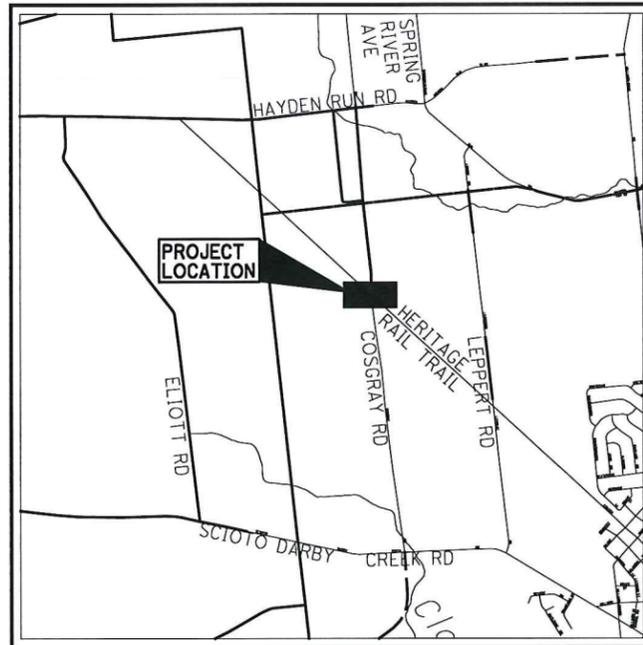


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LOCATION MAP

LATITUDE: 40°02'55" N LONGITUDE: 83°10'52" W



PORTION TO BE IMPROVED	—————
INTERSTATE HIGHWAY	—————
FEDERAL ROUTES	—————
STATE ROUTES	—————
COUNTY & TOWNSHIP ROADS	—————
OTHER ROADS	—————

DESIGN DESIGNATION

CURRENT ADT (20)	-----	N/A
DESIGN YEAR ADT (20)	-----	N/A
DESIGN HOURLY VOLUME (20)	-----	N/A
DIRECTIONAL DISTRIBUTION	-----	N/A
TRUCKS (24 HOUR B&C)	-----	N/A
DESIGN SPEED	-----	20 MPH
LEGAL SPEED	-----	N/A
DESIGN FUNCTIONAL CLASSIFICATION:	-----	BIKEWAY
NHS PROJECT	-----	NO

DESIGN EXCEPTIONS

NONE

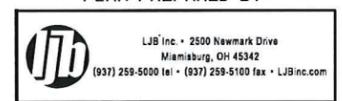
UNDERGROUND UTILITIES
 CONTACT BOTH SERVICES
 CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
 (TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE
 NON-MEMBERS
 MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE
 SERVICE CALL: **1-800-925-0988**

PLAN PREPARED BY:



ENGINEERS SEAL:

SIGNED: *[Signature]*
 DATE: 5/19/2014

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION
**FRA-COSGRAY
 ROAD RRFB**
 CITY OF HILLIARD
 FRANKLIN COUNTY

INDEX OF SHEETS:

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STANDARD CONSTRUCTION DRAWINGS								SUPPLEMENTAL SPECIFICATIONS	SPECIAL PROVISIONS
ODOT				CITY OF HILLIARD				800-2013	1/17/14
BP-3.1	4/20/12	HL-10.11	1/17/14	TC-42.20	10/18/13	TC-1	12/5/12	832	1/17/14
BP-5.1	7/19/13	HL-10.12	1/17/14	TC-52.10	10/18/13				
BP-7.1	10/15/10	HL-10.13	1/17/14	TC-52.20	1/17/14				
MGS-1.1	7/19/13	HL-20.11	1/17/14	TC-65.10	1/17/14				
MGS-2.1	7/19/13	HL-30.11	1/17/14	TC-83.10	1/17/14				
MGS-4.1	7/19/13	HL-30.22	1/17/14						
MGS-4.2	7/19/13	HL-40.10	1/17/14						
MGS-4.2	7/19/13	HL-60.11	1/17/14						
MGS-5.2	7/19/13	MT-110.10	7/19/13						
RM-5.2	1/17/14	MT-97.10	7/19/13						
		TC-41.20	10/18/13						
		TC-41.30	10/18/13						
		TC-41.40	10/18/13						

PROJECT DESCRIPTION

INSTALL RECTANGULAR RAPID FLASHING BEACON (RRFB) AT THE INTERSECTION OF THE HERITAGE TRAIL MULTI USE PATH AND COSGRAY RD (CR39). PROJECT TO INCLUDE NECESSARY ROADWAY AND PATH MODIFICATIONS, SIGNING, STRIPING, AND LIGHTING TO ACCOMODATE BEACON INSTALLATION

PROJECT EARTH DISTURBED AREA: 0.80 ACRES
 ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0.12 ACRES
 NOTICE OF INTENT EARTH DISTURBED AREA: N/A

2013 SPECIFICATIONS

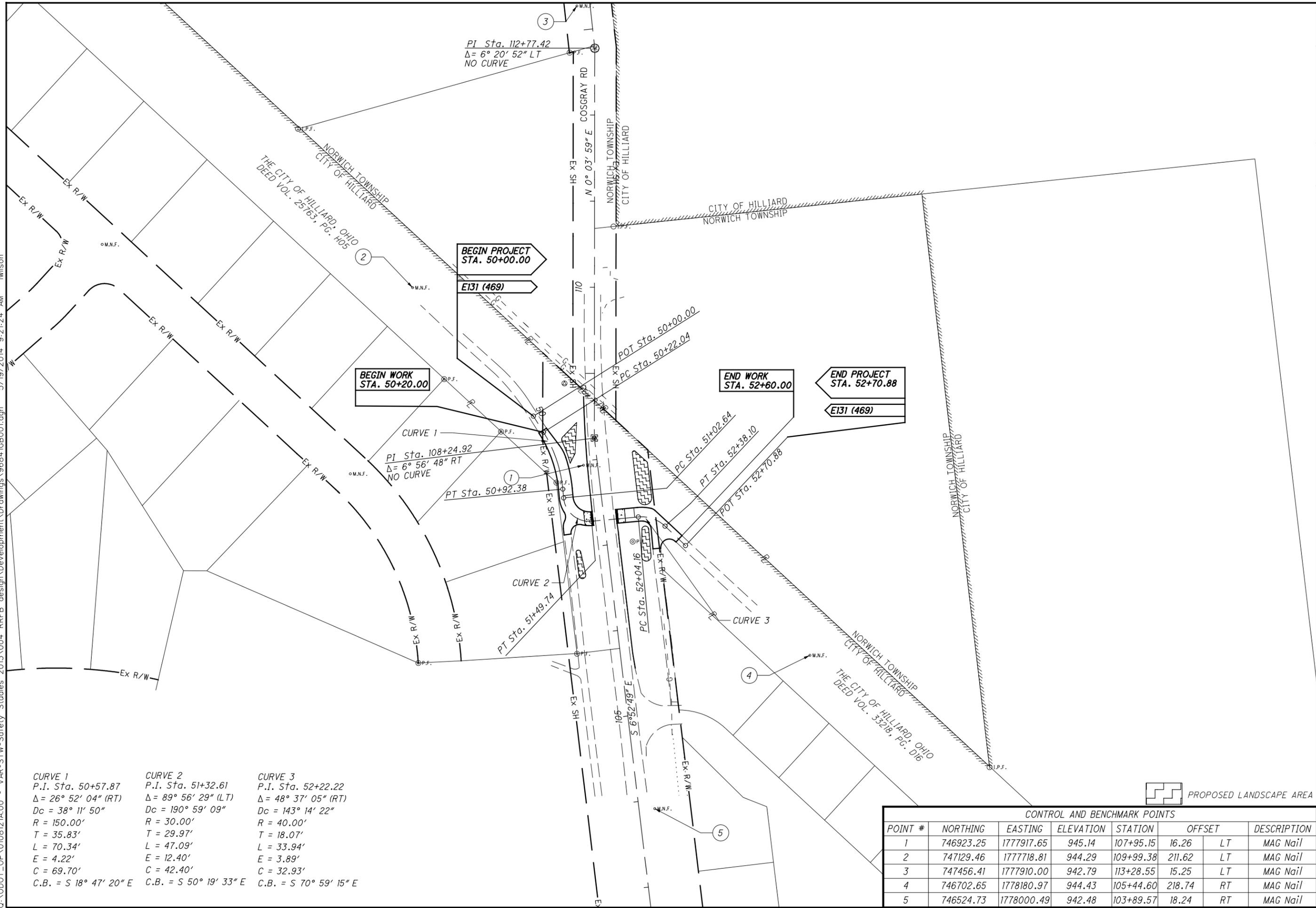
THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

SIGNATURES BELOW SIGNIFY ONLY CONCURRENCE WITH THE GENERAL PURPOSE AND GENERAL LOCATION OF THE PROJECT. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF THE ENGINEER PREPARING THE PLANS.

REVIEWED: *[Signature]*
 DATE: 5/19/2014
 CITY OF HILLIARD DIRECTOR OF PUBLIC SERVICE/CITY ENGINEER

FEDERAL PROJECT NO. **E131(469)**
 PID NO. **96841**
 CONSTRUCTION PROJECT NO. _____
 RAILROAD INVOLVEMENT **NONE**
FRA-COSGRAY ROAD RRFB
 1/24
 P-845

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CURVE 1	CURVE 2	CURVE 3
P.I. Sta. 50+57.87	P.I. Sta. 51+32.61	P.I. Sta. 52+22.22
$\Delta = 26^\circ 52' 04''$ (RT)	$\Delta = 89^\circ 56' 29''$ (LT)	$\Delta = 48^\circ 37' 05''$ (RT)
Dc = 38' 11" 50"	Dc = 190' 59" 09"	Dc = 143' 14" 22"
R = 150.00'	R = 30.00'	R = 40.00'
T = 35.83'	T = 29.97'	T = 18.07'
L = 70.34'	L = 47.09'	L = 33.94'
E = 4.22'	E = 12.40'	E = 3.89'
C = 69.70'	C = 42.40'	C = 32.93'
C.B. = S 18° 47' 20" E	C.B. = S 50° 19' 33" E	C.B. = S 70° 59' 15" E

CONTROL AND BENCHMARK POINTS						
POINT #	NORTHING	EASTING	ELEVATION	STATION	OFFSET	DESCRIPTION
1	746923.25	1777917.65	945.14	107+95.15	16.26	LT MAG Nail
2	747129.46	1777718.81	944.29	109+99.38	211.62	LT MAG Nail
3	747456.41	1777910.00	942.79	113+28.55	15.25	LT MAG Nail
4	746702.65	1778180.97	944.43	105+44.60	218.74	RT MAG Nail
5	746524.73	1778000.49	942.48	103+89.57	18.24	RT MAG Nail

