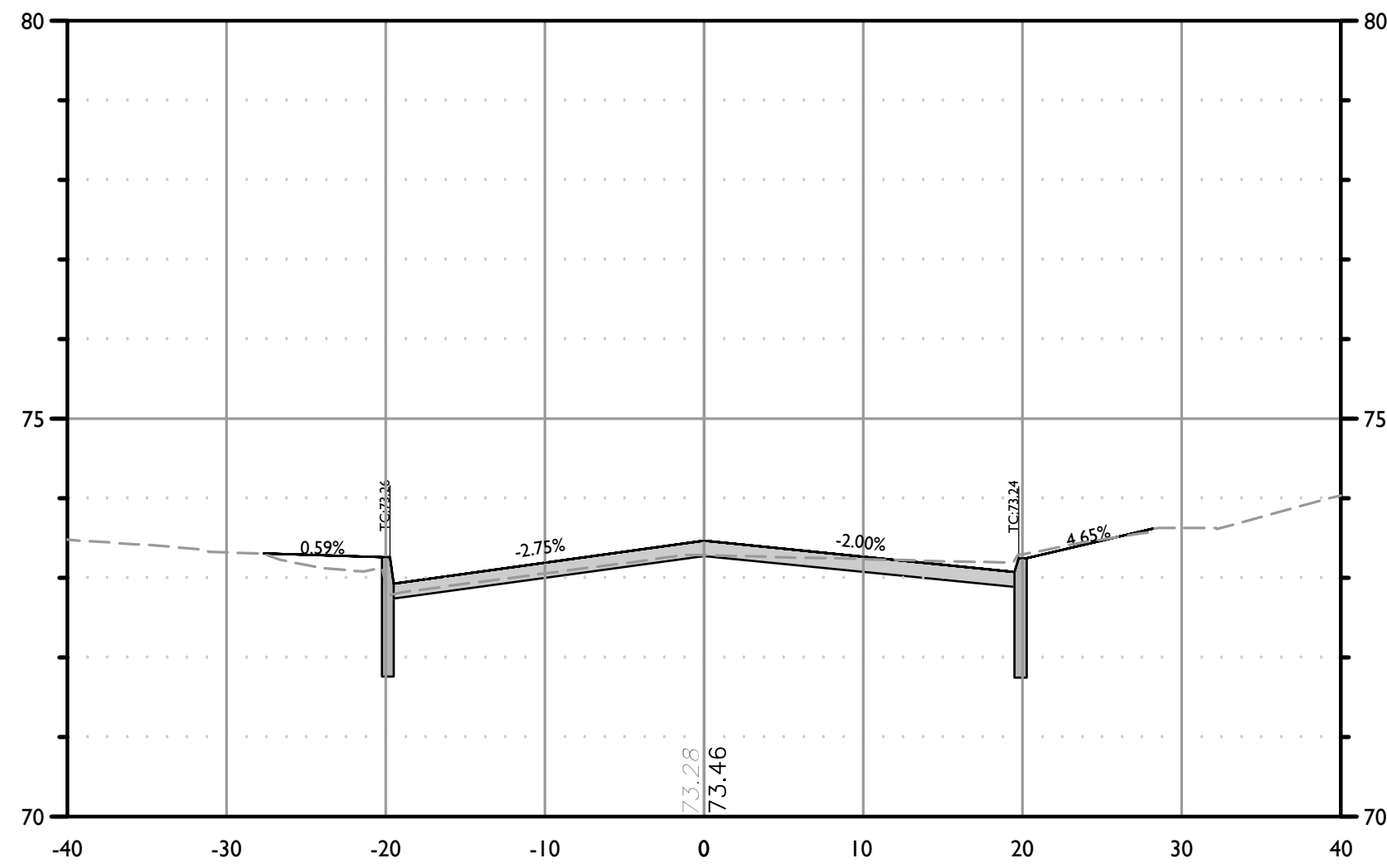
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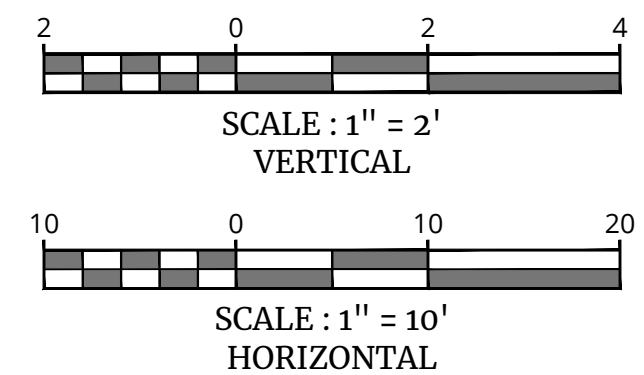
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STATION: 12+50  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF SPRUCE STREET ALIGNMENT  
STATION: 12+70  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF SPRUCE STREET ALIGNMENT  
STATION: 12+80  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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DRAWN BY  
MIB

DATE  
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REV  
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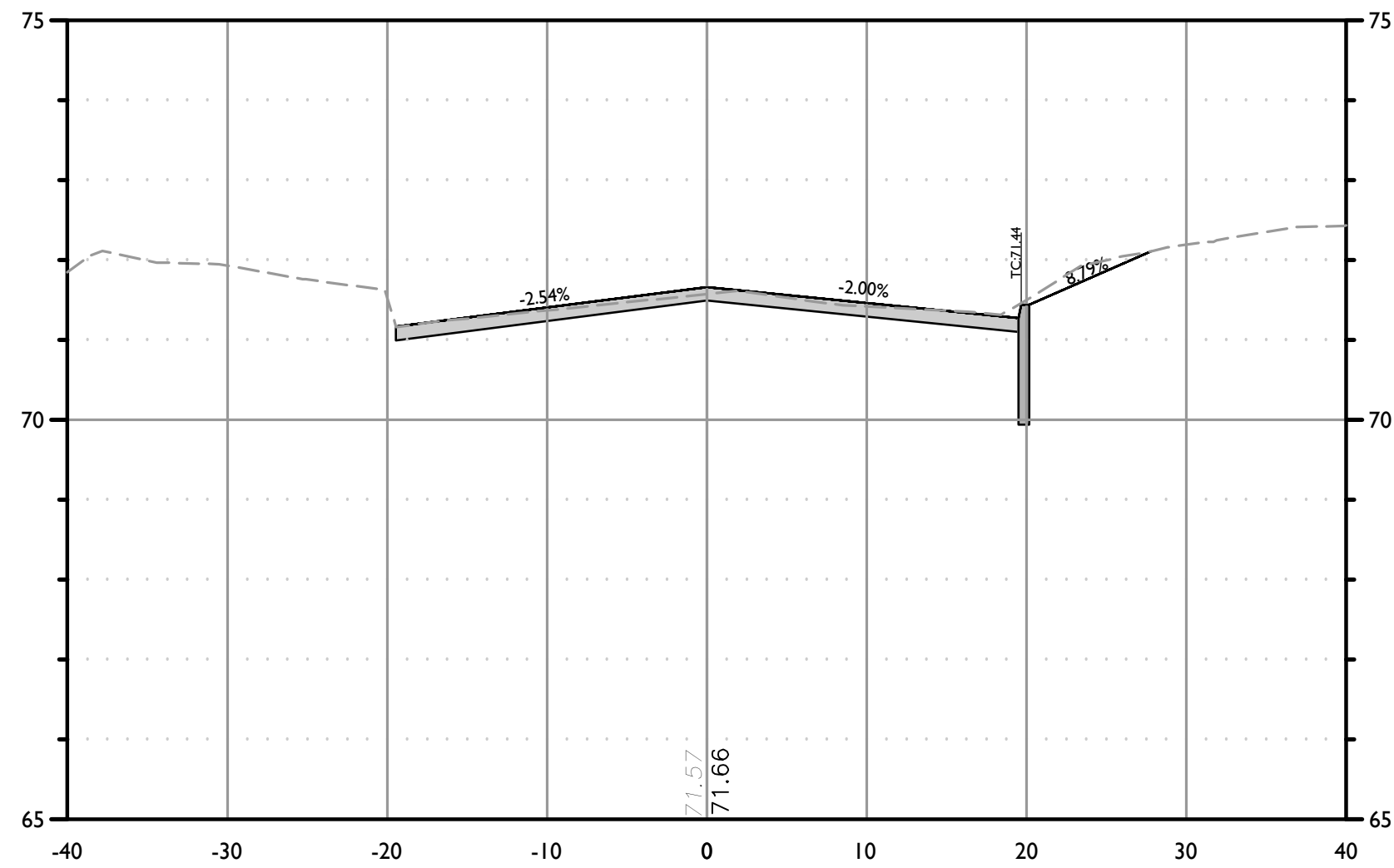
SHEET NUMBER:  
10 of 26

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

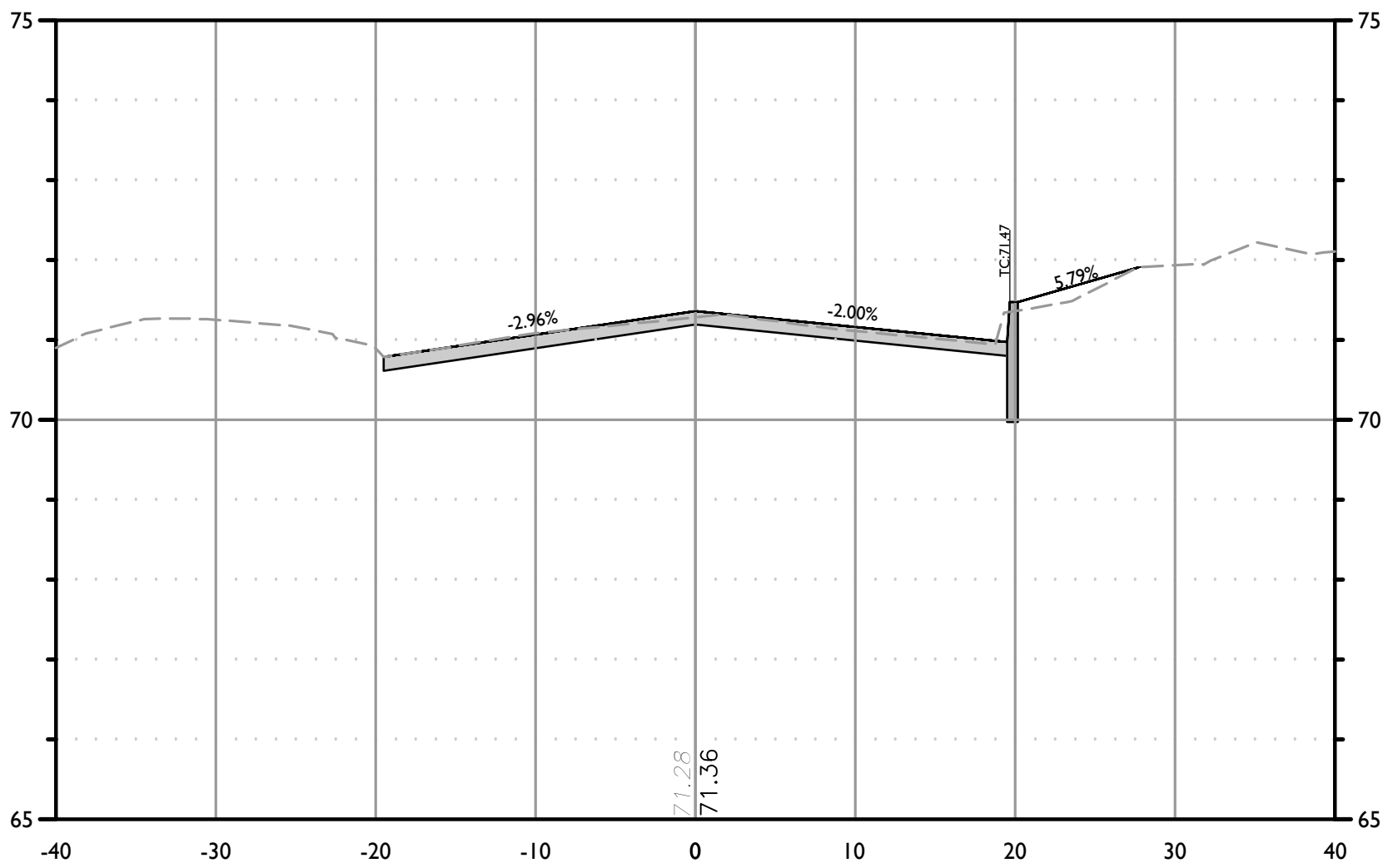




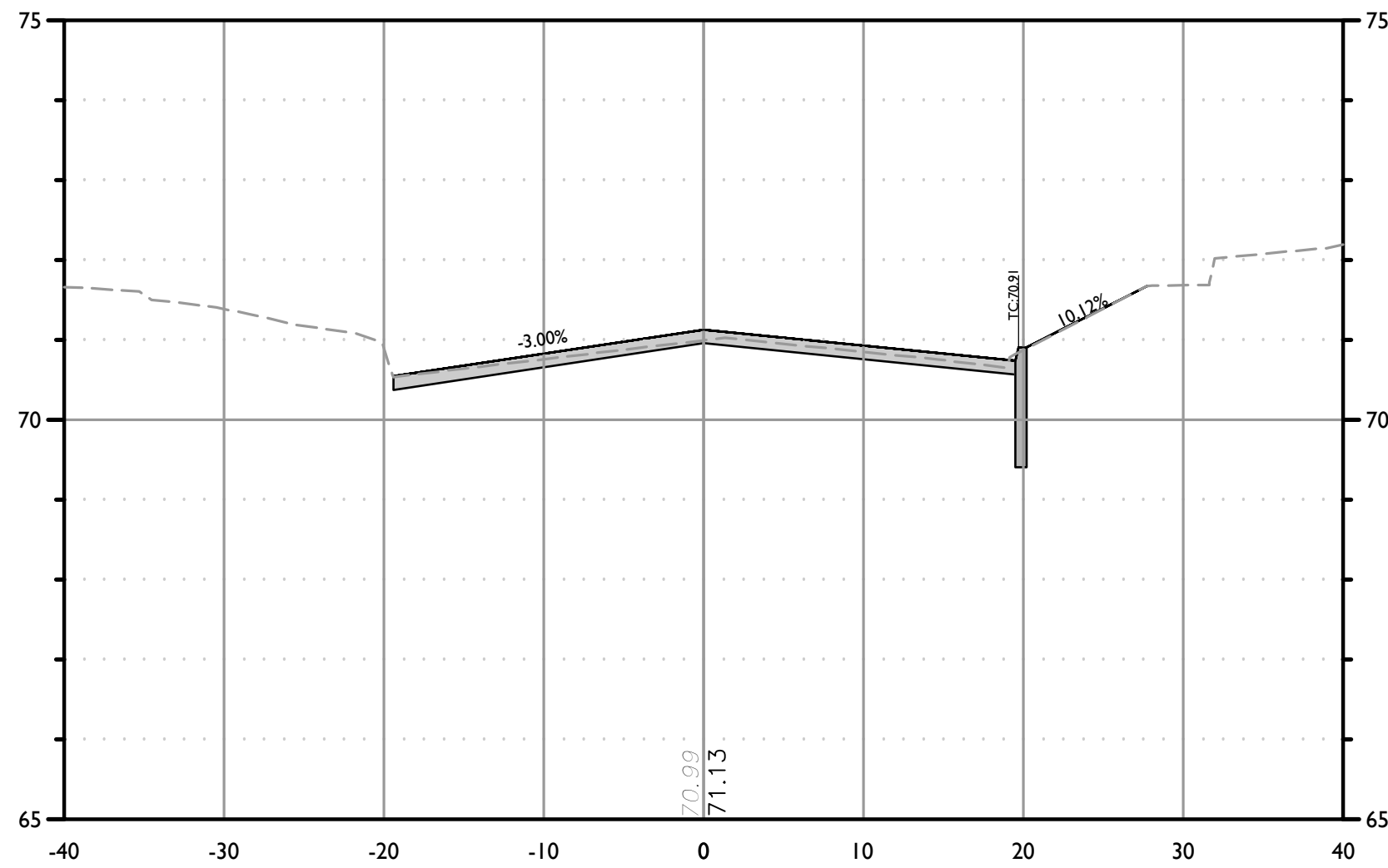




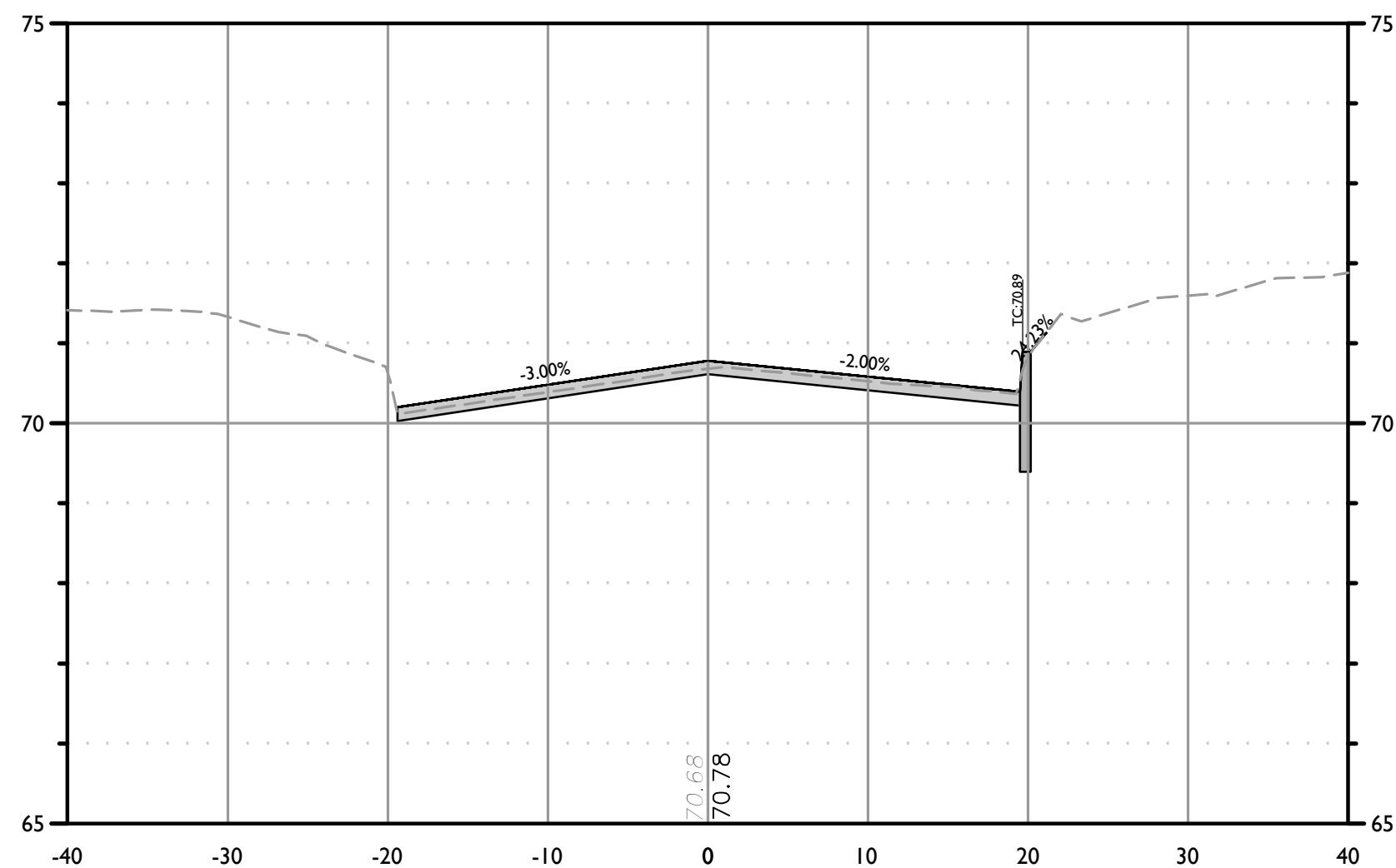
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VERTICAL : 1" = 2'



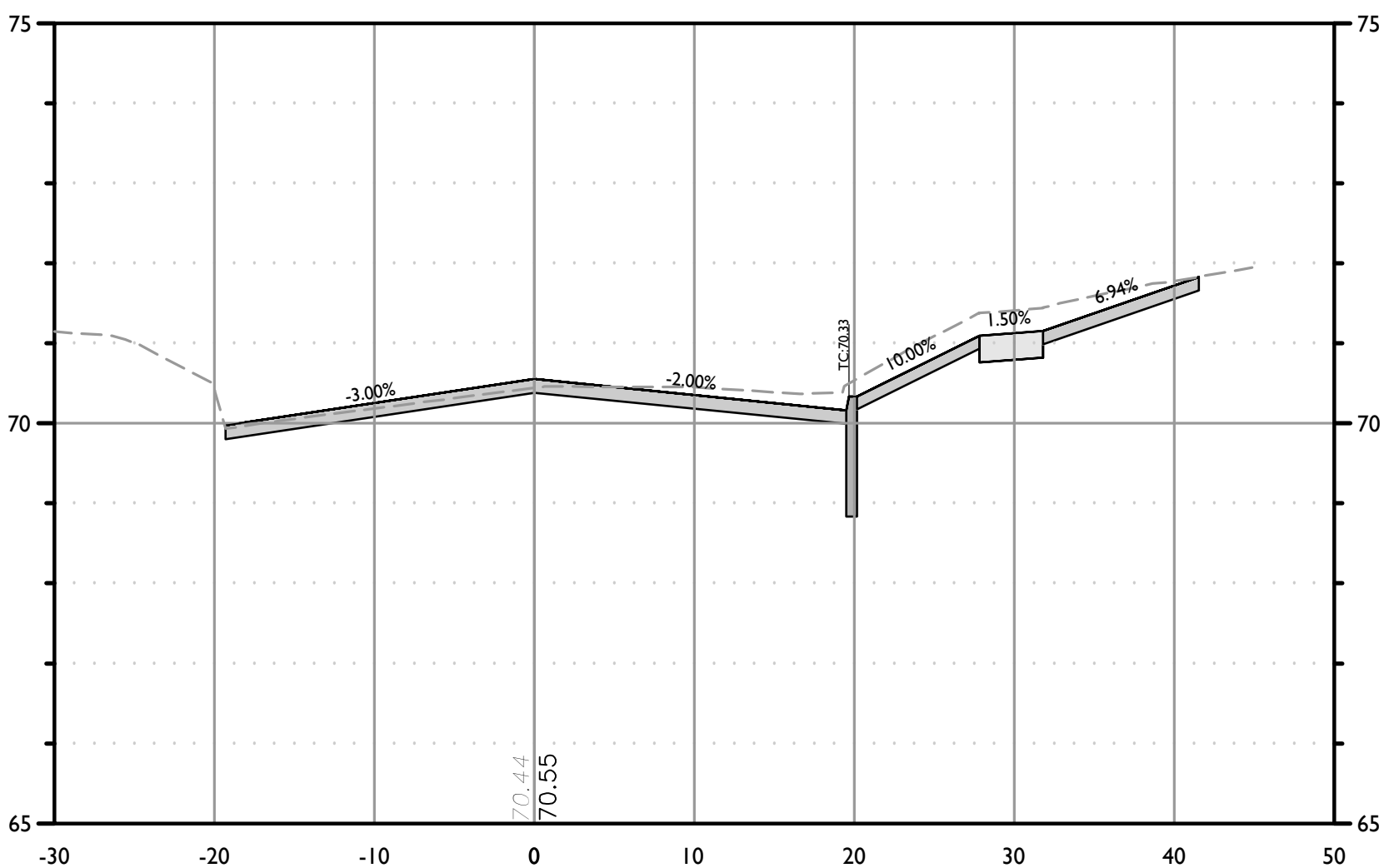
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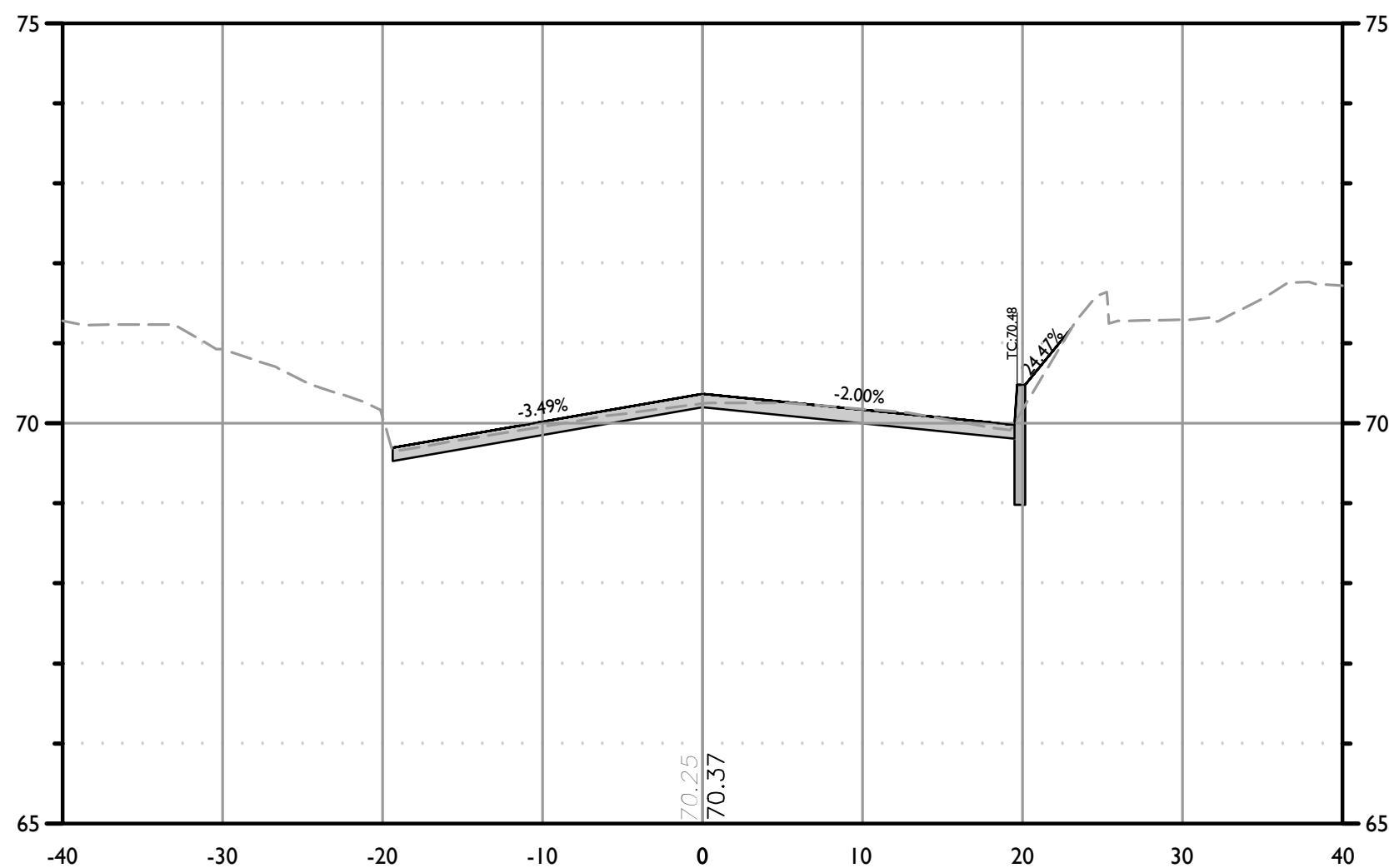
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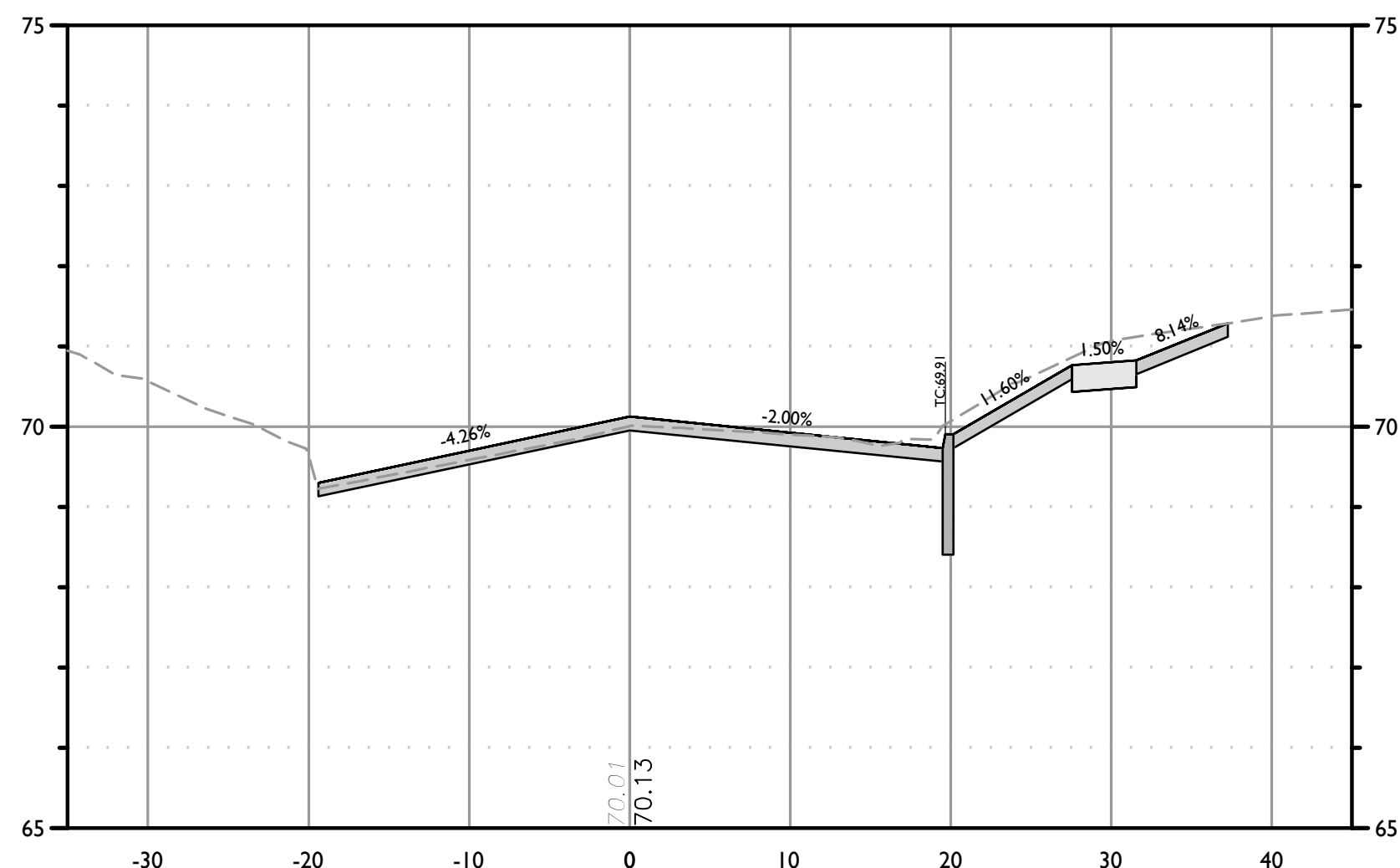
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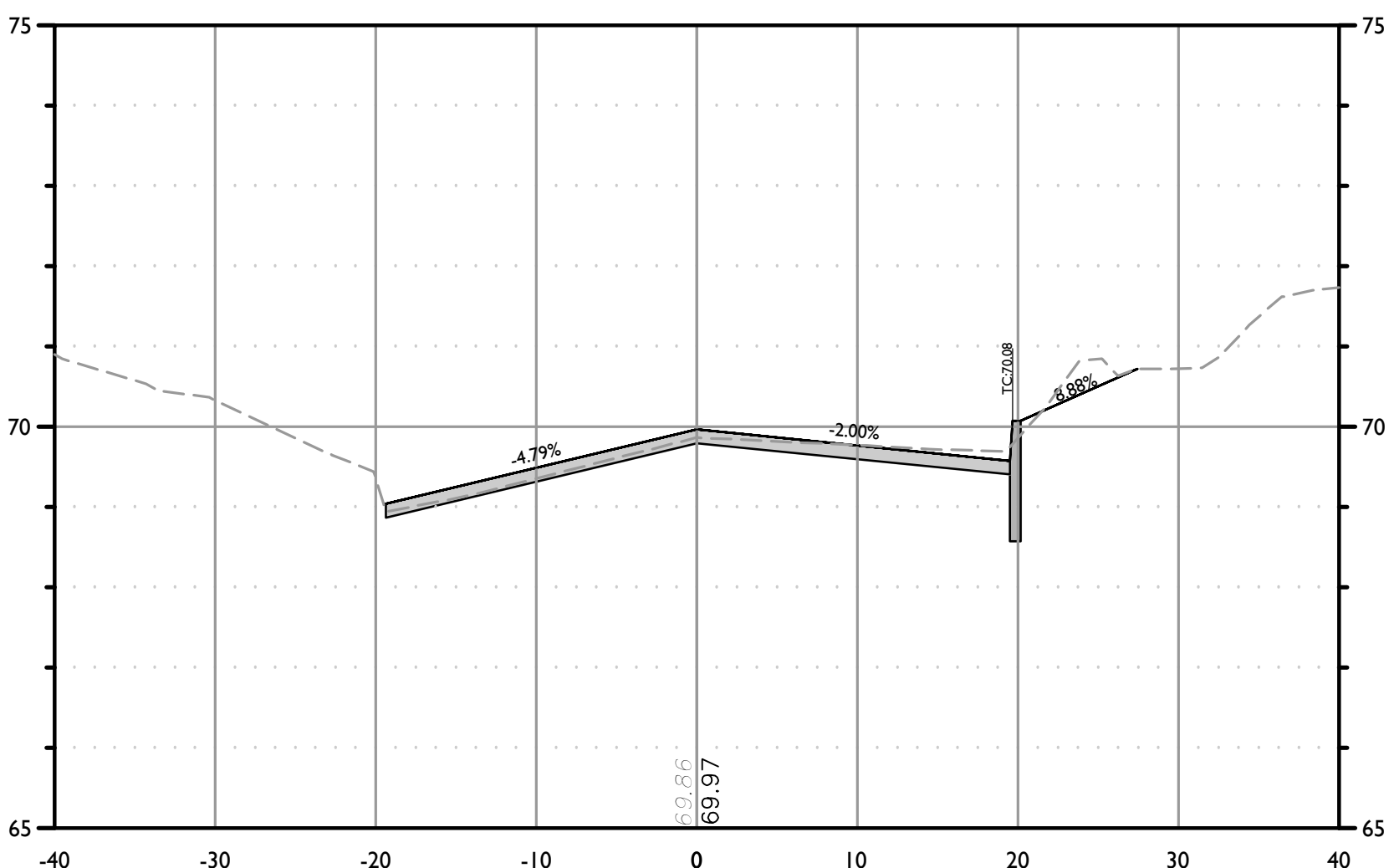
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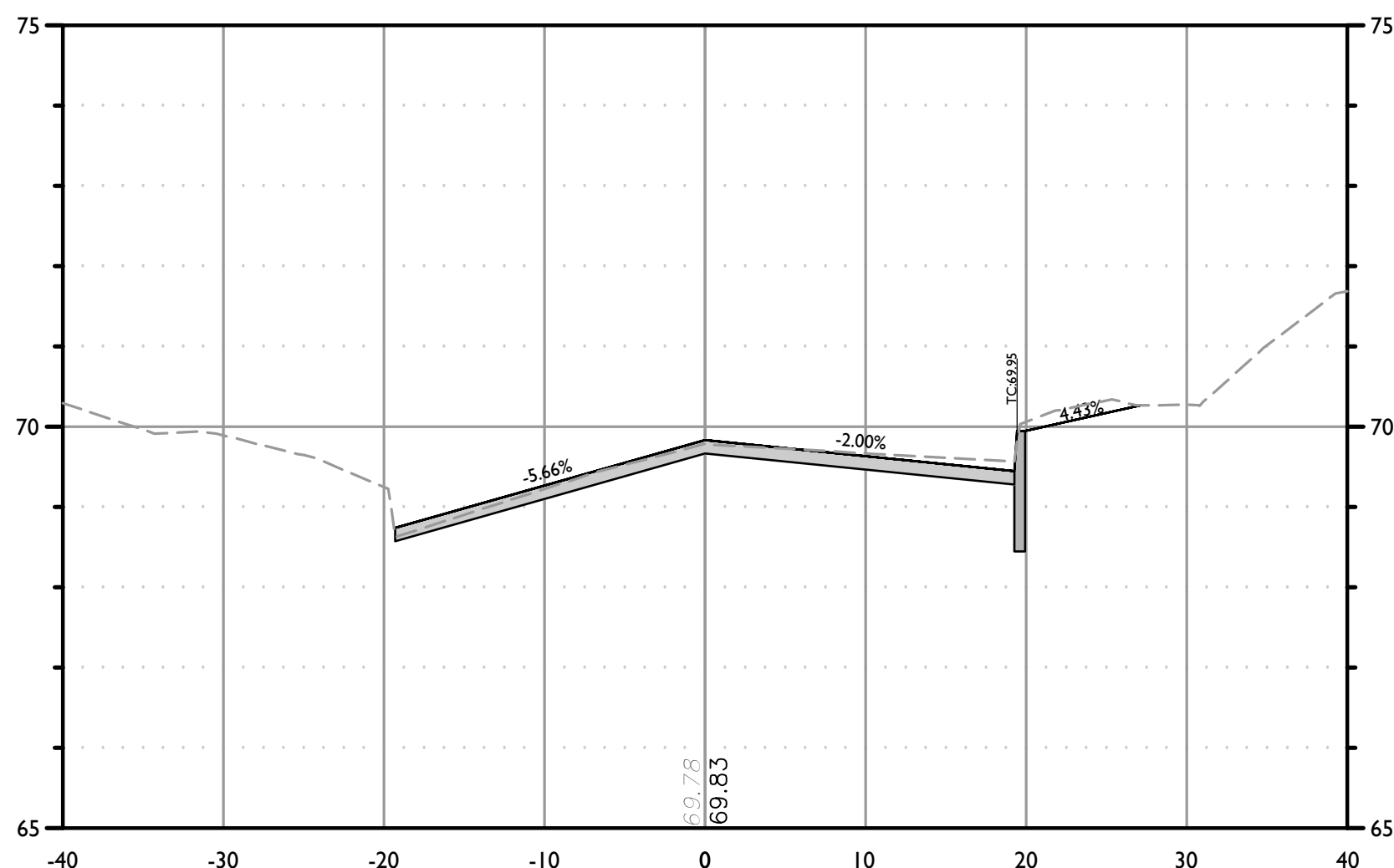
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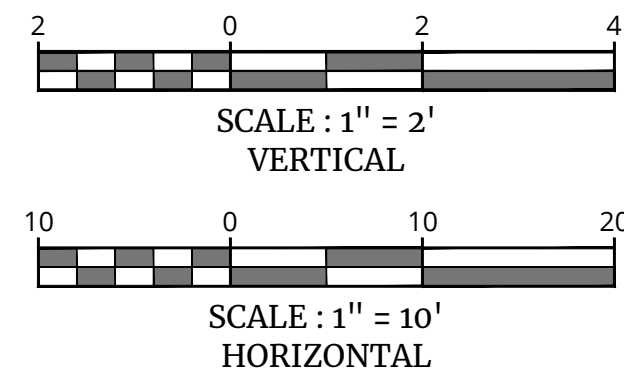
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CROSS SECTION OF SPRUCE STREET ALIGNMENT  
STATION: 18+50  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



