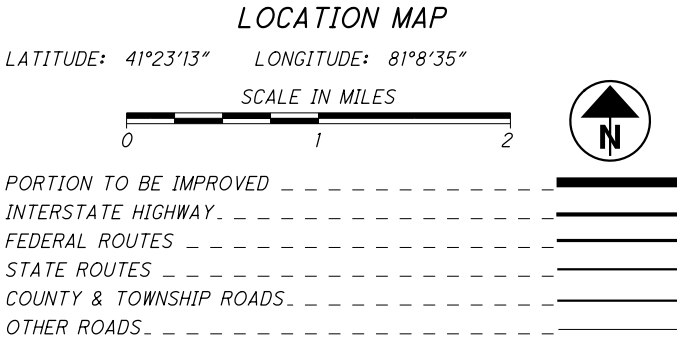
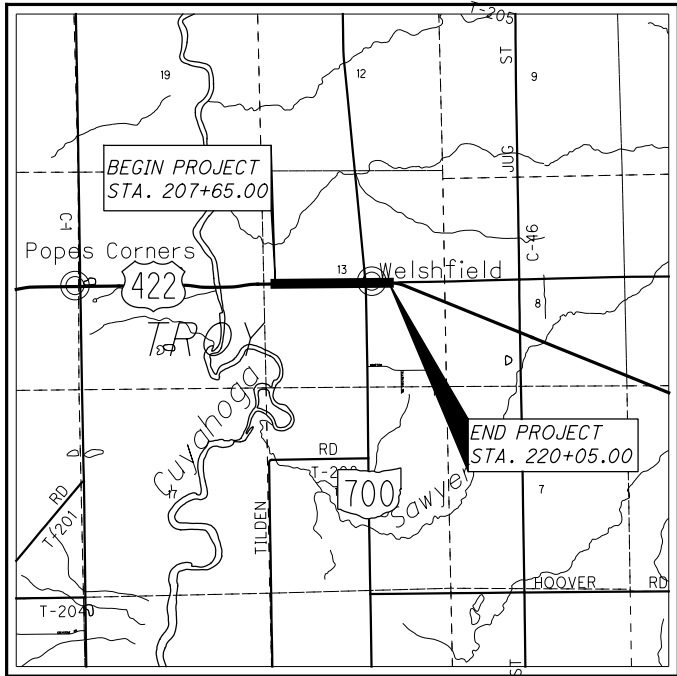


STATE OF OHIO  
DEPARTMENT OF TRANSPORTATION  
**GEA-422-13.04**  
TROY TOWNSHIP  
GEAUGA COUNTY

**PROJECT DESCRIPTION**  
CONSTRUCT 0.23 MILE OF SAFETY IMPROVEMENT AT  
U.S. 422 AND S.R. 700 INTERSECTION INCLUDING  
WIDENING TO ADD LEFT TURN LANES TO EB AND  
WB U.S. 422 AND RELATED TRAFFIC SIGNAL AND  
CONTROL UPDATES.

**EARTH DISTURBED AREA**  
PROJECT EARTH DISTURBED AREA: 0.73 ACRES  
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.25 ACRES  
NOTICE OF INTENT EARTH DISTURBED AREA: N/A



**DESIGN DESIGNATION**

|                                        |                 |                 |
|----------------------------------------|-----------------|-----------------|
|                                        | <u>U.S. 422</u> | <u>S.R. 700</u> |
| CURRENT ADT (2019)                     | 15,230          | 4,050           |
| DESIGN YEAR ADT (2039)                 | 17,240          | 5,340           |
| DESIGN HOURLY VOLUME (2039)            | 1,540           | 480             |
| DIRECTIONAL DISTRIBUTION               | 66%             | 63%             |
| TRUCKS (24 HOUR B&C)                   | 1,550           | 160             |
| DESIGN SPEED                           | 45 MPH          | 45 MPH          |
| LEGAL SPEED                            | 45 MPH          | 45 MPH          |
| DESIGN FUNCTIONAL CLASSIFICATION:      |                 |                 |
| 03 PRINCIPAL ARTERIAL (RURAL) U.S. 422 |                 |                 |
| 05 MAJOR COLLECTOR (RURAL) S.R. 700    |                 |                 |
| NHS PROJECT                            | YES             |                 |

**DESIGN EXCEPTIONS**

|                          |                      |                       |
|--------------------------|----------------------|-----------------------|
| <u>DESIGN FEATURE</u>    | <u>SHEET NUMBERS</u> | <u>APPROVAL DATES</u> |
| MAXIMUM GRADE (U.S. 422) | 17 - 18              | 6/13/16               |

**UNDERGROUND UTILITIES**  
CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.

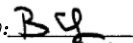
 **Call Before You Dig**  
**1-800-362-2764**  
(Non-members must be called directly)

**OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE**  
**1-800-925-0988**

PLAN PREPARED BY:  
BURGESS & NIPLÉ  
5085 REED ROAD  
COLUMBUS, OH 43220

**ENGINEERS SEAL:**



SIGNED:   
DATE: 11/16/16

**INDEX OF SHEETS:**

|                        |         |
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| GENERAL NOTES          | 5 - 7   |
| MAINTENANCE OF TRAFFIC | 8 - 11  |
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| SUBSUMMARIES           | 15 - 16 |
| PLAN AND PROFILE       | 17 - 19 |
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| TRAFFIC CONTROL        | 34 - 38 |
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| RIGHT OF WAY           | 50 - 61 |

**2016 SPECIFICATIONS**

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATES.

| STANDARD CONSTRUCTION DRAWINGS |         |           |         |          |          |  |  | SUPPLEMENTAL SPECIFICATIONS |          | SPECIAL PROVISIONS |  |
|--------------------------------|---------|-----------|---------|----------|----------|--|--|-----------------------------|----------|--------------------|--|
| BP-3.1                         | 7/18/14 | DM-4.3    | 1/15/16 | TC-21.20 | 7/15/16  |  |  | SS 875                      | 1/17/14  |                    |  |
| BP-4.1                         | 7/19/13 | DM-4.4    | 1/15/16 | TC-22.20 | 1/17/14  |  |  | SS 809                      | 4/15/16  |                    |  |
| BP-5.1                         | 7/19/13 |           |         | TC-41.20 | 10/18/13 |  |  | SS 800                      | 10/20/17 |                    |  |
| BP-7.1                         | 7/18/14 | RM-1.1    | 7/18/14 | TC-41.40 | 10/18/13 |  |  | SS 832                      | 1/17/14  |                    |  |
|                                |         |           |         | TC-42.20 | 10/18/13 |  |  |                             |          |                    |  |
| CB-1.1                         | 1/15/16 | HL-30.11  | 7/15/16 | TC-52.10 | 10/18/13 |  |  |                             |          |                    |  |
| CB-2.1                         | 1/15/16 | HL-30.22  | 1/17/14 | TC-52.20 | 7/15/16  |  |  |                             |          |                    |  |
| CB-2.2                         | 1/15/16 |           |         | TC-65.10 | 1/17/14  |  |  |                             |          |                    |  |
|                                |         | MT-97.10  | 7/18/14 | TC-65.11 | 7/15/16  |  |  |                             |          |                    |  |
| HW-2.2                         | 1/15/16 | MT-97.12  | 7/18/14 | TC-71.10 | 7/15/16  |  |  |                             |          |                    |  |
|                                |         | MT-97.20  | 7/15/16 | TC-81.21 | 7/15/16  |  |  |                             |          |                    |  |
| MH-1.1                         | 1/15/16 | MT-99.20  | 7/19/13 | TC-83.10 | 7/15/16  |  |  |                             |          |                    |  |
|                                |         | MT-101.90 | 7/17/15 | TC-83.20 | 7/15/16  |  |  |                             |          |                    |  |
| DM-1.1                         | 1/15/16 | MT-102.20 | 7/18/14 | TC-85.10 | 7/15/16  |  |  |                             |          |                    |  |
| DM-1.2                         | 1/18/13 | MT-105.10 | 7/19/13 | TC-85.20 | 1/15/16  |  |  |                             |          |                    |  |
| DM-3.1                         | 1/18/13 | MT-120.00 | 7/19/13 |          |          |  |  |                             |          |                    |  |

APPROVED \_\_\_\_\_  
DATE 10-03-17 DISTRICT DEPUTY DIRECTOR

APPROVED \_\_\_\_\_  
DATE \_\_\_\_\_ DIRECTOR, DEPARTMENT OF TRANSPORTATION

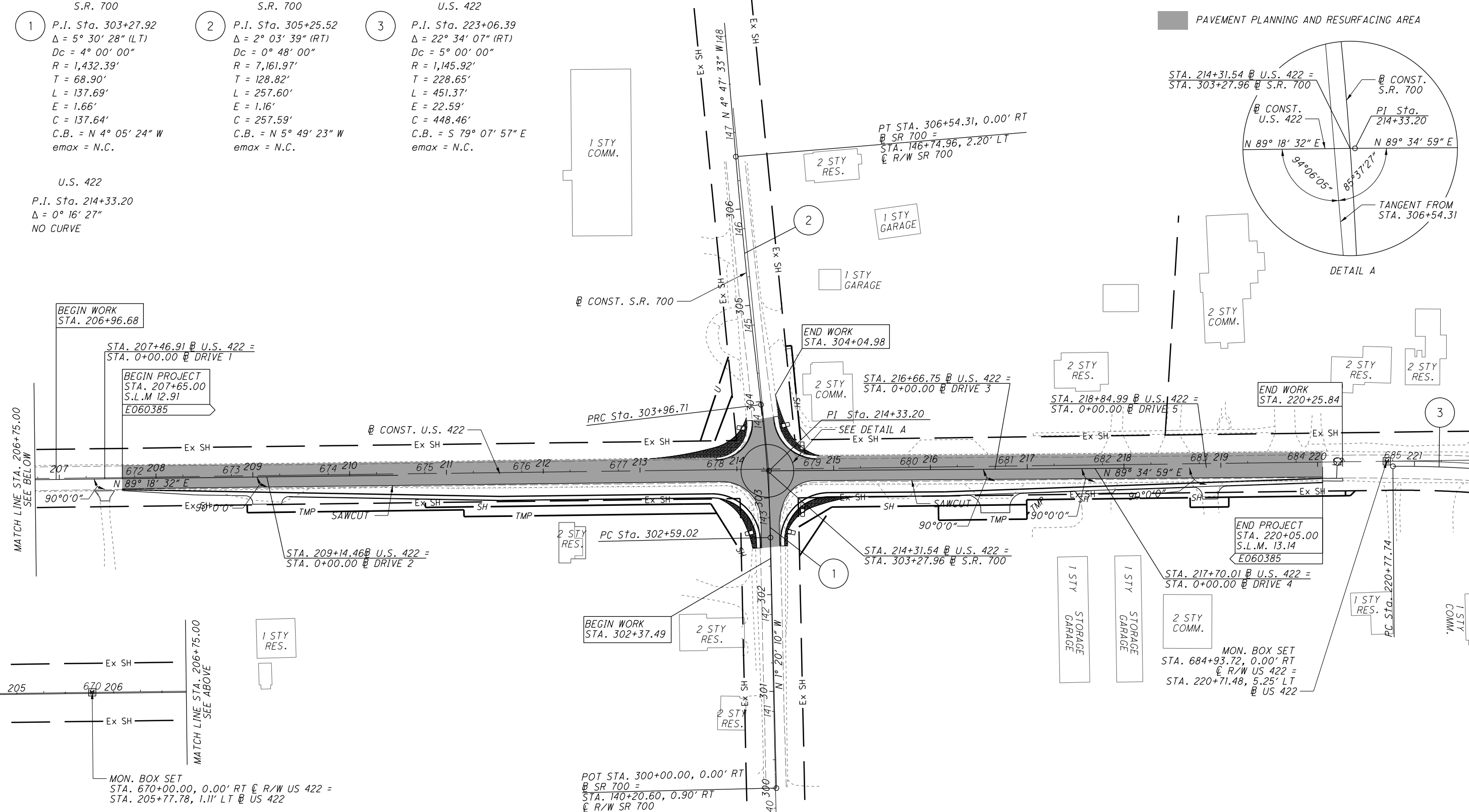
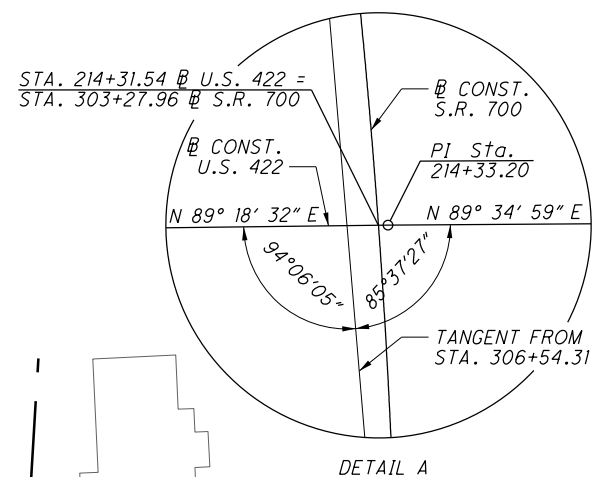
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|                          |         |
|--------------------------|---------|
| FEDERAL PROJECT NO.      | E060385 |
| PID NO.                  | 80963   |
| CONSTRUCTION PROJECT NO. |         |
| RAILROAD INVOLVEMENT     | NONE    |
| GEA-422-13.04            |         |
| 1                        | 61      |

U.S. 422

*P.I. Sta.* 223+06.39  
 $\Delta = 22^{\circ} 34' 07''$  (RT)  
 $Dc = 5^{\circ} 00' 00''$   
 $R = 1,145.92'$   
 $T = 228.65'$   
 $L = 451.37'$   
 $E = 22.59'$   
 $C = 448.46'$   
 $C.B. = S 79^{\circ} 07' 57'' E$   
 $emax = N.C.$

U.S. 422  
P.I. Sta. 214+33.20  
 $\Delta = 0^\circ 16' 27''$   
NO CURVE

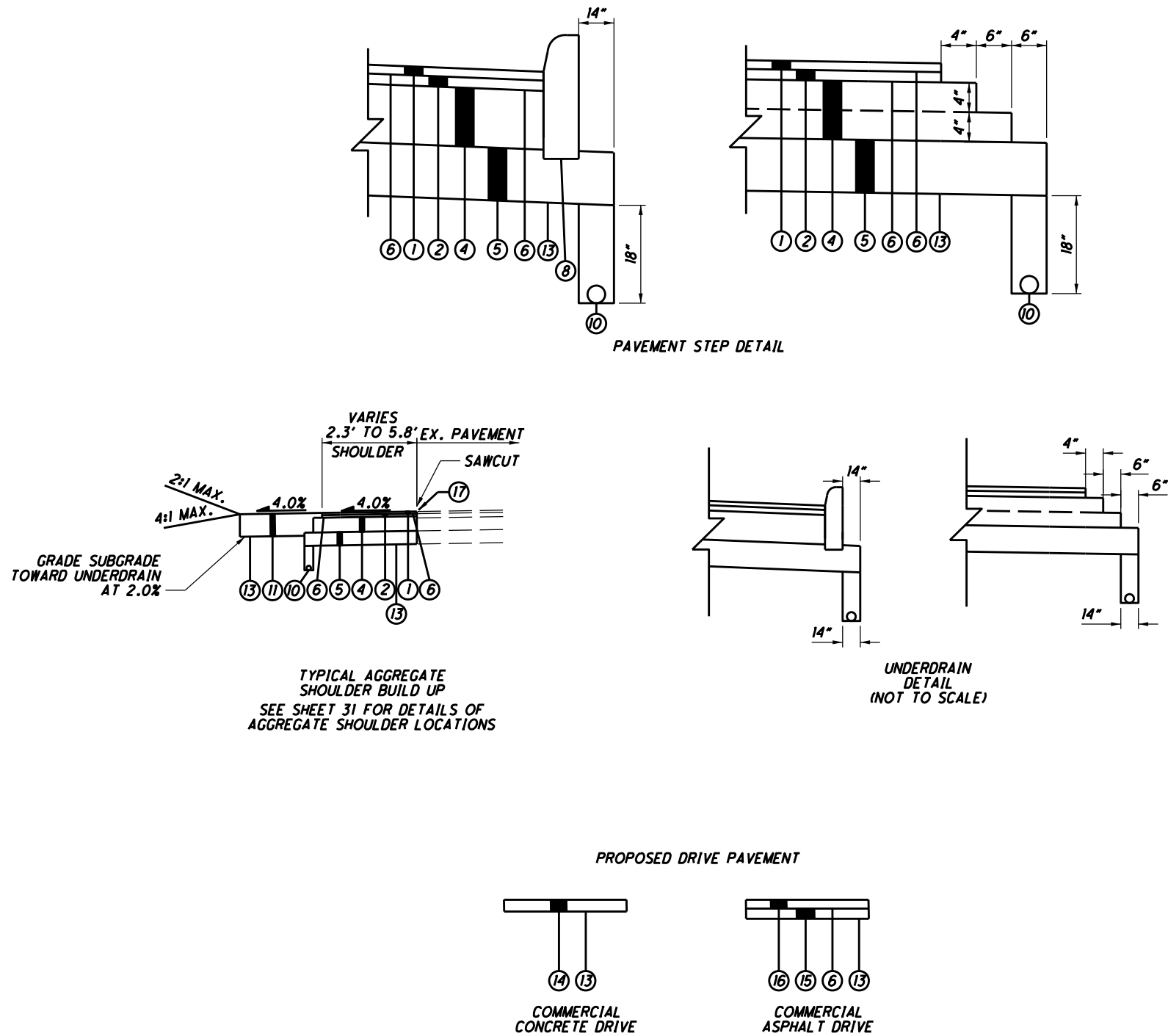


| NO. | STATION   | OFFSET    | ROADWAY  | NORTHING   | EASTING     | ELEVATION | DESCRIPTION                                                                                                             |
|-----|-----------|-----------|----------|------------|-------------|-----------|-------------------------------------------------------------------------------------------------------------------------|
| CP1 | 214+03.43 | 22.61' RT | U.S. 422 | 629635.003 | 2341024.113 | 1221.54   | 3/4" IRON PIN STAMPED "PRIMARY PROJECT CONTROL"                                                                         |
| CP2 | 220+75.61 | 20.39' LT | U.S. 422 | 629683.032 | 2341695.861 | 1242.03   | 3/4" IRON PIN STAMPED "AZIMUTH MARK"                                                                                    |
| CP3 | 226+43.32 | 21.97' LT | U.S. 422 | 629555.388 | 2342252.611 | 1244.74   | MAG SPIKE SET                                                                                                           |
| CP4 | 208+86.78 | 18.23' LT | U.S. 422 | 629669.613 | 2340507.015 | 1184.04   | 3/4" IRON PIN                                                                                                           |
| CP5 | 202+10.45 | 17.57' LT | U.S. 422 | 629660.795 | 2339830.736 | 1135.44   | 3/4" IRON PIN                                                                                                           |
| BMI | 214+58.95 | 48.03' RT | U.S. 422 | 629610.125 | 2341079.711 | 1221.90   | CHISED SQUARE ON THE SE CORNER OF THE CONCRETE APRON OF A SQUARE CATCH BASIN, ON THE SE CORNER OF U.S. 422 AND S.R. 700 |
| BM2 | 219+49.90 | 33.42' LT | U.S. 422 | 629695.148 | 2341570.056 | 1243.77   | BENCHTIE IN A POWER POLE ON THE EAST SIDE OF THE PROPERTY FOR 13962 MAIN MARKET ROAD, NORTH SIDE OF U.S. 422            |

THE COORDINATE VALUES SHOWN HEREIN ARE CONVERTED FROM THE OHIO STATE PLANE COORDINATE SYSTEM, NORTH ZONE. THE VALUES WERE ESTABLISHED USING ODOT MAPPING AND SURVEY SPECIFICATIONS UTILIZING THE ODOT VRS METHOD. A PROJECT ADJUSTMENT FACTOR TO CONVERT FROM GROUND TO GRID = COORDINATE VALUE DIVIDED BY 1.00009849, SCALED ABOUT COORDINATE VALUE 0,0. HORIZONTAL DATUM IS NADA 83 (NRS 2011) ELLIPSOID GRS80. ORTHOMETRIC HEIGHT DATUM BASED ON NAVD 88, GEOID 12A. USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH ODOT CMS 623.



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TYPICAL SECTIONS

GEA-422-13.04

CALCULATED  
JMC  
CHECKED  
ALR

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UTILITY COORDINATION

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR PROSPECTIVE OWNERS:

GAS  
DOMINION EAST OHIO  
ATTN: BRYAN D. DAYTON  
320 SPRINGSIDE DR.  
SUITE 320  
AKRON, OH 44333  
OFFICE: 330-664-2409  
FAX: 888-504-0126  
relocation@dom.com

ELECTRIC  
FIRST ENERGY  
ATTN: RALPH DELLIGATTI  
7755 AUBURN ROAD  
PAINSEVILLE, OHIO 44077  
OFFICE: 440-358-4991  
rndelligattti@firstenergycorp.com

TELEPHONE  
AT&T OHIO  
ATTN: JAMES JANIS  
13630 LORAIN AVENUE  
2<sup>ND</sup> FLOOR  
CLEVELAND, OH 44111  
OFFICE: 216-476-6142  
FAX: 216-476-6013

TRAFFIC  
ODOT DISTRICT 12 TRAFFIC  
ATTN: TONY TOTH, P.E.  
DISTRICT TRAFFIC ENGINEER  
5500 TRANSPORTATION BLVD.  
GARFIELD HEIGHTS, OH 44125  
OFFICE: 216-584-2220  
FAX: 216-584-2278

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 2 OF THE PLAN FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL  
POSITIONING METHOD: ODOT VRS

VERTICAL POSITIONING  
ORTHOMETRIC HEIGHT DATUM: NAVD88  
GEOID: GEOID12A

HORIZONTAL POSITIONING  
REFERENCE FRAME: NAD83(CONUS)  
ELLIPSOID: GRS80  
MAP PROJECTION: LAMBERT CONFORMAL CONIC 2 PARALLEL  
COORDINATE SYSTEM: OHIO STATE PLANE NORTH ZONE  
COMBINED SCALE FACTOR: 0.9999015200  
PROJECT ADJUSTMENT FACTOR: 1.00009849  
ORIGIN OF COORDINATE SYSTEM: 0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH ODOT CMS 623.

UNITS ARE IN U.S. SURVEY FEET. USE THE FOLLOWING CONVERSION FACTOR:  
1 METER = 3.280833333 U.S. SURVEY FEET

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

ROUNDING

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS SECTIONS EVEN THOUGH OTHERWISE SHOWN.

EXISTING PLANS

EXISTING PLANS ENTITLED GEA-422-8.90-12.8 (1921), GEA-422-6.76-11.73 (1921), GEA-422-9.34, GEA-422-17.107, GEA-422-13.04-16.99, SIGNAL INSTALLATION (1/25/2013 US 422 AND SR 700), AND GEA-422-0.00-2.71 (1928) MAY BE INSPECTED IN THE ODOT DISTRICT 12 OFFICE IN GARFIELD HEIGHTS.

CLEARING AND GRUBBING

REMOVE ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS UNDER THE LUMP SUM BID FOR ITEM 201, CLEARING AND GRUBBING. THE FOLLOWING IS AN APPROXIMATE ESTIMATE OF THE NUMBER OF TREES AND STUMPS TO BE REMOVED.

| SIZES | NO. TREES | NO. STUMPS | TOTAL |
|-------|-----------|------------|-------|
| 18"   | 7         | 0          | 7     |
| 30"   | 1         | 0          | 1     |

MONUMENT ASSEMBLIES

CONSTRUCT MONUMENT ASSEMBLY IN ACCORDANCE WITH THE DETAILS SHOWN ON THE STANDARD CONSTRUCTION DRAWINGS AND AT THE LOCATIONS SHOWN ON SHEET 2 AND 52.

SEE SHEET 52 FOR QUANTITY.

ITEM 204 – PROOF ROLLING

THE FOLLOWING QUANTITY IS PROVIDED IN THE GENERAL SUMMARY TO ADDRESS LOCATIONS REQUIRING PROOF ROLLING.

ITEM 204 – PROOF ROLLING 2 HOUR

ITEM 608 CURB RAMP, AS PER PLAN

PROPOSED CURB RAMPS SHALL BE CONSTRUCTED PER SECTION 608 OF THE CURRENT ODOT CMS AND BP-7.1 EXCEPT CONCRETE THICKNESS SHALL BE 8" OVER ENTIRE RAMP CONSTRUCTED ON 6" OF ITEM 304 – AGGREGATE BASE CONSTRUCTED PER SECTION 304 OF THE CURRENT ODOT CMS. COST OF ADDITIONAL CONCRETE, AGGREGATE BASE, LABOR, AND MATERIALS SHALL BE INCULDED IN ITEM 608 – CURB RAMP, AS PER PLAN.

CATCH BASIN GRATES

ALL PROPOSED CATCH BASINS IDENTIFIED IN THIS PLAN SHALL BE PROVIDED WITH BICYCLE SAFE GRATES.

EXISTING CATCH BASINS SHALL BE MODIFIED BY REPLACING THE EXISTING GRATES WITH BICYCLE SAFE GRATES. QUANTITIES AND LOCATIONS ARE SHOWN IN THE PLANS AND SHALL BE PAID FOR AT THE CONTRACT PRICE FOR ITEM 611, EACH, CATCH BASIN FRAME AND GRATE.

SEE SHEET 12 FOR ESTIMATED QUANTITIES FOR USE AS DIRECTED BY THE ENGINEER FOR REPLACEMENT OF EXISTING CATCH BASIN GRATES WITH BICYCLE SAFE GRATES.

ITEM SPECIAL – MAILBOX SUPPORT

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS, AND ATTACHING AN OWNER-SUPPLIED MAILBOX AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4 INCHES BY 4 INCHES SQUARE OR 4.5 INCHES DIAMETER ROUND, AND CONFORM TO 710.14.

STEEL POSTS SHALL BE NOMINAL PIPE SIZE 2 INCHES I.D., AND CONFORM TO AASHTO M 181.

ALL HARDWARE SHALL INCLUDING BUT NOT LIMITED TO PLATES, SCREWS, BOLTS, AND ETC. SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

SUPPORT HARDWARE SHALL ACCOMMODATE EITHER A SINGLE OR A DOUBLE MAILBOX INSTALLATION, AND NO MORE THAN TWO BOXES MAY BE MOUNTED ON A SINGLE POST.

THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCEOF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING OR REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.10. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALLY APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH, FOR ITEM SPECIAL MAILBOX SUPPORT SYSTEM, (SINGLE) (DOUBLE).

ITEM 442 – ASPHALT CONCRETE SURFACE COURSE, 12.5MM, TYPE A (448), AS PER PLAN

THE COARSE VIRGIN AGGREGATE FOR THIS ITEM SHALL BE LIMITED TO A BLEND OF AIR COOLED BLAST FURNACE SLAG (ACBFS) OR TRAP ROCK FROM ONTARIO AND LIMESTONE. THE CONTRACTOR SHALL USE A MINIMUM 60% OF ACBFS OR TRAP ROCK FROM ONTARIO WITH LIMESTONE COMPRISING THE REMAINING PERCENTAGE. AT LEAST 50% OF FINE VIRGIN AGGREGATE FOR THIS ITEM SHALL BE LIMITED TO ACBFS OR TRAP ROCK FROM ONTARIO.

TABLE 442.02-2 APPLIES EXCEPT NO. 4 SIEVE REQUIREMENTS ARE 52 TO 62 TOTAL PERCENT PASSING.

WHEN ACBFS IS USED FOR A FRACTION OF THE COURSE AGGREGATE, PROVIDE A TOTAL ASPHALT BINDER CONTENT GREATER THAN OR EQUAL TO 6.2 PERCENT. IF ACBFS MAKES UP 100% OF THE COURSE AGGREGATE, APPLY THE BINDER CONTENT REQUIREMENTS OF C&MS 442.

USE A PG70-22M BINDER FOR THIS ITEM.

GENERAL NOTES

GEA – 422 – 13.04

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ASPHALT CONCRETE SURFACE COURSE SEALING REQUIREMENTS

IN ADDITION TO THE GUTTER SEALING REQUIREMENTS SPECIFIED IN SCD BP-3.1 AND C&MS 401.15, THE CONTRACTOR SHALL SEAL THE FOLLOWING LOCATIONS:

- ALL CASTINGS INCLUDING BUT NOT LIMITED TO MONUMENTS, MANHOLES, WATER VALVES, CATCH BASINS, CURB INLETS.
- BUTT JOINTS AND FEATHER JOINTS INCLUDING BRIDGE APPROACHES.
- BUTT JOINT BETWEEN PAVED SHOULDER AND DRIVEWAY ASPHALT AND THE TAPERED EDGE WHEN FEATHERING TO AN EXISTING ASPHALT DRIVEWAY.
- PERIMETER OF ALL PAVEMENT REPAIRS OR OTHER ASPHALT INLAYS WHEN THE REPAIR/INLAY IS NOT OVERLAID WITH AN ASPHALT CONCRETE SURFACE COURSE.
- ALL COLD LONGITUDINAL JOINTS BETWEEN PAVED SHOULDERS AND GUARDRAIL ASPHALT.

THE MATERIAL USED SHALL BE A CERTIFIED 702.01 PG BINDER. THE WIDTH OF THE SEALER SHALL BE 2-3 INCHES.

ANY ADDITIONAL COSTS ASSOCIATED WITH THE WORK IDENTIFIED IN THIS NOTE SHALL BE INCLUDED IN THE APPROPRIATE ASPHALT CONCRETE SURFACE COURSE ITEM OF WORK.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES (CON'T)

PAYMENT FOR ALL THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE THE FINAL ACCEPTANCE BY THE STATE, REPRESENTATIVES OF THE STATE AND THE CONTRACTOR, ALONG WITH LOCAL REPRESENTATIVES, SHALL MAKE AN INSPECTION OF ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCE SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE STATE.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE STATE.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION RESONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR’S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEMS.

ITEM 202 – REMOVAL, MISC.: PRIVATE SIGN AND SUPPORT

THIS ITEM SHALL CONSIST OF REMOVING THE PRIVATE SIGN OR PORTIONS OF PRIVATE SIGN IDENTIFIED FOR REMOVAL IN THE PLANS. SUPPORTS SHALL BE DISPOSED OF IN ACCORDANCE WITH ODOT CMS. SIGN SHALL BE RETURNED TO THE PROPERTY OWNER. CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE SIGN. ALL EXCAVATION, BACKFILL AND OTHER WORK DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR ITEM 202 – REMOVAL, MISC.: PRIVATE SIGN REMOVAL, EACH.

ITEM 619 – FIELD OFFICE, TYPE B, AS PER PLAN

A TYPE B FIELD OFFICE IS REQUIRED FOR THIS PROJECT. THE FOLLOWING REVISIONS TO EQUIPMENT SUPPLIED WITH THE TYPE B FIELD OFFICE, AS SPECIFIED IN TABLE 619.02-1, FIELD OFFICE, SHALL APPLY:

- THE COPIER SUPPLIED MUST MEET THE REQUIREMENTS OF COPIER SUPPLIED WITH THE TYPE C FIELD OFFICE.
- THE BROADBAND INTERNET CONNECTION MUST MEET A MINIMUM DOWNLOAD SPEED OF 10MB PER SECOND AND A MINIMUM UPLOAD SPEED OF 5MB PER SECOND.

ALL OTHER FIELD OFFICE ITEMS SUPPLIED SHALL MEET THE REQUIREMENTS OF A TYPE B FIELD OFFICE.

ITEM 619 - FIELD OFFICE, TYPE B, AS PER PLAN 6 MONTHS

UNRECORDED TREATED NON-STORMWATER DRAINAGE

FURNISH A CONTINUANCE FOR ALL UNRECORDED TREATED NON-STORMWATER DRAINAGE, SUCH AS TREATED SEPTIC, TREATED WASTEWATER, TREATED CURTAIN/GRADIENT DRAINS, AND TREATED FOUNDATION FLOOR DRAINS DISTURBED BY THE WORK. FURNISH EITHER AN OPEN CONTINUANCE OR AN UNOBSTRUCTED CONTINUANCE BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEEDED CONDUIT TO REPLACE OR EXTEND AN EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER. ALL SUCH CONTINUANCE REQUIRES A RIGHT OF WAY USE PERMIT. A CONTINUANCE MAY ALSO REQUIRE A NPDES PERMIT FROM THE OHIO ENVIRONMENTAL PROTECTION AGENCY. REPORT ALL CONTINUANCE TO THE LOCAL HEALTH DEPARTMENT.

WHERE MAKING A CONNECTION INTO A HIGHWAY DRAINAGE CONDUIT, AN INSPECTION WELL SHALL BE PROVIDED IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING DM-3.1.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER IN MAKING THE ABOVE CONTINUANCE:

611, 6” CONDUIT, TYPE C 50 FT.  
611, INSPECTION WELL 3 EACH

UNRECORDED UNTREATED NON-STORMWATER DRAINAGE

FURNISH NO CONTINUANCE FOR ANY UNRECORDED UNTREATED NONSTORMWATER DRAINAGE SUCH AS UNTREATED SEPTIC, UNTREATED WASTEWATER, UNTREATED CURTAIN/GRADIENT DRAINS, AND UNTREATED FOUNDATION FLOOR DRAINS DISTURBED BY THE WORK. PLUG ANY UNRECORDED UNTREATED NON-STORMWATER DRAINAGE WITH CONCRETE AT THE RIGHT OF WAY LINE. PAYMENT FOR PLUGGING SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 OR 203 ITEM.

MANHOLES, CATCH BASINS AND INLETS REMOVED OR ABANDONED

ALL CASTINGS SHALL BE CAREFULLY REMOVED AND STORED WITHIN THE RIGHT OF WAY FOR SALVAGE BY ODOT FORCES.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 202 ITEM.

UNRECORDED STORM WATER DRAINAGE

FURNISH A CONTINUANCE FOR ALL UNRECORDED STORM WATER DRAINAGE, SUCH AS ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK. FURNISH EITHER AN OPEN CONTINUANCE OR AN UNOBSTRUCTED CONTINUANCE BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE AND GRADE OF THE NEEDED CONDUIT TO REPLACE OR EXTEND AN EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER. ALL SUCH CONTINUANCE REQUIRES A RIGHT OF WAY USE PERMIT.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, 707.52 SDR35.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

611, 4” CONDUIT, TYPE C, FOR DRAINAGE CONNECTION 50 FT.

GENERAL NOTES

GEA – 422 – 13.04

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**SEEDING AND MULCHING**

THE FOLLOWING QUANTITIES ARE PROVIDED TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

659, SOIL ANALYSIS TEST 2 EACH  
659, TOPSOIL 243 CU. YD.  
659, SEEDING AND MULCHING 2186 SQ. YD.  
659, REPAIR SEEDING AND MULCHING 109 SQ. YD.  
659, INTER-SEEDING 109 SQ. YD.  
659, COMMERCIAL FERTILIZER 0.30 TON  
659, LIME 0.45 ACRES  
659, WATER 12 M. GAL.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT-OF-WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR SEEDING AND MULCHING ARE BASED ON THESE LIMITS.

**ITEM SPECIAL – MISCELLANEOUS METAL**

EXISTING CASTINGS MAY PROVE TO BE UNSUITABLE FOR REUSE, AS DETERMINED BY THE ENGINEER. IT SHALL BE THE CONTRACTOR’S RESPONSIBILITY TO PROVIDE THE CASTINGS OF THE REQUIRED TYPE, SIZE AND STRENGTH (HEAVY OR LIGHT DUTY) FOR THE PARTICULAR STRUCTURE IN QUESTION. ALL MATERIAL SHALL MEET ITEM 611 OF THE SPECIFICATIONS AND SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

SPECIAL, MISCELLANEOUS METAL 500 POUNDS

THE CONTRACTOR IS CAUTIONED TO USE EXTREME CARE IN THE REMOVAL, STORAGE AND REPLACEMENT OF ALL EXISTING CASTINGS. CASTINGS DAMAGED BY THE NEGLIGENCE OF THE CONTRACTOR, AS DETERMINED BY THE ENGINEER, SHALL BE REPLACED WITH THE PROPER NEW CASTINGS AT THE EXPENSE OF THE CONTRACTOR.

**EXISTING SUBSURFACE DRAINAGE**

PROVIDE UNOBSTRUCTED OUTLETS FOR ALL EXISTING UNDERDRAINS OR AGGREGATE DRAINS ENCOUNTERED DURING CONSTRUCTION.  
PROVIDE AN OUTLET PER STANDARD CONSTRUCTION DRAWING DM-1.1 FOR ALL UNDERDRAINS THAT OUTLET TO A SLOPE.

UNDERDRAINS THAT CAN BE CONNECTED TO THE NEW OR EXISTING UNDERDRAINS AT THE END OF THE PROJECT LIMITS AS WELL AS ALL NECESSARY BENDS OR BRANCHES REQUIRED FOR CONNECTION ARE INCLUDED IN THE BASIS OF PAYMENT FOR UNCLASSIFIED PIPE UNDERDRAINS.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

611 6” CONDUIT, TYPE F 30 FT.  
605 6” UNCLASSIFIED PIPE UNDERDRAINS 100 FT.

**ENDANGERED BAT HABITAT REMOVAL**

THIS PROJECT IS LOCATED WITHIN THE KNOWN HABITAT RANGES OF THE FEDERALLY LISTED AND PROTECTED INDIANA BAT AND NORTHERN LONG-EARED BAT. NO TREES SHALL BE REMOVED UNDER THIS PROJECT FROM APRIL 1 THROUGH SEPTEMBER 30. ALL NECESSARY TREE REMOVAL SHALL OCCUR FROM OCTOBER 1 THROUGH MARCH 31. THIS REQUIREMENT IS NECESSARY TO AVOID AND MINIMIZE IMPACTS TO THESE SPECIES AS REQUIRED BY THE ENDANGERED SPECIES ACT. FOR THE PURPOSES OF THIS NOTE, A TREE IS DEFINED AS: A LIVE, DYING, OR DEAD WOODY PLANT, WITH A TRUNK THREE INCHES OR GREATER IN DIAMETER AT A HEIGHT OF 4.5 FEET ABOVE THE GROUND SURFACE, AND WITH A MINIMUM HEIGHT OF 13 FEET.

**PROFILE AND ALIGNMENT**

PLACE THE PROPOSED PAVEMENT TO FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. (PREVIOUS CONSTRUCTION PLANS, PROJECT NO. GEA-422-(13.04-16.99), SHOWING THE ORIGINAL ALIGNMENT AND PROFILE, ARE AVAILABLE FOR INSPECTION AT THE ODOT DISTRICT 12 OFFICE). PLACE THE PROPOSED ASPHALT CONCRETE OVERLAY WITH A UNIFORM THICKNESS OF 1.5 INCHES (REMOVE AS SHOWN ON THE TYPICAL SECTIONS).

**EQUIPMENT/MATERIAL STORAGE**

UNDER NO CIRCUMSTANCE ARE TEMPORARY RIGHT-OF-WAY EASEMENTS TO BE USED FOR STORAGE OF MATERIALS OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

**NOTIFICATION**

THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING ALL LOCAL, COUNTY, STATE AND FEDERAL EMERGENCY SERVICES AND EVERY EFFECTED SCHOOL FACILITY OF ANY ANTICIPATED ROAD CONSTRUCTION ACTIVITIES REQUIRING LANE CLOSURES WITH FLAGGERS AT LEAST FOURTEEN (14) DAYS BEFORE THE TRAFFIC DISRUPTION. SPECIFICALLY, THE NOTICE MUST DISCLOSE 1) THE EXACT PORTION OF THE ROAD TO BE CONSTRUCTED 2) THE DATE OF THE ANTICIPATED CONSTRUCTION AND 3) THE EXPECTED DURATION OF THE CONSTRUCTION. A COPY OF THIS NOTIFICATION MUST BE PRESENTED AT THE PRECONSTRUCTION MEETING. THE CONTRACTOR IS ALSO RESPONSIBLE FOR NOTIFYING THE PROJECT ENGINEER WHEN, INCLUDING DATE AND TIME THE NOTIFICATION IS DISTRIBUTED. A COPY OF THE NOTIFICATION MUST BE SENT TO THE ODOT DISTRICT 12 PIO OFFICE.

| CALCULATED | MSL     | GENERAL NOTES | GEA – 422 – 13.04 | <div><div>7</div><div>61</div></div> |
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CONSTRUCTION PHASING

THE CONTRACTOR SHALL MAINTAIN ACCESS TO DRIVES AT ALL TIMES. FLAGGERS MAY BE USED TO MAINTAIN TWO-WAY TRAFFIC ON ONE LANE OF PAVEMENT PER MT-97.10 EXCEPT DURING THE FOLLOWING TIMES; 5:30AM TO 8:30AM AND 2:30PM TO 6:30PM ON WEEKDAYS. PHASING FOR THE PROJECT SHALL BE AS FOLLOWS:

PHASE 1  
INSTALL THE PROPOSED TRAFFIC SIGNAL WITH THE FOLLOWING MODIFICATIONS FOR MAINTENANCE OF TRAFFIC OPERATION; THE 5-SECTION HEAD FOR THE EASTBOUND APPROACH SHALL BE INSTALLED IN LOCATION SHOWN ON THE MAINTENANCE OF TRAFFIC PLAN SHEET AND AN AUXILIARY SIGNAL HEAD FOR THE EASTBOUND DIRECTION SHALL BE INSTALLED ON SP-1 AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLAN SHEET. ALL CABLE REQUIRED FOR THE AUXILIARY HEAD AND ADDITIONAL CABLE REQUIRED FOR THE 5-SECTION HEAD SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR ITEM 614 - MAINTAINING TRAFFIC. THE CONTRACTOR SHALL NOT DRILL ADDITIONAL HOLES IN THE MAST ARMS FOR MAINTENANCE OF TRAFFIC SIGNAL HEAD PLACEMENT.

THE CONTRACTOR MAY ELECT TO BEGIN WORK IN PHASE 2 PRIOR TO THE COMPLETION OF THE TRAFFIC SIGNAL, BUT NOT BEFORE THE TRAFFIC SIGNAL FOUNDATIONS ARE INSTALLED AND THE SIGNAL POLES HAVE BEEN ORDERED.

PHASE 2A  
CONSTRUCT SHOULDER IMPROVEMENTS AT THE NORTHWEST QUADRANT OF THE INTERSECTION WHILE MAINTAINING 2 LANES OF TRAFFIC ON EXISTING AND TEMPORARY PAVEMENT THAT IS NEEDED. ANY DROPOFFS SHALL BE IN ACCORDANCE WITH MT-101.90 CONDITION II.

