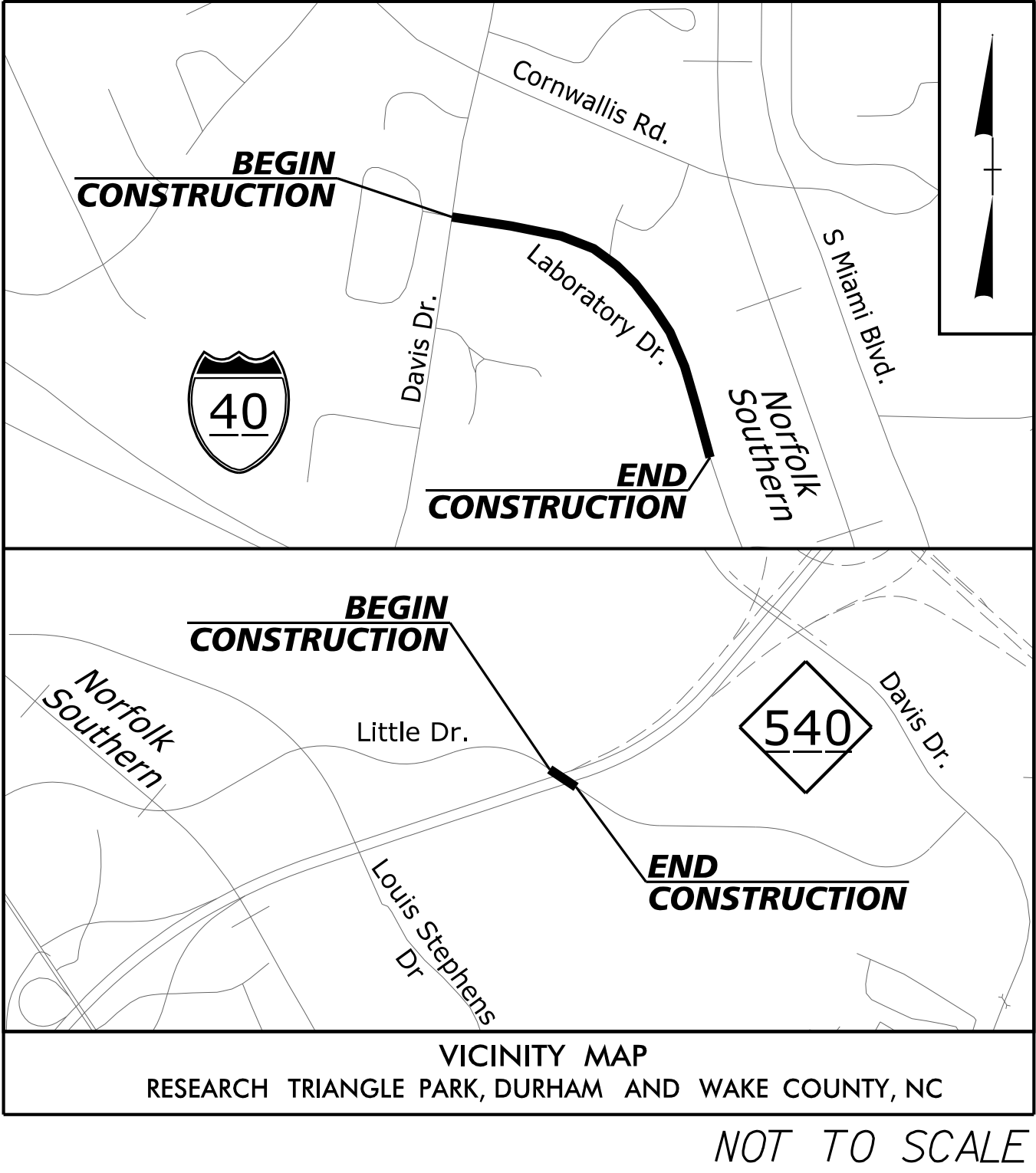


| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|
| 011150019             | 1         |



NOT TO SCALE

**OWNER:**

RESEARCH TRIANGLE PARK  
800 PARK OFFICES DRIVE  
RESEARCH TRIANGLE PARK, NC 27709  
TRAVIS CRAYTON  
919.433.1679  
crayton@rtp.org

**ENGINEER:**

KIMLEY-HORN AND ASSOCIATES, INC.  
300 MORRIS STREET  
SUITE 200  
DURHAM, NC 27701  
TYLER D. WHITE, P.E.  
919.677.2074  
tyler.white@kimley-horn.com

**SURVEYOR:**

WETHERILL ENGINEERING, INC.  
1223 JONES FRANKLIN ROAD  
RALEIGH, NC 27606  
TONY ALFORD, PLS  
919.851.8077  
taiford@wetherilleng.com

# RESEARCH TRIANGLE PARK

## DURHAM COUNTY

### LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS

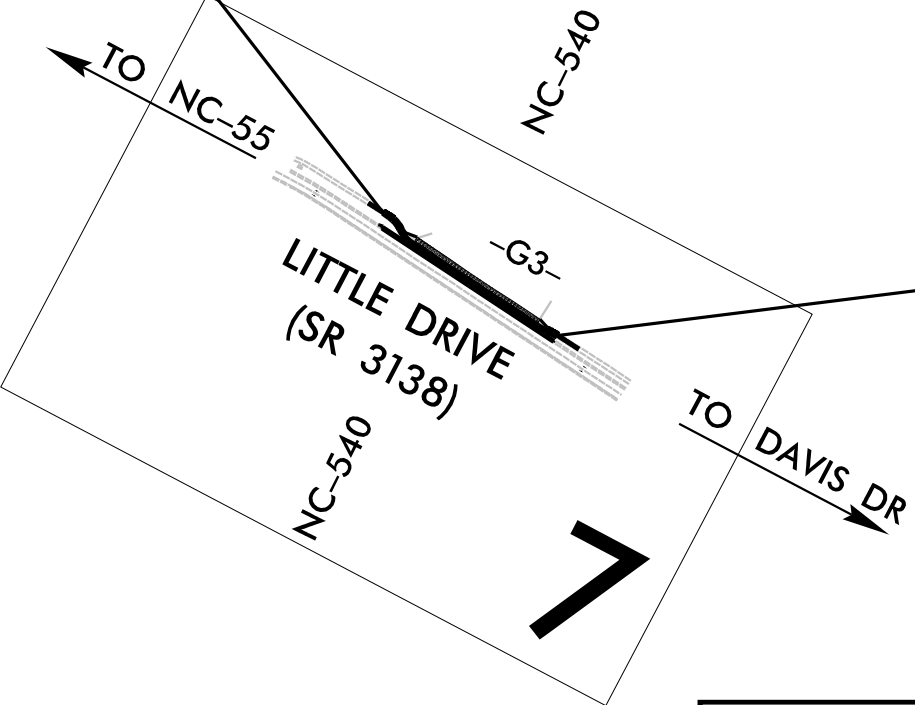
ALONG LABORATORY DRIVE (SR 2101) EAST FROM  
DAVIS DRIVE (SR 1999) APPROX. 3700' TO TRAIL TERMINUS,  
AND ALONG LITTLE DRIVE (SR 3138) 4685' WEST OF  
DAVIS DRIVE (SR 1999) TO 4275'  
WEST OF DAVIS DRIVE (SR 1999)

**BEGIN CONSTRUCTION**  
**-G2- Sta. 10+00.00**

**END CONSTRUCTION**  
**-G2- Sta. 37+21.00**

**BEGIN CONSTRUCTION**  
**-G3- Sta. 10+35.00**

**END CONSTRUCTION**  
**-G3- Sta. 14+63.54**



PREPARED IN THE OFFICE OF:

## Kimley»Horn

300 MORRIS ST., SUITE 200, DURHAM, NC, 27701  
PHONE: (919) 682-3583

PE NO. F-0102

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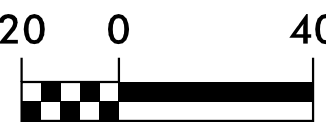


100% PLANS

DOCUMENT NOT CONSIDERED FINAL  
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**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

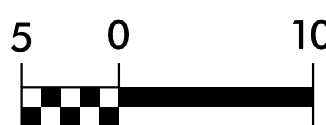
**GRAPHIC SCALE**



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

K:\OUR\_Roadway\011150019 - 2023 RTP Trail\Roadway\Proj\Plan Sheets Lab\2023 RTP Trail\_rdy\_tshdgn

3/9/2026

| INDEX OF SHEETS  |                                                       |
|------------------|-------------------------------------------------------|
| SHEET NO.        | DESCRIPTION                                           |
| 1                | TITLE SHEET                                           |
| 1-A              | INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS |
| 1-B              | CONVENTIONAL SYMBOLS                                  |
| 2A-1             | TYPICAL SECTIONS                                      |
| 3D-1             | DRAINAGE SUMMARY SHEET                                |
| 4 THRU 7         | PLAN SHEETS AND PROFILE SHEETS                        |
| TMP-1 THRU TMP-2 | TRAFFIC MANAGEMENT PLAN                               |
| PMP-1 THRU PMP-4 | PAVEMENT MARKING AND SIGNING PLANS                    |
| EC-1A THRU EC-4  | EROSION CONTROL PLANS                                 |
| EC-5 THRU EC-9   | EROSION CONTROL DETAILS                               |
| X-1 THRU X-7     | -G2- CROSS SECTIONS                                   |
| X-8 THRU X-9     | -G3- CROSS SECTIONS                                   |

GENERAL NOTES

2024 SPECIFICATIONS

EFFECTIVE: 01-16-24

GRADE LINE:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:  
DUKE ENERGY PROGRESS  
PSNC  
AT&T  
FRONTIER COMMUNICATIONS  
CITY OF DURHAM

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

CONTRACTOR TO HAVE ALL EXISTING UTILITIES LOCATED PRIOR TO CONSTRUCTION.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT. CONTRACTOR TO COORDINATE WITH RESEARCH TRIANGLE PARK ON WHICH RIGHT-OF-WAY MARKERS ARE TO BE CONCRETE.

CURB RAMPS:

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS IN ACCORDANCE WITH STD. NO. 848.06, AND AS SHOWN IN THE PROJECT SPECIAL DETAILS.

LIST OF ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY, 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

| STD. NO. | DESCRIPTION                                                                   |
|----------|-------------------------------------------------------------------------------|
| 200.02   | METHOD OF CLEARING - METHOD II                                                |
| 225.02   | GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL                              |
| 225.04   | METHOD OF OBTAINING SUPERELEVATION - TWO LANE PAVEMENT                        |
| 300.01   | METHOD OF PIPE INSTALLATION                                                   |
| 310.10   | DRIVEWAY PIPE CONSTRUCTION                                                    |
| 560.01   | METHOD OF SHOULDER CONSTRUCTION - HIGH SIDE OF SUPERELEVATED CURVE - METHOD I |
| 654.01   | PAVEMENT REPAIRS                                                              |
| 700.05   | TYING PROPOSED PAVEMENT TO EXISTING                                           |
| 806.01   | CONCRETE RIGHT-OF-WAY MARKER                                                  |
| 815.02   | SUBSURFACE DRAIN                                                              |
| 815.03   | PIPE UNDERDRAIN AND BLIND DRAIN                                               |
| 840.00   | CONC. BASE PAD FOR DRAINAGE STRUCTURES                                        |
| 840.01   | BRICK CATCH BASIN - 12" THRU 54" PIPE                                         |
| 840.02   | CONCRETE CATCH BASIN - 12" THRU 54" PIPE                                      |
| 840.03   | FRAME, GRATES AND HOOD - FOR USE ON STANDARD CATCH BASIN                      |
| 840.14   | CONCRETE DROP INLET - 12" THRU 30" PIPE                                       |
| 840.15   | BRICK DROP INLET - 12" THRU 30" PIPE                                          |
| 840.16   | DROP INLET FRAME AND GRATES - FOR USE WITH STD. DWG. 840.14 AND 840.15        |
| 840.17   | CONCRETE GRATED DROP INLET TYPE 'A' - 12" THRU 72" PIPE                       |
| 840.18   | CONCRETE GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE                       |
| 840.19   | CONCRETE GRATED DROP INLET TYPE 'D' - 12" THRU 36" PIPE                       |
| 840.22   | FRAMES AND WIDE SLOT SAG GRATES                                               |
| 840.24   | FRAMES AND NARROW SLOT SAG GRATES                                             |
| 840.26   | BRICK GRATED DROP INLET TYPE 'A' - 12" THRU 72" PIPE                          |
| 840.27   | BRICK GRATED DROP INLET TYPE 'B' - 12" THRU 36" PIPE                          |
| 840.28   | BRICK GRATED DROP INLET TYPE 'D' - 12" THRU 36" PIPE                          |
| 840.31   | CONCRETE JUNCTION BOX - 12" THRU 66" PIPE                                     |
| 840.32   | BRICK JUNCTION BOX - 12" THRU 66" PIPE                                        |
| 840.34   | TRAFFIC BEARING JUNCTION BOX - FOR USE WITH PIPES 42" AND UNDER               |
| 840.45   | PRECAST DRAINAGE STRUCTURE                                                    |
| 840.46   | TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE                                    |
| 840.51   | BRICK MANHOLE 12" THRU 36" PIPE                                               |
| 840.52   | PRECAST MANHOLE - 4', 5', AND 6' DIAMETER                                     |
| 840.53   | PRECAST MANHOLE WITH MASONRY BASE - 12" THRU 42" DIAMETER                     |
| 840.54   | MANHOLE FRAME AND COVER                                                       |
| 840.66   | DRAINAGE STRUCTURE STEPS                                                      |
| 840.72   | PIPE COLLAR                                                                   |
| 846.01   | CONCRETE CURB, GUTTER AND CURB & GUTTER                                       |
| 848.01   | CONCRETE SIDEWALK                                                             |
| 848.02   | DRIVEWAY TURNOUT - RADIUS TYPE                                                |
| 848.04   | STREET TURNOUT                                                                |
| 848.06   | CURB RAMP                                                                     |
| 876.01   | RIP RAP IN CHANNELS AND DITCHES                                               |
| 876.02   | GUIDE FOR RIP RAP AT PIPE OUTLETS                                             |

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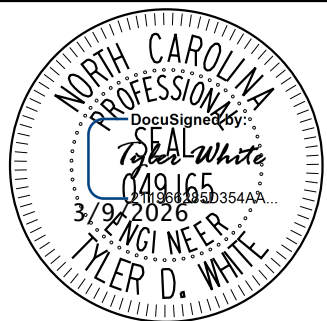
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PREPARED IN THE OFFICE OF:

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PHONE: (919) 682-3583  
PE NO. F-0102

INDEX OF SHEETS,  
GENERAL NOTES,  
AND LIST OF ROADWAY  
STANDARD DRAWINGS



NOT TO SCALE

PROJECT: LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS

JOB NUMBER: 01150019

SHEET NUMBER: I-A

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**INCOMPLETE PLANS**  
DO NOT USE FOR R/W ACQUISITION

**BOUNDARIES AND PROPERTY:**

|                                       |  |
|---------------------------------------|--|
| State Line                            |  |
| County Line                           |  |
| Township Line                         |  |
| City Line                             |  |
| Reservation Line                      |  |
| Property Line                         |  |
| Existing Iron Pin                     |  |
| Computed Property Corner              |  |
| Property Monument                     |  |
| Parcel/Sequence Number                |  |
| Existing Fence Line                   |  |
| Proposed Woven Wire Fence             |  |
| Proposed Chain Link Fence             |  |
| Proposed Split Rail Fence             |  |
| Existing Wetland Boundary             |  |
| Proposed Wetland Boundary             |  |
| Existing Endangered Animal Boundary   |  |
| Existing Endangered Plant Boundary    |  |
| Existing Historic Property Boundary   |  |
| Known Contamination Area: Soil        |  |
| Potential Contamination Area: Soil    |  |
| Known Contamination Area: Water       |  |
| Potential Contamination Area: Water   |  |
| Contaminated Site: Known or Potential |  |

**BUILDINGS AND OTHER CULTURE:**

|                               |  |
|-------------------------------|--|
| Gas Pump Vent or U/G Tank Cap |  |
| Sign                          |  |
| Well                          |  |
| Small Mine                    |  |
| Foundation                    |  |
| Area Outline                  |  |
| Cemetery                      |  |
| Building                      |  |
| School                        |  |
| Church                        |  |
| Dam                           |  |

**HYDROLOGY:**

|                                    |  |
|------------------------------------|--|
| Stream or Body of Water            |  |
| Hydro, Pool or Reservoir           |  |
| Jurisdictional Stream              |  |
| Buffer Zone 1                      |  |
| Buffer Zone 2                      |  |
| Flow Arrow                         |  |
| Disappearing Stream                |  |
| Spring                             |  |
| Wetland                            |  |
| Proposed Lateral, Tail, Head Ditch |  |
| False Sump                         |  |

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

**RAILROADS:**

|                    |  |
|--------------------|--|
| Standard Gauge     |  |
| RR Signal Milepost |  |
| Switch             |  |
| RR Abandoned       |  |
| RR Dismantled      |  |

**RIGHT OF WAY & PROJECT CONTROL:**

|                                                          |  |
|----------------------------------------------------------|--|
| Secondary Horiz and Vert Control Point                   |  |
| Primary Horiz Control Point                              |  |
| Primary Horiz and Vert Control Point                     |  |
| Exist Permanent Easment Pin and Cap                      |  |
| New Permanent Easement Pin and Cap                       |  |
| Vertical Benchmark                                       |  |
| Existing Right of Way Marker                             |  |
| Existing Right of Way Line                               |  |
| New Right of Way Line                                    |  |
| New Right of Way Line with Pin and Cap                   |  |
| New Right of Way Line with Concrete or Granite RW Marker |  |
| New Control of Access Line with Concrete CA Marker       |  |
| Existing Control of Access                               |  |
| New Control of Access                                    |  |
| Existing Easement Line                                   |  |
| New Temporary Construction Easement                      |  |
| New Temporary Drainage Easement                          |  |
| New Permanent Drainage Easement                          |  |
| New Permanent Drainage / Utility Easement                |  |
| New Permanent Utility Easement                           |  |
| New Temporary Utility Easement                           |  |
| New Aerial Utility Easement                              |  |
| New Permanent Easement                                   |  |

**ROADS AND RELATED FEATURES:**

|                            |  |
|----------------------------|--|
| Existing Edge of Pavement  |  |
| Existing Curb              |  |
| Proposed Slope Stakes Cut  |  |
| Proposed Slope Stakes Fill |  |
| Proposed Curb Ramp         |  |
| Existing Metal Guardrail   |  |
| Proposed Guardrail         |  |
| Existing Cable Guiderail   |  |
| Proposed Cable Guiderail   |  |
| Equality Symbol            |  |
| Pavement Removal           |  |
| Single Tree                |  |
| Single Shrub               |  |

**VEGETATION:**

|            |  |
|------------|--|
| Hedge      |  |
| Woods Line |  |
| Orchard    |  |
| Vineyard   |  |

**EXISTING STRUCTURES:**

|                                          |  |
|------------------------------------------|--|
| MAJOR:                                   |  |
| Bridge, Tunnel or Box Culvert            |  |
| Bridge Wing Wall, Head Wall and End Wall |  |
| MINOR:                                   |  |
| Head and End Wall                        |  |
| Pipe Culvert                             |  |
| Footbridge                               |  |
| Drainage Box: Catch Basin, DI or JB      |  |
| Paved Ditch Gutter                       |  |
| Storm Sewer Manhole                      |  |
| Storm Sewer                              |  |