25 HORIZONTAL SCALE IN FEET

CALCULATED: LDW
CHECKED: JWB

FRA-COSGRAY ROAD RRFB

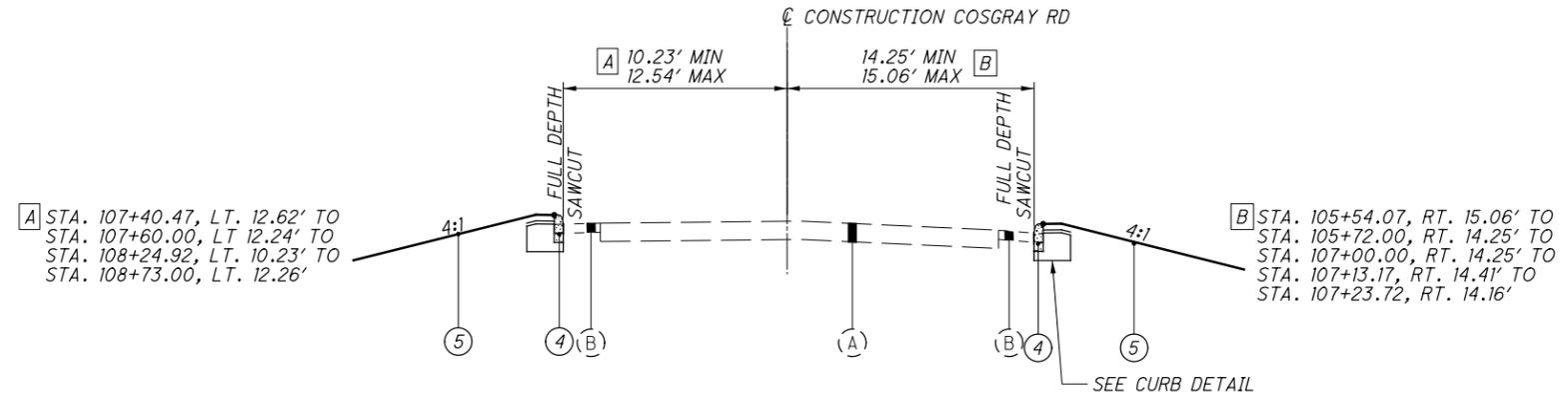
SCHEMATIC PLAN

2
24

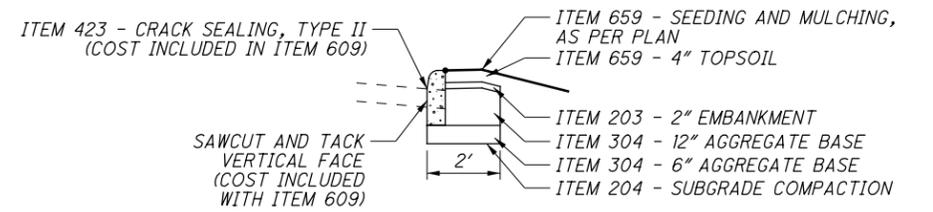
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LEGEND

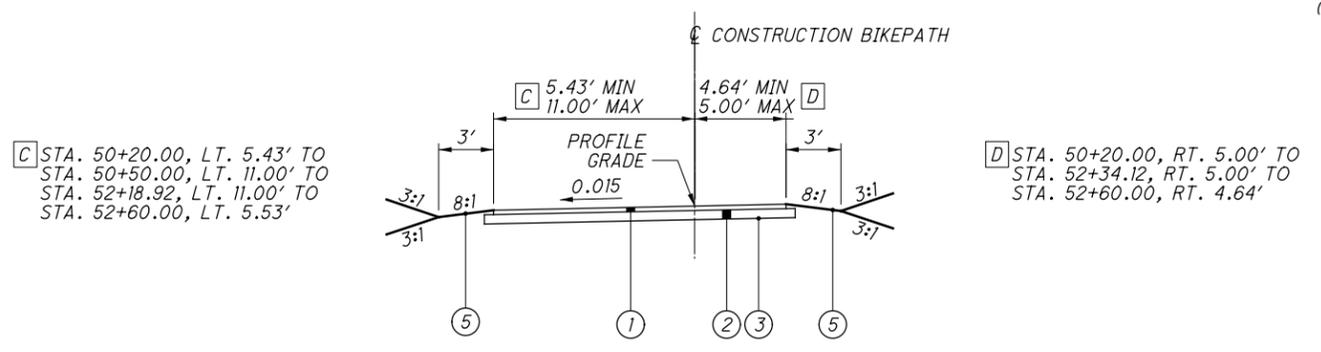
- ① ITEM 448 - 3" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (2 EQUAL LIFTS)
- ② ITEM 304 - 6" AGGREGATE BASE
- ③ ITEM 204 - SUBGRADE COMPACTION
- ④ ITEM 609 - CURB, TYPE 6, AS PER PLAN
- ⑤ ITEM 659 - SEEDING AND MULCHING, AS PER PLAN
- Ⓐ EXISTING PAVEMENT (ASPHALT)
- Ⓑ EXISTING SHOULDER (ASPHALT)



COSGRAY ROAD TYPICAL SECTION
 STA. 105+54.07 TO STA. 108+73.00



COSGRAY ROAD CURB DETAIL



SHARED USED PATH TYPICAL SECTION
 STA. 50+20.00 TO STA. 52+60.00

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1.THE REGULATIONS AND CONSTRUCTION STANDARDS OF THE CITY OF HILLIARD, TOGETHER WITH THE CURRENT CONSTRUCTION AND MATERIAL SPECIFICATIONS OF THE CITY OF COLUMBUS (COLS) AND THE OHIO DEPARTMENT OF TRANSPORTATION (ODOT), INCLUDING ALL SUPPLEMENTS THERETO, SHALL GOVERN ALL CONSTRUCTION ITEMS THAT ARE A PART OF THIS PLAN UNLESS OTHERWISE NOTED.

2.THE CITY ENGINEER OR HIS AUTHORIZED REPRESENTATIVE WILL MAKE INSPECTION OF THE WORK. THE CITY ENGINEER WILL REQUIRE AT LEAST 48 HOURS WRITTEN NOTICE BEFORE ANY WORK TAKES PLACE. FAILURE TO REQUEST THE NECESSARY INSPECTION MAY RESULT IN THE REJECTION OF THE WORK AND THE PROJECT.

3.IT IS THE INTENTION OF THE PLANS TO PROVIDE AND REQUIRE A COMPLETED PROJECT READY FOR OPERATION. ANY WORK ITEMS OMITTED FROM THE PLANS, WHICH ARE CLEARLY NECESSARY FOR COMPLETION OF THE WORK, AND ITS APPURTENANCES SHALL BE CONSIDERED A PART OF SUCH WORK, THOUGH NOT DIRECTLY SPECIFIED OR CALLED FOR IN THE PLANS. THIS INCLUDES, BUT IS NOT LIMITED TO SUCH INCIDENTAL ITEMS AS RELOCATION OF MAILBOXES, SAW CUTTING, AND REMOVAL AND/OR RELOCATION OF SIGNS, SPRINKLERS, OR OTHER MISCELLANEOUS ITEMS.

4.ALL ITEMS OF WORK CALLED FOR ON THE PLANS FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED SHALL BE PERFORMED BY THE CONTRACTOR WITH THE COST TO BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS RELATED ITEMS.

5.THE CONTRACTOR OR DEVELOPER SHALL DEPOSIT THE TOTAL ESTIMATED COST FOR INSPECTIONS, AS DETERMINED BY THE CITY ENGINEER, WITH THE CITY OF HILLIARD PRIOR TO THE START OF CONSTRUCTION.

6.THE CONTRACTOR SHALL PROVIDE THE CITY OF HILLIARD, A SURETY, ACCEPTABLE TO THE CITY OF HILLIARD, EQUAL TO 100% OF CONSTRUCTION COSTS. THE SURETY SHALL GUARANTEE THE WORK FOR ONE YEAR AFTER ACCEPTANCE BY THE CITY.

7.THE CITY ENGINEER WILL NOT BE RESPONSIBLE FOR MEANS, METHODS, PROCEDURES, TECHNIQUES, OR SEQUENCES OF CONSTRUCTION THAT ARE NOT SPECIFIED HEREIN. THE CITY ENGINEER WILL NOT BE RESPONSIBLE FOR SAFETY ON THE WORK SITE, OR THE FAILURE BY THE CONTRACTOR TO PERFORM WORK ACCORDING TO PLANS.

8. NOT USED

9.THE CONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL SAFETY REQUIREMENTS INCLUDING THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970. THE CONTRACTOR SHALL EXERCISE PRECAUTION ALWAYS FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT SHALL ALSO BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTION AND PROGRAMS IN CONNECTION WITH THE WORK, INCLUDING THE REQUIREMENTS FOR CONFINED SPACES PER 29 CFR 1910.146.

10.THE CONTRACTOR/DEVELOPER SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS.

11.THE CONTRACTOR SHALL CONFINE HIS ACTIVITIES TO THE PROJECT SITE, EXISTING RIGHT-OF-WAYS, TEMPORARY AND PERMANENT EASEMENTS, AND SHALL NOT ENTER UPON OTHER PROPERTIES WITHOUT WRITTEN PERMISSION OF THE OWNER. IF THE PROPOSED WORK REQUIRES ENTERING EASEMENTS UPON OTHER PROPERTIES, THE CONTRACTOR SHALL NOTIFY THE OWNER(S) IN WRITING NO LESS THAN 72 HOURS IN ADVANCE OF THE COMMENCEMENT OF THE WORK, AND COPY THE CITY ON ALL CORRESPONDENCE. FAILURE TO NOTIFY AFFECTED PROPERTY OWNERS MAY SUBJECT THE CONTRACTOR TO THE PENALTIES ASSOCIATED WITH THE VIOLATION OF HILLIARD CITY CODE, SECTION 541.05, CRIMINAL TRESPASS.

12.THE CONTRACTOR SHALL CAREFULLY PRESERVE BENCHMARKS, PROPERTY CORNERS, REFERENCE POINTS, STAKES AND OTHER SURVEY REFERENCE MONUMENTS OR MARKERS. IN CASES OF WILLFUL OR CARELESS DESTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE. RESETTING THE MARKERS SHALL BE PERFORMED BY AN OHIO PROFESSIONAL SURVEYOR AS APPROVED BY THE CITY ENGINEER AT THE CONTRACTOR'S EXPENSE. IN THE EVENT A FRANKLIN COUNTY MONUMENTS WILL BE DISTURBED, CONTACT THE FRANKLIN COUNTY ENGINEER (614) 525-3050 PRIOR TO DISTURBING THE MONUMENT(S).

13.PROPERTY BOUNDARIES, INCLUDING PROPERTY LINES AND ROAD RIGHT-OF-WAY, ARE SHOWN FROM THE BEST INFORMATION AVAILABLE AND ARE NOT NECESSARILY COMPLETE OR CORRECT.

14.THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING THE FINISHED WORK CONFORM TO THE LINES, GRADES, ELEVATIONS AND DIMENSIONS CALLED FOR ON THE DRAWINGS AND TYPICAL SECTIONS.

15.ANY DEVICE SHALL NOT BE OPERATED AT ANY TIME IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT. PURSUANT TO HILLIARD CITY CODE, SECTION 509.08, CONSTRUCTION ACTIVITY IS ONLY PERMITTED BETWEEN THE HOURS OF 7:30 A.M. AND 7:00 P.M MONDAY-SATURDAY. ANY CONSTRUCTION ACTIVITY BEYOND THESE HOURS REQUIRES A WRITTEN REQUEST TO THE DIRECTOR OF PUBLIC SERVICE MEETING THE REQUIREMENTS OF HILLIARD CITY CODE, SECTION 509.08(B).

16.PAVEMENTS SHALL BE CUT IN NEAT, STRAIGHT LINES THE FULL DEPTH OF THE EXISTING PAVEMENT, OR AS REQUIRED BY THE CITY ENGINEER.

17.ALL SOIL SUBGRADE SHALL BE PREPARED AND COMPACTED IN ACCORDANCE WITH ITEM 204 TO A DEPTH OF 12 INCHES BELOW THE SUBGRADE SURFACE. SUBGRADE SHALL BE SCARIFIED AND CONTAIN SUFFICIENT MOISTURE TO MEET ITEM 203 COMPACTION REQUIREMENTS.