PHASE 2B  
CONSTRUCT STORM SEWER IMPROVEMENTS AND SHOULDER IMPROVEMENTS AT THE NORTHEAST QUADRANT OF THE INTERSECTION WHILE MAINTAINING 2 LANES OF TRAFFIC ON EXISTING AND PROPOSED PAVEMENT PLACED IN THE PREVIOUS PHASE.

PHASE 2C  
CONSTRUCT STORM SEWER IMPROVEMENTS AND PAVEMENT AND SHOULDER RECONSTRUCTION AT THE SOUTHWEST QUADRANT OF THE INTERSECTION. AT THE END OF EACH WORK DAY THE CONTRACTOR SHALL PLACE AGGREGATE BASE OR FILL MATERIAL IN THE AREA OF PAVEMENT WIDENING TO WITHIN 3" OF THE ELEVATION OF THE EDGE OF EXISTING PAVEMENT TO SATISFY THE CONDITIONS OF MT-101.90. ANY DROPOFFS SHALL BE IN ACCORDANCE WITH MT-101.90 CONDITION II.

PHASE 2D  
CONSTRUCT STORM SEWER IMPROVEMENTS AND PAVEMENT AND SHOULDER RECONSTRUCTION AT THE SOUTHEAST QUADRANT OF THE INTERSECTION. AT THE END OF EACH WORK DAY THE CONTRACTOR SHALL PLACE AGGREGATE BASE OR FILL MATERIAL IN THE AREA OF PAVEMENT WIDENING TO WITHIN 3" OF THE ELEVATION OF THE EDGE OF EXISTING PAVEMENT TO SATISFY THE CONDITIONS OF MT-101.90. ANY DROPOFFS SHALL BE IN ACCORDANCE WITH MT-101.90 CONDITION II.

PHASE 3  
SHIFT TRAFFIC AS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS AND CONSTRUCT THE PROPOSED PAVEMENT ON THE SOUTH SIDE OF US 422 UP TO AND INCLUDING THE ASPHALT INTERMEDIATE COURSE.

PHASE 4  
PLANE EXISTING PAVEMENT AND INSTALL THE ASPHALT CONCRETE SURFACE COURSE OVER THE ENTIRE PROJECT LIMITS.

PHASE 5  
COMPLETE THE FINAL PAVEMENT MARKINGS.

ITEM 614, MAINTAINING TRAFFIC

THROUGH TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BY USE OF EXISTING PAVEMENT AND/OR COMPLETED PAVEMENT.

LENGTH AND DURATION OF LANE CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE CLOSURES OR RESTRICTIONS OVER SEGMENTS OF THE PROJECT IN WHICH NO WORK IS ANTICIPATED WITHIN A REASONABLE TIME FRAME, AS DETERMINED BY THE ENGINEER, SHALL NOT BE PERMITTED. THE LEVEL OF UTILIZATION OF MAINTENANCE OF TRAFFIC DEVICES SHALL BE COMMENSURATE WITH THE WORK IN PROGRESS.

THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ABUTTING PROPERTY AT ALL TIMES.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY SAFEGUARDS, SUCH AS DRUMS, REPLACEMENT DRUMS, FLAGGERS AND SUCH OTHER TRAFFIC CONTROL DEVICES AS PROVIDED IN ITEM 614, MAINTAINING TRAFFIC, SO AS TO AVOID DAMAGE AND/OR INJURY TO VEHICLES AND PERSONS USING THE ROADWAY DURING CONSTRUCTION.

EXISTING TRAFFIC CONTROL DEVICES (SIGNS AND/OR TRAFFIC SIGNALS), LOCATED WITHIN THE WORK AREA, WHICH ARE REQUIRED FOR INTERIM OR PERMANENT TRAFFIC CONTROL, SHALL BE RELOCATED TO POINTS APPROVED BY THE ENGINEER. APPROPRIATE TRAFFIC CONTROL DEVICES SHALL BE MAINTAINED, IN COMPLIANCE WITH THE MANUAL AT ALL TIMES. THE COST OF RELOCATION SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614 - MAINTAINING TRAFFIC.

THE CONTRACTOR SHALL REMOVE OR COVER ALL CONFLICTING PAVEMENT MARKINGS, PER 614.11 G, VISIBLE TO THE TRAVELING PUBLIC PRIOR TO PLACING WORK ZONE PAVEMENT MARKINGS.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C&MS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

WORK ZONE MARKINGS

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED IN THE PLANS AND BY THE ENGINEER FOR WORK ZONE PAVEMENT MARKINGS PER THE REQUIREMENTS OF C&MS 614.11.

|                                      |            |
|--------------------------------------|------------|
| 614 WORK ZONE EDGE LINE, CLASS III   | 0.84 MILES |
| 614 WORK ZONE CENTER LINE, CLASS III | 0.42 MILES |
| 614 WORK ZONE STOP LINE, CLASS III   | 20 FEET    |

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616, WATER 1 M. GAL

RECONDITIONING SHOULDERS

PRIOR TO SHIFTING TRAFFIC AS SHOWN IN THE MAINTENANCE OF TRAFFIC PLANS, THE CONTRACTOR SHALL RECONDITION THE SHOULDER ALONG THE NORTH SIDE OF U.S. 422. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AT LOCATIONS IDENTIFIED IN THE PLANS AND BY THE ENGINEER FOR RECONDITIONING SHOULDERS PER THE REQUIREMENTS OF C&MS 617.

|                          |                  |
|--------------------------|------------------|
| 617 SHOULDER PREPARATION | 110 SQUARE YARDS |
| 617 COMPACTED AGGREGATE  | 10 CUBIC YARDS   |

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN

THE CONTRACTOR SHALL FURNISH, INSTALL, MAINTAIN AND REMOVE, WHEN NO LONGER NEEDED, A CHANGEABLE MESSAGE SIGN. THE SIGN SHALL BE OF A TYPE SHOWN ON A LIST OF APPROVED PCMS UNITS AVAILABLE ON THE OFFICE OF MATERIALS MANAGEMENT WEB PAGE. THE LIST CONTAINS CLASS A AND B UNITS WITH MINIMUM LEGIBILITY DISTANCES OF 800 FEET AND 650 FEET, RESPECTIVELY.

EACH SIGN SHALL BE TRAILER-MOUNTED AND EQUIPPED WITH A FUNCTIONAL DIMMING MECHANISM, TO DIM THE SIGN DURING DARKNESS, AND A TAMPER AND VANDAL PROOF ENCLOSURE. EACH SIGN SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ON-SITE PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT. THE SIGN SHALL ALSO BE CAPABLE OF BEING POWERED BY AN ELECTRICAL SERVICE DROP FROM A LOCAL UTILITY COMPANY. THE PCMS SHALL BE DELINEATED IN ACCORDANCE WITH C&MS 614.03.

PLACEMENT, OPERATION, MAINTENANCE AND ALL ACTIVATION OF THE SIGNS BY THE CONTRACTOR SHALL BE AS DIRECTED BY THE ENGINEER. THE PCMS SHALL BE LOCATED IN A HIGHLY VISIBLE POSITION YET PROTECTED FROM TRAFFIC. THE CONTRACTOR SHALL, AT THE DIRECTION OF THE ENGINEER, RELOCATE THE PCMS TO IMPROVE VISIBILITY OR ACCOMMODATE CHANGED CONDITIONS. WHEN NOT IN USE, THE PCMS SHALL BE TURNED OFF. ADDITIONALLY, WHEN NOT IN USE FOR EXTENDED PERIODS OF TIME, THE PCMS SHALL BE TURNED AWAY FROM ALL TRAFFIC.

THE ENGINEER SHALL BE PROVIDED ACCESS TO EACH SIGN UNIT AND SHALL BE PROVIDED WITH APPROPRIATE TRAINING AND OPERATION INSTRUCTIONS TO ENABLE ODOT PERSONNEL TO OPERATE AND TROUBLESHOOT THE UNIT, AND TO REVISE SIGN MESSAGES, IF NECESSARY.

THE CONTRACTOR SHALL IMPLEMENT A SYSTEM WHEREBY CHANGEABLE MESSAGES WILL BE IMPLEMENTED WITHIN 4 HOURS FOLLOWING TELEPHONE NOTIFICATION FROM THE PROJECT ENGINEER TO A DESIGNATED PHONE.

ALL MESSAGES TO BE DISPLAYED ON THE SIGN WILL BE PROVIDED BY THE ENGINEER. A LIST OF ALL REQUIRED PRE-PROGRAMMED MESSAGES WILL BE GIVEN TO THE CONTRACTOR AT THE PROJECT PRECONSTRUCTION CONFERENCE. THE SIGN SHALL HAVE THE CAPABILITY TO STORE UP TO 99 MESSAGES. MESSAGE MEMORY OR PRE-PROGRAMMED DISPLAYS SHALL NOT BE LOST AS A RESULT OF POWER FAILURES TO THE ON-BOARD COMPUTER. THE SIGN LEGEND SHALL BE CAPABLE OF BEING CHANGED IN THE FIELD. THREE-LINE PRESENTATION FORMATS WITH UP TO SIX MESSAGE PHASES SHALL BE SUPPORTED. PCMS FORMAT SHALL PERMIT THE COMPLETE MESSAGE FOR EACH PHASE TO BE READ AT LEAST TWICE.

THE PCMS SHALL CONTAIN AN ACCURATE CLOCK AND PROGRAMMING LOGIC WHICH WILL ALLOW THE SIGN TO BE ACTIVATED, DEACTIVATED OR MESSAGES CHANGED AUTOMATICALLY AT DIFFERENT TIMES OF THE DAY FOR DIFFERENT DAYS OF THE WEEK.

THE PCMS SHALL CONTAIN A CELLULAR TELEPHONE DATA LINK WHICH WILL (IN ACTIVE CELLULAR PHONE AREAS) ALLOW REMOTE SIGN ACTIVATION, MESSAGE CHANGES, MESSAGE ADDITIONS AND REVISIONS TO TIME OF DAY PROGRAMS. THE SYSTEM SHALL ALSO PERMIT VERIFICATION OF CURRENT AND PROGRAMMED MESSAGES. ONE REMOTE DATA INPUT DEVICE (LAPTOP COMPUTER PLUS MODEM OR EQUIVALENT) SHALL BE FURNISHED FOR USE BY THE DISTRICT TRAFFIC ENGINEER, OR EQUIVALENT, AND SHALL BE INSURED AGAINST THEFT.

THE PCMS UNIT SHALL BE MAINTAINED IN GOOD WORKING ORDER BY THE CONTRACTOR IN ACCORDANCE WITH THE PROVISIONS OF C&MS 614.07. THE CONTRACTOR SHALL, PRIOR TO ACTIVATING THE UNIT, MAKE ARRANGEMENTS, WITH AN AUTHORIZED SERVICE AGENT FOR THE PCMS, TO ASSURE PROMPT SERVICE IN THE EVENT OF FAILURE. ANY FAILURE SHALL NOT RESULT IN THE SIGN BEING OUT OF SERVICE FOR MORE THAN 12 HOURS, INCLUDING WEEKENDS. FAILURE TO COMPLY MAY RESULT IN AN ORDER TO STOP WORK AND OPEN ALL TRAFFIC LANES AND/OR IN THE DEPARTMENT TAKING APPROPRIATE ACTION TO SAFELY CONTROL TRAFFIC. THE

ITEM 614, PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN (CONTINUED)

THE ENTIRE COST TO CONTROL TRAFFIC, ACCRUED BY THE DEPARTMENT DUE TO THE CONTRACTOR'S NONCOMPLIANCE, WILL BE DEDUCTED FROM MONEYS DUE, OR TO BECOME DUE THE CONTRACTOR ON HIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR 24-HOUR-PER-DAY OPERATION AND MAINTENANCE OF THESE SIGNS ON THE PROJECT FOR THE DURATION OF THE PHASES WHEN THE PLAN REQUIRES THEIR USE. PAYMENT FOR THE ABOVE DESCRIBED ITEM SHALL BE AT THE CONTRACT UNIT PRICE. PAYMENT SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, FUELS, LUBRICATING OILS, SOFTWARE, HARDWARE AND INCIDENTALS TO PERFORM THE ABOVE DESCRIBED WORK.

614 PORTABLE CHANGEABLE MESSAGE SIGN, AS PER PLAN  
12 SIGN MONTHS (ASSUMING 2 PCMS SIGNS FOR 6 MONTHS)

TRENCH FOR WIDENING

TRENCH EXCAVATION FOR BASE WIDENING SHALL BE ONLY ON ONE SIDE OF THE PAVEMENT AT A TIME. THE OPEN TRENCH SHALL BE ADEQUATELY MAINTAINED AND PROTECTED WITH DRUMS OR BARRICADES AT ALL TIMES. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS. THE LENGTH OF WIDENING TRENCH WHICH IS OPEN AT ANY ONE TIME SHALL BE HELD TO A MINIMUM AND SHALL AT ALL TIMES BE SUBJECT TO APPROVAL OF THE ENGINEER.

OVERNIGHT TRENCH CLOSING

THE BASE WIDENING SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 3 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. NO TRENCH SHALL BE LEFT OPEN OVERNIGHT EXCEPT FOR A SHORT LENGTH (25 FEET OR LESS) OF A WORK SECTION AT THE END OF THE TRENCH. IN CASE WORK MUST BE SUSPENDED BECAUSE OF INCLEMENT WEATHER OR OTHER REASONS, THE TRENCH FOR THE UN-COMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

WORKSITE TRAFFIC SUPERVISOR

SUBJECT TO THE APPROVAL OF THE ENGINEER, THE CONTRACTOR SHALL EMPLOY AND IDENTIFY, A CERTIFIED WORKSITE TRAFFIC SUPERVISOR (WTS) BEFORE STARTING WORK IN THE FIELD. THE WTS SHALL BE CERTIFIED FROM ONE OF THE FOLLOWING ORGANIZATIONS:

1. AMERICAN TRAFFIC SAFETY SERVICE ASSOCIATION (ATSSA), 1-877-642-4637, HTTP://WWW.ATSSA.COM/TRAININGCERTIFICATION.ASPX CERTIFIED TRAFFIC CONTROL SUPERVISOR (TCS).

2. NATIONAL HIGHWAY INSTITUTE, DESIGN AND OPERATION OF WORK ZONE TRAFFIC, 1-877-558-6873. HTTP://WWW.NHI.FHWA.DOT.GOV/TRAINING/COURSE\_SEARCH.ASPX

3. THE OHIO CONTRACTORS ASSOCIATION, TRAFFIC CONTROL SUPERVISOR (OCA/TCS) WORK ZONE CLASS, ONLY IF TAKEN AFTER MAY 5, 2004, 1-800-229-1388. HTTP://WWW.OHIOCONTRACTORS.ORG/DEFAULT.ASPX

4. OHIO LABORERS’ TRAINING, TRAFFIC CONTROL SUPERVISORS CLASS, 1-800-635-7570. HTTP://WWW.OHIOLABORERSTRAINING.COM/ADV.HTM

THE WTS POSITION IS ESTABLISHED FOR THE PURPOSE OF SUPERVISING THE INSTALLATION OF THE WORK ZONE, MONITORING IT AND CORRECTING ANY DEFICIENCIES IN THE WORK ZONE. THE WTS SHALL OVERSEE ALL OPERATIONS THAT AFFECT THE MOVEMENT OF VEHICULAR AND PEDESTRIAN TRAFFIC THROUGH THE WORK ZONE.

THE WTS SHALL BE PRESENT WHEN THE CONTRACTOR OR SUBCONTRACTOR INSTALLS A TRAFFIC RESTRICTION, LANE CLOSURE, ETC. IN LIEU OF THE WTS BEING PRESENT WHEN A SUBCONTRACTOR HAS A WORK ZONE IN PLACE, THE SUBCONTRACTOR MAY USE HIS OWN PERSONNEL IF THAT PERSON IS A CERTIFIED WTS. THE CONTRACTOR AND SUBCONTRACTOR MUST PRESENT A COPY OF HIS WTS CERTIFICATE TO THE PROJECT ENGINEER.

A WTS MUST BE PRESENT FOR ANY CLOSURE OR TRAFFIC RESTRICTION THAT TAKES PLACE ON THE PROJECT.

THE WTS MAY BE A PART OF THE WORKING CREW AND MUST BE IN CHARGE OF SETTING UP THE WORK ZONE. AFTER THE WORK ZONE IS IN PLACE, THE WTS MAY RESUME OTHER DUTIES NOT RELATED TO WORK ZONE TRAFFIC CONTROL. IF THE RESTRICTIONS ARE SHORT TERM, THE WTS SHALL MONITOR THE ZONE FOR COMPLIANCE. TRAFFIC CONTROL WILL BE THE WTS’S MAIN DUTY DURING IMPLEMENTATION OF THE WORK ZONES. THE WTS SHALL HAVE THE AUTHORITY TO HAVE THE DEFICIENCIES CORRECTED AS SOON AS POSSIBLE.

THE WTS SHALL PROVIDE THE PROJECT ENGINEER A SKETCH OF THE (TCP) TRAFFIC CONTROL PLAN EVERY DAY THERE IS TO BE A SHORT TERM TRAFFIC RESTRICTION, LANE CLOSURE ETC. THIS TCP SHALL SHOW HOW THE WORK ZONES ARE TO BE IMPLEMENTED, APPROXIMATE LOCATIONS OF THE TRAFFIC CONTROL DEVICES AND WHAT STANDARD DRAWING OR SECTION FROM THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES WAS REFERENCED.

A 24-HOUR PHONE NUMBER SHALL BE MADE AVAILABLE TO THE PROJECT ENGINEER/SUPERVISOR IN ORDER TO CONTACT THE WTS. THE WTS SHALL HAVE A PAGER AND/OR CELL PHONE NUMBER PROVIDED TO THE PROJECT ENGINEER.

FAILURE OF THE CONTRACTOR TO COMPLY WITH ANY OF THE ABOVE SHALL CONSTITUTE CAUSE FOR THE PROJECT ENGINEER / SUPERVISOR TO DEDUCT \$500.00 PER DAY FROM MONEY DUE THE CONTRACTOR NOT AS A PENALTY BUT AS A LIQUIDATED DAMAGE.

PAYMENT FOR THE WTS SHALL BE INCLUDED UNDER THE LUMP SUM FOR ITEM 614 MAINTAINING TRAFFIC.

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE

USE OF LAW ENFORCEMENT OFFICERS (LEOS) BY CONTRACTORS OTHER THAN THE USES SPECIFIED BELOW WILL NOT BE PERMITTED AT PROJECT COST. LEOS SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED.

IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHALL BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS DETERMIED AND PRE-APPROVED BY THE ENGINEER. ANY LEO HOURS WHICH ARE NOT PRE-APPROVED FOR THE FOLLOWING PURPOSES SHALL NOT BE COMPENSABLE:

DURING THE ENTIRE ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE OF TRAFFIC IS REQUIRED.

DURING A TRAFFIC SIGNAL INSTALLATION WHEN IMPACTING THE NORMAL FUNCTION OF THE SIGNAL OR THE FLOW OF TRAFFIC OR WHEN TRAFFIC NEEDS TO BE DIRECTED THROUGH AN ENERGIZED TRAFFIC SIGNAL CONTRARY TO THE SIGNAL DISPLAY (E.G., DIRECTING MOTORISTS THROUGH A RED LIGHT).

IN ADDITION TO THE REQUIREMENT OF C&MS 614 AND THE OMUTCD, A UNIFORMED LEO WITH AN OFFICIAL PATROL CAR (CAR WITH TOP-MOUNTED EMERGENCY FLASHING LIGHTS AND COMPLETE MARKINGS OF THE APPROPRIATE LAW ENFORCEMENT AGENCY) SHOULD BE PROVIDED FOR THE FOLLOWING TRAFFIC CONTROL TASKS AS APPROVED BY THE ENGINEER:

FOR LANE CLOSURES: DURING INITIAL SET-UP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED FOR LONG-TERM LANE CLOSURES/SHIFTS (FOR THE FIRST AND LAST DAY OF MAJOR CHANGES IN TRAFFIC CONTROL SETUP). IN GENERAL, LEOS SHOULD BE POSITIONED AT THE POINT OF LANE RESTRICTION OR ROAD CLOSURE AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH INTERSECTIONS IN WORK ZONES.

IN GENERAL, LEOS SHOULD BE POSITIONED IN ADVANCE OF AND ON THE SAME SIDE AS THE LANE RESTRICTION OR AT THE POINT OF ROAD CLOSURE, AND TO MANUALLY CONTROL TRAFFIC MOVEMENTS THROUGH SIGNALIZED INTERSECTIONS IN WORK ZONES.

LEOS SHOULD NOT FORGO THEIR TRAFFIC CONTROL RESPONSIBILITIES TO APPREHEND MOTORISTS FOR ROUTINE TRAFFIC VIOLATIONS. HOWEVER, IF A MOTORIST’S ACTIONS ARE CONSIDERED TO BE RECKLESS, THEN PURSUIT OF THE MOTORIST IS APPROPRIATE.

THE LEOS WORK AT THE DIRECTION OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR SECURING THE SERVICES OF THE LEOS WITH THE APPROPRIATE AGENCIES AND COMMUNICATING THE INTENTIONS OF THE PLANS WITH RESPECT TO DUTIES OF THE LEOS. THE ENGINEER SHALL HAVE FINAL CONTROL OVER THE LEOS’ DUTIES AND PLACEMENT, AND WILL RESOLVE ANY ISSUES THAT MAY ARISE BETWEEN THE TWO PARTIES.

THE LEO SHALL REPORT IN TO THE CONTRACTOR PRIOR TO THE START OF THE SHIFT, IN ORDER TO RECEIVE INSTRUCTIONS REGARDING SPECIFIC WORK ASSIGNMENTS DURING HIS/HER SHIFT. THE LEO IS EXPECTED TO STAY AT THE PROJECT SITE FOR THE ENTIRE DURATION OF HIS/HER SHIFT. THE LEO SHALL REPORT TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

ONCE THE LEO HAS COMPLETED THE DUTIES DESCRIBED ABOVE AND STILL HAS TIME REMAINING ON HIS/HER SHIFT, THE LEO MAY BE ASKED TO PATROL THROUGH THE WORK ZONE (WITH FLASHING LIGHTS OFF) OR BE PLACED AT A LOCATION TO DETER MOTORISTS FROM SPEEDING. SHOULD IT BE NECESSARY TO LEAVE THE PROJECT SITE, THE LEO SHALL NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE THE LEO WITH A TWO-WAY COMMUNICATION DEVICE WHICH SHALL BE RETURNED TO THE CONTRACTOR AT THE END OF HIS/HER SHIFT.

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE (CONT.)

LEOS (WITH PATROL CAR) REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614, LAW ENFORCEMENT OFFICER (WITH PATROL CAR) FOR ASSISTANCE. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE 60 HOURS

THE HOURS PAID SHALL INCLUDE ANY MINIMUM SHOW-UP TIME REQUIRED BY THE LAW ENFORCEMENT AGENCY INVOLVED.

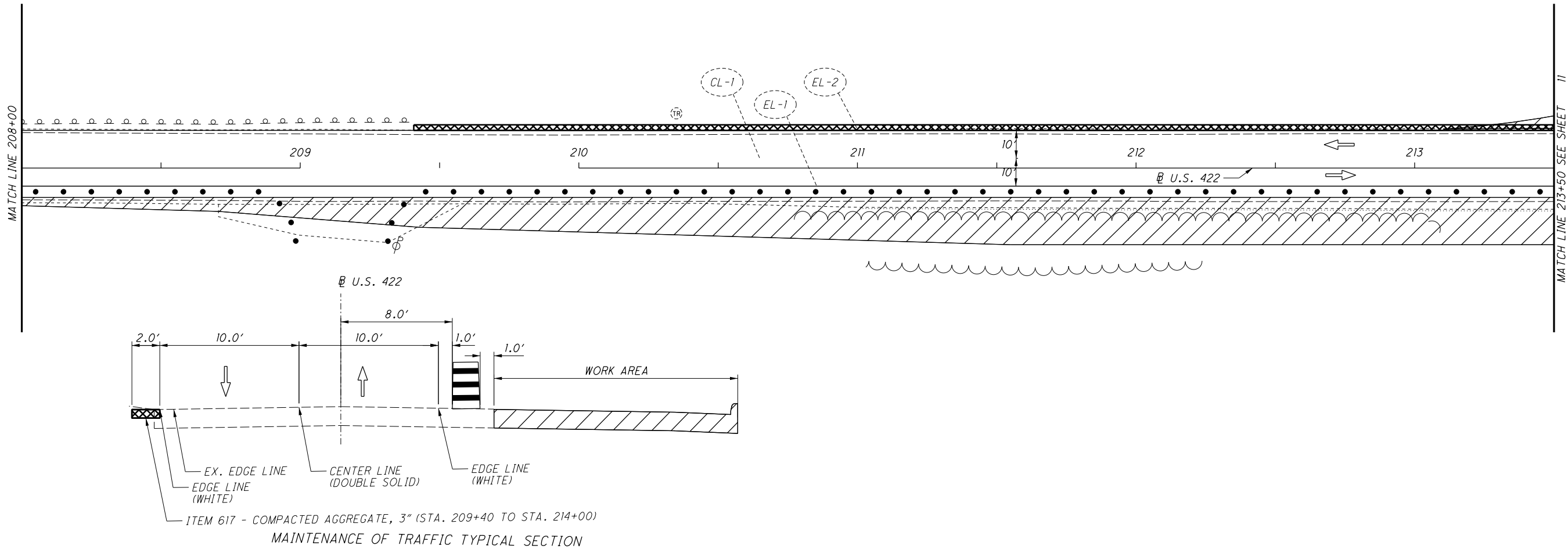
ANY ADDITIONAL COSTS (ADMINISTRATIVE OR OTHERWISE) INCURRED BY THE CONTRACTOR TO OBTAIN THE SERVICES OF AN LEO ARE INCLUDED WITH THE BID UNIT PRICE FOR ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR FOR ASSISTANCE.

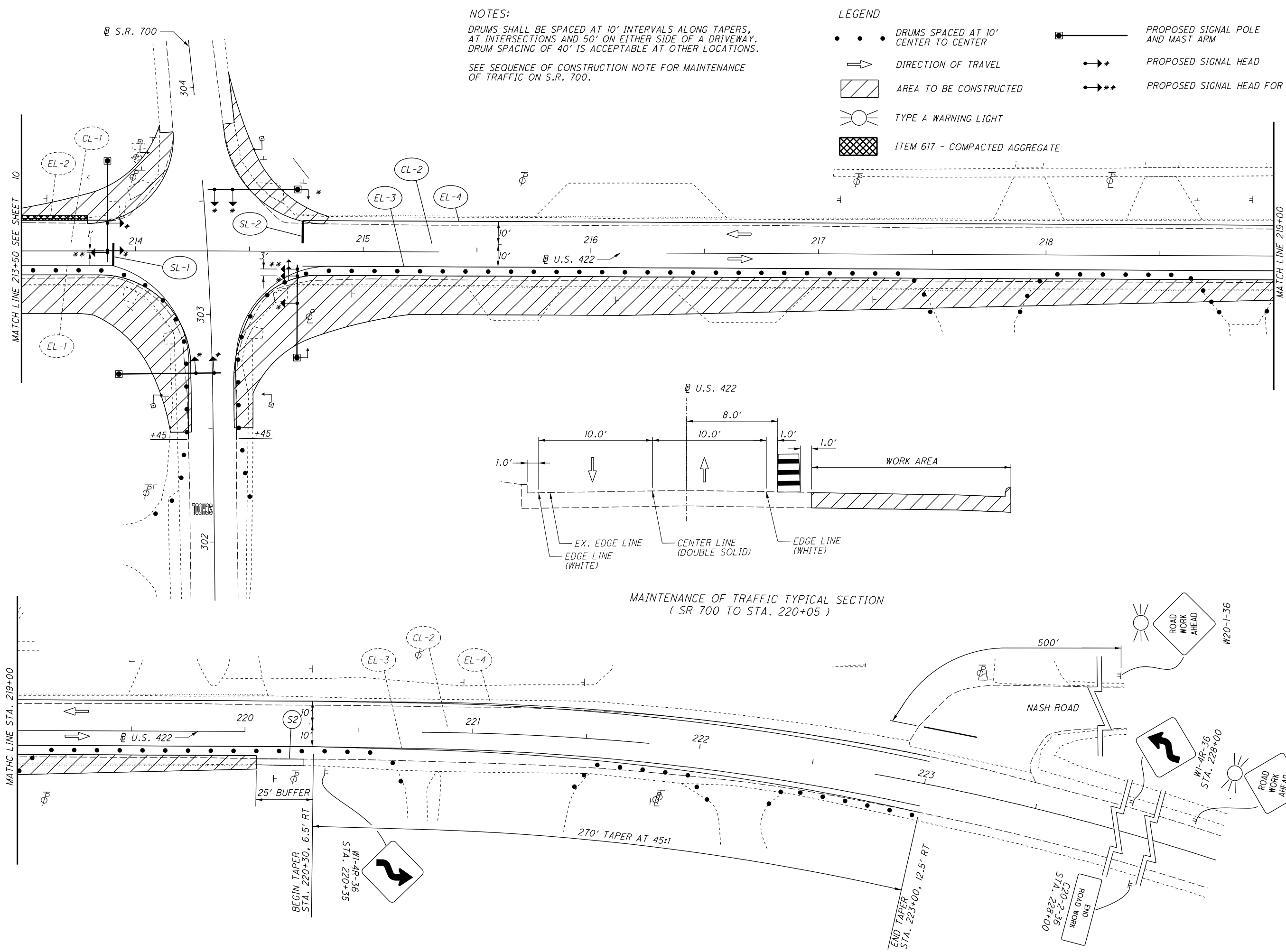
LEGEND

- • • DRUMS SPACED AT 10' CENTER TO CENTER
- ➔ DIRECTION OF TRAVEL
- ▨ AREA TO BE CONSTRUCTED
- ☀ TYPE A WARNING LIGHT
- ▩ ITEM 617 - COMPACTED AGGREGATE

NOTES:

DRUMS SHALL BE SPACED AT 10' INTERVALS ALONG TAPERS, AT INTERSECTIONS AND 50' ON EITHER SIDE OF A DRIVEWAY. DRUM SPACING OF 40' IS ACCEPTABLE AT OTHER LOCATIONS.





NOTES:  
DRUMS SHALL BE SPACED AT 10' INTERVALS ALONG TAPERS, AT INTERSECTIONS AND 50' ON EITHER SIDE OF A DRIVEWAY. DRUM SPACING OF 40' IS ACCEPTABLE AT OTHER LOCATIONS.  
SEE SEQUENCE OF CONSTRUCTION NOTE FOR MAINTENANCE OF TRAFFIC ON S.R. 700.

- LEGEND
- • • DRUMS SPACED AT 10' CENTER TO CENTER
  - ➔ DIRECTION OF TRAVEL
  - ▨ AREA TO BE CONSTRUCTED
  - ☼ TYPE A WARNING LIGHT
  - ▩ ITEM 617 - COMPACTED AGGREGATE
  - PROPOSED SIGNAL POLE AND MAST ARM
  - ➔\* PROPOSED SIGNAL HEAD
  - ➔\*\* PROPOSED SIGNAL HEAD FOR MOT

| SHEET NUM. |    |       |   |   |       |       |       |    |    |    |    |                 | PART.     | ITEM    | ITEM     | GRAND  | UNIT | DESCRIPTION                                                               | SEE<br>SHEET<br>NO. |
|------------|----|-------|---|---|-------|-------|-------|----|----|----|----|-----------------|-----------|---------|----------|--------|------|---------------------------------------------------------------------------|---------------------|
| 5          | 6  | 7     | 8 | 9 | 15    | 16    | 31    | 34 | 35 | 45 | 51 | OFFICE<br>CALCS | 01/SAF/PV |         |          |        |      |                                                                           |                     |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      | ROADWAY                                                                   |                     |
| LS         |    |       |   |   |       |       |       |    |    |    |    |                 | LS        | 201     | 11000    | LS     |      | CLEARING AND GRUBBING                                                     |                     |
| 7          |    |       |   |   |       |       |       |    |    |    |    |                 | 7         | 201     | 21800    | 7      | EACH | TREE REMOVED, 18"                                                         |                     |
| 1          |    |       |   |   |       |       |       |    |    |    |    |                 | 1         | 201     | 23000    | 1      | EACH | TREE REMOVED, 30"                                                         |                     |
|            |    |       |   |   |       | 1     |       |    |    |    |    |                 | 1         | 202     | 20010    | 1      | EACH | HEADWALL REMOVED                                                          |                     |
|            |    |       |   |   | 776   |       |       |    |    |    |    |                 | 776       | 202     | 23000    | 776    | SY   | PAVEMENT REMOVED                                                          |                     |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   | 50    |       |       |    |    |    |    |                 | 50        | 202     | 23010    | 50     | SY   | PAVEMENT REMOVED, ASPHALT                                                 |                     |
|            |    |       |   |   | 212   |       |       |    |    |    |    |                 | 212       | 202     | 30000    | 212    | SF   | WALK REMOVED                                                              |                     |
|            |    |       |   |   | 857   |       |       |    |    |    |    |                 | 857       | 202     | 32000    | 857    | FT   | CURB REMOVED                                                              |                     |
|            |    |       |   |   |       | 1,370 |       |    |    |    |    |                 | 1,370     | 202     | 35100    | 1,370  | FT   | PIPE REMOVED, 24" AND UNDER                                               |                     |
|            |    |       |   |   |       | 4     |       |    |    |    |    |                 | 4         | 202     | 58000    | 4      | EACH | MANHOLE REMOVED                                                           | 6                   |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   |       | 8     |       |    |    |    |    |                 | 8         | 202     | 58100    | 8      | EACH | CATCH BASIN REMOVED                                                       | 6                   |
|            |    |       |   |   | 3     |       |       |    |    |    |    |                 | 3         | 202     | 98100    | 3      | EACH | REMOVAL MISC.:PRIVATE SIGN AND SUPPORT                                    | 6                   |
|            |    |       |   |   |       |       | 1,503 |    |    |    |    |                 | 1,503     | 203     | 10000    | 1,503  | CY   | EXCAVATION                                                                |                     |
|            |    |       |   |   |       |       | 33    |    |    |    |    |                 | 33        | 203     | 20000    | 33     | CY   | EMBANKMENT                                                                |                     |
|            |    |       |   |   |       |       |       |    |    |    |    | 2,280           | 2,280     | 204     | 10000    | 2,280  | SY   | SUBGRADE COMPACTION                                                       |                     |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
| 2          |    |       |   |   |       |       |       |    |    |    |    |                 | 2         | 204     | 45000    | 2      | HOUR | PROOF ROLLING                                                             | 5                   |
|            |    |       |   |   | 289   |       |       |    |    |    |    |                 | 289       | 608     | 52001    | 289    | SF   | CURB RAMP, AS PER PLAN                                                    | 5                   |
|            |    |       |   |   | 48    |       |       |    |    |    |    |                 | 48        | 608     | 53020    | 48     | SF   | DETECTABLE WARNING                                                        |                     |
|            |    |       |   |   |       |       |       |    |    |    | 2  |                 | 2         | 623     | 38500    | 2      | EACH | MONUMENT ASSEMBLY                                                         |                     |
|            |    |       |   |   |       |       |       |    |    |    | 1  |                 | 1         | 623     | 39500    | 1      | EACH | MONUMENT BOX ADJUSTED TO GRADE                                            |                     |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   |       |       |       |    |    |    | 3  |                 | 3         | 623     | 40520    | 3      | EACH | RIGHT-OF-WAY MONUMENT                                                     |                     |
|            |    |       |   |   | 3     |       |       |    |    |    |    |                 | 3         | SPECIAL | 69050350 | 3      | EACH | MAILBOX REMOVED AND RESET                                                 | 5                   |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   |       | 1     |       |    |    |    |    |                 | 1         | 601     | 32204    | 1      | CY   | EROSION CONTROL<br>ROCK CHANNEL PROTECTION, TYPE C WITH GEOTEXTILE FABRIC |                     |
|            |    | 2     |   |   |       |       |       |    |    |    |    |                 | 2         | 659     | 00100    | 2      | EACH | SOIL ANALYSIS TEST                                                        | 7                   |
|            |    | 243   |   |   |       |       |       |    |    |    |    |                 | 243       | 659     | 00300    | 243    | CY   | TOPSOIL                                                                   | 7                   |
|            |    | 2,186 |   |   |       |       |       |    |    |    |    |                 | 2,186     | 659     | 00500    | 2,186  | SY   | SEEDING AND MULCHING, CLASS 1                                             | 7                   |
|            |    | 109   |   |   |       |       |       |    |    |    |    |                 | 109       | 659     | 14000    | 109    | SY   | REPAIR SEEDING AND MULCHING                                               | 7                   |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    | 109   |   |   |       |       |       |    |    |    |    |                 | 109       | 659     | 15000    | 109    | SY   | INTER-SEEDING                                                             | 7                   |
|            |    | 0.3   |   |   |       |       |       |    |    |    |    |                 | 0.3       | 659     | 20000    | 0.3    | TON  | COMMERCIAL FERTILIZER                                                     | 7                   |
|            |    | 0.45  |   |   |       |       |       |    |    |    |    |                 | 0.45      | 659     | 31000    | 0.45   | ACRE | LIME                                                                      | 7                   |
|            |    | 12    |   |   |       |       |       |    |    |    |    |                 | 12        | 659     | 35000    | 12     | MGAL | WATER                                                                     | 7                   |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   |       |       |       |    |    |    |    |                 | LS        | 832     | 15000    | LS     |      | STORM WATER POLLUTION PREVENTION PLAN                                     |                     |
|            |    |       |   |   |       | 12    |       |    |    |    |    | 30,000          | 30,000    | 832     | 30000    | 30,000 | EACH | EROSION CONTROL                                                           |                     |
|            |    |       |   |   |       |       |       |    |    |    |    |                 | 12        | 836     | 10000    | 12     | SY   | SEEDING AND EROSION CONTROL WITH TURF REINFORCING MAT, TYPE 1             |                     |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   |       | 0.27  |       |    |    |    |    |                 | 0.27      | 602     | 20000    | 0.27   | CY   | DRAINAGE<br>CONCRETE MASONRY                                              |                     |
|            |    | 100   |   |   |       |       |       |    |    |    |    |                 | 100       | 605     | 13300    | 100    | FT   | 6" UNCLASSIFIED PIPE UNDERDRAINS                                          | 7                   |
|            |    |       |   |   |       | 1,320 |       |    |    |    |    |                 | 1,320     | 605     | 14020    | 1,320  | FT   | 6" BASE PIPE UNDERDRAINS WITH GEOTEXTILE FABRIC                           |                     |
|            | 50 |       |   |   |       |       |       |    |    |    |    |                 | 50        | 611     | 00200    | 50     | FT   | 4" CONDUIT, TYPE C                                                        | 6                   |
|            | 50 |       |   |   |       |       |       |    |    |    |    |                 | 50        | 611     | 01100    | 50     | FT   | 6" CONDUIT, TYPE C                                                        | 6                   |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    | 30    |   |   |       | 73    |       |    |    |    |    |                 | 103       | 611     | 01500    | 103    | FT   | 6" CONDUIT, TYPE F                                                        | 7                   |
|            |    |       |   |   |       | 55    |       |    |    |    |    |                 | 55        | 611     | 04400    | 55     | FT   | 12" CONDUIT, TYPE B                                                       |                     |
|            |    |       |   |   |       | 10    |       |    |    |    |    |                 | 10        | 611     | 04600    | 10     | FT   | 12" CONDUIT, TYPE C                                                       |                     |
|            |    |       |   |   |       | 1,285 |       |    |    |    |    |                 | 1,285     | 611     | 05900    | 1,285  | FT   | 15" CONDUIT, TYPE B                                                       |                     |
|            |    |       |   |   |       | 1     |       |    |    |    |    |                 | 1         | 611     | 98150    | 1      | EACH | CATCH BASIN, NO. 3                                                        | 5                   |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   |       | 5     |       |    |    |    |    |                 | 5         | 611     | 98180    | 5      | EACH | CATCH BASIN, NO. 3A                                                       | 5                   |
|            |    |       |   |   |       | 2     |       |    |    |    |    |                 | 2         | 611     | 98470    | 2      | EACH | CATCH BASIN, NO. 2-2B                                                     | 5                   |
|            |    |       |   |   |       | 5     |       |    |    |    |    |                 | 5         | 611     | 98630    | 5      | EACH | CATCH BASIN ADJUSTED TO GRADE                                             | 5                   |
|            |    |       |   |   |       | 5     |       |    |    |    |    |                 | 5         | 611     | 98650    | 5      | EACH | CATCH BASIN FRAME AND GRATE                                               | 5                   |
|            |    |       |   |   |       | 3     |       |    |    |    |    |                 | 3         | 611     | 99574    | 3      | EACH | MANHOLE, NO. 3                                                            |                     |
|            | 3  |       |   |   |       |       |       |    |    |    |    |                 | 3         | 611     | 99720    | 3      | EACH | INSPECTION WELL                                                           | 6                   |
|            |    | 500   |   |   |       |       |       |    |    |    |    |                 | 500       | SPECIAL | 61199820 | 500    | LB   | MISCELLANEOUS METAL                                                       | 7                   |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   |       |       |       |    |    |    |    |                 |           |         |          |        |      |                                                                           |                     |
|            |    |       |   |   | 1,515 |       |       |    |    |    |    |                 | 1,515     | 252     | 01500    | 1,515  | FT   | PAVEMENT<br>FULL DEPTH PAVEMENT SAWING                                    |                     |
|            |    |       |   |   |       |       |       |    |    |    |    | 3,813           | 3,813     | 254     | 01000    | 3,813  | SY   | PAVEMENT PLANING, ASPHALT CONCRETE, 1.5"                                  |                     |
|            |    |       |   |   |       |       |       |    |    |    |    | 491             | 491       | 301     | 46000    | 491    | CY   | ASPHALT CONCRETE BASE, PG64-22                                            |                     |