CROSS SECTION OF SPRUCE STREET ALIGNMENT  
STATION: 18+70  
HORIZONTAL : 1" = 10'  
VERTICAL : 1" = 2'



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1	04/26/23	REVISED AS PER NDOT COMMENTS

*Carl P. O'Brien*

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NEW JERSEY LICENSED PROFESSIONAL ENGINEER  
LICENSE NUMBER: GE45154  
COLLIERS ENGINEERING & DESIGN, INC.  
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS

FOR

NJDOT FY2022-  
SPRUCE STREET  
IMPROVEMENTS

(BROOKSIDE PLACE TO  
WEST END PLACE)

TOWNSHIP OF CRANFORD  
UNION COUNTY  
NEW JERSEY

**Colliers**  
Engineering  
& Design  
MT. ARLINGTON  
400 Valley Road,  
Suite 304  
Mt. Arlington, NJ 07856  
Phone: 973.398.3110  
COLLIERS ENGINEERING & DESIGN, INC.  
DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN  
DATE: 02/06/23  
PROJECT NUMBER: CDT0081  
DRAWING NAME: C-LAYT  
DRAWN BY: MIB  
CHECKED BY: PWJ

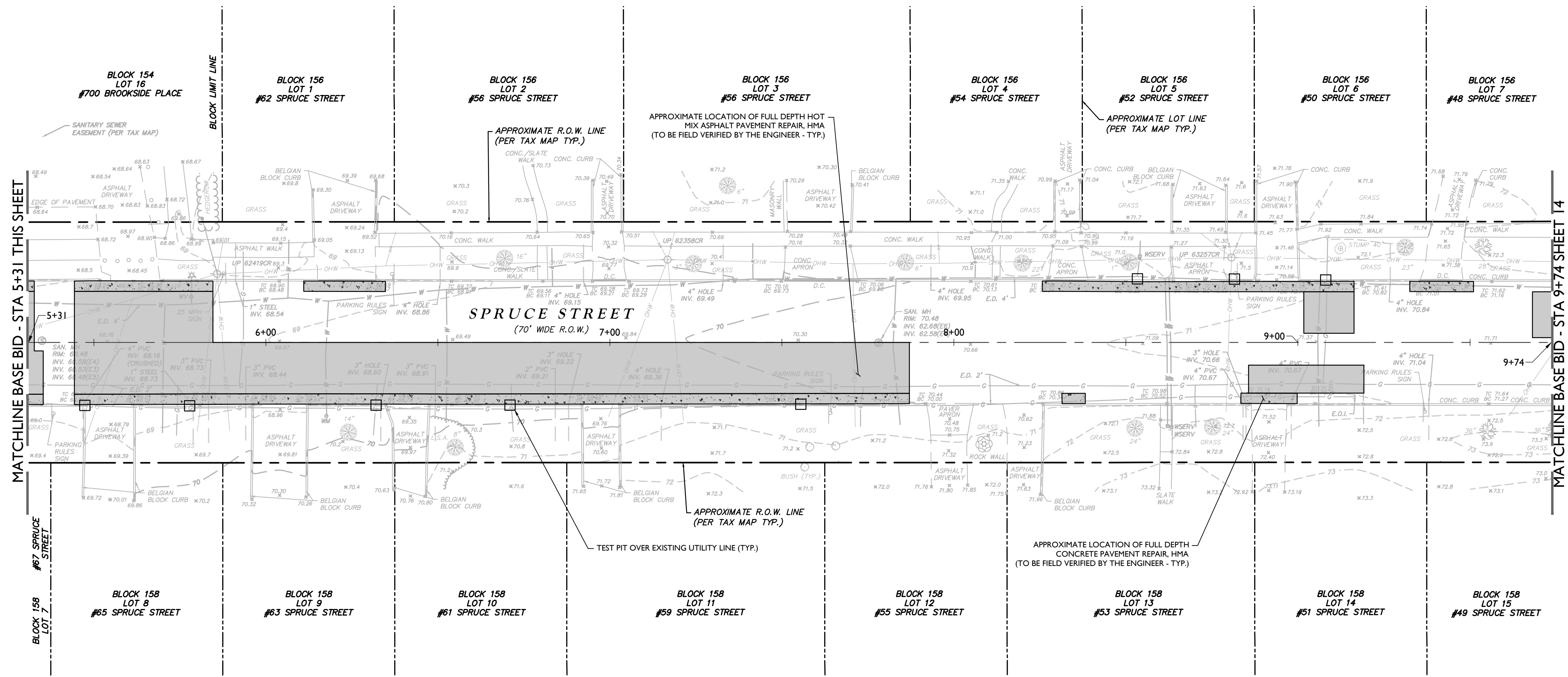
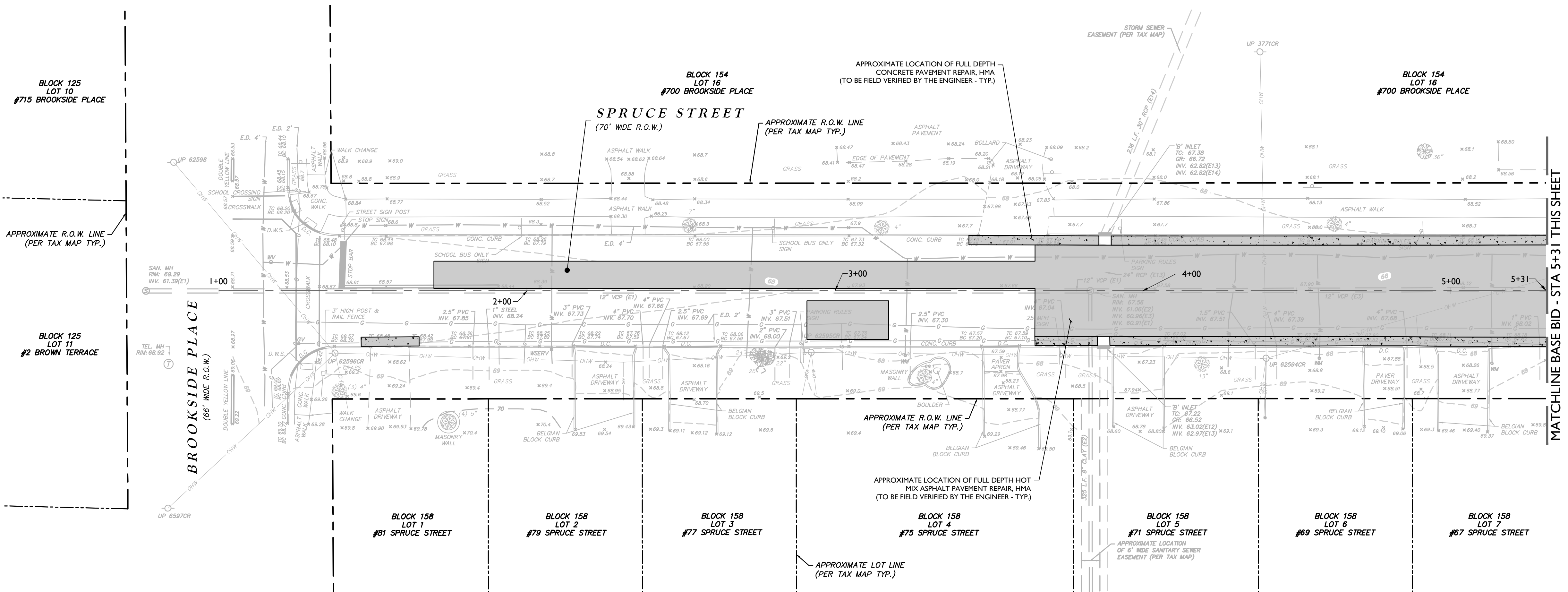
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CROSS SECTIONS

SHEET NUMBER:  
12 of 26

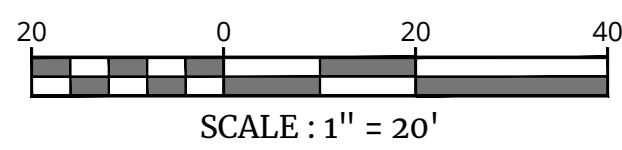
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NOTES:  
1. AREAS WITHIN PROJECT LIMITS NOT DEPICTED ON THESE FULL DEPTH RECONSTRUCTION MAP PLANS MAY REQUIRE FULL DEPTH PAVEMENT REPAIR. ALL FULL DEPTH RECONSTRUCTION AREAS WILL ULTIMATELY BE DETERMINED DURING CONSTRUCTION.  
2. AREAS NOT DEPICTED ON THESE FULL DEPTH RECONSTRUCTION MAP PLANS BUT WITHIN THE ROADWAY LIMITS AS DEPICTED ON THE DIMENSION PLANS SHALL BE MILLED AND PAVED OR OVERLAYED WITH ASPHALT SURFACE COURSE.



LEGEND			
	FULL DEPTH HOT MIX ASPHALT PAVEMENT REPAIR, HMA		
	FULL DEPTH CONCRETE PAVEMENT REPAIR, HMA		
	TEST PIT OVER EXISTING UTILITY LINE		



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CONSTRUCTION PLANS  
FOR  
NJDOT FY2022-  
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IMPROVEMENTS  
(BROOKSIDE PLACE TO  
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TOWNSHIP OF CRANFORD  
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NEW JERSEY

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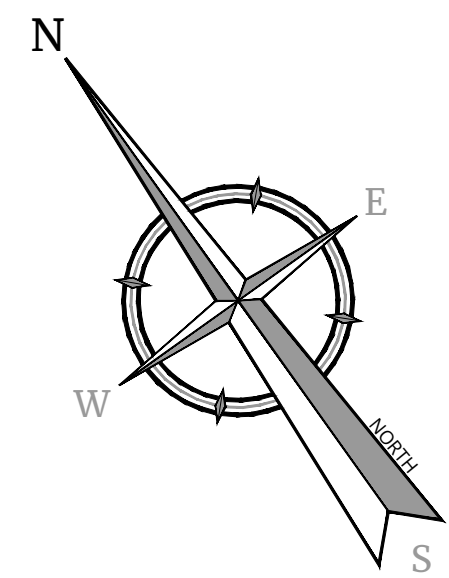
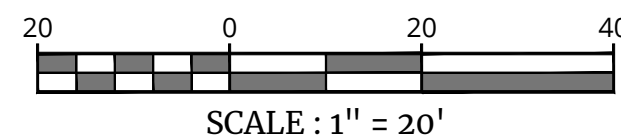
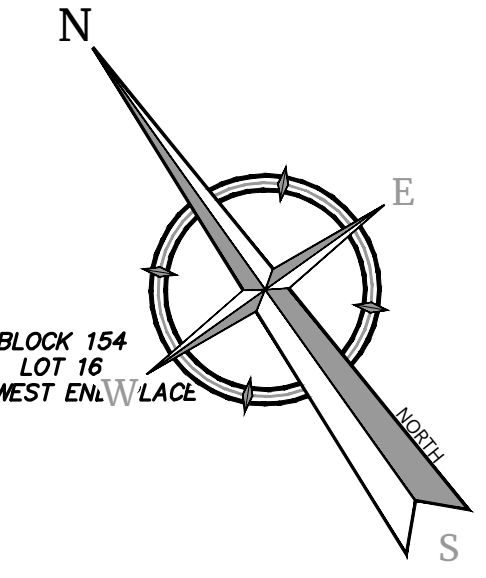
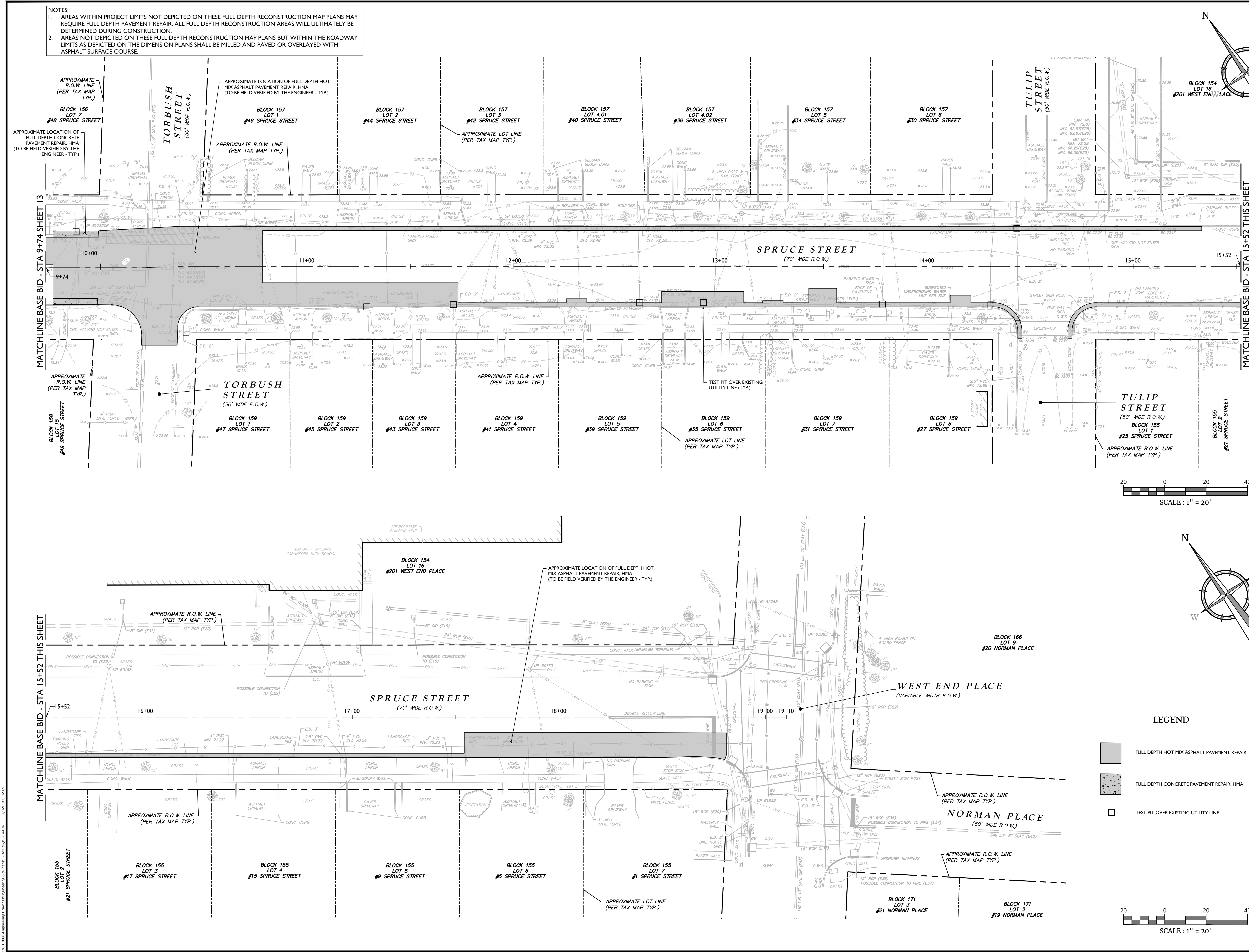
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FULL DEPTH  
RECONSTRUCTION MAP

SHEET NUMBER:  
13 of 26

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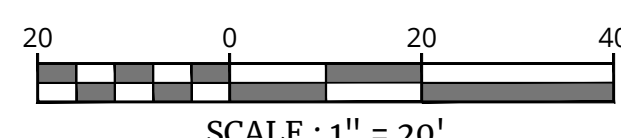


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LEGEND

- FULL DEPTH HOT MIX ASPHALT PAVEMENT REPAIR, HMA
- FULL DEPTH CONCRETE PAVEMENT REPAIR, HMA
- TEST PIT OVER EXISTING UTILITY LINE



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(BROOKSIDE PLACE TO  
WEST END PLACE)

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SCALE	DATE	DRAWN BY	CHECKED BY
AS SHOWN	02/06/23	MIB	PWJ

PROJECT NUMBER	DRAWING NAME
COT0081	C-LAY1

SHEET TITLE
FULL DEPTH RECONSTRUCTION MAP

SHEET NUMBER
14 of 26

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.



SOMERSET-UNION SOIL CONSERVATION  
DISTRICT NOTES

MCNJ-SOIL-NOTE-101305/01/17

1. 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.

2. 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 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.

3. PERMANENT VEGETATION SHALL BE SEEDED OR SODDED ON ALL EXPOSED AREAS WITHIN TEN (10) DAYS AFTER FINAL GRADING. MULCH WILL BE USED FOR PROTECTION UNTIL SEEDING IS ESTABLISHED.

4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NJ STATE STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY, 7TH EDITION LAST REVISED JANUARY 2014.

5. 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.

6. 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.

7. ANY STEEP SLOPES RECEIVING PIPELINE INSTALLATION WILL BE BACKFILLED AND STABILIZED DAILY, AS THE INSTALLATION PROCEEDS (I.E. SLOPES GREATER THAN 3:1)

8. TRAFFIC CONTROL STANDARDS REQUIRE THE INSTALLATION OF A 50'X30'X6" PAD OF 1 1/2" OR 2" STONE, AT ALL CONSTRUCTION DRIVEWAYS, IMMEDIATELY AFTER INITIAL SITE DISTURBANCE.

9. THE SOMERSET-UNION SOIL CONSERVATION DISTRICT SHALL BE NOTIFIED IN WRITING 48 HOURS IN ADVANCE OF ANY LAND DISTURBING ACTIVITY.

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. TOP SOIL SHOULD BE HANDLED ONLY WHEN IT IS DRY ENOUGH TO WORK WITHOUT DAMAGING THE SOIL STRUCTURE. A UNIFORM APPLICATION TO A DEPTH OF 5 INCHES (UNSETTLED) IS REQUIRED ON ALL SITES.

11. IN THAT NJSA 42A-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 RE-CERTIFICATION. 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, LIME, 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. HYDRO-MULCH SHOULD BE APPLIED AT A RATE OF 1500 LBS. PER ACRE IN SECOND STEP. THE USE OF HYDRO-MULCH, AS OPPOSED TO STRAW, IS LIMITED TO OPTIMUM SEEDING DATES AS LISTED IN THE NJ STANDARDS.

CONSTRUCTION SEQUENCE

IMPLEMENTATION OF SOIL EROSION & SEDIMENT CONTROL MEASURES INCLUDING:

- INLET FILTERS 1 DAY

CONSTRUCT IMPROVEMENTS:

- SITE CLEARING 1 WEEK
- COMPLETE MILLING OPERATIONS 2 WEEKS
- INSTALL CURB RAMPS AND CURBING 2 WEEKS
- COMPLETE PAVING OPERATIONS 2 WEEKS
- UNIFORMLY APPLY TOPSOIL TO AN AVERAGE DEPTH OF 5"; MINIMUM OF 4"; FIRMED IN PLACE 1 DAY
- FERTILIZING, SEEDING AND STRAW MULCHING 2 DAYS
- REMOVAL OF SOIL EROSION & SEDIMENT CONTROL MEASURES 1 DAY

NOTE: TOTAL ESTIMATED PROJECT DURATION: 8 WEEKS

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

STOCKPILE

1. ALL EXCAVATED MATERIAL INCLUDING TOPSOIL, SHALL BE DISPOSED OF OFF-SITE. ALL TOPSOIL STOCKPILES SHALL BE REMOVED ON A DAILY BASIS.

AREA OF DISTURBANCE = 33,873 SF OR 0.78 ACRES

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 6.0 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	TONS/ACRE	LBS/1,000 SQ. FT.
SOIL TEXTURE		
CLAY, CLAY LOAM, AND HIGH ORGANIC SOIL	3	135
SANDY LOAM LOAM, SILT LOAM	2	90
LOAMY SAND, SAND	1	45

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.).