18.THE CONTRACTOR IS NOT PERMITTED TO USE ANY RECLAIMED MATERIALS IN ITEM 304.

19.NON-RUBBER Tired VEHICLES SHALL NOT BE MOVED ON OR ACROSS PUBLIC STREETS OR HIGHWAYS WITHOUT THE WRITTEN PERMISSION OF THE CITY ENGINEER.

20.TRACKING OR SPILLING MUD, DIRT, OR DEBRIS UPON STREETS, RESIDENTIAL OR COMMERCIAL DRIVES, SIDEWALKS OR BIKE PATHS IS PROHIBITED PER HILLIARD CITY CODE, SECTION 905.12 AND ANY SUCH OCCURRENCE SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR. IF THE CONTRACTOR FAILS TO REMOVE SAID MUD, DIRT, DEBRIS, OR SPILLAGE, THE CITY OF HILLIARD RESERVES THE RIGHT TO REMOVE THESE MATERIALS AND CLEAN AFFECTED AREAS, THE COST OF WHICH SHALL BE PAID BY THE CONTRACTOR/DEVELOPER PER HILLIARD CITY CODE, SECTION 905.13.

21.DURING CONSTRUCTION THE CONTRACTOR SHALL PROVIDE ADEQUATE DRAINAGE AND PROPER SOIL EROSION CONTROL MEASURES FOR PROTECTION OF ALL ADJACENT ROADS AND LANDS, PER COLS ITEM 207.

22.THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO EQUAL OR BETTER THAN EXISTED BEFORE CONSTRUCTION. DRAINAGE DITCHES OR WATERCOURSES THAT ARE DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO THE GRADES AND CROSS-SECTIONS THAT EXISTED BEFORE CONSTRUCTION.

23.THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO MAINTAIN AT ALL TIMES SEWER, DRAIN, AND DITCH FLOWS THROUGH EXISTING FACILITIES TO REMAIN IN PLACE AND THROUGH EXISTING FACILITIES TO BE REPLACED UNTIL NEW FACILITIES ARE COMPLETED AND PUT INTO SERVICE. THE CONTRACTOR, TO A CONDITION SATISFACTORY TO THE CITY ENGINEER, SHALL RESTORE THE FLOW OF ALL SEWERS, DRAINS, AND OTHER WATERCOURSES DISTURBED DURING THE PROSECUTION OF THE WORK.

24.ANY MODIFICATION OF THE WORK AS SHOWN ON THESE DRAWINGS MUST HAVE PRIOR WRITTEN APPROVAL BY THE HILLIARD CITY ENGINEER.

25.THE CONTRACTOR SHALL CALL TOLL FREE, THE OHIO UTILITIES PROTECTION SERVICE (OUPS) AT 1-800-362-2764 SEVENTY-TWO (72) HOURS IN ADVANCE OF THE ANTICIPATED START OF CONSTRUCTION, AND SHALL NOTIFY ALL UTILITY COMPANIES AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO WORK IN THE VICINITY OF THEIR LINES.

CABLE TV:

TIME WARNER CABLE
3760 INTERCHANGE DR
COLUMBUS, OH 43204
RAY MAURER
PHONE: (614) 255-6349

ELECTRIC:

AEP COLUMBUS SOUTHERN POWER
850 TECH CENTER DRIVE
GAHANNA, OH 43230
PAUL PAXTON
PHONE: (614) 883-6831

GAS:

BUCKEYE PIPELINE
P.O. BOX 90
LIMA, OH 45802
MARTIN WHITE
PHONE: (419) 236-7766

COLUMBIA GAS OF OHIO
1600 DUBLIN ROAD - EW 5
COLUMBUS, OH 43215
JON AMSTUTZ
PHONE: (614) 481-1057

MARATHON PIPELINE
539 SOUTH MAIN STREET
ROOM 7642
FINDLAY, OH 45840
DAVE WISENER
PHONE: (419) 421-2211

TELECOM:

AT&T
111 NORTH FOURTH ST
8TH FLOOR
COLUMBUS, OH 43215
TOM ZIOMEK
PHONE: (614) 223-7162

WIDE OPEN WEST
3765 CORPORATE DR
COLUMBUS, OH 43231
DAN QUINN
PHONE: (614) 948-4653

WATER AND SEWER:

CITY OF HILLIARD
3800 MUNICIPAL WAY
HILLIARD, OH 43026
PHONE: (614) 876-7361

FRANKLIN COUNTY ENGINEER
970 DUBLIN RD
COLUMBUS, OH 43215
DEAN RINGLE, P.E., P.S.
PHONE: (614) 525-3030

26.EXISTING UTILITIES SHOWN ON THE PLAN ARE FROM THE BEST AVAILABLE RECORDS AND FIELD INVESTIGATION AND ARE NOT NECESSARILY COMPLETE OR CORRECT. THE CONTRACTOR IS RESPONSIBLE FOR THE INVESTIGATION, LOCATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES WHETHER SHOWN OR NOT.

27.THE CONTRACTOR SHALL EXPOSE AND VERIFY THE LOCATION AND ELEVATION OF ANY UTILITIES WITHIN THE LIMITS OF THE PROPOSED CONDUIT PATH, PRIOR TO STARTING ANY EXCAVATION. IN CASE OF CONFLICT, ADJUSTMENTS IN LOCATION AND ELEVATION OF THE PROPOSED UTILITIES MAY BE MADE IF APPROVED PER GENERAL NOTE #24, OR ARRANGEMENTS SHALL BE MADE TO MOVE THE EXISTING UTILITY TO PROVIDE ADEQUATE CLEARANCE.

28. NOT USED

29.EXISTING DRAIN TILES ENCOUNTERED DURING CONSTRUCTION SHALL BE RECONNECTED OR CONNECTED TO THE STORM SEWER SYSTEM BY THE CONTRACTOR, AS APPROVED BY THE CITY ENGINEER. THE COST OF SAID WORK TO BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS RELATED ITEMS.

30.ALL TRENCHES WITHIN PAVEMENT, BERM, AND SHOULDER LIMITS SHALL BE BACKFILLED OR SECURELY PLATED DURING NON-WORKING HOURS.

31.ACCESS TO ALL ADJOINING PROPERTIES SHALL BE MAINTAINED AT ALL TIMES. AREAS WITH MULTIPLE DRIVES SHALL HAVE AT LEAST HALF OF THE DRIVES OPEN AT ALL TIMES. PROPERTIES WITH A SINGLE ACCESS WILL REQUIRE STAGED CONSTRUCTION; SHORT-TERM FULL CLOSURE OF A SINGLE ACCESS WILL BE PERMITTED WITH THE PROPERTY OWNER AND/OR TENANT'S AGREEMENT. SUCH FULL CLOSURES SHALL BE SCHEDULED AND COORDINATED WITH THE PROPERTY OWNER/TENANT.

32.AT ALL UTILITY CROSSINGS THE TRENCH BACKFILL SHALL CONSIST OF COMPACTED GRANULAR MATERIAL, COLS ITEM 912, BETWEEN THE DEEPER AND SHALLOWER PIPE.

33.COMPACTED GRANULAR MATERIAL, COLS ITEM 912 SHALL CONSIST OF NATURAL, BROKEN OR CRUSHED STONE, CRUSHED GRAVEL, OR CRUSHED SLAG. SYNTHETIC OR MAN-MADE MATERIALS ARE UNACCEPTABLE.

34.BACKFILL FOR TRENCHES UNDER PAVEMENT AND WITHIN THE RIGHT-OF-WAY SHALL BE COMPACTED GRANULAR MATERIAL, COLS ITEM 912, TO THE PAVEMENT SUBGRADE. WHERE TRENCHES CROSS THE PAVEMENT, COLS ITEM 912 SHALL EXTEND THE FULL WIDTH OF THE RIGHT-OF-WAY, AND TO WITHIN 6 INCHES OF FINISHED GRADE WHERE NOT UNDER PAVEMENT.

35.BACKFILL FOR TRENCHES PARALLEL TO THE PAVEMENT AND WITHIN THE RIGHT-OF-WAY, WITH THE TOP OF THE TRENCH 3 FEET OR CLOSER TO THE BACK OF CURB OR EDGE OF PAVEMENT OR LOCATED UNDER A PEDESTRIAN PATHWAY, SHALL BE COMPACTED GRANULAR MATERIAL, COLS ITEM 912, TO WITHIN 6 INCHES OF FINISHED GRADE. BACKFILL FOR ALL OTHER TRENCHES WITHIN THE RIGHT-OF-WAY PARALLEL TO THE PAVEMENT, SHALL BE SHALL BE COMPACTED BACKFILL, COLS ITEM 911, EXCEPT THAT COMPACTION SHALL BE TO A MINIMUM 95 PERCENT MAXIMUM DRY DENSITY. PRIOR TO CONSTRUCTION OF THE STREETS, THE CITY ENGINEER MAY REQUIRE SOIL TESTS ON THE BACKFILL. WHERE TEST RESULTS INDICATE THAT THE BACKFILL DOES NOT MEET COMPACTION REQUIREMENTS THE BACKFILL SHALL BE REMOVED, REPLACED, AND RE-TESTED UNTIL MEETING THOSE REQUIREMENTS.

36.THE CONTRACTOR SHALL INSTALL STREET LIGHTS AT THE LOCATIONS SHOWN ON THE PLANS, INCLUDING ALL WIRING AND DISCONNECTS AND PROVIDE A COMPLETE OPERATING LIGHTING SYSTEM THAT COMPLIES WITH THE CITY OF HILLIARD SPECIFICATIONS.

37.ALL AREAS FOR UNDERGROUND ELECTRIC AND STREET LIGHTING ELECTRIC, TELEPHONE, AND CABLE TV INSTALLATIONS SHALL BE BROUGHT TO FINISHED GRADE, AS SHOWN ON THE GRADING PLAN, PRIOR TO THEIR BEING INSTALLED. ALL FILL REQUIRED SHALL BE COMPACTED IN ACCORDANCE WITH COLS ITEMS 203.06 AND 203.07. THIS WORK SHALL BE PERFORMED AS PART OF THIS PLAN AND THE COST SHALL BE INCLUDED UNDER ITEM 203.

38.ALL SIGNS, LANDSCAPING, STRUCTURES OR OTHER APPURTENANCES DISTURBED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE CITY ENGINEER. THE CONTRACTOR SHALL PAY FOR THE COST OF THIS WORK.

CALCULATED
LDW
CHECKED
JWB

GENERAL NOTES

FRA-COSGRAY
ROAD RRFB

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. ALL TREES MARKED FOR REMOVAL ARE UNDER 12" SIZE.

FENCE LENGTHS

THE LENGTHS OF FENCE SHOWN IN THE PLANS ARE HORIZONTAL DIMENSIONS. MEASUREMENTS OF THE FINAL QUANTITIES WILL BE IN ACCORDANCE WITH ITEM 607.

SEEDING AND MULCHING, AS PER PLAN

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

- 659, TOPSOIL, AS PER PLAN 8 CU. YD.
- 659, SEEDING AND MULCHING 2058 SQ. YD.
- 659, COMMERCIAL FERTILIZER 0.3 TON
- 659, WATER 11 M. GAL.