**UTILITIES:**

|                                |  |
|--------------------------------|--|
| POWER:                         |  |
| Existing Power Pole            |  |
| Proposed Power Pole            |  |
| Existing Joint Use Pole        |  |
| Proposed Joint Use Pole        |  |
| Power Manhole                  |  |
| Power Line Tower               |  |
| Power Transformer              |  |
| U/G Power Cable Hand Hole      |  |
| H-Frame Pole                   |  |
| U/G Power Line LOS B (S.U.E.*) |  |
| U/G Power Line LOS C (S.U.E.*) |  |
| U/G Power Line LOS D (S.U.E.*) |  |

**TELEPHONE:**

|                                        |  |
|----------------------------------------|--|
| Existing Telephone Pole                |  |
| Proposed Telephone Pole                |  |
| Telephone Manhole                      |  |
| Telephone Pedestal                     |  |
| Telephone Cell Tower                   |  |
| U/G Telephone Cable Hand Hole          |  |
| U/G Telephone Cable LOS B (S.U.E.*)    |  |
| U/G Telephone Cable LOS C (S.U.E.*)    |  |
| U/G Telephone Cable LOS D (S.U.E.*)    |  |
| U/G Telephone Conduit LOS B (S.U.E.*)  |  |
| U/G Telephone Conduit LOS C (S.U.E.*)  |  |
| U/G Telephone Conduit LOS D (S.U.E.*)  |  |
| U/G Fiber Optics Cable LOS B (S.U.E.*) |  |
| U/G Fiber Optics Cable LOS C (S.U.E.*) |  |
| U/G Fiber Optics Cable LOS D (S.U.E.*) |  |

**WATER:**

|                                |  |
|--------------------------------|--|
| Water Manhole                  |  |
| Water Meter                    |  |
| Water Valve                    |  |
| Water Hydrant                  |  |
| U/G Water Line LOS B (S.U.E.*) |  |
| U/G Water Line LOS C (S.U.E.*) |  |
| U/G Water Line LOS D (S.U.E.*) |  |
| Above Ground Water Line        |  |

**TV:**

|                                       |  |
|---------------------------------------|--|
| TV Pedestal                           |  |
| TV Tower                              |  |
| U/G TV Cable Hand Hole                |  |
| U/G TV Cable LOS B (S.U.E.*)          |  |
| U/G TV Cable LOS C (S.U.E.*)          |  |
| U/G TV Cable LOS D (S.U.E.*)          |  |
| U/G Fiber Optic Cable LOS B (S.U.E.*) |  |
| U/G Fiber Optic Cable LOS C (S.U.E.*) |  |
| U/G Fiber Optic Cable LOS D (S.U.E.*) |  |

**GAS:**

|                              |  |
|------------------------------|--|
| Gas Valve                    |  |
| Gas Meter                    |  |
| U/G Gas Line LOS B (S.U.E.*) |  |
| U/G Gas Line LOS C (S.U.E.*) |  |
| U/G Gas Line LOS D (S.U.E.*) |  |
| Above Ground Gas Line        |  |

**SANITARY SEWER:**

|                                     |  |
|-------------------------------------|--|
| Sanitary Sewer Manhole              |  |
| Sanitary Sewer Cleanout             |  |
| U/G Sanitary Sewer Line             |  |
| Above Ground Sanitary Sewer         |  |
| SS Forced Main Line LOS B (S.U.E.*) |  |
| SS Forced Main Line LOS C (S.U.E.*) |  |
| SS Forced Main Line LOS D (S.U.E.*) |  |

**MISCELLANEOUS:**

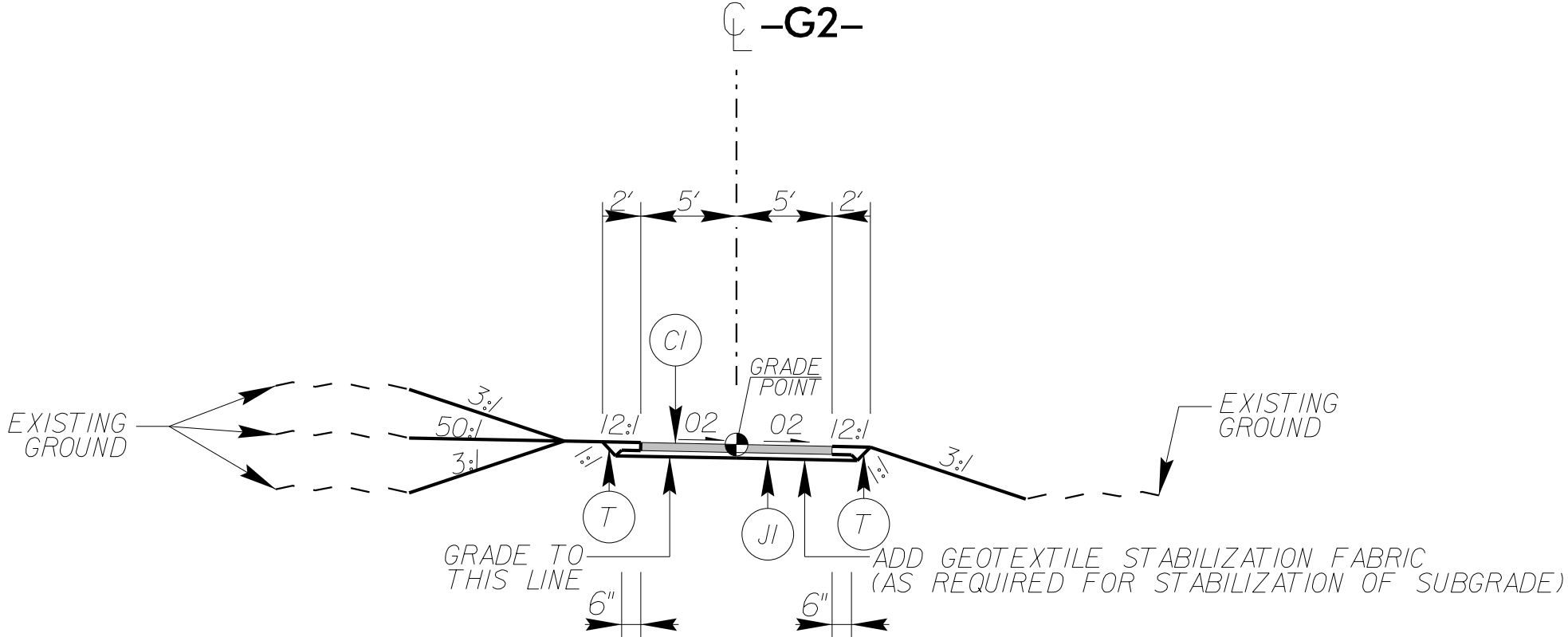
|                                          |  |
|------------------------------------------|--|
| Utility Pole                             |  |
| Utility Pole with Base                   |  |
| Utility Located Object                   |  |
| Utility Traffic Signal Box               |  |
| Utility Unknown U/G Line LOS B (S.U.E.*) |  |
| U/G Tank; Water, Gas, Oil                |  |
| Underground Storage Tank, Approx. Loc.   |  |
| A/G Tank; Water, Gas, Oil                |  |
| Geoenvironmental Boring                  |  |
| U/G Test Hole LOS A (S.U.E.*)            |  |
| Abandoned According to Utility Records   |  |
| End of Information                       |  |

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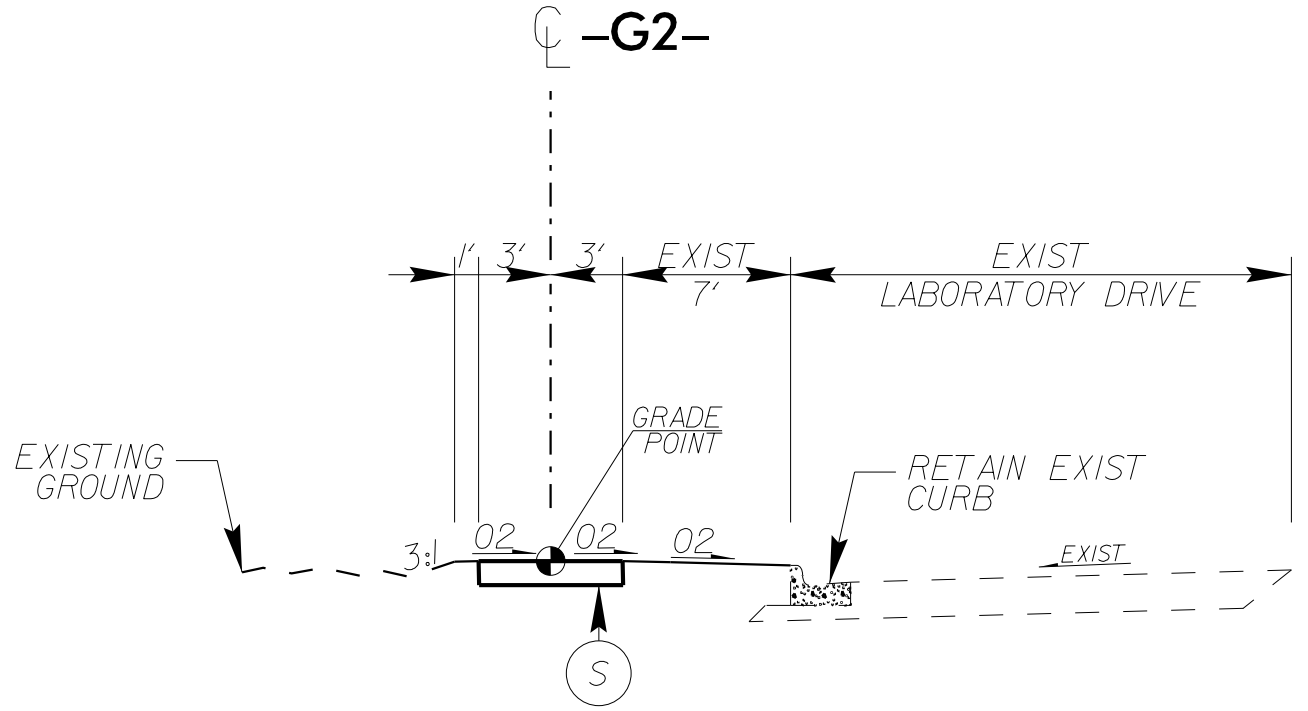
| PAVEMENT SCHEDULE |                                                                                                                            |
|-------------------|----------------------------------------------------------------------------------------------------------------------------|
| C1                | PROPOSED APPROX.2" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5B, AT AN AVERAGE RATE OF 220 LBS.PER SQ.YD.                    |
| C2                | PROPOSED APPROX.3" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS.PER SQ.YD.IN EACH OF 2 LAYERS |
| C3                | PROPOSED APPROX.1.5" ASPHALT CONCRETE SURFACE COURSE,TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS.PER SQ.YD.                  |
| DI                | PROPOSED APPROX.4" ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS.PER SQ.YD.              |
| E1                | PROPOSED APPROX.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS.PER SQ YARD.                   |
| J1                | PROPOSED 6" AGGREGATE BASE COURSE                                                                                          |
| J2                | PROPOSED RIP RAP CLASS B 1' MINIMUM THICKNESS                                                                              |
| RI                | PROPOSED 2'-6" CONCRETE CURB AND GUTTER                                                                                    |
| S                 | PROPOSED 4" CONCRETE SIDEWALK                                                                                              |
| T                 | PROPOSED COMPACTED EARTH MATERIAL                                                                                          |
| U                 | EXISTING ASPHALT PAVEMENT                                                                                                  |

- NOTES:
- 1) SEE PLANS FOR EXISTING PAVEMENT AND SIDEWALK LOCATIONS.
  - 2) PAVEMENT EDGE SLOPES ARE 1:1 UNLESS OTHERWISE NOTED.
  - 3) SEE PLAN SHEETS FOR TRAIL SUPERELEVATION TRANSITIONS. (2% MAX SUPERELEVATION)
  - 4) SLOPE SHOULDERS FOR POSITIVE DRAINAGE.
  - 5) TRAIL AND GRASS VERGE WIDTHS VARY. SEE PLANS AND CROSS SECTIONS
  - 6) SEE CROSS SECTIONS FOR FILL SLOPES.
  - 7) SEE PLANS FOR PROPOSED CURB & GUTTER LOCATIONS



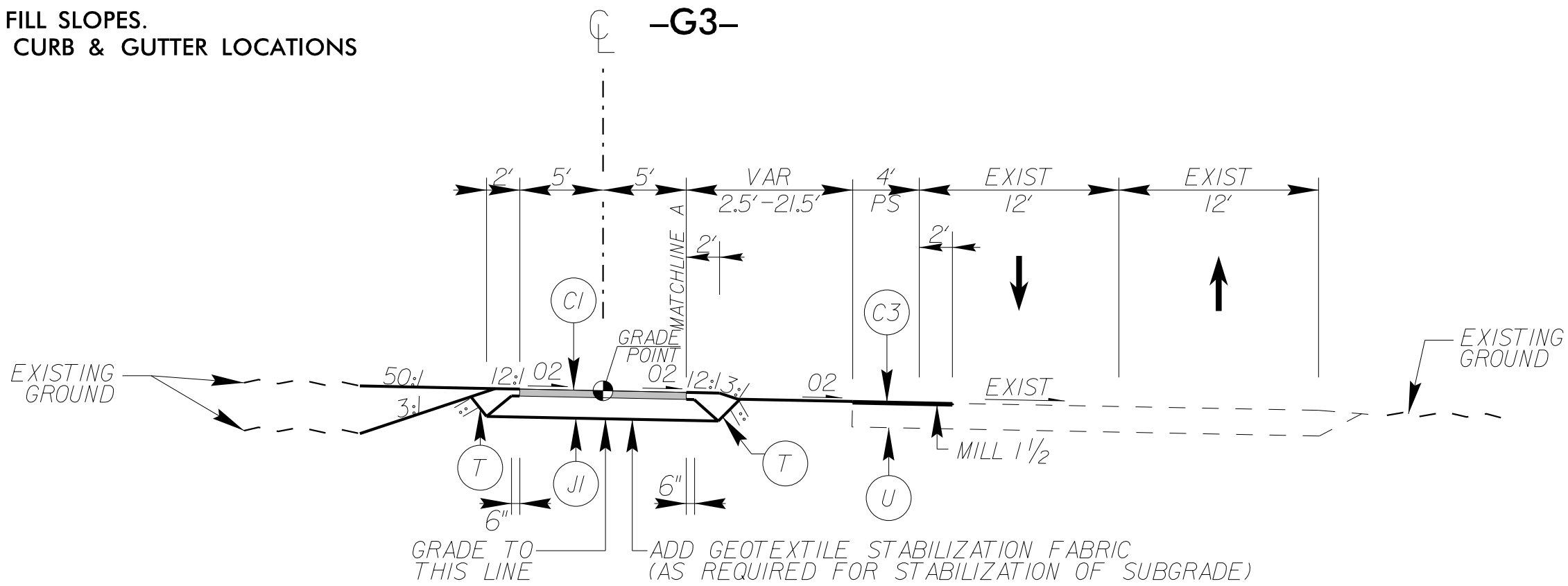
TYPICAL SECTION NO. 1

-G2- STA 10+97.51 TO 11+60.00  
-G2- STA 16+15.00 TO 36+46.68



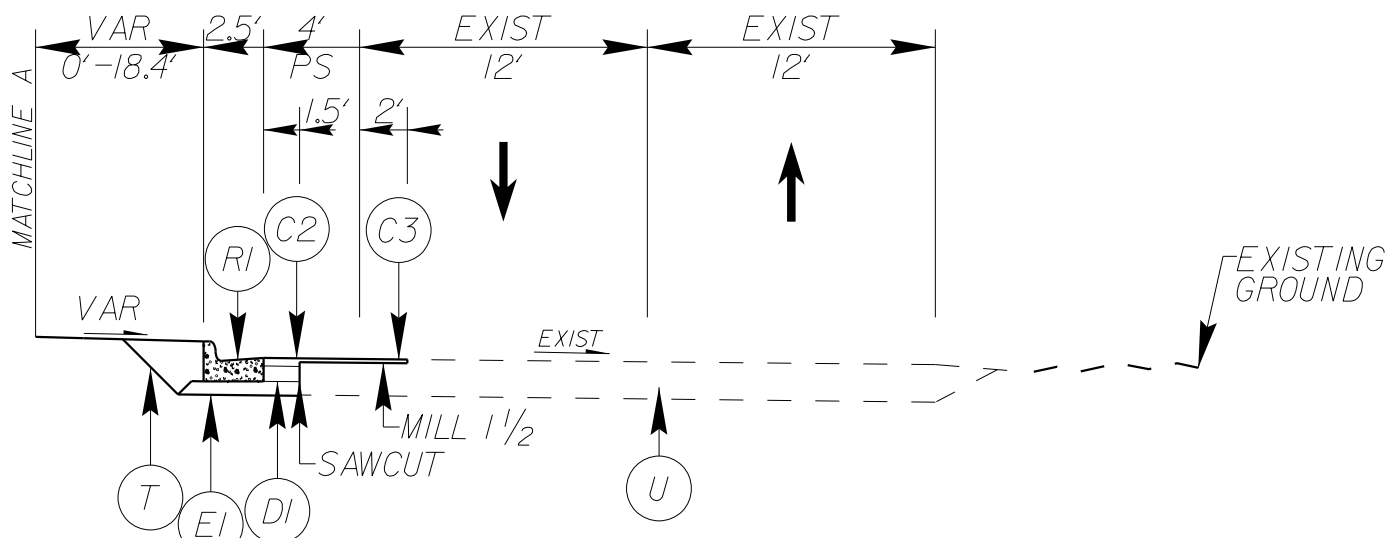
TYPICAL SECTION NO. 2

-G2- STA 36+46.68 TO 37+21.00



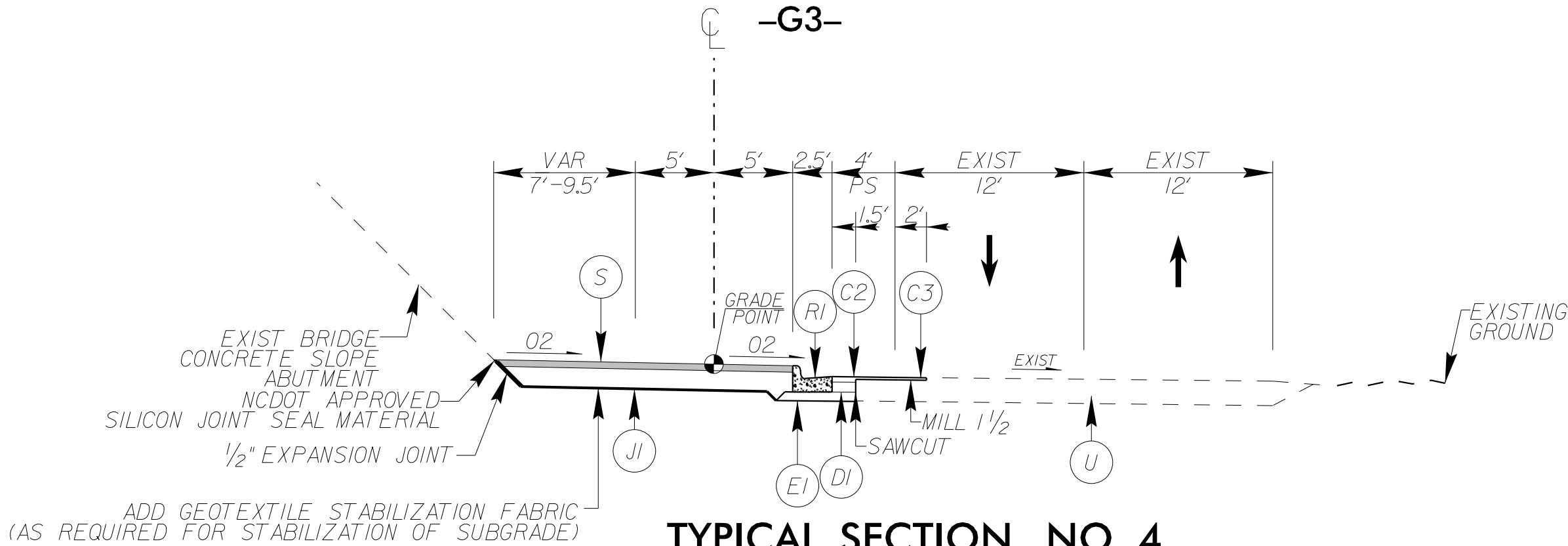
TYPICAL SECTION NO. 3

-G3- STA 10+35.00 TO 11+22.50  
-G3- STA 14+29.97 TO 14+63.54



TYPICAL SECTION NO. 3A

-G3- STA 10+50.00 TO 11+22.50



TYPICAL SECTION NO. 4

-G3- STA 11+22.50 TO 14+29.97

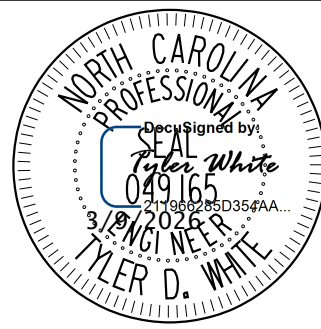
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| REV. No.                                                                                                                                                                                                                                                                                                                                                                                                                            | REVISIONS | DATE | DRAWN BY | CHECKED BY |
|                                                                                                                                                                                                                                                                                                                                                                                                                                     |           |      |          |            |
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**Kimley»Horn**