E. WORK LIME 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 3 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, HYDROSEEDER 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 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 HYDROSEEDER 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 PEGS AND TWINE. MULCH NETTING, MECHANICAL CRIPPER 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 HYDROSEEDER. 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
ANIONIC 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	APPLY ACCORDING TO MANUFACTURER'S INSTRUCTIONS. MAY ALSO BE USED AS AN ADDITIVE TO SEDIMENT BASINS TO FLOCCULATE AND PRECIPITATE SUSPENDED COLLOIDS. (SEE SEDIMENT BASIN STANDARD (PAGE 36-1 OF "STANDARDS FOR SOIL EROSION AND SEDIMENT CONTROL IN NEW JERSEY", LATEST EDITION)		
POLYACRYLAMIDE (PAM) - DRY SPRAY			
ACIDULATED SOY BEAN SOAP STICK	NONE	COARSE SPRAY	1200

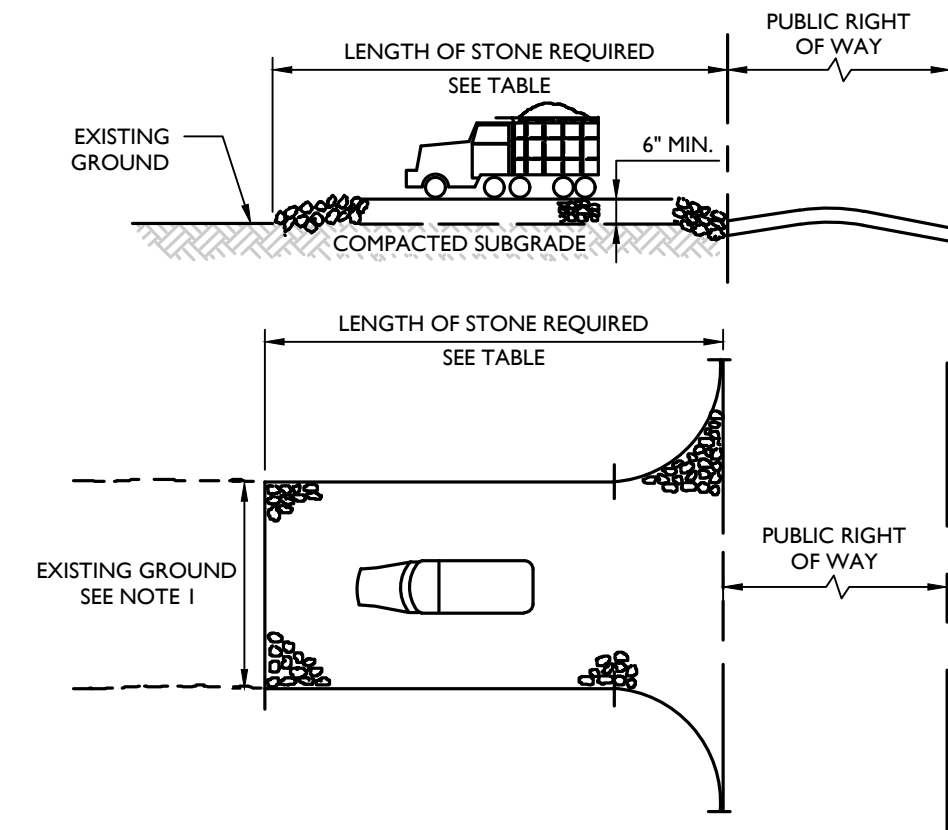
TILLAGE TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS A TEMPORARY EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN PLOWING ON WINDWARD SIDE OF SITE. CHISEL-TYPE PLOWS SPACED ABOUT 12 INCHES APART, AND SPRING-TOOTHED HARROWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE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



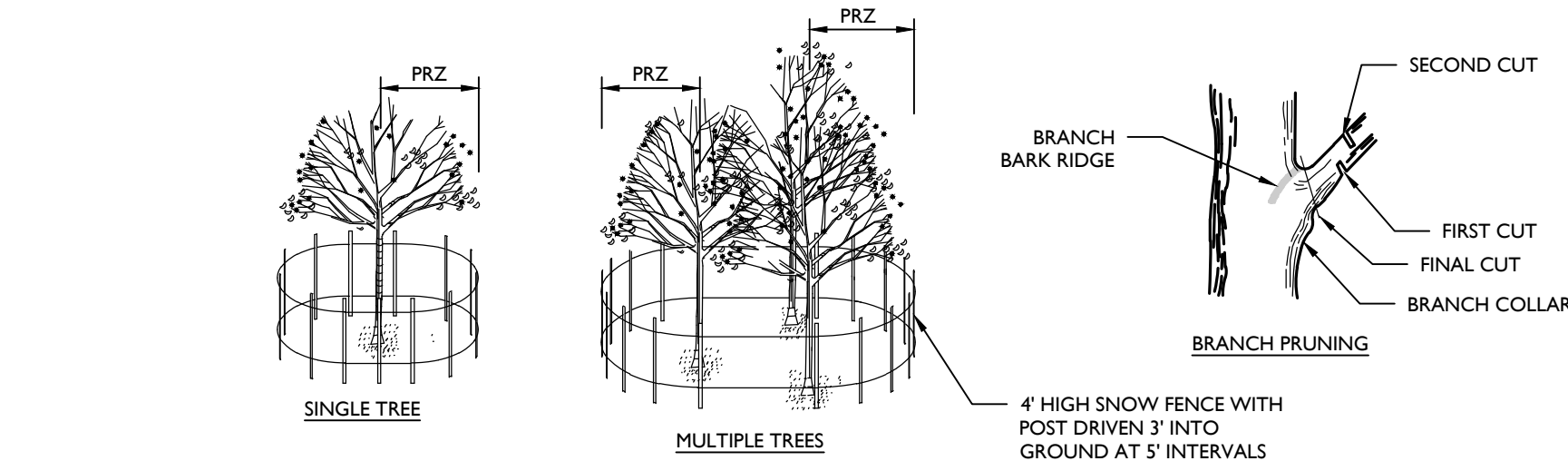
NOTES:

1. THE WIDTH OF CONSTRUCTION ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF POINTS OF INGRESS OR EGRESS, OR AS SHOWN ON THE PLAN.
2. THICKNESS SHOWN IS FOR STONE CONSTRUCTION ENTRANCE ONLY.
3. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO ROADWAYS.
4. THE ENTRANCE SHALL BE PERIODICALLY TOP DRESSED WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS ON-SITE CONDITIONS REQUIRE.
5. SPILLED, DROPPED, WASHED, OR TRACKED SEDIMENT ONTO ROADWAYS OR OTHER IMPERVIOUS SURFACES SHALL BE REMOVED IMMEDIATELY.
6. WHERE ACCUMULATION OF DUST AND SEDIMENT IS INADEQUATELY CLEANED OR REMOVED BY CONVENTIONAL METHODS, A POWER BROOM OR STREET SWEEPER SHALL BE USED TO CLEAN PAVED AREAS.
7. ALL OTHER ACCESS POINTS TO THE SITE WHICH DO NOT CONTAIN A CONSTRUCTION ACCESS PAD SHALL BE BLOCKED OFF.
8. STONE SIZE PER ASTM C-33, SIZE #2 (2 1/2" TO 1 1/2") OR #3 (2" TO 1") STONE.
9. INDIVIDUAL INTERIOR LOT INGRESS/EGRESS CONSTRUCTION ACCESS SHALL HAVE # 3 (1" TO 2") STONE, MINIMUM 10' (L) X 10' (W) AND 6" THICK.

PERCENT SLOPE OF ROADWAY	LENGTH OF STONE REQUIRED	
	COARSE GRAINED SOILS	FINE GRAINED SOILS
0% TO 2%	50 FT	100 FT
2% TO 5%	100 FT	200 FT
> 5%	ENTIRE SURFACE STABILIZED WITH HMA BASE COURSE, MIX 1-2	

STABILIZED CONSTRUCTION ACCESS DETAIL

NOT TO SCALE MCNJ-SOIL-EROS-1000 05/01/17

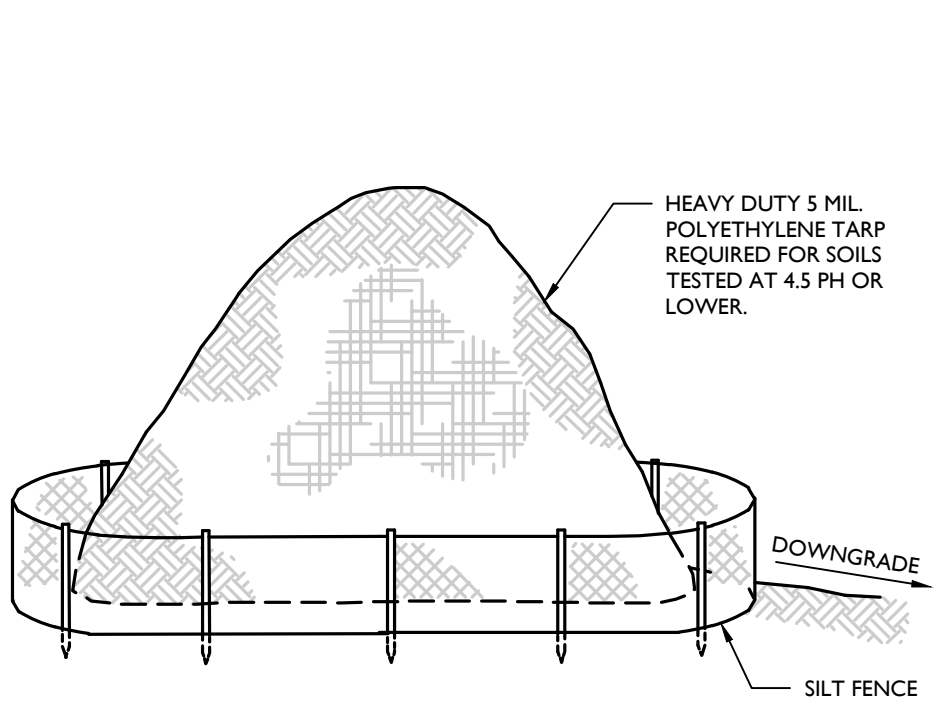


NOTES:

1. PROTECTIVE FENCING IS TO BE ERRECTED PRIOR TO CONSTRUCTION AND MAINTAINED DURING CONSTRUCTION AS DIRECTED BY THE LANDSCAPE ARCHITECT, SOIL CONSERVATION DISTRICT AND/OR MUNICIPAL ENGINEER.
2. NO CONSTRUCTION ACTIVITY IS PERMITTED WITHIN THE PROTECTIVE FENCING.
3. AS CONSTRUCTION NEARS COMPLETION THE FENCING WILL BE REMOVED AS 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 NEEDED 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 TREE STANDING SPECIMEN TREES TO AVOID FUTURE SPLITTING DAMAGE.
11. CRITICAL ROOT ZONE (CRZ) OR PROTECTED ROOT ZONE (PRZ) CALCULATION: MEASURE DBH OF THE TREE (DIAMETER OF TREE IN BREST HEIGHT OR 4.5' ABOVE GROUND ON THE UPHILL SIDE) IN INCHES. CRZ OR PRZ = DBH TIMES 1.5 (FOR OLD/UNHEALTHY/SENSITIVE TREES) OR DBH X 1.0 (FOR YOUNG/HEALTHY/TOLERANT TREES), EXPRESS IN FEET.

TEMPORARY TREE PROTECTION DETAIL

NOT TO SCALE MCNJ-SOIL-EROS-2100 05/01/17

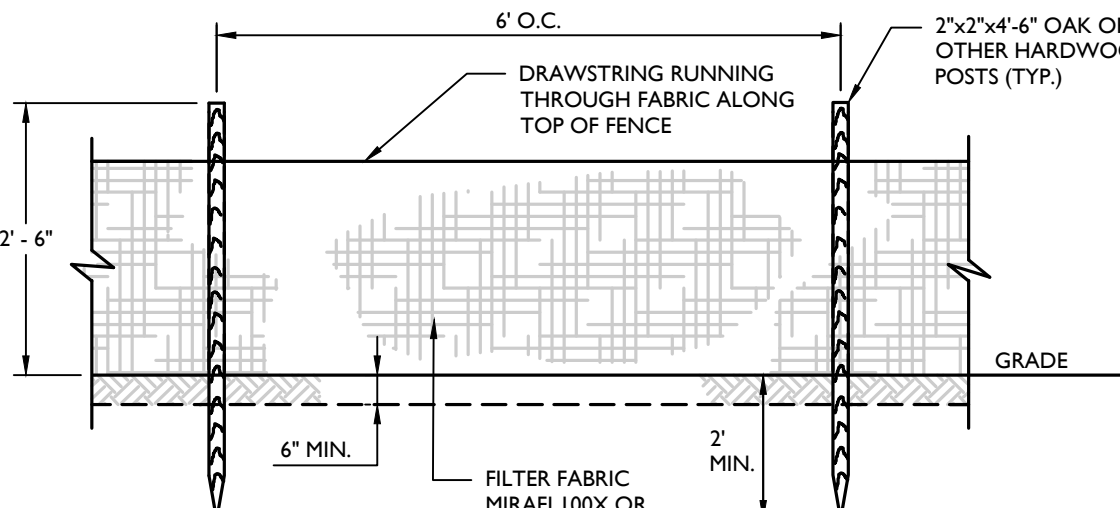


NOTES:

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

TOPSOIL STOCKPILE DETAIL

NOT TO SCALE MCNJ-SOIL-EROS-2500 05/01/17



NOTES:

1. GEOTEXTILE TO BE FASTENED SECURELY TO FENCE POST BY USING WIRE TIES OR HOG RINGS. USE 4 TO 6 FASTENERS PER POST.
2. SPLICING OF INDIVIDUAL ROLLS SHALL NOT OCCUR AT LOW POINTS.
3. ALL SILT FENCE TO BE INSPECTED AND REMEDIAL MAINTENANCE PERFORMED BY THE CONTRACTOR WITHIN 24 HOURS AFTER EACH RAINFALL. REMOVE THE SILT ACCUMULATION WHEN IT REACHES 1/3 OF THE FENCE FABRIC HEIGHT.
4. FOR EVERY 100 FEET OF SILT FENCE, OR 1/4 ACRE OF DRAINAGE AREA, PROVIDE AN OVERFLOW POINT TO REDUCE PONDING IN FRONT OF THE FENCE.
5. IF SPACE PERMITTED, LOCATE SILT FENCE 10' AWAY FROM TOE OF SLOPE IF THE SLOPE IS STEEPER THAN 1:1.
6. SECURELY FASTEN ENDS OF INDIVIDUAL ROLLS OF GEOTEXTILE TO A POST BY WRAPPING EACH END OF THE GEOTEXTILE AROUND THE POST TWICE AND ATTACHING AS SPECIFIED IN NOTE 1 ABOVE.

SILT FENCE DETAIL

NOT TO SCALE CD-158-1.1

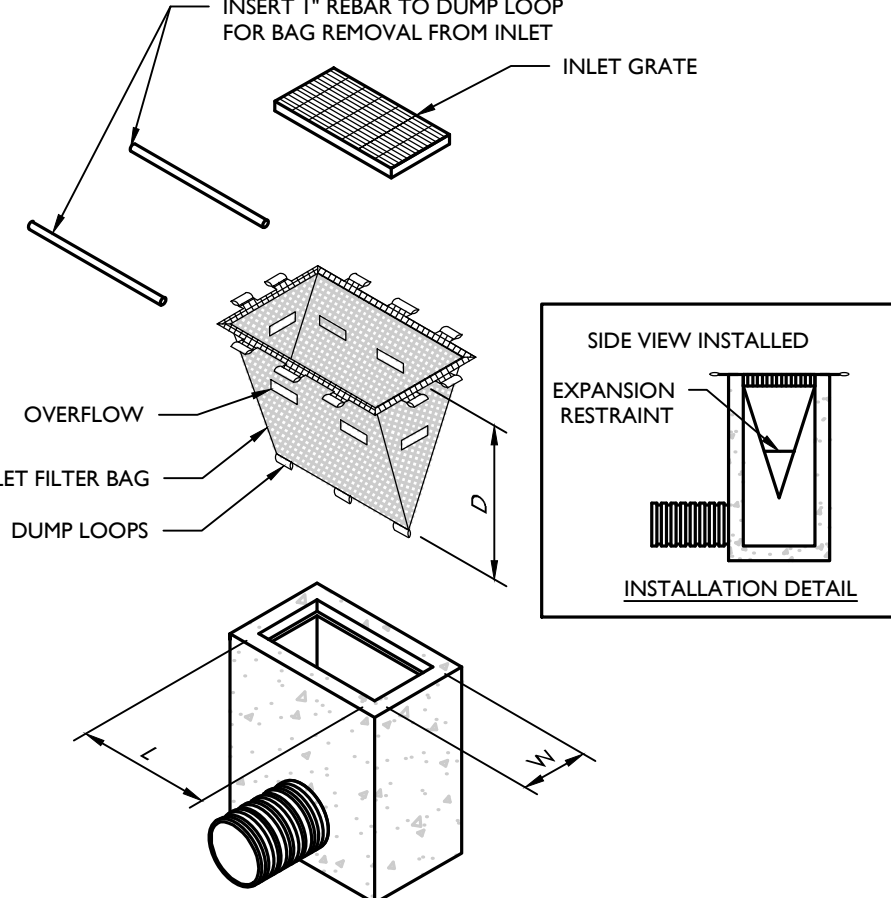
Athletic Field Mix

ERNMX #	ERNMX-105
Cost Per Pound	\$1.98
Seeding Rate	75-150 lb per acre, or 3-5 lb per 1,000 sq ft
Mix Type	Lawn Sites
Species List (click for details)	30% Perennial Ryegrass, 'Blackcat II' (turf type) (Lolium perenne, 'Blackcat II') 30% Tall Fescue, 'Raptor II' (turf type) (Festuca arundinacea (Lolium arundinaceum)(F. elation) 'Raptor II') 15% Kentucky Bluegrass, 'Clearwater' (Poa pratensis, 'Clearwater') 15% Kentucky Bluegrass, 'Volt' (Poa pratensis, 'Volt') 10% Annual Ryegrass (Lolium multiflorum (L. perenne var. italicum)) Total: 100%

Prices are subject to change without notice. Please call (800) 873-3321 for current pricing.

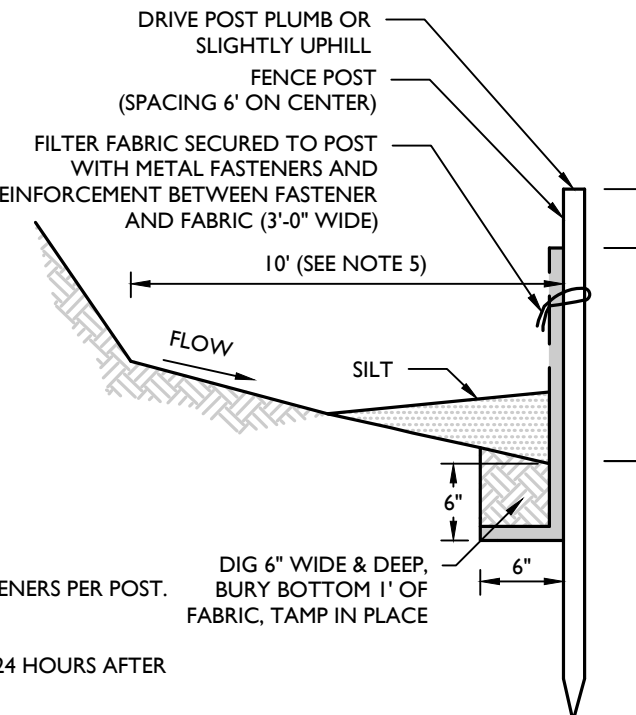
SEEDING MIX

NOT TO SCALE



INLET PROTECTION (FILTER BAG) DETAIL

NOT TO SCALE MCNJ-SOIL-EROS-1500 09/01/17



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Doing Business as MASER CONSULTANTS

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REV	DATE	DRAWN BY	DESCRIPTION
1	04/26/23	MB	REVISED AS PER NDOT COMMENTS

Carl P. O'Brien

Carl P. O'Brien

NEW JERSEY LICENSED PROFESSIONAL ENGINEER  
LICENSE NUMBER: 6545154  
COLLIERS ENGINEERING & DESIGN, INC.  
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS

FOR

NJDOT FY2022-  
SPRUCE STREET  
IMPROVEMENTS

(BROOKSIDE PLACE TO  
WEST END PLACE)

TOWNSHIP OF CRANFORD  
UNION COUNTY  
NEW JERSEY

Colliers

Engineering & Design

MT. ARLINGTON  
400 Valley Road,  
Suite 304  
Mt. Arlington, NJ 07856  
Phone: 973.398.3110  
COLLIERS ENGINEERING & DESIGN, INC.  
DOING BUSINESS AS MASER CONSULTING

SCALE: AS SHOWN

DATE: 02/06/23

DRAWN BY: MB

CHECKED BY: PWJ

PROJECT NUMBER: CDT0081

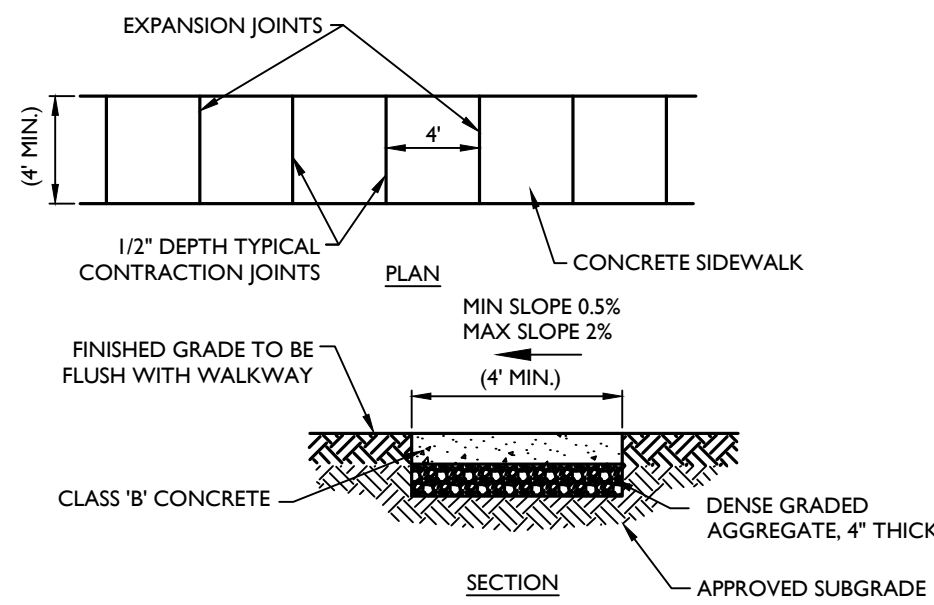
DRAWING NAME: C-DTLS

SHEET TITLE: SOIL EROSION & SEDIMENT CONTROL NOTES AND DETAILS

SHEET NUMBER: 15 of 26

NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.

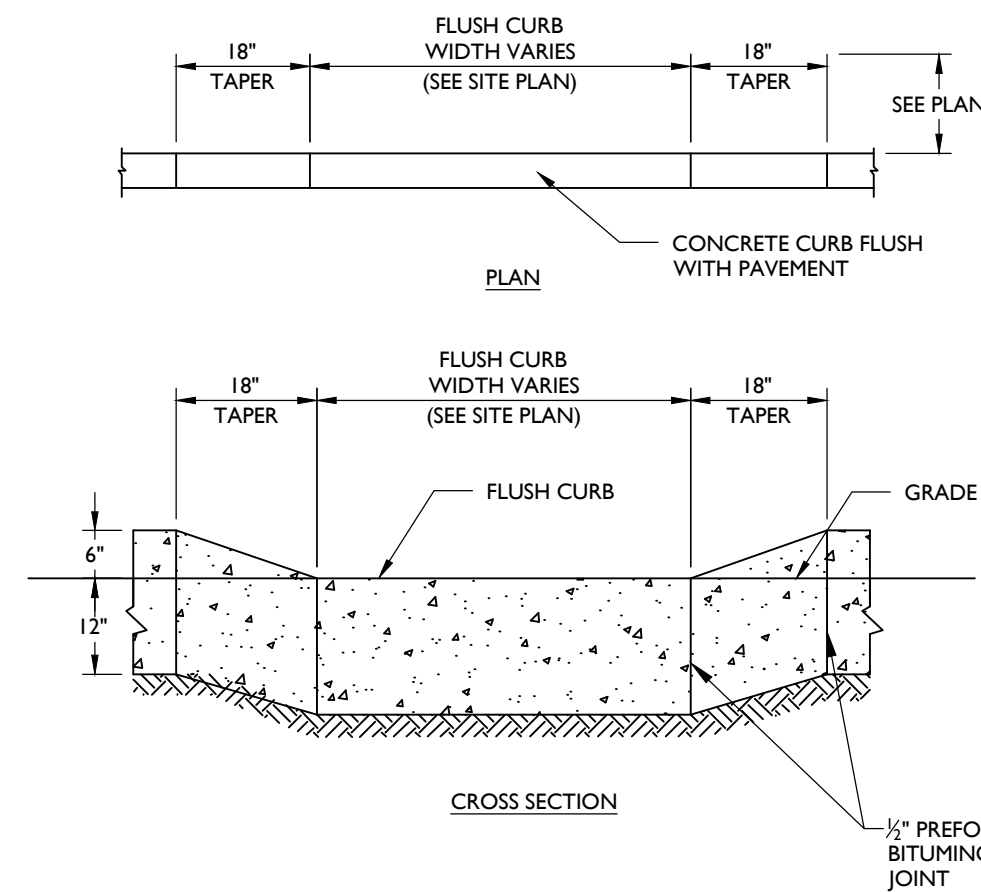




- NOTES:**
1. THE CONTRACTOR SHALL PROVIDE 1.5% CROSS SLOPE (TYP.), 2% MAX. TOWARDS ROADWAY.
  2. CURB AND SIDEWALK CONCRETE TO BE NJDOT CLASS "B" AIR-ENTRAINED.
  3. PROVIDE PREFORMED BITUMINOUS FIBER EXPANSION JOINTS 1/2" THICK, AT 12'-0" INTERVALS. PROVIDE DUMMY JOINTS (FORMED) MIDWAY BETWEEN EXPANSION JOINTS.
  4. UNLESS SPECIFICALLY SHOWN DIFFERENTLY ON PLANS, CONCRETE SIDEWALK SHALL BE INSTALLED WITHOUT DISTURBING EXISTING CURB.
  5. ANY EXCAVATION BELOW DESIRED GRADE DUE TO OVER EXCAVATION OR WET SOIL CONDITIONS SHALL BE BACKFILLED WITH DENSE GRADED AGGREGATE. ALL SUBGRADES SHALL BE REVIEWED AND APPROVED BY THE ENGINEER AFTER REMOVAL OF THE EXISTING SIDEWALK BUT BEFORE PLACING AND COMPACTION OF DENSE GRADED AGGREGATE.

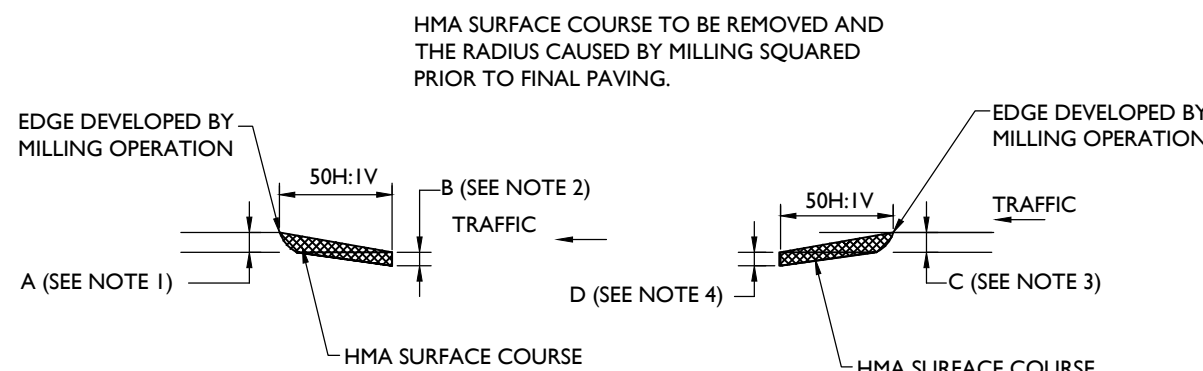
### CONCRETE SIDEWALK, 4" THICK

N.T.S.



### CONCRETE FLUSH CURB

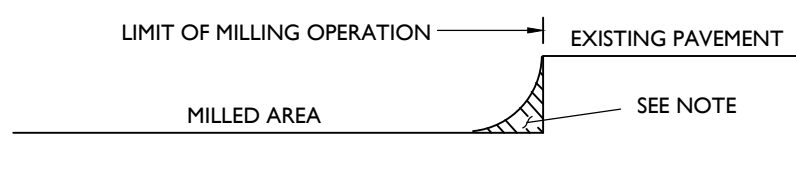
N.T.S.



- NOTES:**
1. USE HMA SURFACE COURSE IN THE MILLING TRANSITION WHEN LEADING EDGE DEVELOPED BY MILLING OPERATION IS EQUAL TO OR GREATER THAN 1 INCH. NONE REQUIRED FOR EDGE LESS THAN 1 INCH.
  2. ENSURE THAT THE THICKNESS OF THE HMA SURFACE COURSE IN THE MILLING TRANSITION IS NOT LESS THAN B. B IS EQUAL TO 2 INCHES OR A, WHICHEVER IS LESS.
  3. USE HMA SURFACE COURSE IN THE MILLING TRANSITION WHEN TRAILING EDGE DEVELOPED BY MILLING OPERATION IS EQUAL TO OR GREATER THAN 1 1/2 INCHES. NONE REQUIRED FOR EDGE LESS THAN 1 1/2 INCHES. ENSURE THAT THE THICKNESS OF THE HMA SURFACE COURSE IN THE MILLING TRANSITION IS NOT LESS THAN D. D IS EQUAL TO 2 INCHES OR C, WHICHEVER IS LESS.
  4. ENSURE THAT THE THICKNESS OF THE HMA SURFACE COURSE IN THE MILLING TRANSITION IS NOT LESS THAN D. D IS EQUAL TO 2 INCHES OR C, WHICHEVER IS LESS.

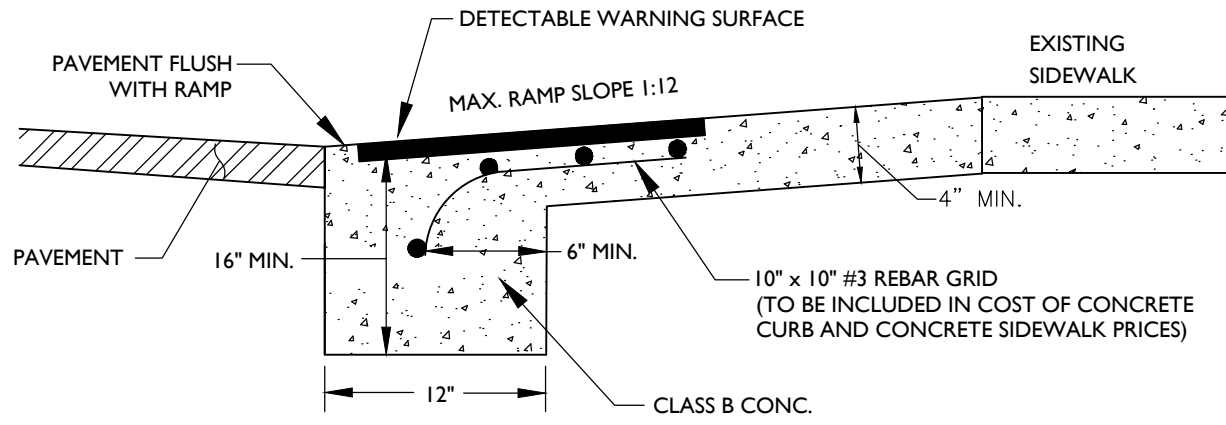
### MILLING TRANSITIONS DETAIL

N.T.S.