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GENERAL SUMMARY

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| SHEET NUM. |   |   |     |   |       |    |    |     |     |     |    |                 | PART.     | ITEM | ITEM<br>EXT | GRAND<br>TOTAL | UNIT | DESCRIPTION                                                                                       | SEE<br>SHEET<br>NO.  | CALCULATED<br>MSL | CHECKED | ALR |
|------------|---|---|-----|---|-------|----|----|-----|-----|-----|----|-----------------|-----------|------|-------------|----------------|------|---------------------------------------------------------------------------------------------------|----------------------|-------------------|---------|-----|
| 5          | 6 | 7 | 8   | 9 | 15    | 16 | 31 | 34  | 35  | 45  | 51 | OFFICE<br>CALCS | 01/SAF/PV |      |             |                |      |                                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      | PAVEMENT, CONTINUED                                                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 405             | 405       | 304  | 20000       | 405            | CY   | AGGREGATE BASE                                                                                    |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 389             | 389       | 407  | 20000       | 389            | GAL  | NON-TRACKING TACK COAT                                                                            |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 79              | 79        | 411  | 10000       | 79             | CY   | STABILIZED CRUSHED AGGREGATE                                                                      |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 6               | 6         | 441  | 50400       | 6              | CY   | ASPHALT CONCRETE SURFACE COURSE, TYPE 1, (448), (DRIVEWAYS)                                       |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 240             | 240       | 442  | 20001       | 240            | CY   | ASPHALT CONCRETE SURFACE COURSE, 12.5 MM, TYPE A (448), AS PER PLAN, PG70-22M                     | 5                    |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 95              | 95        | 442  | 20200       | 95             | CY   | ASPHALT CONCRETE INTERMEDIATE COURSE, 19 MM, TYPE A (448)                                         | 6                    |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 33              | 33        | 452  | 12010       | 33             | SY   | 8" NON-REINFORCED CONCRETE PAVEMENT, CLASS QC1                                                    |                      |                   |         |     |
|            |   |   |     |   | 1,117 |    |    |     |     |     |    |                 | 1,117     | 609  | 26000       | 1,117          | FT   | CURB, TYPE 6                                                                                      |                      |                   |         |     |
|            |   |   | 10  |   |       |    |    |     |     |     |    |                 | 10        | 617  | 10100       | 10             | CY   | COMPACTED AGGREGATE                                                                               | 3, 8                 |                   |         |     |
|            |   |   | 110 |   |       |    |    |     |     |     |    |                 | 177       | 287  | 617         | 20000          | 287  | SY                                                                                                | SHOULDER PREPARATION | 3, 8              |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      |                                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 0.48            | 0.48      | 617  | 25000       | 0.48           | MGAL | WATER                                                                                             |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    | 299             | 299       | 875  | 10000       | 299            | LB   | LONGITUDINAL JOINT ADHESIVE                                                                       |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      | TRAFFIC CONTROL                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     | 64  |     |    |                 | 64        | 621  | 00100       | 64             | EACH | RPM                                                                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     | 64  |     |    |                 | 64        | 621  | 54000       | 64             | EACH | RAISED PAVEMENT MARKER REMOVED                                                                    |                      |                   |         |     |
|            |   |   |     |   |       |    |    | 172 |     |     |    |                 | 172       | 630  | 03100       | 172            | FT   | GROUND MOUNTED SUPPORT, NO. 3 POST                                                                |                      |                   |         |     |
|            |   |   |     |   |       |    |    | 77  |     |     |    |                 | 77        | 630  | 80100       | 77             | SF   | SIGN, FLAT SHEET                                                                                  |                      |                   |         |     |
|            |   |   |     |   |       |    |    | 17  |     |     |    |                 | 17        | 630  | 84900       | 17             | EACH | REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL                                                       |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     | 5   |     |    |                 | 5         | 630  | 85100       | 5              | EACH | REMOVAL OF GROUND MOUNTED SIGN AND REERECTION                                                     |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     | 14  |     |    |                 | 14        | 630  | 86002       | 14             | EACH | REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     | 4   |     |    |                 | 4         | 630  | 87500       | 4              | EACH | REMOVAL OF POLE MOUNTED SIGN AND DISPOSAL                                                         |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     | 72  |     |    |                 | 72        | 644  | 00500       | 72             | FT   | STOP LINE                                                                                         |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     | 243 |     |    |                 | 243       | 644  | 00600       | 243            | FT   | CROSSWALK LINE                                                                                    |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      |                                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 | 171       | 644  | 00700       | 171            | FT   | TRANSVERSE/DIAGONAL LINE                                                                          |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 | 5         | 644  | 01300       | 5              | EACH | LANE ARROW                                                                                        |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 | 0.47      | 646  | 10010       | 0.47           | MILE | EDGE LINE, 6"                                                                                     |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 | 0.37      | 646  | 10200       | 0.37           | MILE | CENTER LINE                                                                                       |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 | 328       | 646  | 10300       | 328            | FT   | CHANNELIZING LINE, 8"                                                                             |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      | TRAFFIC SIGNALS                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 10  |    |                 | 10        | 625  | 25400       | 10             | FT   | CONDUIT, 2", 725.04                                                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 101 |    |                 | 101       | 625  | 25402       | 101            | FT   | CONDUIT, 2", 725.05                                                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 165 |    |                 | 165       | 625  | 25600       | 165            | FT   | CONDUIT, 4", 725.04                                                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 6   |    |                 | 6         | 625  | 25602       | 6              | FT   | CONDUIT, 4", 725.05                                                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 72  |    |                 | 72        | 625  | 25902       | 72             | FT   | CONDUIT, JACKED OR DRILLED, 725.04, 4"                                                            |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      |                                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 279 |    |                 | 279       | 625  | 29000       | 279            | FT   | TRENCH                                                                                            |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 4   |    |                 | 4         | 625  | 30706       | 4              | EACH | PULL BOX, 725.08, 24"                                                                             |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 9   |    |                 | 9         | 625  | 32000       | 9              | EACH | GROUND ROD                                                                                        |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 12  |    |                 | 12        | 630  | 79100       | 12             | EACH | SIGN HANGER ASSEMBLY, MAST ARM                                                                    |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 36  |    |                 | 36        | 630  | 80100       | 36             | SF   | SIGN, FLAT SHEET                                                                                  |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      |                                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 8   |    |                 | 8         | 632  | 05007       | 8              | EACH | VEHICULAR SIGNAL HEAD, (LED), 3-SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN              | 40                   |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 1   |    |                 | 1         | 632  | 05203       | 1              | EACH | VEHICULAR SIGNAL HEAD, (LED), 3-SECTION 12"/5-SECTION 12" LENS, 2-WAY, POLYCARBONATE, AS PER PLAN | 40                   |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 6   |    |                 | 6         | 632  | 20731       | 6              | EACH | PEDESTRIAN SIGNAL HEAD (LED), TYPE D2, COUNTDOWN, AS PER PLAN                                     | 39                   |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 9   |    |                 | 9         | 632  | 25000       | 9              | EACH | COVERING OF VEHICULAR SIGNAL HEAD                                                                 | 40                   |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      |                                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 6   |    |                 | 6         | 632  | 25010       | 6              | EACH | COVERING OF PEDESTRIAN SIGNAL HEAD                                                                |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 2   |    |                 | 2         | 632  | 26000       | 2              | EACH | PEDESTRIAN PUSHBUTTON                                                                             |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 563 |    |                 | 563       | 632  | 40500       | 563            | FT   | SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG                                                             |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 856 |    |                 | 856       | 632  | 40700       | 856            | FT   | SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG                                                             |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 277 |    |                 | 277       | 632  | 40900       | 277            | FT   | SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG                                                             |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      |                                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 4   |    |                 | 4         | 632  | 64010       | 4              | EACH | SIGNAL SUPPORT FOUNDATION                                                                         | 40                   |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 4   |    |                 | 4         | 632  | 64020       | 4              | EACH | PEDESTAL FOUNDATION                                                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 57  |    |                 | 57        | 632  | 68200       | 57             | FT   | POWER CABLE, 2 CONDUCTOR, NO. 6 AWG                                                               |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 262 |    |                 | 262       | 632  | 69800       | 262            | FT   | SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG                                                             |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 1   |    |                 | 1         | 632  | 70000       | 1              | EACH | POWER SERVICE                                                                                     | 40                   |                   |         |     |
|            |   |   |     |   |       |    |    |     |     |     |    |                 |           |      |             |                |      |                                                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 1   |    |                 | 1         | 632  | 70400       | 1              | EACH | CONDUIT RISER, 2" DIAMETER                                                                        |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 4   |    |                 | 4         | 632  | 80502       | 4              | EACH | SIGNAL SUPPORT, TYPE TC-81.21, DESIGN II                                                          |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 4   |    |                 | 4         | 632  | 90000       | 4              | EACH | PEDESTAL, II', TRANSFORMER BASE                                                                   |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 1   |    |                 | 1         | 632  | 90100       | 1              | EACH | REMOVAL OF TRAFFIC SIGNAL INSTALLATION                                                            |                      |                   |         |     |
|            |   |   |     |   |       |    |    |     |     | 1   |    |                 | 1         | 633  | 01660       | 1              | EACH | CONTROLLER UNIT, TYPE 2070E WITH SEPAC SOFTWARE, WITH CABINET, TYPE 332                           | 41                   |                   |         |     |

GENERAL SUMMARY

GEA - 422 - 13.04



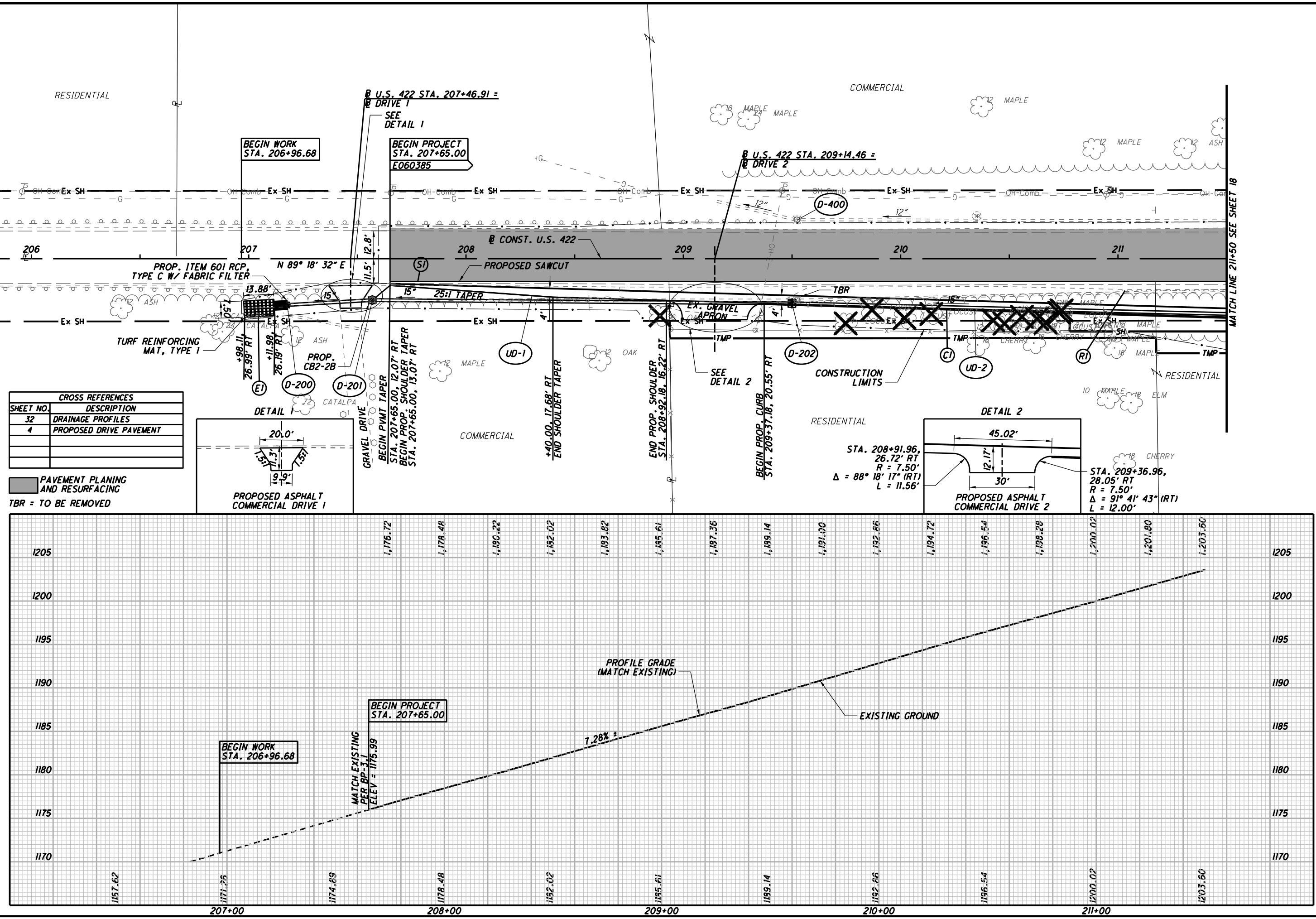
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| REFERENCE NO.                    | SHEET NO. | STATION TO STATION |                   | SIDE | 202              | 202                       | 202          | 202          | 202                                      | 252                        |  | 608                    | 608                | 609          | 690                       |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------------------|-----------|--------------------|-------------------|------|------------------|---------------------------|--------------|--------------|------------------------------------------|----------------------------|--|------------------------|--------------------|--------------|---------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|
|                                  |           |                    |                   |      | PAVEMENT REMOVED | PAVEMENT REMOVED, ASPHALT | CURB REMOVED | WALK REMOVED | REMOVAL, MISC.: PRIVATE SIGN AND SUPPORT | FULL DEPTH PAVEMENT SAWING |  | CURB RAMP, AS PER PLAN | DETECTABLE WARNING | CURB, TYPE 6 | MAILBOX REMOVED AND RESET |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      | SY               | SY                        | FT           | SF           | EACH                                     | FT                         |  | SF                     | SF                 | FT           | EACH                      |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           | FROM               | TO                |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R1                               | 17        | 211+01.91, 14.61'  | 211+50.00, 14.85' | RT   |                  |                           | 48           |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R2                               | 17        | 207+65.00, 12.33'  | 211+50.00, 14.32' | RT   | 113              |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S1                               | 17        | 207+65.00, 12.33'  | 211+50.00, 10.5'  | RT   |                  |                           |              |              |                                          | 387                        |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C1                               | 17        | 209+37.18, 20.55'  | 211+50.00, 26.85' | RT   |                  |                           |              |              |                                          |                            |  |                        |                    | 213          |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R1                               | 18        | 211+50.00, 14.85'  | 214+14.53, 33.59' | RT   |                  |                           | 265          |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R2                               | 18        | 214+69.63, 15.41'  | 216+50.00, 15.50' | RT   |                  |                           | 180          |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R3                               | 18        | 214+69.89, 16.48'  | 214+85.06, 15.89' | LT   |                  |                           | 13           |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R4                               | 18        | 213+95.26, 15.99'  | 214+01.47, 18.91' | RT   |                  |                           |              | 32           |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R5                               | 18        | 213+97.88, 22.38'  | 214+06.99, 29.44' | LT   |                  |                           |              | 46           |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R6                               | 18        | 214+52.90, 29.97'  | 214+64.94, 20.96' | LT   |                  |                           |              | 56           |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R7                               | 18        | 214+49.68, 38.10'  | 214+52.05, 33.38' | RT   |                  |                           |              | 26           |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R8                               | 18        | 214+60.78, 18.45'  | 214+66.88, 15.78' | RT   |                  |                           |              | 30           |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R9                               | 18        | 211+50.00, 14.32'  | 214+24.60, 79.58' | RT   | 169              |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R10                              | 18        | 214+43.75, 77.76'  | 216+50.00, 14.95' | RT   | 135              |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R11                              | 18        | 215+45.83, 15.29'  | 215+87.43, 15.70' | RT   | 54               |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R12                              | 18        | 216+15.45, 47.47'  |                   | RT   |                  |                           |              |              | 1                                        |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R13                              | 18        | 214+12.08, 36.63'  | 214+17.21, 40.97' | RT   |                  |                           |              | 23           |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S1                               | 18        | 211+50.00, 10.5'   | 214+24.60, 79.58' | RT   |                  |                           |              |              | 335                                      |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S2                               | 18        | 214+43.75, 77.76'  | 216+50.00, 10.50' | RT   |                  |                           |              |              | 263                                      |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S3                               | 18        | 213+78.82, 12.07'  | 214+16.52, 52.31' | LT   |                  |                           |              |              | 70                                       |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S4                               | 18        | 214+38.23, 55.72'  | 214+82.53, 12.06' | LT   |                  |                           |              |              | 77                                       |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CR1                              | 18        | 214+17.50, 59.69'  | 214+18.85, 65.53' | RT   |                  |                           |              |              |                                          |                            |  | 49                     | 8                  |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CR2                              | 18        | 214+10.33, 41.06'  | 214+11.01, 47.04' | LT   |                  |                           |              |              |                                          |                            |  | 46                     | 8                  |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CR3                              | 18        | 214+44.27, 48.75'  | 214+45.70, 42.90' | LT   |                  |                           |              |              |                                          |                            |  | 46                     | 8                  |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CR4                              | 18        | 214+64.73, 20.13'  | 214+70.58, 17.55' | LT   |                  |                           |              |              |                                          |                            |  | 50                     | 8                  |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CR5                              | 18        | 214+49.37, 65.10'  | 214+50.78, 59.27' | RT   |                  |                           |              |              |                                          |                            |  | 46                     | 8                  |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CR6                              | 18        | 214+64.85, 37.98'  | 214+70.48, 33.88' | RT   |                  |                           |              |              |                                          |                            |  | 52                     | 8                  |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C1                               | 18        | 211+50.00, 26.85'  | 214+19.55, 79.64' | RT   |                  |                           |              |              |                                          |                            |  |                        |                    | 302          |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C2                               | 18        | 214+48.75, 77.68'  | 216+50.00, 26.01' | RT   |                  |                           |              |              |                                          |                            |  |                        |                    | 232          |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C3                               | 18        | 214+70.58, 17.55'  | 214+85.06, 15.26' | LT   |                  |                           |              |              |                                          |                            |  |                        |                    | 15           |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R1                               | 19        | 216+50.00, 15.50'  | 220+00.86, 15.08' | RT   |                  |                           | 351          |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R2                               | 19        | 216+50.00, 14.95'  | 220+25.88, 12.03' | RT   | 179              |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R3                               | 19        | 216+35.50, 15.53'  | 216+97.59, 15.48' | RT   | 79               |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R4                               | 19        | 217+46.57, 16.03'  | 217+93.46, 15.62' | RT   |                  | 50                        |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R5                               | 19        | 218+68.69, 15.64'  | 219+02.36, 15.22' | RT   | 46               |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R6                               | 19        | 216+98.31, 54.32'  |                   | RT   |                  |                           |              |              | 1                                        |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| R7                               | 19        | 218+46.13, 28.64'  |                   | RT   |                  |                           |              |              | 1                                        |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S1                               | 19        | 216+50.00, 10.50'  | 220+05.00, 10.50' | RT   |                  |                           |              |              |                                          | 360                        |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| S2                               | 19        | 220+05.00, 10.50'  | 220+25.84, 12.03' | RT   | 2                |                           |              |              |                                          | 22                         |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| C1                               | 19        | 216+50.00, 26.14'  | 220+05.00, 15.97' | RT   |                  |                           |              |              |                                          |                            |  |                        |                    | 355          |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| M1                               |           | 217+98.45, 15.64'  |                   | RT   |                  |                           |              |              |                                          |                            |  |                        |                    |              | 3                         |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                  |           |                    |                   |      |                  |                           |              |              |                                          |                            |  |                        |                    |              |                           |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TOTAL CARRIED TO GENERAL SUMMARY |           |                    |                   |      | 776              | 50                        | 857          | 212          | 3                                        | 1515                       |  | 289                    | 48                 | 1117         | 3                         |  |  |  |  |  |  |  |  |  |  |  |  |  |

|                                       |               |                    |            |
|---------------------------------------|---------------|--------------------|------------|
| <div><div>15</div><div>61</div></div> | GEA-422-13.04 | ROADWAY SUBSUMMARY | CALCULATED |
|                                       |               |                    | MSL        |
|                                       |               |                    | CHECKED    |
|                                       |               |                    | ALR        |



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0

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20

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10

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CALCULATED JMC  
CHECKED ALR

PLAN AND PROFILE  
BEGIN PROJECT TO STA. 211+50.00

GEA-422-13.04

17

• B CONST. U.S. 422 STA. 214+31.54 =  
B CONST. S.R. 700 STA. 303+27.96

① S.R. 700  
P.I. Sta. 303+27.92  
 $\Delta = 5^\circ 30' 28" \text{ (LT)}$   
 $Dc = 4^\circ 00' 00"$   
 $R = 1,432.39'$   
 $T = 68.90'$   
 $L = 137.69'$   
 $E = 1.66'$   
 $C = 137.64'$   
 $C.B. = N 4^\circ 05' 24" W$   
 $emax = N.C.$

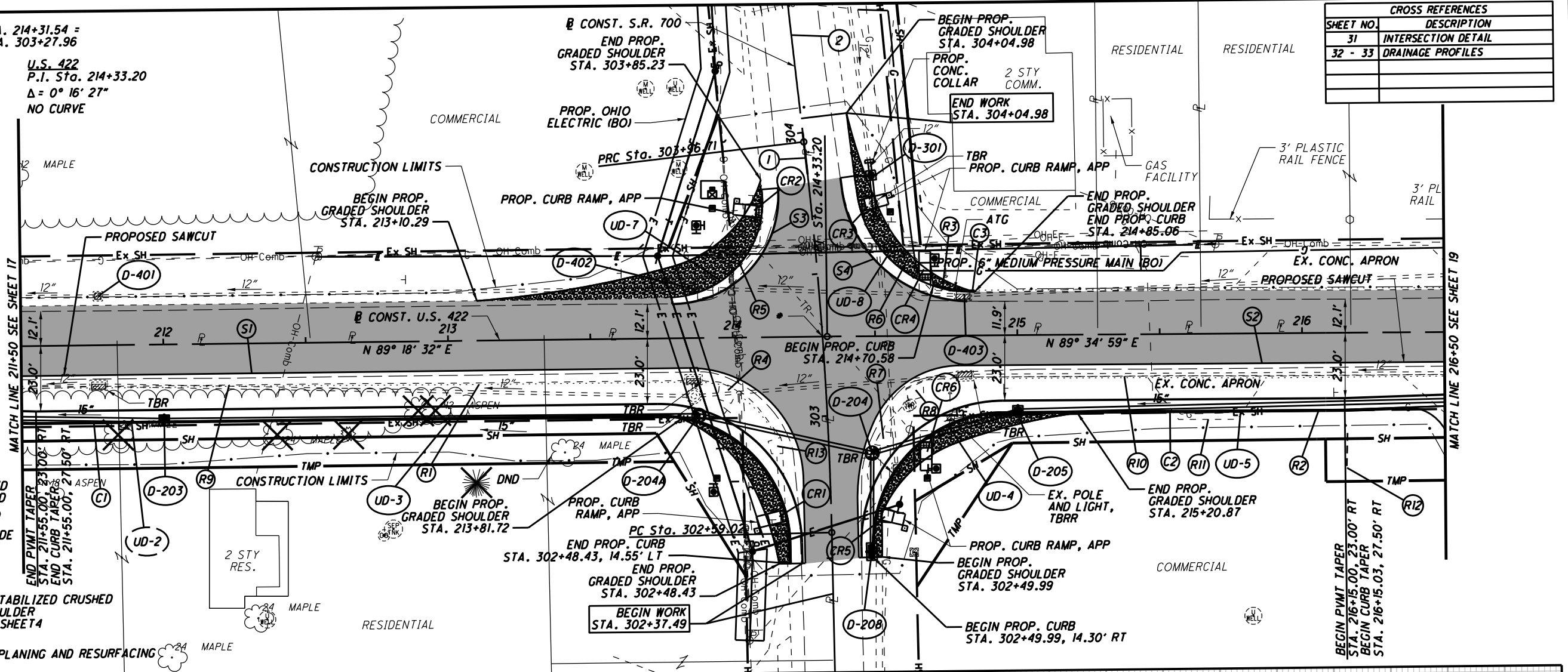
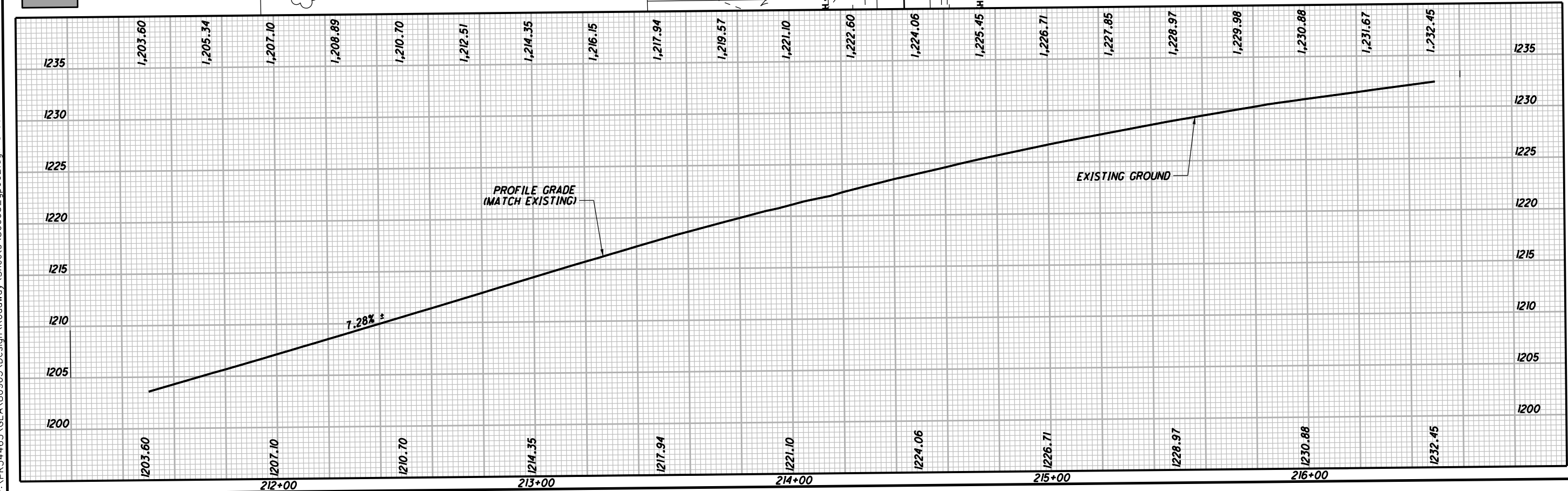
U.S. 422  
P.I. Sta. 214+33.20  
 $\Delta = 0^\circ 16' 27"$   
NO CURVE

② S.R. 700  
P.I. Sta. 305+25.52  
 $\Delta = 2^\circ 03' 39" \text{ (RT)}$   
 $Dc = 0^\circ 48' 00"$   
 $R = 7,161.97'$   
 $T = 128.82'$   
 $L = 257.60'$   
 $E = 1.16'$   
 $C = 257.59'$   
 $C.B. = N 5^\circ 49' 23" W$   
 $emax = N.C.$

BO = BY OTHERS  
TBRR = TO BE REMOVED  
AND RELOCATED  
TBR = TO BE REMOVED  
ATG = ADJUST TO GRADE  
RTG = RECONSTRUCT  
TO GRADE  
APP = AS PER PLAN

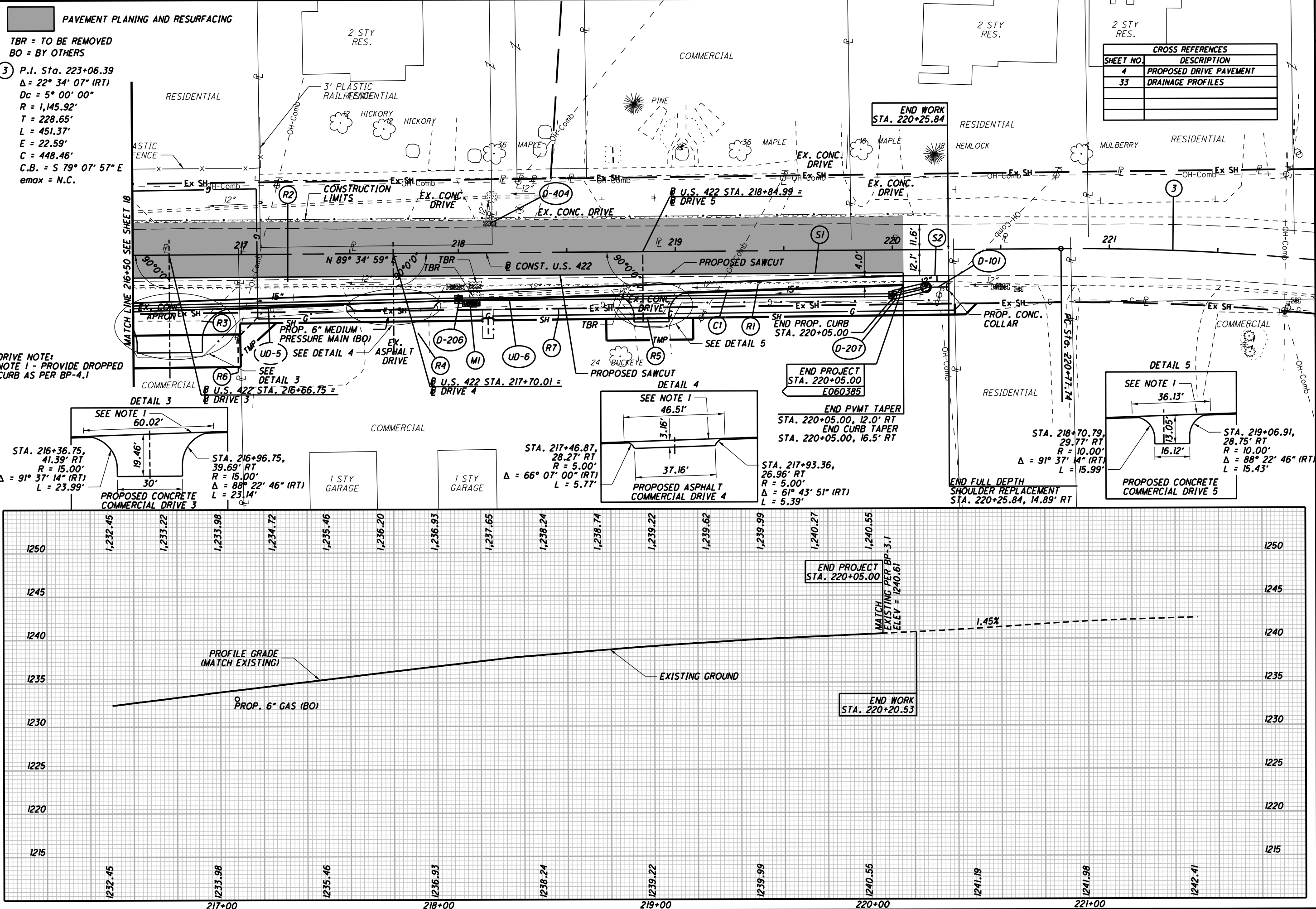
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AGGREGATE SHOULDER  
SEE DETAIL ON SHEET 4

PAVEMENT PLANING AND RESURFACING

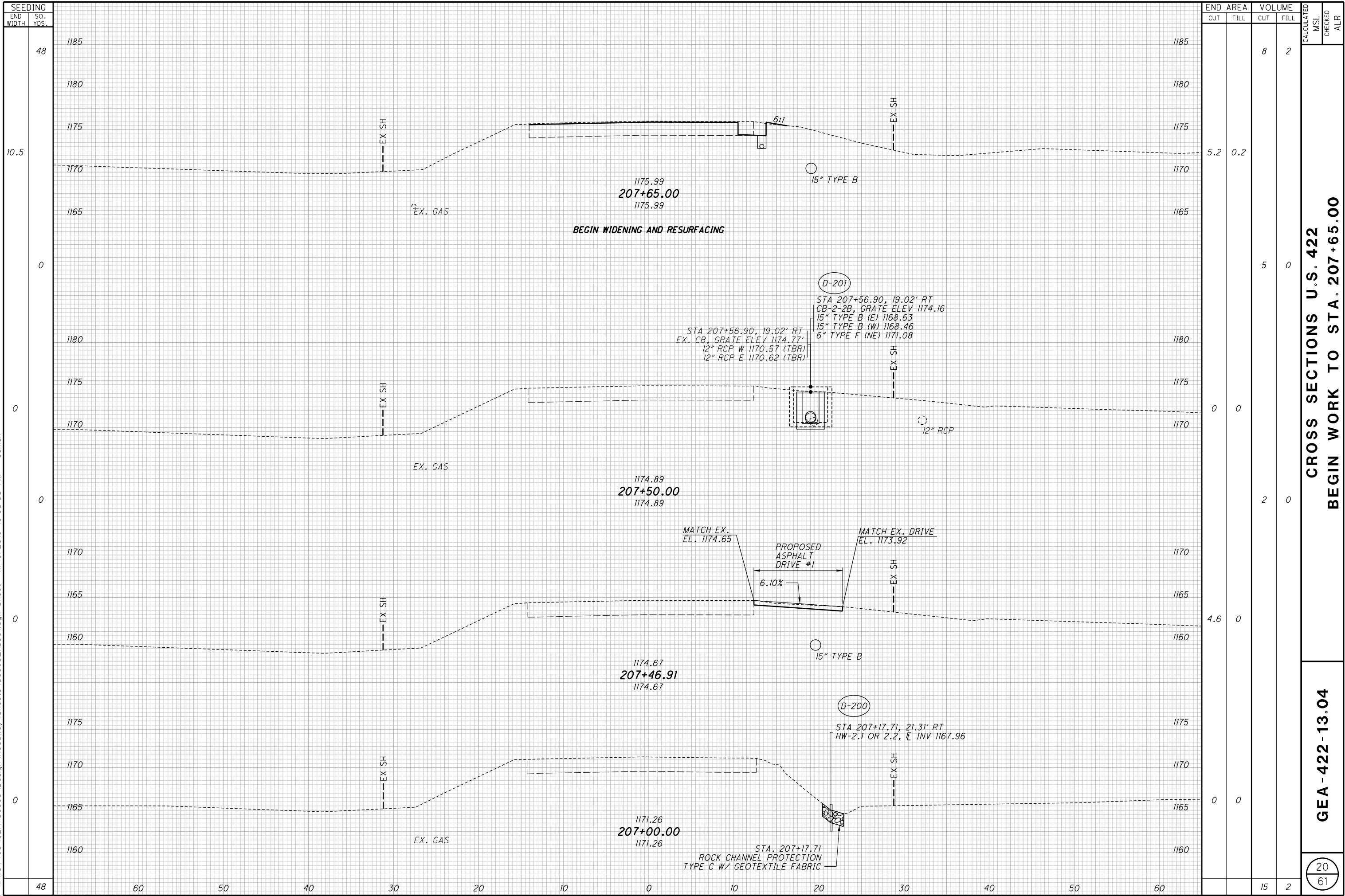


| CROSS REFERENCES |                     |
|------------------|---------------------|
| SHEET NO.        | DESCRIPTION         |
| 31               | INTERSECTION DETAIL |
| 32 - 33          | DRAINAGE PROFILES   |
|                  |                     |
|                  |                     |

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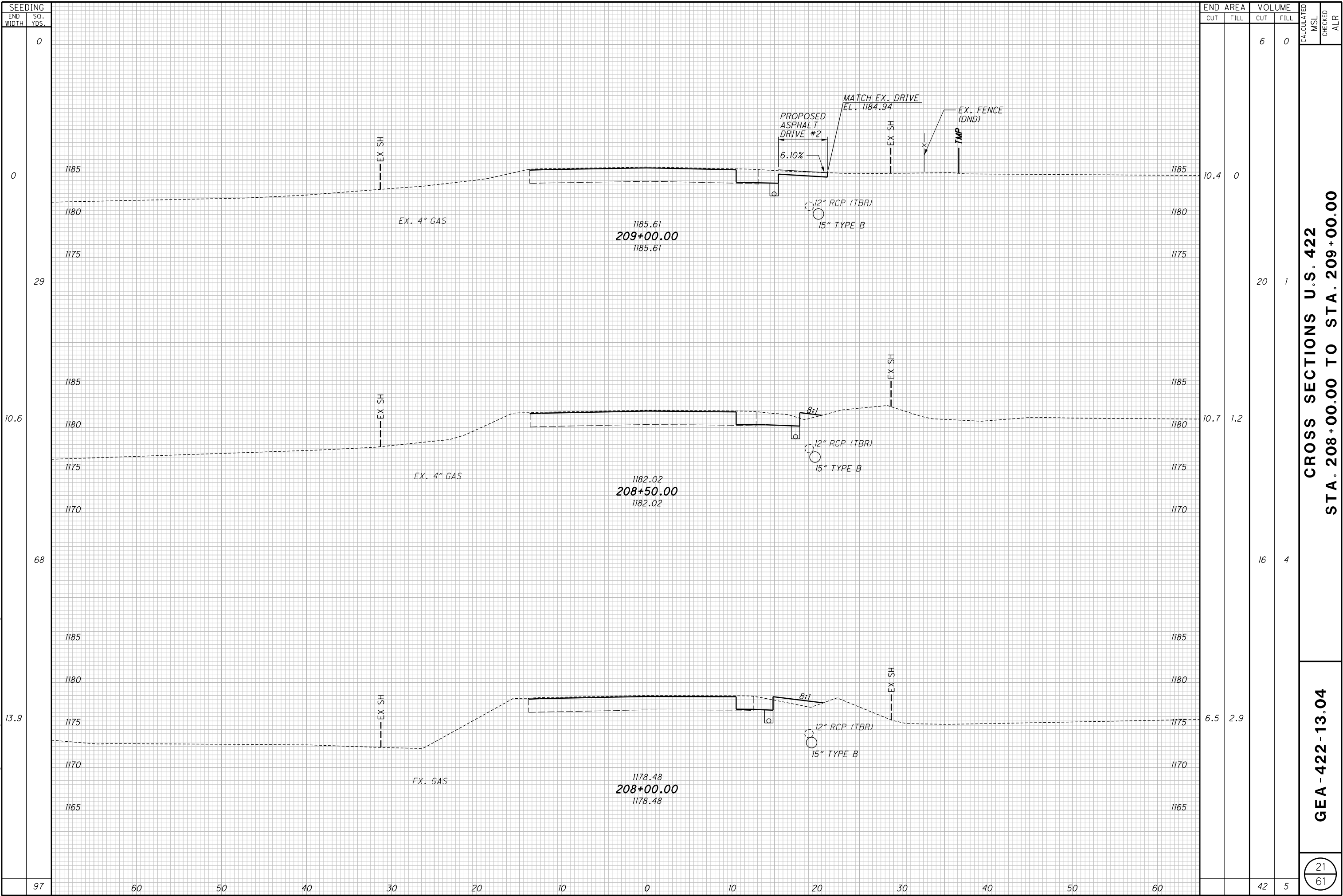