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS ITEM 659, IMMEDIATELY AFTER PLACING THE TOPSOIL AND ESTABLISHMENT OF FINAL GRADE, THE TOPSOIL AREA SHALL BE RAKED TO REMOVE ALL LUMPS AND STONES ONE INCH AND LARGER, TO A DEPTH OF AT LEAST ONE INCH, THEN ROLLED WITH A LIGHT ROLLER TO SECURE SMOOTHNESS TO THE LINES AND GRADES SHOWN IN THE CONTRACT DOCUMENTS. ALL TOPSOIL SHALL BE OF THE HIGHEST QUALITY AND FREE OF ALL STONES, WEEDS, TRASH, AND OTHER DELETERIOUS MATERIALS GREATER THAN 1/4". FAILURE TO PROVIDE HIGH QUALITY TOPSOIL, FREE OF WEEDS, WILL RESULT IN REJECTION OF THE TOPSOIL AREAS. ORGANIC CONTENT SHALL BE TESTED BY AN APPROVED LAB AND CERTIFIED TO BETWEEN 10-20% BY WEIGHT, AND ALL TOPSOIL SHALL BE SATURATED WITH WATER AND ALLOWED TO SETTLE BEFORE SEEDING. ANY TOPSOIL DISTURBANCE, SETTLEMENT OR EROSION WHICH MAY OCCUR BEFORE THE COMPLETION OF THE CONTRACT SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

ALL SEEDING SHALL BE APPLIED AT THE RATE OF 8 POUNDS (LB.) PER 1,000 SQUARE FEET (SF) AND SHALL USE THE FOLLOWING SEED MIXTURE:
40% TITIAN TALL FESCUE
40% TARHEEL TALL FESCUE
10% DENIM KENTUCKY BLUEGRASS
10% RENAISSANCE PERENNIAL RYE GRASS

THE SEED MIXTURE SHALL BE FREE OF WEEDS. FAILURE TO USE HIGH QUALITY SEED MIXTURE WILL RESULT IN REJECTION OF THE SEEDED AREAS.

COMMERCIAL-GRADE COMPLETE FERTILIZER OF NEUTRAL CHARACTER, CONSISTING OF FAST, AND SLOW RELEASE NITROGEN, 50% DERIVED FROM NATURAL ORGANIC SOURCES OF UREA-FORM, PHOSPHOROUS, AND POTASSIUM AND WITH THE FOLLOWING COMPOSITION SHALL BE APPLIED:
COMPOSITION: 13% NITROGEN, 26% PHOSPHOROUS, AND 12% POTASSIUM BY WEIGHT.

FERTILIZER SHOULD BE APPLIED AT THE RATE OF 6 POUNDS (LB.) PER 1,000 SQUARE FEET (SF).

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.

WATER QUALITY PROTECTION

THE PROJECT IS LOCATED WITHIN HOMESTEAD PARK ADDITION DRINKING WATER SOURCE PROTECTION AREA. IN ORDER TO MINIMIZE THE POTENTIAL FOR A RELEASE IN THIS SENSITIVE AREA, PROJECT RELATED REFUELING AND MAINTENANCE ACTIVITIES SHALL NOT BE PERFORMED WITHIN THE PROJECT AREA. SPILLS OF FUELS, OILS, CHEMICALS, OR OTHER MATERIALS WHICH COULD POSE A THREAT TO THE DRINKING WATER SOURCE AREA SHALL BE CLEANED UP IMMEDIATELY BY THE CONTRACTOR. IF THE SPILL IS A REPORTABLE AMOUNT, THE CONTRACTOR SHOULD CONTACT THE LOCAL HAZARDOUS MATERIALS RESPONSE TEAM FOR CLEAN-UP OF THE SPILL.

NO TOXIC OR HAZARDOUS MATERIALS SUCH AS SEALANTS, SOLVENTS, CLEANING AGENTS, WASTE-WATER, FUELS OR DEBRIS OF ANY KIND SHALL BE DISCHARGED TO ANY STREAMS, DRAINAGE COURSES, OR BODIES OF WATER. NO DEBRIS SHALL BE PLACED WITHIN THE 100-YEAR FLOODPLAIN BOUNDARY OF ANY WATERCOURSE.

THE CONTRACTOR SHALL TAKE GREAT CARE TO MINIMIZE THE POTENTIAL TO CONTAMINATE THE PUBLIC DRINKING WATER SUPPLY. ALL PROJECT RELATED REFUELING AND MAINTENANCE ACTIVITIES SHALL BE PERFORMED IN AN ENVIRONMENTALLY RESPONSIBLE MANNER.

THE CONTRACTOR SHALL TAKE THE APPROPRIATE ACTIONS IN THE EVENT OF A RELEASE AND WILL BE HELD RESPONSIBLE FOR THE CLEAN UP AND REMEDIATION OF ANY AND ALL SPILLS.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 2 OF THE PLANS 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

MONUMENT TYPE: MAG NAIL

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD 88
ELEVATION=945.15 AT SIGEIOD: GEODID2A

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD 1983 (2011)ELLIPSOID: GRS80

MAP PROJ.: LAMBERT CONFORMAL CONIC TWO PARALLEL
COORD SYSTEM: US STATE PLANE 1983 (2011), OHIO SOUTH

COMBINED SCALE FACTOR: 1.000047654
ORIGIN OF COORDINATE SYSTEM: 0,0

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS, EXCEPT FRANKLIN COUNTY ENGINEER MONUMENTS, RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH CMS 623. CONTACT FCE (614) 525-3050 FOR GUIDANCE ON FCE MONUMENTS PRIOR TO DISTURBING.

UNITS ARE IN U.S. SURVEY FEET.

FRANKLIN COUNTY PERMIT

THE CONTRACTOR SHALL SECURE A WRITTEN PERMIT FROM THE FRANKLIN COUNTY ENGINEER'S OFFICE, 970 DUBLIN RD, A MINIMUM OF TWO WORKING DAYS PRIOR TO BEGINNING WORK WITHIN FRANKLIN COUNTY R/W. THE CONTRACTOR MAY BE REQUIRED TO POST A BOND WITH THE FRANKLIN COUNTY ENGINEER PRIOR TO ISSUANCE OF THE PERMIT TO INSURE PROPER RESTORATION OF THE PAVEMENT AND R/W. THE CONTRACTOR SHALL PROVIDE THE FRANKLIN COUNTY ENGINEER'S OFFICE A 24-HOUR TELEPHONE NUMBER TO BE USED IN CASE OF AN EMERGENCY.

LANDSCAPING

IN ADDITION TO THE REQUIREMENTS OF ITEM 661 THE CONTRACTOR SHALL REMOVE EXISTING TURF AND TILL THE BEDS TO A DEPTH OF 12", WITH 2" TO 3" OF ORGANIC MATTER OR COMPOST MIXED IN. PLANTINGS SHALL OCCUR IN THE SPRING OR FALL ONLY. COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT COST BID FOR ALL LANDSCAPING ITEMS. THE CONTRACTOR SHALL COORDINATE WITH THE CITY OF HILLIARD IN THE FIELD TO DETERMINE THE PRECISE LAYOUT OF THE PLANTINGS. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR THE LANDSCAPING WORK:

ITEM 661 DECIDUOUS SHRUB, 30" HEIGHT, GRO-LOW FRAGRANT SUMAC	29 EACH
ITEM 661 EVERGREEN SHRUB, 2.5' HEIGHT, SAYBROOK GOLD JUNIPER	25 EACH
ITEM 661 PLANTING, MISC.: EVERGREEN TREE RELOCATED	1 EACH

ITEM 202 REMOVAL MISC.: BOLLARD REMOVED

IN ADDITION TO THE REQUIREMENTS OF ITEM 202 THE CONTRACTOR SHALL REMOVE THE EXISTING PLASTIC BOLLARDS AT THE EXISTING PATH CROSSING OF COSGRAY ROAD. ALL LABOR, MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS REQUIRED TO PERFORM THE WORK SHALL BE INCLUDED IN THE PER EACH UNIT PRICE BID FOR ITEM 202 REMOVAL MISC.: BOLLARD REMOVED.

STORAGE OF CONSTRUCTION EQUIPMENT

NO STAGING AND/OR STORAGE OF CONSTRUCTION EQUIPMENT WILL OCCUR WITHIN THE EXISTING BOUNDARIES OF THE HERITAGE RAIL TRAIL.

RESTORATION

ANY DISTURBED AREAS WILL BE RESTORED TO A CONDITION AT LEAST AS GOOD AS OR BETTER THAN EXISTING PRIOR TO CONSTRUCTION ACTIVITIES.

TEMPORARY FENCING

TEMPORARY CONSTRUCTION FENCING, DRUMS AND BARRICADES WILL BE INSTALLED AROUND PROPOSED CONSTRUCTION LIMITS TO MAINTAIN PHYSICAL SEPARATION BETWEEN TRAIL USERS AND CONSTRUCTION ACTIVITIES. COST OF THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ALL OTHER ITEMS.

CONSTRUCTION SCHEDULE

THE CONTRACTOR WILL CLOSELY COORDINATE THE CONSTRUCTION SCHEDULE WITH ODOT, THE PROJECT SPONSOR AND THE HILLIARD DIRECTOR OF RECREATION & PARKS AND/OR THE MAYOR OF HILLIARD.

ITEM 608 DETECTABLE WARNING, TYPE E, AS PER PLAN

ALL PRODUCTS SHALL RECEIVE PRIOR APPROVAL BY THE CITY ENGINEER OR HIS AUTHORIZED REPRESENTATIVE.

BRICK RED IS THE APPROVED COLOR, BUT A SUBSTITUTED COLOR MAY BE USED IF PRIOR APPROVAL IS GRANTED BY THE CITY ENGINEER OR HIS REPRESENTATIVE. SUBSTITUTION REQUESTS MUST BE SUBMITTED IN WRITING TO:

HILLIARD ADA COORDINATOR
3800 MUNICIPAL WAY
HILLIARD, OHIO 43026

TYPE "E" PRE-MANUFACTURED WET-SET PRODUCTS - THIS PRODUCT IS APPROVED FOR USE ON NEW CONSTRUCTION INSTALLATIONS ONLY. THESE PRODUCTS MUST BE 24" X 48" X 1/2" OR 24" X 24" X 1/2" ONE-PIECE PANELS. ALL PRODUCTS MUST BE APPLIED TO THE MANUFACTURER'S SPECIFICATIONS AND GUIDELINES.

THE FOLLOWING PRODUCTS ARE PRE-APPROVED FOR USE IN TYPE "E" APPLICATIONS:

- ENGINEERED PLASTICS, INC. - ARMOR-TILE CAST IN PLACE SYSTEMS;
- ADA SOLUTIONS, INC. - COMPOSITE (WET SET) REPLACABLE UNIT;
- ARMORCAST PRODUCTS COMPANY - CAST IN PLACE WARNING PANELS

PRODUCTS NOT LISTED ABOVE MAY BE SUBMITTED TO THE CITY'S ADA COORDINATOR FOR REVIEW AND POSSIBLE USE AS AN APPROVED EQUAL.

DETECTABLE WARNING STRIPS MUST COMPLY WITH ADA SPECIFICATIONS FOR RAMP AREA, INCLUDING RUNNING SLOPE, FLATNESS AND SMOOTHNESS CRITERIA, AS WELL AS FLUSH TRANSITIONS BETWEEN THE CONCRETE RAMP AND THE DETECTABLE WARNING SURFACE.

DETECTABLE WARNINGS PLACED ON A MULTI-USE PATH SHOULD BE OFFSET APPROXIMATELY 1 FOOT FROM EACH EDGE OF THE PAVEMENT TO PROVIDE A SMOOTH SURFACE FOR SMALL-WHEELED PATH USERS.