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PHONE: (919) 682-3583  
PE NO. F-0102

TYPICAL SECTIONS



NOT TO SCALE

PROJECT: LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS

JOB NUMBER: 01150019

SHEET NUMBER: 2A-1

|             |           |
|-------------|-----------|
| PROJECT NO. | SHEET NO. |
| 11150019    | 3D-1      |

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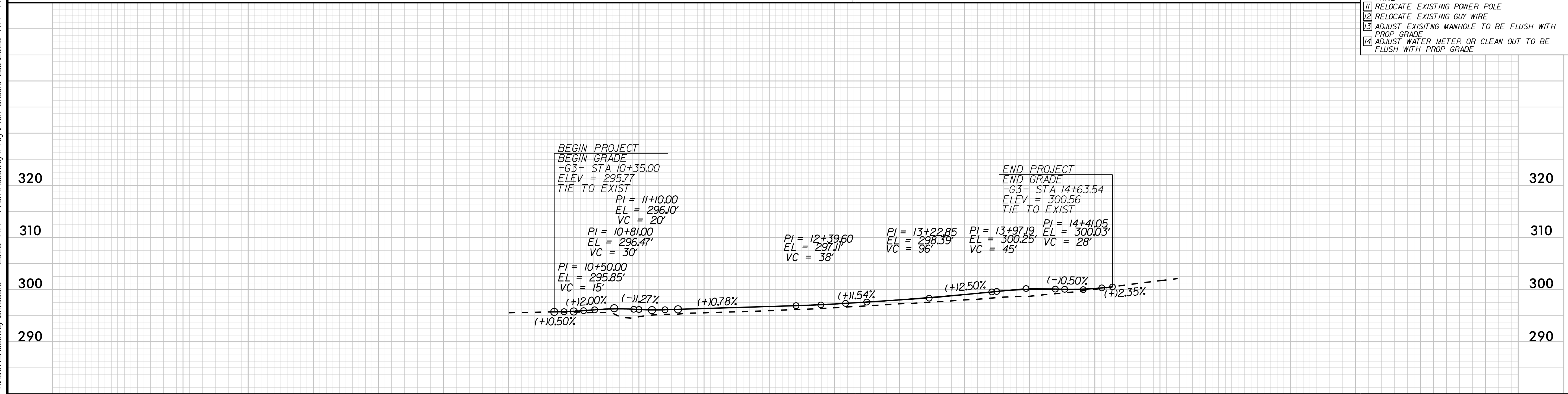
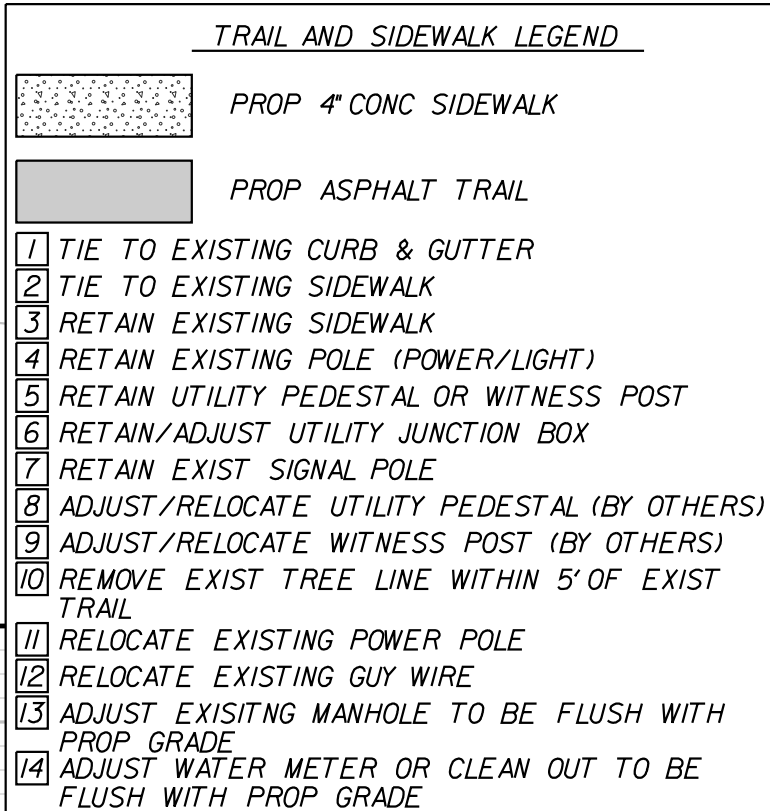
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| JOB NUMBER: | 011150019 | SHEET NUMBER: | 3D- |
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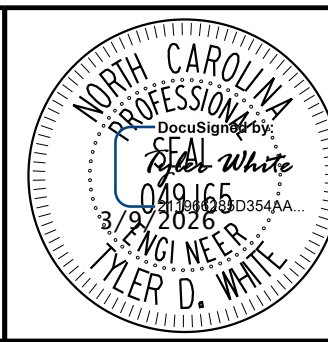


PREPARED IN THE OFFICE OF:

# Kimley»»Horn

300 MORRIS STREET, SUITE 200, DURHAM, NC, 27701  
PHONE: (919) 682-3583 PE NO. F-0102

## TRAIL PLANS



## LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS

JOB NUMBER:

011150019

SHEET NUMBER:

7

K:\OUR\_Roadway\01150019 - 2023 RTP Trail\Roadway\Proj\TMP Lab\2023 RTP Trail\_rdy\_imp.dgn

3/9/2026

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

| STD. NO. | TITLE                           |
|----------|---------------------------------|
| 1101.01  | WORK ZONE ADVANCE WARNING SIGNS |
| 1101.02  | TEMPORARY LANE CLOSURES         |
| 1101.04  | TEMPORARY SHOULDER CLOSURES     |
| 1101.05  | WORK ZONE VEHICLE ACCESSES      |
| 1101.11  | TRAFFIC CONTROL DESIGN TABLES   |
| 1110.01  | STATIONARY WORK ZONE SIGNS      |
| 1110.02  | PORTABLE WORK ZONE SIGNS        |
| 1130.01  | DRUM                            |
| 1135.01  | CONES                           |
| 1145.01  | BARRICADES - TYPE III           |
| 1150.01  | FLAGGERS                        |
| 1180.01  | SKINNY-DRUM                     |

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

|                  |                                               |
|------------------|-----------------------------------------------|
| ROAD NAME        | DAY AND TIME RESTRICTIONS                     |
| LABORATORY DRIVE | 6:00-9:00 A.M. & 4:00-7:00 MONDAY THRU FRIDAY |
| LITTLE DRIVE     | 6:00-9:00 A.M. & 4:00-7:00 MONDAY THRU FRIDAY |

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

|                  |
|------------------|
| ROAD NAME        |
| LABORATORY DRIVE |
| LITTLE DRIVE     |

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR’S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR’S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

GENERAL NOTES (CONT.)

6. FOR LABOR DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY AND 7:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.
- C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- I) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON ALL ROADS.

PAVEMENT EDGE DROP OFF REQUIREMENTS

- J) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:
- BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.
- BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.
- BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

TRAFFIC PATTERN ALTERATIONS

- K) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- L) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

TRAFFIC CONTROL DEVICES

- M) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

PAVEMENT MARKINGS AND MARKERS

- N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

| ROAD NAME        | MARKING         | MARKER           |
|------------------|-----------------|------------------|
| LABORATORY DRIVE | TEMPORARY PAINT | TEMPORARY RAISED |
| LITTLE DRIVE     | TEMPORARY PAINT | TEMPORARY RAISED |

- O) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- P) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY’S OPERATION.

MISCELLANEOUS

- Q) ACCESS TO ALL DRIVEWAYS MUST BE PROVIDED AT ALL TIMES WITHIN THE PROJECT LIMITS.
- R) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.
- S) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

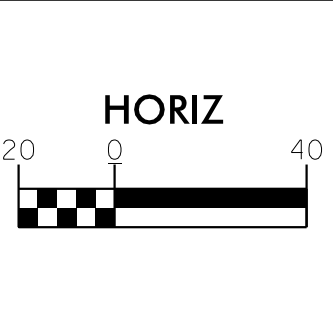
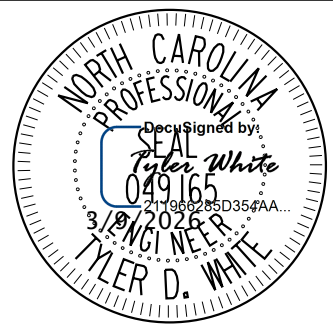
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PE NO. F-0102

TRAFFIC MANAGEMENT PLAN



|               |                                                    |
|---------------|----------------------------------------------------|
| PROJECT:      | LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS |
| JOB NUMBER:   | 01150019                                           |
| SHEET NUMBER: | TMP-1                                              |

CONSTRUCTION PHASING

PHASE I

STEP 1

PRIOR TO BEGINNING CONSTRUCTION, INSTALL ADVANCE WARNING SIGNS AS SHOWN ON RSD. 1101.01. THE CONTRACTOR SHALL PLACE "SIDEWALK CLOSED" PEDESTRIAN BARRICADES AT THE LIMITS OF THE PROPOSED IMPROVEMENTS. SIGNS AND BARRICADES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.

STEP 2

WHILE MAINTAINING TRAFFIC ALONG ALL ROADWAY CORRIDORS, INTERSECTIONS, AND DRIVEWAYS, USING TEMPORARY LANE CLOSURES AS NEEDED AS SHOWN ON NCDOT ROADWAY STANDARD DRAWING 1101.02, PERFORM THE FOLLOWING:

CONSTRUCT PROPOSED IMPROVEMENTS, CURB AND GUTTER, CURB RAMPS, GREENWAY TRAIL, AND DRAINAGE.

NOTES:  
PROVIDE WEDGING AS NECESSARY TO TIE NEW CONSTRUCTION INTO EXISTING PAVEMENT FOR SMOOTH TRANSITIONS AND POSITIVE DRAINAGE USING TEMPORARY LANE CLOSURES.

STEP 3

REMOVE ALL TRAFFIC CONTROL DEVICES, AND OPEN LANES TO ALL TRAFFIC.

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3/9/2026

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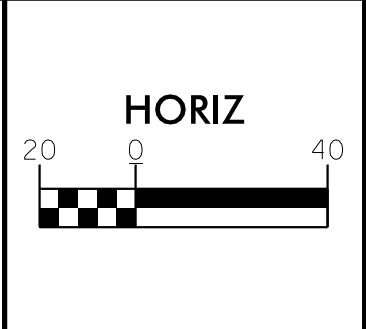
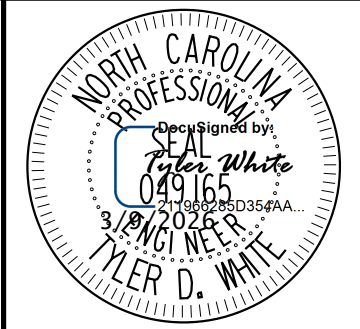
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PE NO. F-0102

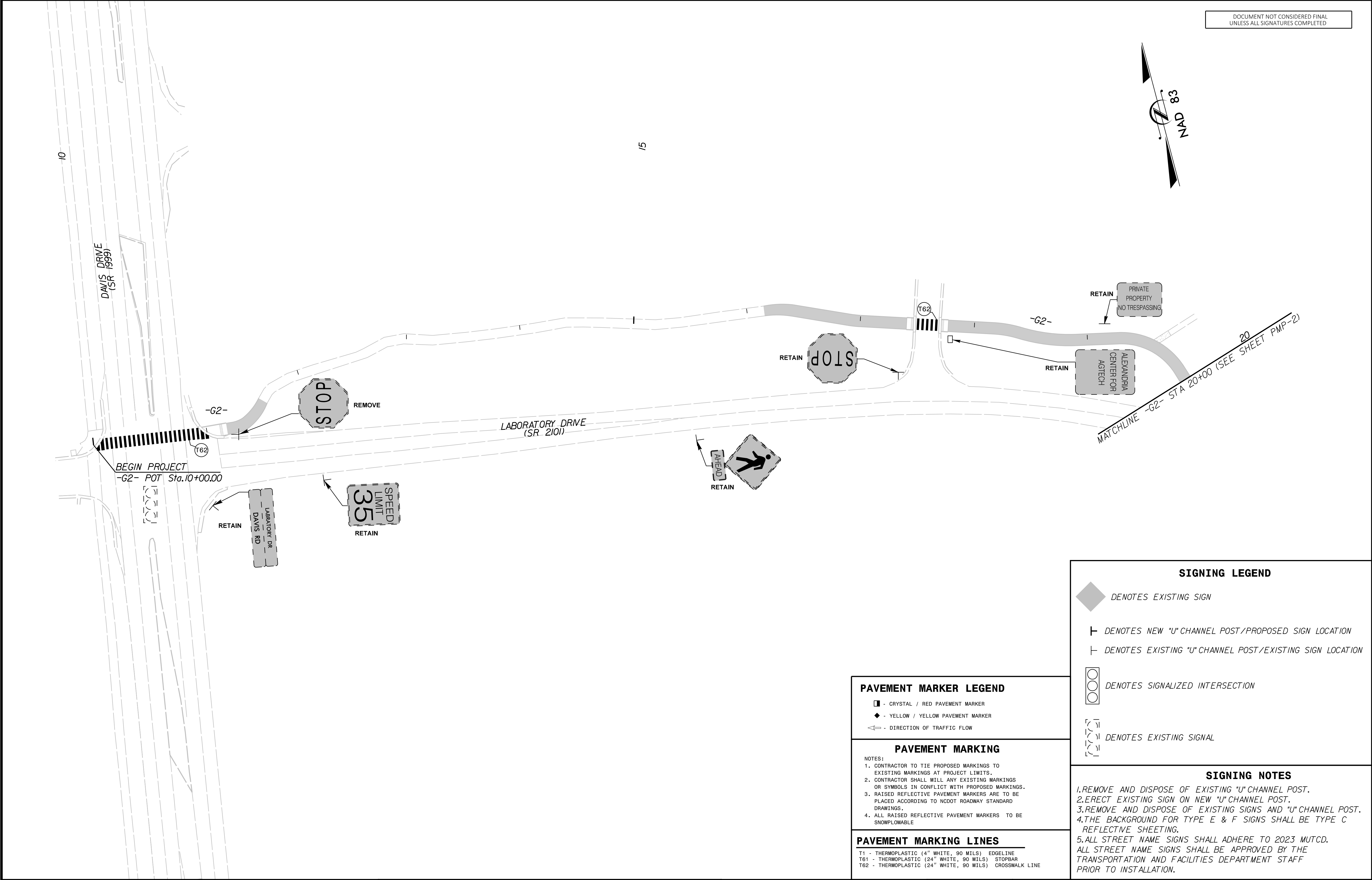
TRAFFIC MANAGEMENT PLAN



|             |                                                    |                     |
|-------------|----------------------------------------------------|---------------------|
| PROJECT:    | LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS |                     |
| JOB NUMBER: | 011150019                                          | SHEET NUMBER: TMP-2 |

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PAVEMENT MARKER LEGEND

- CRYSTAL / RED PAVEMENT MARKER
- YELLOW / YELLOW PAVEMENT MARKER
- DIRECTION OF TRAFFIC FLOW

PAVEMENT MARKING

- NOTES:
- CONTRACTOR TO TIE PROPOSED MARKINGS TO EXISTING MARKINGS AT PROJECT LIMITS.
  - CONTRACTOR SHALL MILL ANY EXISTING MARKINGS OR SYMBOLS IN CONFLICT WITH PROPOSED MARKINGS.
  - RAISED REFLECTIVE PAVEMENT MARKERS ARE TO BE PLACED ACCORDING TO NCDOT ROADWAY STANDARD DRAWINGS.
  - ALL RAISED REFLECTIVE PAVEMENT MARKERS TO BE SNOWPLOWABLE

PAVEMENT MARKING LINES

- T1 - THERMOPLASTIC (4" WHITE, 90 MILS) EDGELINE
- T61 - THERMOPLASTIC (24" WHITE, 90 MILS) STOPBAR
- T62 - THERMOPLASTIC (24" WHITE, 90 MILS) CROSSWALK LINE

SIGNING LEGEND

- DENOTES EXISTING SIGN
- DENOTES NEW "U" CHANNEL POST/PROPOSED SIGN LOCATION
- DENOTES EXISTING "U" CHANNEL POST/EXISTING SIGN LOCATION
- DENOTES SIGNALIZED INTERSECTION
- DENOTES EXISTING SIGNAL

SIGNING NOTES

- REMOVE AND DISPOSE OF EXISTING "U" CHANNEL POST.
- ERECT EXISTING SIGN ON NEW "U" CHANNEL POST.
- REMOVE AND DISPOSE OF EXISTING SIGNS AND "U" CHANNEL POST.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- ALL STREET NAME SIGNS SHALL ADHERE TO 2023 MUTCD. ALL STREET NAME SIGNS SHALL BE APPROVED BY THE TRANSPORTATION AND FACILITIES DEPARTMENT STAFF PRIOR TO INSTALLATION.