### END TREATMENT FOR MILLING OPERATIONS DETAIL

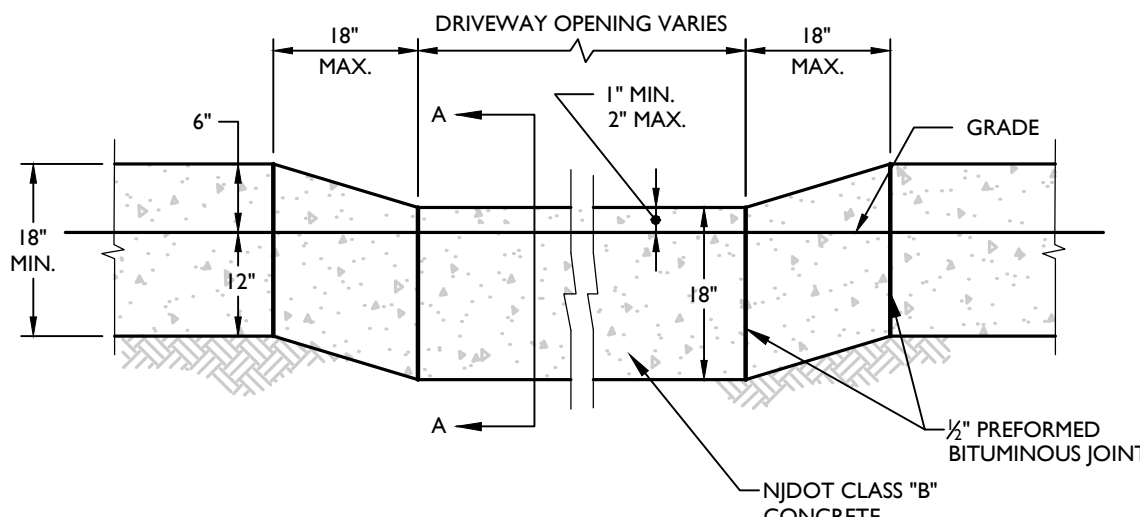
N.T.S.



- NOTES:**
1. NO SEPARATE PAYMENT WILL BE MADE FOR REBAR/CONCRETE REINFORCEMENT. INCLUDE COST UNDER THE CONCRETE SIDEWALK, REINFORCED, 4" THICK PAY ITEM.
  2. FLUSH CURBS AT CURB RAMPS SHALL BE POURED MONOLITICALLY WITH CURB RAMP. FLUSH BELGIAN BLOCK CURB IS NOT ACCEPTABLE.

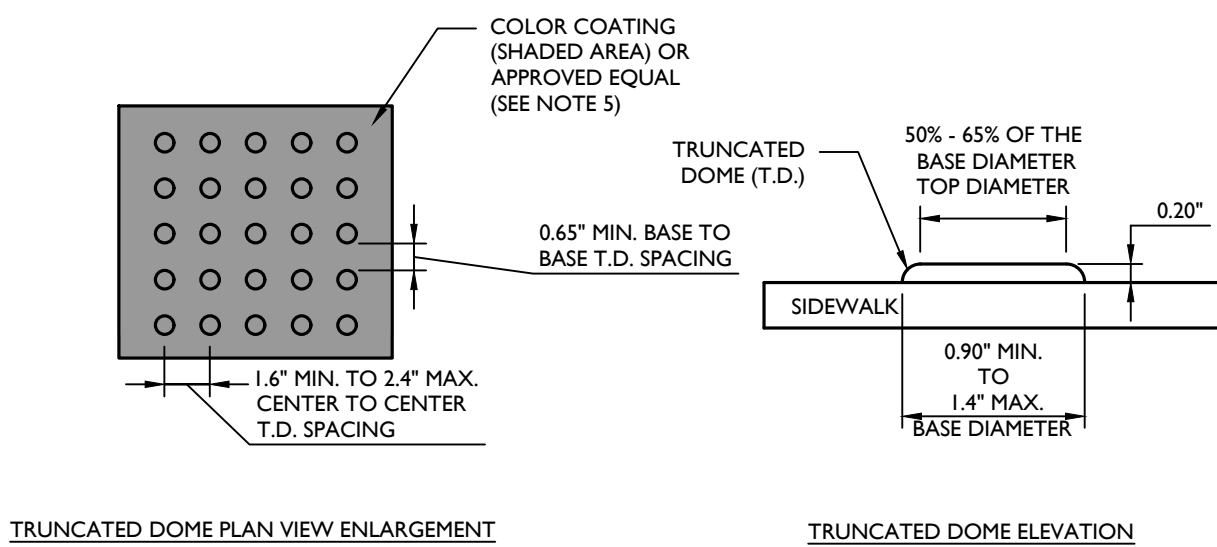
### ADA RAMP DETAIL

N.T.S.



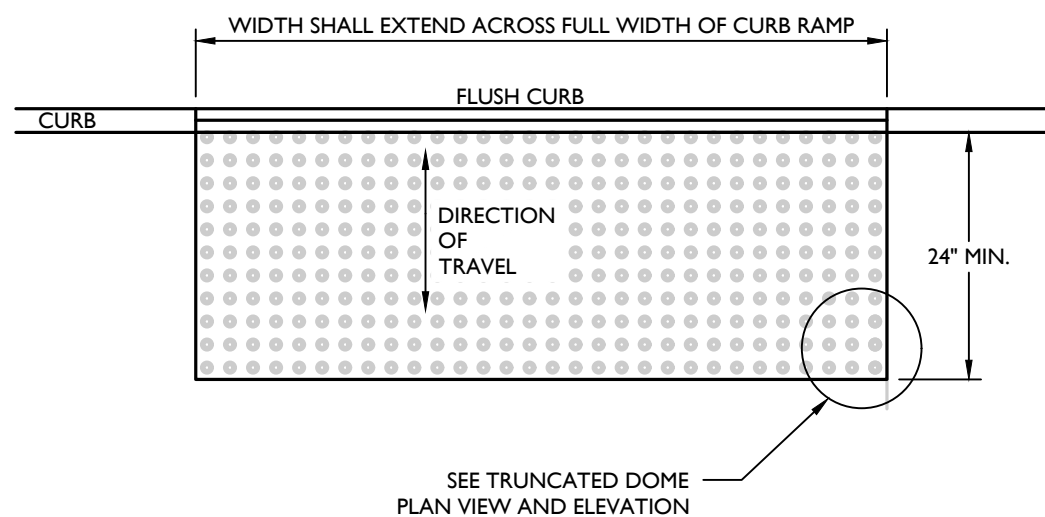
### 9'X18' DEPRESSED CONCRETE VERTICAL CURB

N.T.S.



TRUNCATED DOME PLAN VIEW ENLARGEMENT

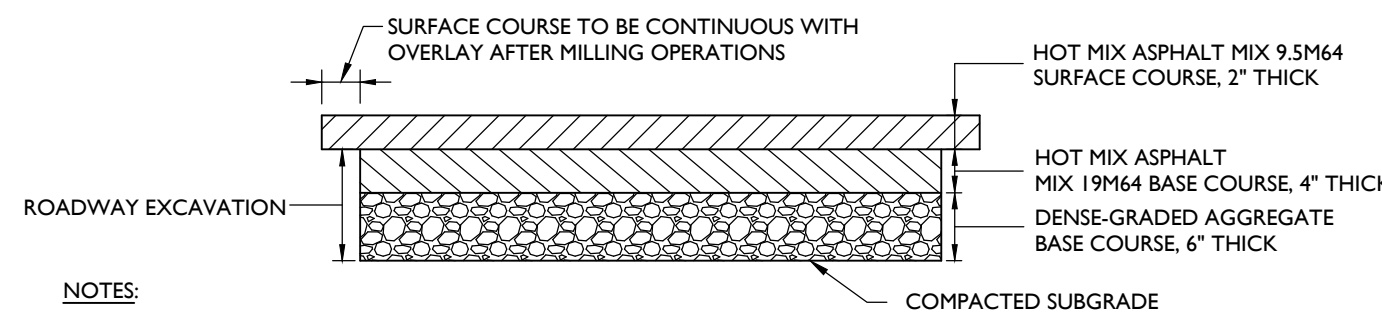
TRUNCATED DOME ELEVATION



PLAN VIEW

### DETECTABLE WARNING SURFACE DETAIL

N.T.S.

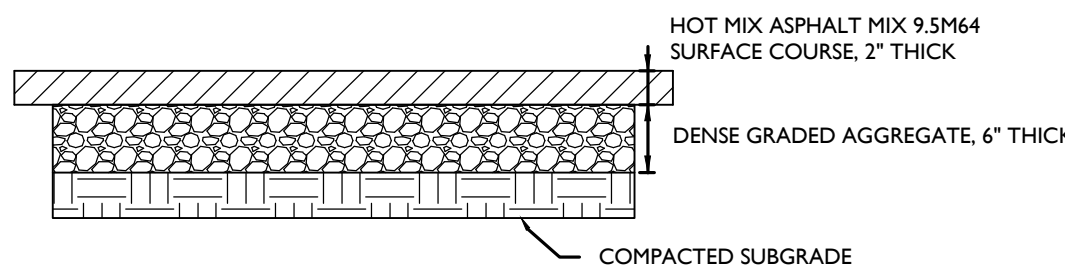


#### NOTES:

1. THE CONTRACTOR SHALL COMPLETE HOT MIX ASPHALT PAVEMENT REPAIRS. HOT MIX ASPHALT PAVEMENT REPAIRS SHALL CONSIST OF SAWCUTTING, ROADWAY EXCAVATION, BACKFILL AND COMPACTION OF DENSE-GRADED AGGREGATE BASE AND HOT MIX ASPHALT 19M64 BASE COURSE. THE COST TO SAWCUT THE PERIMETER OF FULL DEPTH REPAIRS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PAY ITEMS "HOT MIX ASPHALT PAVEMENT REPAIR" AND "FULL DEPTH CONCRETE PAVEMENT REPAIR, HMA".
2. THE PROPOSED SURFACE COURSE SHALL NOT BE INCLUDED IN THE WORK ASSOCIATED WITH HMA PAVEMENT REPAIR. THE PROPOSED SURFACE COURSE SHALL BE PLACED IN ACCORDANCE WITH THE ITEM "HOT MIX ASPHALT 9.5 M 64 SURFACE COURSE, 2" THICK".
3. ALL COSTS ASSOCIATED WITH HOT MIX ASPHALT PAVEMENT REPAIRS, SHALL INCLUDE THE FOLLOWING WORK:
  - SAWCUTTING
  - EXCAVATION UNCLASSIFIED
  - DENSE-GRADED AGGREGATE BASE COURSE, 6" THICK
  - HOT MIX ASPHALT BASE COURSE, MIX 19M64 (4" THICK)

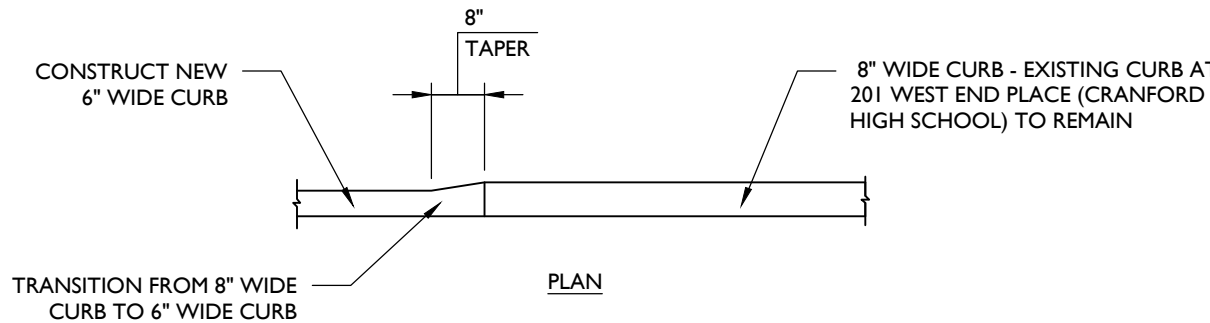
### HOT MIX ASPHALT PAVEMENT REPAIR AND FULL DEPTH CONCRETE PAVEMENT REPAIR, HMA

N.T.S.



### ASPHALT SIDEWALK, 2" THICK

N.T.S.

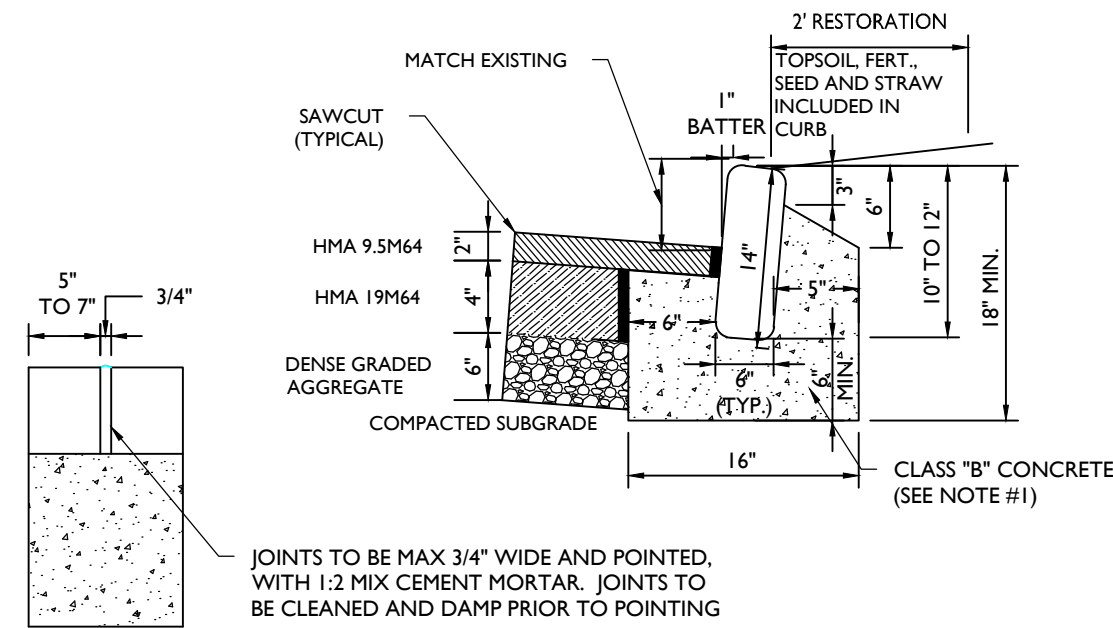


### CONCRETE CURB TRANSITION DETAIL

N.T.S.

#### NOTES:

1. THE DETECTABLE WARNING SURFACE IS TO BE MANUFACTURED MATS THAT ARE EMBEDDED AND CAST-IN-PLACE IN THE CONCRETE.
2. IN LIEU OF A CAST IN PLACE DETECTABLE WARNING SURFACE, THE CONTRACTOR MAY UTILIZE A SURFACE APPLIED DETECTABLE WARNING SURFACE WITH PRIOR APPROVAL OF THE UNDERSIGNED ENGINEER AND PRIOR TO POURING OF THE CONCRETE RAMP.
3. THE CONTRACTOR MUST SUBMIT TO THE ENGINEER FOR APPROVAL A SHOP DRAWING OF THE DETECTABLE WARNING SURFACE PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR MUST PROVIDE A MANUFACTURER CERTIFICATION THAT THE DETECTABLE WARNING SURFACE COMPLIES WITH THE CURRENT ADA STANDARDS FOR ACCESSIBLE DESIGN AS PUBLISHED BY THE DEPARTMENT OF JUSTICE AND THE ADA STANDARDS AS SUPPORTED BY THE UNITED STATES ACCESS BOARD, AND THE STATE AND/OR LOCAL ADA STANDARDS.
5. **SAFETY RED** AS APPROVED BY THE LOCAL JURISDICTION PRIOR TO INSTALLATION. DETECTABLE WARNING SURFACES MUST CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. ALTERNATIVE COLOR MAY BE USED PROVIDED SUCH COLOR COMPLIES WITH CURRENT ADA STANDARDS.
6. DETECTABLE WARNINGS ARE TO CONSIST OF A SURFACE OF TRUNCATED DOMES.
7. TRUNCATED DOMES IN A DETECTABLE WARNING SURFACE MUST HAVE A BASE DIAMETER OF 0.9 INCH (23 mm) MINIMUM AND 1.4 INCHES (36 mm) MAXIMUM, A TOP DIAMETER OF 50 PERCENT OF THE BASE DIAMETER MINIMUM TO 65 PERCENT OF THE BASE DIAMETER MAXIMUM, AND A HEIGHT OF 0.2 INCH (5.1 mm).
8. TRUNCATED DOMES IN DETECTABLE WARNING SURFACES ARE TO BE PLACED AT THE FLUSH TRANSITION BETWEEN THE STREET AND THE SIDEWALK.
9. SOME DETECTABLE WARNING PRODUCTS REQUIRE A CONCRETE BORDER FOR PROPER INSTALLATION, WHERE REQUIRED BY THE MANUFACTURER, THE CONCRETE BORDER MUST NOT EXCEED 2 INCHES (51 mm).
10. DETECTABLE WARNING SURFACES ARE NOT TO BE PLACED ON PAVING OR EXPANSION JOINTS AT CURB RAMPS. THE ROWS OF TRUNCATED DOMES IN DETECTABLE WARNING SURFACES ARE TO BE ALIGNED PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET SO PEDESTRIANS WHO USE WHEELCHAIRS CAN "TRACK" BETWEEN THE DOMES.
11. ON PERPENDICULAR CURB RAMPS, DETECTABLE WARNING SURFACES ARE TO BE PLACED AS FOLLOWS:
  - a. WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE IN FRONT OF THE BACK OF CURB, DETECTABLE WARNING SURFACES ARE TO BE PLACED AT THE BACK OF CURB.
  - b. WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS 5.0 FT OR LESS, DETECTABLE WARNING SURFACES ARE TO BE PLACED ON THE RAMP RUN WITHIN ONE DOME SPACING OF THE BOTTOM GRADE BREAK.
  - c. WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB AND THE DISTANCE FROM EITHER END OF THE BOTTOM GRADE BREAK TO THE BACK OF CURB IS MORE THAN 5.0 FT, DETECTABLE WARNING SURFACES ARE TO BE PLACED ON THE LOWER LANDING AT THE BACK OF CURB.
12. ON PARALLEL CURB RAMPS, DETECTABLE WARNING SURFACES ARE TO BE PLACED ON THE TURNING SPACE AT THE FLUSH TRANSITION BETWEEN THE STREET AND SIDEWALKS.
13. ON BLENDED TRANSITIONS, DETECTABLE WARNING SURFACES ARE TO BE PLACED AT THE BACK OF CURB WHERE RAISED PEDESTRIAN STREET CROSSINGS, DEPRESSED CORNERS OR OTHER LEVEL PEDESTRIAN STREET CROSSINGS ARE PROVIDED. DETECTABLE WARNING SURFACES ARE TO BE PLACED AT THE FLUSH TRANSITION BETWEEN THE STREET AND THE SIDEWALK.

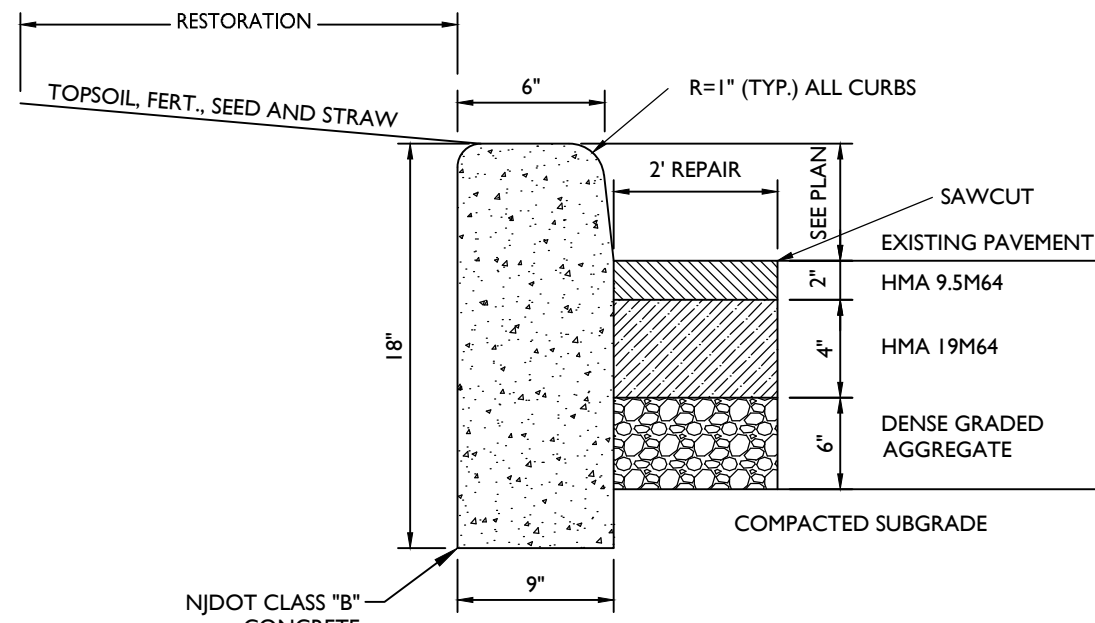


#### NOTES:

1. CONCRETE TO TEST 4500 PSI MINIMUM ON 28 DAY COMPRESSIVE TEST.
2. ALL CONCRETE IS TO BE PROPERLY CURED USING A CURING COMPOUND, SALT HAY, BURLAP OR OTHER METHOD ACCEPTABLE TO THE TOWNSHIP ENGINEER.
3. CONCRETE SLUMP TO BE 3" (±1"), OR AS DIRECTED BY THE TOWNSHIP ENGINEER.
4. A HALF INCH EXPANSION JOINT OF A NON-EXTRUDABLE, BITUMINOUS MATERIAL SHALL BE PLACED ON 20'-0" CENTERS MAXIMUM.
5. CONTRACTOR TO NOTIFY OWNER'S ENGINEER 24 HOURS PRIOR TO POURING.
6. EXPANSION JOINTS THRU AND ADJACENT TO THE CURB SHALL BE INCLUDED IN THE UNIT PRICE FOR THE CURB. PROVIDE DUMMY JOINTS (FORMED) MIDWAY BETWEEN EXPANSION JOINTS.

### GRANITE BLOCK CURB

N.T.S.

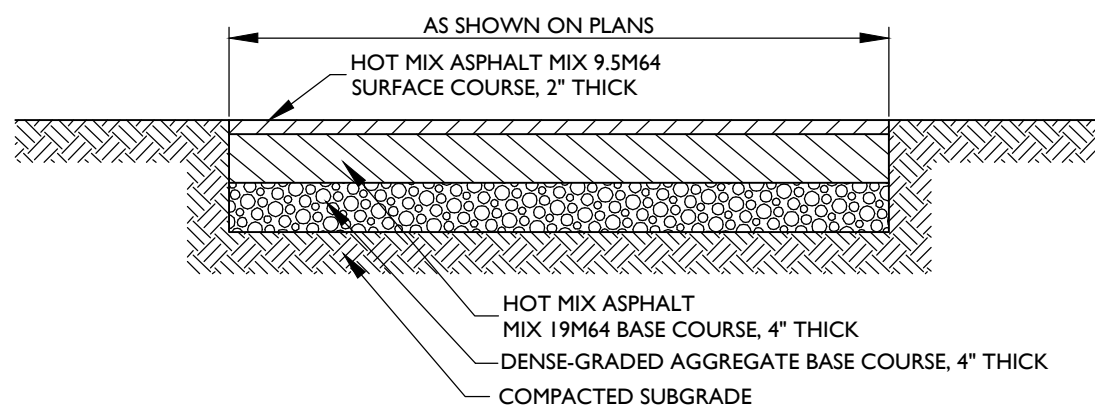


#### NOTES:

1. TRAVERSE JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20 FEET APART AND SHALL BE FILLED WITH PREFORMED BITUMINOUS-IMPREGNATED FIBER JOINT FILLER RECESSED 1/4" IN FROM FRONT FACE AND TOP OF CURB.
2. EXPANSION JOINTS THRU AND ADJACENT TO THE CURB SHALL BE INCLUDED IN THE UNIT PRICE FOR THE CURB. PROVIDE DUMMY JOINTS (FORMED) MIDWAY BETWEEN EXPANSION JOINTS.

### 9'X18' CONCRETE VERTICAL CURB (WITH 2' FULL DEPTH REPAIR)

N.T.S.



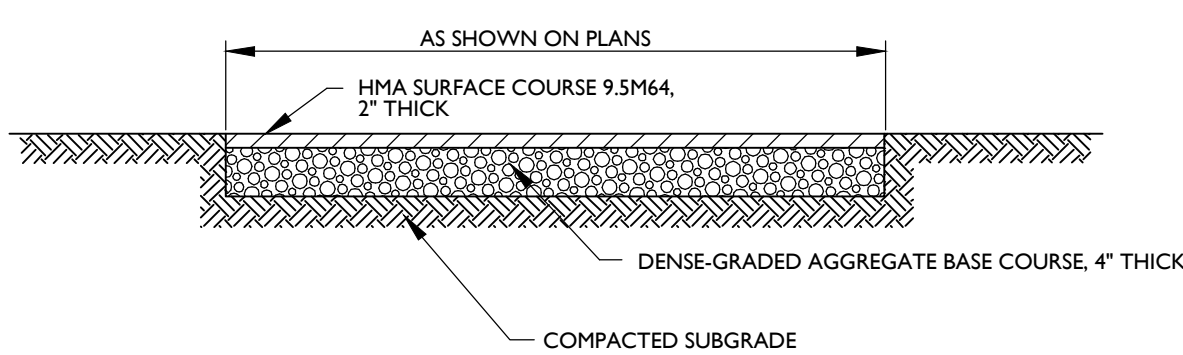
#### NOTES:

1. THE CONTRACTOR SHALL REPAIR HOT MIX ASPHALT DRIVEWAYS AS DIRECTED BY THE ENGINEER. LIMITS OF DRIVEWAY REPAIR SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PAYMENT FOR ALL ITEMS AND WORK INCLUDED IN THE CONSTRUCTION OF HOT MIX ASPHALT DRIVEWAYS SHALL BE PAID FOR UNDER THE ITEM "HOT MIX ASPHALT DRIVEWAY, 2" THICK AND "HOT MIX ASPHALT DRIVEWAY, 6" THICK".
3. SAWCUT, REMOVAL AND DISPOSAL OF EXISTING DRIVEWAY SURFACE AND SUBSOILS FOR DRIVEWAY REPAIR SHALL BE PAID FOR UNDER THE ITEM "CLEARING SITE".

### HOT MIX ASPHALT DRIVEWAY, 6' THICK

N.T.S.

N.T.S.



#### NOTES:

1. THE CONTRACTOR SHALL REPAIR HOT MIX ASPHALT DRIVEWAYS AS DIRECTED BY THE ENGINEER. LIMITS OF DRIVEWAY REPAIR SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PAYMENT FOR ALL ITEMS AND WORK INCLUDED IN THE CONSTRUCTION OF HOT MIX ASPHALT DRIVEWAYS SHALL BE PAID FOR UNDER THE ITEM "HOT MIX ASPHALT DRIVEWAY, 2" THICK AND "HOT MIX ASPHALT DRIVEWAY, 6" THICK".
3. SAWCUT, REMOVAL AND DISPOSAL OF EXISTING DRIVEWAY SURFACE AND SUBSOILS FOR DRIVEWAY REPAIR SHALL BE PAID FOR UNDER THE ITEM "CLEARING SITE".

### HOT MIX ASPHALT DRIVEWAY, 2" THICK

N.T.S.