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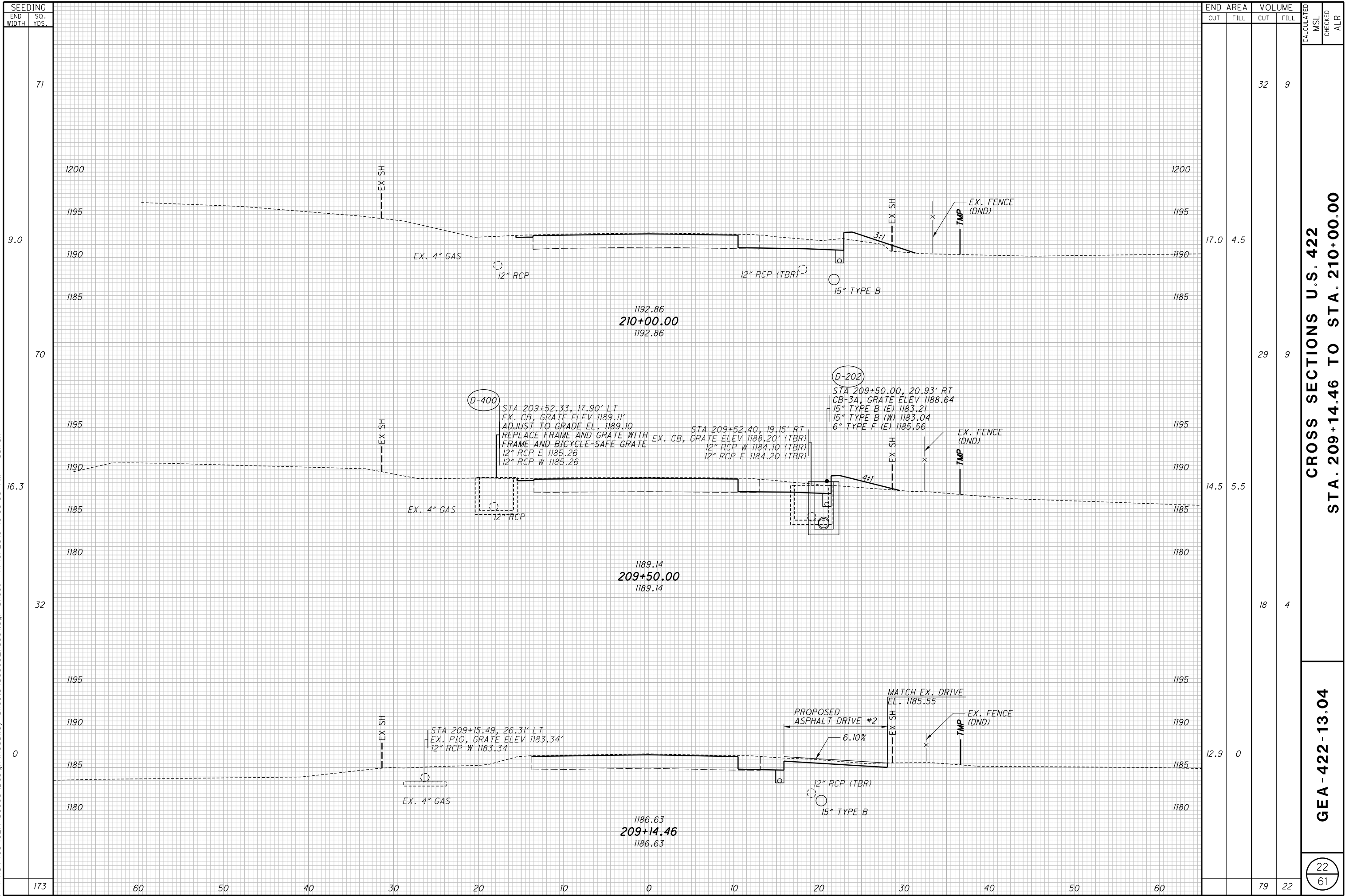
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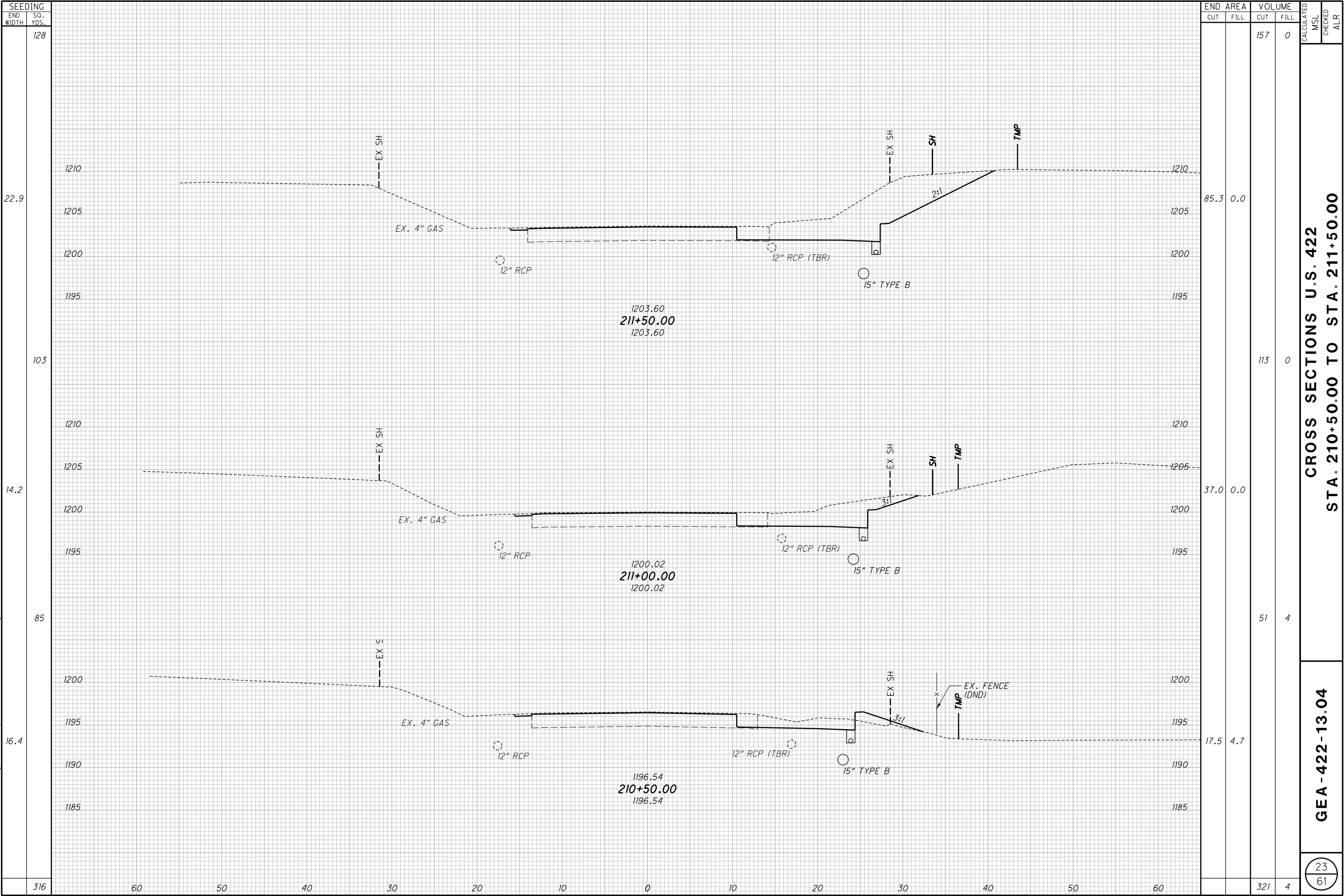
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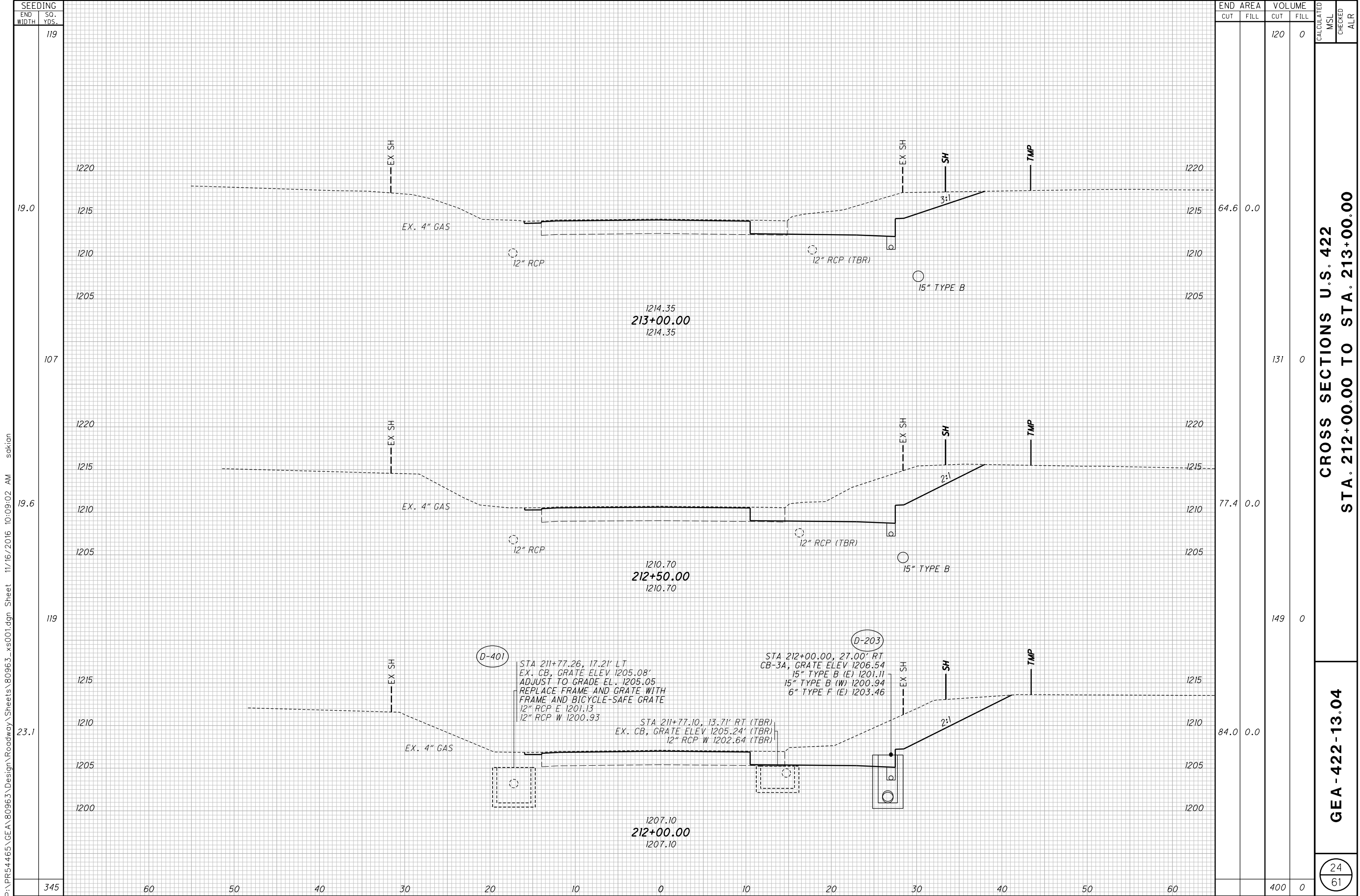


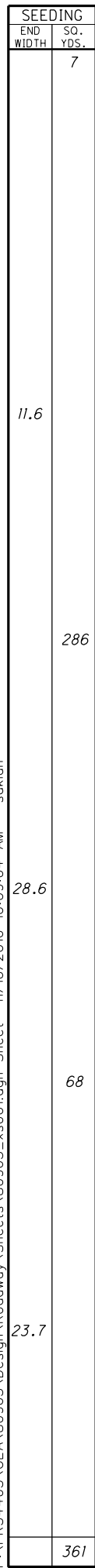
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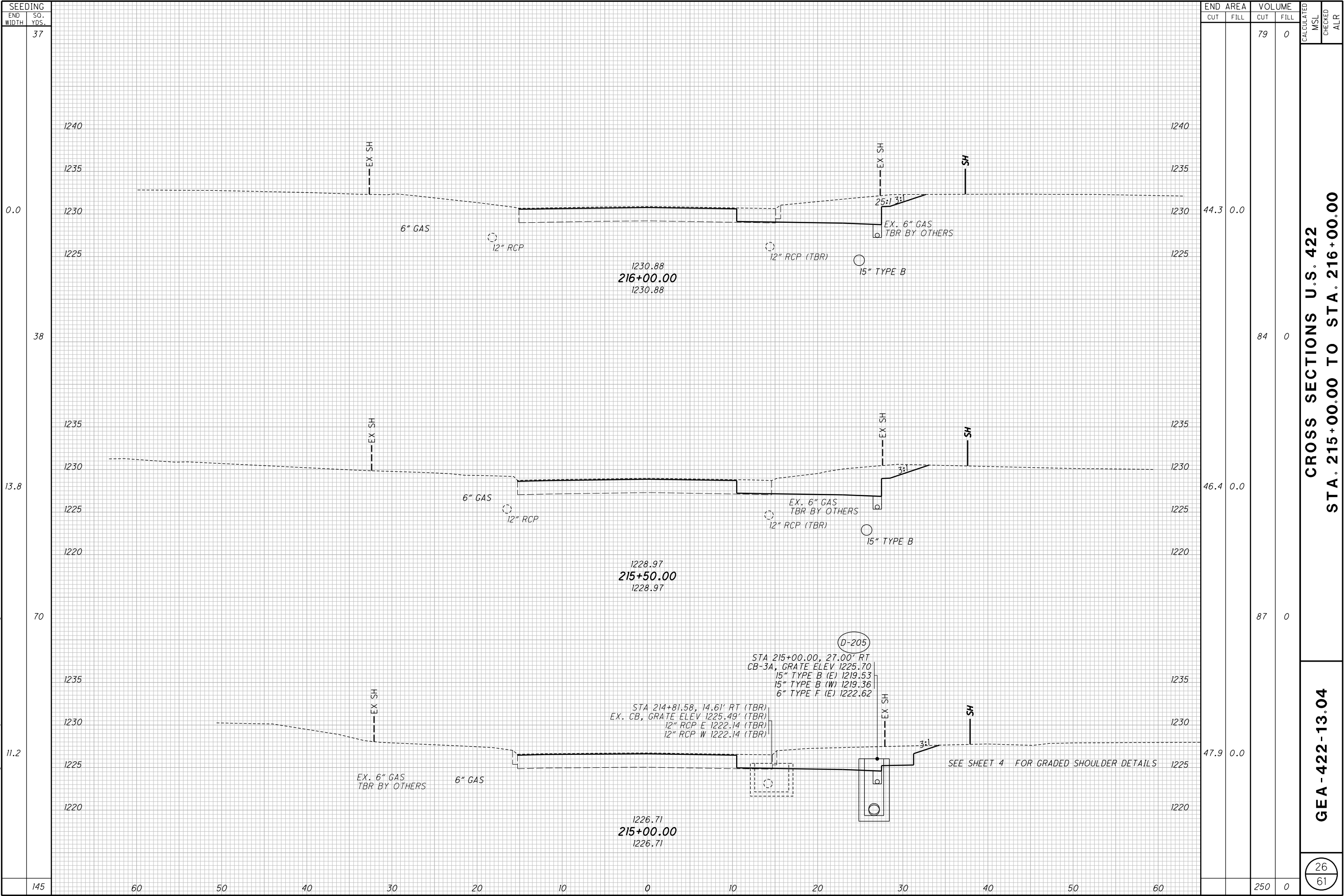




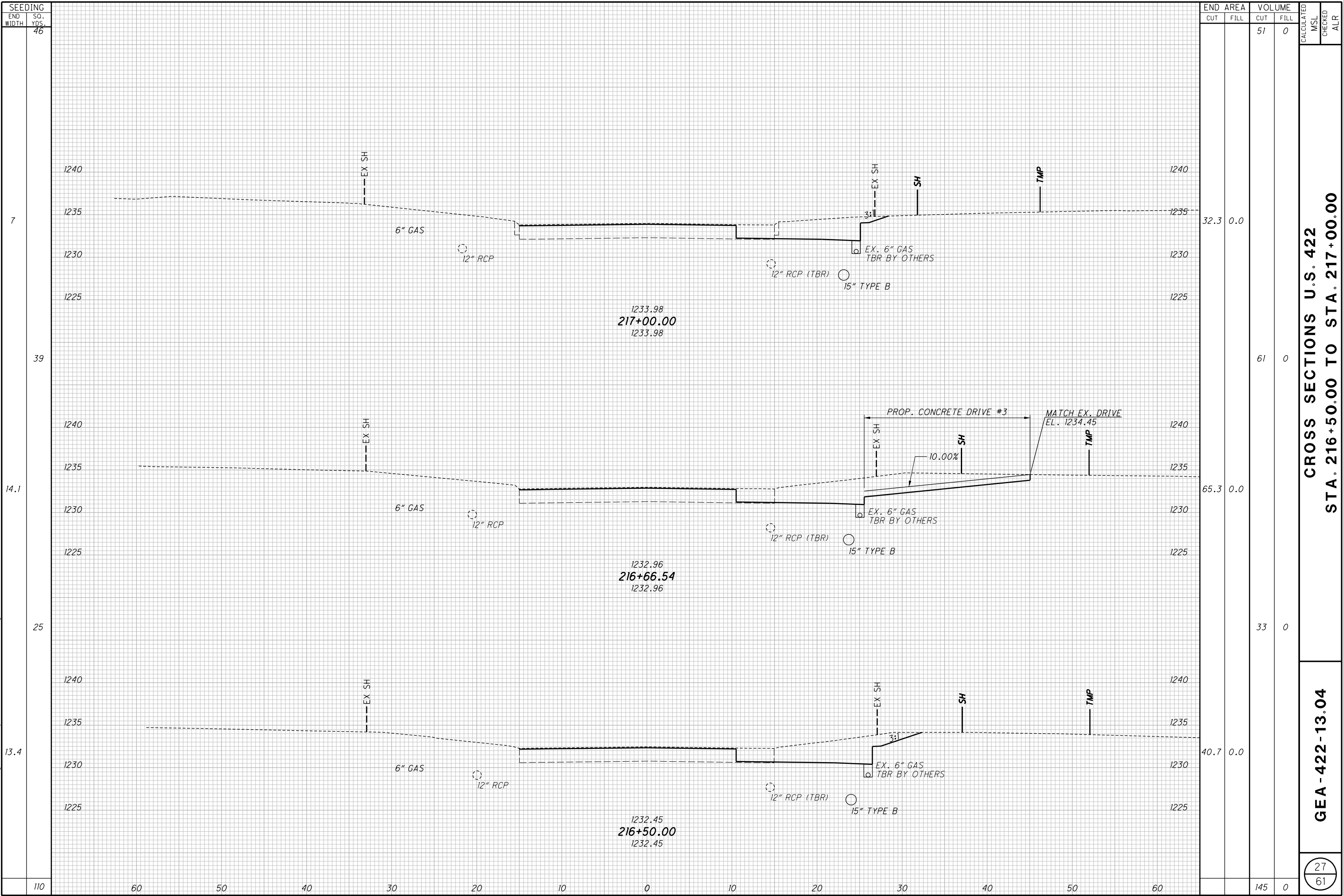


| SEEDING      |             |
|--------------|-------------|
| END<br>WIDTH | SO.<br>YDS. |
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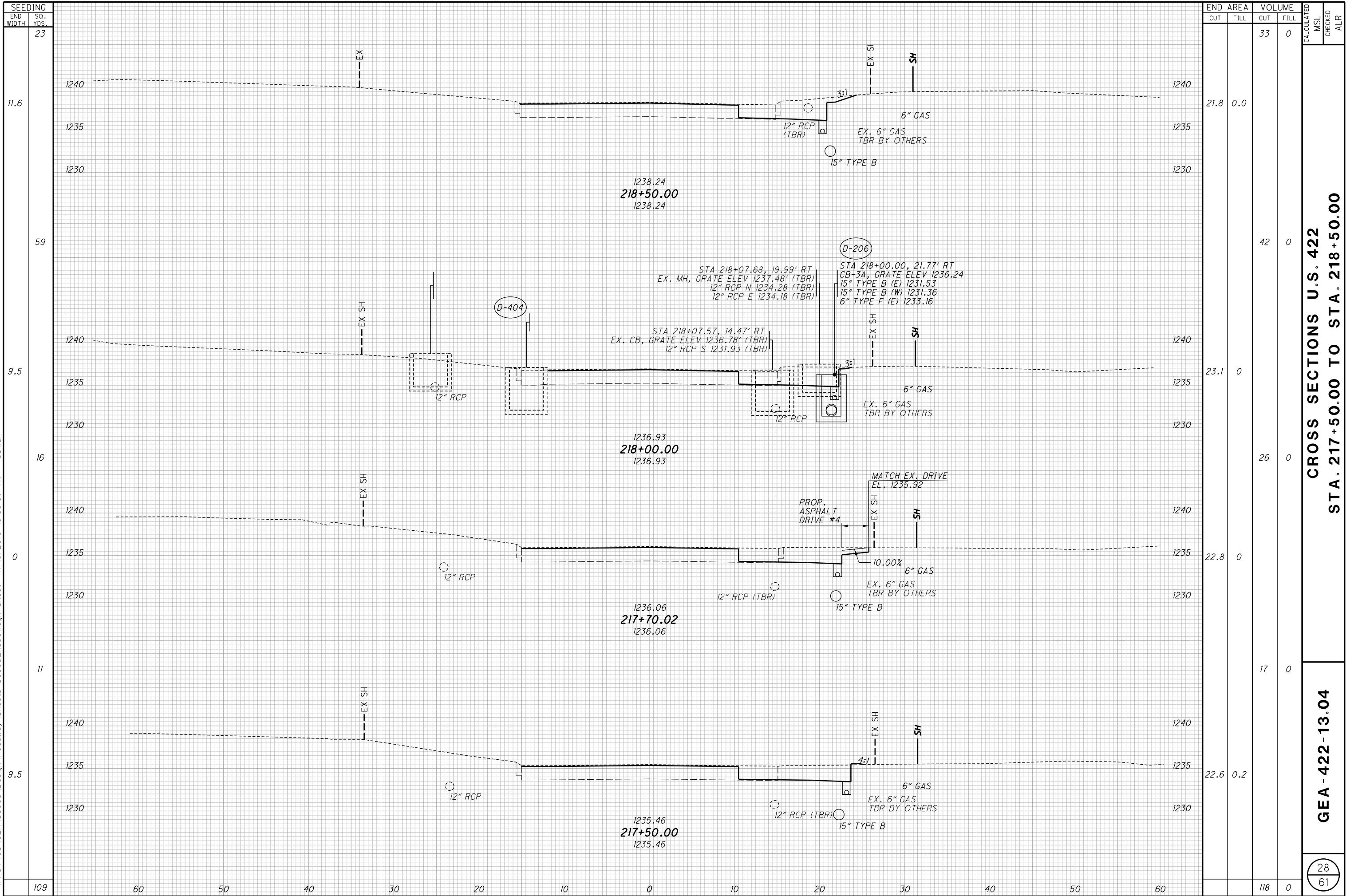
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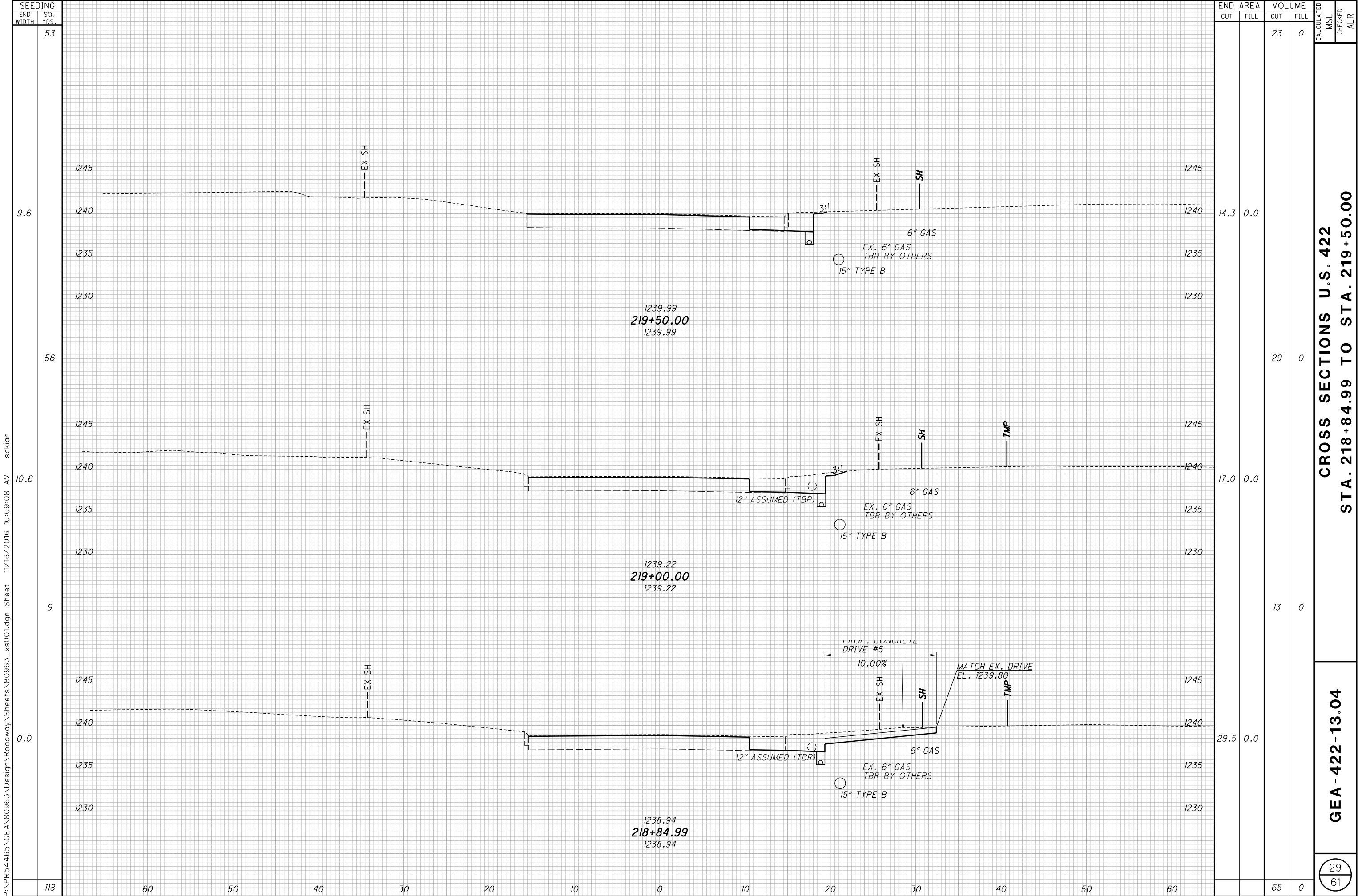


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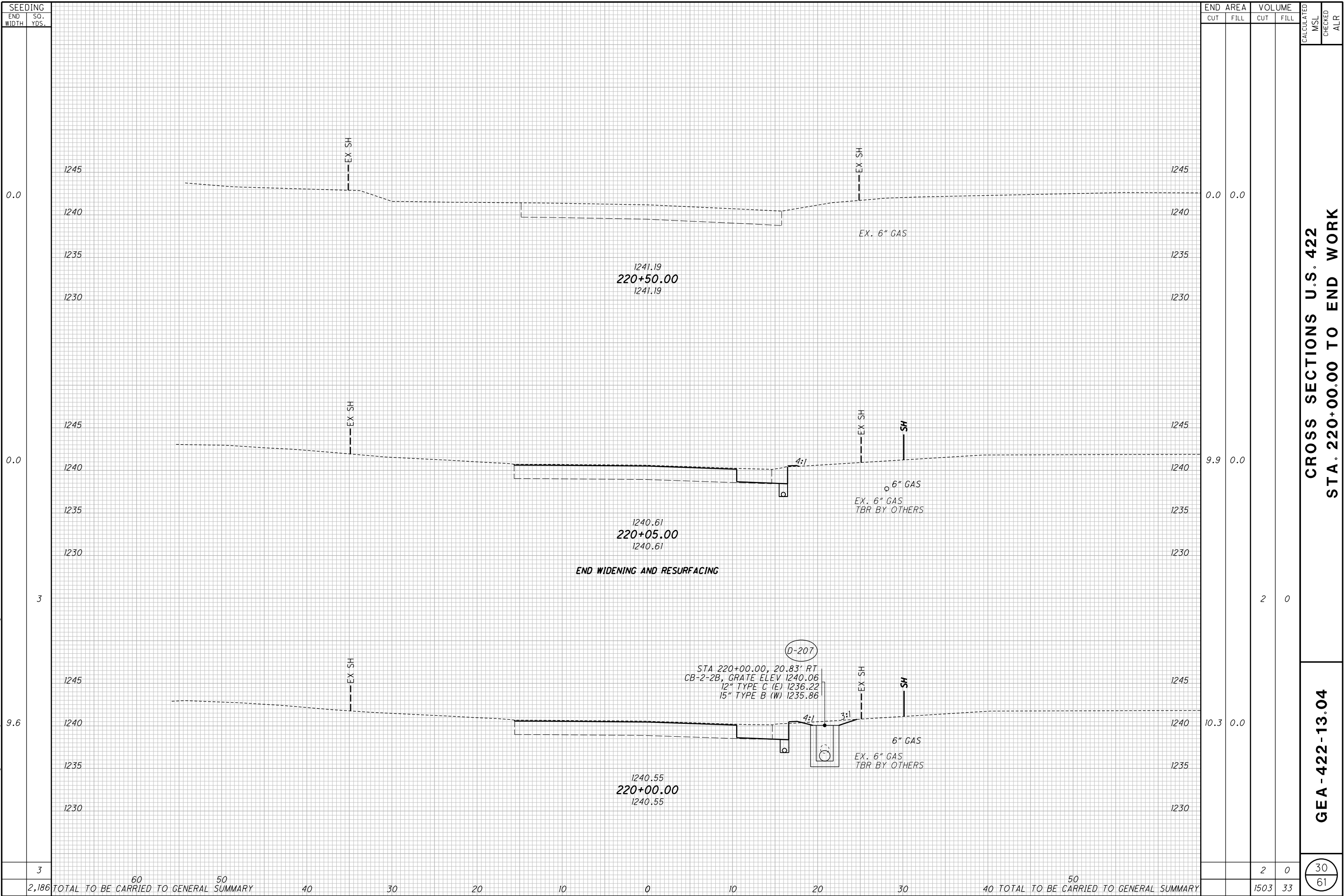
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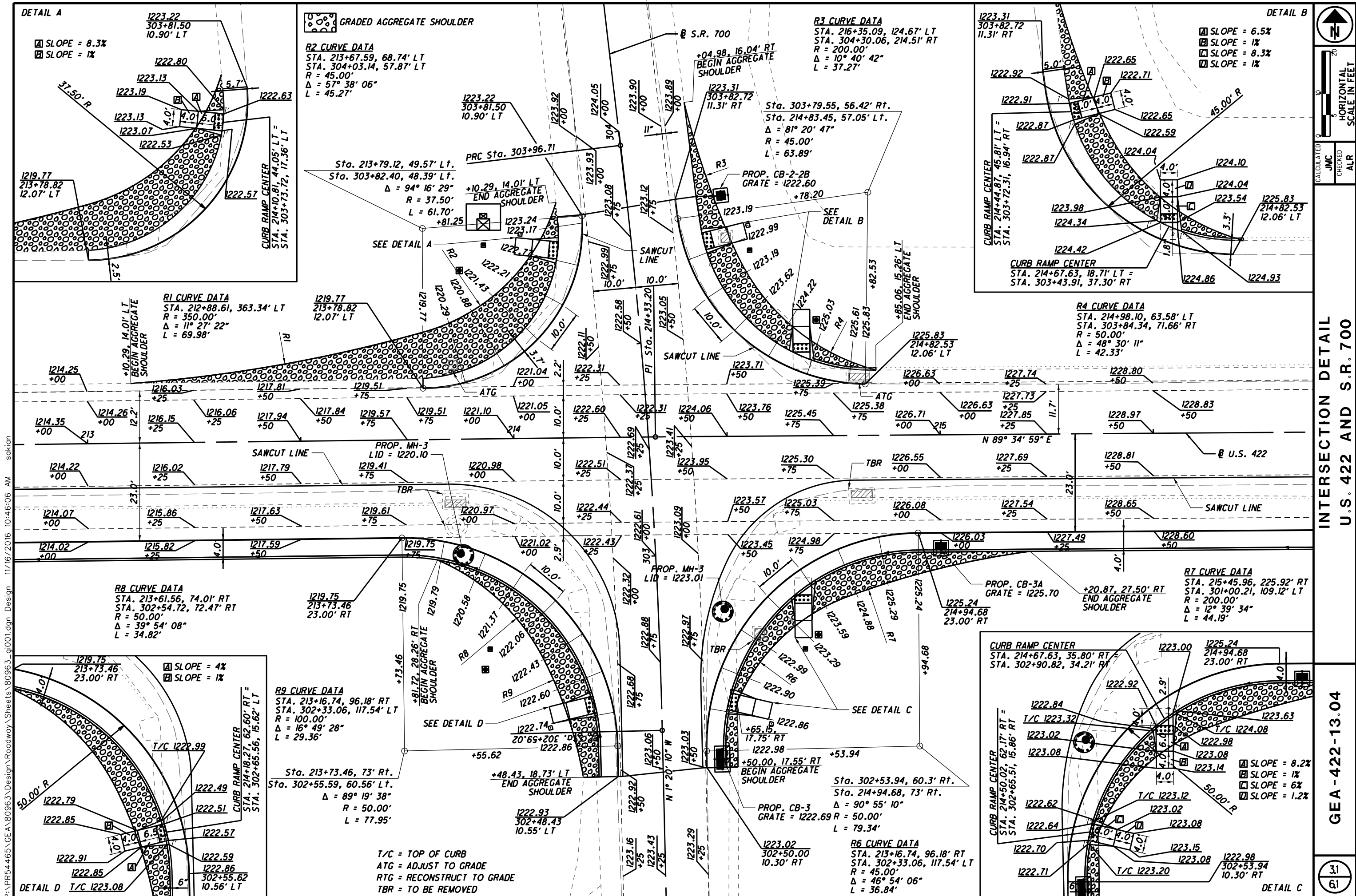


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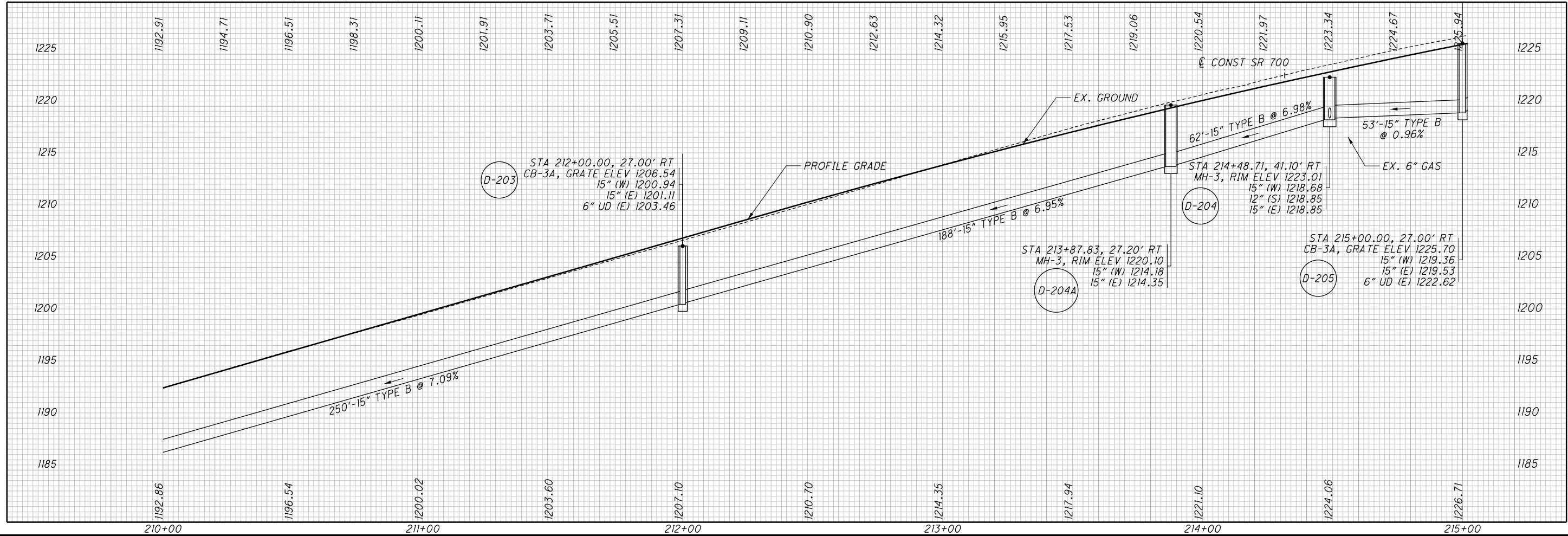
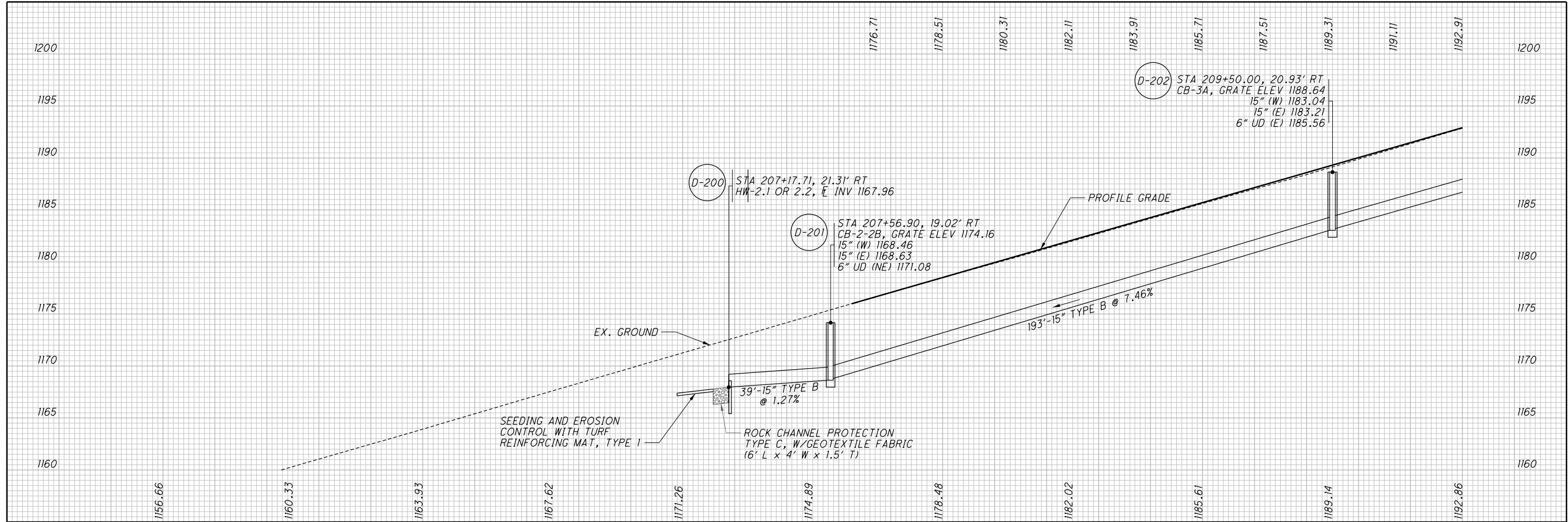
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INTERSECTION DETAIL  
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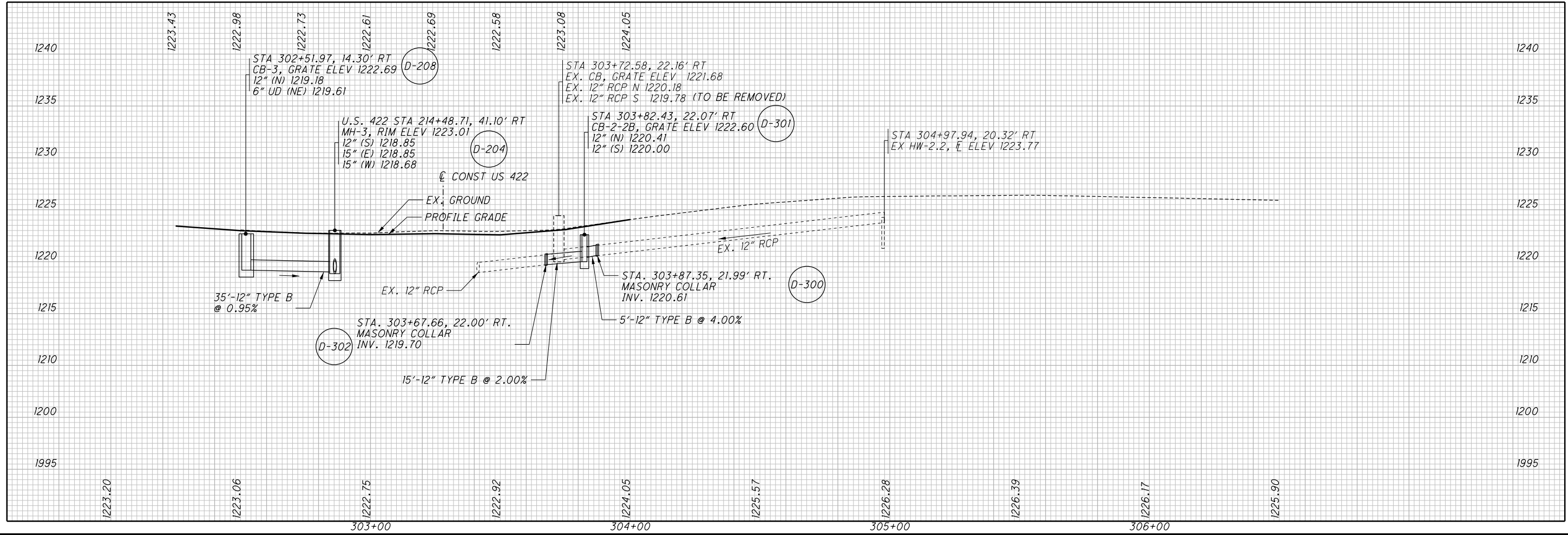
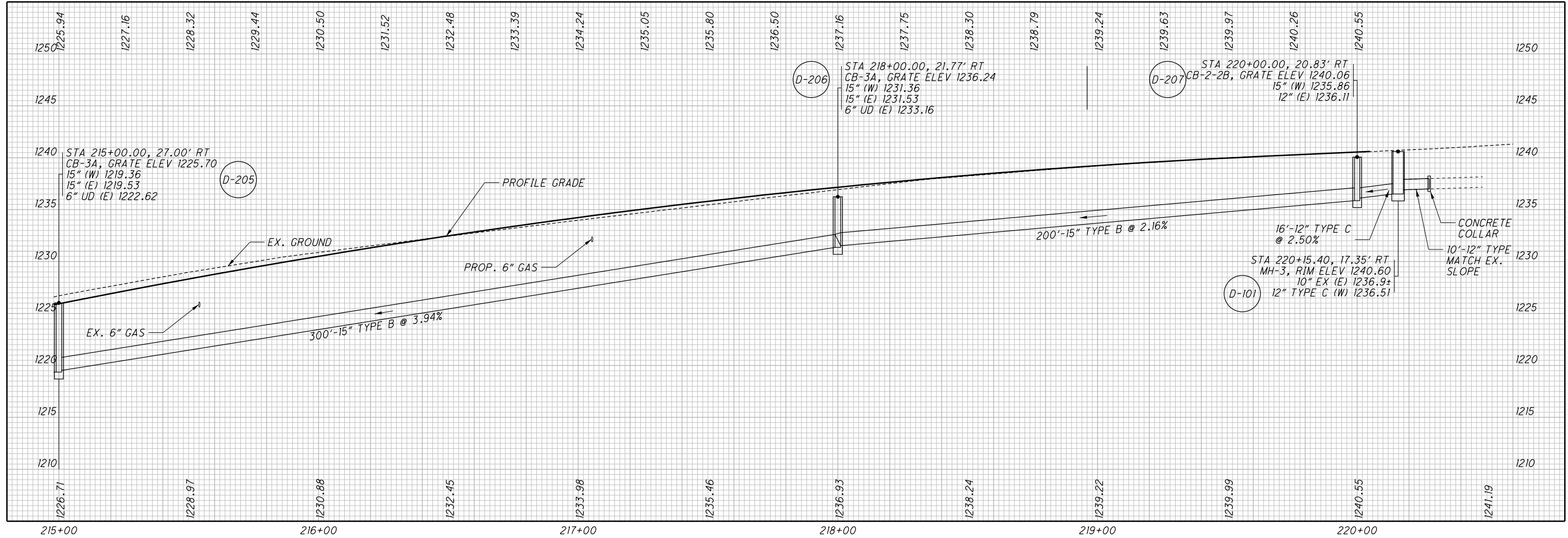


STORM SEWER PROFILE - US 422  
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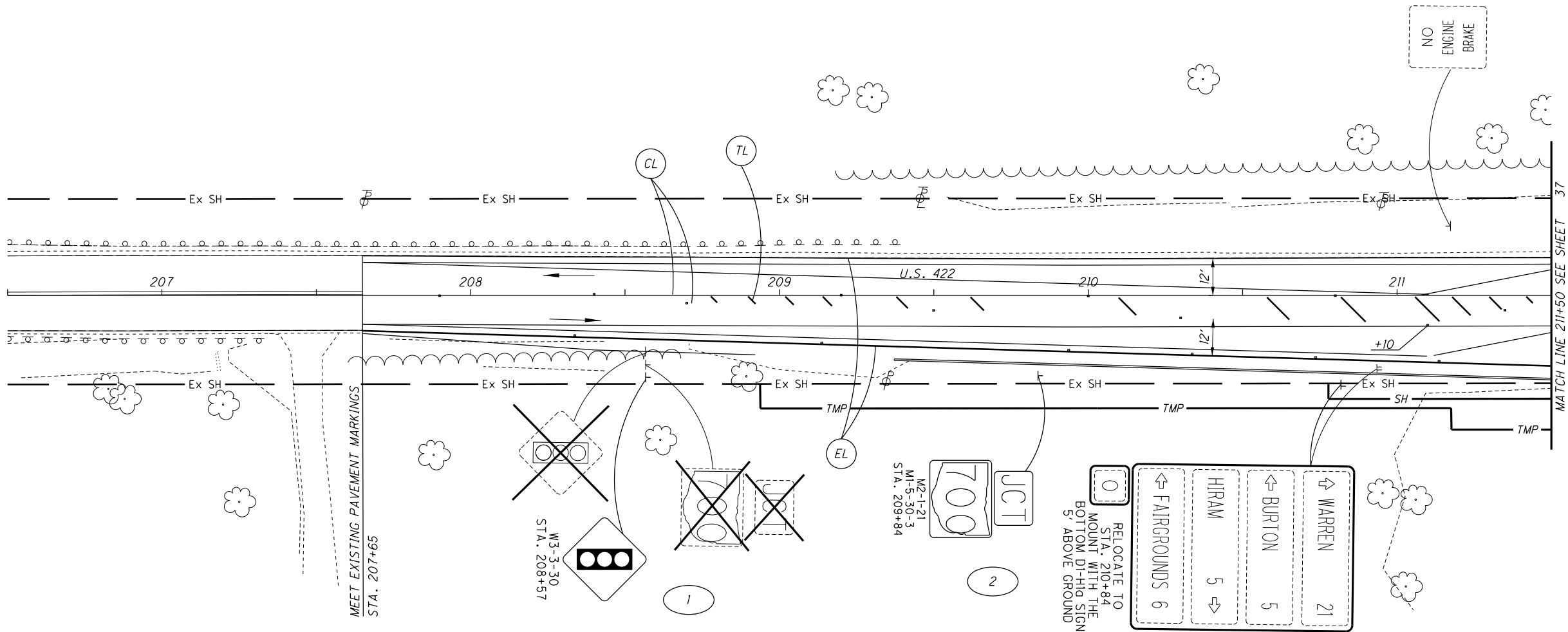


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| PAVEMENT MARKING LEGEND                                                                               |                                                            |
|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
|                      | ITEM 646, CENTER LINE, 4", DOUBLE YELLOW                   |
|                      | ITEM 644, CROSSWALK LINE, 12", WHITE                       |
|                      | ITEM 646, CHANNELIZING LINE, 8", WHITE                     |
|                      | ITEM 644, STOP LINE, 24", WHITE                            |
|                      | ITEM 646, EDGE LINE, 6", WHITE                             |
|                      | ITEM 644, DOTTED LINE, 8", WHITE                           |
|                      | ITEM 644, TRANSVERSE LINE, 24", YELLOW<br>PER SCD TC-71.10 |
|  DIRECTION OF TRAVEL |                                                            |

| SIGNING LEGEND                                                                      |                                      |
|-------------------------------------------------------------------------------------|--------------------------------------|
|  | EXISTING GROUND MTD.<br>SIGN SUPPORT |
|  | PROPOSED GROUND MTD.<br>SIGN SUPPORT |
|  | EXISTING SIGN                        |
|  | PROPOSED SIGN                        |
|  | EXISTING SIGN TO<br>BE REMOVED       |
|  | EXISTING SIGN TO<br>BE RELOCATED     |



NOTES  
1. CONTRACTOR SHALL PLACE ALL SIGNS IN ACCORDANCE WITH ODOT STANDARD DRAWING TC-42.20; HOWEVER, CONTRACTOR SHALL ADJUST THE LOCATION IF NECESSARY TO AVOID UNDERGROUND UTILITIES. USE CAUTION DURING INSTALLATION.