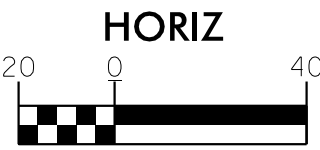
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PHONE: (919) 682-3583

PE NO. F-0102

PAVEMENT MARKING  
AND SIGNING PLANS



PROJECT:

LABORATORY DRIVE &  
LITTLE DRIVE TRAIL  
IMPROVEMENTS

JOB NUMBER:

01150019

SHEET NUMBER:

PMP-1

REV. NO. 1

REVISION:

DATE:

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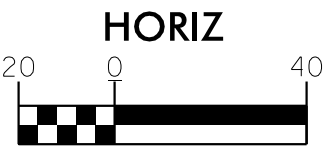
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PE NO. F-0102

PAVEMENT MARKING  
AND SIGNING PLANS



PROJECT:

LABORATORY DRIVE &  
LITTLE DRIVE TRAIL  
IMPROVEMENTS

JOB NUMBER:

01150019

SHEET NUMBER:

PMP-2

SIGNING LEGEND

- DENOTES EXISTING SIGN
- DENOTES NEW "U" CHANNEL POST/PROPOSED SIGN LOCATION
- DENOTES EXISTING "U" CHANNEL POST/EXISTING SIGN LOCATION
- DENOTES SIGNALIZED INTERSECTION
- DENOTES EXISTING SIGNAL

SIGNING NOTES

- 1.REMOVE AND DISPOSE OF EXISTING "U" CHANNEL POST.
- 2.ERECT EXISTING SIGN ON NEW "U" CHANNEL POST.
- 3.REMOVE AND DISPOSE OF EXISTING SIGNS AND "U" CHANNEL POST.
- 4.THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- 5.ALL STREET NAME SIGNS SHALL ADHERE TO 2023 MUTCD. ALL STREET NAME SIGNS SHALL BE APPROVED BY THE TRANSPORTATION AND FACILITIES DEPARTMENT STAFF PRIOR TO INSTALLATION.

PAVEMENT MARKER LEGEND

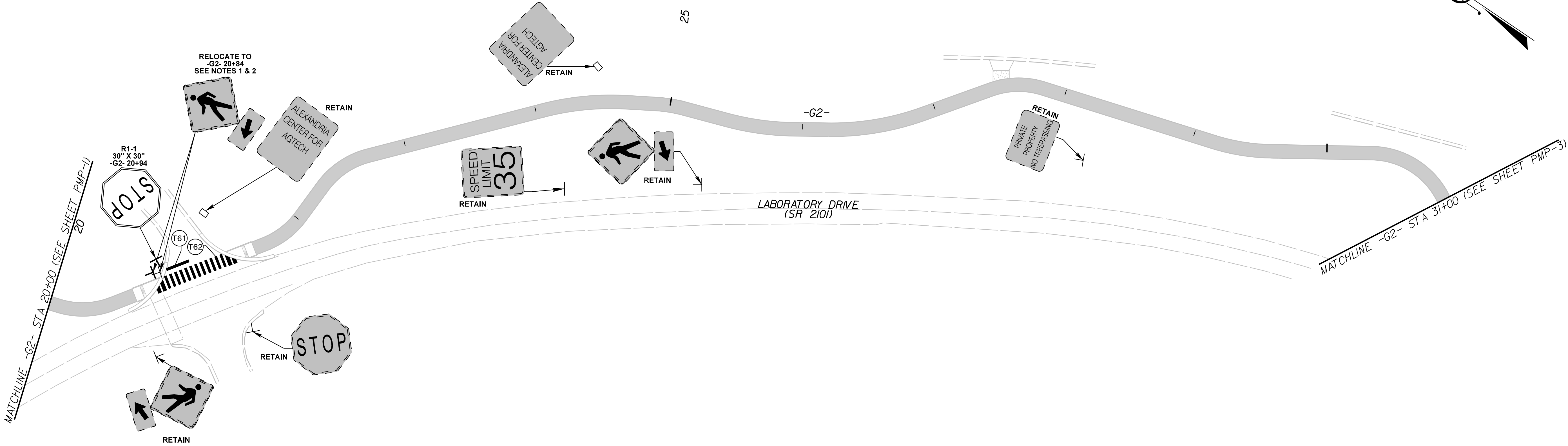
- CRYSTAL / RED PAVEMENT MARKER
- YELLOW / YELLOW PAVEMENT MARKER
- DIRECTION OF TRAFFIC FLOW

PAVEMENT MARKING

- NOTES:
1. CONTRACTOR TO TIE PROPOSED MARKINGS TO EXISTING MARKINGS AT PROJECT LIMITS.
  2. CONTRACTOR SHALL MILL ANY EXISTING MARKINGS OR SYMBOLS IN CONFLICT WITH PROPOSED MARKINGS.
  3. RAISED REFLECTIVE PAVEMENT MARKERS ARE TO BE PLACED ACCORDING TO NCDOT ROADWAY STANDARD DRAWINGS.
  4. ALL RAISED REFLECTIVE PAVEMENT MARKERS TO BE SNOWPLOWABLE

PAVEMENT MARKING LINES

- T1 - THERMOPLASTIC (4" WHITE, 90 MILS) EDGE LINE
- T61 - THERMOPLASTIC (24" WHITE, 90 MILS) STOP BAR
- T62 - THERMOPLASTIC (24" WHITE, 90 MILS) CROSSWALK LINE



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3/19/2026

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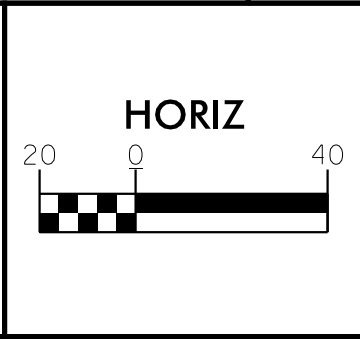
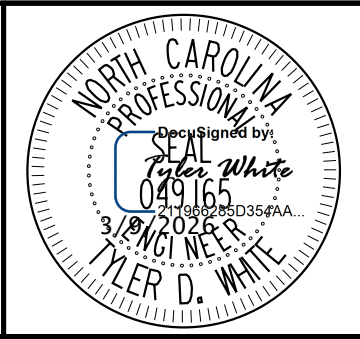
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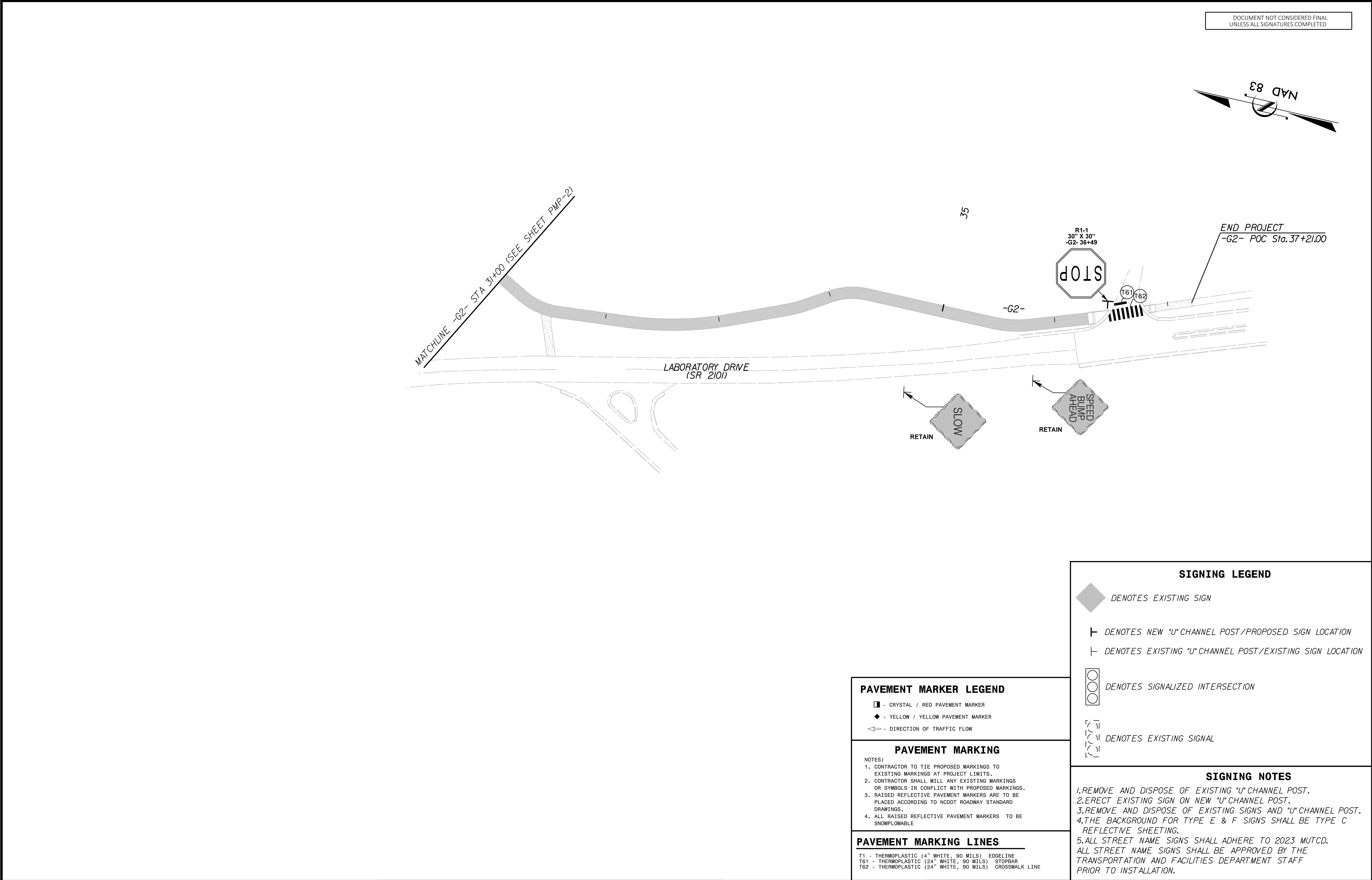
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PHONE: (919) 682-3583

PE NO. F-0102

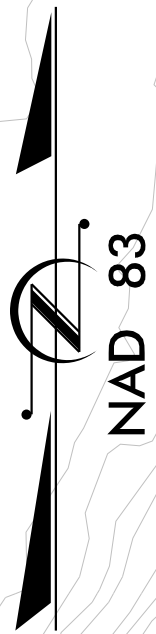
PAVEMENT MARKING  
AND SIGNING PLANS



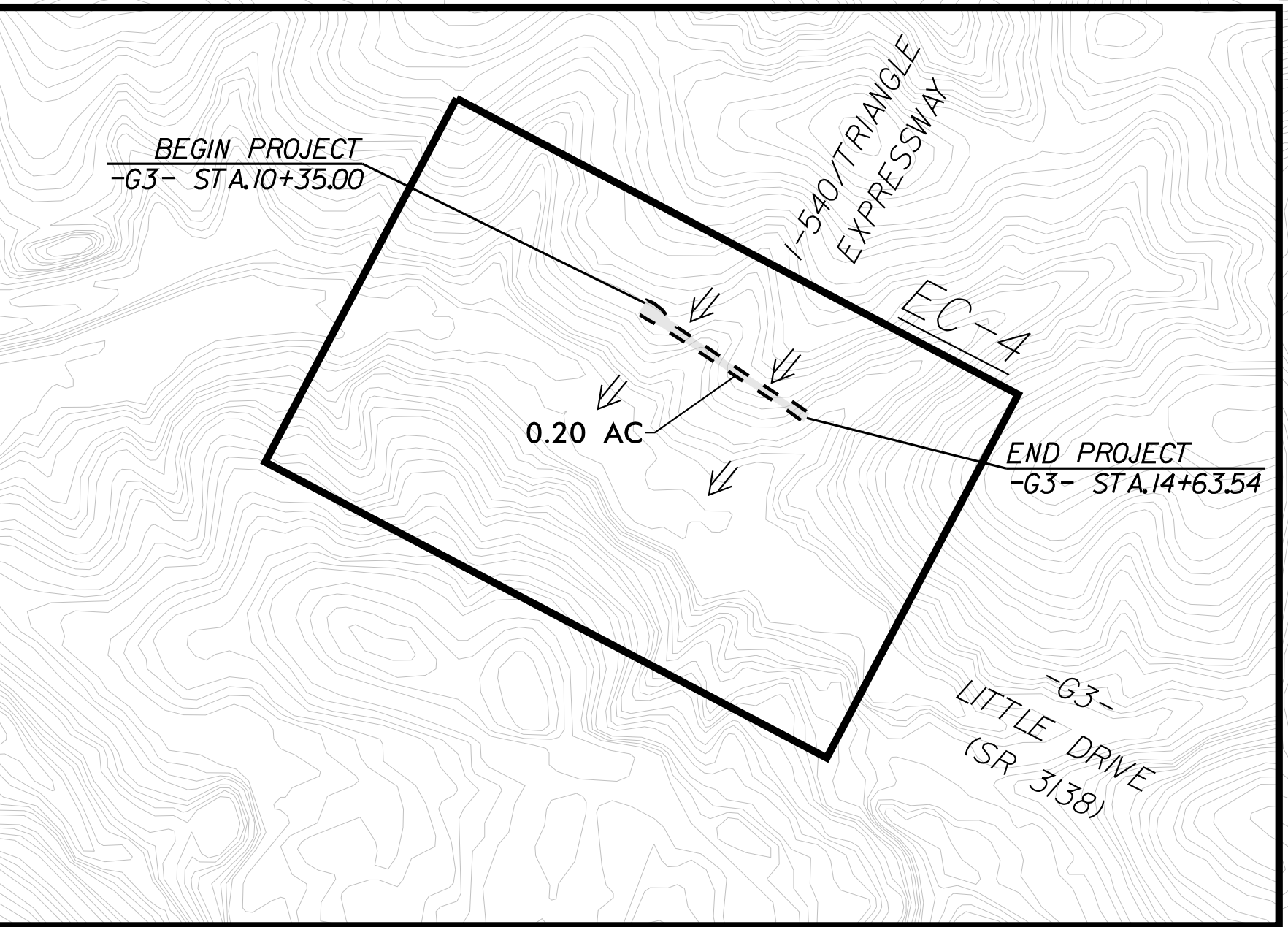
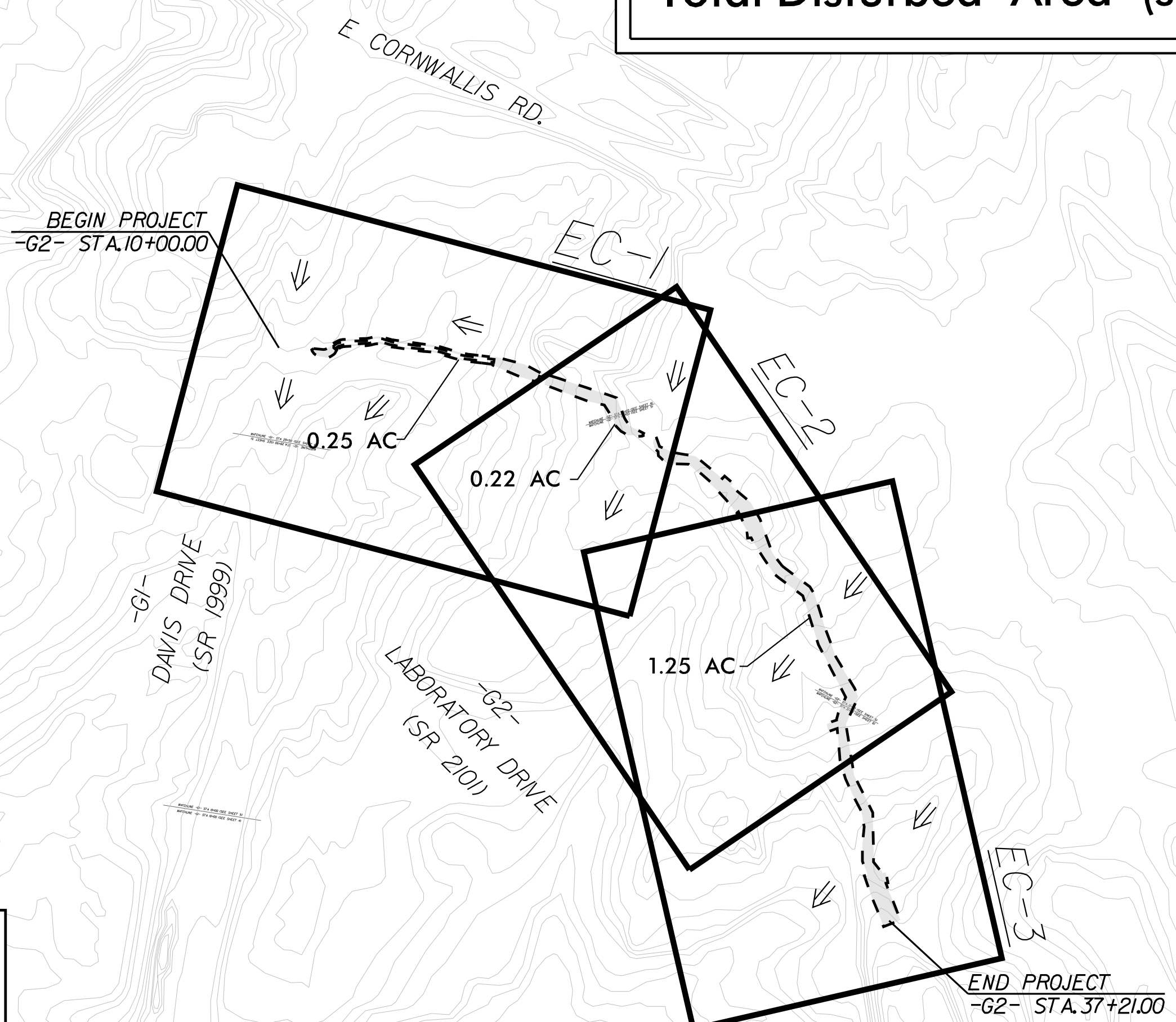
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| PROJECT: LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS |                     |
| JOB NUMBER: 01150019                                        | SHEET NUMBER: PMP-3 |







**Total Disturbed Area (shaded) = 1.92 acres**



|     |                       |
|-----|-----------------------|
| ⇒   | DIRECTION OF FLOW     |
| --- | PROJECT DENUDED AREAS |

|                                                                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>IMPERVIOUS AND PERVIOUS SURFACES IN<br/>CROSS-CITY TRAIL DISTURBED AREAS</p> <hr/> <p>PROPOSED IMPERVIOUS SURFACE = 0.70 AC<br/>         PROPOSED PERVIOUS SURFACE = 1.22 AC</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## NARRATIVE

**Project Description**

*The Research Triangle Park Green Way Trail is an existing multi-use trail system for bicycle and pedestrian use. It is being constructed by the Research Triangle Park (RTP) to restore and/or provide better connectivity throughout the RTP community. Approximately 1.95 acres will be disturbed during the construction of this project. Also, approximately 1.24 acres will be vegetatively stabilized with grass and permanent plantings.*

*The proposed improvements to the RTP Green Way Trail are in two locations within Durham and Wake County, NC. The first project site runs along Laboratory Drive (SR 2100) beginning at the intersection of Davis Drive, where the trail will connect to the existing RTP Green Way Trail, and terminating approximately 580' Northwest of the existing trail terminus. The second project site runs along Little Drive (SR 3138) beginning approximately 4685' West of Davis Drive and ending approximately 4275' West of Davis Drive.*

**Site Description**

*The site is generally flat and contains some drainage pipe outlets and roadside ditches. Land use along the project is predominantly commercial. Drainage from the project site sheet flows or makes its way through a series of existing roadside ditches and storm drain systems and eventually flows into the Cape Fear River Watershed, thus no new drainage patterns will be introduced. Pre-construction runoff equals Post-construction runoff for all existing system outlets that are to be retained. The fill slopes and drainage ditches around the project appear to be stable and do not show signs of significant erosion soils.*

**Soils**

*The soil types throughout the Laboratory Drive project limits are mostly clay and silt loam (WsC, Cc.Gu, WsB). The soil type throughout the Little Drive project limits is Creedmoor-Green Level complex (CrD).*

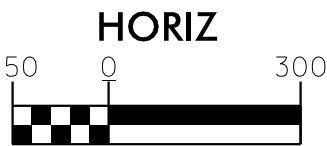
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PREPARED IN THE OFFICE OF:

# Kimley»»Horn

300 MORRIS STREET, SUITE 200, DURHAM, NC, 27701  
PHONE: (919) 682-3583 PE NO. F-0102

## DENUDED AREAS



PROJECT:

# LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS

JOB NUMBER:

01150019

SHEET NUMBER

EC-1A

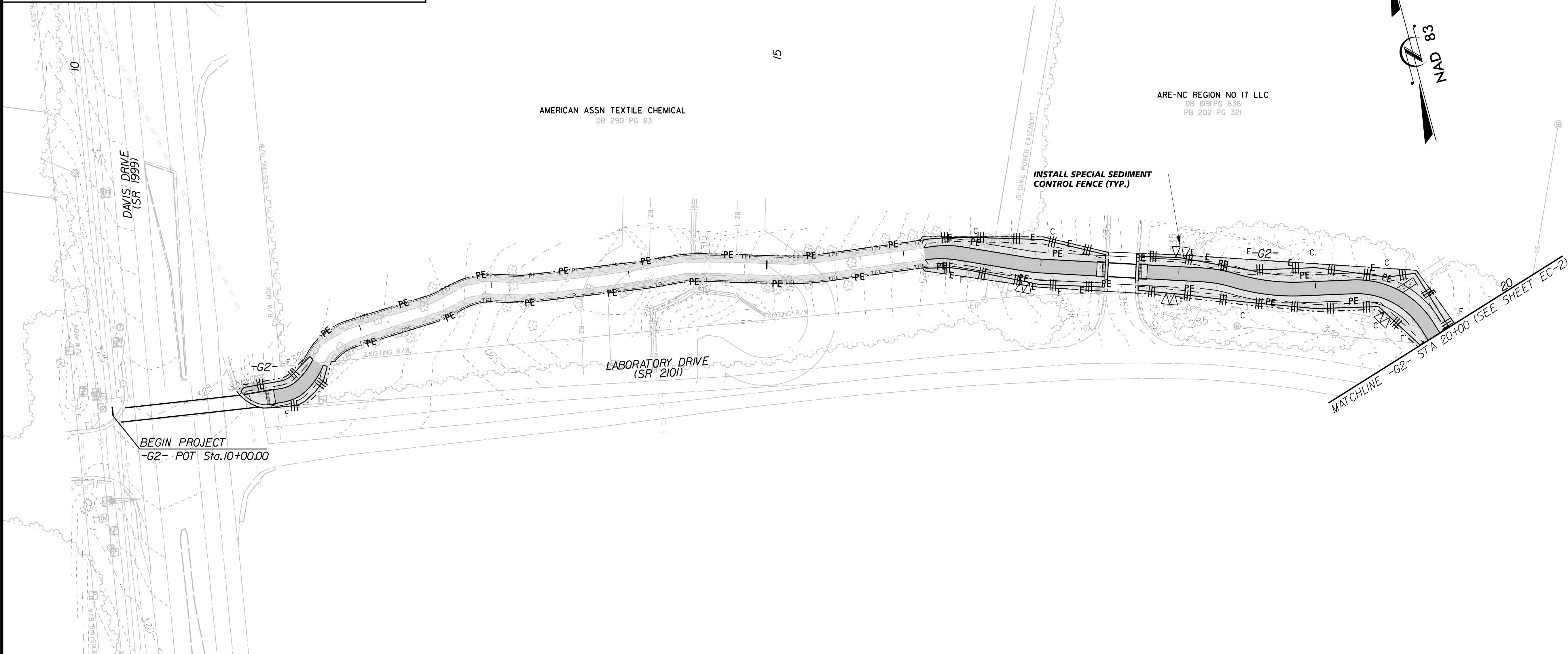
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**LIMITS OF DISTURBANCE SHOWN SHADED ON SHEET EC-1A. SYMBOLOGY IS SHOWN IN LEGEND AND IT IS DELINEATED ON THE REMAINING EROSION CONTROL PLAN SHEETS**

**PIPES SHALL BE INSTALLED IN THE DRY (WITH A MIN. 3 DAYS OF DRY WEATHER DURING INSTALLATION.) CONTACT ENGINEER AND INSPECTOR 24 HOURS PRIOR TO INSTALLATION OF STORMDRAIN SYSTEMS.**

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2024 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



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3/9/2026

| LEGEND                                                                 |         |                                                           |
|------------------------------------------------------------------------|---------|-----------------------------------------------------------|
| CONSTRUCTION LIMIT                                                     | C --- F | LIMITS OF DISTURBANCE (LABELED ON PLANS)                  |
| TEMPORARY SILT FENCE (SEE DETAIL SHEETS)                               |         | STORM DRAIN INLET PROTECTION (SEE DETAIL SHEETS)          |
| SPECIAL SEDIMENT CONTROL FENCE / SILT FENCE OUTLET (SEE DETAIL SHEETS) | Δ       | TEMPORARY ROCK SILT CHECK, TYPE A (SEE NCDOT STD.1633.01) |
| TEMPORARY CONSTRUCTION ENTRANCE (SEE NCDOT STD.1607.01)                | ■       | TEMPORARY ROCK SILT CHECK, TYPE B (SEE DETAIL SHEETS)     |
| ROCK PIPE INLET SEDIMENT TRAP, TYPE B (SEE NCDOT STD.1635.02)          | ⊙       | TREE PROTECTION (SEE DETAIL SHEETS)                       |
| CONCRETE WASHOUT (SEE DETAIL SHEETS)                                   | □       | WATTLE (SEE DETAIL SHEETS)                                |
| OUTLET PROTECTION (SEE DETAIL SHEETS)                                  | ■       | EXISTING CONTOUR --- 745 ---                              |
|                                                                        |         | PROPOSED CONTOUR --- 750 ---                              |
|                                                                        |         | FLOW ARROW ➡                                              |

**GENERAL NOTES**

1) CONTRACTOR TO ENSURE THAT ALL ROADWAYS AND CURB LINES ADJACENT TO THIS PROJECT ARE FREE OF DEBRIS, DIRT, AND EQUIPMENT DURING THE PROJECT DURATION UNLESS DIRECTED BY ENGINEER. ANY DAMAGE TO EXISTING CURB AND GUTTER AT CONSTRUCTION ENTRANCES MUST BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

2) INLET PROTECTION WITHIN ROADWAY TO BE INSTALLED AS NEEDED TO PROTECT INLETS FROM SEDIMENT DURING LAND DISTURBING ACTIVITIES. CONTRACTOR TO ENSURE THAT INLETS ARE PROTECTED AT ALL TIMES.

3) THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 TO 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUND COVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

| NPDES GENERAL STORMWATER PERMIT SOIL STABILIZATION TIMEFRAMES |                    |                                                                                        |
|---------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------|
| SITE DESCRIPTION                                              | STABILIZATION TIME | TIMEFRAME EXCEPTIONS                                                                   |
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES                   | 7 DAYS             | NONE                                                                                   |
| HIGH QUALITY WATER (HOW) ZONES                                | 7 DAYS             | NONE                                                                                   |
| SLOPES STEEPER THAN 3:1                                       | 7 DAYS             | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER                                         | 14 DAYS            | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.                                          |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1                  | 14 DAYS            | NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.                                             |

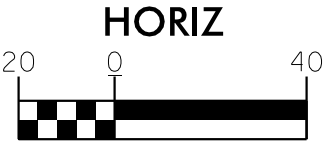
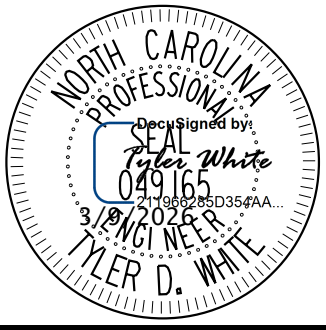
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**Kimley»Horn**

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PHONE: (919) 682-3583  
PE NO. F-0102

EROSION CONTROL PLANS



PROJECT:

**LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS**

JOB NUMBER:

01150019

SHEET NUMBER:

EC-1

**NOTE: SLOPES ON THIS PROJECT ARE PRIMARILY 2:1 AND 3:1. CONTRACTOR SHALL PROVIDE SOIL STABILIZATION ON ALL SLOPES WITHIN 7 DAYS OR AS REQUIRED BY NPDES GENERAL STORMWATER PERMIT. REFER TO CROSS SECTIONS AND MATTING SUMMARY SHEET.**

**LIMITS OF DISTURBANCE SHOWN SHADED ON SHEET EC-1A. SYMBOLOGY IS SHOWN IN LEGEND AND IT IS DELINEATED ON THE REMAINING EROSION CONTROL PLAN SHEETS**

**PIPES SHALL BE INSTALLED IN THE DRY (WITH A MIN. 3 DAYS OF DRY WEATHER DURING INSTALLATION.) CONTACT ENGINEER AND INSPECTOR 24 HOURS PRIOR TO INSTALLATION OF STORMDRAIN SYSTEMS.**

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3/9/2026

| LEGEND                                                                 |         |                                                           |           |
|------------------------------------------------------------------------|---------|-----------------------------------------------------------|-----------|
| CONSTRUCTION LIMIT                                                     | C-----F | LIMITS OF DISTURBANCE (LABELED ON PLANS)                  | -----     |
| TEMPORARY SILT FENCE (SEE DETAIL SHEETS)                               |         | STORM DRAIN INLET PROTECTION (SEE DETAIL SHEETS)          |           |
| SPECIAL SEDIMENT CONTROL FENCE / SILT FENCE OUTLET (SEE DETAIL SHEETS) |         | TEMPORARY ROCK SILT CHECK, TYPE A (SEE NCDOT STD.1633.01) |           |
| TEMPORARY CONSTRUCTION ENTRANCE (SEE NCDOT STD.1607.01)                |         | TEMPORARY ROCK SILT CHECK, TYPE B (SEE DETAIL SHEETS)     |           |
| ROCK PIPE INLET SEDIMENT TRAP, TYPE B (SEE NCDOT STD.1635.02)          |         | TREE PROTECTION (SEE DETAIL SHEETS)                       | ---TPF--- |
| CONCRETE WASHOUT (SEE DETAIL SHEETS)                                   |         | WATTLE (SEE DETAIL SHEETS)                                |           |
| OUTLET PROTECTION (SEE DETAIL SHEETS)                                  |         | EXISTING CONTOUR                                          | ---745--- |
|                                                                        |         | PROPOSED CONTOUR                                          | ---750--- |
|                                                                        |         |                                                           |           |

| GENERAL NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|
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| NPDES GENERAL STORMWATER PERMIT<br>SOIL STABILIZATION TIMEFRAMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                                                                                       |
| SITE DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | STABILIZATION TIME | TIMEFRAME EXCEPTIONS                                                                  |
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7 DAYS             | NONE                                                                                  |
| HIGH QUALITY WATER (HOW) ZONES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 7 DAYS             | NONE                                                                                  |
| SLOPES STEEPER THAN 3H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 7 DAYS             | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2H, 14 DAYS ARE ALLOWED. |
| SLOPES 3H OR FLATTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 14 DAYS            | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.                                         |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4H                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 14 DAYS            | NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.                                            |

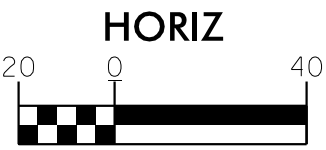
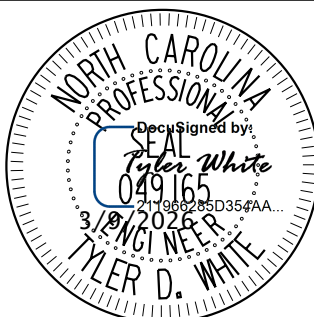
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PREPARED IN THE OFFICE OF:

**Kimley»Horn**

300 MORRIS STREET, SUITE 200, DURHAM, NC, 27701  
PHONE: (919) 682-3583  
PE NO. F-0102

EROSION CONTROL PLANS



PROJECT:

**LABORATORY DRIVE &  
LITTLE DRIVE TRAIL  
IMPROVEMENTS**

JOB NUMBER:

01150019

SHEET NUMBER:

EC-2

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3/3/2026

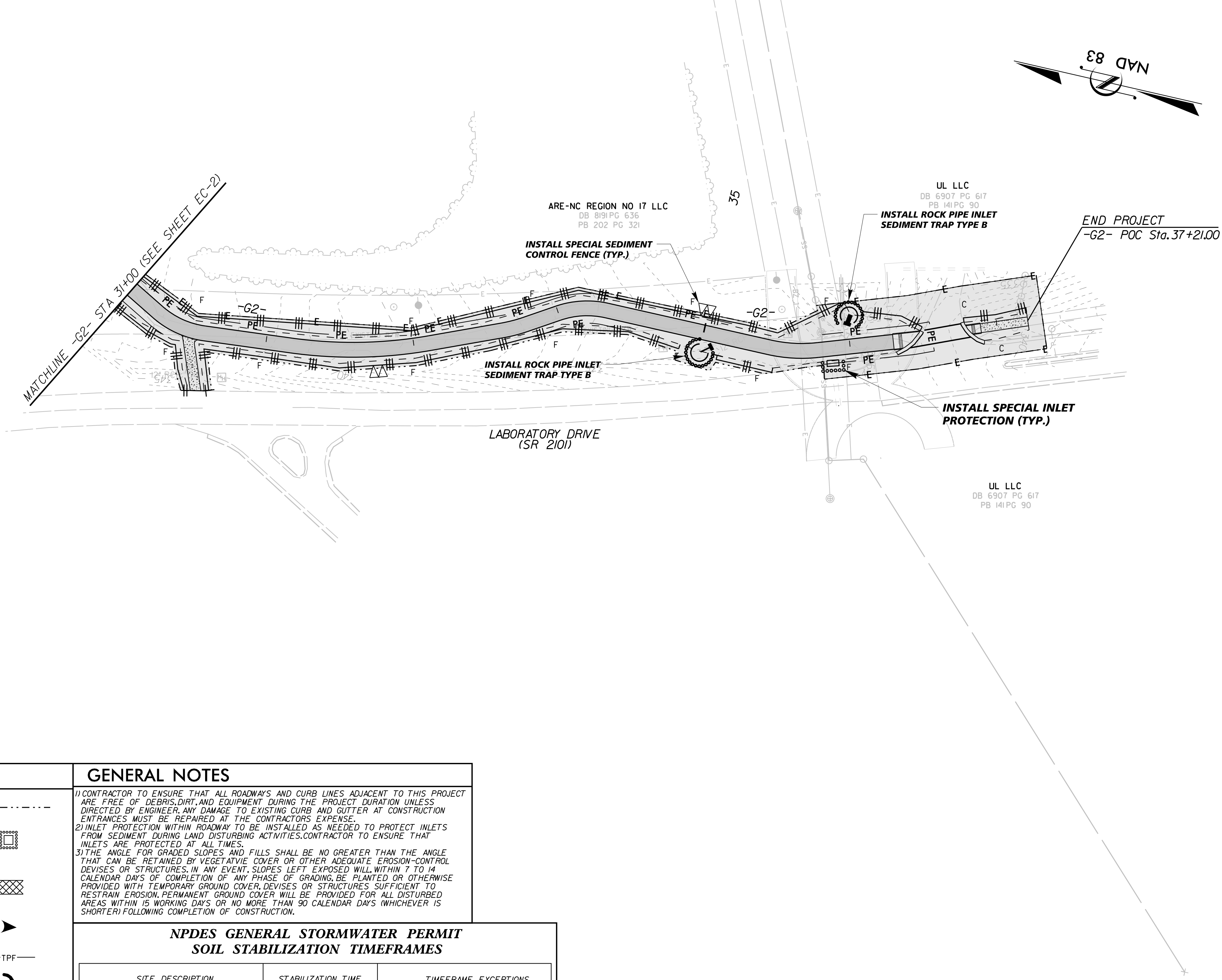
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**LIMITS OF DISTURBANCE SHOWN SHADED ON SHEET EC-1A. SYMBOLOGY IS SHOWN IN LEGEND AND IT IS DELINEATED ON THE REMAINING EROSION CONTROL PLAN SHEETS**

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



| LEGEND                                                                 |  |  |
|------------------------------------------------------------------------|--|--|
| CONSTRUCTION LIMIT                                                     |  |  |
| TEMPORARY SILT FENCE (SEE DETAIL SHEETS)                               |  |  |
| SPECIAL SEDIMENT CONTROL FENCE / SILT FENCE OUTLET (SEE DETAIL SHEETS) |  |  |
| TEMPORARY CONSTRUCTION ENTRANCE (SEE NCDOT STD.1607.01)                |  |  |
| ROCK PIPE INLET SEDIMENT TRAP, TYPE B (SEE NCDOT STD.1635.02)          |  |  |
| CONCRETE WASHOUT (SEE DETAIL SHEETS)                                   |  |  |
| OUTLET PROTECTION (SEE DETAIL SHEETS)                                  |  |  |
| LIMITS OF DISTURBANCE (LABELED ON PLANS)                               |  |  |
| STORM DRAIN INLET PROTECTION (SEE DETAIL SHEETS)                       |  |  |
| TEMPORARY ROCK SILT CHECK, TYPE A (SEE NCDOT STD.1633.01)              |  |  |
| TEMPORARY ROCK SILT CHECK, TYPE B (SEE DETAIL SHEETS)                  |  |  |
| TREE PROTECTION (SEE DETAIL SHEETS)                                    |  |  |
| WATTLE (SEE DETAIL SHEETS)                                             |  |  |
| EXISTING CONTOUR                                                       |  |  |
| PROPOSED CONTOUR                                                       |  |  |
| FLOW ARROW                                                             |  |  |

| GENERAL NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |                                                                                        |
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| NPDES GENERAL STORMWATER PERMIT<br>SOIL STABILIZATION TIMEFRAMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                                                                                        |
| SITE DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | STABILIZATION TIME | TIMEFRAME EXCEPTIONS                                                                   |
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 7 DAYS             | NONE                                                                                   |
| HIGH QUALITY WATER (HOW) ZONES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 7 DAYS             | NONE                                                                                   |
| SLOPES STEEPER THAN 3:1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 7 DAYS             | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 14 DAYS            | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.                                          |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 14 DAYS            | NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.                                             |

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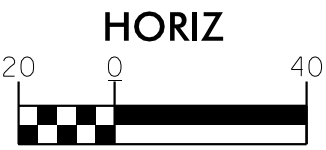
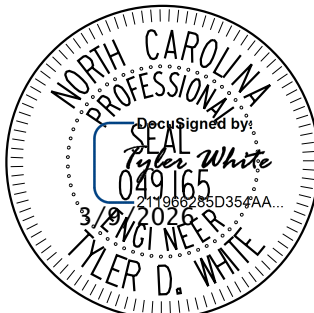
PREPARED IN THE OFFICE OF:

# Kimley»Horn

300 MORRIS STREET, SUITE 200, DURHAM, NC, 27701  
PHONE: (919) 682-3583

PE NO. F-0102

EROSION CONTROL PLANS



|             |          |                                                    |      |
|-------------|----------|----------------------------------------------------|------|
| PROJECT:    |          | LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS |      |
| JOB NUMBER: | 01150019 | SHEET NUMBER:                                      | EC-3 |