THE PER EACH UNIT PRICE SHALL ENCOMPASS ONE COMPLETE DETECTABLE WARNING INSTALLATION REGARDLESS OF THE NUMBER OF INDIVIDUAL PANELS REQUIRED TO EXTEND THE FULL WIDTH OF THE PATH.

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GENERAL NOTES

FRA-COSGRAY ROAD RRFB

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ITEM 614, MAINTAINING TRAFFIC

A MINIMUM OF ONE LANE OF MOTOR VEHICLE TRAFFIC (ONE-LANE, TWO-WAY TRAFFIC) SHALL BE MAINTAINED AT ALL TIMES ON COSGRAY ROAD UNLESS SHOWN OTHERWISE IN THESE PLANS BY USE OF THE EXISTING PAVEMENT AND FLAGGERS. THE HERITAGE TRAIL SHALL BE MAINTAINED IN A TWO-WAY FASHION EXCEPT FOR A SHORT PERIOD OF TIME WHEN A CLOSURE AND DETOUR WILL BE PERMITTED. SEE BELOW FOR MORE SPECIFICS.

THE LENGTH AND DURATION OF LANE AND PATH CLOSURES AND RESTRICTIONS SHALL BE AT THE APPROVAL OF THE ENGINEER. IT IS THE INTENT TO MINIMIZE THE IMPACT TO THE TRAVELING PUBLIC. LANE AND PATH 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 FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DETERMINED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 614, ASPHALT CONCRETE FOR MAINTAINING TRAFFIC 5 CU. YD.
ITEM 616, WATER 1 M. GAL.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 48 INCH "ROAD WORK AHEAD" AND "END ROAD WORK" SIGNS, SIGN SUPPORTS AND LIGHTS AT THE FOLLOWING LOCATIONS:

--COSGRAY ROAD PER O MUTCD TYPICAL APPLICATION TA-6

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SPECIAL 48 X 30 INCH "BIKEWAY CLOSED" SIGNS SIMILAR TO STANDARD SIGN R11-2-48 X 30 ("ROAD CLOSED"), AND BIKE/PEDESTRIAN DETOUR SIGNS (M4-9A-30 X 24), SUPPORTS, TYPE III BARRICADES AND TYPE C WARNING LIGHTS AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE BIKE PATH IS BUILT BUT NOT OPEN TO USERS:

--HERITAGE TRAIL 250 FEET NORTHWEST AND SOUTHEAST OF COSGRAY ROAD

PROVIDE A TEMPORARY RUNAROUND PER STANDARD CONSTRUCTION DRAWING MT-110.10. TEMPORARY WALKWAY MATERIAL MAY BE TURF. BARRIER BETWEEN CONSTRUCTION ACTIVITY AND DETOURED PATH MAY BE ORANGE PLASTIC CONSTRUCTION FENCE.

NOTICE OF CLOSURE SIGN:

NOTICE OF CLOSURE SIGNS, AS DETAILED IN THESE PLANS, SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED LANE OR PATH CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT-HAND SIDE OF THE ROAD OR PATH FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE ON BOTH COSGRAY ROAD AND ON THE HERITAGE TRAIL.

TIME LIMITATION ON HERITAGE TRAIL CLOSURE AND DETOUR:

TRAFFIC SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR A PERIOD NOT TO EXCEED SEVEN (7) CONSECUTIVE CALENDAR DAYS, WHEN THROUGH PEDESTRIAN AND BICYCLE TRAFFIC MAY BE DETOURED.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH C & MS ITEM 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. THE ROADWAY SHALL NOT BE OPENED TO TRAFFIC UNTIL PERMANENT TRAFFIC CONTROLS ARE IN PLACE, OR UNTIL TEMPORARY TRAFFIC CONTROLS, APPROVED BY THE CITY ENGINEER, ARE INSTALLED. THE CONTRACTOR ASSUMES ALL LIABILITY FOR THE PREMATURE REMOVAL OF TEMPORARY TRAFFIC CONTROLS.

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.

PLACEMENT OF ASPHALT CONCRETE AND CONCRETE CURB

TWO-WAY TRAFFIC SHALL BE MAINTAINED AT ALL TIMES ON COSGRAY ROAD EXCEPT THAT TWO-WAY, ONE-LANE TRAFFIC BY USE OF FLAGGERS WILL BE PERMITTED FOR MINIMUM PERIODS OF TIME CONSISTENT WITH THE REQUIREMENTS OF THE SPECIFICATIONS FOR PROTECTION OF COMPLETED ASPHALT CONCRETE COURSES AND DELIVERY OF CONCRETE.

TRENCH FOR TRAIL RELOCATION AND CURB

TRENCH EXCAVATION FOR CURB PLACEMENT SHALL BE ONLY ON ONE SIDE OF THE ROADWAY 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 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 EXCAVATION FOR CURB PLACEMENT SHALL BE COMPLETED TO A DEPTH OF NO MORE THAN 12 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 UNCOMPLETED BASE WIDENING SHALL BE BACKFILLED AT THE DIRECTION OF THE ENGINEER.

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.

HOURS OF OPERATIONS

NO LANE CLOSURE IS BE IMPLEMENTED DURING THE HOURS OF 7 AM TO 9 AM OR 3:30 PM TO 6 PM. SEE GENERAL NOTE 15.

NOTIFICATION

NOTIFY THE CITY ENGINEER AT LEAST 10 DAYS PRIOR TO THE START OF WORK. THE OFFICE OF CITY ENGINEER SHALL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE OF LANE CLOSURE AND IMPLEMENTATION OF THE MAINTENANCE OF TRAFFIC PLAN. ALL MAINTENANCE OF TRAFFIC SIGNS SHALL BE COVERED OR REMOVED FROM VIEW OF TRAFFIC WHEN THEY ARE NOT APPLICABLE AS DETERMINED BY THE ENGINEER.

CITY OF HILLIARD
ENGINEERING DIVISION
3800 MUNICIPAL WAY
HILLIARD, OHIO 43026
614-876-7361
7 AM - 5 PM MONDAY - FRIDAY

POLICE OFFICERS

IT IS THE POLICY OF THE HILLIARD POLICE DEPARTMENT (614-876-2429) TO PROVIDE SPECIAL DUTY OFFICERS FOR ALL PROJECTS IN THE CITY OF HILLIARD, WHEN REQUIRED OR REQUESTED. HOWEVER, TO COMPLY WITH THIS POLICY AND TO ALLOW APPROPRIATE TIME FOR SCHEDULING, FORTY-EIGHT (48) HOUR ADVANCE NOTIFICATION IS REQUIRED. IF THE HILLIARD POLICE DEPARTMENT IS UNABLE TO FILL THE REQUEST, THE HILLIARD POLICE DEPARTMENT WILL GIVE THE CONTRACTOR TWENTY-FOUR (24) HOUR NOTICE, SO THEY MAY MAKE ALTERNATE ARRANGEMENTS. IN THE EVENT OF CANCELLATION, THEY REQUIRE AT LEAST TWO (2) HOURS NOTIFICATION, OTHERWISE THE CONTRACTOR WILL BE OBLIGATED TO PAY THREE (3) HOURS SHOW-UP TIME AT THE SPECIAL DUTY RATE. A POLICE OFFICER CAN BE FURNISHED AT NO CHARGE FOR SHORT DURATIONS OF FIFTEEN (15) MINUTES OR LESS WITH A TWO (2) HOUR PRIOR NOTICE TO THE HILLIARD POLICE DEPARTMENT AND THE ENGINEER.

CONES, BARRICADES AND DRUMS

STEADY BURNING, TYPE "C" LIGHTS SHALL BE REQUIRED ON ALL BARRICADES, DRUMS AND SIMILAR TRAFFIC CONTROL DEVICES IN USE AT NIGHT. CONES ARE NOT APPROVED FOR USE AT NIGHT. SEPARATE PEDESTRIANS AND BICYCLISTS FROM WORK AREAS THROUGH THE USE OF ORANGE PLASTIC FENCING SECURED TO FENCE POSTS.

SEQUENCE OF CONSTRUCTION

GENERAL REQUIREMENTS

THE CONSTRUCTION HAS BEEN BROKEN INTO THREE PHASES. IN ORDER TO LIMIT IMPACTS TO TRAFFIC, COMPLETE ALL WORK IN EACH PHASE BEFORE BEGINNING ANOTHER PHASE. BEFORE THE COMMENCEMENT OF EACH CONSTRUCTION PHASE, THE CONTRACTOR SHALL COVER CONFLICTING SIGNS. ALL EXISTING PAVEMENT MARKINGS ARE TO REMAIN UNLESS MARKED FOR REMOVAL IN THESE PLANS.

ACCESS TO DRIVEWAYS AND PROPERTY ADJACENT TO CONSTRUCTION MUST BE MAINTAINED AT ALL TIMES AND IS TO BE PAID FOR UNDER ITEM 614 - MAINTAINING TRAFFIC.

ALL EQUIPMENT AND VEHICLES SHOULD BE STORED OR PARKED AT LEAST 19 FEET OFF THE EDGE OF PAVEMENT OF COSGRAY ROAD AND NOT BLOCK VISIBILITY OF ONCOMING TRAFFIC FOR PATH USERS OR MOTORISTS EXITING ADJACENT PRIVATE DRIVEWAYS.

PHASE 1 (EAST SIDE)

CONSTRUCT THE PROPOSED CURB AND PAVEMENT ON THE EAST SIDE OF COSGRAY ROAD WHILE MINIMIZING IMPACTS TO TRAFFIC ON COSGRAY ROAD. MAINTAIN THE HERITAGE TRAIL'S EXISTING CROSSING.

MAINTAIN TRAFFIC ON COSGRAY ROAD THROUGH STANDARD CONSTRUCTION DRAWING MT-97.10 (FLAGGER CLOSING 1 LANE OF A 2-LANE HIGHWAY-STATIONARY OPERATION) AND FIGURE 6H-10 (TYPICAL APPLICATION 10) OF THE O MUTCD. UNIFORMED, OFF-DUTY CITY OF HILLIARD POLICE OFFICERS SHALL REPLACE THE FLAGMEN ON THESE PAGES, AND THE OFFICERS SHALL BE PRESENT WHENEVER ONE-LANE, TWO-WAY OPERATION IS IN EFFECT. MAINTAIN PEDESTRIAN AND BICYCLE TRAFFIC ALONG THE HERITAGE TRAIL AND EXISTING WALKS.

PHASE 2 (WEST SIDE)

CONSTRUCT THE PROPOSED CURB AND PAVEMENT ON THE WEST SIDE OF COSGRAY ROAD WHILE MINIMIZING IMPACTS TO TRAFFIC ON COSGRAY ROAD. MAINTAIN THE HERITAGE TRAIL'S EXISTING CROSSING BY LEAVING A GAP IN THE PROPOSED CURB AT THE EXISTING CROSSING LOCATION.

MAINTAIN TRAFFIC ON COSGRAY ROAD THROUGH STANDARD CONSTRUCTION DRAWING MT-97.10 (FLAGGER CLOSING 1 LANE OF A 2-LANE HIGHWAY-STATIONARY OPERATION) AND FIGURE 6H-10 (TYPICAL APPLICATION 10) OF THE O MUTCD. UNIFORMED, OFF-DUTY CITY OF HILLIARD POLICE OFFICERS SHALL REPLACE THE FLAGMEN ON THESE PAGES, AND THE OFFICERS SHALL BE PRESENT WHENEVER ONE-LANE, TWO-WAY OPERATION IS IN EFFECT. MAINTAIN PEDESTRIAN AND BICYCLE TRAFFIC ALONG THE HERITAGE TRAIL AND EXISTING WALKS.