GEA-422-13.04

36  
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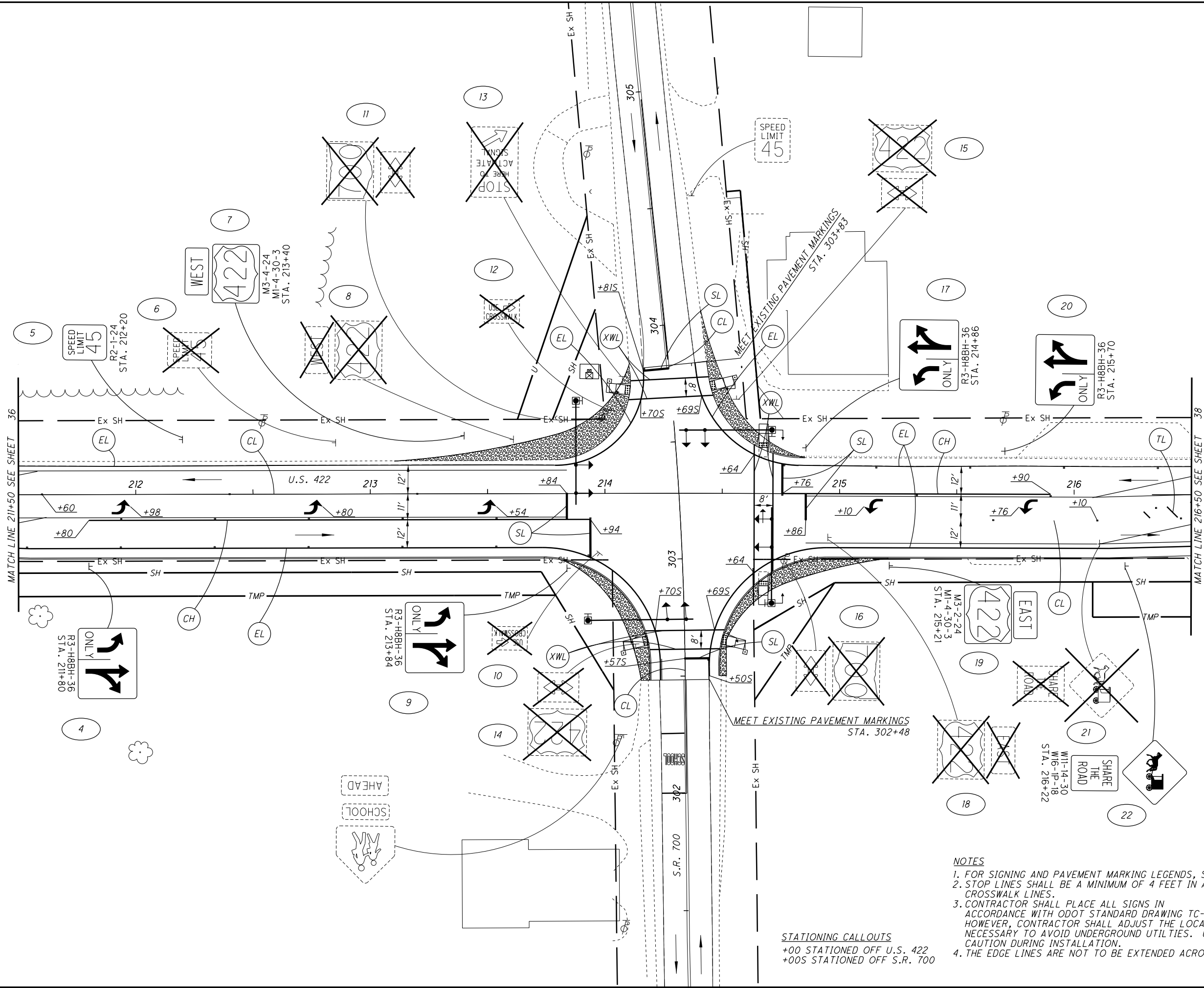
SIGNING AND PAVEMENT MARKING PLAN

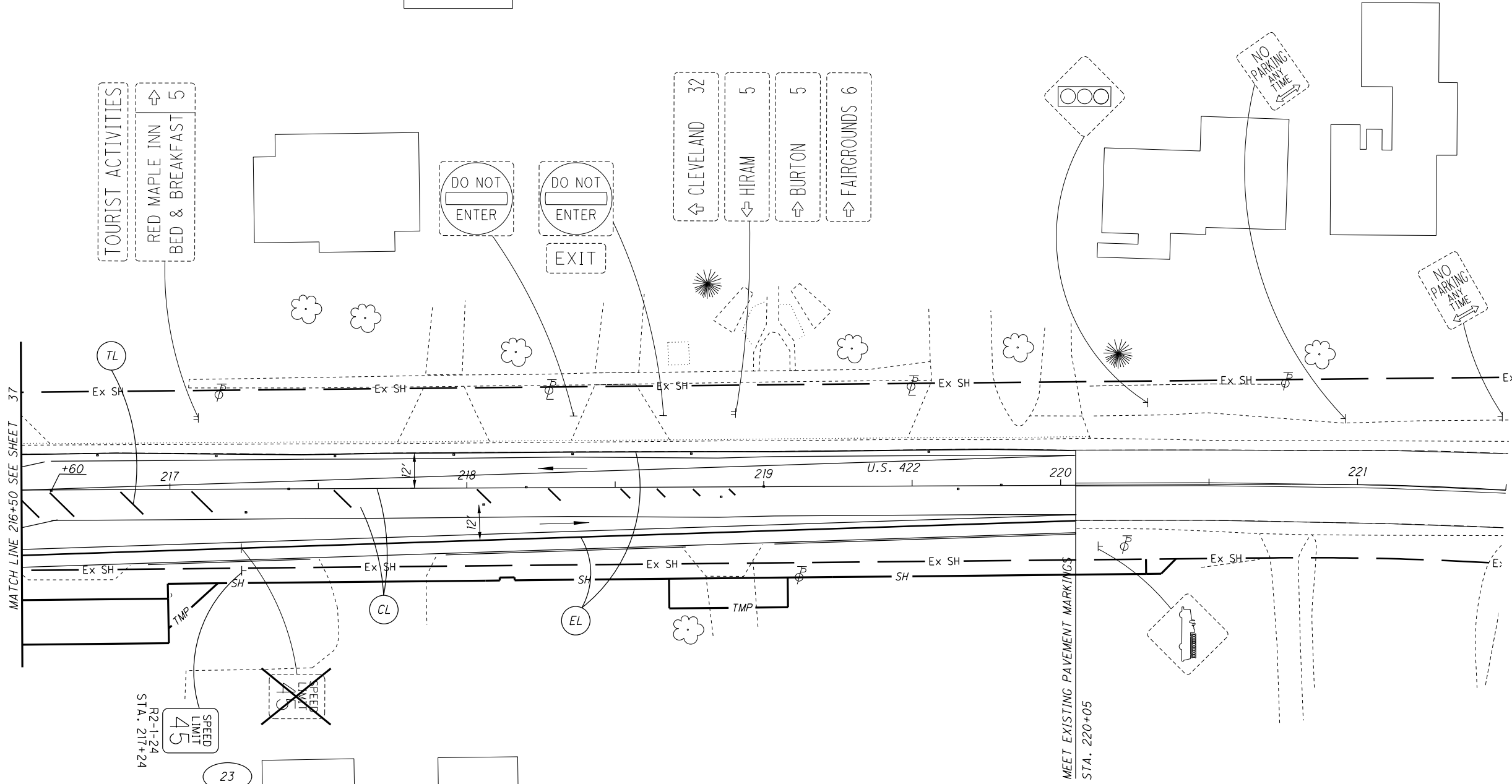
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**NOTES**  
1. FOR SIGNING AND PAVEMENT MARKING LEGENDS, SEE SHEET 36 .  
2. CONTRACTOR SHALL PLACE ALL SIGNS IN ACCORDANCE WITH ODOT STANDARD DRAWING TC-42.20; HOWEVER, CONTRACTOR SHALL ADJUST THE LOCATION IF NECESSARY TO AVOID UNDERGROUND UTILITIES. USE CAUTION DURING INSTALLATION.

SIGNAL ACTIVATION

PRIOR TO ACTIVATING THE NEW TRAFFIC SIGNAL TO STOP-AND-GO MODE AND/OR REMOVING THE EXISTING TRAFFIC SIGNAL FROM SERVICE, ALL ITEMS IN THE PROPOSED SIGNAL PLAN SHALL BE FULLY COMPLETED, (I.E., VEHICLE DETECTION, PEDESTRIAN SIGNAL HEADS, ETC). IF THERE ARE CONSTRUCTABILITY ISSUES (I.E., ROADWAY WIDENING, ETC.) THAT PREVENT THE SIGNAL FROM BEING COMPLETED PRIOR TO ACTIVATION, IT SHALL BE BROUGHT TO THE ATTENTION OF THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER. THE DISTRICT TRAFFIC ENGINEER WILL THEN REVIEW, APPROVE OR REJECT PROPOSALS TO ACTIVATE THE TRAFFIC SIGNAL PRIOR TO COMPLETION.

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE FINAL INSPECTION OF THE SIGNAL INSTALLATION. FINAL INSPECTION IS NOT CONSIDERED COMPLETE UNTIL DESIGNATED DISTRICT TRAFFIC PERSONNEL INSPECT THE TRAFFIC SIGNAL AND ISSUE WRITTEN APPROVAL. IF ISSUES ARE FOUND DURING THE FINAL INSPECTION THAT AFFECT THE SAFETY OF THE TRAVELING PUBLIC AND/OR THE EFFICIENCY OF THE INTERSECTION, THE SIGNAL SHALL NOT BE ACTIVATED ON THE PROPOSED DATE. ANY PUNCH LIST ITEMS THAT ARE FOUND SHALL BE CORRECTED AND REINSPECTED BY DISTRICT TRAFFIC PERSONNEL PRIOR TO FINAL ACCEPTANCE. ODOT FORCES SHALL ONLY ASSUME DAY TO DAY MAINTENANCE OF THE TRAFFIC SIGNAL AFTER FINAL WRITTEN ACCEPTANCE HAS BEEN ISSUED.

WORK INSPECTION

THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER WITH 72 HOUR NOTICE OF ANY SIGNAL WORK TO BE PERFORMED AT THE INTERSECTION SITE SO THAT INSPECTION SERVICES CAN BE SUPPLIED.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 90 DAYS FOLLOWING COMPLETION OF THE 10-DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY.

EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLERS, ASSOCIATED EQUIPMENT, AND DETECTOR UNITS.

CUSTOMARY MANUFACTURER'S GUARANTEES FOR THE FOREGOING ITEMS SHALL BE TURNED OVER TO THE STATE OR THE MAINTAINING AGENCY FOLLOWING ACCEPTANCE OF THE EQUIPMENT.

THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (C&MS) AND THE TC SERIES OF STANDARD CONSTRUCTION DRAWINGS ARE MODIFIED AS FOLLOWS:

1.

ALL METALLIC PARTS CONTAINING ELECTRICAL CONDUCTORS SHALL BE PERMANENTLY JOINED TO FORM AN EFFECTIVE GROUND FAULT CURRENT PATH BACK TO THE GROUNDED CONDUCTOR IN THE POWER SERVICE DISCONNECT SWITCH.

A.

PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN METALLIC CONDUITS (725.04) IN ADDITION TO THE CONDUCTORS SPECIFIED AND BOND THE CONDUIT TO THIS GROUNDING CONDUCTOR.

B.

WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.04), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.

C.

METALLIC CONDUIT CARRYING THE LOOP WIRES FROM IN THE PAVEMENT TO THE PULL BOX SPLICE LOCATION WILL ONLY BE BONDED AT THE PULL BOX END, AND WILL NOT CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR.

D.

IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

E.

IF AN EQUIPMENT GROUNDING CONDUCTOR IS NEEDED IN CONDUIT BETWEEN SIGNALIZED INTERSECTIONS FOR UNDERGROUND INTERCONNECT CABLE, THE GROUNDING SYSTEM FOR EACH SIGNALIZED INTERSECTION WILL BE SEPARATED ABOUT MIDWAY BETWEEN THE INTERSECTIONS.

F.

THE MESSENGER WIRE AT SIGNALIZED INTERSECTIONS WILL BE USED AS THE CONDUCTIVE PATH FROM CORNER TO CORNER IF CONDUIT IS NOT PROVIDED UNDER THE ROADWAY. WHEN CONDUIT CONNECTS THE CORNERS OF AN INTERSECTION, AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE USED IN THE CONDUIT.
2.

CONDUITS.

A.

THE 725.04 CONDUIT SHALL HAVE GROUNDING BUSHINGS INSTALLED AT ALL TERMINATION POINTS. THE BUSHING MATERIAL SHALL BE COMPATIBLE WITH GALVANIZED STEEL CONDUIT AND THE GROUNDING LUG MATERIAL SHALL BE COMPATIBLE FOR USE WITH COPPER WIRE. THREADED OR COMPRESSION TYPE BUSHINGS MAY BE USED.

B.

THE 725.05 CONDUIT SHALL HAVE THE INSIDE AND OUTSIDE DIAMETERS OF THE CONDUIT DEBURRED AT ALL TERMINATION POINTS.

C.

BOTH ENDS OF METALLIC CONDUIT SHALL BE BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.

D.

METALLIC CONDUIT MAY BE BONDED TO METALLIC BOXES THROUGH THE USE OF CONDUIT FITTINGS UL APPROVED FOR THIS TYPE OF CONNECTION, WITH THE BOX BONDED TO THE EQUIPMENT GROUNDING CONDUCTOR.
3.

WIRE FOR GROUNDING AND BONDING.

A.

USE INSULATED, COPPER WIRE FOR THE EQUIPMENT GROUNDING CONDUCTOR. BONDING JUMPERS IN BOXES AND ENCLOSURES MAY BE BARE OR INSULATED COPPER WIRE. WIRE SIZE SHALL BE AS FOLLOWS:

I.

USE 4 AWG BETWEEN THE POWER SERVICE AND SUPPORTS, POLES, PEDESTALS, CONTROLLER OR FLASHER CABINETS.

II.

USE A MINIMUM 8 AWG BETWEEN LOOP DETECTOR PULL BOXES AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.

GROUNDING AND BONDING (CONTINUED)

- III.

USE A MINIMUM 8 AWG BETWEEN THE "PREPARE TO STOP WHEN FLASHING" INSTALLATION (INCLUDING SUPPORT) AND THE FIRST CONDUIT THAT REQUIRES A LARGER SIZE AS SPECIFIED IN 3.A.I ABOVE.
- IV.

THE INSULATION SHALL BE GREEN OR GREEN WITH YELLOW STRIPE(S). FOR 4 AWG OR LARGER, INSULATION MAY ALSO BE BLACK WITH GREEN TAPE/LABELS INSTALLED AT ALL ACCESS POINTS.
- B.

IN A HIGHWAY LIGHTING SYSTEM, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE THE SAME WIRE SIZE AS THE DUCT CABLE OR DISTRIBUTION CABLE CIRCUIT CONDUCTORS, WITH THE MINIMUM CONDUCTOR SIZE OF 4 AWG. BONDING JUMPERS WILL BE MINIMUM SIZE 4 AWG.
4.

GROUND ROD.

A.

A 3/4 INCH SCHEDULE 40 PVC CONDUIT WILL BE USED IN FOUNDATIONS AND CONCRETE WALLS FOR THE GROUNDING CONDUCTOR (GROUND WIRE) RACEWAY TO THE GROUND ROD. SHOULD METALLIC CONDUIT BE USED, BOTH ENDS OF THE CONDUIT SHALL BE BONDED TO THE GROUNDING CONDUCTOR.

B.

THE TYPICAL GROUNDING CONDUCTOR (GROUND WIRE) SHALL BE 4 AWG INSULATED, COPPER.
5.

THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:
- | COND. NO. | COLOR              | VEHICLE SIGNAL | PEDESTRIAN SIGNAL |
|-----------|--------------------|----------------|-------------------|
| 1         | BLACK              | GREEN BALL     | #1 WALK           |
| 2         | WHITE              | AC NEUTRAL     | AC NEUTRAL        |
| 3         | RED                | RED BALL       | #1 DW/FDW         |
| 4         | GREEN              | EQ. GROUND     | EQ. GROUND        |
| 5         | ORANGE             | YELLOW BALL    | #2 DW/FDW         |
| 6         | BLUE               | GREEN ARROW    | #2 WALK           |
| 7         | WHITE/BLACK STRIPE | YELLOW ARROW   | NOT USED          |
6.

POWER SERVICE AND DISCONNECT SWITCH.

A.

AT THE POWER SERVICE LOCATION, THE GROUNDING CONDUCTOR (GROUND WIRE) FROM THE DISCONNECT SWITCH NEUTRAL (AC-) BAR TO THE GROUND ROD SHALL BE A CONTINUOUS, UNSPLICED CONDUCTOR. IF SPLICED, IT SHALL BE AN EXOTHERMIC WELD BUTT SPLICE.

B.

THE SERVICE NEUTRAL (AC-) SHALL ONLY BE CONNECTED TO GROUND AT THE PRIMARY POWER SERVICE DISCONNECT SWITCH.

I.

NEMA CONTROLLER CABINETS: IF A POWER SERVICE DISCONNECT SWITCH IS LOCATED BEFORE THE CONTROLLER CABINET, THE NEUTRAL (AC-) AND THE GROUNDING BARS IN THE CONTROLLER CABINET SHALL NOT BE CONNECTED TOGETHER AS SHOWN IN NEMA TS-2, FIGURE 5-4.

II.

IF SECONDARY DISCONNECT SWITCHES ARE CONNECTED AFTER THE PRIMARY DISCONNECT SWITCH, THE NEUTRAL (AC-) SHALL ONLY BE GROUNDED AT THE PRIMARY SWITCH. EQUIPMENT GROUNDING CONDUCTORS SHALL BE BROUGHT TO THE PRIMARY SWITCH, BUT SHALL BE GROUNDED AT BOTH SECONDARY AND PRIMARY SWITCHES.
7.

PAYMENT - ALL MATERIALS AND WORK REQUIRED TO COMPLETE THE EFFECTIVE GROUND FAULT CURRENT PATH SYSTEM ARE INCIDENTAL TO THE CONDUCTORS INSTALLED BY CONTRACT.

ITEM 632 PEDESTRIAN SIGNAL HEAD (LED). (COUNTDOWN), TYPE D2, AS PER PLAN  
IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732 THE FOLLOWING SHALL APPLY:

1.

SIGNAL HEADS AND VISORS SHALL BE CONTRACTED OF BLACK POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2.

PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3.

PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
4.

THE PEDESTRIAN SIGNAL HEAD SHALL BE OF THE LED COUNTDOWN TYPE.
5.

NEW ATTACHMENT HARDWARE AND FITTINGS SHALL BE USED.
6.

THE LIGHT EMITTING DIODE (LED) MODULES SHALL MEET THE REQUIREMENTS OF C&MS 732.04-C. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

PAYMENT FOR ITEM 632 PEDESTRIAN SIGNAL HEAD, (LED), (COUNT-DOWN), TYPE D2, AS PER PLAN SHALL BE MADE FOR THE NUMBER OF COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND NEW ATTACHMENT HARDWARE.

DETECTION MAINTENANCE

IF VEHICLE DETECTION BECOMES UNEXPECTEDLY DISABLED, REQUIRES MODIFICATION, OR IS SCHEDULED TO BE TEMPORARILY REMOVED DURING THE CONSTRUCTION PROJECT, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT ENGINEER AND DISTRICT TRAFFIC ENGINEER.

IF THE LOSS OF VEHICLE DETECTION IS KNOWN PRIOR TO THE START OF CONSTRUCTION, IT SHALL BE DISCUSSED AT THE PRECONSTRUCTION MEETING. AT SUCH TIME, THE DISTRICT TRAFFIC ENGINEER SHALL ADVISE THE PROJECT ENGINEER AND CONTRACTOR ON THE APPROPRIATE ACTION TO RECTIFY ANY LOSS OF VEHICLE DETECTION. THIS MAY INCLUDE PLACING THE TRAFFIC SIGNAL ON MINIMUM OR MAXIMUM RECALL, MODIFYING THE MINIMUM GREEN TIMES, AND REMOVING THE MALFUNCTIONING DETECTION FROM SERVICE. WHERE NONINTRUSIVE DETECTION (I.E. VIDEO, RADAR) ALREADY EXISTS, THE CONTRACTOR SHALL INSURE THAT DETECTION IS OPERATING AND MAINTAINED BY RECONFIGURING THE DETECTION UNITS ACCORDINGLY DURING ALL CONSTRUCTION PHASES. THIS IS TO AVOID THE SIGNAL FROM MAXING OUT THE EFFECTED SIGNAL PHASE AND CREATING UNNECESSARY DELAYS.

LOCATIONS WHERE NON-INTRUSIVE DETECTION IS PROPOSED AND THE EXISTING VEHICLE DETECTION IS TO BE ABANDON, THE NON-INTRUSIVE VEHICLE DETECTION SHALL BE INSTALLED, CONFIGURED AND MADE FULLY FUNCTIONAL PRIOR TO THE EXISTING DETECTION BEING DISABLED. THE CONTRACTOR SHALL CONTINUE TO MAINTAIN AND MODIFY THE DETECTION UNTIL FINAL ACCEPTANCE OF THE TRAFFIC SIGNAL. THIS IS TO ENSURE VEHICLE DETECTION REMAINS FULLY FUNCTIONAL THROUGHOUT CONSTRUCTION.

**MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL/FLASHER INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

1. EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ADJUST, MODIFY, ADD ONTO OR REMOVE, OR WHICH THE CONTRACTOR ACTUALLY ADJUSTS, MODIFIES OR OTHERWISE DISTURBS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATIONS FIRST DISTURB THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.
2. NEW OR REUSED SIGNAL/FLASHER INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED.

THE CONTRACTOR SHALL CORRECT AS QUICKLY AS POSSIBLE ALL OUTAGES OR MALFUNCTIONS. HE SHALL PROVIDE THE MAINTAINING AGENCY AND THE ENGINEER SUCH ADDRESSES AND PHONE NUMBERS WHERE HIS MAINTENANCE FORCES CAN BE CONTACTED. THE CONTRACTOR SHALL PROVIDE ONE OR MORE PERSONS TO RECEIVE ALL CALLS AND DISPATCH THE NECESSARY MAINTENANCE FORCES TO CORRECT OUTAGES. SUCH A PERSON OR PERSONS MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS READILY AVAILABLE CONTINUOUSLY 24 HOURS A DAY, 7 DAYS A WEEK. ALL LAMP OUTAGES, CABLE OUTAGES, ELECTRICAL FAILURES, EQUIPMENT MALFUNCTIONS AND MISALIGNED SIGNAL HEADS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK TO SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF THE OUTAGE.

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS AFTER THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE. THE CONTRACTOR SHALL ARRANGE FOR FULL TRAFFIC CONTROL UNTIL THE SIGNAL IS BACK IN OPERATION.

IF POLES AND/OR CONTROL EQUIPMENT ARE DAMAGED AND MUST BE REPLACED, THE CONTRACTOR SHALL MAKE TEMPORARY REPAIRS AS NECESSARY TO BRING THE SIGNAL BACK INTO FULL OPERATION WITHIN THE ALLOWED 8-HOUR PERIOD, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

NONE OF THE ABOVE SHALL BE CONSTRUED AS COLLECTIVE OR CONSECUTIVE OUTAGE TIME PERIODS AT ANY ONE LOCATION. THAT IS, WHERE MORE THAN ONE OUTAGE OCCURS AT ANY ONE LOCATION THEN THE ALLOTTED TIME LIMIT SHALL BE FOR THE WORST SINGLE OUTAGE.

WHERE OUTAGES ARE THE DIRECT RESULT OF A VEHICLE ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COLLECTION OF ANY COMPENSATION FOR THIS WORK FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS TO THE STATE OR THE CITY POLICE SERVICES AND MAINTENANCE SERVICES BY CITY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.15.

**MAINTENANCE OF TRAFFIC SIGNAL/FLASHER INSTALLATION (CONT'D)**

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES OR HE MAY CHOOSE TO ENTER INTO A COOPERATIVE UNDERSTANDING WITH THE LOCAL MAINTAINING AGENCY TO PROVIDE THE MAINTENANCE. THE CONTRACTOR SHALL INFORM THE ENGINEER, IN WRITING, OF THE MAINTENANCE METHOD SELECTED.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR, DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 4 HOURS AND SHALL NOT INCLUDE THE HOURS OF 8 TO 9 AM OR 5 TO 6 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.25.

- THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:
1. TIME OF NOTIFICATION OF MALFUNCTION;
  2. TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
  3. ACTIONS TAKEN TO CORRECT THE MALFUNCTION, INCLUDING A LIST OF PARTS REPAIRED OR REPLACED;
  4. A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
  5. TIME OF COMPLETION OF THE REPAIR AND SYSTEM RESTORED TO FULL SERVICE.

A COPY OF THESE RECORDS SHALL BE PROVIDED TO THE ENGINEER WITHIN THREE (3) WORKING DAYS FOLLOWING COMPLETION OF EACH REPAIR.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

**REMOVAL OF TRAFFIC SIGNAL INSTALLATION**

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH C&MS 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE DISPOSED OF OR STORED ON THE PROJECT FOR SALVAGE BY THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT) IN ACCORDANCE WITH THE LISTING GIVEN HEREIN: SIGNAL HEADS  
CONTROLLER  
CABINET  
UPS

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED, THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

**ITEM 632 - VEHICULAR SIGNAL HEAD, LED, BLACK, 12", (BY SECTION), POLYCARBONATE WITH BACKPLATE, AS PER PLAN**  
IN ADDITION TO THE REQUIREMENTS OF CMS 632 AND 732, THE FOLLOWING SHALL APPLY:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF BLACK POLYCARBONATE PLASTIC WITH VISORS AND MEET ITE SPECIFICATIONS.
2. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
3. ALL UPPER SIGNAL SUPPORT HARDWARE AND PIPING UP TO AND INCLUDING THE WIRE INLET FITTING SHALL BE FERROUS METAL.
4. THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.
5. ALL SIGNAL HEADS SHALL BE RIGIDLY MOUNTED TO THE MAST ARM WITH THE RED MODULE LOCATED IN FRONT OF THE MAST ARM EXCEPT THE 5-SECTION HEAD SHALL BE MOUNTED WIHT THE YELLOW MODULE IN FRONT OF THE MAST ARM.
6. ALUMINUM BACKPLATES SHALL BE IN ACCORDANCE WITH CMS 732.22 AND INCLUDE A FLOURESCENT YELLOW REFLECTIVE BORDER.
7. THE LIGHT EMITTING DIODE (LED) SIGNAL LAMP UNITS SHALL MEET THE REQUIREMENTS OF CMS 732.04-C. THE CONTRACTOR SHALL PROVIDE ODOT, IN WRITING, WITH THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS THAT ARE TO BE USED IN THE SIGNAL HEAD PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.
8. SIGNAL HEADS SHALL HAVE A MINIMUM WALL THICKNESS OF 0.117 INCHES.
9. SIGNAL HEADS SHALL INCLUDE CUTAWAY TYPE VISORS.
10. APPLY A BEAD OF SILICONE TO THE SIGNAL HEAD, WASHER, AND ENTRANCE ADAPTER SERRATIONS TO PREVENT WATER INTRUSION. ALSO, FILL THE SPACE BETWEEN CONCENTRIC SERRATION RINGS ON THE TOP OF THE SIGNAL HEAD TO COMPLETELY EXCLUDE WATER FROM THE SPACE BETWEEN THE CONCENTRIC RINGS.
11. BALANCE ADJUSTERS SHALL NOT BE USED ON ONE-WAY HEADS.

PAYMENT FOR ITEM 632 VEHICULAR SIGNAL HEAD, LED, BLACK, 12", (BY SECTION), POLYCARBONATE WITH BACKPLATE, AS PER PLAN SHALL BE MADE FOR COMPLETE SIGNAL HEAD FURNISHED AND INSTALLED, INCLUDING ALL LABOR, EQUIPMENT, MATERIALS, AND NEW ATTACHMENT HARDWARE.

**ITEM 632 - COVERING OF VEHICULAR SIGNAL HEAD**

COVER VEHICULAR SIGNAL HEADS IF ERECTED AT INTERSECTIONS WHERE TRAFFIC IS MAINTAINED BEFORE ENERGIZING THE SIGNALS. USE A STURDY OPAQUE COVERING MATERIAL SPECIFICALLY MADE FOR USE WITH TRAFFIC SIGNALS, AND ENSURE THAT THE COLOR OF THE COVER IS DIFFERENT THAN THE SIGNAL HEAD, TAN OR BEIGE, SO THAT IT IS CLEAR TO DRIVERS THE HEADS ARE COVERED, NOT DARK. USE A METHOD OF COVERING TO COVER ATTACHMENT AND MATERIALS, INCLUDING BACKPLATES, AS APPROVED BY THE ENGINEER. COVERS ARE TO BE FREE OF TEXT, PICTURES, OR ANY TYPE OF ADVERTISING. MAINTAIN COVERS, AND REMOVE THEM WHEN DIRECTED BY THE ENGINEER.

**POWER SUPPLY FOR TRAFFIC SIGNALS**

ELECTRIC POWER SHALL BE OBTAINED FROM THE FIRST ENERGY POLE AT THE LOCATION INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS.

**ITEM 633 - UNINTERRUPTIBLE POWER SUPPLY (UPS), 1,000 WATT, AS PER PLAN**

IN ADDITION TO THE REQUIREMENTS OF C&MS 633 AND 733, POLE ATTACHMENT HARDWARE WILL BE INCLUDED FOR POLE-MOUNTED CABINETS, AND A CABINET RISER (8 INCH MINIMUM) AND ANCHOR BOLTS WILL BE PROVIDED FOR BASE-MOUNTED CABINETS. BEFORE PERFORMING THE WORK, THE CONTRACTOR, THE DISTRICT TRAFFIC ENGINEER AND THE PROJECT ENGINEER WILL PERFORM A SITE INSPECTION TO ESTABLISH THE LOCATION OF THE UPS CABINET AND FOUNDATION.

THE UPS CABINET SHALL INCLUDE A GENERATOR POWER PANEL WITH A HEAVY DUTY POWER RELAY VERSUS THE LINE VOLTAGE GENERATOR SWITCH. THE GENERATOR INLET SHALL BE A RECESSED PANEL WITH A DOOR THAT IS FLUSH WITH THE EXTERNAL SIDE OF THE UPS CABINET. IT SHALL INCLUDE A RECESSED PLUG, AUTOMATIC TRANSFER SWITCH AND A DOOR THAT SECURELY CLOSES OVER THE POWER CORD.

THE UPS OUTPUT NOTIFICATIONS FOR ON BATTERY, BATTERY 2-HOUR TIMER, AND LOW BATTERY SHALL BE WIRED INTO THE TRAFFIC SIGNAL CABINET BACK PANEL TO PROVIDE SPECIAL STATUS ALARMS FOR EACH OUTPUT INTO THE SIGNAL CONTROLLER.

THIS ITEM SHALL INCLUDE A RED LED STATUS INDICATOR LAMP TO ALLOW MAINTENANCE PERSONNEL AND LAW ENFORCEMENT TO QUICKLY ASSESS WHETHER A TRAFFIC SIGNAL CABINET IS BEING POWERED BY A UPS. THE LED HOUSING SHALL BE NEMA 4X, IP65 OR IP66, RATED FOR OUTDOOR USE AND BE TAMPER/ SHATTER RESISTANT. IT SHALL BE A DOMED ENCLOSURE CONTAINING A RED LENS WITH LED THAT IS VISIBLE FROM 100 FOOT MINIMUM. THE ENCLOSURE AND LED MODULE SHOULD BE PLACED AND CENTERED ON THE TOP SURFACE OF THE UPS CABINET AND SEALED FROM WATER INTRUSION. IT SHOULD BE WIRED USING MINIMUM 20GA STRANDED, INSULATED HOOKUP WIRE TO THE STATUS RELAY OUTPUTS OF THE UPS. THE WIRES SHALL BE TERMINATED BY LUGS AT THE DISPLAY END AND PERMANENTLY LABELED "BACKUP POWER STATUS DISPLAY," WITH WIRE POLARITY INDICATED. THE RED LED SHALL ONLY ILLUMINATE TO INDICATE THE CABINET IS OPERATING UNDER UPS BACKUP POWER (THE "BACKUP" OPERATING CONDITION). THIS ITEM INCLUDES PROGRAMMING THE UPS STATUS RELAY OUTPUTS TO PRODUCE THE LAMP STATUS DISPLAYS. THESE STATUS DISPLAYS WILL BE SOLID 100% DUTY CYCLE (NOT FLASHING) DISPLAYS. THE OPERATING VOLTAGE OF THE LED LAMP SHALL BE 120V AC UNLESS OTHERWISE INDICATED.

**SIGNAL SUPPORT FOUNDATION**

PRIOR TO ORDERING THE SIGNAL SUPPORTS, THE CONTRACTOR SHALL CONTACT OUPS TO HAVE ALL THE UTILITIES LOCATED IN THE FIELD THEN MEET WITH THE PROJECT ENGINEER TO LOCATE THE PROPOSED SUPPORT LOCATIONS TO INSURE THERE ARE NO CONFLICTS WITH UTILITIES. IF THERE ARE ISSUES, THE PROJECT ENGINEER SHALL PROVIDE GUIDANCE AS TO THE RELOCATION OF THE SUPPORT POLES.

PAYMENT WILL BE AT THE CONTRACT UNIT PRICE AND WILL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCIDENTALS NECESSARY FOR EACH SUPPORT FURNISHED, IN PLACE, COMPLETE AND ACCEPTED.

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**ITEM 633 CONTROLLER UNIT, TYPE 2070E WITH SEPAC SOFTWARE, WITH CABINET, TYPE 332, AS PER PLAN**

THE CONTROLLER UNIT SHALL BE EQUIPMENT MANUFACTURED IN CONFORMANCE TO THE CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) SPECIFICATIONS TITLES "TRANSPORTATION ELECTRICAL EQUIPMENT SPECIFICATIONS (TEES)." THE CONTROLLER UNIT, MODEL 2070E, SHALL BE COMPLIANT WITH THE 2070E MANUFACTURER AND BUILD AS PER THE TRAFFIC AUTHORIZED PRODUCTS (TAP) LIST.

THE 2070E CONTROLLER UNIT SHALL INCLUDE THE FOLLOWING:

1. UNIT CHASSIS
2. 2070-1E CPU MODULE
3. 2070-2A FIELD I/O MODULE
4. 2070-3B FRONT PANEL
5. 2070-4A POWER SUPPLY
6. 2070-7A SERIAL COMMUNICATION MODULE

THE CONTROLLER SHALL BE SUPPLIED WITH THE FOLLOWING TRAFFIC SIGNAL INTERSECTION CONTROL SOFTWARE: SEPAC 3.34G. THE CONTROLLER SHALL BE SUPPLIED WITH MICROWARE EMBEDDED OS-9 RELEASE 1.3 OR LATER WITH KERNEL EDITION #376 OR LATER, AS REQUIRED BY CALTRANS TEES. FOR WARRANTY PURPOSES, A VENDOR-SPECIFIC DECAL, AS PER ODOT C&MS 733.02 SHALL BE APPLIED TO EACH CONTROLLER UNIT AT TIME OF DELIVERY TO THE PROJECT.

THE CONTRACTOR SHALL NOT REASSIGN THE CABINET DETECTOR INPUTS IN ORDER TO REDUCE THE NUMBER OF 2-CHANNEL DETECTOR UNITS SUPPLIED, BUT SHALL USE THE STANDARD CALTRANS INPUT FILE DESIGNATIONS.

**ITEM 809 ADVANCE RADAR DETECTION**

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR ADVANCE DETECTION UNIT (MODEL SS-200E). THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TSI AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).
7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.

PAYMENT FOR ITEM 809 ADVANCE RADAR DETECTION SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT, CONNECTIONS TESTED AND ACCEPTED, AND ANY OTHER NECESSARY HARDWARE TO ESTABLISH A FULLY FUNCTIONAL DETECTION SYSTEM.

**ITEM 809 STOP-BAR RADAR DETECTION**

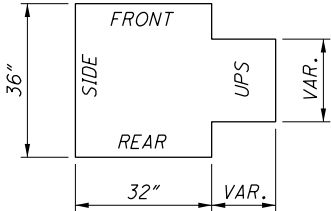
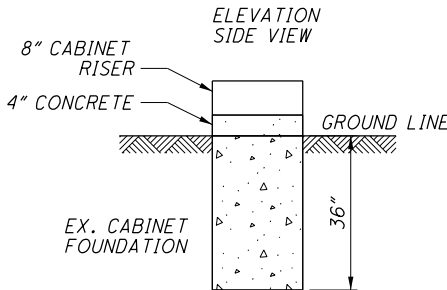
THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A WAVETRONIX SMARTSENSOR MATRIX DETECTION UNIT. THE DETECTION UNIT SHALL INCLUDE THE FOLLOWING:

1. POWER SHALL BE PROVIDED FROM THE TRAFFIC CABINET.
2. ALL REQUIRED INPUTS CARDS SHALL BE INCLUDED IN THE TRAFFIC CABINET AND SHALL BE COMPATIBLE WITH CALTRANS, NEMA TSI AND NEMA TS2 DETECTOR RACKS. THE CARDS SHALL PROVIDE TRUE PRESENCE DETECTOR CALLS OR CONTACT CLOSURE TO THE TRAFFIC CONTROLLER.
3. THE UNIT SHALL BE MOUNTED DIRECTLY TO A POLE OR MAST ARM, AS RECOMMENDED BY THE MANUFACTURER. CABLE(S) SHALL BE PROVIDED AS REQUIRED AND RECOMMENDED BY THE MANUFACTURER.
4. SURGE PROTECTION DEVICES, AS RECOMMENDED BY THE MANUFACTURER SHALL BE INCLUDED BOTH AT THE POLE WHERE THE UNIT IS LOCATED TO PROTECT THE UNIT AND IN THE TRAFFIC CABINET TO PROTECT THE CABINET ELECTRONICS.
5. THE MANUFACTURER'S REPRESENTATIVE SHALL BE ON SITE DURING INSTALLATION AND TESTING AND SHALL PROVIDE ONSITE TRAINING ON THE SETUP, OPERATION AND MAINTENANCE OF THE UNIT.
6. A SERIAL TO ETHERNET COMMUNICATIONS MODULE AND ETHERNET CABLE (MINIMUM 7 FEET).
7. THE POWER SUPPLY AND COMMUNICATION MODULES SHALL BE SECURED TO A SINGLE PANEL THAT CAN BE MOUNTED INTERIOR TO THE TRAFFIC CABINET. THE PANEL SHALL INCLUDE MODULAR-PLUG STYLE CONNECTIONS FOR UP TO FOUR (4) SENSOR CABLES. ADDITIONAL SENSORS MAY BE HARD-WIRED TO THE COMMUNICATION MODULES, AS NECESSARY.