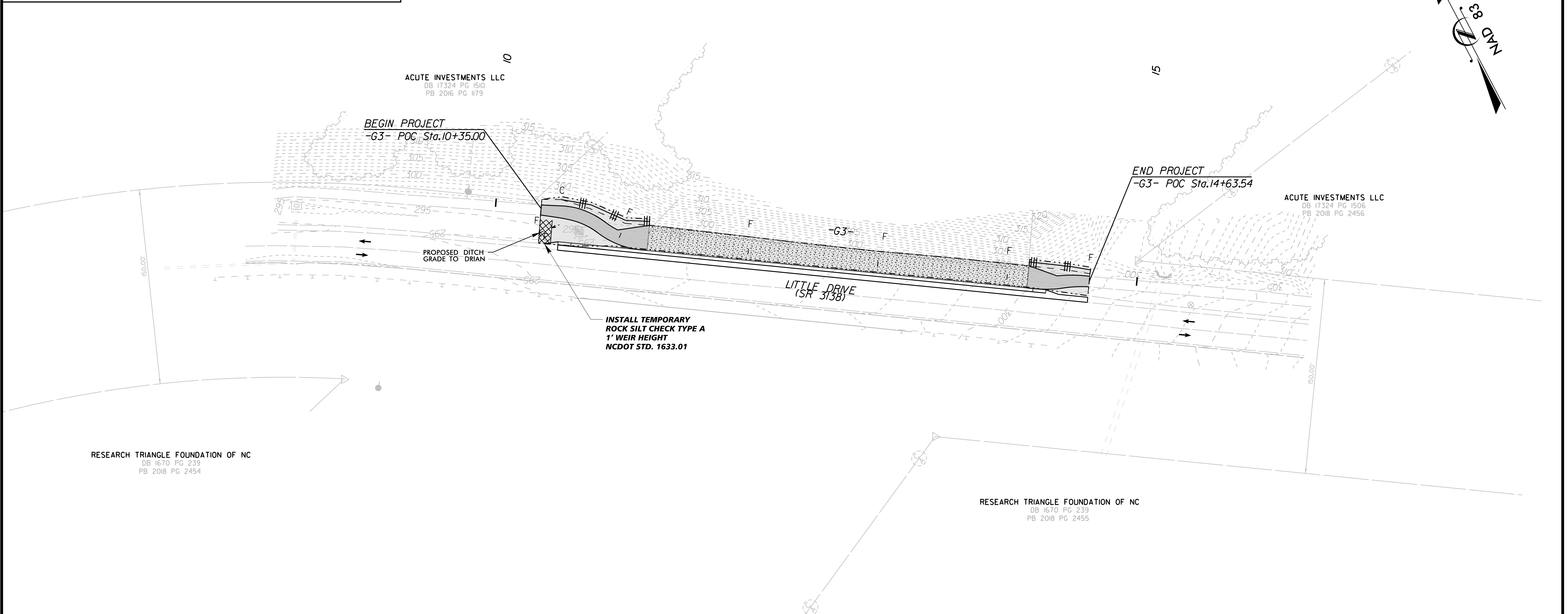
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**LIMITS OF DISTURBANCE SHOWN SHADED ON SHEET EC-1A. SYMBOLOGY IS SHOWN IN LEGEND AND IT IS DELINEATED ON THE REMAINING EROSION CONTROL PLAN SHEETS**

**PIPES SHALL BE INSTALLED IN THE DRY (WITH A MIN. 3 DAYS OF DRY WEATHER DURING INSTALLATION.) CONTACT ENGINEER AND INSPECTOR 24 HOURS PRIOR TO INSTALLATION OF STORMDRAIN SYSTEMS.**

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DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



LEGEND

|                                                                        |         |                                                           |           |
|------------------------------------------------------------------------|---------|-----------------------------------------------------------|-----------|
| CONSTRUCTION LIMIT                                                     | C-----F | LIMITS OF DISTURBANCE (LABELED ON PLANS)                  | -----     |
| TEMPORARY SILT FENCE (SEE DETAIL SHEETS)                               |         | STORM DRAIN INLET PROTECTION (SEE DETAIL SHEETS)          |           |
| SPECIAL SEDIMENT CONTROL FENCE / SILT FENCE OUTLET (SEE DETAIL SHEETS) |         | TEMPORARY ROCK SILT CHECK, TYPE A (SEE NCDOT STD.1633.01) |           |
| TEMPORARY CONSTRUCTION ENTRANCE (SEE NCDOT STD.1607.01)                |         | TEMPORARY ROCK SILT CHECK, TYPE B (SEE DETAIL SHEETS)     |           |
| ROCK PIPE INLET SEDIMENT TRAP, TYPE B (SEE NCDOT STD.1635.02)          |         | TREE PROTECTION (SEE DETAIL SHEETS)                       |           |
| CONCRETE WASHOUT (SEE DETAIL SHEETS)                                   |         | WATTLE (SEE DETAIL SHEETS)                                |           |
| OUTLET PROTECTION (SEE DETAIL SHEETS)                                  |         | EXISTING CONTOUR                                          | ---745--- |
|                                                                        |         | PROPOSED CONTOUR                                          | ---750--- |
|                                                                        |         | FLOW ARROW                                                | ==>       |

GENERAL NOTES

1) CONTRACTOR TO ENSURE THAT ALL ROADWAYS AND CURB LINES ADJACENT TO THIS PROJECT ARE FREE OF DEBRIS, DIRT, AND EQUIPMENT DURING THE PROJECT DURATION UNLESS DIRECTED BY ENGINEER. ANY DAMAGE TO EXISTING CURB AND GUTTER AT CONSTRUCTION ENTRANCES MUST BE REPAIRED AT THE CONTRACTOR'S EXPENSE.  
2) INLET PROTECTION WITHIN ROADWAY TO BE INSTALLED AS NEEDED TO PROTECT INLETS FROM SEDIMENT DURING LAND DISTURBING ACTIVITIES. CONTRACTOR TO ENSURE THAT INLETS ARE PROTECTED AT ALL TIMES.  
3) THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION-CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 7 TO 14 CALENDAR DAYS OF COMPLETION OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY GROUND COVER, DEVICES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION. PERMANENT GROUND COVER WILL BE PROVIDED FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR NO MORE THAN 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION.

NPDES GENERAL STORMWATER PERMIT  
SOIL STABILIZATION TIMEFRAMES

| SITE DESCRIPTION                             | STABILIZATION TIME | TIMEFRAME EXCEPTIONS                                                                   |
|----------------------------------------------|--------------------|----------------------------------------------------------------------------------------|
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES  | 7 DAYS             | NONE                                                                                   |
| HIGH QUALITY WATER (HOW) ZONES               | 7 DAYS             | NONE                                                                                   |
| SLOPES STEEPER THAN 3:1                      | 7 DAYS             | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER                        | 14 DAYS            | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.                                          |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1 | 14 DAYS            | NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.                                             |

3/9/2026

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PHONE: (919) 682-3583

PE NO. F-0102

EROSION CONTROL PLANS

NORTH CAROLINA  
PROFESSIONAL  
ENGINEER  
JULIE D. WHITE  
049163  
3/9/2026  
TYLER D. WHITE

HORIZ

20 0 40

PROJECT:

LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS

JOB NUMBER:

01150019

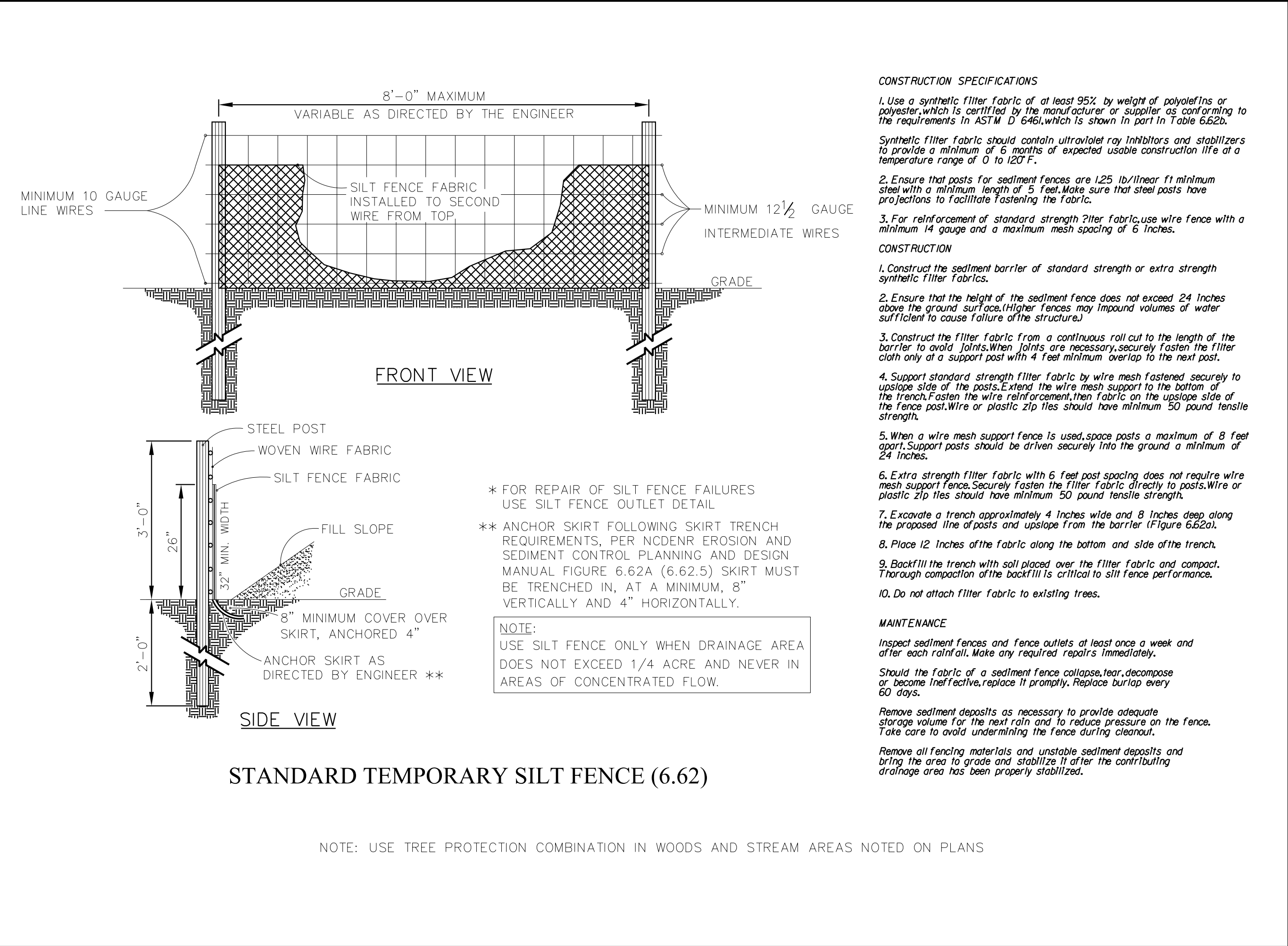
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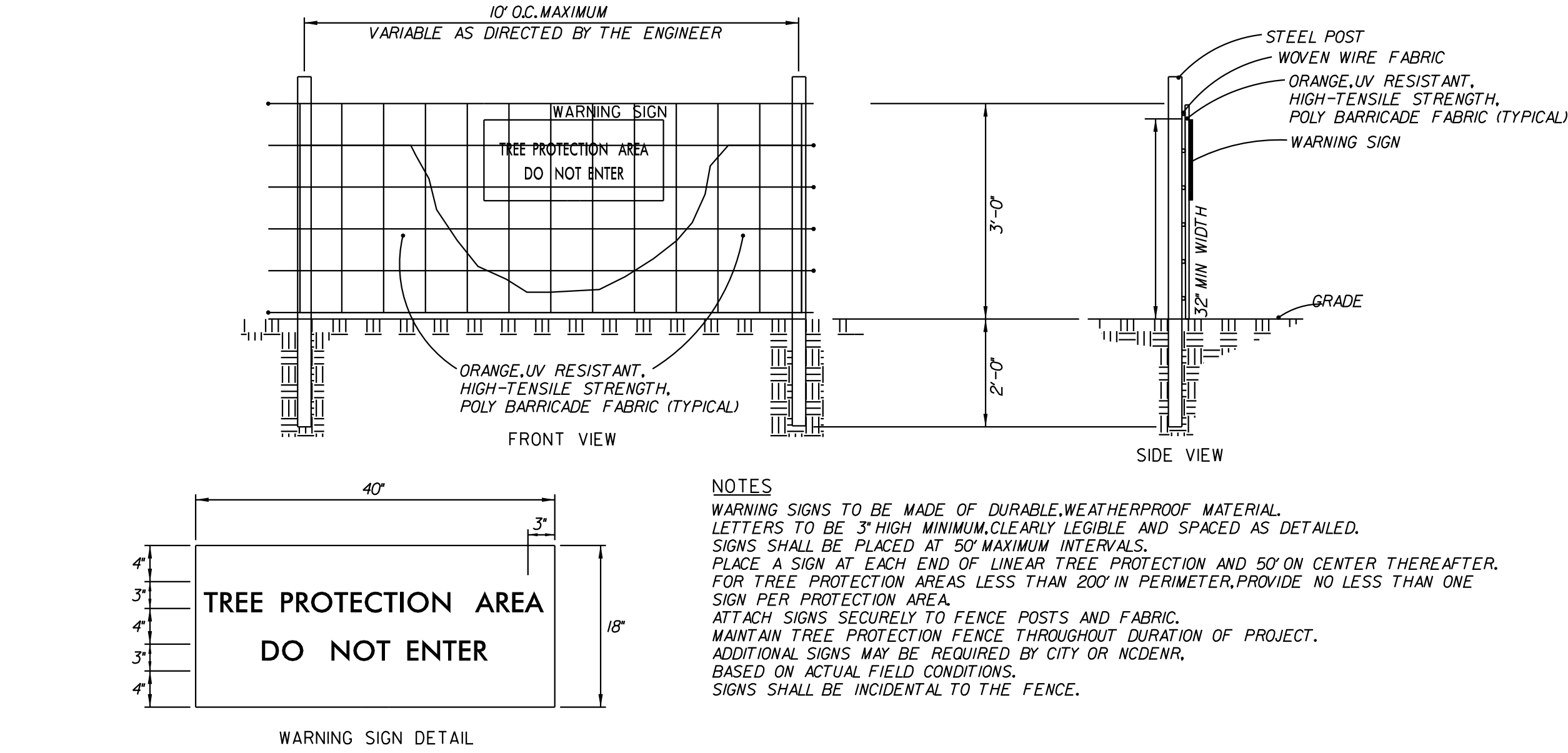
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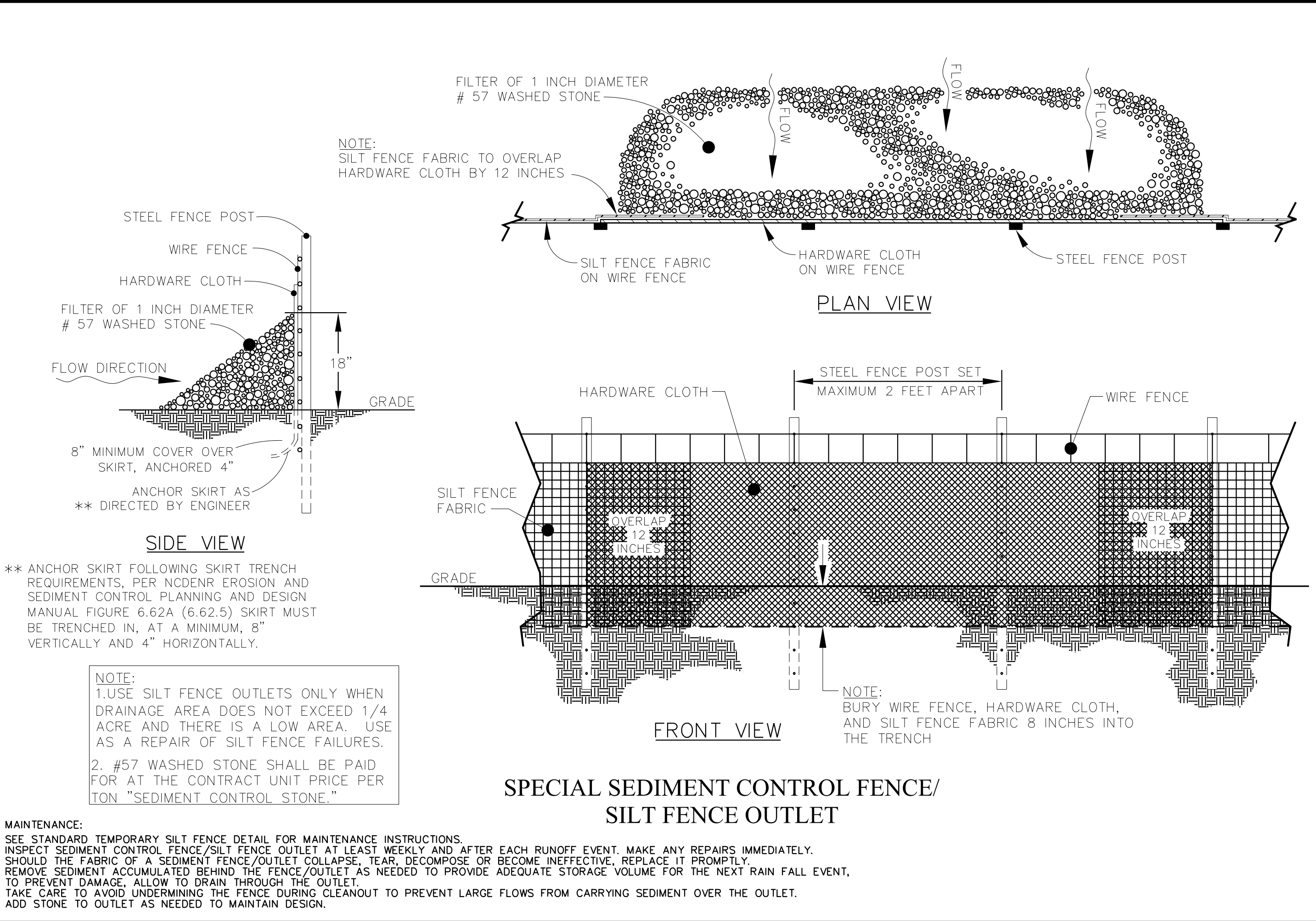


STANDARD TEMPORARY SILT FENCE (6.62)

NOTE: USE TREE PROTECTION COMBINATION IN WOODS AND STREAM AREAS NOTED ON PLANS



TREE PROTECTION DETAIL



SPECIAL SEDIMENT CONTROL FENCE/ SILT FENCE OUTLET

## NPDES GENERAL STORMWATER PERMIT SOIL STABILIZATION TIMEFRAMES

| SITE DESCRIPTION                             | STABILIZATION TIME | TIMEFRAME EXCEPTIONS                                                                   |
|----------------------------------------------|--------------------|----------------------------------------------------------------------------------------|
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES  | 7 DAYS             | NONE                                                                                   |
| HIGH QUALITY WATER (HOW) ZONES               | 7 DAYS             | NONE                                                                                   |
| SLOPES STEEPER THAN 3:1                      | 7 DAYS             | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER                        | 14 DAYS            | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.                                          |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1 | 14 DAYS            | NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.                                             |

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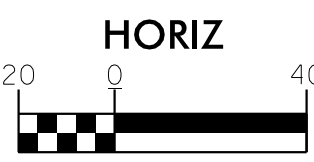
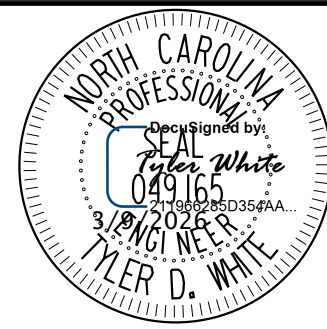
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PE NO. F-0102

EROSION CONTROL DETAILS

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PROJECT:

LABORATORY DRIVE &  
LITTLE DRIVE TRAIL  
IMPROVEMENTS

JOB NUMBER:

01150019

SHEET NUMBER:

EC-6



3/9/2026

# Kimley»»Horn

PE NO. F-0102

Seal of the Professional Engineer, State of North Carolina. The seal is circular with the text "NORTH CAROLINA PROFESSIONAL ENGINEER" around the perimeter. In the center, it says "Seal Signed by:" followed by a signature "Tyler White" and the license number "049165". Below the license number is the expiration date "3/31/2024". At the bottom of the seal, the name "TYLER D. WHITE" is written.



# LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS

01150019

EC-7

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3/9/2026

**GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT**

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

**SECTION E: GROUND STABILIZATION**

| Required Ground Stabilization Timeframes                   |                                                                         |                                                                                                                                                                                                     |
|------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Site Area Description                                      | Stabilize within this many calendar days after ceasing land disturbance | Timeframe variations                                                                                                                                                                                |
| (a) Perimeter dikes, swales, ditches, and perimeter slopes | 7                                                                       | None                                                                                                                                                                                                |
| (b) High Quality Water (HQW) Zones                         | 7                                                                       | None                                                                                                                                                                                                |
| (c) Slopes steeper than 3:1                                | 7                                                                       | If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed                                                                                                               |
| (d) Slopes 3:1 to 4:1                                      | 14                                                                      | -7 days for slopes greater than 50' in length and with slopes steeper than 4:1<br>-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones<br>-10 days for Falls Lake Watershed |
| (e) Areas with slopes flatter than 4:1                     | 14                                                                      | -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones<br>-10 days for Falls Lake Watershed unless there is zero slope                                                        |

**Note:** After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

**GROUND STABILIZATION SPECIFICATION**

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

| Temporary Stabilization                                                                                                                                                                                                                                                                               | Permanent Stabilization                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>Temporary grass seed covered with straw or other mulches and tackifiers</li><li>Hydroseeding</li><li>Rolled erosion control products with or without temporary grass seed</li><li>Appropriately applied straw or other mulch</li><li>Plastic sheeting</li></ul> | <ul style="list-style-type: none"><li>Permanent grass seed covered with straw or other mulches and tackifiers</li><li>Geotextile fabrics such as permanent soil reinforcement matting</li><li>Hydroseeding</li><li>Shrubs or other permanent plantings covered with mulch</li><li>Uniform and evenly distributed ground cover sufficient to restrain erosion</li><li>Structural methods such as concrete, asphalt or retaining walls</li><li>Rolled erosion control products with grass seed</li></ul> |

**POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

**EQUIPMENT AND VEHICLE MAINTENANCE**

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

**LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE**

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

**PAINT AND OTHER LIQUID WASTE**

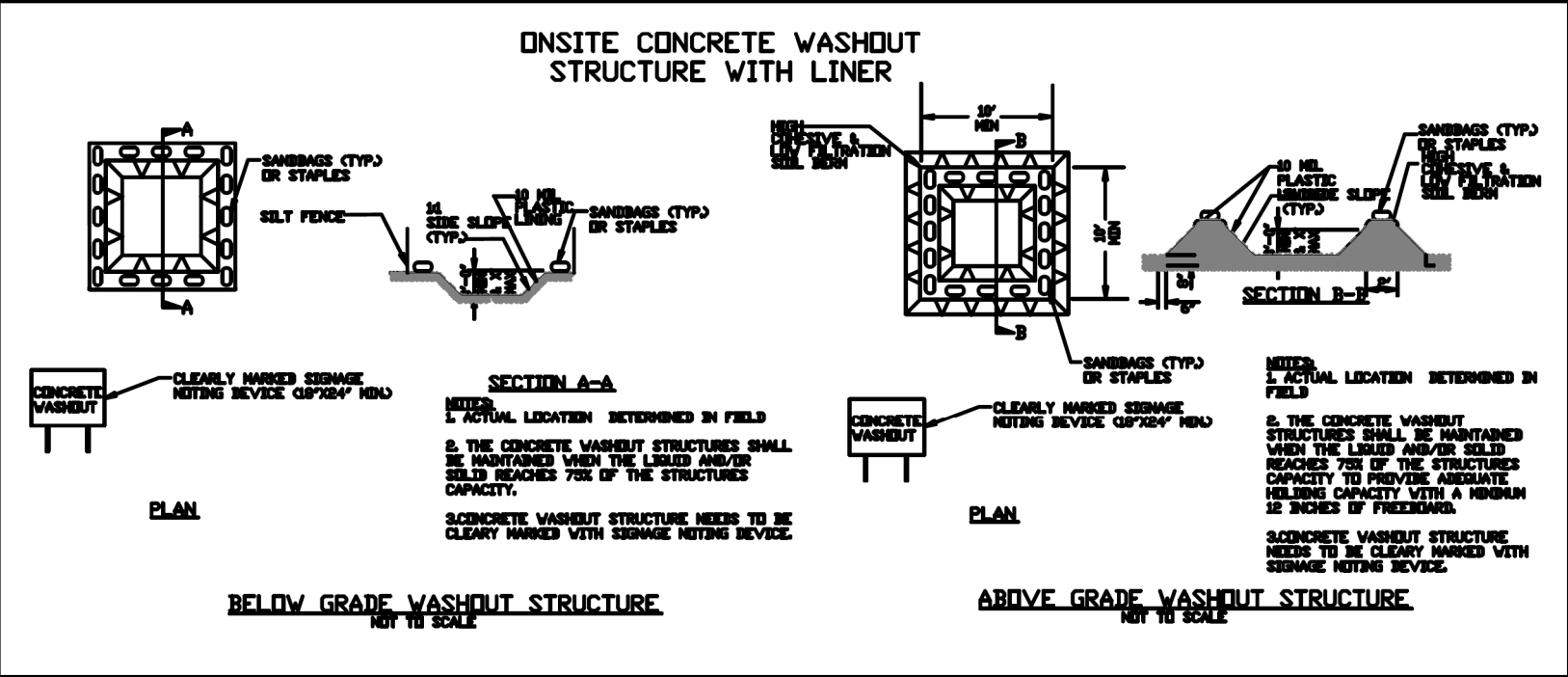
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

**PORTABLE TOILETS**

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

**EARTHEN STOCKPILE MANAGEMENT**

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



**CONCRETE WASHOUTS**

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

**HERBICIDES, PESTICIDES AND RODENTICIDES**

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

**HAZARDOUS AND TOXIC WASTE**

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

**NCG01 GROUND STABILIZATION AND MATERIALS HANDLING**

**EFFECTIVE: 04/01/19**

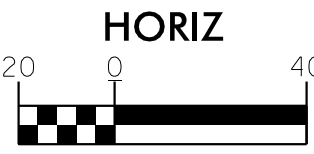
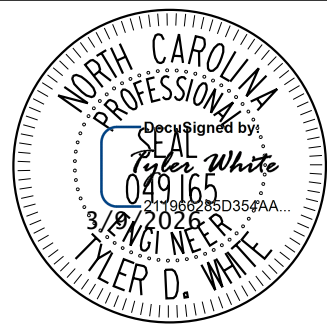
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PHONE: (919) 682-3583  
PE. NO. F-0102

EROSION CONTROL DETAILS



PROJECT:

**LABORATORY DRIVE &  
LITTLE DRIVE TRAIL  
IMPROVEMENTS**

JOB NUMBER:

01150019

SHEET NUMBER:

EC-8

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

- # NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be kept on site and available for inspection at all times during normal business hours.

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- All data used to complete the e-NOI and all inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Department's Environmental Emergency Center personnel at (800) 858-0368.



**NORTH CAROLINA**  
*Environmental Quality*

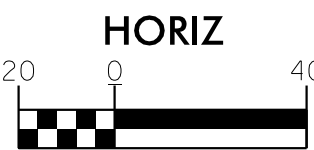
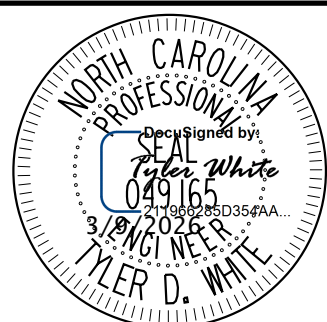
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## EROSION CONTROL DETAILS



PROJECT:

# LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS

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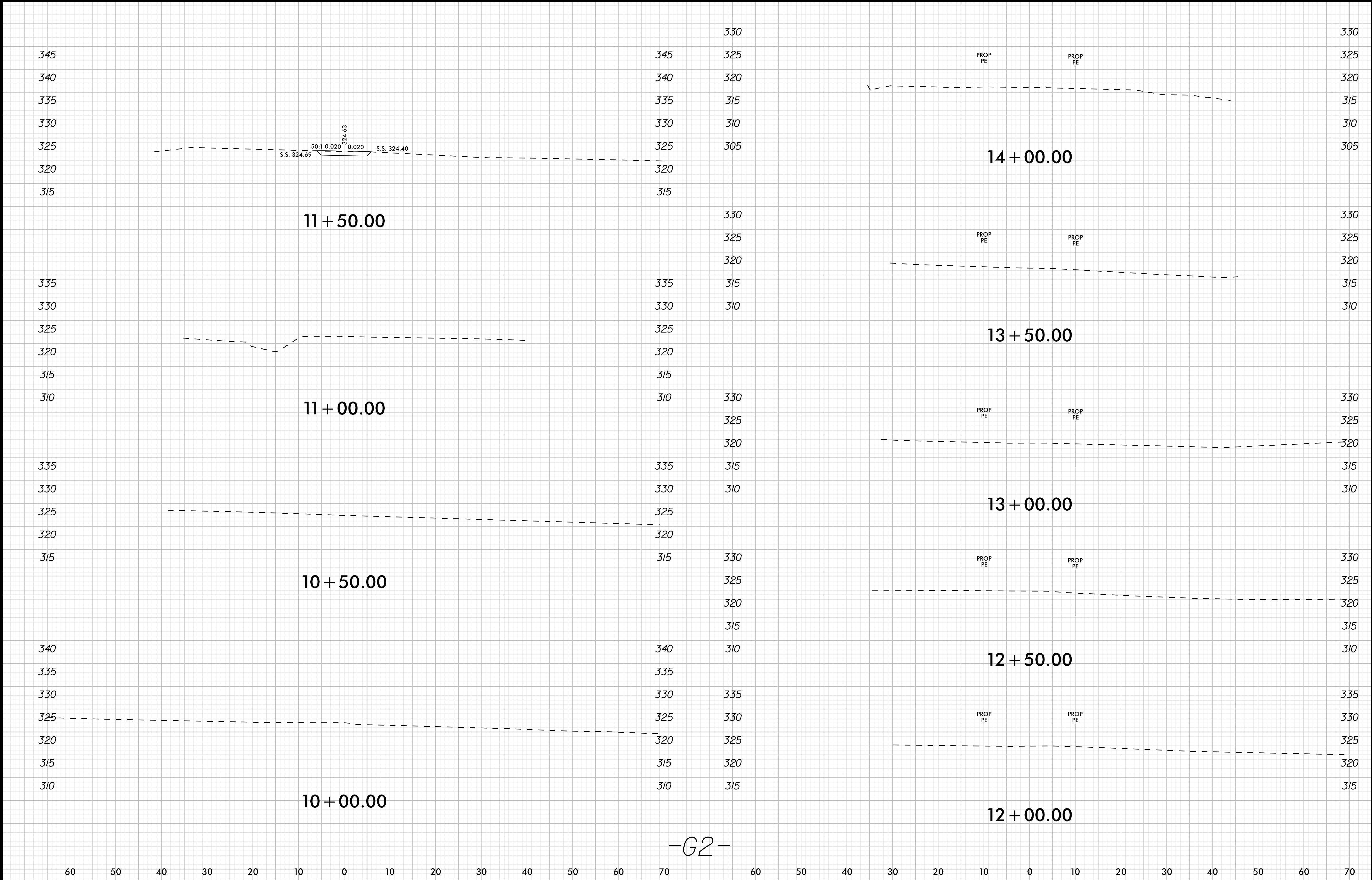
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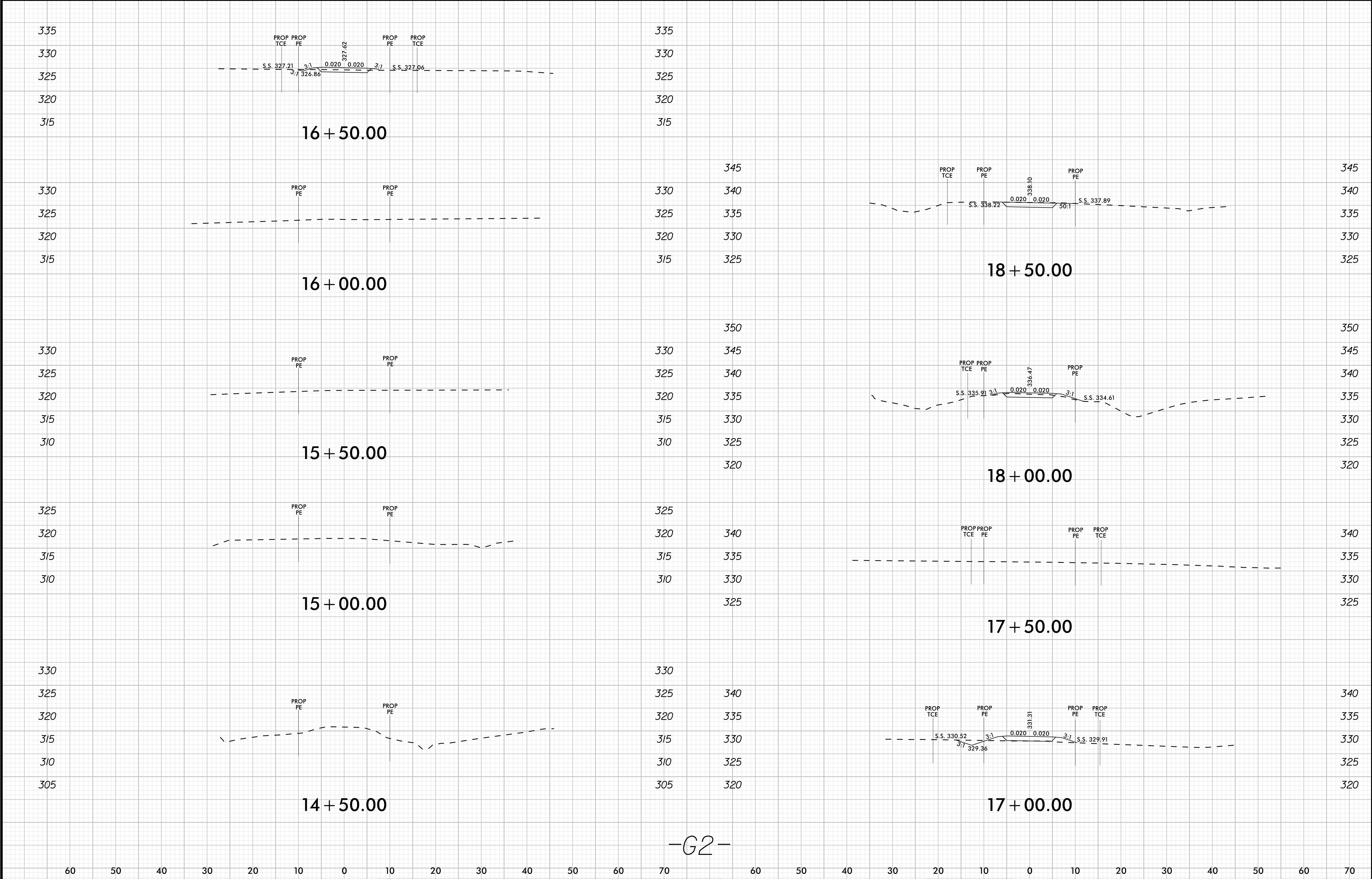
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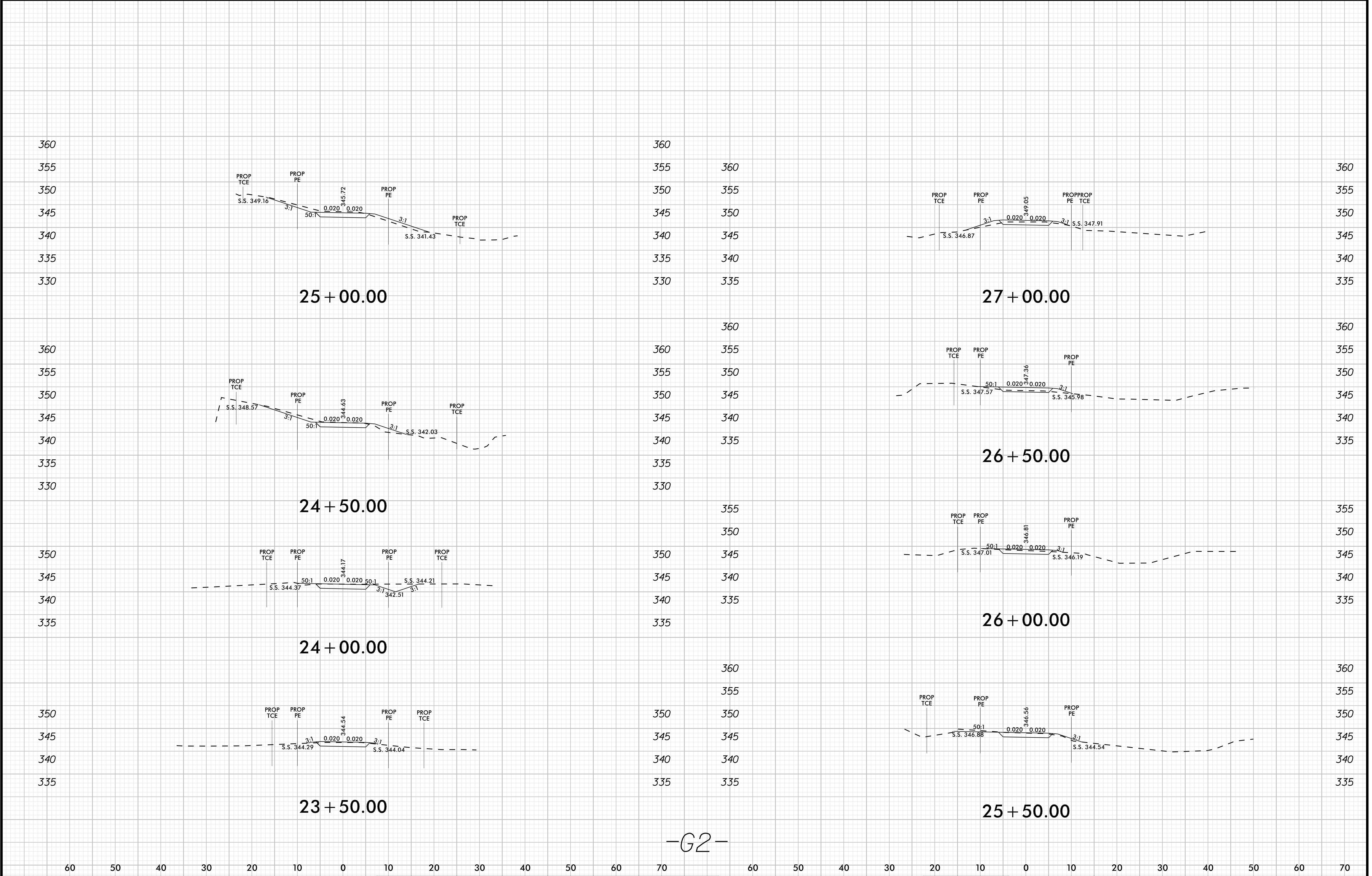
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| <div>REV. NO. 1</div> <div>REVISIONS</div> |  |  | <div>DATE: 04/16/2025</div> <div>DRAWN BY: J. WHITE</div> <div>CHECKED BY: J. WHITE</div> |  |  | <div>PREPARED IN THE OFFICE OF:</div> <div><b>Kimley»Horn</b></div> <div>300 MORRIS STREET, SUITE 200, DURHAM, NC, 27701</div> <div>PHONE: (919) 682-3583</div> <div>PE NO. F-0102</div> |  | <div>CROSS SECTION SHEET</div> |  | <div></div>                     |  | <div></div>                  |  | <div>PROJECT: LABORATORY DRIVE &amp; LITTLE DRIVE TRAIL IMPROVEMENTS</div> |  |
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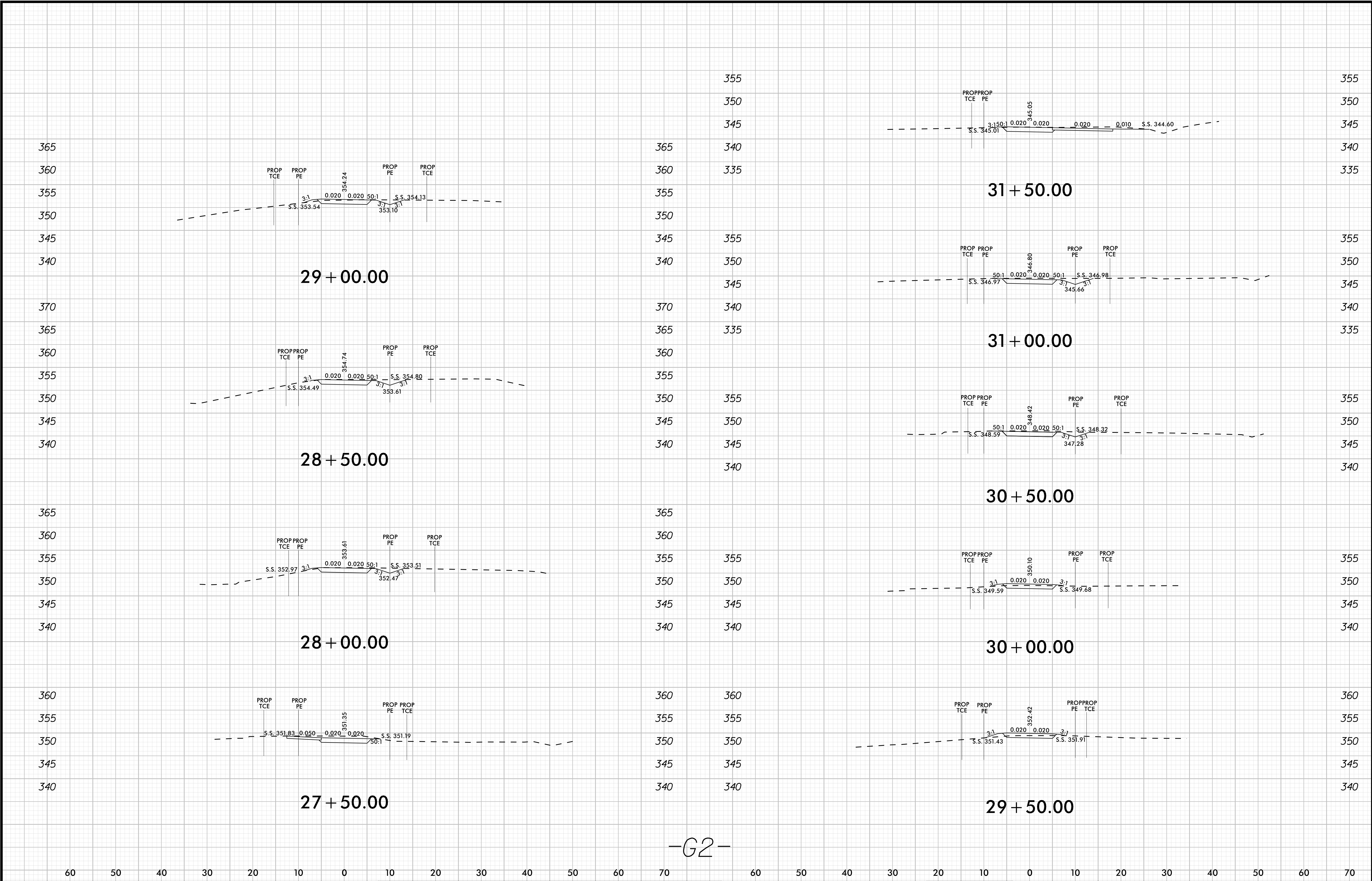
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| <div>REV. No.1</div> <div>REVISIONs</div> <div>This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adoption by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc. Copyright Kimley-Horn and Associates, Inc., 2024</div> |  |  | <div>PREPARED IN THE OFFICE OF:</div> <div>Kimley»Horn</div> <div>300 MORRIS STREET, SUITE 200, DURHAM, NC, 27701<br/>PHONE: (919) 682-3583</div> <div>PE NO. F-0102</div> |  |  | <div>CROSS SECTION SHEET</div> |  |  | <div></div> |  |  | <div></div> |  |  | <div>PROJECT: LABORATORY DRIVE &amp; LITTLE DRIVE TRAIL IMPROVEMENTS</div> <div>JOB NUMBER: 01150019</div> <div>SHEET NUMBER: X-4</div> |  |  |
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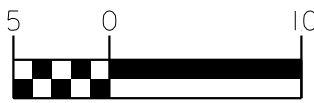
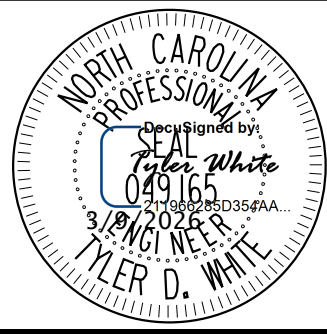
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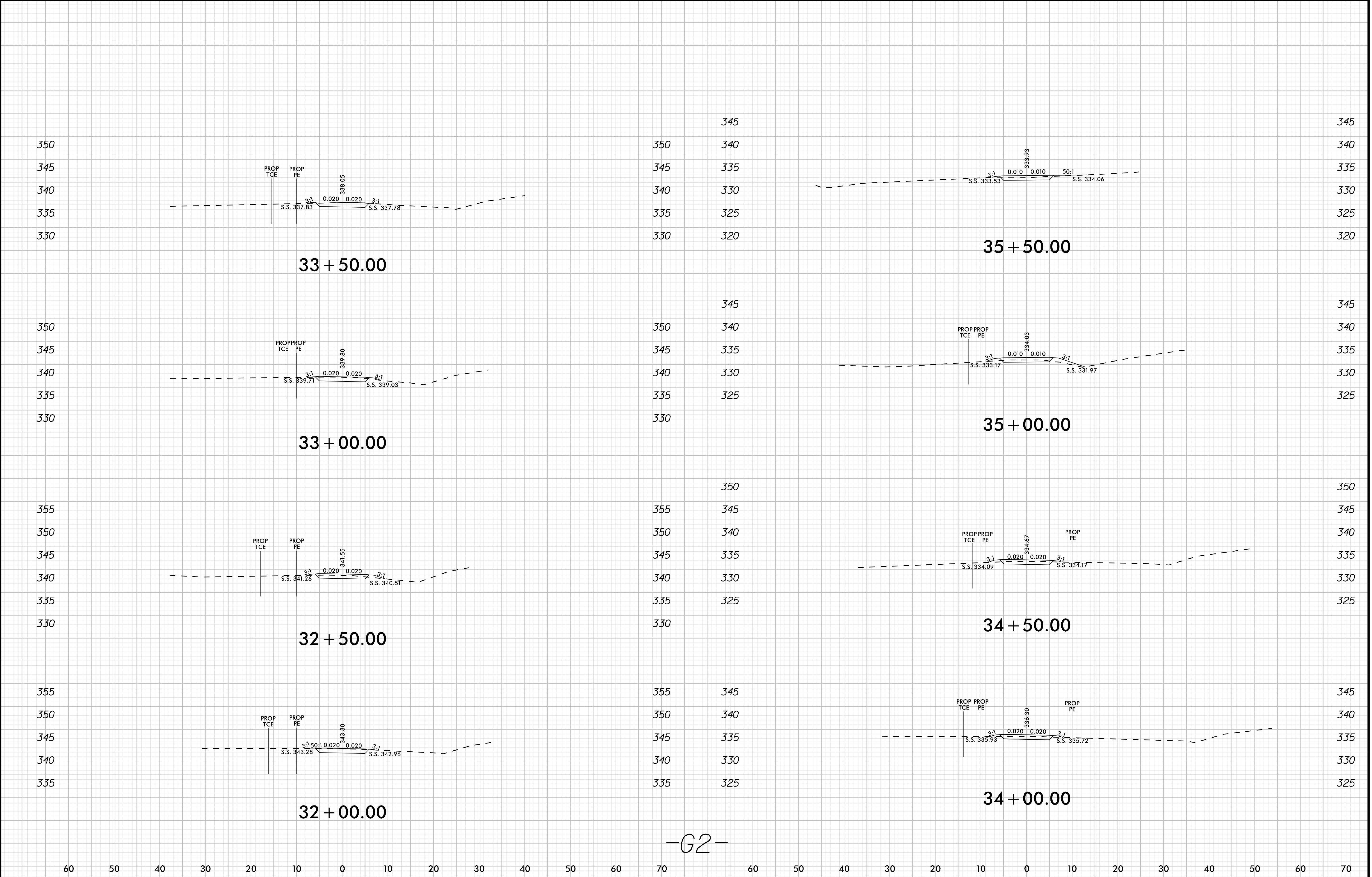
PROJECT: **LABORATORY DRIVE &  
LITTLE DRIVE TRAIL  
IMPROVEMENTS**