PHASE 3 (OFF ROAD)

CONSTRUCT PATH ADJUSTMENTS ON BOTH SIDES OF COSGRAY ROAD. PERFORM EARTHWORK AND LANDSCAPING ACTIVITIES. MAINTAIN TWO-WAY, TWO-LANE OPERATION ON COSGRAY ROAD. CLOSE AND DETOUR THE HERITAGE TRAIL FOR A MAXIMUM OF ONE WEEK. FINISH INSTALLATION OF TRAFFIC CONTROL DEVICES.

CALCULATED
MLS
CHECKED
LAS

MAINTENANCE OF TRAFFIC - GENERAL NOTES

FRA - COSGRAY
ROAD RRFB

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REF. NO.	SHEET NO.	STATION		SIDE	202	202	607	608	608				606	606	606			
		FROM	TO		PAVEMENT REMOVED, ASPHALT	REMOVAL, MISC.: BOLLARD REMOVED	FENCE, MISC.: WOOD FENCE	CURB RAMP	DETECTABLE WARNING, TYPE E, AS PER PLAN	GUARDRAIL, TYPE MGS	ANCHOR ASSEMBLY, MGS TYPE A	ANCHOR ASSEMBLY, MGS TYPE T	SQ YD	EACH	FT	SQ FT	EACH	FT
		50+20.00	51+51.67		164													
		51+77.37	52+60.00		150													
		51+42.84	51+51.67						163	1								
		51+77.37	51+89.00						169	1								
		107+40.47	108+73.00	LT	6													
		105+54.07	107+23.72	RT	10													
		107+88.00	108+12.00	LT		5												
		107+43.00	107+77.00	RT		5												
		106+67.29	106+93.85	RT			30											
		107+38.03	108+30.00	RT			101											
		108+47.06	108+67.06	LT			20											
		107+66.87	108+68.87	RT									62.5	1	1			
													<p style="text-align: center;">GUARDRAIL QUANTITIES PROVIDED FOR INFORMATION ONLY (TO BE CONSTRUCTED BY BUCKEYE PIPELINE)</p>					
TOTALS CARRIED TO GENERAL SUMMARY					330	10	151	332	2									

GENERAL SUBSUMMARY	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: small;">CALCULATED</td> <td style="font-size: small;">LDW</td> <td style="font-size: small;">CHECKED</td> </tr> <tr> <td style="text-align: center;">8</td> <td style="text-align: center;">24</td> <td style="text-align: center;">JWB</td> </tr> </table>	CALCULATED	LDW	CHECKED	8	24	JWB
CALCULATED	LDW	CHECKED					
8	24	JWB					

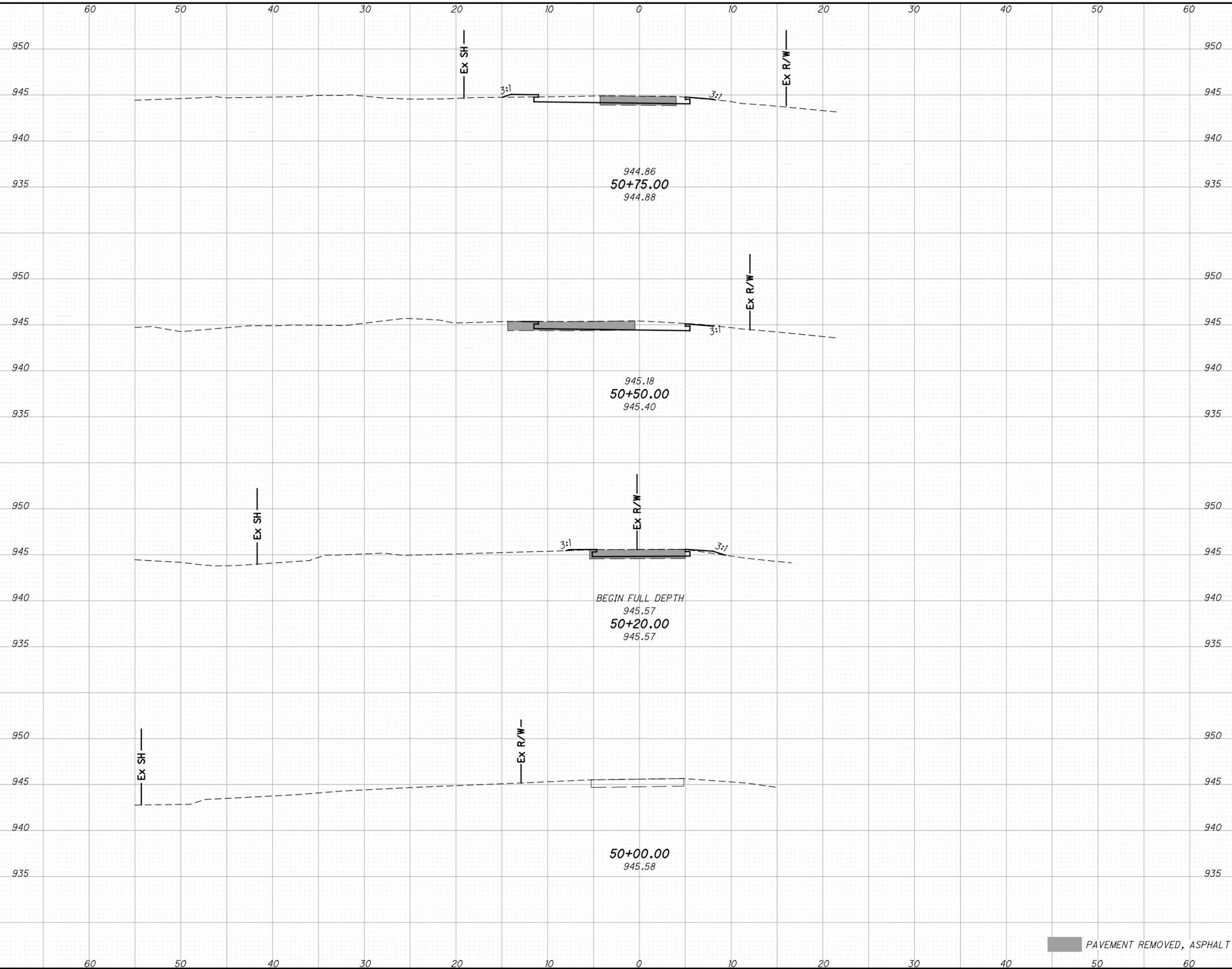
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STATION		LIN. FT.	CAD MEASURED AREA (SF)	APPLICATION RATE	203	203	204	304			448	609	659	659	659	659				
					EXCAVATION	EMBANKMENT	SUBGRADE COMPACTION	AGGREGATE BASE		ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22	CURB, TYPE 6, AS PER PLAN	TOPSOIL, AS PER PLAN	SEEDING AND MULCHING, AS PER PLAN	COMMERCIAL FERTILIZER	WATER					
FROM	TO				CU YD	CU YD	SQ YD	CU YD			CU YD	FT	CU YD	SQ YD	TON	M GAL				
50+20.00	51+41.55	121.55	2021	0.25							19									
50+20.00	51+51.67	131.67	2402 2813	0.5			313	44												
51+89.00	52+60.00	71.00	1368	0.25						13										
51+78.41	52+60.00	81.59	1654 1938	0.5			215	31												
105+54.07	107+23.72	169.65	N/A 318 238 238 238	N/A 0.5 1 1.5 0.167			35	6 9		170										
107+40.47	108+73.00	132.53	N/A 243 182 182	N/A 0.5 1 0.167	13							134								
WORK LIMITS			18526 18526 18526 18526	0.0123 N/A 1E-05 0.0006									8	2058	0.3	11				
GRAND TOTALS CARRIED					13	2	590	102			32	304	8	2058	0.3	11				

CALCULATION / COMPUTATIONS	CALCULATED LDW CHECKED JWB
FRA - COSGRAY ROAD RRFB	
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SEEDING	
END WIDTH	SO. YDS.

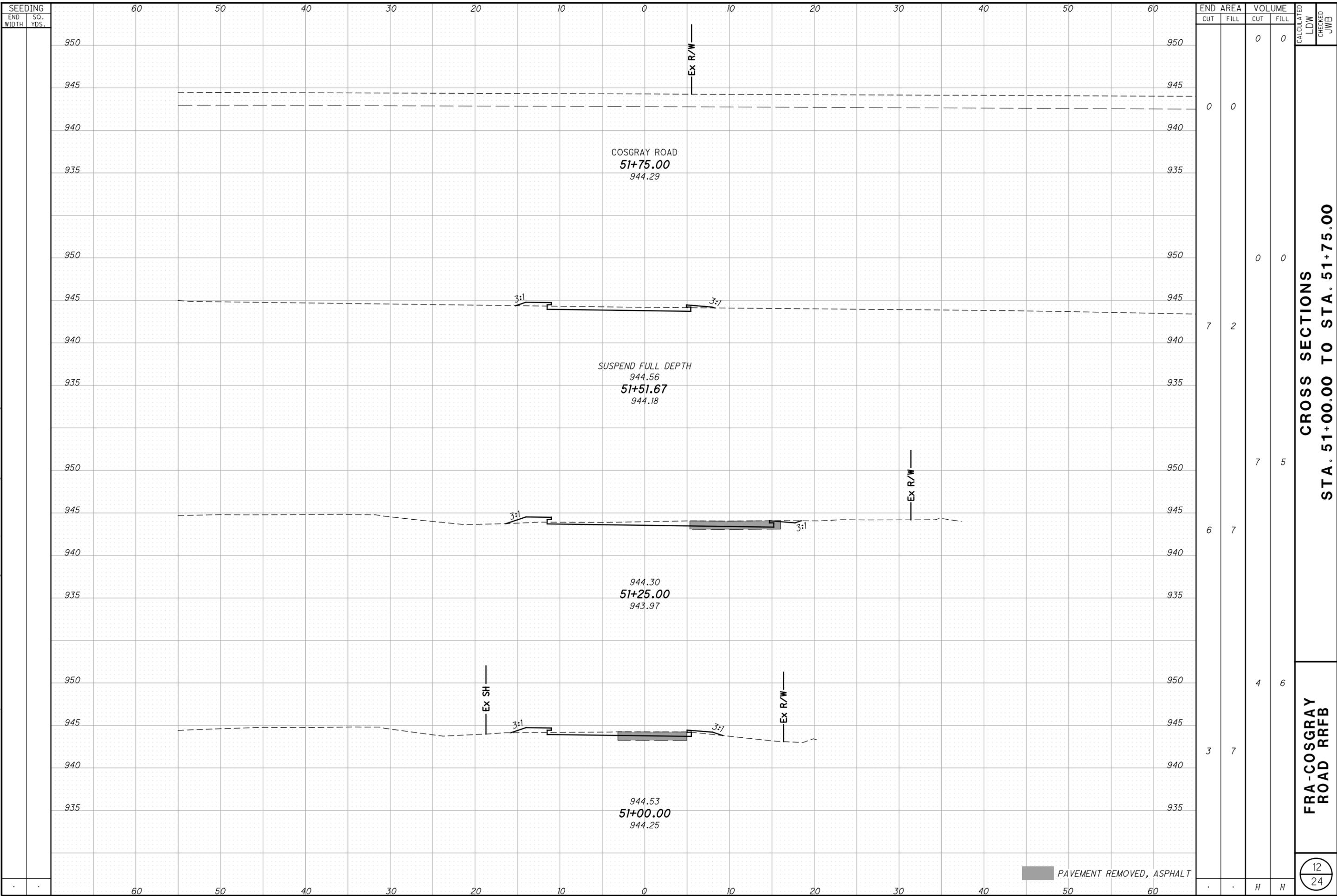


END STA	AREA		VOLUME		CALCULATED LOW	CHECKED JWB
	CUT	FILL	CUT	FILL		
950			4	5		
945	6	3				
940						
935						
950			5	4		
945	5	5				
940						
935						
950			3	5		
945	0	4				
940						
935						
950			0	0		
945	0	0				
940						
935						
TOTAL			12	14		