PAYMENT FOR ITEM 809 STOP-BAR RADAR DETECTION SHALL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH UNIT, COMPLETE AND IN PLACE INCLUDING ALL REQUIRED CABINET HARDWARE, MOUNTING BRACKETS, CABLES, CONDUIT AND CONNECTIONS TESTED AND ACCEPTED.

**MODEL 332 CABINET DETAIL**

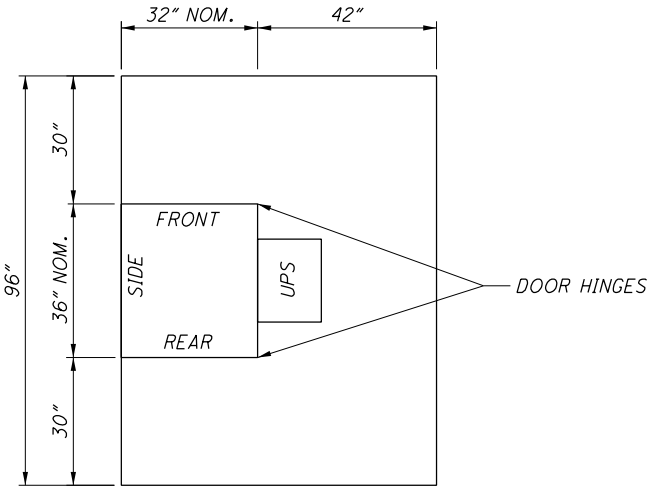
**UPS FOUNDATION DETAIL**



**NOTES:**

- 1) THE SIZE OF THE UPS FOUNDATION MAY VARY BASED ON THE CABINET SIZE PROVIDED.
- 2) UPS FOUNDATION ELEVATION SHOULD MATCH CABINET FOUNDATION ELEVATION.
- 3) THE UPS CABINET SHALL BE MOUNTED FLUSH UP AGAINST THE SIGNAL CABINET AND SEALED.
- 4) CONDUIT AND WIRING FROM THE SIGNAL CABINET TO THE UPS SHALL BE INSTALLED THROUGH THE CABINET RISER.

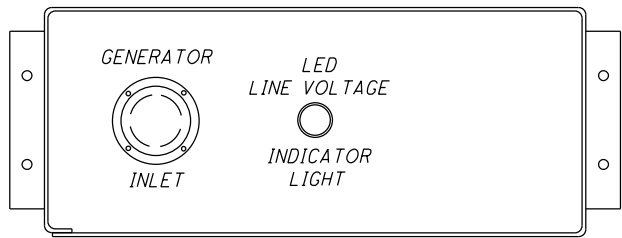
**UPS WORK PAD DETAIL**



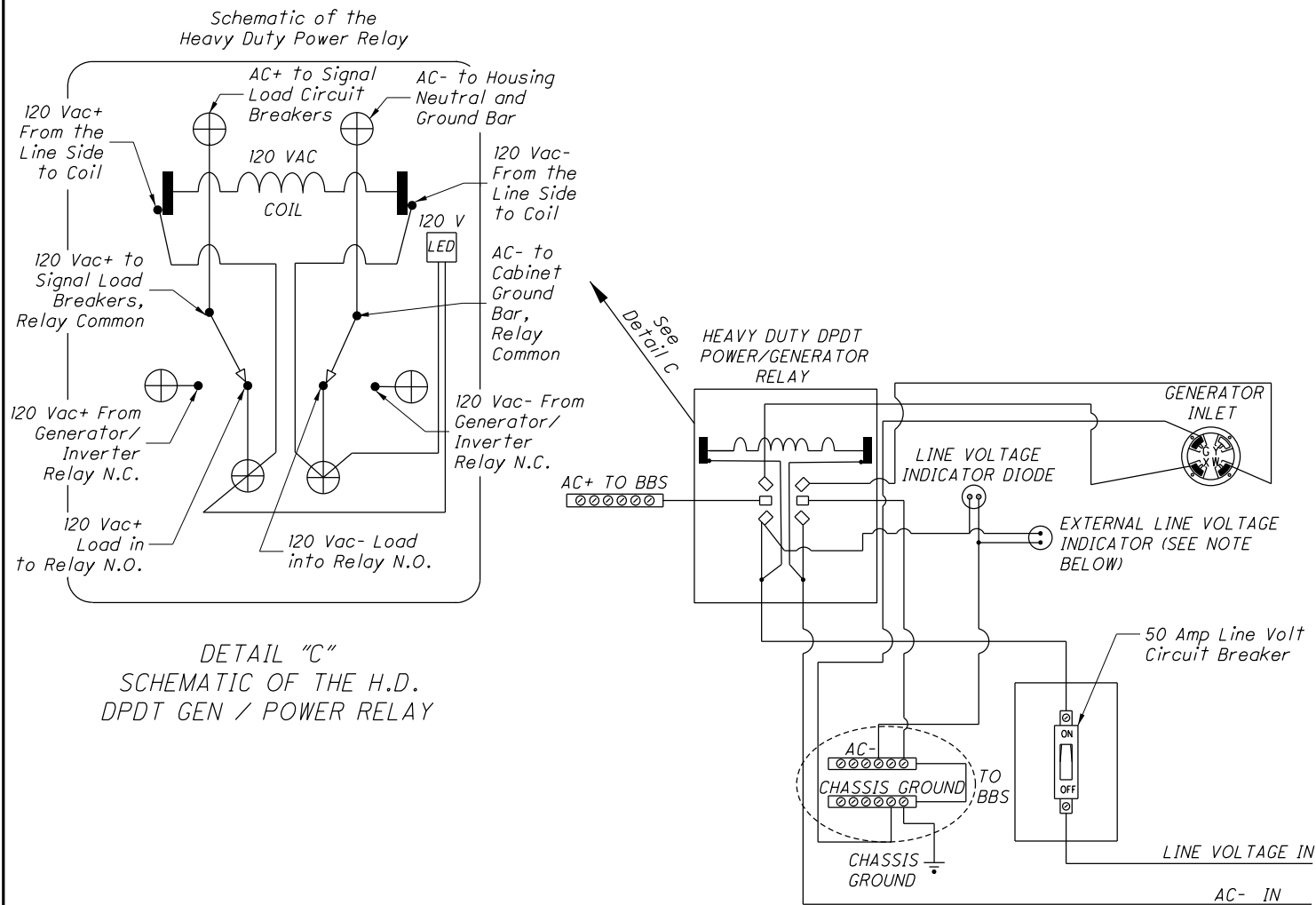
**PLAN VIEW**

MATERIAL SPECIFICATIONS FOR BBS GENERATOR POWER PANEL EQUIPMENT

- GENERATOR INLET - The inlet shall be 30 amp, 125/250V, locking, four (4) wire grounding and meet the NEMA configuration number L14-30-P 30A 125/250V specification. The inlet shall be a Hubbell catalog #2715.
- LINE VOLTAGE GENERATOR SWITCH - The switch shall be 30 amp, 125/250V AC, two (2) pole, three (3) position (On, Off, On). The switch shall be a Hubbell catalog #1388.
- LINE VOLTAGE INDICATOR LIGHT - The indicator light shall be 125V AC light emitting diode with a red lens.
- LINE VOLTAGE CIRCUIT BREAKER - The circuit breaker shall be single pole single throw and a minimum of 30 amps. The amperage shall be increased to accomodate greater loads, if necessary. The gauge of the power cable shall be of proper size per N.E.C.
- EXTERNAL LINE VOLTAGE INDICATOR LIGHT - The indicator light shall be a 1" waterproof NEMA 4X or IP66 LED lamp with a green lens.



FRONT VIEW OF GENERATOR POWER PANEL

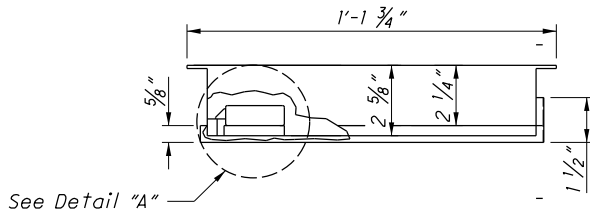


DETAIL "C"  
SCHEMATIC OF THE H.D.  
DPDT GEN / POWER RELAY

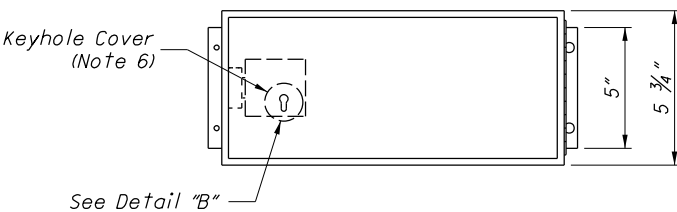
ELECTRICAL HOOKUP DETAIL FOR THE BBS GENERATOR POWER PANEL

NOTE: EXTERNAL LINE VOLTAGE INDICATOR LIGHT required when called for in the plans.  
EXTERNAL LINE VOLTAGE INDICATOR LIGHT shall be located on the enclosure exterior for visibility from the adjacent roadway when all cabinet, and generator panel doors are closed.

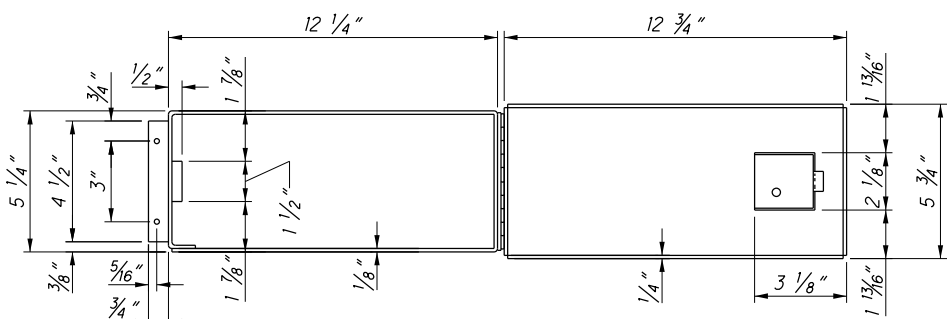
GENERATOR POWER PANEL ENCLOSURE



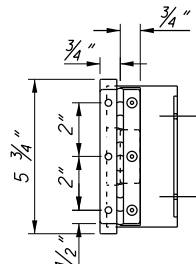
TOP VIEW



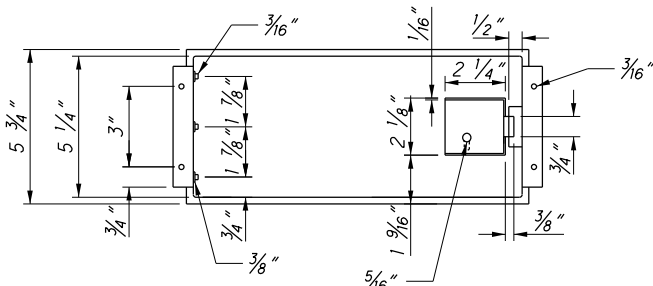
FRONT VIEW CLOSED DOOR



FRONT VIEW OPEN DOOR



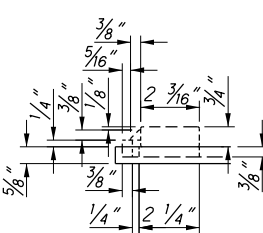
RIGHT SIDE VIEW  
CLOSED DOOR



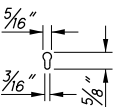
BACK VIEW CLOSED DOOR

NOTES:

1. The enclosure shall be constructed of 1/8" thick aluminum.
2. The lock shall be the standard police door type, keyed with the standard flasher door skeleton key.
3. The door shall be sealed with a foam rubber gasket to prevent moisture from entering the enclosure.
4. The enclosure shall be mounted onto the outside of the controller cabinet with non-accessible bolts and sealed with a high quality silicon caulk at all surfaces touching the cabinet.
5. The hinge shall be of stainless steel or equivalent corrosive-resistant material.
6. Keyhole shall be covered with a movable circular aluminum or brass cover with top pivot pin.

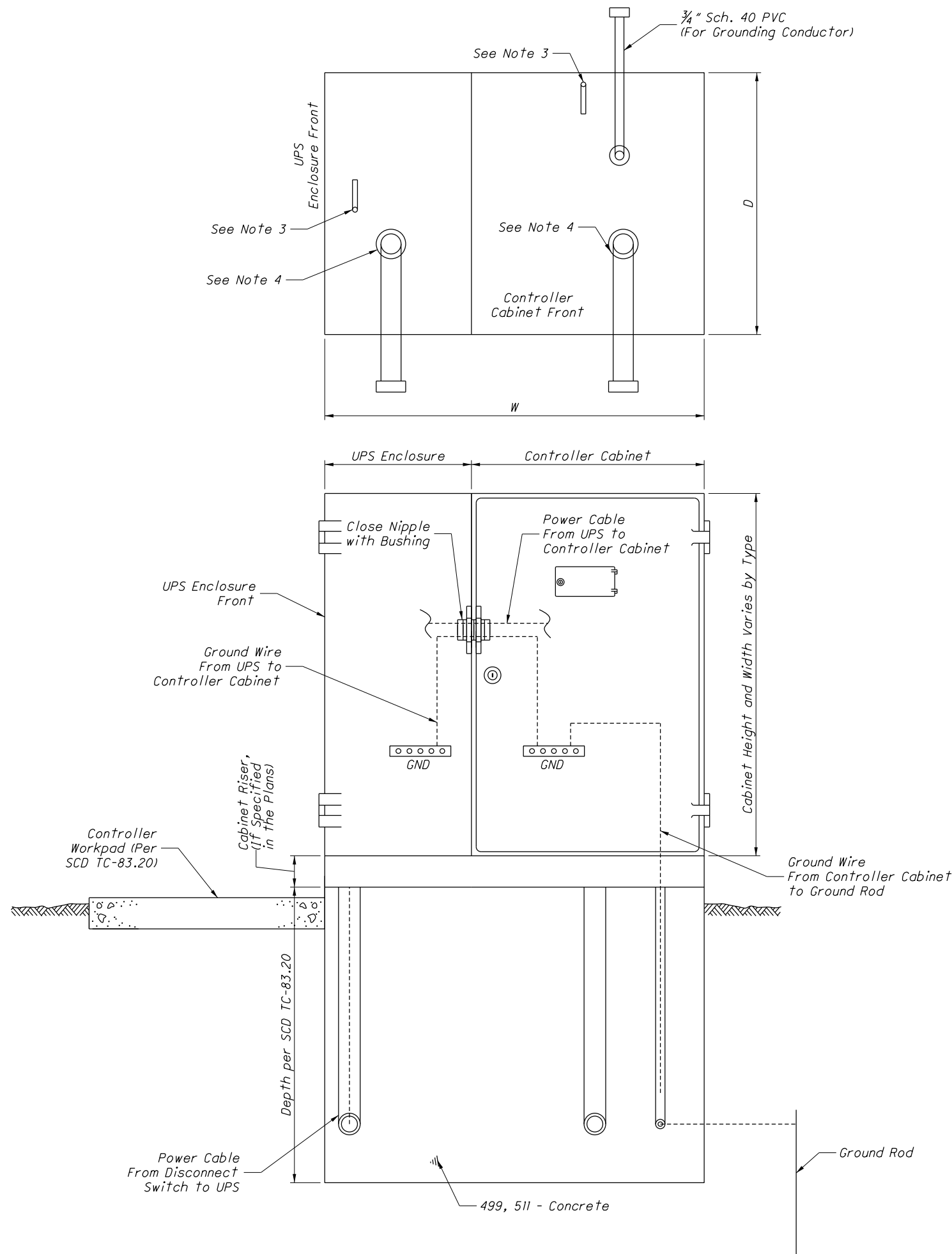


DETAIL "A"



DETAIL "B"

THIS DRAWING REPLACES PIS 203012 DATED 04-20-2012.



NOTES:

1. The Uninterruptible Power Supply (UPS) enclosure shall be mounted flush up against the traffic signal cabinet and sealed with silicone. The Contractor shall be responsible for providing the necessary power cable between the UPS unit and signal cabinet.
2. The UPS should be placed on the opposite side of the pull box on a 332/336 cabinet (per Standard Construction Drawing (SCD) TC-83.20). The UPS placement for a NEMA cabinet varies, placement should provide adequate access with respect to slope, guardrail spacing, etc.
3. The size, number, and location of anchor bolts shall be in accordance with the manufacturer's recommendations.
4. The size, number, and orientation of conduit ells shall be as shown in the plan, except that a 3/4" schedule 40 PVC shall be installed in each foundation.
5. 1/2" preformed joint filler as per CMS 705.03 shall be used between foundations and adjacent paved areas.
6. See SCD TC-83.20 for further details.

| TYPE     | W<br>(IN.) | D<br>(IN.) | FOUNDATION<br>CONCRETE<br>(CU. YD.) |
|----------|------------|------------|-------------------------------------|
| TS-1     | 60         | 24         | 1.23                                |
| TS-2     | 70         | 36         | 2.16                                |
| 2070/170 | 50         | 36         | 1.54                                |

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SEPAC AND ASC/3 INPUT FILE INFORMATION FOR THE 332 CABINET

UPPER INPUT FILE (FILE=I)

|                                 |                    |          |          |          |          |          |          |          |          |          |        |                           |        |        |        |
|---------------------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|---------------------------|--------|--------|--------|
| C<br>U<br>P<br>P<br>E<br>R<br>L | PHASE              | 1        | 2        | 2        | 2        | 3        | 4        | 4        | 4        | 1        |        | MANUAL<br>CONTROL<br>ADV. | 2      | 6      | FLASH  |
|                                 | DEFAULT FUNCTION   | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | SPARE  |                           | PED    | PED    | SENSE  |
|                                 | SEPAC DETECTOR NO. | VEH 1    | VEH 3    | VEH 5    | VEH 7    | VEH 9    | VEH 11   | VEH 13   | VEH 15   | VEH 17   |        |                           | PED 2  | PED 6  |        |
|                                 | ASC/3 DETECTOR NO. | VEH 1    | VEH 2    | VEH 3    | VEH 4    | VEH 5    | VEH 6    | VEH 7    | VEH 8    | VEH 9    |        |                           | PED 2  | PED 6  |        |
|                                 | C1 PIN NUMBER      | 56       | 39       | 63       | 47       | 58       | 41       | 65       | 49       | 60       |        | 80                        | 67     | 68     | 81     |
| FIELD TERMINALS                 |                    | 1-D,E    | 2-D,E    | 3-D,E    | 4-D,E    | 5-D,E    | 6-D,E    | 7-D,E    | 8-D,E    | 9-D,E    | 10-D,E | 11-D,E                    | 12-D,E | 13-D,E | 14-D,E |
| SLOT NUMBER                     |                    | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10     | 11                        | 12     | 13     | 14     |
| C<br>L<br>O<br>W<br>E<br>R<br>L | PHASE              | 1        | 2        | 2        | 2        | 3        | 4        | 4        | 4        | 3        |        | ADV.                      | 4      | 8      | STOP   |
|                                 | DEFAULT FUNCTION   | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | SPARE  | ENABLE                    | PED    | PED    | TIME   |
|                                 | SEPAC DETECTOR NO. | VEH 1    | VEH 4    | VEH 6    | VEH 7    | VEH 9    | VEH 12   | VEH 14   | VEH 15   | VEH 18   |        |                           | PED 4  | PED 8  |        |
|                                 | ASC/3 DETECTOR NO. | VEH 1    | VEH 10   | VEH 11   | VEH 4    | VEH 5    | VEH 14   | VEH 15   | VEH 8    | VEH 13   |        |                           | PED 4  | PED 8  |        |
|                                 | C1 PIN NUMBER      | 56       | 43       | 76       | 47       | 58       | 45       | 78       | 49       | 62       |        | 53                        | 69     | 70     | 82     |
| FIELD TERMINALS                 |                    | 1-J,K    | 2-J,K    | 3-J,K    | 4-J,K    | 5-J,K    | 6-J,K    | 7-J,K    | 8-J,K    | 9-J,K    | 10-J,K | 11-J,K                    | 12-J,K | 13-J,K | 14-J,K |

LOWER INPUT FILE (FILE=J)

|                                 |                    |          |          |          |          |          |          |          |          |          |        |        |        |        |        |
|---------------------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|--------|--------|--------|--------|
| C<br>U<br>P<br>P<br>E<br>R<br>L | PHASE              | 5        | 6        | 6        | 6        | 7        | 8        | 8        | 8        | 5        |        |        |        |        |        |
|                                 | DEFAULT FUNCTION   | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | SPARE  | SPARE  | EV - A | EV - B | RR - 1 |
|                                 | SEPAC DETECTOR NO. | VEH 19   | VEH 21   | VEH 23   | VEH 25   | VEH 29   | VEH 31   | VEH 33   | VEH 35   | VEH 37   |        |        |        |        |        |
|                                 | ASC/3 DETECTOR NO. | VEH 17   | VEH 18   | VEH 19   | VEH 20   | VEH 21   | VEH 22   | VEH 23   | VEH 24   | VEH 25   |        |        |        |        |        |
|                                 | C1 PIN NUMBER      | 55       | 40       | 64       | 48       | 57       | 42       | 66       | 50       | 59       |        | 54     | 71     | 72     | 51     |
| FIELD TERMINALS                 |                    | 1-D,E    | 2-D,E    | 3-D,E    | 4-D,E    | 5-D,E    | 6-D,E    | 7-D,E    | 8-D,E    | 9-D,E    | 10-D,E | 11-D,E | 12-D,E | 13-D,E | 14-D,E |
| SLOT NUMBER                     |                    | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9        | 10     | 11     | 12     | 13     | 14     |
| C<br>L<br>O<br>W<br>E<br>R<br>L | PHASE              | 5        | 6        | 6        | 6        | 7        | 8        | 8        | 8        | 7        |        |        |        |        |        |
|                                 | DEFAULT FUNCTION   | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | SPARE  | SPARE  | EV - C | EV - D | RR - 2 |
|                                 | SEPAC DETECTOR NO. | VEH 19   | VEH 22   | VEH 24   | VEH 25   | VEH 29   | VEH 32   | VEH 34   | VEH 35   | VEH 38   |        |        |        |        |        |
|                                 | ASC/3 DETECTOR NO. | VEH 17   | VEH 26   | VEH 27   | VEH 20   | VEH 21   | VEH 30   | VEH 31   | VEH 24   | VEH 29   |        |        |        |        |        |
|                                 | C1 PIN NUMBER      | 55       | 44       | 77       | 48       | 57       | 46       | 79       | 50       | 61       |        | 75     | 73     | 74     | 52     |
| FIELD TERMINALS                 |                    | 1-J,K    | 2-J,K    | 3-J,K    | 4-J,K    | 5-J,K    | 6-J,K    | 7-J,K    | 8-J,K    | 9-J,K    | 10-J,K | 11-J,K | 12-J,K | 13-J,K | 14-J,K |

SEPAC AND ASC/3 INPUT FILE INFORMATION FOR THE 336 CABINET

|                                 |                    |          |          |          |          |          |          |          |          |        |        |        |        |        |        |
|---------------------------------|--------------------|----------|----------|----------|----------|----------|----------|----------|----------|--------|--------|--------|--------|--------|--------|
| C<br>U<br>P<br>P<br>E<br>R<br>L | PHASE              | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        |        |        |        | 2      | 6      | FLASH  |
|                                 | DEFAULT FUNCTION   | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | RR - 1 | EV - A | EV - B | PED    | PED    | SENSE  |
|                                 | SEPAC DETECTOR NO. | VEH 1    | VEH 3    | VEH 9    | VEH 11   | VEH 19   | VEH 21   | VEH 29   | VEH 31   |        |        |        | PED 2  | PED 6  |        |
|                                 | ASC/3 DETECTOR NO. | VEH 1    | VEH 2    | VEH 5    | VEH 6    | VEH 17   | VEH 18   | VEH 21   | VEH 22   |        |        |        | PED 2  | PED 6  |        |
|                                 | C1 PIN NUMBER      | 56       | 39       | 58       | 41       | 55       | 40       | 57       | 42       | 51     | 71     | 72     | 67     | 68     | 81     |
| FIELD TERMINALS                 |                    | 1-D,E    | 2-D,E    | 3-D,E    | 4-D,E    | 5-D,E    | 6-D,E    | 7-D,E    | 8-D,E    | 9-D,E  | 10-D,E | 11-D,E | 12-D,E | 13-D,E | 14-D,E |
| SLOT NUMBER                     |                    | 1        | 2        | 3        | 4        | 5        | 6        | 7        | 8        | 9      | 10     | 11     | 12     | 13     | 14     |
| C<br>L<br>O<br>W<br>E<br>R<br>L | PHASE              | 2        | 2        | 4        | 4        | 6        | 6        | 8        | 8        |        |        |        | 4      | 8      | STOP   |
|                                 | DEFAULT FUNCTION   | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | EXT-CALL | RR - 2 | EV - C | EV - D | PED    | PED    | TIME   |
|                                 | SEPAC DETECTOR NO. | VEH 7    | VEH 4    | VEH 15   | VEH 12   | VEH 25   | VEH 22   | VEH 35   | VEH 32   |        |        |        | PED 4  | PED 8  |        |
|                                 | ASC/3 DETECTOR NO. | VEH 4    | VEH 10   | VEH 8    | VEH 14   | VEH 20   | VEH 26   | VEH 24   | VEH 30   |        |        |        | PED 4  | PED 8  |        |
|                                 | C1 PIN NUMBER      | 47       | 43       | 49       | 45       | 48       | 44       | 50       | 46       | 52     | 73     | 74     | 69     | 70     | 82     |
| FIELD TERMINALS                 |                    | 1-J,K    | 2-J,K    | 3-J,K    | 4-J,K    | 5-J,K    | 6-J,K    | 7-J,K    | 8-J,K    | 9-J,K  | 10-J,K | 11-J,K | 12-J,K | 13-J,K | 14-J,K |

THIS DRAWING REPLACES PIS 203324 DATED 10-18-2013.

OFFICE OF  
ROADWAY  
ENGINEERING

DESIGNED  
XXX  
REVIEWED  
XXX

REVISION DATE  
07-15-2016  
CHECKED  
CHECKED

PLAN INSERT SHEET

SEPAC AND ASC / 3 INPUT FILE INFORMATION  
FOR 332 AND 336 CABINETS

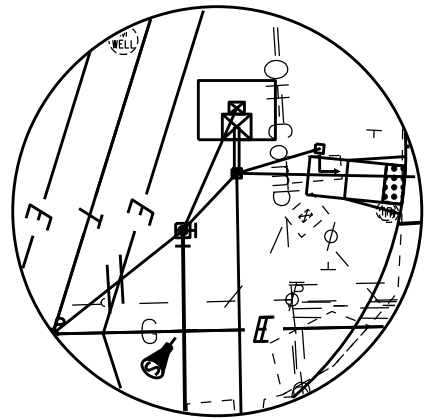
GEA - 422-13.04

1 / 1

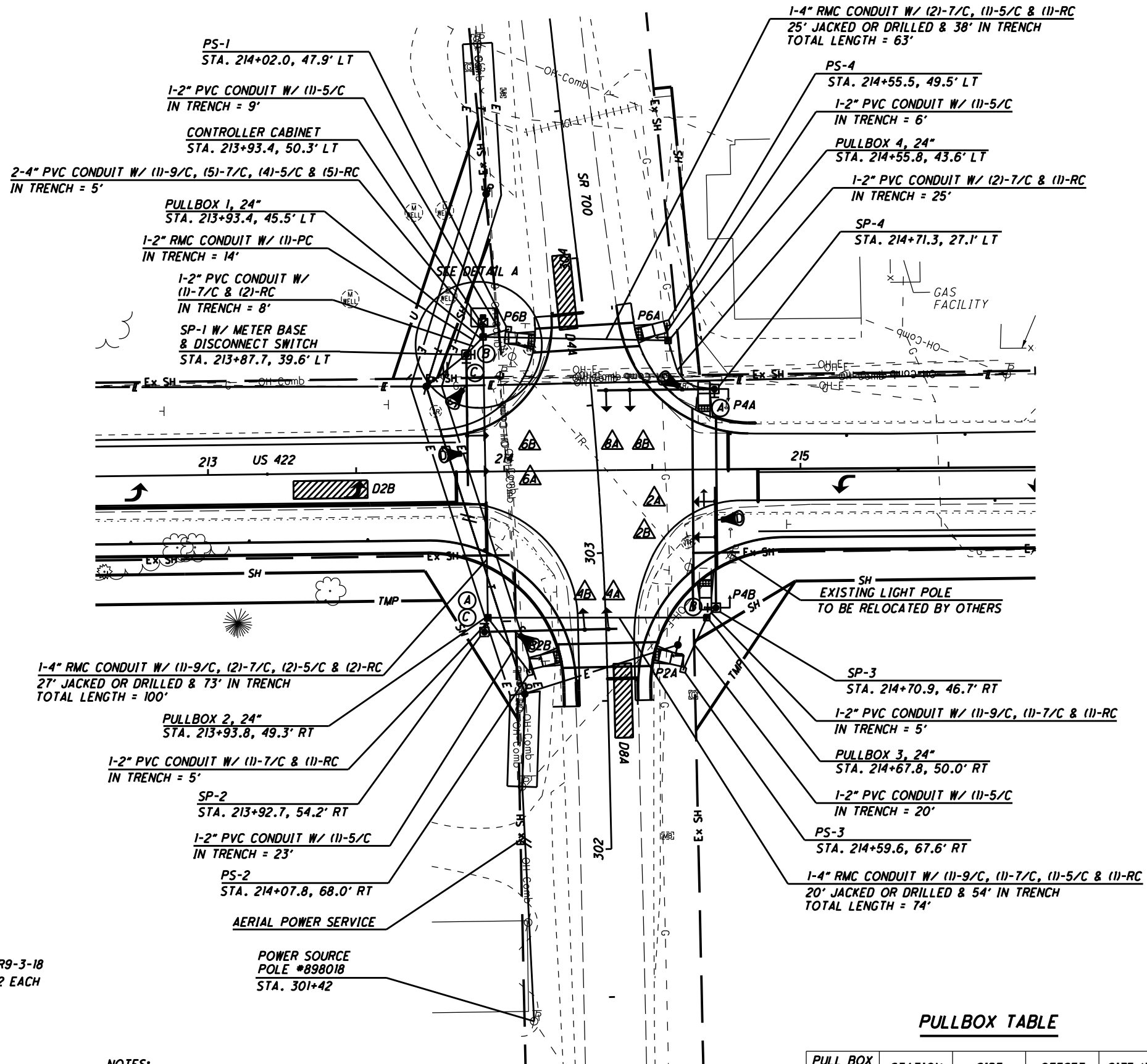
44  
61

[illegible]

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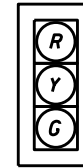


DETAIL A  
1" = 10'

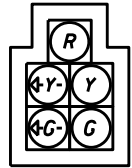


NOTES:  
1. STOP LINE DETECTION ZONE SHALL BEGIN 5' IN ADVANCE OF THE STOP LINE.  
2. THE D2B DETECTION ZONE SHALL BEGIN 30' PRIOR TO THE STOP LINE.

### SIGNAL HEADS



2B, 4A, 4B  
6A, 6B, 8A, 8B  
12" LED WITH BACKPLATE  
CUTAWAY VISOR  
BLACK HOUSING

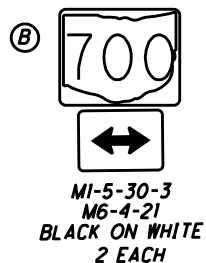


2A  
12" LED WITH BACKPLATE  
CUTAWAY VISOR  
BLACK HOUSING

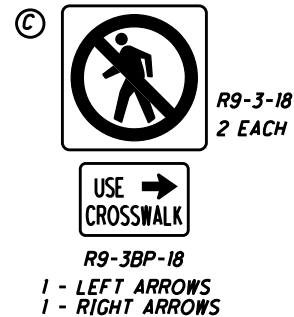
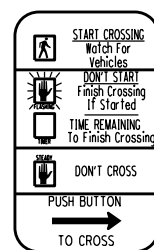


PEDESTRIAN HEADS  
(LED, COUNTDOWN,  
TYPE D2)  
BLACK HOUSING

### MAST ARM SIGNS



### PEDESTRIAN SIGNS



### LEGEND

|                                       | PROP | EXIST |
|---------------------------------------|------|-------|
| TRAFFIC SIGNAL, 3 UNIT HEAD, 12"      |      |       |
| TRAFFIC SIGNAL, 4 OR 5 UNIT HEAD, 12" |      |       |
| SIGNAL SUPPORT POLE                   |      |       |
| PEDESTRIAN SIGNAL                     |      |       |
| PEDESTRIAN PUSH BUTTON                |      |       |
| CONTROLLER CABINET AND WORK PAD (332) |      |       |
| TRAFFIC PULL BOX                      |      |       |
| DILEMMA ZONE RADAR DETECTION UNIT     |      |       |
| STOP BAR RADAR DETECTION UNIT         |      |       |
| DETECTION ZONE                        |      |       |

### PULLBOX TABLE

| PULL BOX # | STATION  | SIDE | OFFSET | SIZE (IN.) |
|------------|----------|------|--------|------------|
| 1          | 213+87.7 | LT   | 39.6'  | 24         |
| 2          | 213+93.8 | RT   | 49.3'  | 24         |
| 3          | 214+67.8 | RT   | 50.0'  | 24         |
| 4          | 214+55.8 | LT   | 43.6'  | 24         |

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SIGNAL TIMING CHART

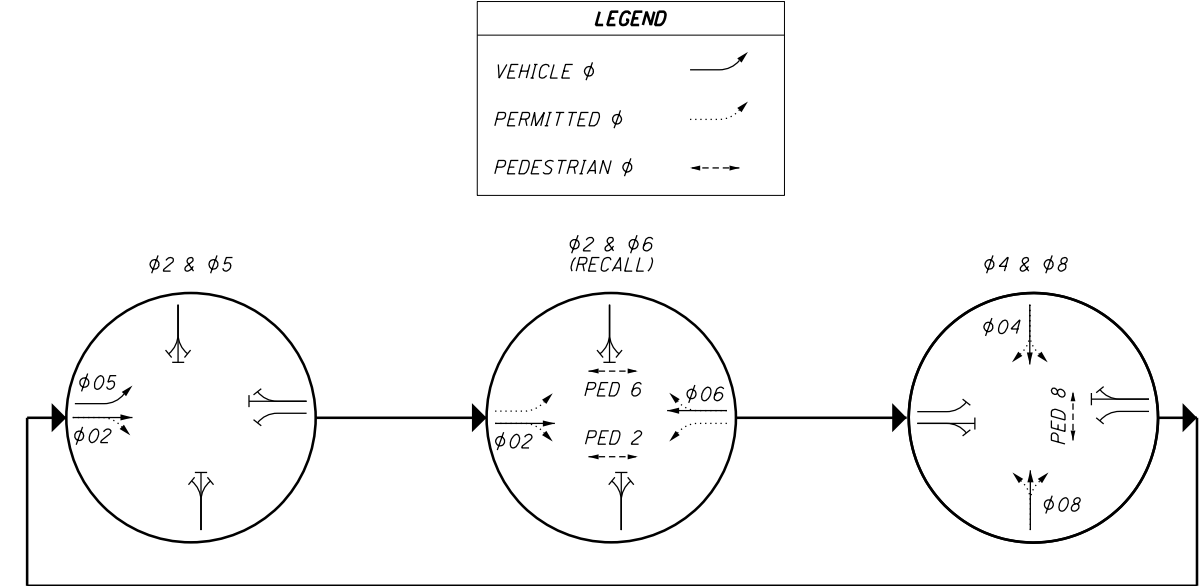
| INTERSECTION: US 422 AT SR 700                                                                                                      |                     |                         |     |                          |     |        |     |   |     |
|-------------------------------------------------------------------------------------------------------------------------------------|---------------------|-------------------------|-----|--------------------------|-----|--------|-----|---|-----|
| MAINTAINING AGENCY: ODOT                                                                                                            |                     |                         |     |                          |     |        |     |   |     |
| <u>START UP</u><br><br>START IN: ALL RED<br>TIME FOR FLASH OR ALL RED: 10 SEC.<br>FIRST PHASE(S): ϕ2 & ϕ6<br>COLOR DISPLAYED: GREEN |                     | DUAL ENTRY: YES         |     | PHASES: ϕ2 & ϕ6, ϕ4 & ϕ8 |     |        |     |   |     |
|                                                                                                                                     |                     | REST IN RED:            |     | RING 1                   |     | RING 2 |     | - |     |
|                                                                                                                                     |                     | OVERLAP                 |     |                          | A   | B      | C   | D |     |
|                                                                                                                                     |                     | PHASES                  |     |                          | -   | -      | -   | - |     |
| INTERVAL OR FEATURE                                                                                                                 |                     | CONTROLLER MOVEMENT NO. |     |                          |     |        |     |   |     |
| INTERSECTION MOVEMENT (PHASE)                                                                                                       |                     | 1                       | 2   | 3                        | 4   | 5      | 6   | 7 | 8   |
| DIRECTION                                                                                                                           |                     | -                       | EB  | -                        | SB  | EBL T  | WB  | - | NB  |
| MINIMUM GREEN (INITIAL) (SEC.)                                                                                                      |                     | -                       | 20  | -                        | 10  | 7      | 20  | - | 10  |
| ADDED INITIAL *(SEC./ACTUATION)                                                                                                     |                     | -                       | -   | -                        | -   | -      | -   | - | -   |
| MAXIMUM INITIAL (SEC.)                                                                                                              |                     | -                       | -   | -                        | -   | -      | -   | - | -   |
| PASSAGE TIME (PRESET GAP) (SEC.)                                                                                                    |                     | -                       | 2.0 | -                        | 3.0 | 3.0    | 2.0 | - | 3.0 |
| TIME BEFORE REDUCTION *(SEC.)                                                                                                       |                     | -                       | -   | -                        | -   | -      | -   | - | -   |
| MINIMUM GAP *(SEC.)                                                                                                                 |                     | -                       | -   | -                        | -   | -      | -   | - | -   |
| TIME TO REDUCE *(SEC.)                                                                                                              |                     | -                       | -   | -                        | -   | -      | -   | - | -   |
| MAXIMUM GREEN I (SEC.)                                                                                                              |                     | -                       | 65  | -                        | 35  | 15     | 65  | - | 35  |
| MAXIMUM GREEN II (SEC.)                                                                                                             |                     | -                       | -   | -                        | -   | -      | -   | - | -   |
| YELLOW CHANGE (SEC.)                                                                                                                |                     | -                       | 4.5 | -                        | 4.5 | 4.5    | 4.5 | - | 4.5 |
| ALL RED CLEARANCE (SEC.)                                                                                                            |                     | -                       | 1.0 | -                        | 1.5 | 1.0    | 1.0 | - | 1.5 |
| WALK (SEC.)                                                                                                                         |                     | -                       | 7   | -                        | -   | -      | 7   | - | 7   |
| PEDESTRIAN CLEARANCE (SEC.)                                                                                                         |                     | -                       | 7   | -                        | -   | -      | 7   | - | 13  |
| RECALL                                                                                                                              | MAXIMUM (ON/OFF)    | -                       | OFF | -                        | OFF | OFF    | OFF | - | OFF |
|                                                                                                                                     | MINIMUM (ON/OFF)    | -                       | OFF | -                        | OFF | OFF    | OFF | - | OFF |
|                                                                                                                                     | PEDESTRIAN (ON/OFF) | -                       | ON  | -                        | -   | -      | ON  | - | OFF |
| MEMORY (ON/OFF)                                                                                                                     |                     | -                       | OFF | -                        | OFF | OFF    | OFF | - | OFF |

\*VOLUME DENSITY CONTROLS

NOTES:

1. COUNTDOWN PEDESTRIAN SIGNALS SHALL GO TO ZERO ON YELLOW PER OMUTCD FIGURE 4E-2.
2. RADAR DETECTION UNITS FOR DILEMMA ZONE DETECTION SHALL PLACE A CONSTANT CALL TO THE CONTROLLER WHEN VEHICLES TRAVEL TIMES TO THE STOP BAR ARE BETWEEN 2.5 AND 6 SECONDS. SPEED TRIGGER SHALL BE SET FOR VEHICLES TRAVELING 35 MPH AND GREATER.
3. RADAR SHALL HAVE QUEUE DETECTION CONFIGURED AND A ZONE PLACED AT 100-200 FEET FROM STOP BAR FOR SLOW MOVING VEHICLE EXTENSIONS. SPEED TRIGGER SHALL BE SET AT 1-35 MPH.
4. ALL DETECTOR DELAYS SHALL BE PLACED IN THE CONTROLLER.