JOB NUMBER: 011150019

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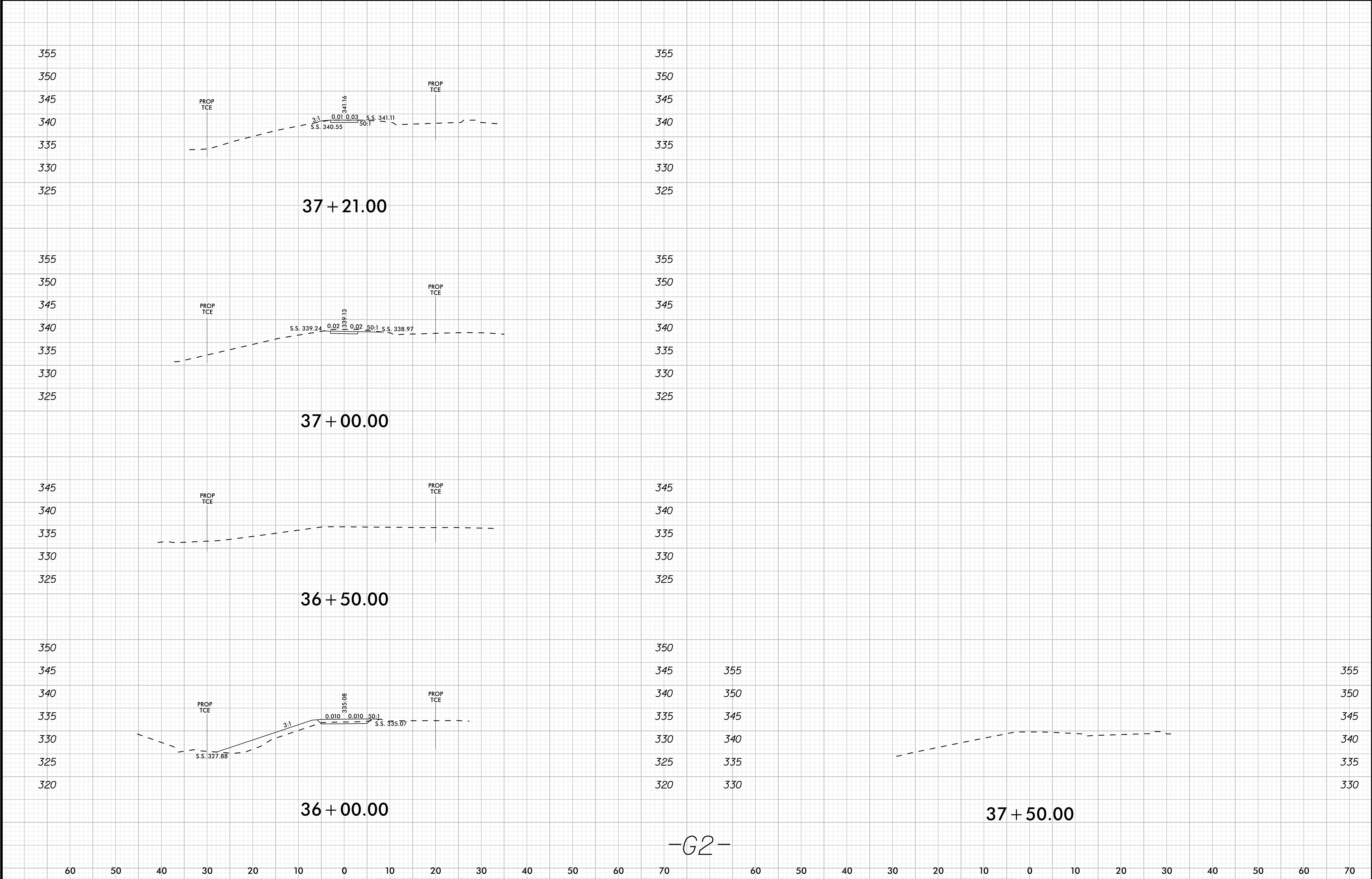
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|                                            |  |                                                                                         |  |                                                                                                                                                                 |  |                                |  | <div>JOB NUMBER: 01150019</div> |  | <div>SHEET NUMBER: X-6</div> |  |                                                                            |  |

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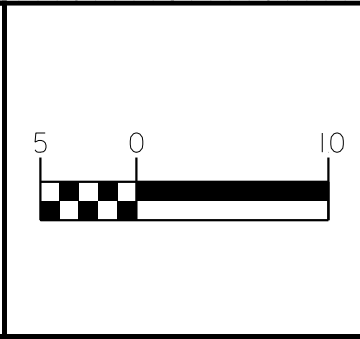
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CROSS SECTION SHEET



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| PROJECT:    | LABORATORY DRIVE & LITTLE DRIVE TRAIL IMPROVEMENTS |                   |
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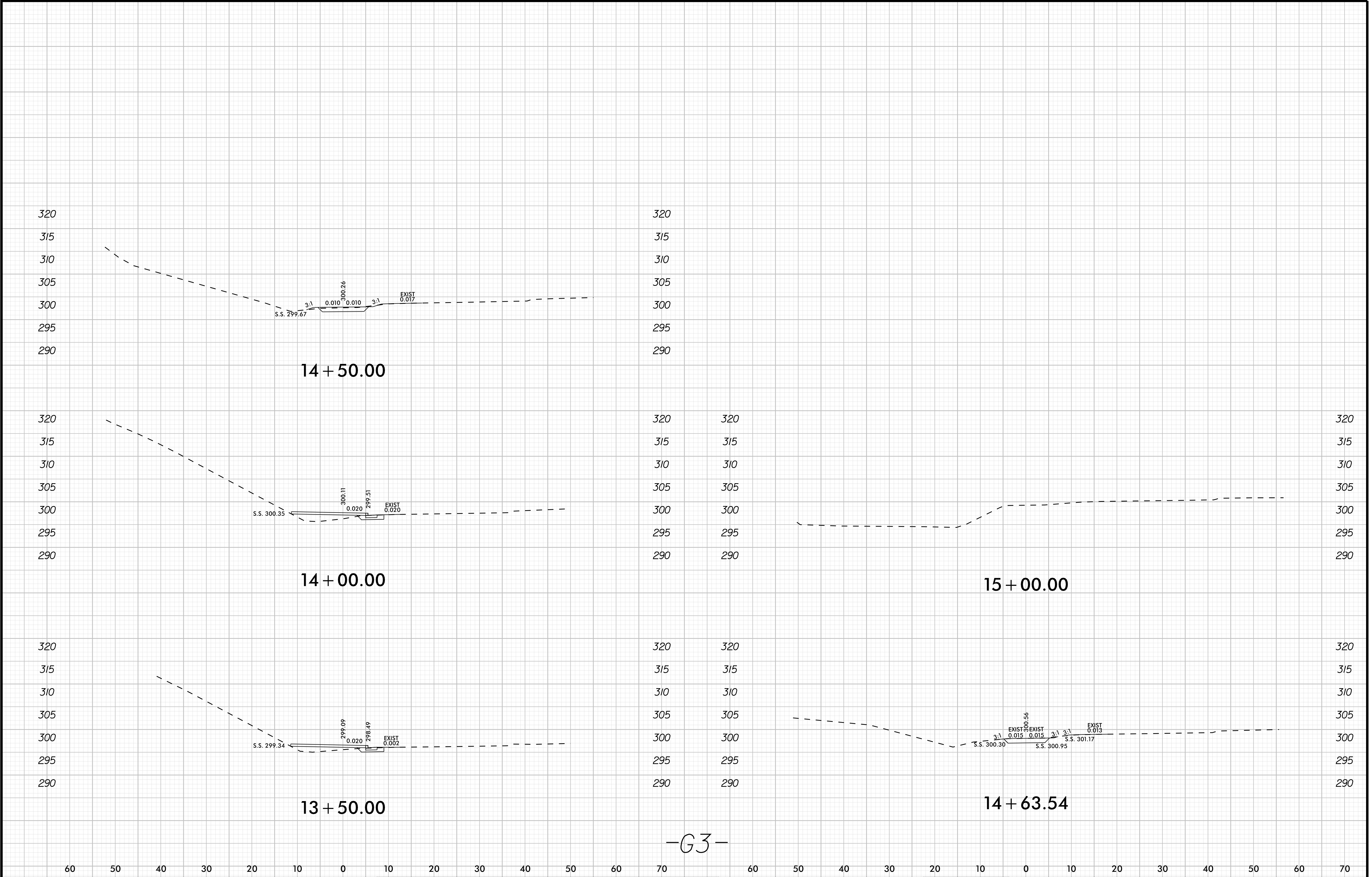
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|  |  |  |  |  |  | PREPARED IN THE OFFICE OF:<br><div><div>Kimley»Horn</div><div>300 MORRIS STREET, SUITE 200, DURHAM, NC, 27701<br/>PHONE: (919) 682-3583</div><div>PE NO. F-0102</div></div> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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K:\OUR\_Roadway\01150019 - 2023 RTP Trail\Roadway\Proj\Cross Sections\2023 RTP Trail\_Lay\_xpl\_G3.dgn

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| <div>REV. No.1</div> <div>REVISIONs</div> |  |  | <div>DATEs</div> <div>DRAWN BYs</div> <div>CHECKED BYs</div> |  |  | <div>PREPARED IN THE OFFICE OF:</div> <div>Kimley»Horn</div> <div>300 MORRIS STREET, SUITE 200, DURHAM, NC, 27701</div> <div>PHONE: (919) 682-3583</div> <div>PE. NO. F-0102</div> |  | <div>CROSS SECTION SHEET</div> |  | <div></div>                                 |  | <div></div>                             |  | <div>PROJECT:</div> <div>LABORATORY DRIVE &amp; LITTLE DRIVE TRAIL IMPROVEMENTS</div> |  |
|                                           |  |  |                                                              |  |  |                                                                                                                                                                                    |  |                                |  | <div>JOB NUMBER:</div> <div>011150019</div> |  | <div>SHEET NUMBER:</div> <div>X-9</div> |  |                                                                                       |  |