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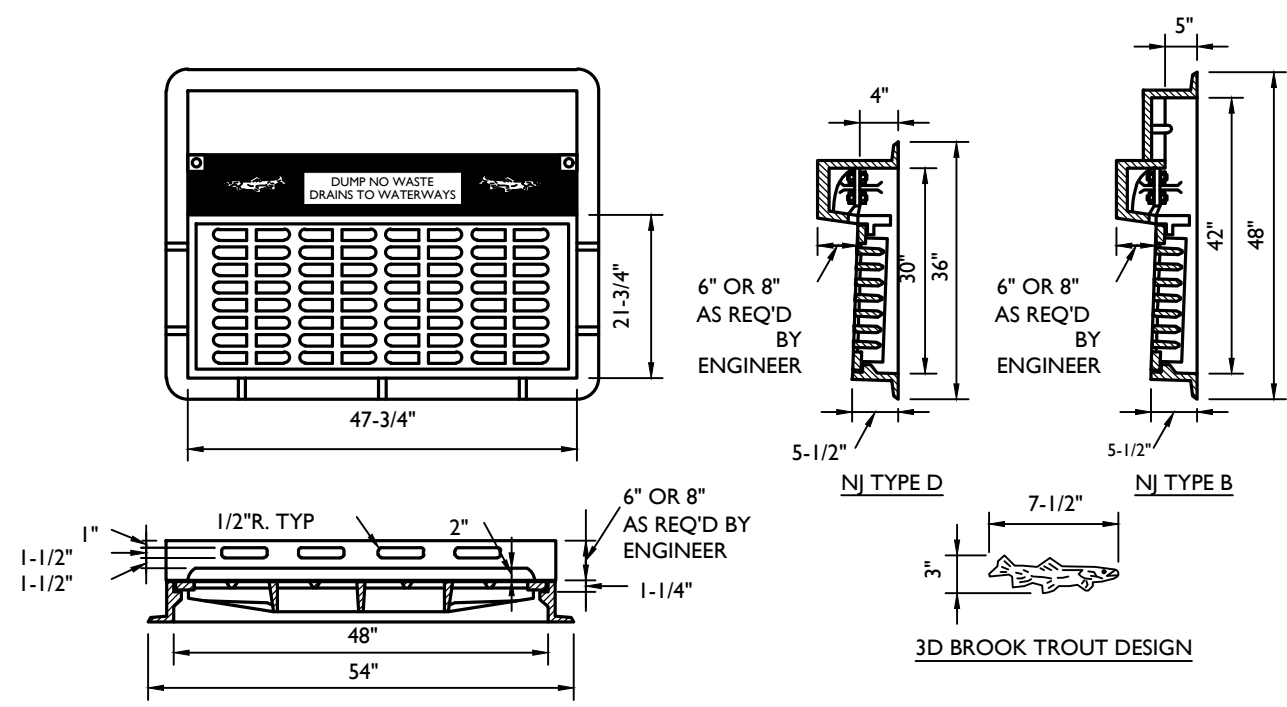
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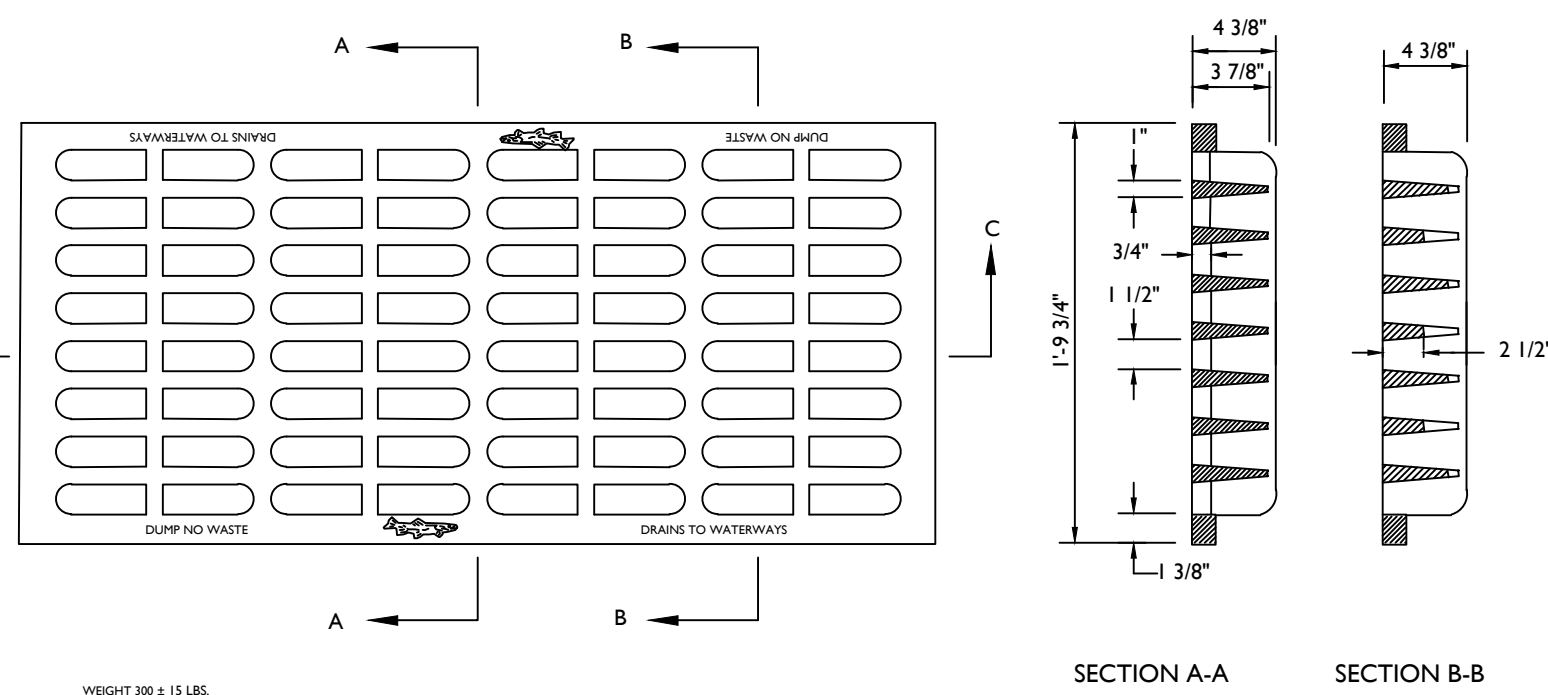


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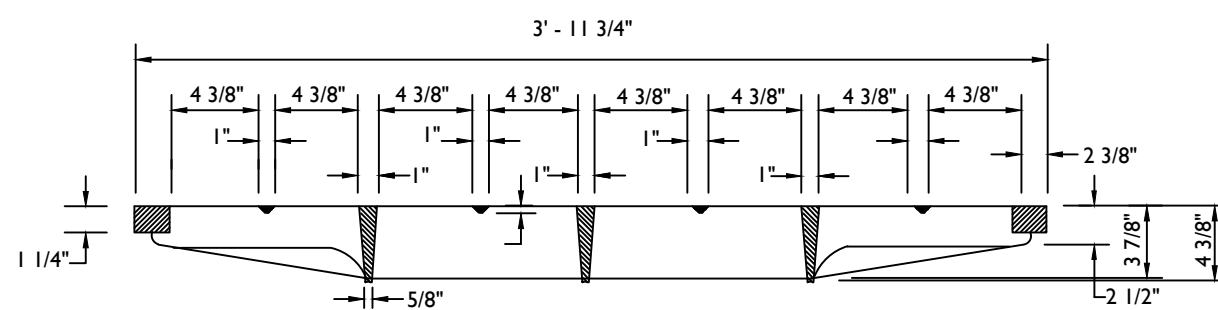


- NOTES:
1. MATERIAL: GRAY CAST IRON ASTM A48-B3, CLASS 30B
  2. AASHTO H520-44 HIGHWAY LOADING
  3. SUPPLIED WITHOUT SURFACE COATING
  4. NAME PLATE SHALL READ "DRAINS TO WATERWAYS"

**CURB PIECE (TYPE 'N' ECO)**  
CAMPBELL FOUNDRY COMPANY PATTERN NO. 2618 OR APPROVED EQUAL  
N.T.S.

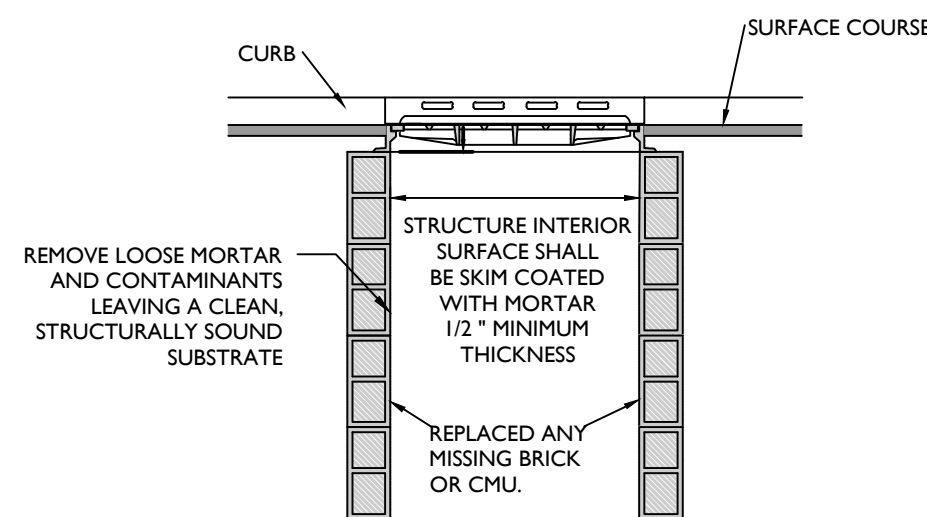


WEIGHT 308 ± 15 LBS.

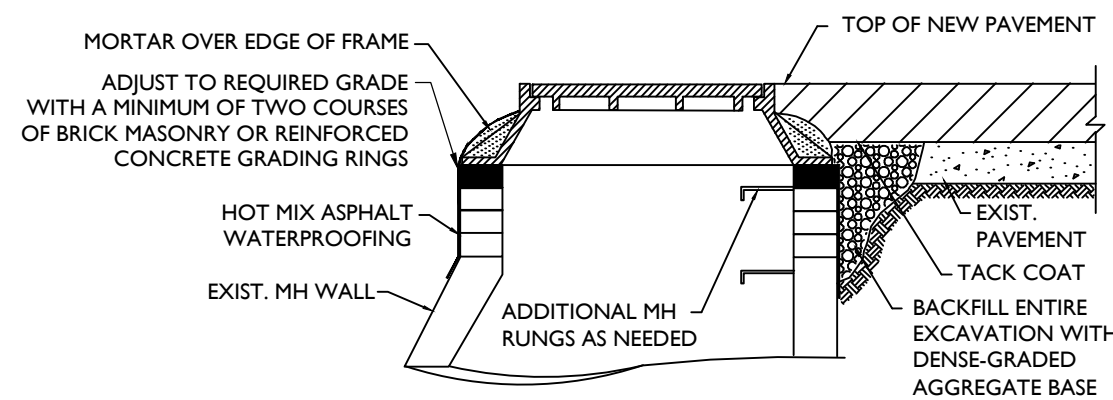


NOTES: DIMENSION, WEIGHTS AND OTHER CRITERIA SHOWN ON THESE DETAILS ARE FOR CLASS 35B CAST IRON.

**BICYCLE SAFE GRATE (CAST IRON)**  
(CAMPBELL FOUNDRY PATTERN NO. 2618 OR APPROVED EQUAL)  
N.T.S.



**REPAIR INTERIOR OF DRAINAGE STRUCTURE**  
N.T.S.



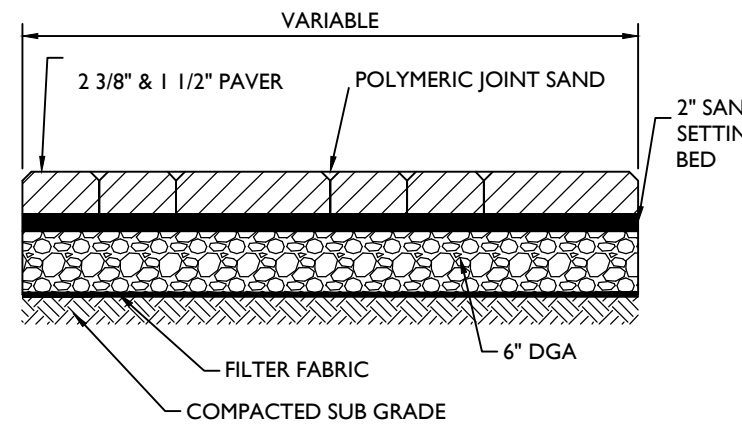
NOTES: FRAMES AND COVERS: CAST IRON MINIMUM CLASS 15 CONFORMING TO ASTM A48, AND AS FOLLOWS:

1. CASTINGS TO BE FREE FROM SCALE, LUMPS, BLISTERS AND SANDHOLES.
2. MACHINE CONTACT SURFACES TO PREVENT ROCKING.
3. THOROUGHLY CLEAN AND HAMMER INSPECT.
4. CAPABLE OF WITHSTANDING AASHTO H-20 LOADING UNLESS OTHERWISE INDICATED OR SPECIFIED.
5. COVERS FOR SEWER MANHOLES SHALL BE MARKED "SEWER".
6. COVERS FOR DRAIN MANHOLES SHALL BE MARKED "DRAIN".
7. STANDARD MANHOLE FRAMES AND COVERS SHALL BE PATTERN No. 1202B AS MANUFACTURED BY CAMPBELL FOUNDRY COMPANY OR APPROVED EQUAL

BITUMINOUS WATERPROOFING MATERIAL:

1. H.B. TNEMECOL 46-465, BY TNEMEC COMPANY.
2. AMERCOAT 78HB, BY AMERON INTERNATIONAL.
3. BITUMASTIC SUPER SERVICE BLACK, BY CARBOLINE OR ACCEPTABLE EQUIVALENT PRODUCT.

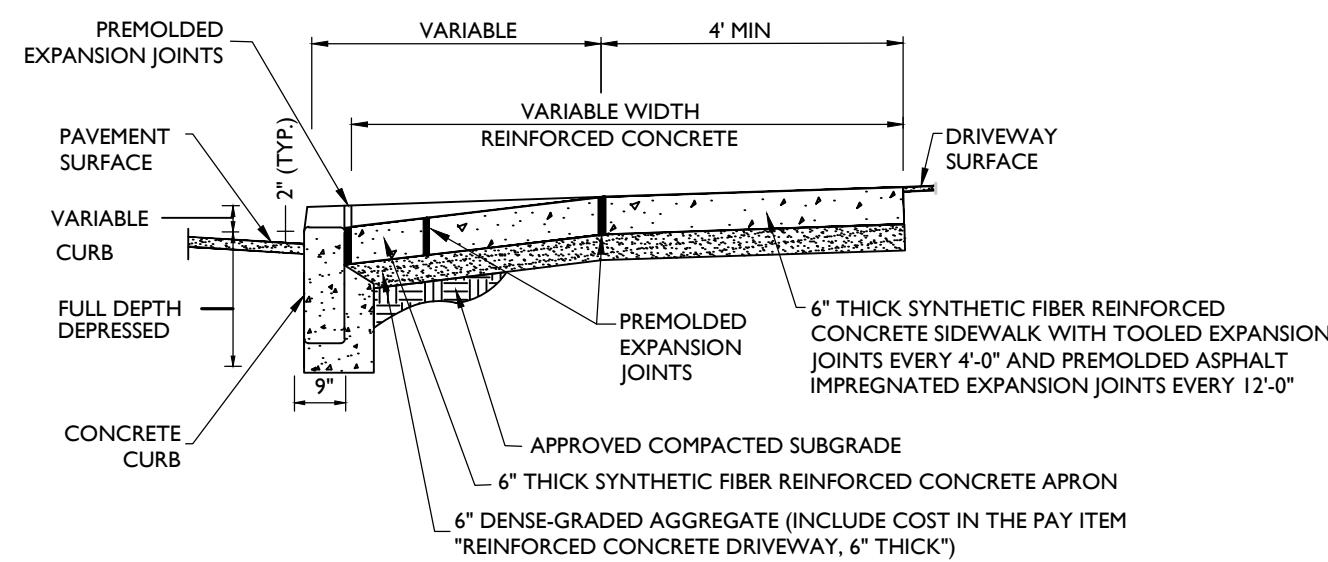
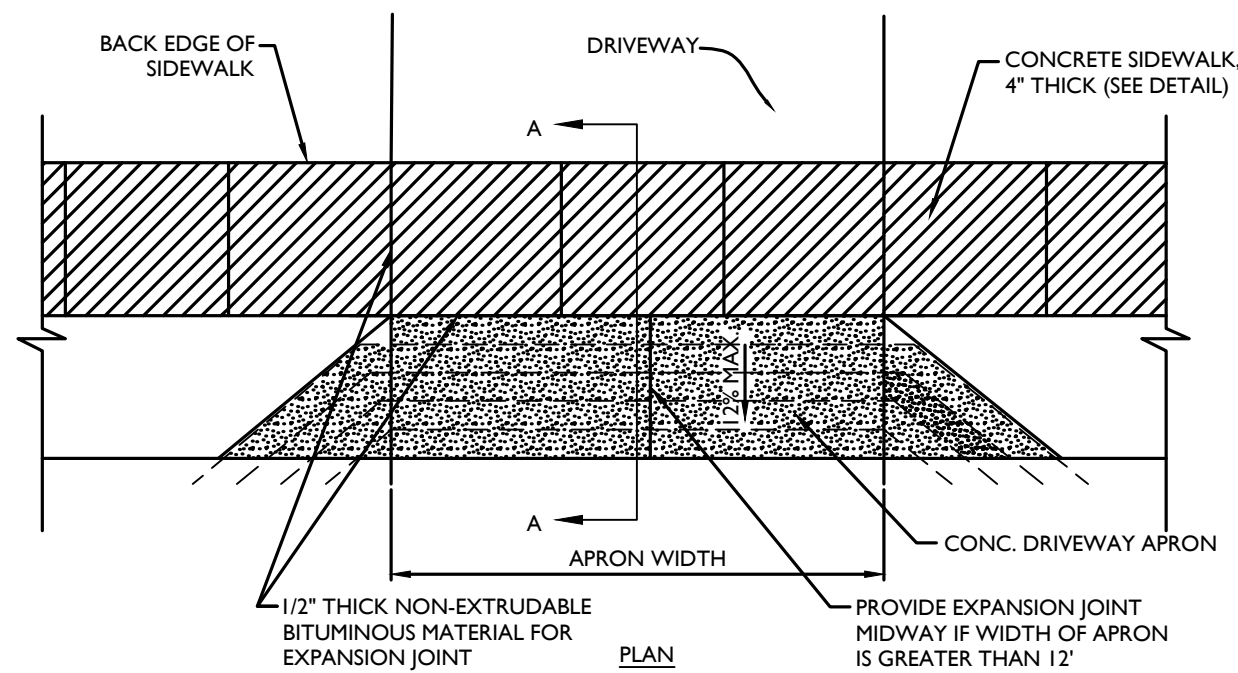
**RESET EXISTING CASTING (MANHOLE)**  
N.T.S.



NOTES:

1. CONTRACTOR TO SET TOP OF BEDDING SO THAT TOP OF PAVERS ARE AT FINISHED GRADE AFTER COMPACTION.
2. SHOULD BE RESET FLUSH WITH ADJACENT PAVEMENT.
3. EXISTING PAVERS SHALL BE RESET AS SHOWN ON THE PLANS AND DIRECTED IN THE FIELD BY THE ENGINEER.
5. ALL COSTS ASSOCIATED WITH THE RESETTING OF THE EXISTING PAVEMENT DRIVEWAY, INCLUDING REMOVAL AND REPLACEMENT OF BEDDING MATERIAL AND BASE COURSE SHALL BE INCLUDED IN THE SQUARE YARD PRICE BID FOR RESET PAVERS PAY ITEM.

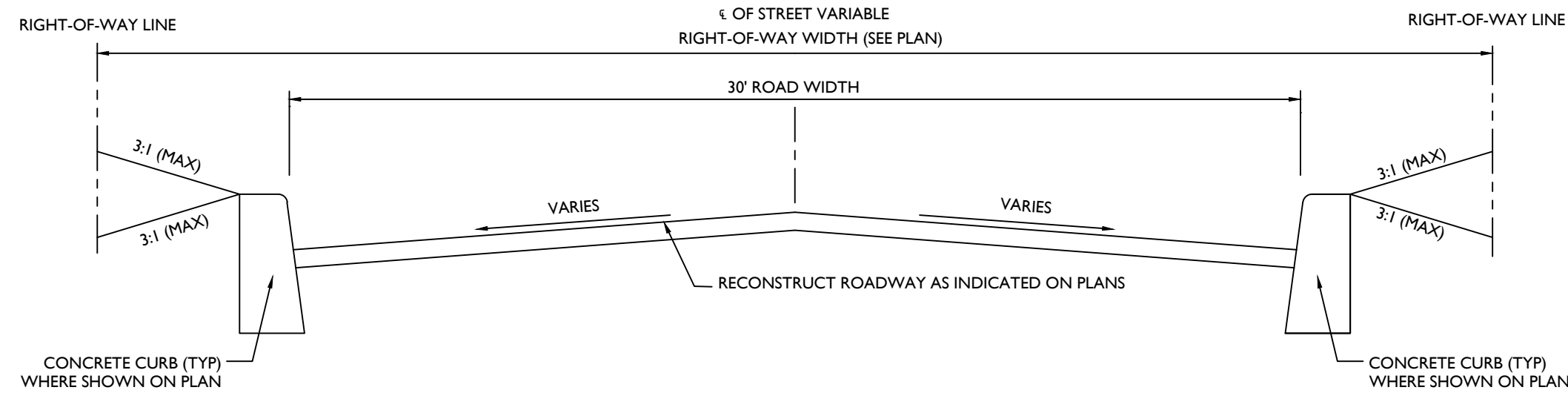
**RESET PAVER DRIVEWAY DETAIL**  
N.T.S.



NOTES:

1. CONCRETE PAD SHALL BE 6\"
2. CONCRETE SLAB SHALL INCLUDE SYNTHETIC FIBER REINFORCEMENT.
3. SYNTHETIC FIBER REINFORCEMENT SHALL BE FIBRILLATED POLYPROPYLENE MICRO-FIBER, PSI FIBERSTRAND F, AS MANUFACTURED BY EULUD CHEMICAL OR APPROVED EQUAL.
4. SYNTHETIC FIBER DOSAGE RATE SHALL BE 1.5 LBS/CY.
5. CONCRETE SHALL HAVE BROOM FINISH.

**CONCRETE DRIVEWAY, REINFORCED 6\"**  
N.T.S.

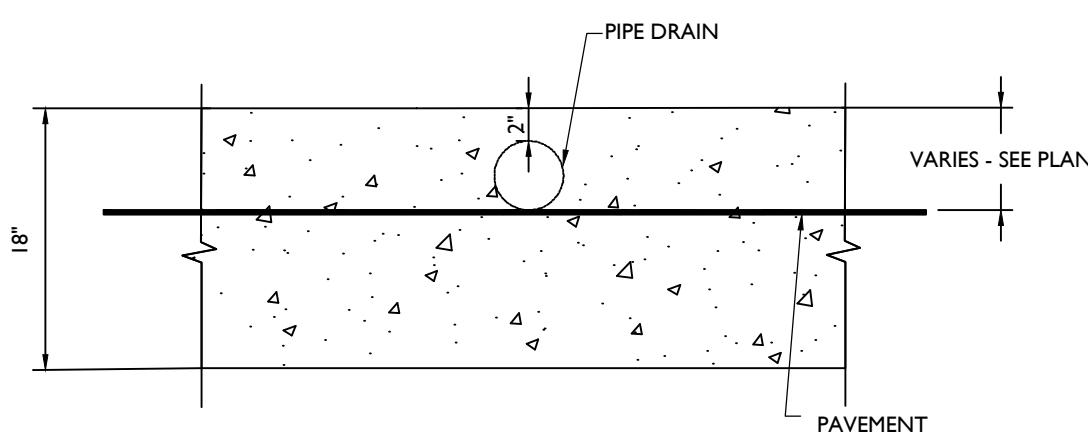


ASPHALT TYPE	MINIMUM COMPACTED THICKNESS	MAXIMUM COMPACTED THICKNESS PER LIFT
HOT MIX ASPHALT 9.5M64	1.5\"	4\"
HOT MIX ASPHALT 19M64	3\"	6\"

INSTRUCTIONS:

- WHEN PROPOSED HMA SURFACE IS 0\"
- WHEN PROPOSED HMA SURFACE IS 2\"
- WHEN PROPOSED SURFACE IS 4\"
- WHEN PROPOSED HMA SURFACE IS 6\"
- WHEN PROPOSED HMA SURFACE IS 10\"
- WHEN PROPOSED HMA SURFACE IS BELOW THE EXISTING HMA SURFACE, REMOVE THE EXISTING SECTION USING MILLING, PAVEMENT REMOVAL AND EXCAVATION UNLESS DIRECTED OTHERWISE BY THE ENGINEER. INSTALL THE SECTION DEPICTED IN THE FULL DEPTH REPAIR DETAIL.
- INSTALLATION OF HMA SHALL BE REIMBURSED BY THE TON FOR THE HMA INSTALLED, NO SEPARATE PAYMENT SHALL BE MADE FOR INSTALLING MULTIPLE LIFTS OF HMA. INCLUDE COSTS IN HOT MIX ASPHALT PAY ITEMS.

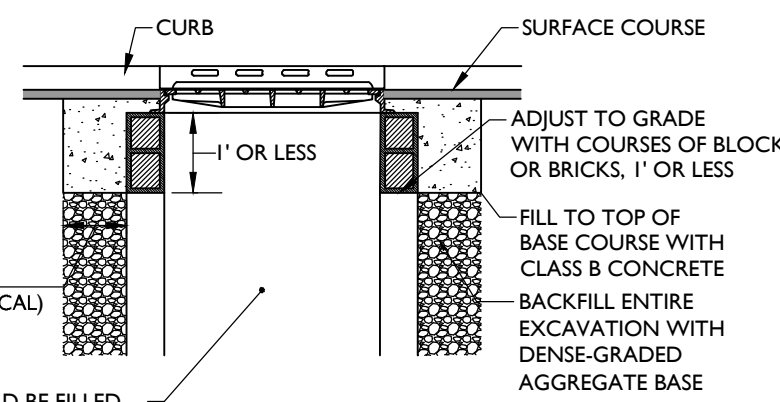
**TYPICAL ROAD SECTION**  
N.T.S.



NOTES:

1. ALL STORM PIPES DISCHARGING TO THE SURFACE WITHIN THE LIMITS OF CURB REPLACEMENT SHALL BE EXTENDED TO THE CURB AND DISCHARGE THROUGH THE CURB, WITH THE EXCEPTION OF ANY ROOF LEADERS TO BE DIRECTLY CONNECTED TO EXISTING OR PROPOSED SUBGRADE STORMWATER INFRASTRUCTURE.

**PIPE DRAIN DETAIL**  
N.T.S.



1. CRACKS SHOULD BE FILLED WITH NON-SHRINK GROUT.
2. ENTIRE INSIDE SURFACE OF INLET SHOULD BE SKIM COATED WITH MORTAR.

**RESET EXISTING CASTING**  
N.T.S.

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REV	DATE	DRAWN BY	DESCRIPTION	REVISIONS
1	04/26/23	MB	REVISED AS PER NDOT COMMENTS	

*Carl P. O'Brien*  
Carl P. O'Brien  
NEW JERSEY LICENSED PROFESSIONAL ENGINEER  
LICENSE NUMBER: 6645154  
COLLIERS ENGINEERING & DESIGN, INC.  
N.J. C.O.A. #: 24GA27986500

CONSTRUCTION PLANS

FOR

**NJDOT FY2022-  
SPRUCE STREET  
IMPROVEMENTS**

(BROOKSIDE PLACE TO  
WEST END PLACE)

TOWNSHIP OF CRANFORD  
UNION COUNTY  
NEW JERSEY

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AS SHOWN	02/06/23	MB	PWJ
PROJECT NUMBER:	DRAWING NAME:	SHEET TITLE:	SHEET NUMBER:
CDT0081	CDTL5	CONSTRUCTION DETAILS	17 of 26

CONSTRUCTION DETAILS

SHEET NUMBER:


17 of 26


NOTE: DO NOT SCALE DRAWINGS FOR CONSTRUCTION.





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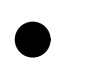




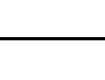
## LEGEND



BREAKAWAY BARRICADES WITH SIGN



## DRUMS



PRECAST CONCRETE CURB CONSTRUCTION BARRIER (TYPE SPECIFIED)



TRAILER MOUNTED MOUNTED ARROW BOARD SHOWING CAUTION MODE

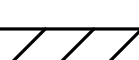


TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND  
ARROW BOARD SHOWING CAUTION MODE

TRAFFIC CONTROL TRUCK WITH MOUNTED CRASH CUSHION AND  
ARROW BOARD SHOWING ARROW PATTERN (Left, Right, Both)



## TEMPORARY CRASH CUSHION, INERTIAL BARRIER SYSTEM



TEMP ORARY CRASH SESSION, (all other approved)

BUFFER ZONE



WORK AREA

PAINT STRIPING TRUCK OR OTHER OPERATING VEHICLE

GENERAL NOTES:

1. 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(NJ)5-17(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.

24. TRAFFIC CONTROL DEVICES FOR LANE CLOSURES INCLUDING SIGNS, CONES, BARRICADES, ETC. SHALL BE PLACED AS SHOWN ON PLANS. SIGNS SHALL NOT BE PLACED WITHOUT ACTUAL LANE CLOSURES AND SHALL BE IMMEDIATELY REMOVED UPON REMOVAL OF THE CLOSURES.
25. CONES MAY BE SUBSTITUTED FOR DRUMS AND INSTALLED UPON THE APPROVAL OF THE RE.
26. TRAFFIC IMPACT NOTICES AND CHANGES
  - A. TERMS:  
WHEN THE FOLLOWING TERMS ARE USED, THE INTENT AND MEANING SHALL BE AS FOLLOWS:
    - i. IMPACTS TO NORMAL TRAFFIC FLOW - WORK THAT REQUIRES A PORTION OF THE PAVED ROADWAY BEING BLOCKED OR CLOSED WITH SAFETY DEVICES OR VEHICLES, INCLUDING BUT NOT LIMITED TO, FULL OR PARTIAL LANE CLOSURES, FULL OR PARTIAL RAMP CLOSURES, SHOULDER CLOSURES, MOVING OPERATIONS SUCH AS TRAFFIC STRIPING OR SWEEPING, LANE SHIFTS, OR ALTERNATING TRAFFIC. THIS APPLIES EVEN WHEN DETOURS ARE PROVIDED.
    - ii. TEMPORARY LANE CLOSURES - WORK DESCRIBED UNDER "IMPACTS TO NORMAL TRAFFIC FLOW" WHICH IS ROUTINELY SET UP AND REMOVED ON A DAILY BASIS.
    - iii. PERMANENT LANE CLOSURES - WORK DESCRIBED UNDER "IMPACTS TO NORMAL TRAFFIC FLOW" WHICH REMAINS IN PLACE CONTINUOUSLY FOR 24 HOURS OR MORE.
  - B. ADVANCE NOTICES

FOR THE INITIAL STARTUP 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 TWO (2) BUSINESS DAYS BEFORE THE PROPOSED DATE AND ADVANCE NOTICE 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 PROPOSED DATE OF THE TRAFFIC CONTROL MEASURES FOR THE TRAFFIC IMPACT. 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 IF 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 BE RESPONSIBLE FOR THE RELOCATION OF THE PROPOSED DATE OF THE NEW TRAFFIC PATTERN, EVEN (AFTER/ 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.