**CROSS SECTIONS
 STA. 50+00.00 TO STA. 50+75.00**

**FRA-COSGRAY
 ROAD RRFB**

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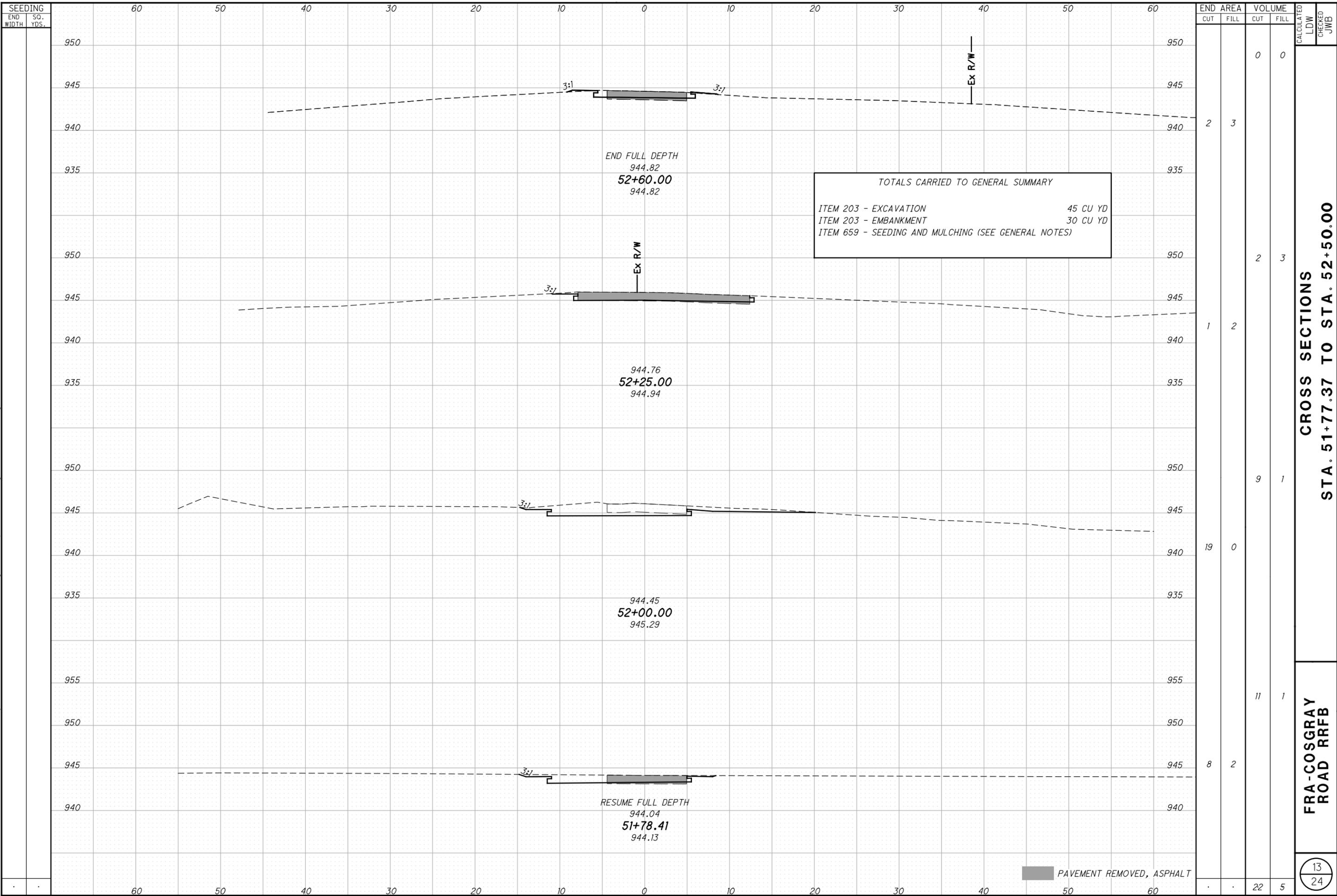


END STA	AREA		VOLUME		CALCULATED LOW	CHECKED JWB
	CUT	FILL	CUT	FILL		
950			0	0		
945			0	0		
940						
935						
950			0	0		
945	7	2				
940						
935						
950			7	5		
945	6	7				
940						
935						
950			4	6		
945	3	7				
940						
935						
			H	H		

**CROSS SECTIONS
 STA. 51+00.00 TO STA. 51+75.00**

**FRA-COSGRAY
 ROAD RRFB**

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CROSS SECTIONS
STA. 51+77.37 TO STA. 52+50.00

FRA-COSGRAY
ROAD RRFB

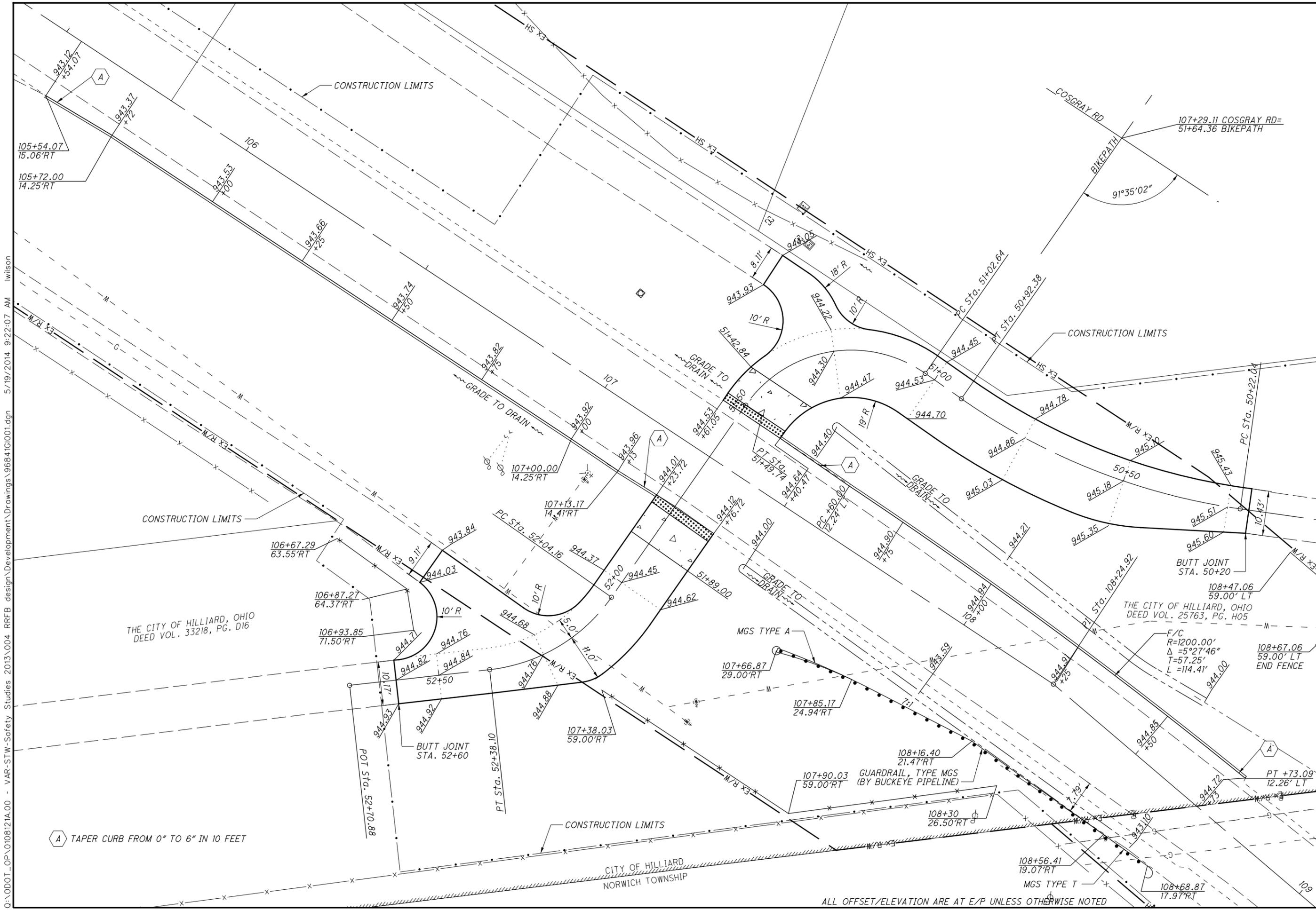


0 5 10 20
HORIZONTAL
SCALE IN FEET

CALCULATED
LDW
CHECKED
JWB

INTERSECTION DETAIL

FRA - COSGRAY
ROAD RRFB



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A TAPER CURB FROM 0" TO 6" IN 10 FEET

ALL OFFSET/ELEVATION ARE AT E/P UNLESS OTHERWISE NOTED

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ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN

THE FOLLOWING ITEMS REPRESENT THERMAL BOND ASPHALT REPAIR SPECIFICATIONS AND WORKMANSHIP GUIDELINES TO BE USED ON ALL "HEAT-WELDS." THIS WORK SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO PERFORM ALL OPERATIONS OF A HEAT-WELD TO ASPHALT CONCRETE SURFACE COURSES. THERMAL BOND ASPHALT REPAIRS SHALL CONSIST OF HEATING ASPHALT CONCRETE PAVEMENT, SCARIFICATION OF THE SURFACE, APPLYING A REJUVENATING AGENT, APPLYING A WEARING COURSE OF NEW ASPHALT CONCRETE, AND COMPACTION OF THE REPAIR. ANY CHANGES TO THESE SPECIFICATIONS MUST BE SUBMITTED IN WRITING AND APPROVED BY THE ENGINEER PRIOR TO USE.

EQUIPMENT

THE EQUIPMENT SHALL INCLUDE A HEATING PANEL THAT PROVIDES RADIANT HEAT UNIFORMLY DISTRIBUTED OVER ITS ENTIRE SURFACE AND ADJUSTABLE FROM 20,000 BTU'S TO 40,000 BTU'S PER SQUARE FOOT. PROPANE GAS SHALL BE THE ONLY COMBUSTIBLE FUEL USED AND SHALL BE STORED WITHIN 10 FEET OF THE HEATING PANEL. NO OPEN FLAMES FOR HEATING THE PAVEMENT WILL BE PERMITTED.

THE HEATING PANEL SHALL BE CONTROLLED BY AN AUTOMATIC TIMER CONSISTING OF A MAIN CYCLE, ADJUSTABLE FOR BOTH "ON" AND "OFF" PERIODS, AND A REPEAT CYCLE, ADJUSTABLE FOR THE OVERALL TIME OF THE REPEAT CYCLING ACTION. THE MAIN CYCLE SHALL AUTOMATICALLY START THE REPEAT CYCLES AT THE END OF ITS MAXIMUM ADJUSTED TIME SPAN. THE REPEAT CYCLE SHALL BE EASILY OPERATED WITHOUT ANY TOOLS REQUIRED. COMPLETE MANUAL OVERRIDE AND GENERAL MANUAL OPERATION SHALL BE INCORPORATED IN THE SYSTEM.