PHASING DIAGRAM



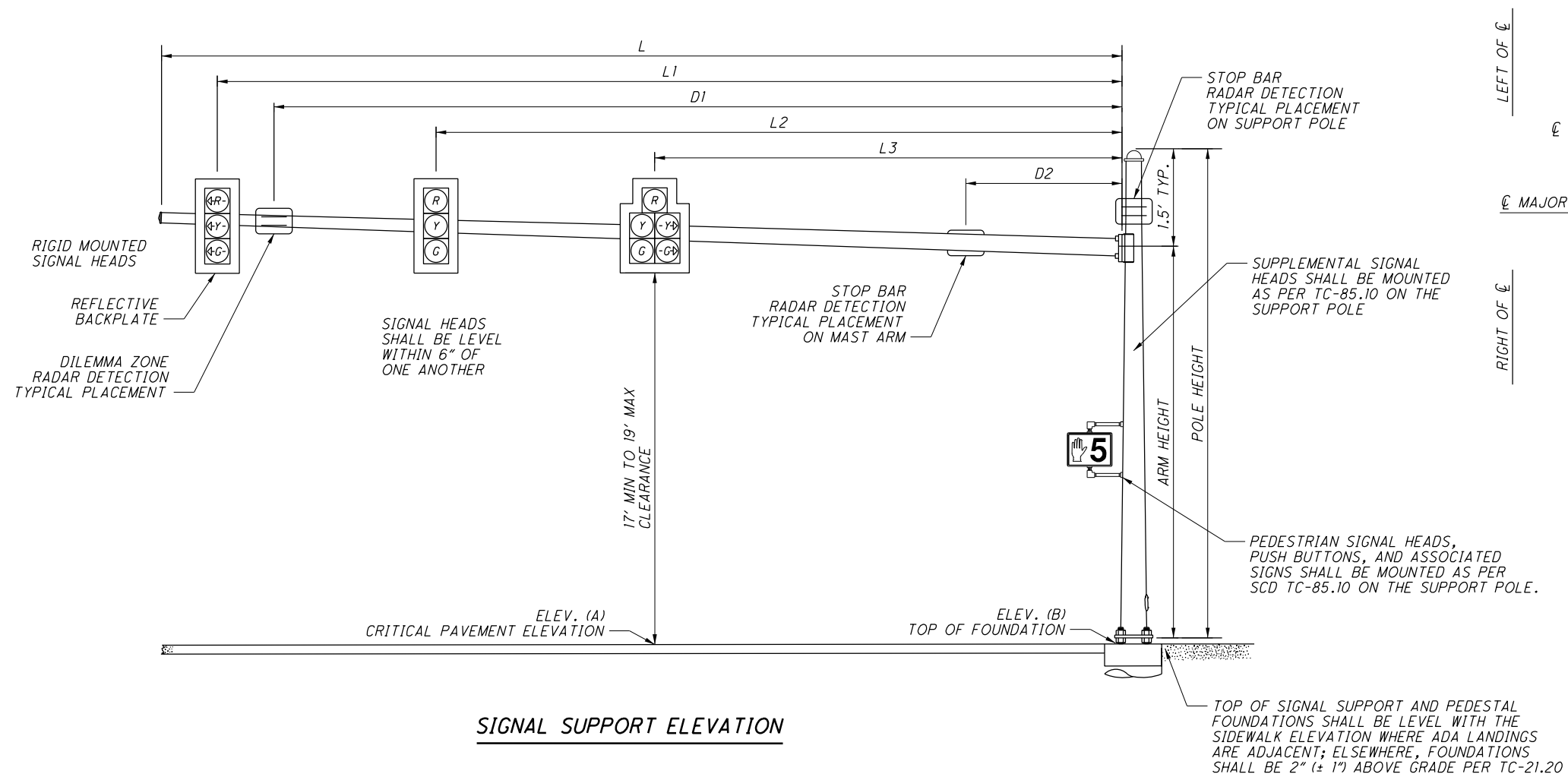
OMIT CALLS TO ϕ5 DURING ϕ6 GREEN

RADAR DETECTION CHART

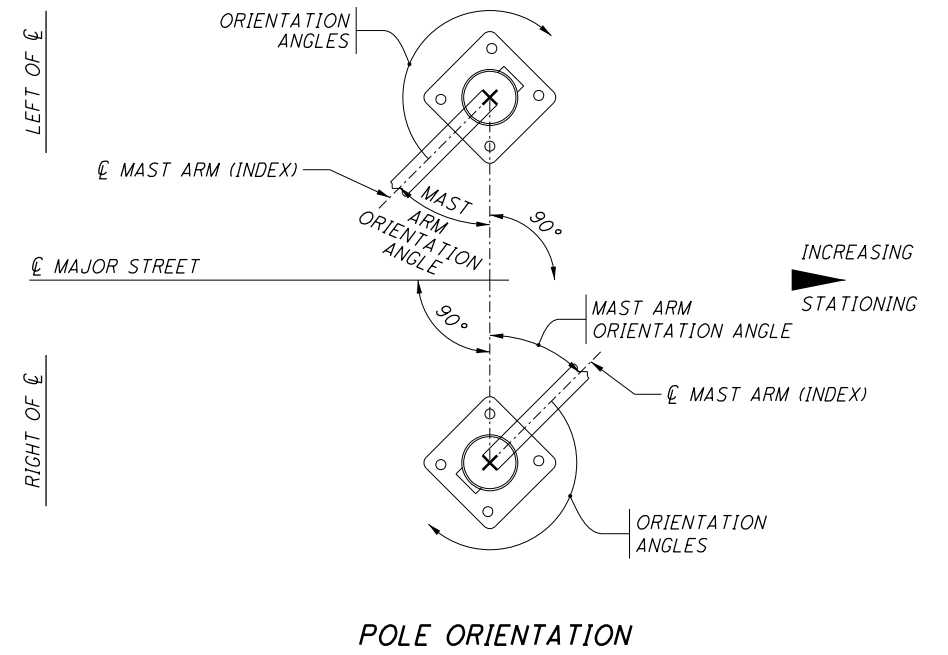
| DETECTION ZONE | MOVEMENT | PULSE OR PRESENCE | ASSOCIATED PHASE | DELAY IN CONTROLLER (SEC) | DELAY INHIBIT PHASE | PURPOSE             | DETECTION ZONE LENGTH (FT) |
|----------------|----------|-------------------|------------------|---------------------------|---------------------|---------------------|----------------------------|
| D2A            | EB THRU  | PULSE             | 2                | -                         | -                   | DILEMMA ZONE        | ADV. RADAR                 |
| D2B            | EB LT    | PRESENCE          | 5                | -                         | -                   | CALL/EXTEND PHASE 5 | 20                         |
| D4A            | SB THRU  | PRESENCE          | 4                | 3                         | 4                   | CALL/EXTEND PHASE 4 | 20                         |
| D6A            | WB THRU  | PULSE             | 6                | -                         | -                   | DILEMMA ZONE        | ADV. RADAR                 |
| D8A            | NB THRU  | PRESENCE          | 8                | 3                         | 8                   | CALL/EXTEND PHASE 8 | 20                         |
| -              | -        | -                 | -                | -                         | -                   | -                   | -                          |
| -              | -        | -                 | -                | -                         | -                   | -                   | -                          |
| -              | -        | -                 | -                | -                         | -                   | -                   | -                          |

NOTE: DILEMMA ZONE SPEED THRESHOLD >30 MPH

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**SIGNAL SUPPORT ELEVATION**



**MAST ARM TABLE**

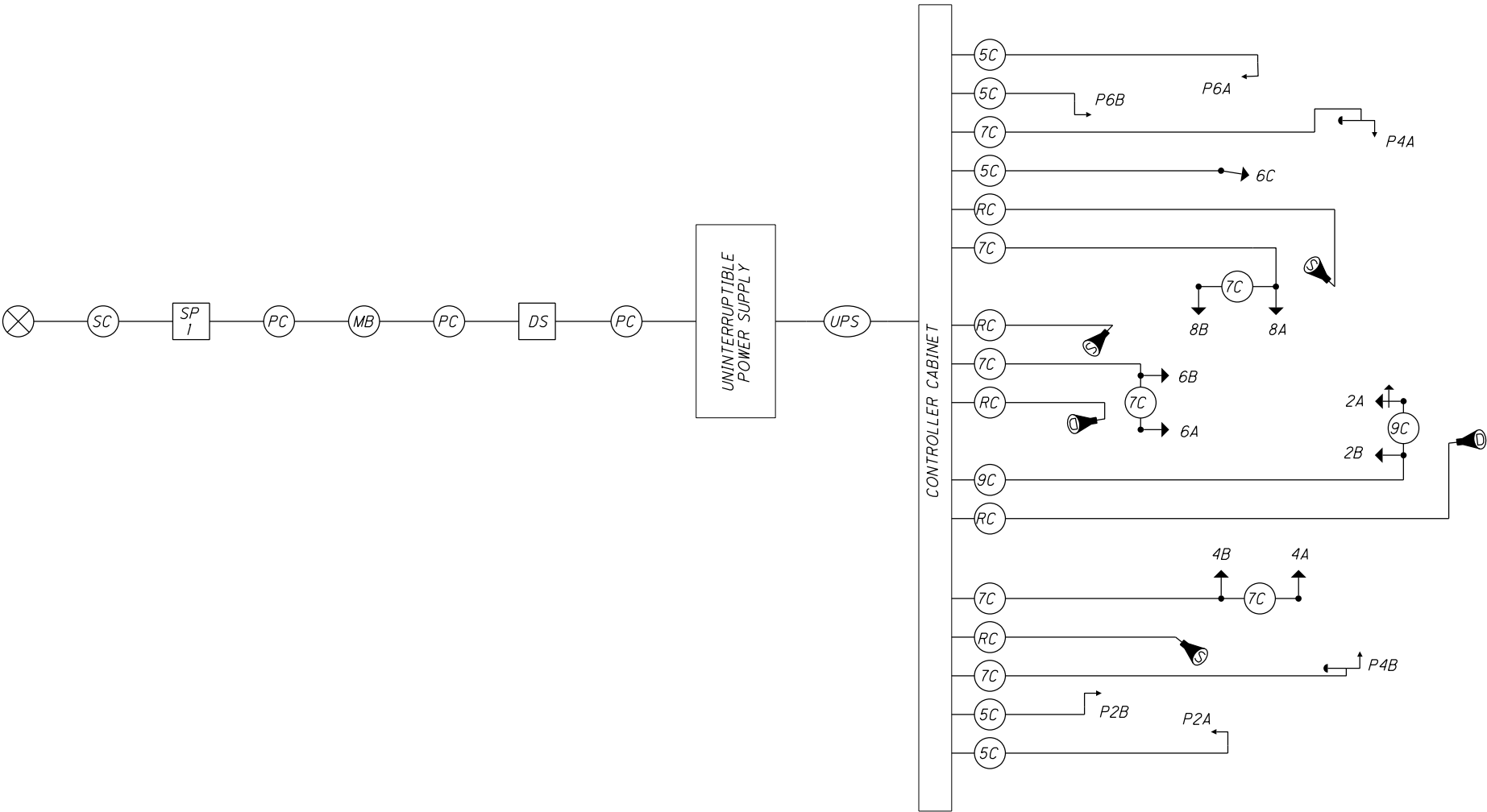
| SUPPORT NO. | STATION  | OFFSET   | ELEVATION |         | SIGNAL SUPPORT DETAILS |            |             |            |    |    |    |    |    |    |    | ORIENTATION ANGLES FROM MAST ARM |                |                   |                   |                   |               |                         |          |                             |  |
|-------------|----------|----------|-----------|---------|------------------------|------------|-------------|------------|----|----|----|----|----|----|----|----------------------------------|----------------|-------------------|-------------------|-------------------|---------------|-------------------------|----------|-----------------------------|--|
|             |          |          | A         | B       | DESIGN TYPE            | DESIGN NO. | POLE HEIGHT | ARM HEIGHT | L  | L1 | L2 | L3 | D1 | D2 | S1 | MAST ARM A ANGLE                 | VEHICLE SIGNAL | PEDESTRIAN SIGNAL | PEDESTRIAN SIGNAL | PEDESTRIAN BUTTON | POWER SERVICE | STOP BAR RADAR DETECTOR | HANDHOLE | CABLE ENTRANCE 12" FROM TOP |  |
|             |          |          |           |         |                        |            |             |            |    |    |    |    |    |    |    |                                  |                |                   |                   |                   |               |                         |          |                             |  |
| SP-1        | 213+87.7 | 39.6' LT | 1220.01   | 1222.36 | TC-81.21               | 11         | 20.5        | 19         | 44 | 39 | 27 | -  | 33 | 10 | 42 | 0                                | -              | -                 | -                 | -                 | 303           | 24                      | 180      | -                           |  |
| SP-2        | 213+92.7 | 54.2' RT | 1222.77   | 1221.68 | TC-81.21               | 11         | 24          | 22.5       | 45 | 42 | 34 | -  | -  | 10 | -  | 90                               | -              | -                 | -                 | -                 | -             | 37                      | 180      | -                           |  |
| SP-3        | 214+70.9 | 46.7' RT | 1224.79   | 1223.70 | TC-81.21               | 11         | 24          | 22.5       | 41 | 36 | 24 | -  | 30 | -  | 39 | 0                                | -              | 90                | -                 | 270               | -             | -                       | 180      | -                           |  |
| SP-4        | 214+71.3 | 27.1' LT | 1223.46   | 1225.28 | TC-81.21               | 11         | 21          | 19.5       | 40 | 37 | 29 | -  | -  | 10 | -  | 90                               | -              | 180               | -                 | 0                 | -             | 24                      | 180      | -                           |  |

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FIELD WIRING HOOK-UP CHART

| SIGNAL HEAD      | INDICATION | FIELD TERMINAL | FLASH        | SIGNAL HEAD          | INDICATION | FIELD TERMINAL | FLASH |
|------------------|------------|----------------|--------------|----------------------|------------|----------------|-------|
| 2A<br>(EB LT)    | R          | ϕ2 R           | R            | -                    | -          | -              | -     |
|                  | Y          | ϕ2 Y           |              |                      | -          | -              |       |
|                  | G          | ϕ2 G           |              |                      | -          | -              |       |
|                  | ←-Y---     | ϕ5 Y           |              |                      | -          | -              |       |
|                  | ←-G---     | ϕ5 G           |              |                      | -          | -              |       |
| 2B<br>(EB)       | R          | ϕ2 R           | R            | -                    | -          | -              | -     |
|                  | Y          | ϕ2 Y           |              |                      | -          | -              |       |
|                  | G          | ϕ2 G           |              |                      | -          | -              |       |
|                  | -          | -              |              | -                    | -          | -              | -     |
|                  | -          | -              |              |                      | -          | -              |       |
| 4A,4B<br>(SB)    | R          | ϕ4 R           | R            | -                    | -          | -              | -     |
|                  | Y          | ϕ4 Y           |              |                      | -          | -              |       |
|                  | G          | ϕ4 G           |              |                      | -          | -              |       |
|                  | -          | -              |              |                      | -          | -              |       |
|                  | -          | -              |              | PEDESTRIAN MOVEMENTS |            |                |       |
| 6A,6B<br>(WB)    | R          | ϕ6 R           | R            | PED 2                | W          | ϕ2PED/LS10 G   | OUT   |
|                  | Y          | ϕ6 Y           |              |                      | DW         | ϕ2PED/LS10 R   |       |
|                  | G          | ϕ6 G           |              | PED 6                | W          | ϕ6PED/LS11 G   | OUT   |
| -                | -          | DW             | ϕ6PED/LS11 R |                      |            |                |       |
| 8A,8B<br>(NB)    | R          | ϕ8 R           | R            | PED 8                | W          | ϕ8PED/LS12 G   | OUT   |
|                  | Y          | ϕ8 Y           |              |                      | DW         | ϕ8PED/LS12 R   |       |
|                  | G          | ϕ8 G           |              | -                    | -          | -              |       |
|                  | -          | -              |              | -                    | -          | -              |       |
|                  | -          | -              |              | OVERLAPS             |            |                |       |
| -                | -          | -              | -            | -                    | -          | -              | -     |
| -                | -          | -              |              | -                    | -          | -              |       |
| -                | -          | -              |              | -                    | -          | -              |       |
| LS = LOAD SWITCH |            |                |              | -                    | -          | -              | -     |

WIRING DIAGRAM



LEGEND



5 SECTION VEHICULAR SIGNAL HEAD, 1-WAY



3 SECTION VEHICULAR SIGNAL HEAD, 1-WAY



PEDESTRIAN SIGNAL HEAD



PEDESTRIAN PUSH BUTTON



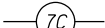
DILEMMA ZONE RADAR DETECTION UNIT



STOP BAR RADAR DETECTION UNIT



SIGNAL CABLE, 5 CONDUCTOR,  
NO. 14 AWG



SIGNAL CABLE, 7 CONDUCTOR,  
NO. 14 AWG



SIGNAL CABLE, 9 CONDUCTOR,  
NO. 14 AWG



RADAR DETECTION CABLE



UNINTERRUPTIBLE POWER SUPPLY CABLE



POWER SOURCE



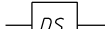
SERVICE CABLE, 3 CONDUCTOR,  
NO. 6 AWG



POWER CABLE, 2 CONDUCTOR,  
NO. 6 AWG

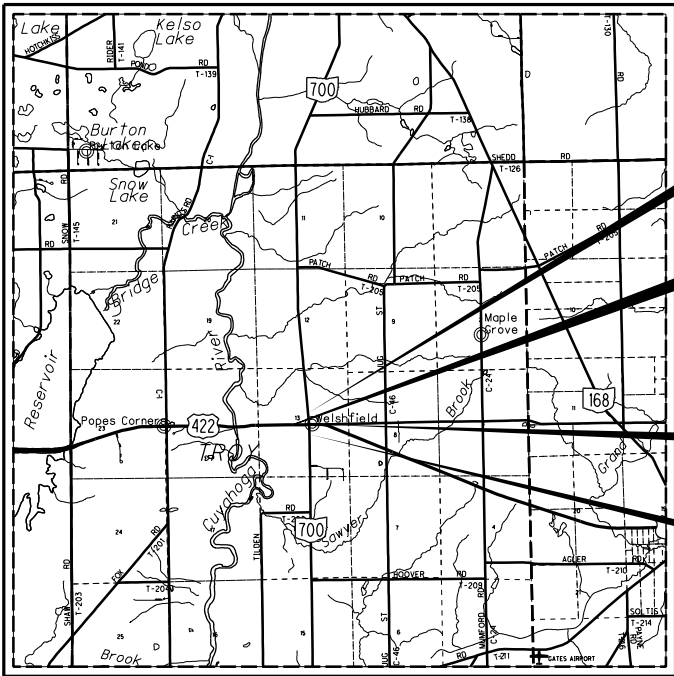


METER BASE



SIGNAL DISCONNECT SWITCH

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LOCATION MAP

LATITUDE: 41°23'13" LONGITUDE: 81°08'35"

| UTILITY OWNERS                                                                                                                                                          |                                                                                                                                                                                      |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| AT&T OHIO<br>13630 LORAIN AVE 2ND FLOOR<br>CLEVELAND, OH 44111<br>ATTN: JAMES JANIS<br>EMAIL: PJ8191@ATT.COM<br>PHONE: 216-476-6142<br>FAX: 216-476-6013                | ODOT DISTRICT 12 TRAFFIC<br>5500 TRANSPORTATION BLVD.<br>GARFIELD HTS, OH 44125<br>ATTN: TONY TOT, P.E.<br>DISTRICT TRAFFIC ENGINEER<br>PHONE: (216)-584-2220<br>FAX: (216)-584-2278 |  |
| DOMINION EAST OHIO<br>320 SPRINGSIDE DR, SUITE 320<br>AKRON, OH 44333<br>ATTN: BRYAN D. DAYTON<br>EMAIL: RELOCATION@DOM.COM<br>PHONE: 330-664-2409<br>FAX: 888-504-0126 |                                                                                                                                                                                      |  |
| FIRST ENERGY<br>7755 AUBURN ROAD<br>PAINSEVILLE, OHIO 44077<br>ATTN: RALPH DELLIGATTI<br>EMAIL: RNDELLIGATTI@FIRSTENERGYCORP.COM<br>PHONE: 440-358-4991                 |                                                                                                                                                                                      |  |

CONVENTIONAL SYMBOLS

|                            |                             |
|----------------------------|-----------------------------|
| County Line                | Edge of Shoulder (Ex)       |
| Township Line              | Edge of Shoulder (Pr)       |
| Section Line               | Ditch / Creek (Ex)          |
| Corporation Line           | Ditch / Creek (Pr)          |
| Fence Line (Ex)            | Tree Line (Ex)              |
| Center Line                | Ownership Hook Symbol       |
| Right of Way (Ex)          | Property Line Symbol        |
| Right of Way (Pr)          | Break Line Symbol           |
| Standard Highway Ease.(Ex) | Tree (Pr)                   |
| Temporary Right of Way     | Tree (Ex)                   |
| Channel Ease. (Pr)         | Shrub (Ex)                  |
| Utility Ease. (Ex)         | Tree (Remove)               |
| SH Easement (Pr)           | Shrub (Remove)              |
| Utility Easement (Pr)      | Evergreen (Ex)              |
| Railroad                   | Evergreen (Remove)          |
| Guardrail (Ex)             | Wetland (Pr)                |
| Construction Limits        | Grass (Pr)                  |
| Edge of Pavement (Ex)      | Aerial Target               |
| Edge of Pavement (Pr)      | Post (Ex)                   |
|                            | Mailbox (Ex)                |
|                            | Mailbox (Pr)                |
|                            | Light (Ex)                  |
|                            | Telephone Marker (Ex)       |
|                            | HTL                         |
|                            | Fire Hydrant (Ex)           |
|                            | Water Meter (Ex)            |
|                            | Water Valve (Ex)            |
|                            | Utility Valve Unknown (Ex.) |
|                            | Telephone Pole (Ex)         |
|                            | Power Pole (Ex)             |
|                            | Light Pole (Ex)             |

RIGHT OF WAY  
LEGEND SHEET  
GEA-422-13.04

GEAUGA COUNTY  
TROY TOWNSHIP  
SEC. 13 CWR

INDEX OF SHEETS:

|                           |           |
|---------------------------|-----------|
| TITLE SHEET               | 1         |
| CENTERLINE PLAT           | 2-3       |
| PROPERTY MAP              | 4         |
| SUMMARY OF ADDITIONAL R/W | 5-6       |
| R/W TOPOGRAPHIC SHEETS    | 7, 9, 11  |
| R/W BOUNDARY SHEETS       | 8, 10, 12 |

NOTES: THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE OBTAINED FROM THE OWNER OF THE UTILITIES AS REQUIRED BY SECTION 153.64 O.R.C.

I, Steven J. Scheid, Jr., P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation on October 2015. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates System North Zone on NAD 83 CORS 2011 datum. The Project Coordinates (US Survey Feet) are relative to State Plane Grid Coordinates US Survey Feet by a Project Adjustment Factor of 1.00009849. As a part of this project I have reestablished the locations of the existing property lines and the existing centerline of Right of Way for property takes contained herein. As a part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels as shown herein. As a part of this work I have set right of way monuments at the property corners, property line intersection, points along the right of way and/or angle points on the right of way, Section Corners and other points as shown herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

Steven J. Scheid, Jr., Professional Land Surveyor 8294

PROJECT DESCRIPTION

CONSTRUCT 0.23 MILE OF SAFETY IMPROVEMENT AT US 422 & SR 700 INTERSECTION INCLUDING WIDENING TO ADD LEFT TURN LANES TO EB AND WB US 422 AND RELATED TRAFFIC SIGNAL CONTROL UPDATES. THE EXISTING AND PROPOSED RIGHT OF WAY SHALL BE REFERENCED TO THE CENTERLINE OF R/W OF US 422 (MARKET RD) AND THE CENTERLINE OF R/W OF SR 700 (CLARIDON TROY RD)

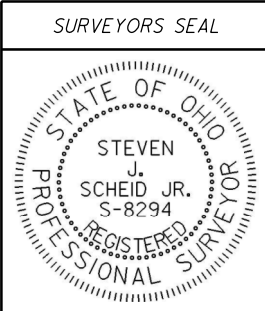
PLANS PREPARED BY:

FIRM NAME : MEAD & HUNT  
R/W DESIGNER: ALEX MONDA  
R/W REVIEWER: STEVEN J. SCHEID JR., P.S.  
FIELD REVIEWER: ANM & ALM  
PRELIMINARY FIELD REVIEW DATE: 3/21/16  
TRACINGS FIELD REVIEW DATE: 9/26/16  
OWNERSHIP UPDATED BY: ANM  
DATE COMPLETED: 9/21/16  
PLAN COMPLETION DATE: 9/27/16

TYPES OF TITLE LEGEND:  
SH = STANDARD HIGHWAY EASEMENT  
T = TEMPORARY EASEMENT  
U = UTILITY EASEMENT

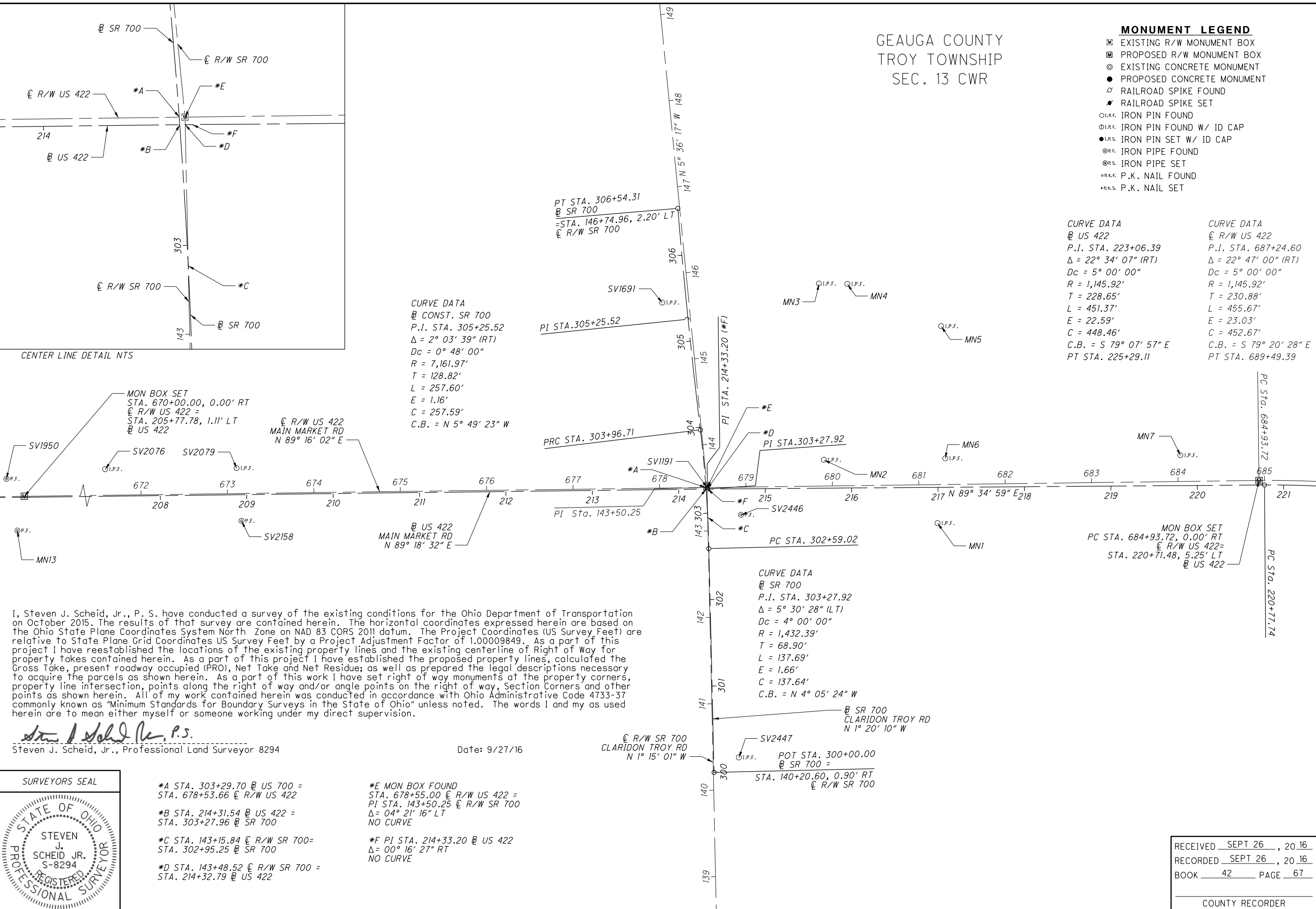
STRUCTURE KEY

|  |              |
|--|--------------|
|  | RESIDENTIAL  |
|  | COMMERCIAL   |
|  | OUT-BUILDING |



Date: 9/27/16

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GEAUGA COUNTY  
TROY TOWNSHIP  
SEC. 13 CWR

- MONUMENT LEGEND**
- EXISTING R/W MONUMENT BOX
  - PROPOSED R/W MONUMENT BOX
  - EXISTING CONCRETE MONUMENT
  - PROPOSED CONCRETE MONUMENT
  - RAILROAD SPIKE FOUND
  - RAILROAD SPIKE SET
  - IRON PIN FOUND
  - IRON PIN FOUND W/ ID CAP
  - IRON PIN SET W/ ID CAP
  - IRON PIPE FOUND
  - IRON PIPE SET
  - P.K. NAIL FOUND
  - P.K. NAIL SET

| CURVE DATA                        |  | CURVE DATA                        |  |
|-----------------------------------|--|-----------------------------------|--|
| US 422                            |  | R/W US 422                        |  |
| P.I. STA. 223+06.39               |  | P.I. STA. 687+24.60               |  |
| $\Delta = 22^\circ 34' 07''$ (RT) |  | $\Delta = 22^\circ 47' 00''$ (RT) |  |
| $Dc = 5^\circ 00' 00''$           |  | $Dc = 5^\circ 00' 00''$           |  |
| $R = 1,145.92'$                   |  | $R = 1,145.92'$                   |  |
| $T = 228.65'$                     |  | $T = 230.88'$                     |  |
| $L = 451.37'$                     |  | $L = 455.67'$                     |  |
| $E = 22.59'$                      |  | $E = 23.03'$                      |  |
| $C = 448.46'$                     |  | $C = 452.67'$                     |  |
| C.B. = S $79^\circ 07' 57''$ E    |  | C.B. = S $79^\circ 20' 28''$ E    |  |
| PT STA. 225+29.11                 |  | PT STA. 689+49.39                 |  |

I, Steven J. Scheid, Jr., P. S. have conducted a survey of the existing conditions for the Ohio Department of Transportation on October 2015. The results of that survey are contained herein. The horizontal coordinates expressed herein are based on the Ohio State Plane Coordinates System North Zone on NAD 83 CORS 2011 datum. The Project Coordinates (US Survey Feet) are relative to State Plane Grid Coordinates US Survey Feet by a Project Adjustment Factor of 1.00009849. As a part of this project I have reestablished the locations of the existing property lines and the existing centerline of Right of Way for property takes contained herein. As a part of this project I have established the proposed property lines, calculated the Gross Take, present roadway occupied (PRO), Net Take and Net Residue; as well as prepared the legal descriptions necessary to acquire the parcels as shown herein. As a part of this work I have set right of way monuments at the property corners, property line intersection, points along the right of way and/or angle points on the right of way, Section Corners and other points as shown herein. All of my work contained herein was conducted in accordance with Ohio Administrative Code 4733-37 commonly known as "Minimum Standards for Boundary Surveys in the State of Ohio" unless noted. The words I and my as used herein are to mean either myself or someone working under my direct supervision.

*Steven J. Scheid, Jr., P.S.*  
Steven J. Scheid, Jr., Professional Land Surveyor 8294

Date: 9/27/16

SURVEYORS SEAL

STATE OF OHIO  
STEVEN J. SCHEID JR.  
S-8294  
REGISTERED PROFESSIONAL SURVEYOR

- |                                                             |                                                                                                                                    |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| *A STA. 303+29.70 @ US 700 =<br>STA. 678+53.66 @ R/W US 422 | *E MON BOX FOUND<br>STA. 678+55.00 @ R/W US 422 =<br>PI STA. 143+50.25 @ R/W SR 700<br>$\Delta = 04^\circ 21' 16''$ LT<br>NO CURVE |
| *B STA. 214+31.54 @ US 422 =<br>STA. 303+27.96 @ SR 700     | *F PI STA. 214+33.20 @ US 422<br>$\Delta = 00^\circ 16' 27''$ RT<br>NO CURVE                                                       |
| *C STA. 143+15.84 @ R/W SR 700=<br>STA. 302+95.25 @ SR 700  |                                                                                                                                    |
| *D STA. 143+48.52 @ R/W SR 700 =<br>STA. 214+32.79 @ US 422 |                                                                                                                                    |

|                 |         |         |
|-----------------|---------|---------|
| RECEIVED        | SEPT 26 | 20 16   |
| RECORDED        | SEPT 26 | 20 16   |
| BOOK            | 42      | PAGE 67 |
| COUNTY RECORDER |         |         |

1/2

2/12

51/61

CENTERLINE PLAT

GEA-422-13.04

PID NO. 80963

R/W DESIGNER ANM R/W REVIEWER SUS

25 HORIZONTAL SCALE IN FEET

0 50 100

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GEAUGA COUNTY  
TROY TOWNSHIP  
SEC. 13 CWR

SETTING OF ALL MONUMENTS SHALL BE PERFORMED BY A SURVEYOR REGISTERED IN THE STATE OF OHIO. THE MONUMENT ASSEMBLIES AND REFERENCE MONUMENTS WILL BE INSTALLED BY THE CONTRACTOR AT THE TIME OF CONSTRUCTION. THE IRON PIN AND CAP (WHEN REQUIRED) ARE TO BE INSTALLED BY THE CONTRACTOR'S SURVEYOR.

CHANGES OR ALTERATIONS TO THE LOCATION OF ANY MONUMENTS SHOWN IN THIS TABLE, REQUIRE PRIOR APPROVAL FROM THE DISTRICT REAL ESTATE ADMINISTRATOR OF THE OHIO DEPARTMENT OF TRANSPORTATION. IN THE EVENT THAT CHANGES OR ALTERATIONS ARE APPROVED, A REVISED CENTERLINE PLAT WITH THE NEW LOCATIONS SHALL BE RECORDED IN THE APPLICABLE COUNTY RECORDS AND THE OHIO DEPARTMENT OF TRANSPORTATION. SPECIFICATIONS FOR MONUMENT ASSEMBLIES, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM-1.1.

BASIS FOR BEARINGS:

BEARINGS ARE RELATIVE TO GRID NORTH OF THE OHIO STATE NORTH ZONE. THE VALUES WERE BASED ON THE OHIO VRS IN OCTOBER 2015, PROJECTION SET: OHIO NORTH NAD 83 (2011) DATUM. BEARINGS ARE FOR THE PURPOSE OF INDICATING ANGULAR MEASUREMENT ONLY.

| ADDITIONAL MONUMENTS @ R/W US 422 |           |            |                     |            |             |
|-----------------------------------|-----------|------------|---------------------|------------|-------------|
| POINT                             | STA       | OFFSET     | PROJECT COORDINATES |            | DESCRIPTION |
|                                   |           |            | NOTHING             | EASTING    |             |
| MN1                               | 681+21.31 | 44.92' RT  | 629618.19           | 2341320.03 | IPIN        |
| MN2                               | 679+90.78 | 30.10' LT  | 629691.53           | 2341188.55 | IPIN        |
| MN3                               | 679+87.58 | 233.99' LT | 629895.36           | 2341182.74 | IPIN        |
| MN4                               | 680+20.51 | 233.15 LT  | 629894.95           | 2341215.69 | IPIN        |
| MN5                               | 681+28.41 | 182.91' LT | 629846.09           | 2341324.22 | IPIN        |
| MN6                               | 681+31.15 | 29.92' LT  | 629693.15           | 2341328.92 | IPIN        |
| MN7                               | 684+03.29 | 30.10' LT  | 629696.80           | 2341601.03 | IPIN        |
| MN13                              | 664+20.73 | 31.46' RT  | 629609.89           | 2339619.42 | IPIPE       |
| SV1191                            | 678+55.00 | 0.00' RT   | 629659.70           | 2341053.17 | MONBOX      |
| SV1950                            | 663+09.15 | 29.88' LT  | 629669.80           | 2339507.06 | IPIN        |
| SV2076                            | 671+58.86 | 29.91' LT  | 629680.70           | 2340356.70 | IPIN        |
| SV2079                            | 673+11.07 | 29.12' LT  | 629681.86           | 2340508.91 | IPIN        |
| SV2158                            | 673+15.93 | 31.92' RT  | 629620.89           | 2340514.55 | IPIPE       |
| SV2446                            | 678+93.92 | 32.33' RT  | 629627.87           | 2341092.50 | IPIPE       |
| @ R/W SR 700                      |           |            |                     |            |             |
| MN4                               | 145+68.50 | 184.72' RT | 629894.95           | 2341215.69 | IPIN        |
| SV1191                            | 143+50.25 | 0.00' RT   | 629659.70           | 2341053.17 | MONBOX      |
| SV1691                            | 145+67.99 | 30.62' LT  | 629873.41           | 2341001.43 | IPIN        |
| SV2446                            | 143+17.57 | 38.63' RT  | 629627.87           | 2341092.50 | IPIPE       |
| SV2447                            | 140+37.01 | 30.09' RT  | 629347.18           | 2341090.08 | IPIN        |

NOTE: THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED USING  
GEA-422-9.34 (1971)  
GEA-422 (12.83-16.78) (1995)  
GEA-SH35 SEC V1 (PT) V2 (1937)  
GEA-ICH514 SEC M (1928)  
GEA-ICH35 SEC V2 & W1 (1921)  
MAP OF SURVEY R-T-193 TROY TWP LOTS 13 & 14 (1991)  
MAP OF SURVEY R-T-205 & 210 TROY TWP SEC 13 & 18 (1993)  
MAP OF SURVEY R-T-7, 192, & 212 TROY TWP SEC. 18 (1993)

NOTE: SEE CONSTRUCTION PLAN SCHEMATIC PLAN SHEET FOR PROJECT CONTROL AND BENCHMARKS

| MONUMENT TABLE                         |           |                                                    |            |                            |            |                                               |           |                                 |                                            |              |
|----------------------------------------|-----------|----------------------------------------------------|------------|----------------------------|------------|-----------------------------------------------|-----------|---------------------------------|--------------------------------------------|--------------|
| ℄ of R/W US 422                        |           | PROJECT<br>COORDINATES SEE<br>SURVEY CERTIFICATION |            | STATE PLANE<br>COORDINATES |            | ITEM 623                                      |           |                                 |                                            |              |
|                                        |           |                                                    |            |                            |            | MONUMENTS TO BE<br>SET DURING<br>CONSTRUCTION |           | MON BOX<br>ADJUSTED<br>TO GRADE | R/W MON.<br>EXPECTED<br>TO BE<br>DISTURBED |              |
| STATION                                | OFFSET    | NORTH (Y)                                          | EAST (X)   | NORTH (Y)                  | EAST (X)   | MON. ASSY.                                    | REF. MON. | MON.<br>ASSY.                   | R/W MON.                                   | DESCRIPTION  |
| 678+55.00                              | 0.00' RT  | 629659.70                                          | 2341053.17 | 629597.69                  | 2340822.62 |                                               |           | 1                               |                                            | EX MON BOX   |
| 670+00.00                              | 0.00' RT  | 629648.76                                          | 2340198.24 | 629586.75                  | 2339967.78 | 1                                             |           |                                 |                                            | MON BOX      |
| 684+93.72                              | 0.00' RT  | 629667.87                                          | 2341691.84 | 629605.86                  | 2341461.23 | 1                                             |           |                                 |                                            | MON BOX      |
| 675+00.00                              | 30.00' RT | 629625.16                                          | 2340698.58 | 629563.15                  | 2340468.07 |                                               |           |                                 | 1                                          | IRON PIN SET |
| 677+95.00                              | 35.00' RT | 629623.93                                          | 2340993.62 | 629561.92                  | 2340763.08 |                                               |           |                                 | 1                                          | IRON PIN SET |
| ℄ R/W SR 700                           |           |                                                    |            |                            |            |                                               |           |                                 |                                            |              |
| 142+90.00                              | 30.00' RT | 629600.12                                          | 2341084.48 | 629538.12                  | 2340853.93 |                                               |           |                                 | 1                                          | IRON PIN SET |
| TOTAL CARRIED TO GENERAL SUMMARY SHEET |           |                                                    |            |                            |            | 2                                             |           | 1                               | 3                                          |              |

RECEIVED SEPT 26, 2016  
RECORDED SEPT 26, 2016  
BOOK 42 PAGE 68

COUNTY RECORDER



050100  
HORIZONTAL  
SCALE IN FEET

PID NO.  
**80963**

R/W DESIGNER  
ANN  
R/W REVIEWER  
SJS

CENTERLINE PLAT

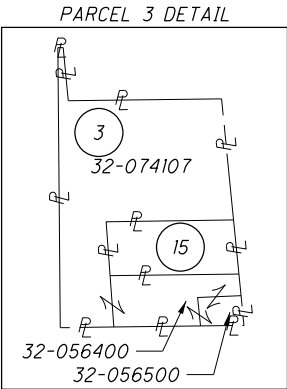
GEA - 422 - 13.04

2 / 2  
3 / 12  
52  
61

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- 1 TROY HILL RANGE, LTD
- 2 THE CITY OF AKRON
- 3 F. T. ASSOCIATES
- 4 ADELE E. SOHM
- 5 ENOS A. DETWEILER, TRUSTEE
- 6 MUNTASER MUNTASER & SOFEIN SAAD

GEAUGA COUNTY  
TROY TOWNSHIP  
SEC. 13 CWR



BEGIN ACQUISITION  
STA. 673+15.91  
US 422

END ACQUISITION  
STA. 144+75.00  
SR 700

BEGIN ACQUISITION  
STA. 142+60.00  
SR 700

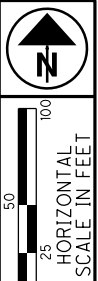
END ACQUISITION  
STA. 684+60.75  
US 422

GAS EASEMENT TO  
THE EAST OHIO GAS  
COMPANY  
DV 955, PG J26

EASEMENT TO TRUSTEES  
OF TROY TOWNSHIP  
OR 1758, PG 354

- 7 DON F. THRASHER AKA DONALD F. THRASHER
- 8 TROY TOWNSHIP BOARD OF TRUSTEES
- 9 THOMAS F. BLAIR, JR, RICHARD N. HAMSKI & NORMAN G. HAMSKI
- 9A TOM BLAIR, NORM HAMSKI & RICHARD HAMSKI
- 10 JANET HATCHER
- 11 TROY TOWNSHIP BOARD OF TRUSTEES
- 12 HARRY R. WALDMAN, JR & KYLE ANN WARNER
- 13 ALLEN W. WALDMAN & LINDA WALDMAN
- 14 WELSHFIELD PROPERTIES, LLC
- 15 JAMES DEWALT-TROY PRECISION CARBIDE DIE LIVING TRUST
- 16 JERRY R & JOYCE I BROWN
- 17 BLAIR PROPERTIES, INC.

|                        |         |                      |
|------------------------|---------|----------------------|
| SJS                    | 10/7/16 | PARCEL 6 NAME CHANGE |
| REV. BY                | DATE    | DESCRIPTION          |
| DATE COMPLETED 9/27/16 |         |                      |