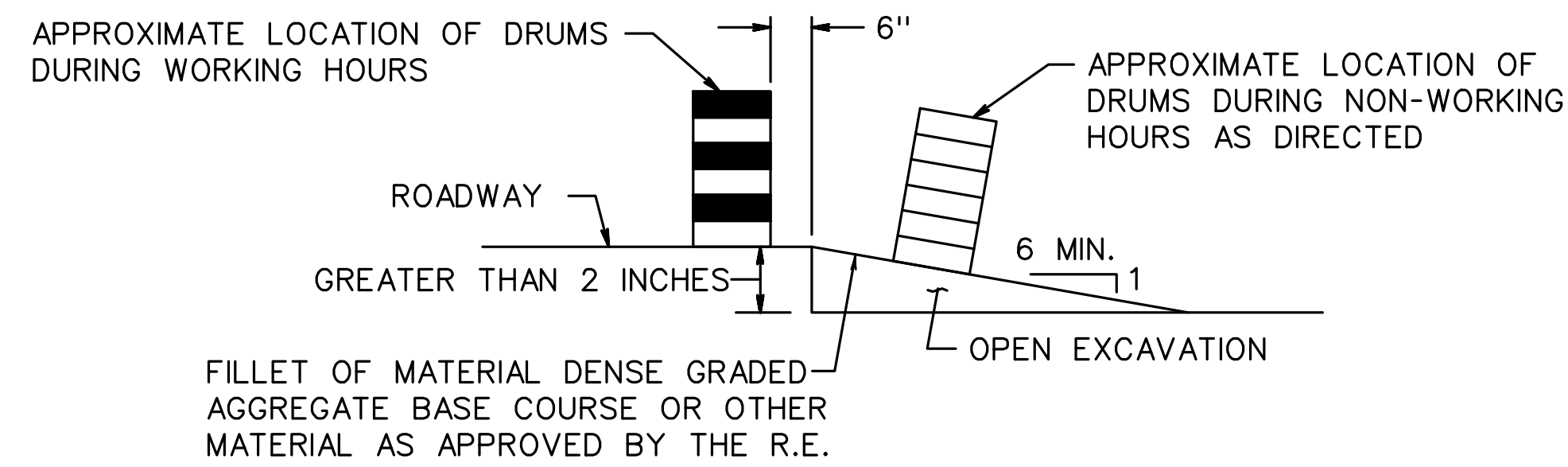
- #### D. CHANGES TO THE SCHEDULED CLOSURES

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.

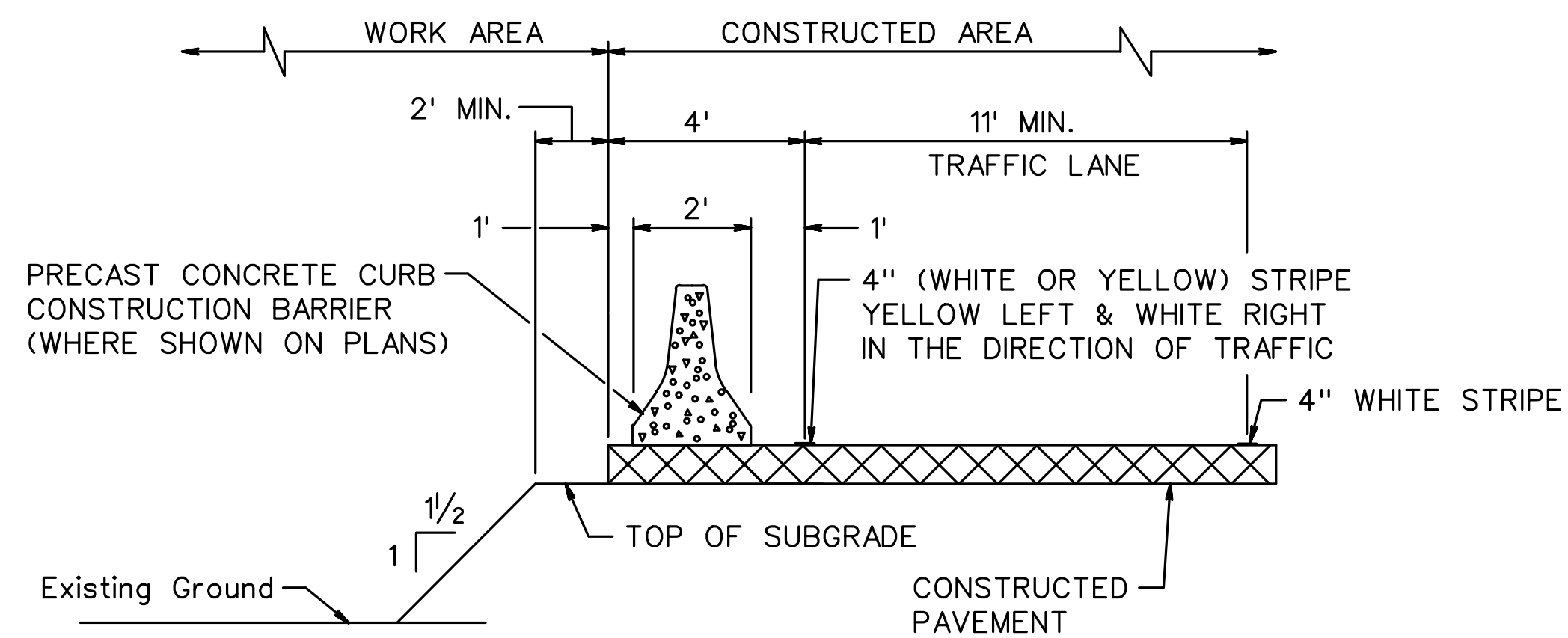
OTHER PROPOSED CHANGES TO "TEMPORARY LANE CLOSURES" AND ALL CHANGES TO "PERMANENT LANE CLOSURES" SHALL BE SUBMITTED TO THE RE AS SPECIFIED IN THE SPECIFICATIONS.





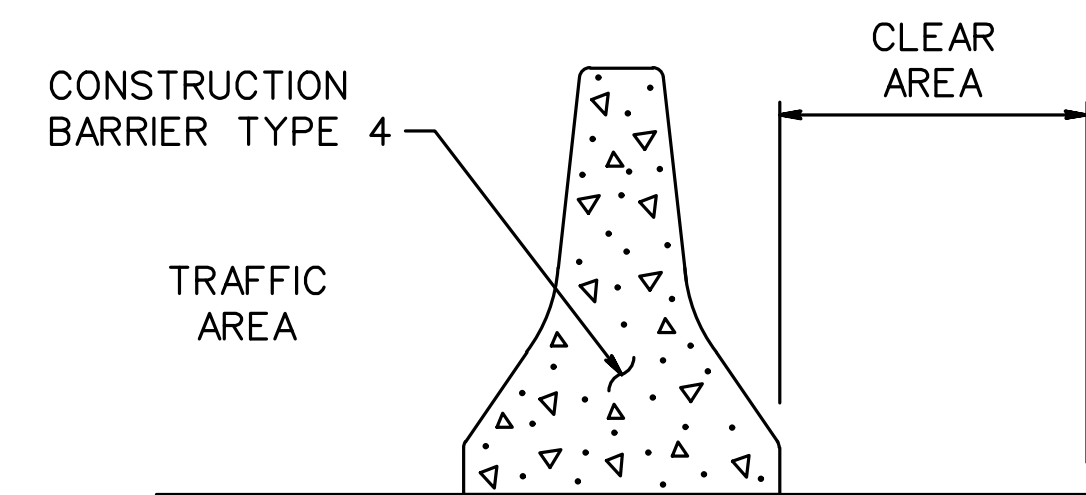
NOTE:  
ESCAPE RAMPS MUST BE CONSTRUCTED AND MAINTAINED DURING NON-WORKING HOURS WHERE A VERTICAL DROP GREATER THAN 2 INCHES EXISTS ADJACENT TO TRAVELED LANE.

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.

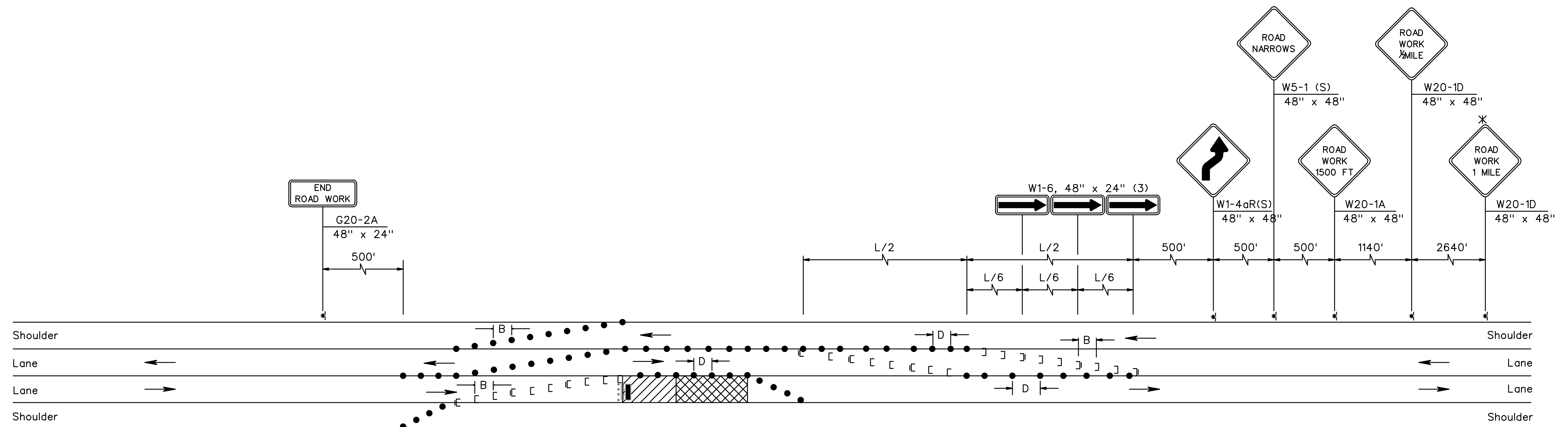
N.T.S.

TCD-2

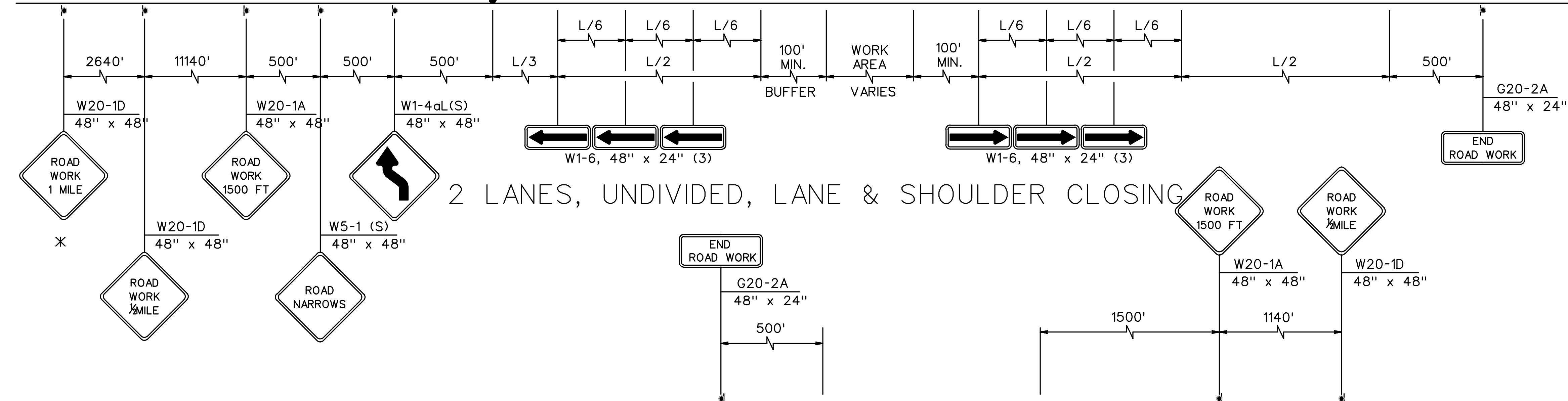
NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS





2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING



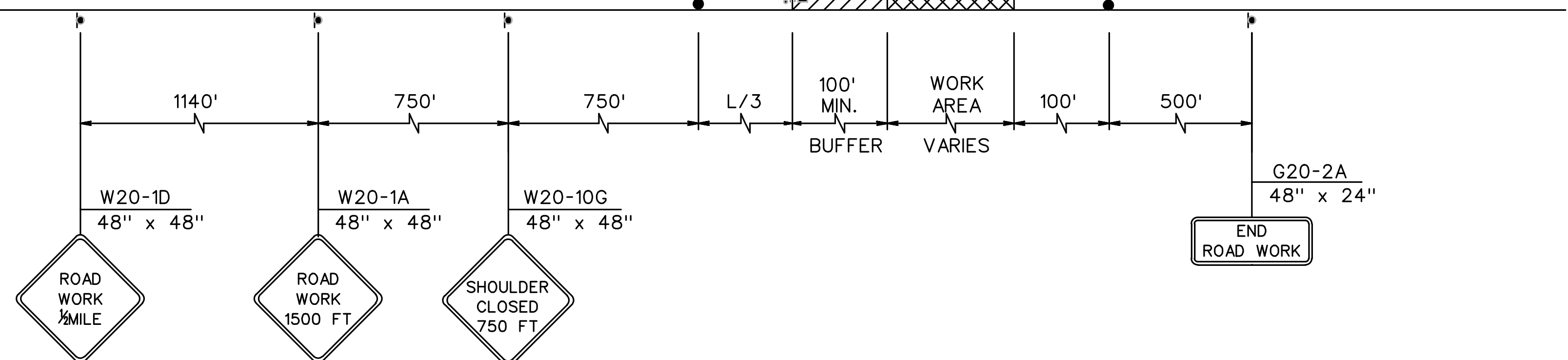
\* THIS SIGN SHALL BE INSTALLED FOR ROADS WITH A SPEED LIMIT OF 45 M.P.H. OR GREATER UNLESS OTHERWISE DIRECTED BY THE RE.

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

N.T.S.



R8-8 SIGN DETAIL  
NOT TO SCALE



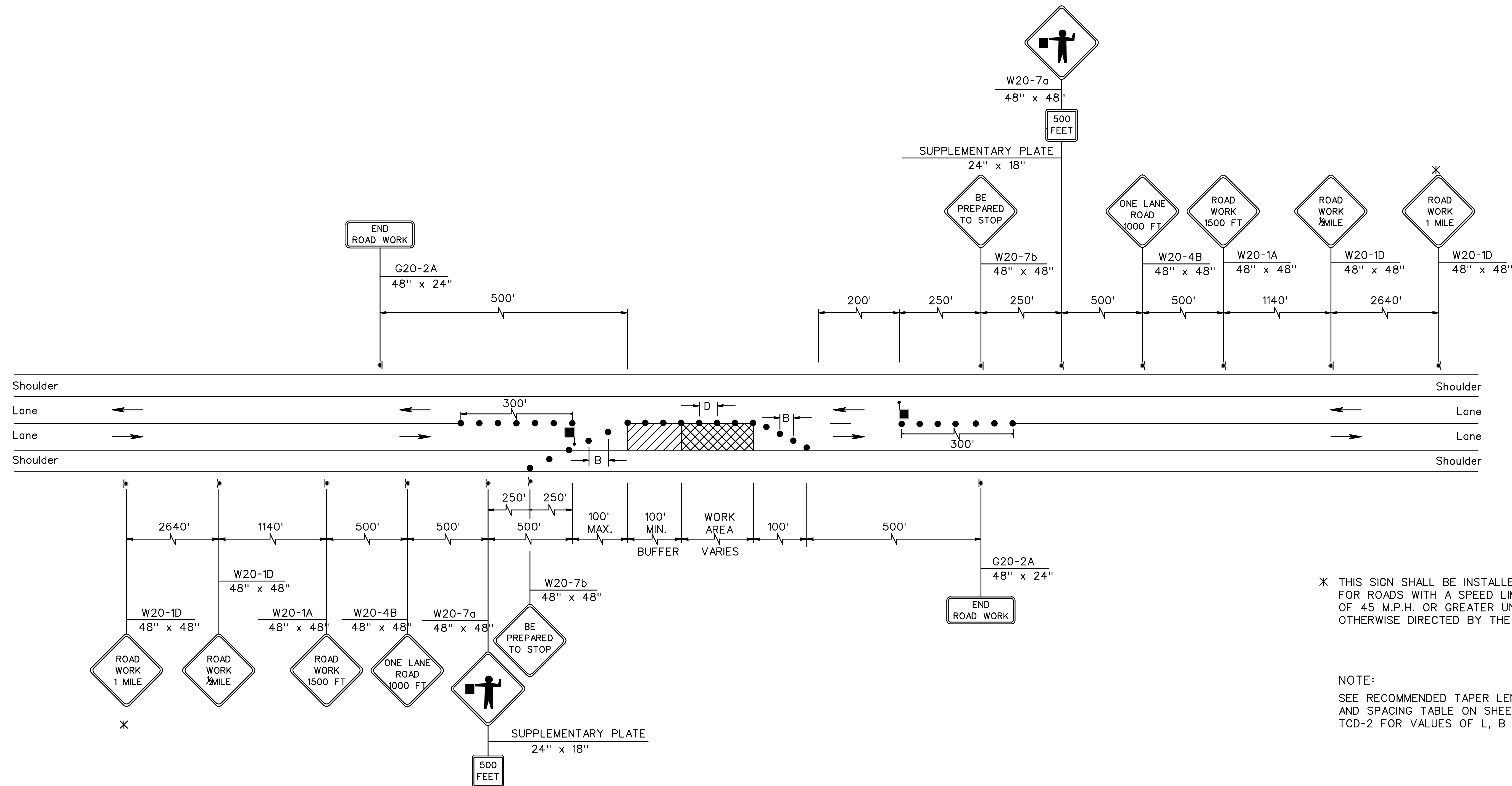
2 LANES, UNDIVIDED, SHOULDER CLOSING

TCD-3

NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS





\* 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.

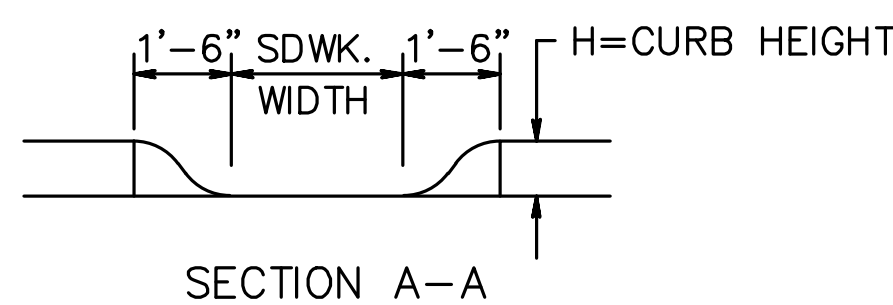
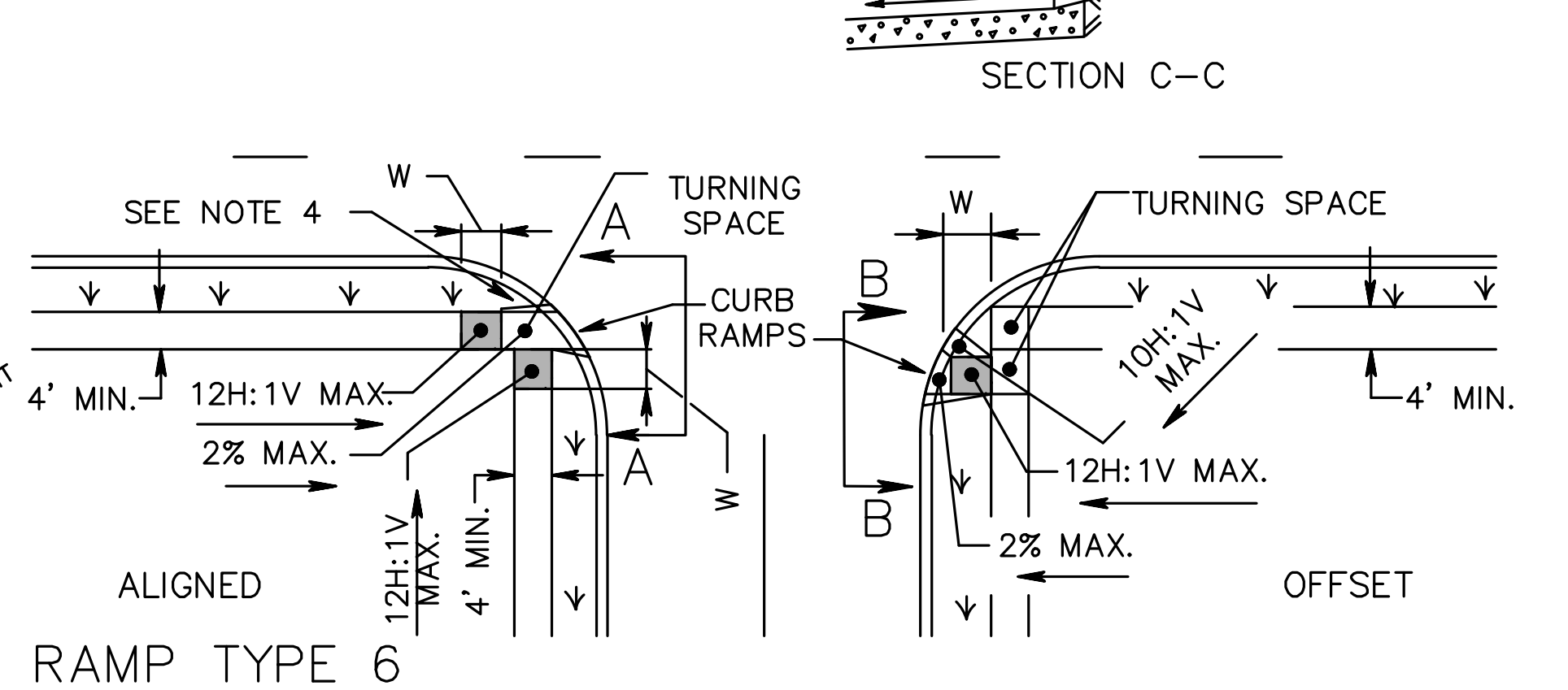
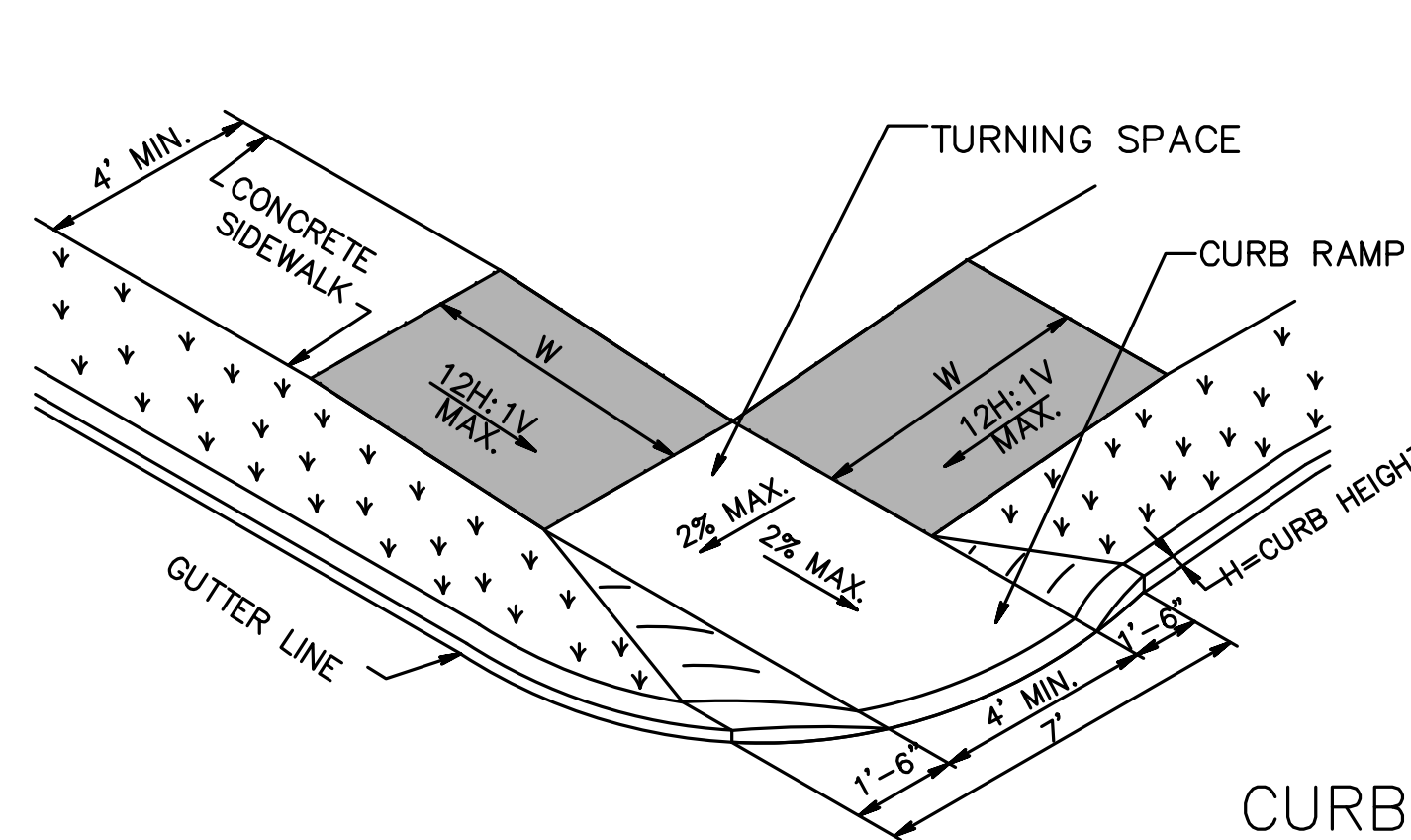
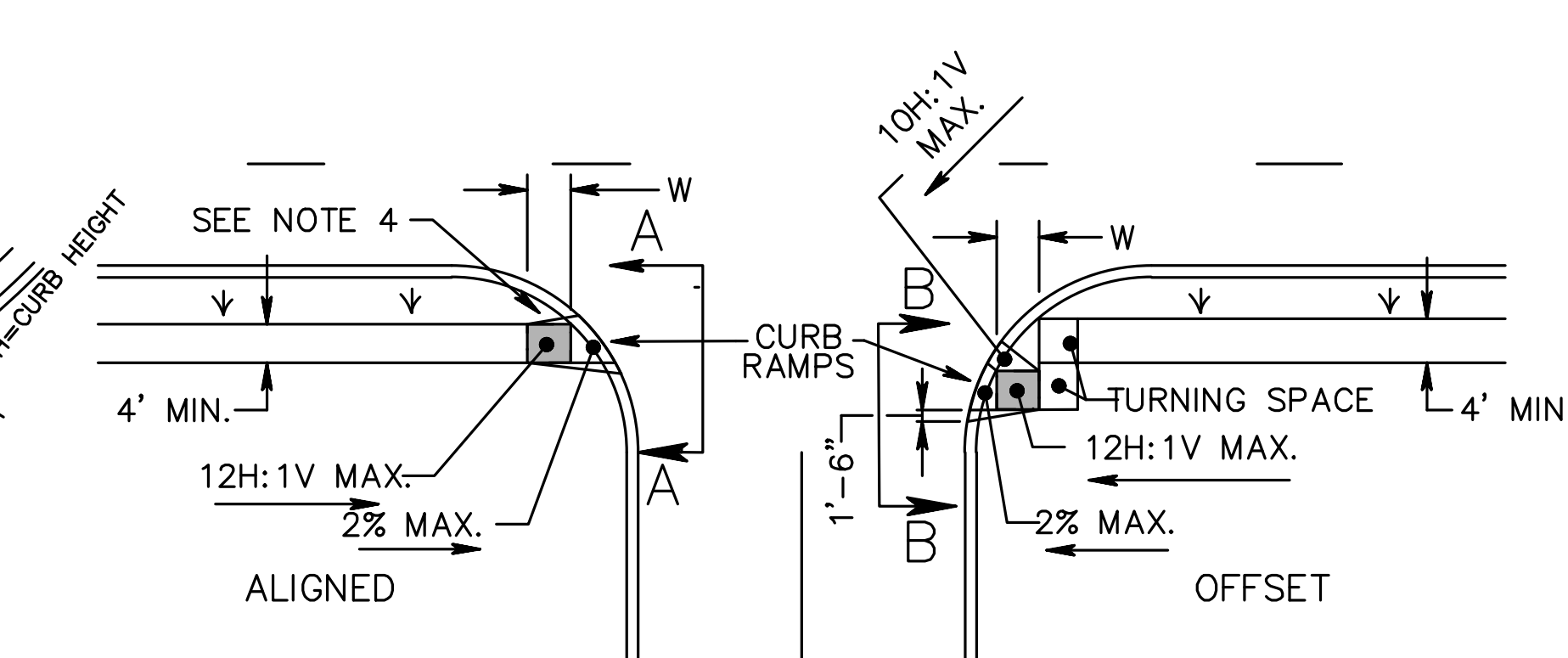
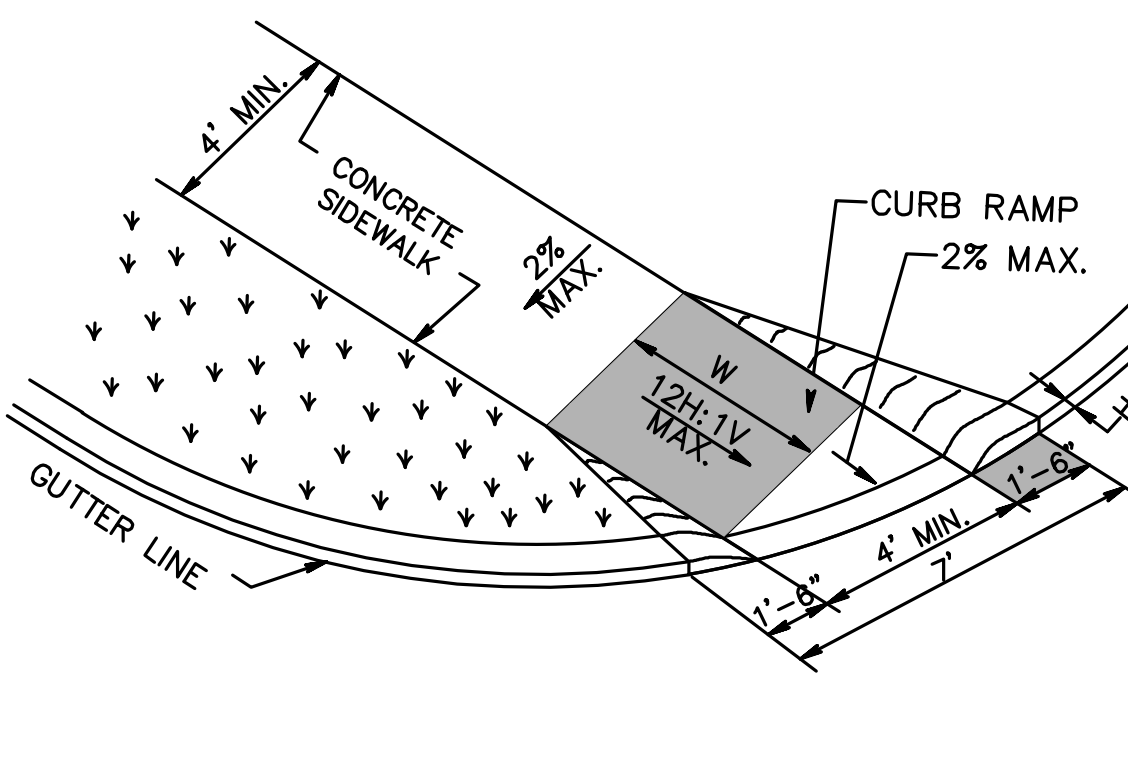
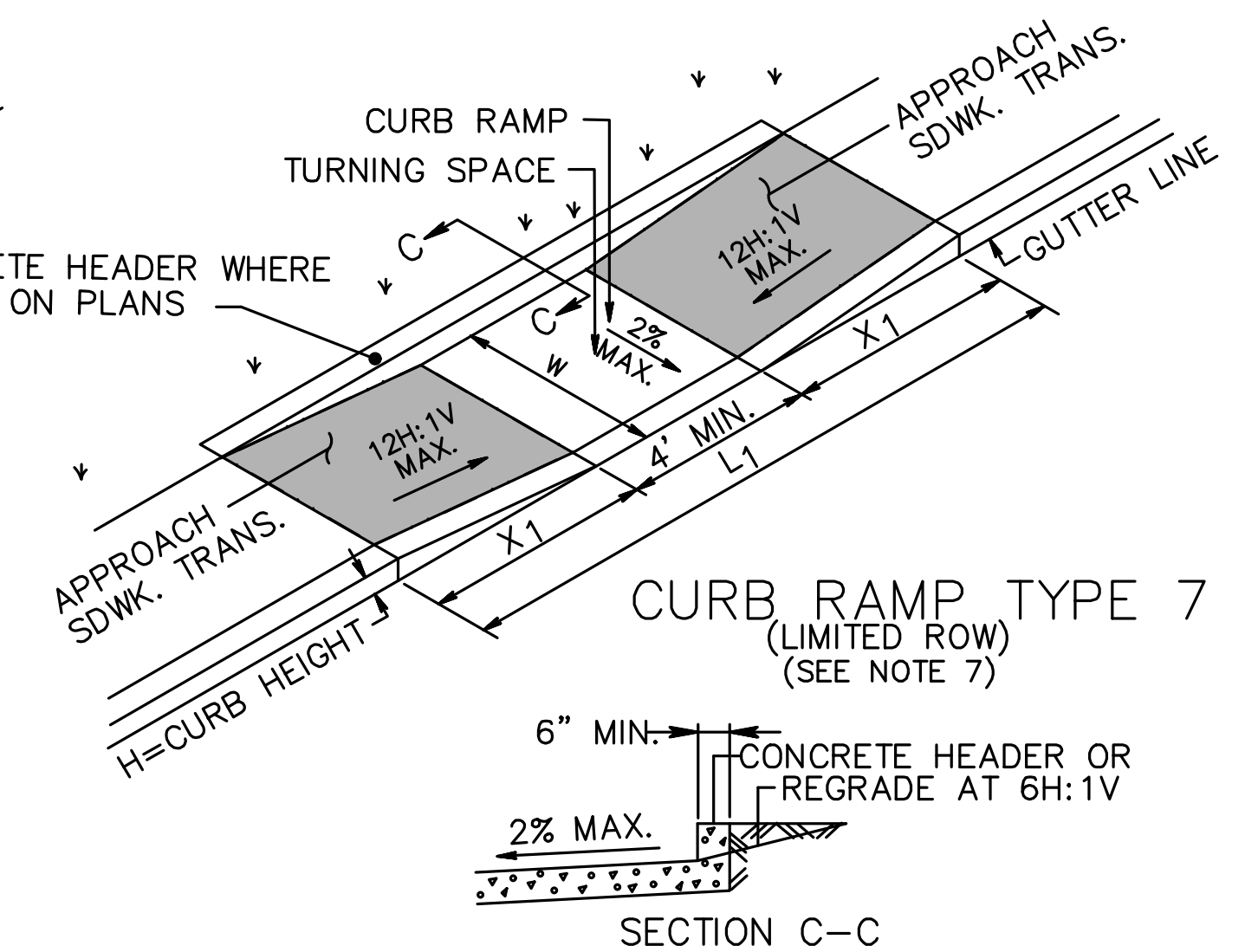
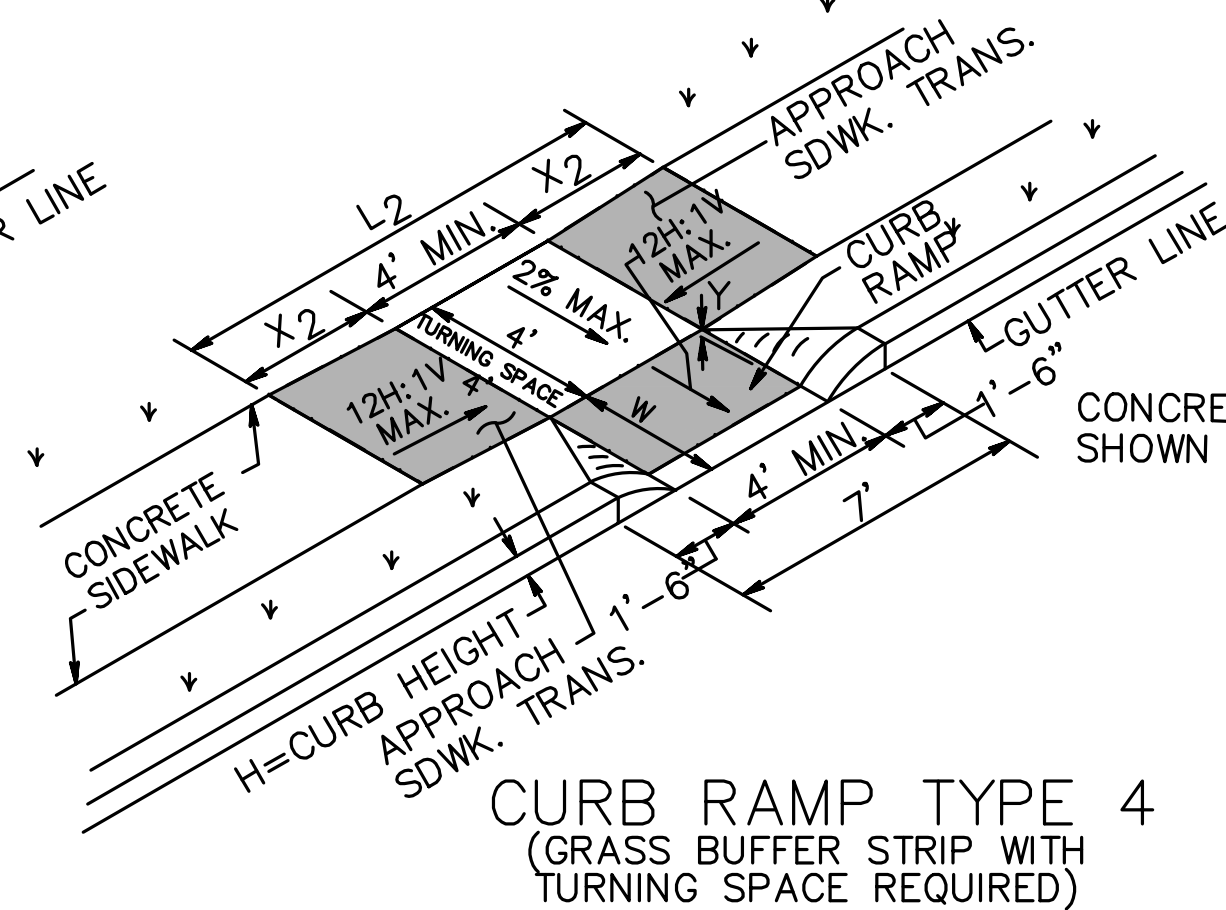
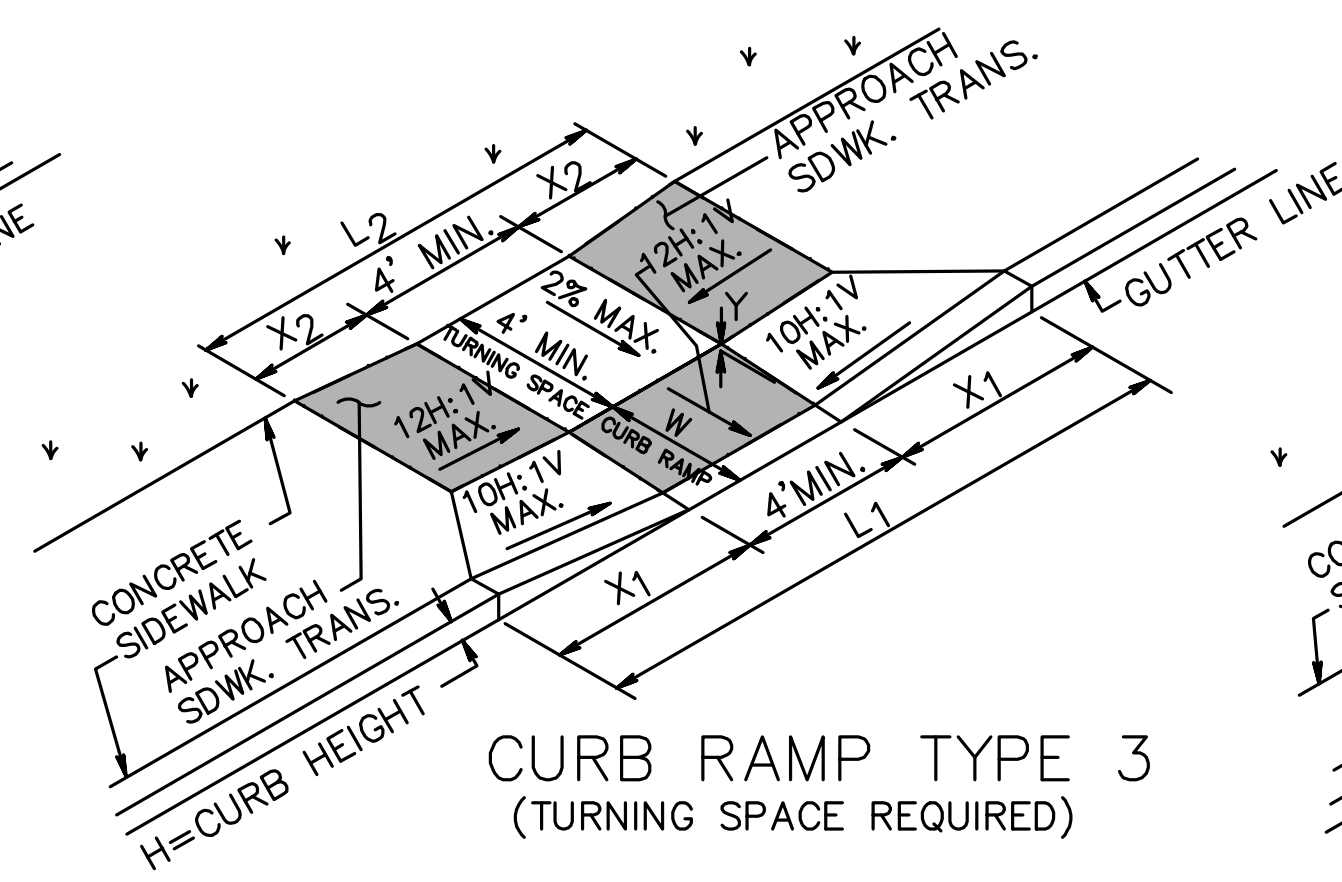
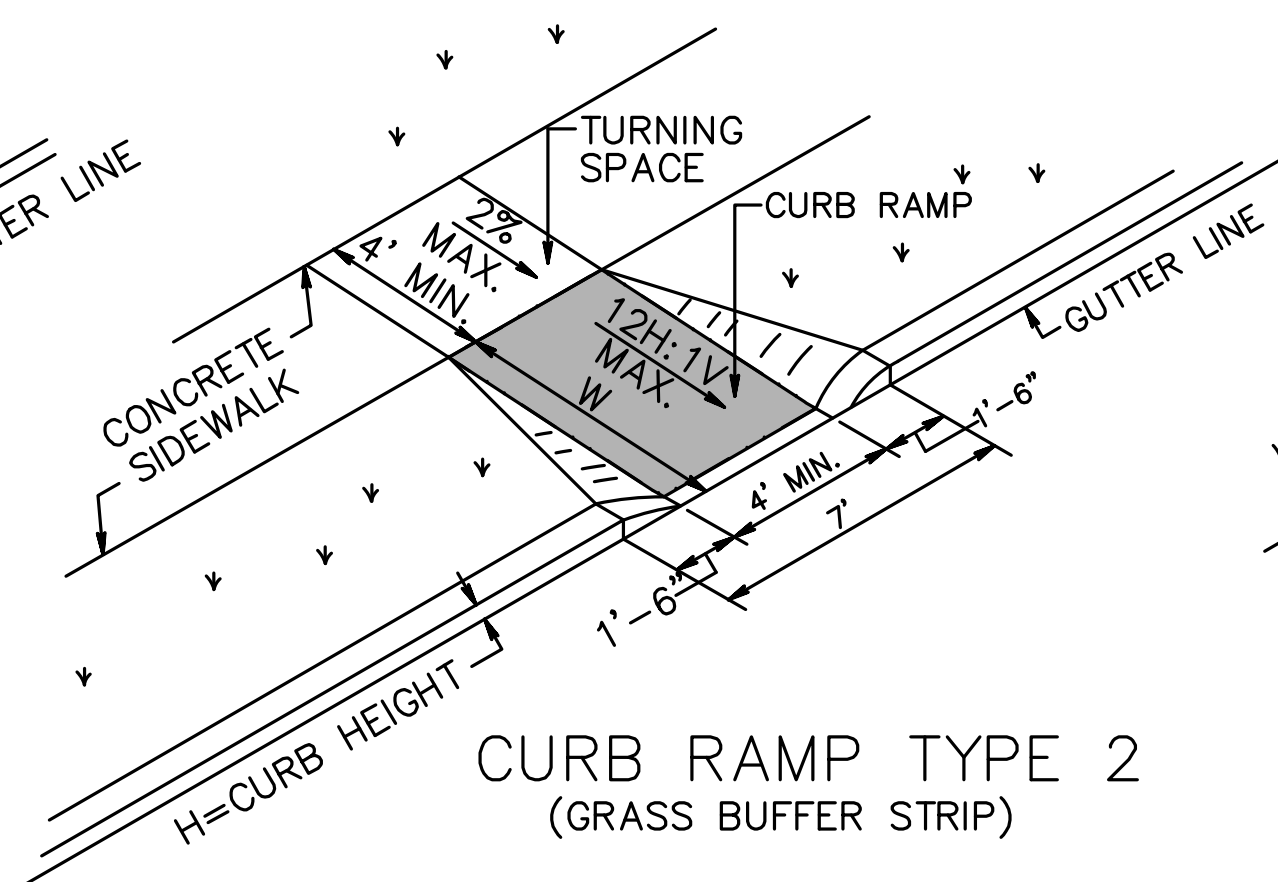
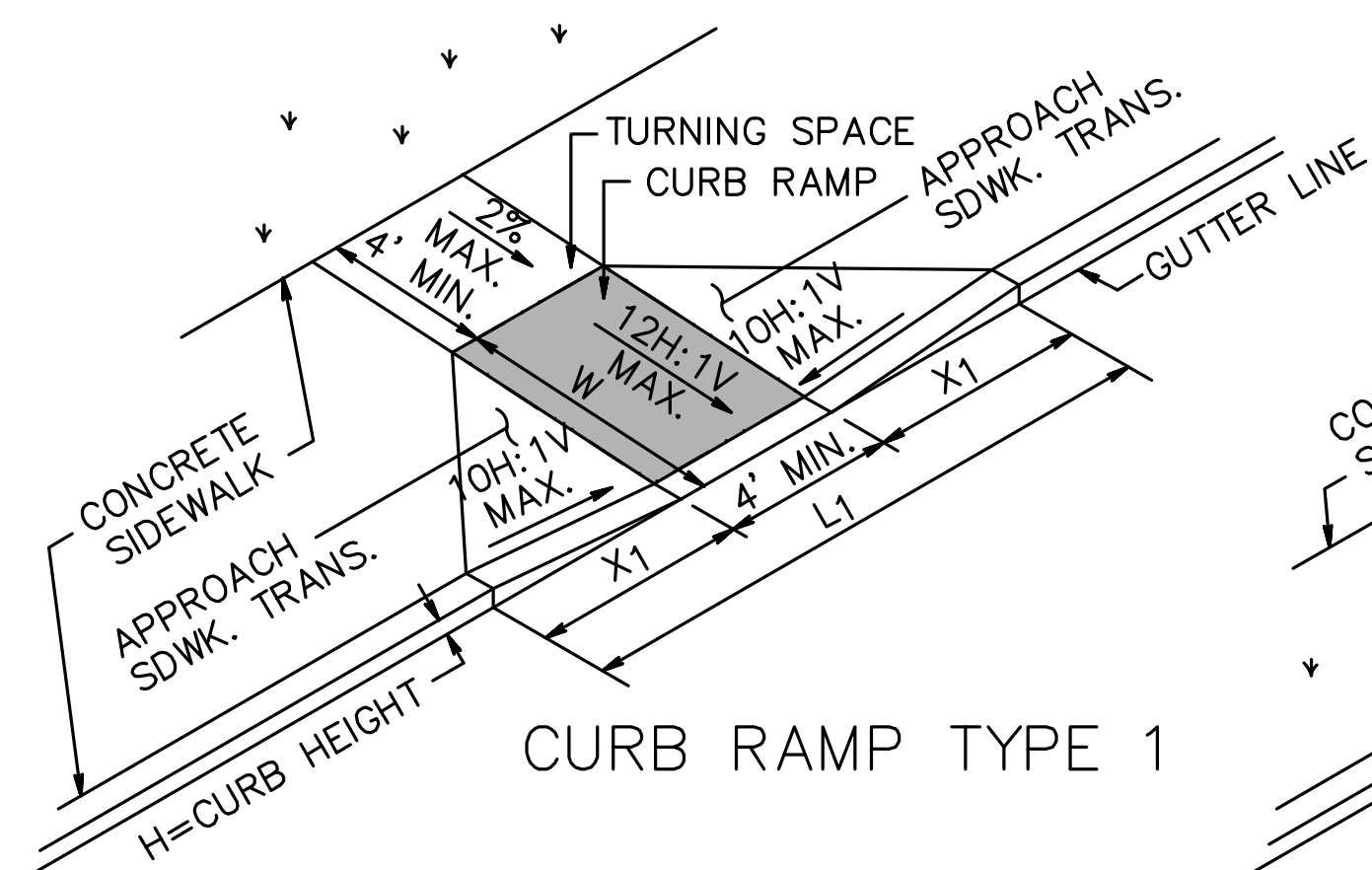
2 LANES, UNDIVIDED, LANE & SHOULDER CLOSING W/FLAGGING

TCD-4

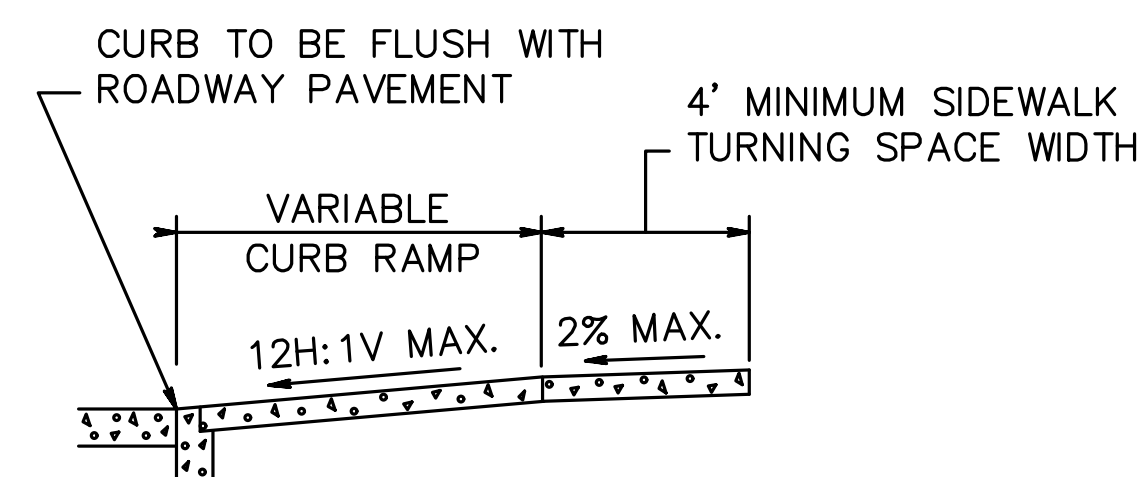
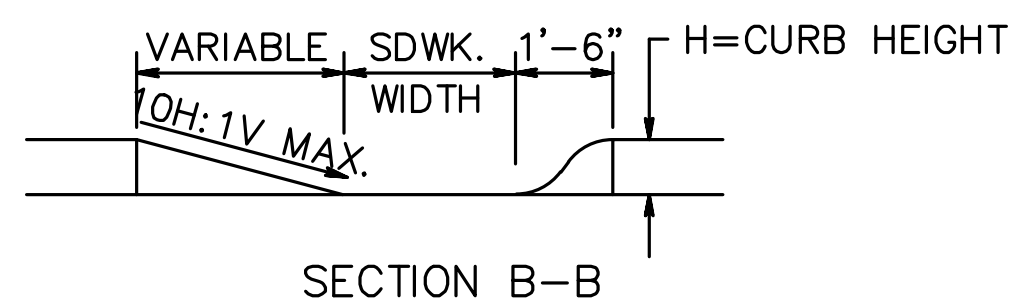
NEW JERSEY DEPARTMENT OF TRANSPORTATION

TRAFFIC CONTROL DETAILS

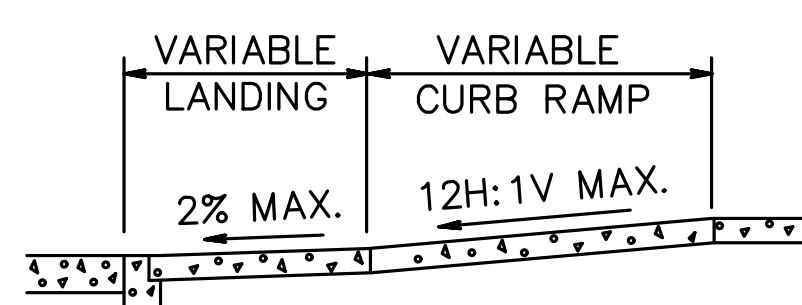




NOTE:  
CURB RAMP OPENING TO BE FLUSH WITH ROADWAY PAVEMENT (CURB RAMP TYPES 5 & 6).



SECTION THROUGH CURB RAMPS 1 THROUGH 4



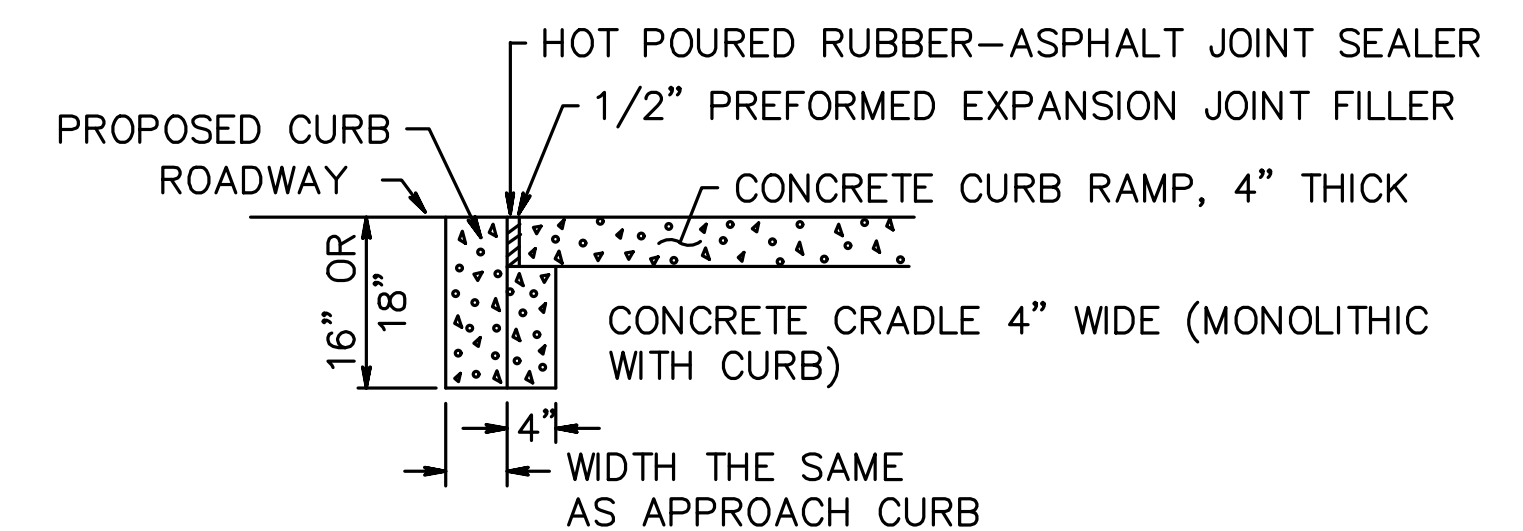
SECTION THROUGH CURB RAMPS 5 AND 6

#### 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 X2 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

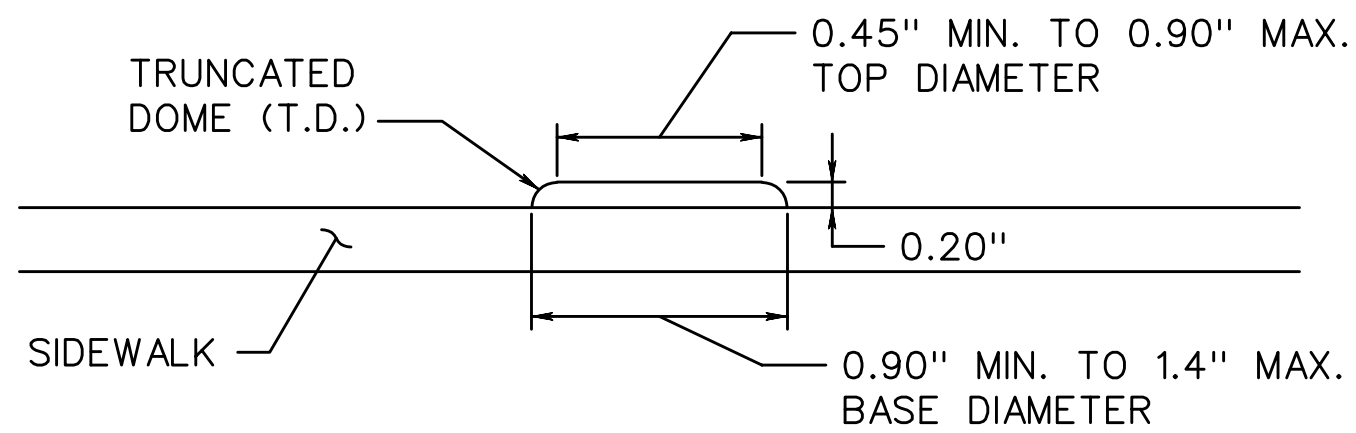
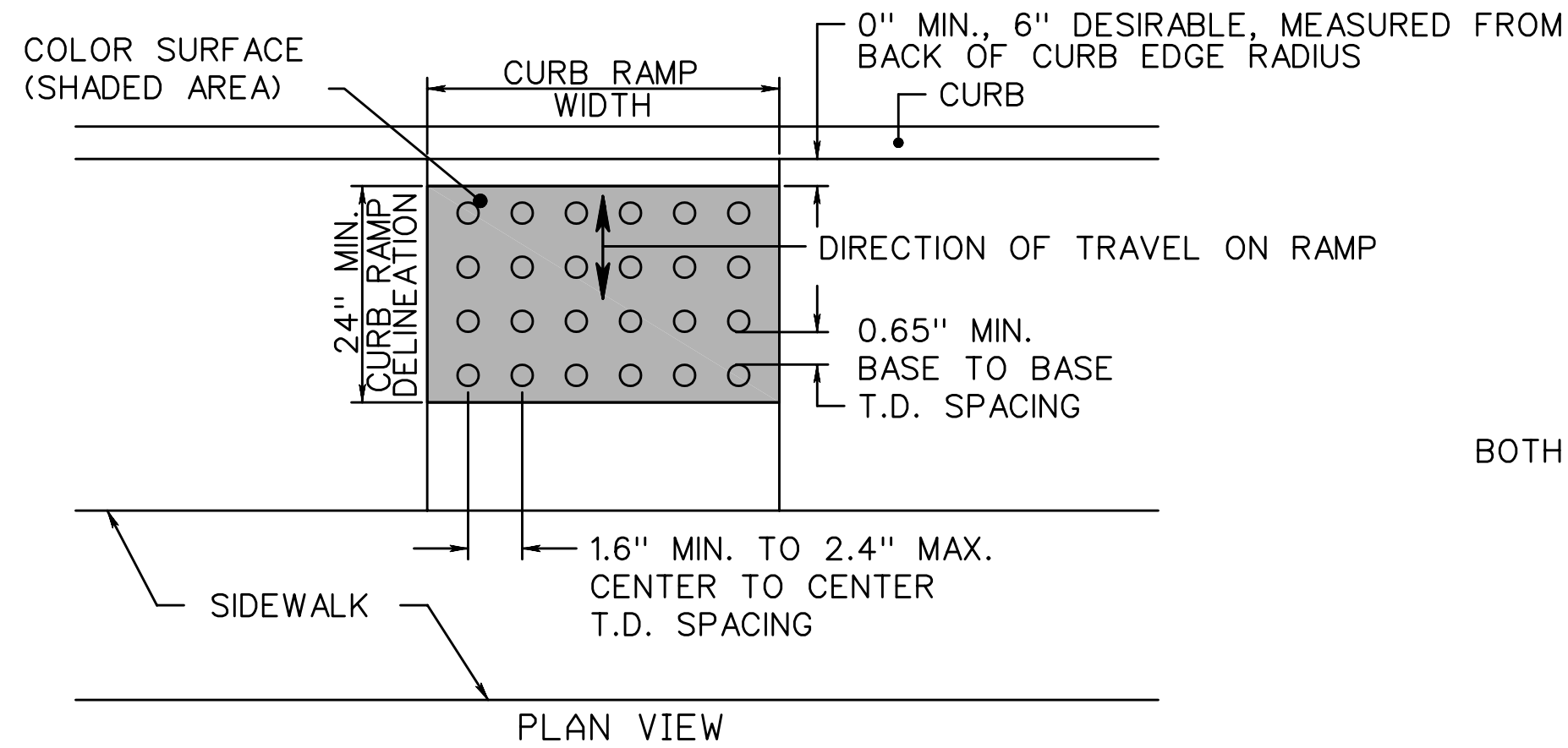
CD-606-1.1