PID NO.  
**80963**

R/W DESIGNER  
ANN  
R/W REVIEWER  
SJS

PROPERTY MAP

GEA-422-13.04

4 / 12

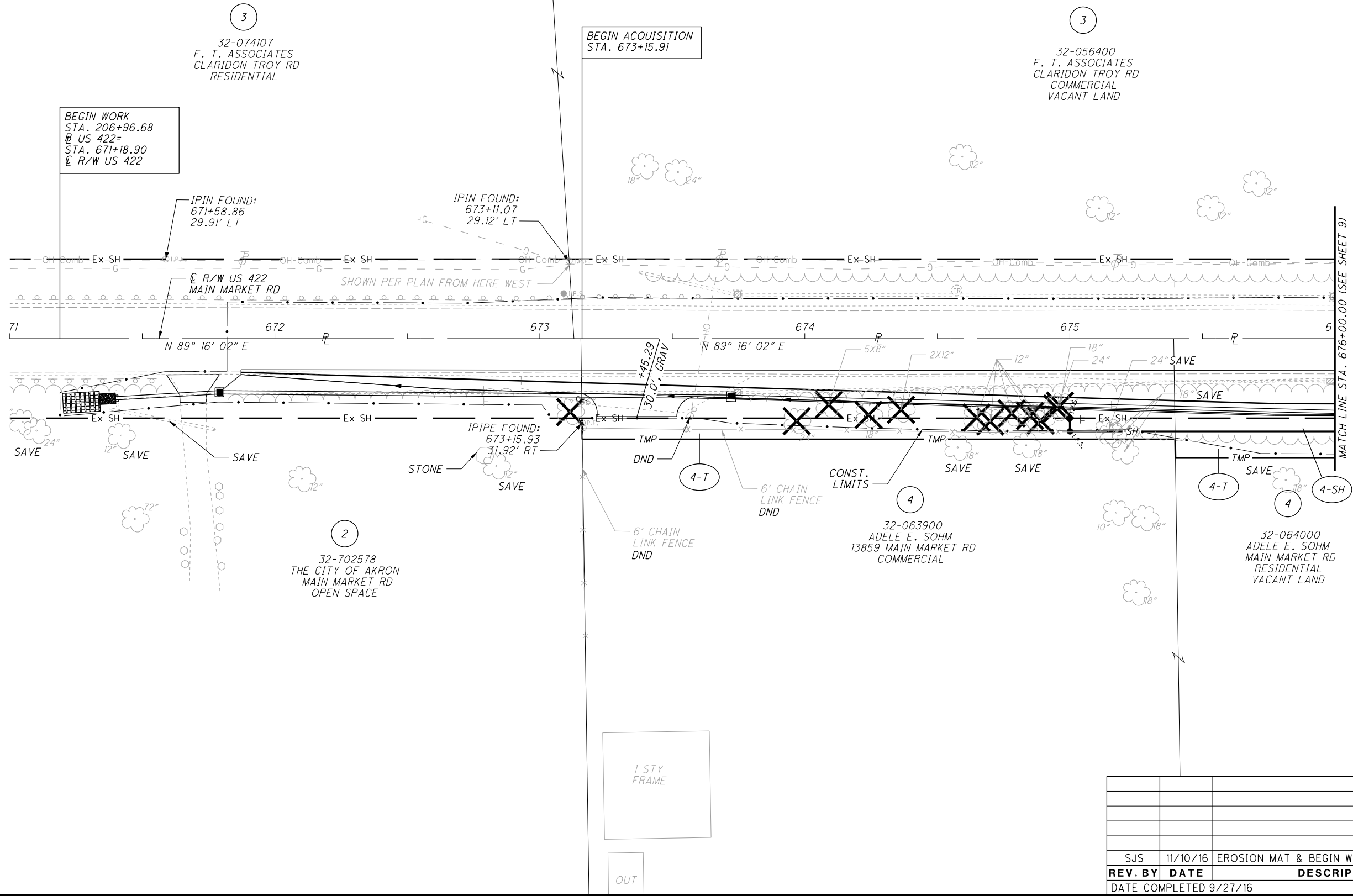
53  
61

PARCEL 4 NOTE:  
PPN 32-063900 TRANSFER ON DEATH TO MICHAEL  
S. SOHM, ALL OTHER PARCELS TRANSFER ON  
DEATH TO MICHAEL S. SOHM & PAMELA ZEIGLER

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| GRANTEE:                                                                                                                                                |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             | FEDERAL PROJECT NO. |                                                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-----------|---------------|------|------------------|-------------|--------------|------------|----------------|----------|------------|-------------|-------|--------------------------|------------------------------------------------------------------------------------------------------|-------------|---------------------|----------------------------------------------------|--|
| ALL RIGHT OF WAY ACQUIRED IN THE NAME OF<br>THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION<br>UNLESS OTHERWISE SHOWN.                                   |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             | E060385             |                                                    |  |
| ALL AREAS IN ACRES                                                                                                                                      |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| PARCEL NO.                                                                                                                                              | OWNER                                                     | SHEET NO. | OWNERS RECORD |      | AUDITOR'S PARCEL | RECORD AREA | TOTAL P.R.O. | GROSS TAKE | P.R.O. IN TAKE | NET TAKE | STRUC-TURE | NET RESIDUE |       | TYPE FUND                | REMARKS                                                                                              | AS ACQUIRED |                     | PID NO.                                            |  |
|                                                                                                                                                         |                                                           |           | BOOK          | PAGE |                  |             |              |            |                |          |            | LEFT        | RIGHT |                          |                                                                                                      | BOOK        | PAGE                |                                                    |  |
| 9-SH                                                                                                                                                    | THOMAS F. BLAIR, JR, RICHARD N. HAMSKI & NORMAN G. HAMSKI | 11-12     | DV 1195       | 890  | 32-070400        | 8.99        | 0.227        | 0.038      | 0.000          | 0.038    | S (2)      |             | 8.725 | ↑                        | THOMAS F. BLAIR, JR (50%), RICHARD N. HAMSKI (25%)<br>NORMAN G. HAMSKI (25%), 2 PRIVATE SIGNS REMOVE |             |                     | 80963                                              |  |
| 9-T1                                                                                                                                                    |                                                           | 11-12     |               |      |                  |             |              | 0.003      | 0.000          | 0.003    | S          |             |       |                          | CONSTRUCTION ACCESS, GRADING, SIGN REMOVAL<br>PRIVATE SIGN REMOVE                                    |             |                     |                                                    |  |
| 9-T2                                                                                                                                                    |                                                           | 11-12     |               |      |                  |             |              | 0.009      | 0.000          | 0.009    |            |             |       |                          | RECONSTRUCT DRIVE, GRADING                                                                           |             |                     |                                                    |  |
| 9-T3                                                                                                                                                    |                                                           | 11-12     |               |      |                  |             |              | 0.006      | 0.000          | 0.006    | S          |             |       |                          | PRIVATE SIGN REMOVE                                                                                  |             |                     |                                                    |  |
| 9-T1, 9-T2 & 9-T3 TOTAL                                                                                                                                 |                                                           |           |               |      |                  |             |              | 0.018      | 0.000          | 0.018    |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| 9A-SH                                                                                                                                                   | TOM BLAIR, NORM HAMSKI & RICHARD HAMSKI                   | 11-12     | OR 1837       | 1362 | 32-054000        | 0.30        | 0.037        | 0.001      | 0.000          | 0.001    |            |             | 0.262 |                          | TOM BLAIR (50%), NORM HAMSKI (25%), RICHARD HAMSKI (25%)                                             |             |                     | 526701                                             |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| 10                                                                                                                                                      | JANET HATCHER                                             | 11-12     | DV 2016       | 3319 | 32-029000        | 0.78        | 0.074        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     | R/W DESIGNER<br>ANM                                |  |
|                                                                                                                                                         |                                                           |           | DV 2016       | 3319 | 32-029100        | 0.06        | 0.000        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           | DV 2016       | 3319 | 32-029200        | 0.19        | 0.000        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       | 90% FEDERAL<br>10% STATE |                                                                                                      |             |                     | R/W REVIEWER<br>SJS                                |  |
| 11                                                                                                                                                      | TROY TOWNSHIP BOARD OF TRUSTEES                           | 11-12     | OR 1758       | 354  | 32-701200        | 0.58        | 0.114        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
| 12                                                                                                                                                      | HARRY R WARNER, JR & KYLE ANN WARNER                      | 11-12     | DV 635        | 589  | 32-069500        | 0.70        | 0.075        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     | SUMMARY OF ADDITIONAL<br>RIGHT OF WAY PARCELS 9-17 |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| 13                                                                                                                                                      | ALLEN W. WALDMAN & LINDA WALDMAN                          | 11-12     | OR 1828       | 3146 | 32-054400        | 3.14        | 0.000        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           | OR 1828       | 3146 | 32-054300        | 0.50        | 0.062        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           | OR 1828       | 3146 | 32-054200        | 0.02        | 0.000        |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           | OR 1828       | 3146 | 32-054100        | 0.75        | 0.068        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           | DV 680        | 904  | 32-032400        | 20.94       | 0.143        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           | OR 1779       | 2708 | 32-009250        | 1.15        | 0.102        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           | DV 1052       | 1160 | 32-074034        | 0.66        | 0.000        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| 14                                                                                                                                                      | WELSHFIELD PROPERTIES, LLC                                | 11-12     | OR 1877       | 858  | 32-030800        | 16.56       | 0.395        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| 15                                                                                                                                                      | JAMES DEWALT-TROY PRECISION CARBIDE<br>DIE LIVING TRUST   |           | DV 914        | 1091 | 32-024610        | 2.74        | 0.156        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| 16                                                                                                                                                      | JERRY R & JOYCE I BROWN                                   |           | DV 1061       | 260  | 32-007700        | 1.19        | 0.119        |            |                |          |            |             |       |                          | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| 17                                                                                                                                                      | BLAIR PROPERTIES, INC.                                    |           | OR 1802       | 352  | 32-074345        | 5.75        | 0.449        |            |                |          |            |             |       | ↓                        | NO TAKE                                                                                              |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| TYPES OF TITLE LEGEND:<br>SH = STANDARD HIGHWAY EASEMENT<br>T = TEMPORARY EASEMENT<br>U = UTILITY EASEMENT                                              |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     | 6 / 12                                             |  |
| NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE                                                                                                        |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| (c) = CALCULATED AREA                                                                                                                                   |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| NET TAKE = GROSS TAKE - PRO IN TAKE                                                                                                                     |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| * DENOTES RIGHT OF WAY ENCROACHMENT                                                                                                                     |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| NOTE: ALL TEMPORARY PARCELS TO<br>BE OF 18 MONTH DURATION.                                                                                              |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     | 55<br>61                                           |  |
| NOTE: UNDER NO CIRCUMSTANCES ARE TEMPORARY<br>EASEMENTS TO BE USED FOR STORAGE OF<br>MATERIAL OR EQUIPMENT BY THE CONTRACTOR<br>UNLESS NOTED OTHERWISE. |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
|                                                                                                                                                         |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |
| REV. BY                                                                                                                                                 |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          | DATE                                                                                                 |             |                     | DESCRIPTION                                        |  |
| FIELD REVIEW BY ALM                                                                                                                                     |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          | DATE: 9/26/16                                                                                        |             |                     |                                                    |  |
| OWNERSHIP VERIFIED BY ANM                                                                                                                               |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          | DATE: 9/21/16                                                                                        |             |                     |                                                    |  |
| DATE COMPLETED 9/27/16                                                                                                                                  |                                                           |           |               |      |                  |             |              |            |                |          |            |             |       |                          |                                                                                                      |             |                     |                                                    |  |

X:\4012500\150275.01\VAR-STW Safety Design (Sub to B & N)\98126\80963\80963\_GEA-422-13.04\Design\RW\_Sheets\80963RT001.dgn Sheet 11/11/2016 1:40:33 PM 1598anm



|                        |          |                          |
|------------------------|----------|--------------------------|
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|                        |          |                          |
|                        |          |                          |
|                        |          |                          |
|                        |          |                          |
| SJS                    | 11/10/16 | EROSION MAT & BEGIN WORK |
| REV. BY                | DATE     | DESCRIPTION              |
| DATE COMPLETED 9/27/16 |          |                          |

GEA-422-13.04

RIGHT OF WAY TOPO SHEET

STA. 671+00.00 TO STA. 676+00.00

7 / 12

56 / 61

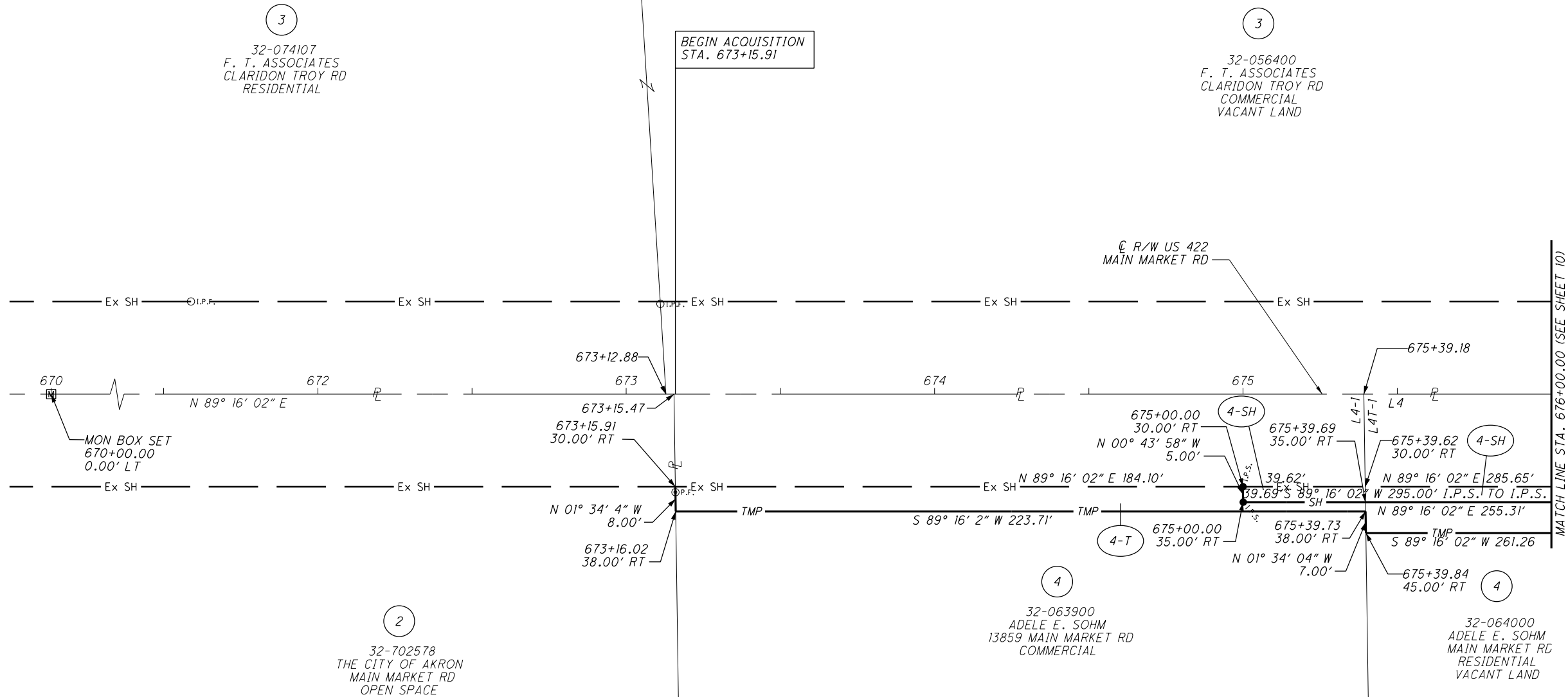
R/W DESIGNER  
ANN

R/W REVIEWER  
SJS

PID NO.  
80963

HORIZONTAL  
SCALE IN FEET

x:\4012500\150275.01\VAR-STW Safety Design (Sub to B & N)\98126\80963\80963\_GEA-422-13.04\Design\RW\Sheets\80963RB001.dgn Sheet 11/9/2016 2:09:50 PM 1598anm



| LEAD IN COURSES |       |                 |          |             |            |
|-----------------|-------|-----------------|----------|-------------|------------|
| PARCEL          | NAME  | BEARING         | DISTANCE | END STATION | END OFFSET |
| 4-SH            | L4    | S 89° 16' 02" W | 315.82'  | 675+39.18   | 0.00' RT   |
|                 | L4-I  | S 01° 34' 04" E | 30.00'   | 675+39.62   | 30.00' RT  |
| 4-T             | L4    | S 89° 16' 02" W | 315.82'  | 675+39.18   | 0.00' RT   |
|                 | L4T-1 | S 01° 34' 04" E | 35.00'   | 675+39.69   | 35.00' RT  |

|                        |         |                             |
|------------------------|---------|-----------------------------|
|                        |         |                             |
|                        |         |                             |
|                        |         |                             |
|                        |         |                             |
| SJS                    | 10/7/16 | I.P.S. TO I.P.S. TEXT ADDED |
| REV. BY                | DATE    | DESCRIPTION                 |
| DATE COMPLETED 9/27/16 |         |                             |

GEA-422-13.04

RIGHT OF WAY BOUNDARY SHEET

STA. 670+00.00 TO STA. 676+00.00

PID NO.

80963

R/W DESIGNER

ANM

R/W REVIEWER

SJS

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HORIZONTAL SCALE IN FEET

8

12

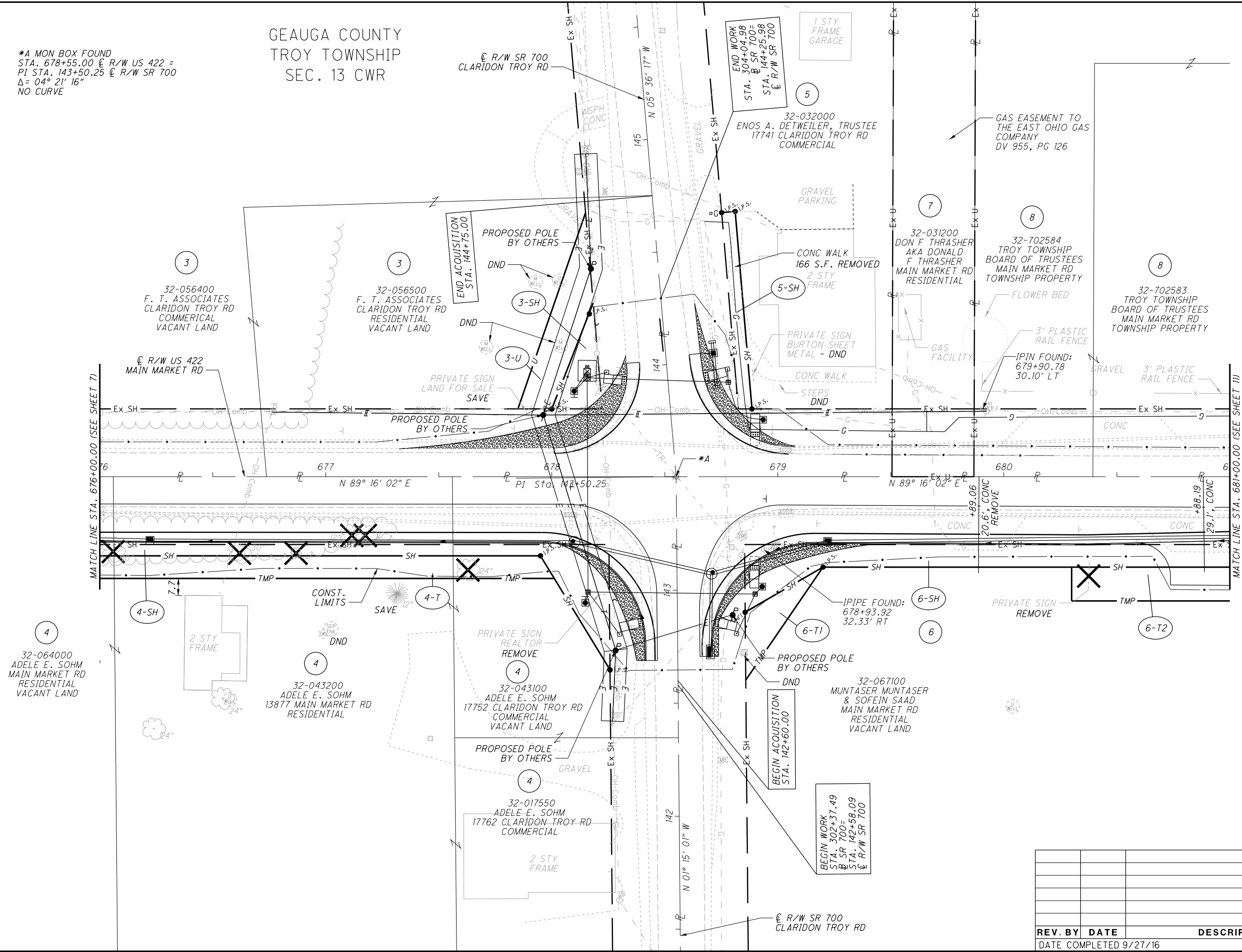
57

61

X:\4012500\150275.01\VAR-STW Safety Design (Sub to B & N)\98126\80963\80963\_GEA-422-13.04\Design\RW\Sheets\80963RT002.dgn Sheet 11/9/2016 2:09:51 PM 1598ann

\*A MON BOX FOUND  
STA. 678+55.00 @ R/W US 422 =  
PI STA. 143+50.25 @ R/W SR 700  
Δ = 04° 21' 16"  
NO CURVE

GEAUGA COUNTY  
TROY TOWNSHIP  
SEC. 13 CWR



RIGHT OF WAY TOPO SHEET  
STA. 676+00.00 TO STA. 681+00.00

GEA-422-13.04

PID NO.  
80963

R/W DESIGNER  
ANM

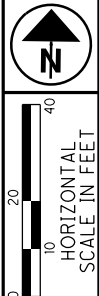
R/W REVIEWER  
SJS

9 / 12

58  
61

REV. BY DATE DESCRIPTION

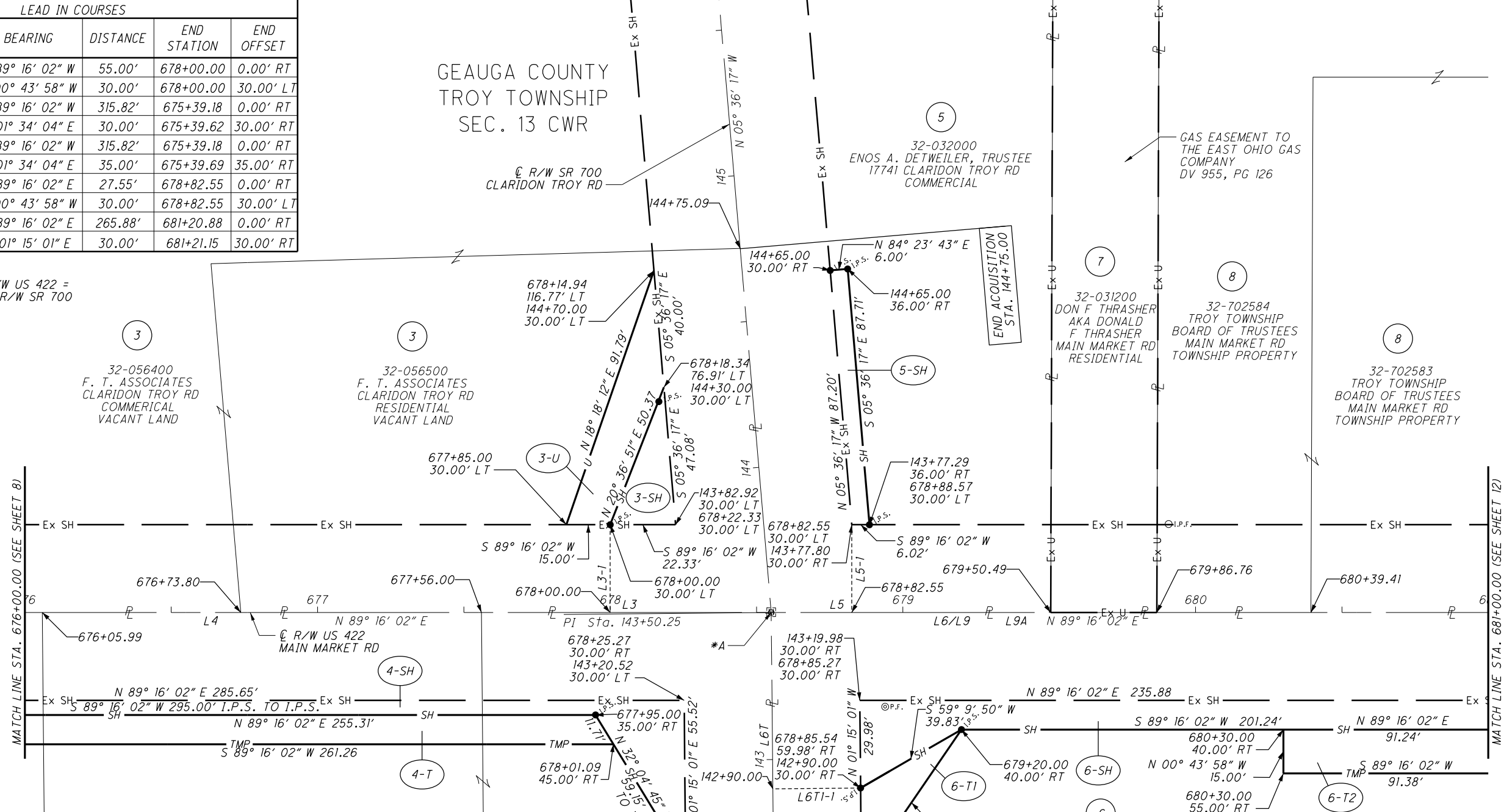
DATE COMPLETED 9/27/16



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| LEAD IN COURSES |       |                 |          |             |            |
|-----------------|-------|-----------------|----------|-------------|------------|
| PARCEL          | NAME  | BEARING         | DISTANCE | END STATION | END OFFSET |
| 3-SH/3-U        | L3    | S 89° 16' 02" W | 55.00'   | 678+00.00   | 0.00' RT   |
|                 | L3-1  | N 00° 43' 58" W | 30.00'   | 678+00.00   | 30.00' LT  |
| 4-SH            | L4    | S 89° 16' 02" W | 315.82'  | 675+39.18   | 0.00' RT   |
|                 | L4-1  | S 01° 34' 04" E | 30.00'   | 675+39.62   | 30.00' RT  |
| 4-T             | L4    | S 89° 16' 02" W | 315.82'  | 675+39.18   | 0.00' RT   |
|                 | L4T-1 | S 01° 34' 04" E | 35.00'   | 675+39.69   | 35.00' RT  |
| 5-SH            | L5    | N 89° 16' 02" E | 27.55'   | 678+82.55   | 0.00' RT   |
|                 | L5-1  | N 00° 43' 58" W | 30.00'   | 678+82.55   | 30.00' LT  |
| 6-SH            | L6    | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L6-1  | S 01° 15' 01" E | 30.00'   | 681+21.15   | 30.00' RT  |

\*A MON BOX FOUND  
STA. 678+55.00 @ R/W US 422 =  
PI STA. 143+50.25 @ R/W SR 700  
Δ= 04° 21' 16"  
NO CURVE



32-064000  
ADELE E. SOHM  
MAIN MARKET RD  
RESIDENTIAL  
VACANT LAND

32-043200  
ADELE E. SOHM  
13877 MAIN MARKET RD  
RESIDENTIAL

32-043100  
ADELE E. SOHM  
17752 CLARIDON TROY RD  
COMMERCIAL  
VACANT LAND

32-017550  
ADELE E. SOHM  
17762 CLARIDON TROY RD  
COMMERCIAL

32-032000  
ENOS A. DETWEILER, TRUSTEE  
17741 CLARIDON TROY RD  
COMMERCIAL

32-031200  
DON F THRASHER  
AKA DONALD  
F THRASHER  
MAIN MARKET RD  
RESIDENTIAL

32-702584  
TROY TOWNSHIP  
BOARD OF TRUSTEES  
MAIN MARKET RD  
TOWNSHIP PROPERTY

32-702583  
TROY TOWNSHIP  
BOARD OF TRUSTEES  
MAIN MARKET RD  
TOWNSHIP PROPERTY

32-067100  
MUNTASER MUNTASER  
& SOFEIN SAAD  
MAIN MARKET RD  
RESIDENTIAL  
VACANT LAND

| LEAD IN COURSES |        |                 |          |             |            |
|-----------------|--------|-----------------|----------|-------------|------------|
| PARCEL          | NAME   | BEARING         | DISTANCE | END STATION | END OFFSET |
| 6-T1            | L6T    | S 01° 15' 01" E | 60.25'   | 142+90.00   | 0.00' RT   |
|                 | L6T1-1 | N 88° 44' 59" E | 30.00'   | 142+90.00   | 30.00' RT  |
| 6-T2            | L6     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L6T2-1 | S 01° 15' 01" E | 40.00'   | 681+21.24   | 40.00' RT  |
| 9-SH            | L9     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L9-1   | S 01° 15' 01" E | 30.00'   | 681+21.15   | 30.00' RT  |
| 9-T1            | L9     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L9T-1  | S 01° 15' 01" E | 35.00'   | 681+21.20   | 35.00' RT  |
| 9-T2            | L9     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L9-1   | S 01° 15' 01" E | 30.00'   | 681+21.15   | 30.00' RT  |
|                 | L9T-2  | N 89° 16' 02" E | 168.85'  | 682+90.00   | 30.00' RT  |
| 9-T3            | L9T-3  | S 00° 43' 58" E | 5.00'    | 682+90.00   | 35.00' RT  |
|                 | L9     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L9-1   | S 01° 15' 01" E | 30.00'   | 681+21.15   | 30.00' RT  |
| 9A-SH           | L9T-4  | N 89° 16' 02" E | 103.85'  | 682+25.00   | 30.00' RT  |
|                 | L9T-5  | S 00° 43' 58" E | 5.00'    | 682+25.00   | 35.00' RT  |
|                 | L9A    | N 89° 16' 02" E | 595.40'  | 684+50.40   | 0.00' RT   |
| 9A-SH           | L9A-1  | S 01° 18' 03" E | 30.00'   | 684+50.70   | 30.00' RT  |

| REV. BY                | DATE    | DESCRIPTION                 |
|------------------------|---------|-----------------------------|
| SJS                    | 10/7/16 | I.P.S. TO I.P.S. TEXT ADDED |
| SJS                    | 10/7/16 | PARCEL 6 NAME CHANGE        |
| DATE COMPLETED 9/27/16 |         |                             |

HORIZONTAL SCALE IN FEET  
0 10 20 40

PID NO. **80963**

R/W DESIGNER  
ANM

R/W REVIEWER  
SJS

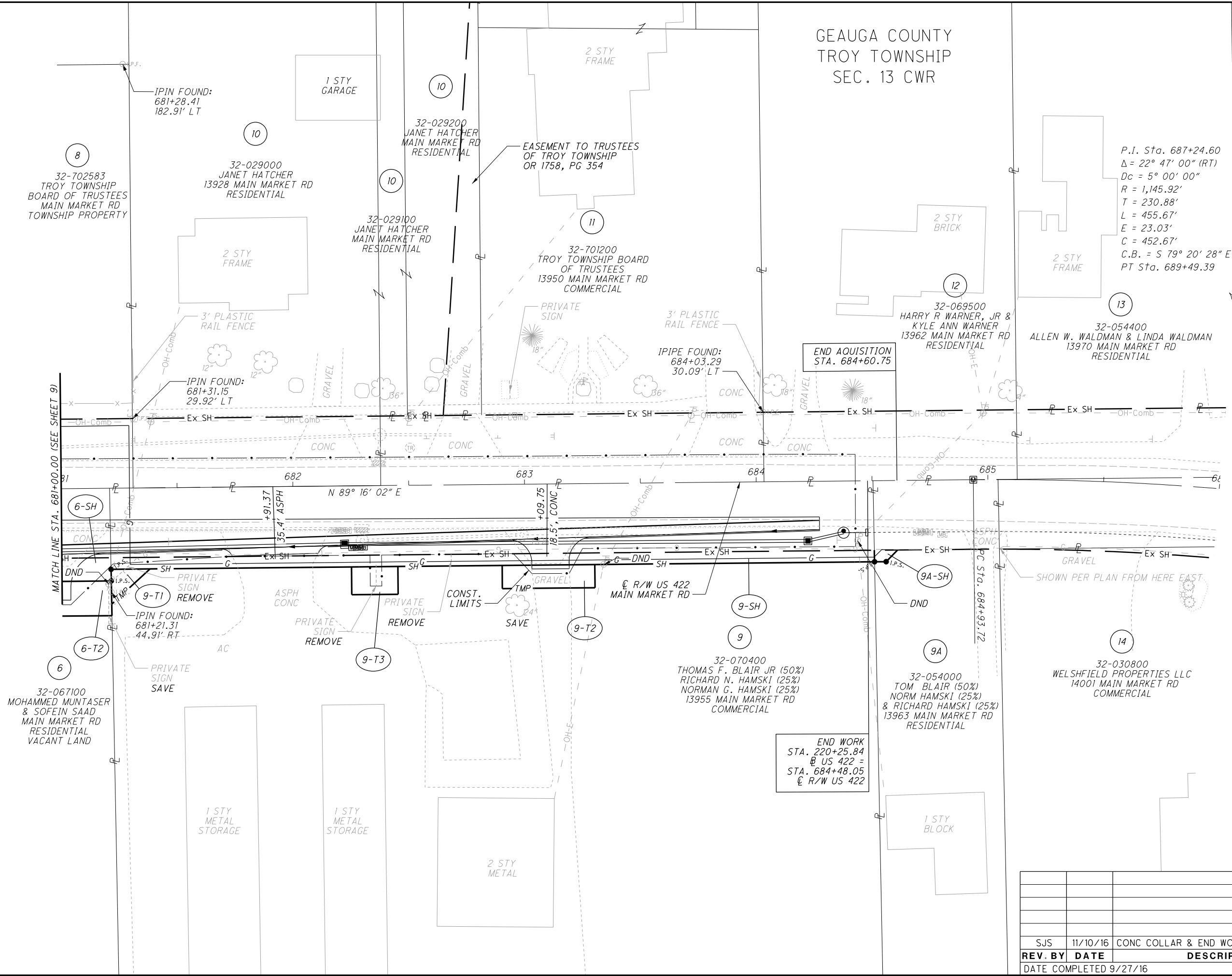
**RIGHT OF WAY BOUNDARY SHEET**  
**STA. 676+00.00 TO STA. 681+00.00**

**GEA-422-13.04**

10/12

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GEAUGA COUNTY  
TROY TOWNSHIP  
SEC. 13 CWR

P.I. Sta. 687+24.60  
 $\Delta = 22^\circ 47' 00''$  (RT)  
 $Dc = 5^\circ 00' 00''$   
 $R = 1,145.92'$   
 $T = 230.88'$   
 $L = 455.67'$   
 $E = 23.03'$   
 $C = 452.67'$   
C.B. = S  $79^\circ 20' 28''$  E  
PT Sta. 689+49.39

END WORK  
STA. 220+25.84  
@ US 422 =  
STA. 684+48.05  
@ R/W US 422

|                        |          |                        |
|------------------------|----------|------------------------|
|                        |          |                        |
|                        |          |                        |
|                        |          |                        |
|                        |          |                        |
|                        |          |                        |
| SJS                    | 11/10/16 | CONC COLLAR & END WORK |
| REV. BY                | DATE     | DESCRIPTION            |
|                        |          |                        |
| DATE COMPLETED 9/27/16 |          |                        |

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HORIZONTAL  
SCALE IN FEET

PID NO.

80963

R/W DESIGNER  
ANN

R/W REVIEWER  
SJS

RIGHT OF WAY TOPO SHEET

STA. 681+00.00 TO STA. 686+00.00

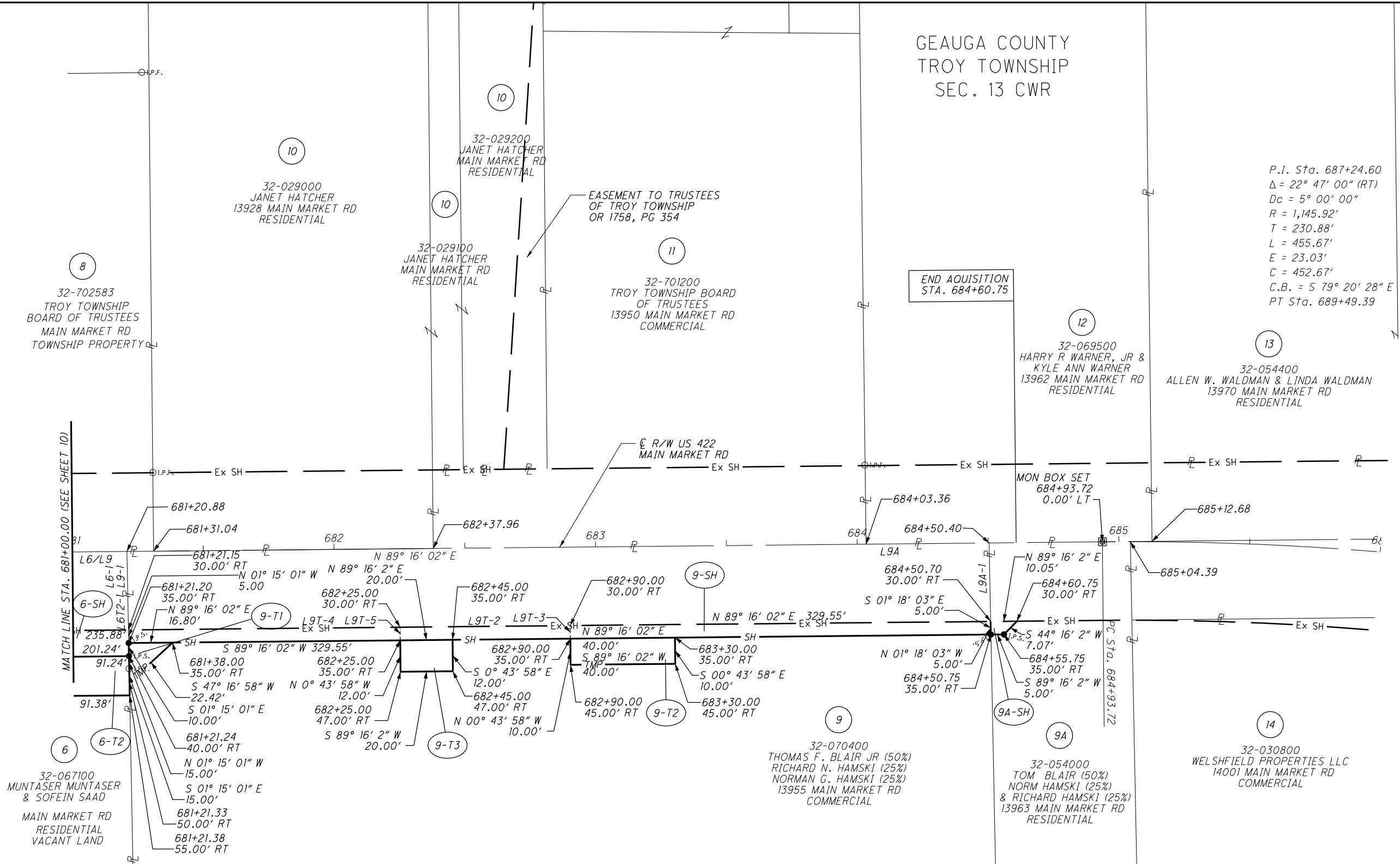
GEA-422-13.04

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61

X:\4012500\150275.01\VAR-STW Safety Design (Sub to B & N)\98126\80963\80963\_GEA-422-13.04\Design\RW\Sheets\80963RB003.dgn Sheet 11/9/2016 2:09:53 PM 1598nm



| LEAD IN COURSES |        |                 |          |             |            |
|-----------------|--------|-----------------|----------|-------------|------------|
| PARCEL          | NAME   | BEARING         | DISTANCE | END STATION | END OFFSET |
| 6-SH            | L6     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L6-1   | S 01° 15' 01" E | 30.00'   | 681+21.15   | 30.00' RT  |
| 6-T2            | L6     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L6T2-1 | S 01° 15' 01" E | 40.00'   | 681+21.24   | 40.00' RT  |
| 9-SH            | L9     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L9-1   | S 01° 15' 01" E | 30.00'   | 681+21.15   | 30.00' RT  |
| 9-T1            | L9     | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L9T-1  | S 01° 15' 01" E | 35.00'   | 681+21.20   | 35.00' RT  |

| LEAD IN COURSES |       |                 |          |             |            |
|-----------------|-------|-----------------|----------|-------------|------------|
| PARCEL          | NAME  | BEARING         | DISTANCE | END STATION | END OFFSET |
| 9-T2            | L9    | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L9-1  | S 01° 15' 01" E | 30.00'   | 681+21.15   | 30.00' RT  |
|                 | L9T-2 | N 89° 16' 02" E | 168.85'  | 682+90.00   | 30.00' RT  |
|                 | L9T-3 | S 00° 43' 58" E | 5.00'    | 682+90.00   | 35.00' RT  |
| 9-T3            | L9    | N 89° 16' 02" E | 265.88'  | 681+20.88   | 0.00' RT   |
|                 | L9-1  | S 01° 15' 01" E | 30.00'   | 681+21.15   | 30.00' RT  |
|                 | L9T-4 | N 89° 16' 02" E | 103.85'  | 682+25.00   | 30.00' RT  |
|                 | L9T-5 | S 00° 43' 58" E | 5.00'    | 682+25.00   | 35.00' RT  |
| 9A-SH           | L9A   | N 89° 16' 02" E | 595.40'  | 684+50.40   | 0.00' RT   |
|                 | L9A-1 | S 01° 18' 03" E | 30.00'   | 684+50.70   | 30.00' RT  |

|                        |         |                      |
|------------------------|---------|----------------------|
|                        |         |                      |
|                        |         |                      |
|                        |         |                      |
|                        |         |                      |
|                        |         |                      |
| SJS                    | 10/7/16 | PARCEL 6 NAME CHANGE |
| REV. BY                | DATE    | DESCRIPTION          |
|                        |         |                      |
| DATE COMPLETED 9/27/16 |         |                      |

GEAUGA COUNTY  
TROY TOWNSHIP  
SEC. 13 CWR

P.I. Sta. 687+24.60  
Δ = 22° 47' 00" (RT)  
Dc = 5° 00' 00"  
R = 1,145.92'  
T = 230.88'  
L = 455.67'  
E = 23.03'  
C = 452.67'  
C.B. = S 79° 20' 28" E  
PT Sta. 689+49.39



HORIZONTAL  
SCALE IN FEET

PID NO.

**80963**

R/W DESIGNER  
ANN

R/W REVIEWER  
SJS

**RIGHT OF WAY BOUNDARY SHEET**

**STA. 681+00.00 TO STA. 686+00.00**

**GEA-422-13.04**

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