23  
26

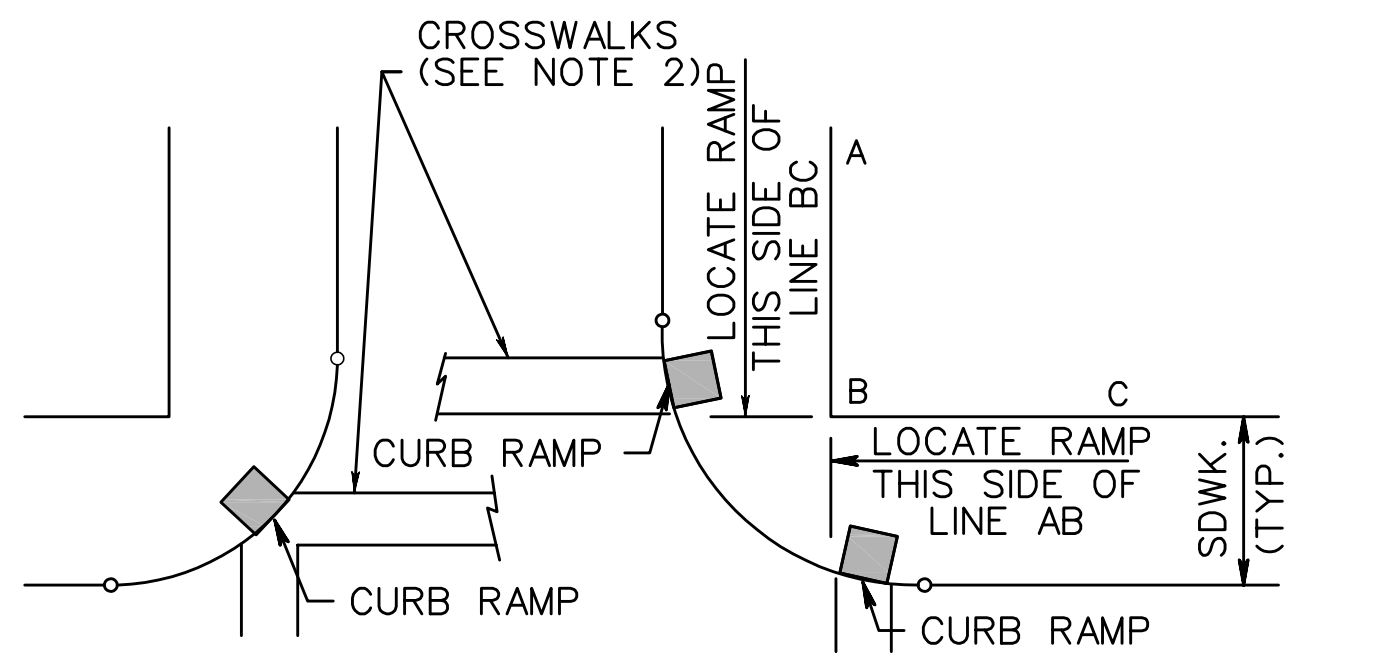


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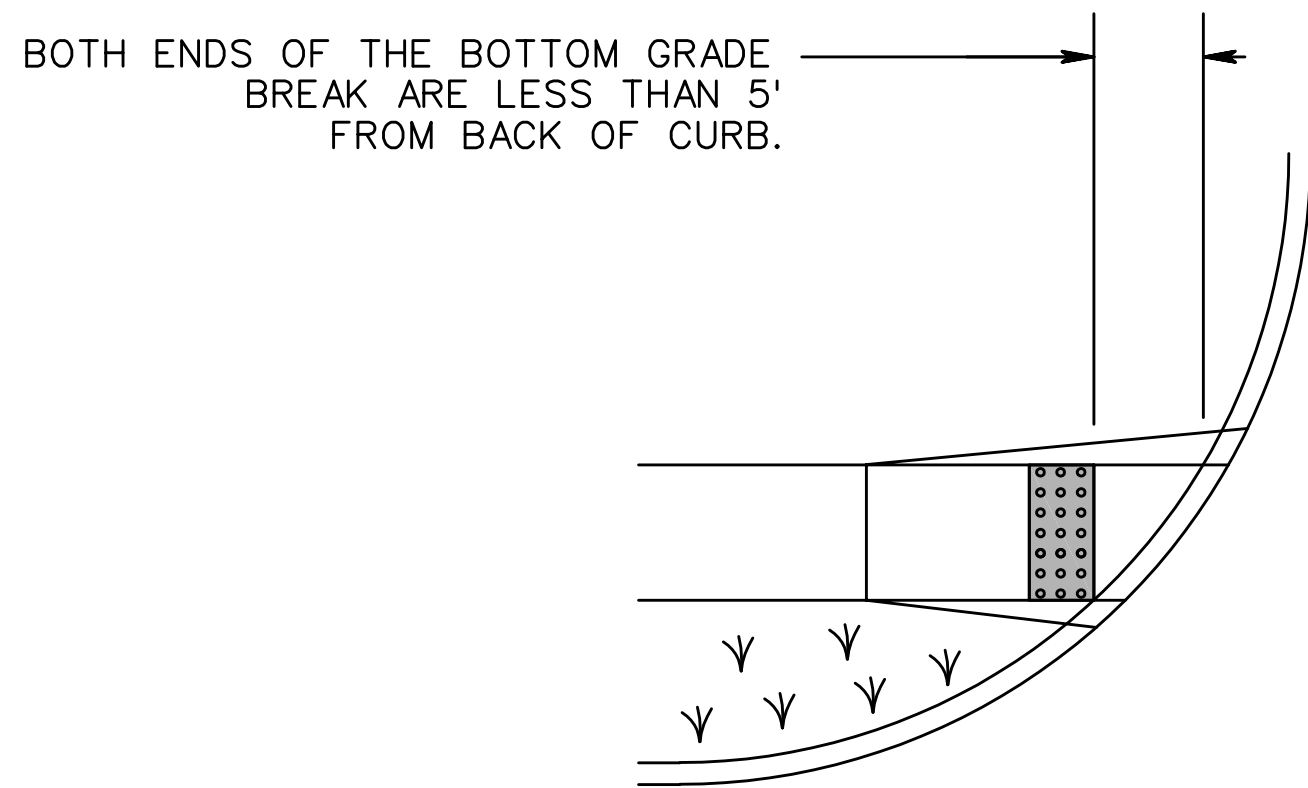
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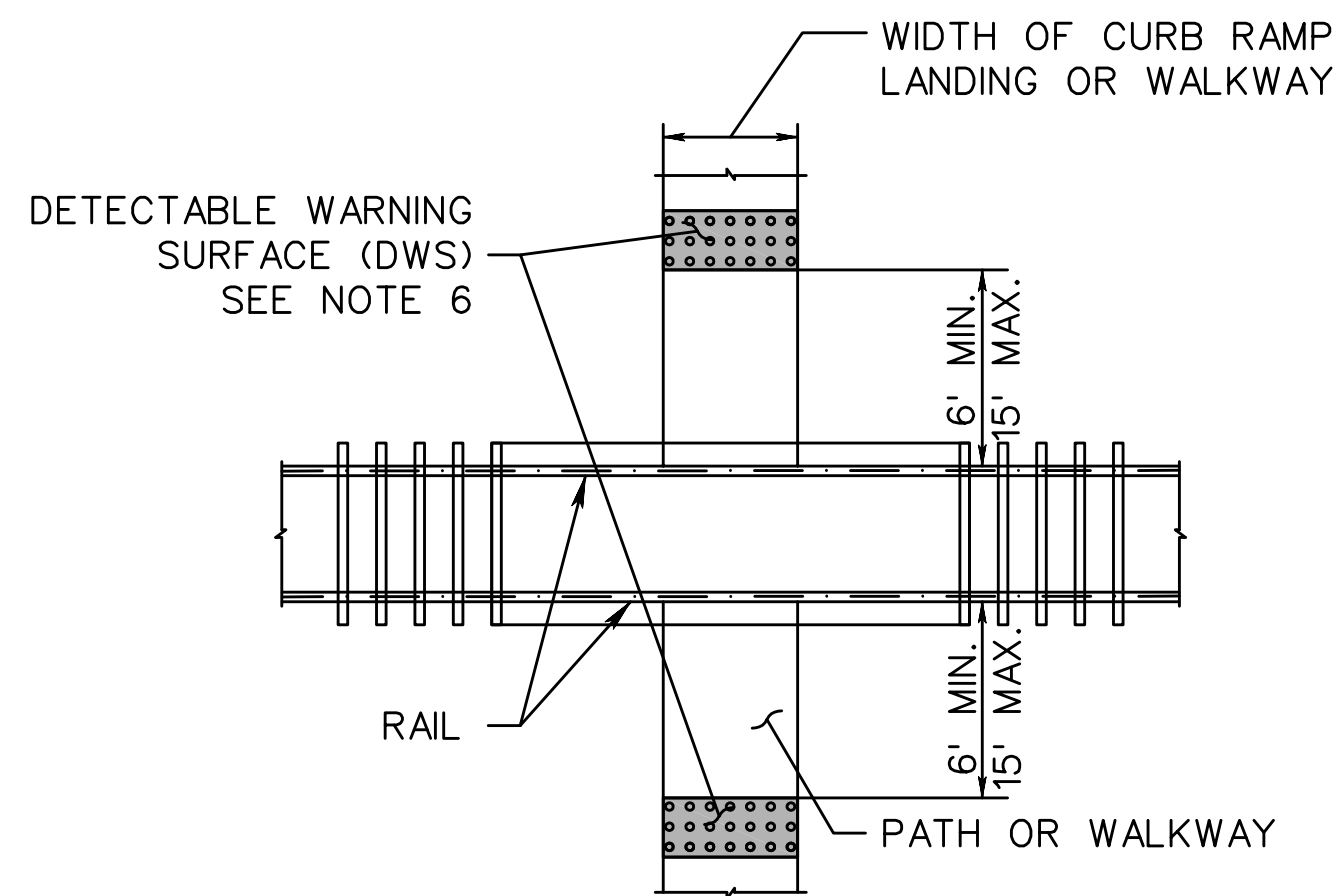
DETECTABLE WARNING SURFACE



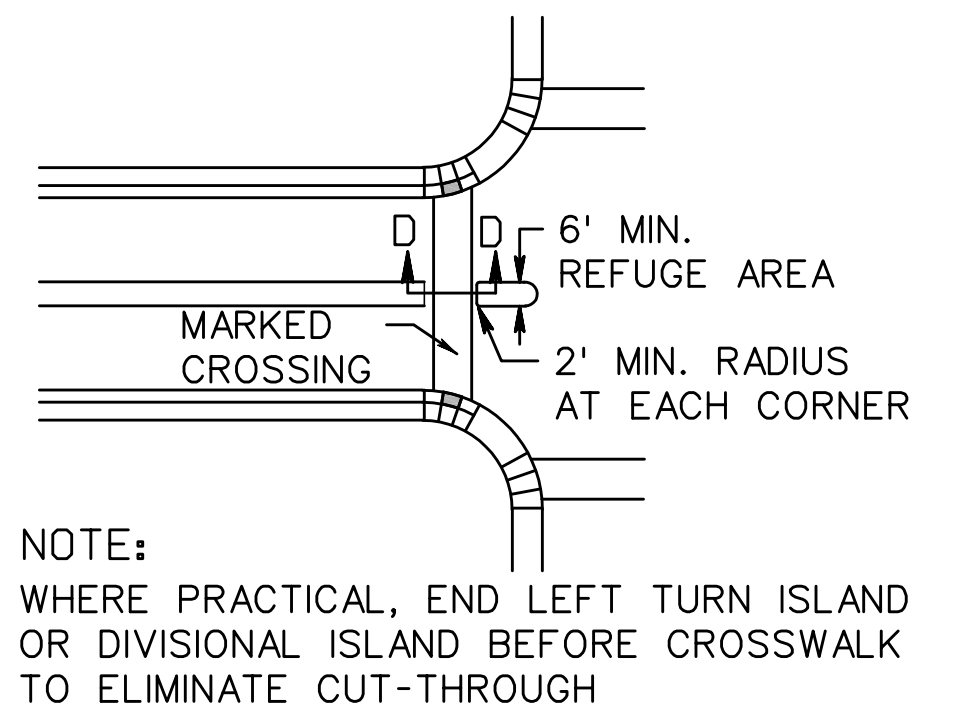
ALTERNATE TREATMENT (SEE NOTE 5)  
PREFERRED TREATMENT (SEE NOTE 5)  
LOCATION OF CURB RAMP TYPES 1, 2, 3, 4, & 7 FOR CROSSING PARALLEL AND PERPENDICULAR TO HIGHWAY



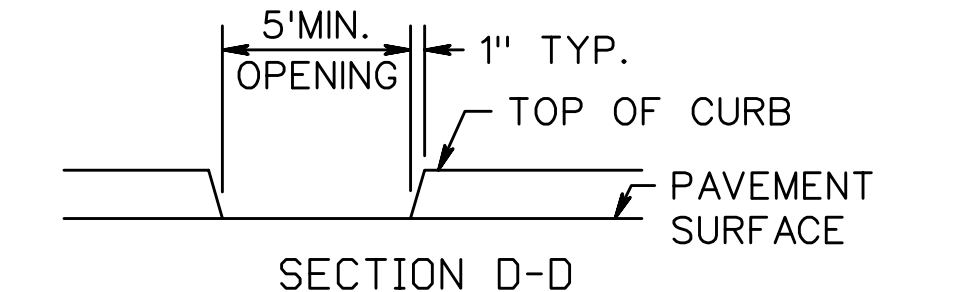
PREFERRED TREATMENT  
ALTERNATE TREATMENT (SEE NOTE 7)  
PLACEMENT OF DETECTABLE WARNING SURFACE FOR CURB RAMP TYPE 5 AND 6



PEDESTRIAN RAILROAD CROSSING

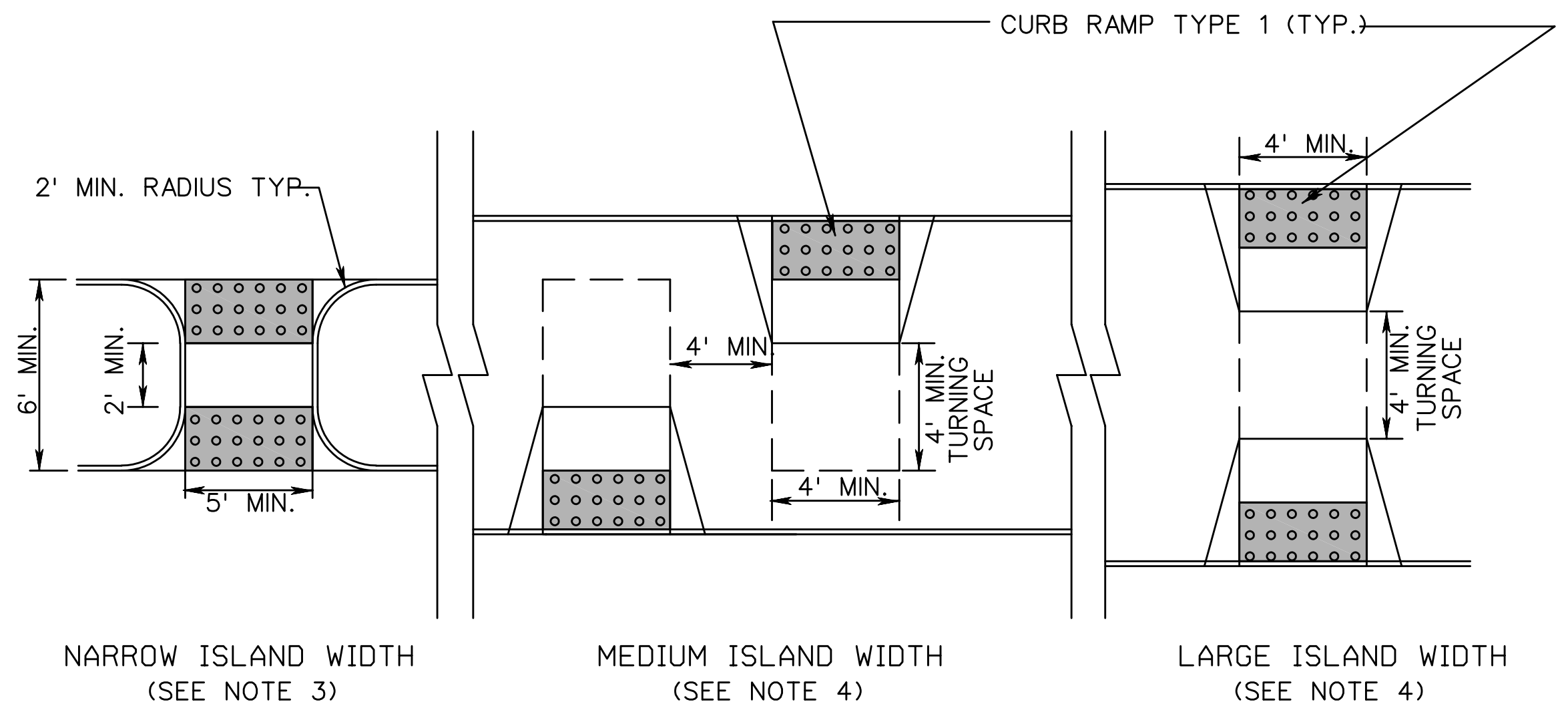
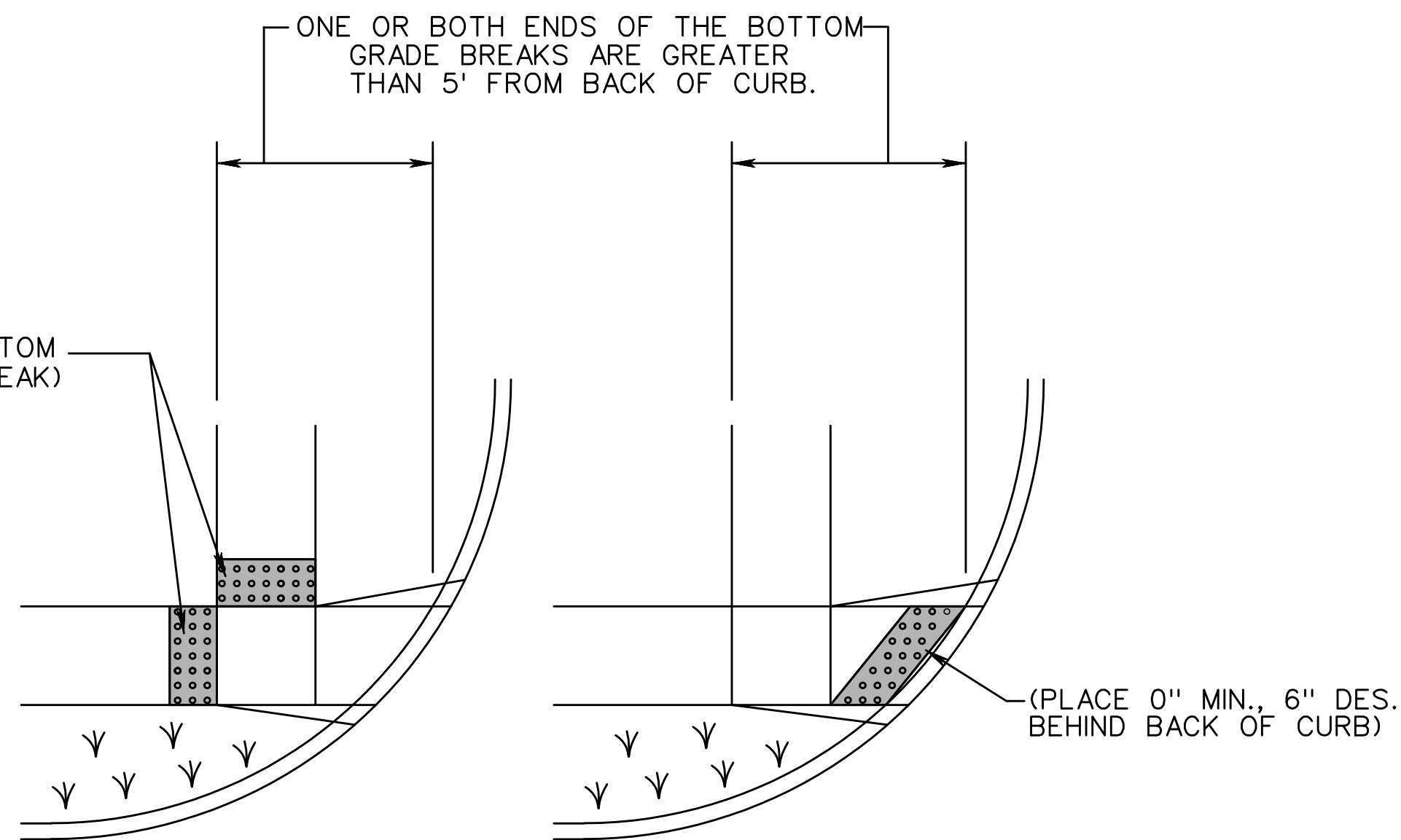


NOTE:  
WHERE PRACTICAL, END LEFT TURN ISLAND OR DIVISIONAL ISLAND BEFORE CROSSWALK TO ELIMINATE CUT-THROUGH



NOTE:  
5' MIN. WIDE OPENING TO BE FLUSH WITH ROADWAY PAVEMENT

PEDESTRIAN REFUGE ISLAND WALKWAY OPENING AT INTERSECTIONS



NARROW ISLAND WIDTH (SEE NOTE 3)  
MEDIUM ISLAND WIDTH (SEE NOTE 4)  
LARGE ISLAND WIDTH (SEE NOTE 4)  
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 SURFACE.
  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.
  7. A STANDARD DETECTABLE WARNING (DWS) SURFACE IS NOT AVAILABLE TO FIT THIS APPLICATION, AND THEREFORE ONE WILL NEED TO BE CUSTOMIZED. THE DWS SHOULD COVER THE ENTIRE WIDTH OF THE RAMP. THE ROWS OF DOMES ON THE DWS SHOULD FOLLOW THE DIRECTION OF TRAVEL OF THE RAMP, SO PEDESTRIANS WHO USE MOBILE DEVICES CAN TRACK BETWEEN THE DOMES.

CD-606-2.1

NEW JERSEY DEPARTMENT OF TRANSPORTATION

CONSTRUCTION DETAILS

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CD-606-2



CURB RAMP TYPE 1

0.0 % GUTTER LINE PROFILE				
H INCHES	W FEET	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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

7.0 % GUTTER LINE PROFILE				
H INCHES	W FEET	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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 3

0.0 % GUTTER LINE PROFILE								
H INCHES	W FEET	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> FEET	Y INCHES	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.50	2.50	9.00	2.75	0.91	0.91	5.82
4		3.33	3.33	10.67		1.91	1.91	7.82
5		4.17	4.17	12.33		2.91	2.91	9.82
6		5.00	5.00	14.00		3.91	3.91	11.83
7		5.83	5.83	15.67		4.91	4.91	13.83
8		6.67	6.67	17.33		5.91	5.91	15.83
9		7.50	7.50	19.00		6.91	6.91	17.83
3		*	*	*		*	*	*
4		3.33	3.33	10.67	3.0	1.72	1.72	7.44
5	3.0	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		*	*	*		*	*	*
4		3.33	3.33	10.67		1.34	1.34	6.68
5		4.17	4.17	12.33	3.5	2.34	2.34	8.68
6	3.5	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		*	*	*		*	*	*
5		4.17	4.17	12.33		1.96	1.96	7.92
6		5.00	5.00	14.00	4.0	2.96	2.96	9.93
7	4.0	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	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> FEET	Y INCHES	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	4.17	1.79	9.95	2.75	1.75	0.62	6.37
4		5.56	2.38	11.94		3.68	1.29	8.97
5		6.94	2.98	13.92		5.60	1.97	11.57
6		8.33	3.57	15.90		7.53	2.64	14.17
7		9.72	4.17	17.89		9.45	3.32	16.77
8		11.11	4.76	19.87		11.38	4.00	19.37
9		12.50	5.36	21.86		13.30	4.67	21.97
3		4.17	1.79	9.95	3.0	1.39	0.49	5.88
4	3.0	5.56	2.38	11.94		3.31	1.16	8.48
5		6.94	2.98	13.92		5.24	1.84	11.08
6		8.33	3.57	15.90		7.16	2.52	13.68
7		9.72	4.17	17.89		9.09	3.19	16.28
8		11.11	4.76	19.87		11.01	3.87	18.88
9		12.50	5.36	21.86		12.94	4.54	21.48
3		4.17	1.79	9.95	3.5	0.66	0.23	4.89
4	3.5	5.56	2.38	11.94		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		12.50	5.36	21.86		12.20	4.29	20.49
3		*	*	*	4.0	*	*	*
4	4.0	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		9.72	4.17	17.89		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

0-8 % GUTTER LINE PROFILE				
H INCHES	W FEET	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> 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	X <sub>1U</sub> FEET	X <sub>1L</sub> FEET	L <sub>1</sub> FEET	Y INCHES	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.78	2.27	9.05	2.75	1.04	0.81	5.85
4		3.70	3.03	10.73		2.17	1.71	7.88
5		4.63	3.79	12.42		3.31	2.60	9.91
6		5.56	4.55	14.10		4.45	3.49	11.94
7		6.48	5.30	15.78		5.58	4.39	13.97
8		7.41	6.06	17.47		6.72	5.28	16.00
9		8.33	6.82	19.15		7.86	6.17	18.03
3	3.0	2.78	2.27	9.05	3.0	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		5.56	4.55	14.10		4.23	3.32	11.55
7		6.48	5.30	15.78		5.37	4.22	13.58
8		7.41	6.06	17.47		6.50	5.11	15.61
9		8.33	6.82	19.15		7.64	6.00	17.64
3	3.5	2.78	2.27	9.05	3.5	0.39	0.30	4.69
4		3.70	3.03	10.73		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	5.30	15.78		4.94	3.88	12.81
8		7.41	6.06	17.47		6.07	4.77	14.84
9		8.33	6.82	19.15		7.21	5.66	16.87
3	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	5.30	15.78		4.50	3.54	12.04
8		7.41	6.06	17.47		5.64	4.43	14.07
9		8.33	6.82	19.15		6.78	5.32	16.10



CURB RAMP TYPE 4

0.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.75	0.91	0.91	5.82
4			1.91	1.91	7.82
5			2.91	2.91	9.82
6			3.91	3.91	11.82
7			4.91	4.91	13.83
8	3.0	3.0	5.91	5.91	15.83
9			6.91	6.91	17.83
3			**	**	**
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	4.0	4.0	5.34	5.34	14.69
9			6.34	6.34	16.69
3			**	**	**
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	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.75	1.75	0.62	6.37
4			3.68	1.29	8.97
5			5.60	1.97	11.57
6			7.53	2.64	14.17
7			9.45	3.32	16.77
8	3.0	3.0	11.38	4.00	19.37
9			13.30	4.67	21.97
3			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	4.0	4.0	10.28	3.61	17.89
9			12.20	4.29	20.49
3			**	**	**
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	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.75	1.04	0.81	5.85
4			2.17	1.71	7.88
5			3.31	2.60	9.91
6			4.45	3.49	11.94
7			5.58	4.39	13.97
8	3.0	3.0	6.72	5.28	16.00
9			7.86	6.17	18.03
3			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	4.0	4.0	6.07	4.77	14.84
9			7.21	5.66	16.87
3			**	**	**
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	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.75	2.28	0.57	6.85
4			4.78	1.19	9.98
5			7.29	1.82	13.10
6			9.79	2.45	16.23
7			12.29	3.07	19.36
8	3.0	3.0	14.79	3.70	22.49
9			15.00	4.32	23.32
3			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	4.20	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	4.0	4.0	13.37	3.34	20.71
9			15.00	3.96	22.96
3			**	**	**
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	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.75	1.20	0.73	5.93
4			2.52	1.54	8.06
5			3.83	2.35	10.18
6			5.15	3.16	12.30
7			6.47	3.96	14.43
8	3.0	3.0	7.78	4.77	16.55
9			9.10	5.58	18.67
3			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	4.0	4.0	7.03	4.31	15.34
9			8.35	5.12	17.46
3			**	**	**
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	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.75	3.26	0.53	7.79
4			6.84	1.11	11.95
5			10.41	1.69	16.10
6			13.99	2.27	20.26
7			15.00	2.86	21.86
8	3.0	3.0	15.00	3.44	22.44
9			15.00	4.02	23.02
3			2.58	0.42	7.00
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	4.0	4.0	15.00	3.11	22.11
9			15.00	3.69	22.69
3			**	**	**
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	X <sub>2U</sub> FEET	X <sub>2L</sub> FEET	L <sub>2</sub> FEET
3	2.75	2.75	1.42	0.67	6.09
4			2.99	1.41	8.39
5			4.55	2.14	10.69
6			6.11	2.88	12.99
7			7.68	3.61	15.29
8	3.0	3.0	9.24	4.35	17.59
9			10.81	5.08	19.89
3			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	4.0	4.0	8.35	3.93	16.28
9			9.91	4.66	18.58
3			**	**	**
4			1.50	0.71	6.21
5			3.07	1.44	8.51
6			4.63	2.18	10.8