THE HEATED AREA OF THE PANEL SHALL BE:

- A) 6 FEET BY 8 FEET MINIMUM AREA.
- B) DIVIDED INTO 4 QUADRANTS SIZED BETWEEN 1 / 2 AND 1 / 3 OF THE PANEL DIMENSIONS EACH RESPECTIVE SIDE.
- C) EACH QUADRANT SHALL BE OPERABLE INDEPENDENTLY OF THE OTHERS AND IN ALL POSSIBLE COMBINATIONS WITH EACH OTHER.

THE HEAT PANEL SHALL HAVE INSTANT KILL SWITCHES LOCATED ON EACH SIDE OF THE UNIT THAT CAN BE ACTIVATED BY A RAPID STRIKE OF A BUTTON. ALL OTHER CONTROLS OR PANEL ACTIVITY OTHER THAN THE KILL SWITCHES SHALL BE AT ONE LOCATION AND INCLUDE ANOTHER INSTANT KILL SWITCH AT THAT LOCATION. ALL ELECTRICAL AND FUEL DEVICES SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS AT ALL TIMES.

IF APPLICABLE, THE EQUIPMENT SHALL INCLUDE AN AUTOMATED ASPHALT DELIVERY SYSTEM FROM A THERMOSTATICALLY CONTROLLED HEATED STORAGE COMPARTMENT WITH DELIVERY OF ITEM 448 ASPHALT CONCRETE BY A MECHANICAL CONVEYING SYSTEM TO THE REPAIR. THE HEATED ASPHALT STORAGE HOPPER SHALL BE INSULATED AND SO CONSTRUCTED THAT IT WILL KEEP ITS CONTENTS THERMOSTATICALLY CONTROLLED IN A GOOD WORKABLE CONDITION (BETWEEN 225 AND 250 DEGREES FAHRENHEIT). DESIGN OF THE UNIT IS TO BE SUCH THAT NO DIRECT FLAMES CONTACT THE HOPPER WALLS THAT WOULD OVERHEAT OR DEGRADE THE CONTENTS.

THE HEATING UNIT SHALL HAVE A YELLOW FLASHER LIGHT PER OSHA STANDARDS, WHICH SHALL BE CLEARLY VISIBLE FROM ALL POINTS IN FRONT OF THE EQUIPMENT, AND AN ARROW BOARD CLEARLY VISIBLE FROM BEHIND.

COMPACTION EQUIPMENT MUST BE A VIBRATORY STEEL WHEELED ROLLER. THE VIBRATORY ROLLER SHALL BE EQUIPPED WITH A WATER SYSTEM AND HAVE A MINIMUM CERTIFIED FORCE OF 2,000 POUNDS.

MATERIALS

THE CONTRACTOR MUST SUBMIT A CERTIFIED STATEMENT FROM THE ASPHALT REJUVENATOR MANUFACTURER SHOWING THAT THE ASPHALT REJUVENATING EMULSION CONFORMS TO THE FOLLOWING PHYSICAL AND CHEMICAL REQUIREMENTS:

PROPERTY	ASTM TEST METHOD	REQUIREMENTS
VISCOSITY @ 25°C, SFS	D-244	20 - 145
SIEVE TEST, %W	D-244 (MOD.) NOTE 1	0.1 MAX.
PARTICLE CHARGE TEST	D-244	POSITIVE
CEMENT MIXING TEST, %W	D-244	1.8 MAX.
PUMPING STABILITY	NOTE 2	PASS
5-DAY SETTLEMENT TEST, %W	D-244	4.77 MAX.
RESIDUE, %W	D-244 (MOD.) NOTE 3	64 - 66
TESTS ON RESIDUE FROM DISTILLATION:		
VISCOSITY @ 60°C, CST	D-2170	990 - 4,100
MALTENE DISTRIBUTION RATIO	D-2006-70	0.7 - 1.1
(PC + A1) / (S + A2) NOTE 4		
PC/S RATIO	D-2006-70	0.5 MIN.
ASPHALTENES, %W	D-2006-70	10.8 MAX.
ANILINE °C	D-611	29 - 44
TOTAL ACID NUMBER	D-664	0.5 MAX.

NOTES

- 1 TEST PROCEDURE WITH ASTM D-244 EXCEPT THAT DISTILLED WATER SHALL BE USED IN PLACE OF TWO PERCENT SODIUM OLEATE SOLUTION.
- 2 PUMPING STABILITY IS DETERMINED BY CHARGING 450 ML OF EMULSION INTO ONE-LITER BEAKER AND CIRCULATING THE EMULSION THROUGH A GEAR PUMP HAVE 1 / 4" INLET AND OUTLET. THE EMULSION PASSES IF THERE IS NO SIGNIFICANT OIL SEPARATION AFTER CIRCULATING FOR TEN MINUTES.
- 3 ASTM D-244 EVAPORATION TEST FOR PERCENT OF RESIDUE IS MODIFIED BY HEATING A 50 GRAM SAMPLE TO 149°C (300°F) UNTIL FOAMING CEASES, THEN COOLING IMMEDIATELY AND CALCULATING RESULTS.
- 4 IN THE MALTENE DISTRIBUTION RATIO TEST BY ASTM METHOD D-2006-70:

PC = POLAR COMPOUNDS, A1 = FIRST ACIDAFFINS
 A2 = SECOND ACIDAFFINS, S = SATURATED HYDROCARBONS

CONVERSION: 242 GAL/TON.

THE REJUVENATING AGENT SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.

IF APPLICABLE, THE ASPHALT CONCRETE USED IN THE REPAIR SHALL MEET THE REQUIREMENTS OF ITEM 448, UNLESS AN ALTERNATE MATERIAL IS APPROVED.

CONSTRUCTION METHODS

A PROJECT SUPERINTENDENT KNOWLEDGEABLE AND EXPERIENCED IN CONSTRUCTION OF A THERMAL BOND ASPHALT REPAIR MUST BE IN CONTROL OF EACH DAY'S WORK. IF IT BECOMES APPARENT THAT THE WORK IS NOT BEING PERFORMED IN A NEAT AND WORKMAN LIKE MANNER, THE ENGINEER WILL SUSPEND THE DAY'S ACTIVITIES UNTIL A QUALIFIED SUPERVISOR IS BROUGHT IN.

PREPARATION

ALL DIRT, DEBRIS, VEGETATION, LOOSE AND FOREIGN MATERIAL SHALL BE CLEARED FROM THE REPAIR AREA BEFORE THE WORK BEGINS.

HEATING AND SCARIFYING

THE PANEL SHALL BE POSITIONED SUCH THAT THE HEATED SURFACE OF THE PANEL EXTENDS A MINIMUM OF 4 INCHES BEYOND THE AREA OF REPAIR. THE AREA OF REPAIR SHALL INCLUDE ALL CRACKED AREAS AT THE LOCATION OF THE REPAIR THAT ARE LESS THAN 8 INCHES FROM EACH OTHER. ONLY THE PANEL QUADRANTS NEEDED FOR HEATING THE REPAIR AREA SHALL BE USED.

PAVEMENT SHALL NOT BE HEATED TO TEMPERATURES THAT ARE HARMFUL TO THE SURFACE ASPHALT. AN APPROPRIATE ADJUSTMENT OF THE TIMER SHALL BE MADE TO ELIMINATE ANY TENDENCY FOR SUCH EFFECTS. ONCE ADJUSTED FOR A PARTICULAR STREET, CONTROLS SHALL REMAIN UNCHANGED UNLESS A CHANGE OF PAVEMENT SURFACE REVEALS A CHANGED CONDITION, OR IT IS DEMONSTRATED TO THE ENGINEER THAT A MODIFIED CYCLE IS APPROPRIATE.

THE REPAIR SHALL BE SCARIFIED OVER THE ENTIRE AREA TO THE REQUIRED DEPTH BY VISCOUS SHEARING WITHOUT SCRATCHING OR SCRAPING THE UNDERLYING HARD ASPHALT. THE OUTSIDE PERIMETER SHALL HAVE STRAIGHT EDGES, WHICH ARE LOCATED AT LEAST ONE INCH INSIDE THE PERIMETER OF THE HEAT PANEL AS IT WAS POSITIONED DURING HEATING.

PROCESSING THE REPAIR

AFTER SCARIFICATION, REJUVENATING AGENT SHALL BE UNIFORMLY APPLIED AT APPROXIMATELY 0.05 GALLONS PER SQUARE YARD OVER THE SCARIFIED SURFACE OR AT A RATE DIRECTED BY ENGINEER. A VOLUME METER SHALL BE PROVIDED ON THE FLOW LINE TO THE SPRAY DEVICE, WITH INCREMENTAL GAUGE UNITS OF 0.1 GALLON MAXIMUM. ANY PIECE OF AGGREGATE OR OTHER MATERIAL GREATER THAN 1 / 2 INCH IN SIZE SHALL THEN BE REMOVED WITH A LUTE AFTER WHICH THE ENTIRE SCARIFIED SURFACE SHALL BE RAKED SMOOTH.

IF APPLICABLE, A MINIMUM 1 / 2 INCH THICK WEAR COURSE SHALL THEN BE DELIVERED FROM THE AUTOMATED DELIVERY SYSTEM. EDGES SHALL BE CAREFULLY RAKED TO PROVIDE A SMOOTH TRANSITION TO THE MAIN REPAIR AREA. THE OVERALL PATCH SHALL BE RAKED TO A SMOOTH FLAT SURFACE.

THE REPAIR SHALL BE ROLLED, PINCHED EDGES FIRST WITH THE ROLLER IN UNPROCESSED PAVEMENT WITH 6 INCHES OVER THE EDGE OF THE REPAIR. A SMALL VIBRATORY ROLLER SHALL BE USED WITH A MINIMUM WEIGHT OF 600 POUNDS. THE SITE OF THE REPAIR SHALL BE LEFT CLEAN.

AN ADDITIONAL 0.05 GALLON PER SQUARE YARD OF REJUVENATING AGENT SHALL THEN BE APPLIED TO THE 3 INCH WIDE AREA AROUND THE PERIMETER AFTER ROLLING AND LIGHTLY MIST OVER THE ENTIRE REPAIR. A THIN LAYER OF SAND SHALL BE APPLIED OVER THE ENTIRE REPAIR IF IMMEDIATE OPENING OF THE STREET IS REQUIRED. IF SAND IS NOT USED, CONES SHALL BE ADJUSTED TO DELINEATE TRAFFIC AROUND THE REPAIR AND SHALL BE LEFT IN PLACE UNTIL THE ASPHALT WILL NOT RAVEL FROM TRAFFIC.

DISPOSAL OF WASTE MATERIAL

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ALL WASTE, EXCESS, AND REMOVED MATERIALS FROM THE JOBSITE. NO MATERIAL WILL BE PERMITTED TO STAY ON THE SITE AFTER THE CONTRACTOR HAS LEFT THE REPAIR AREA.

QUALITY OF WORK

ALL PHASES OF THE WORK ARE SUBJECT TO APPROVAL BY THE CITY. ANY WORK OR MATERIALS NOT PASSING INSPECTION BY THE ENGINEER SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER AND THE COST OF REWORK TO BE BORNE BY THE CONTRACTOR. WORK PERFORMED BY THE CONTRACTOR SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR EXCLUSIVE OF SUB-BASE FAILURES OF MATERIALS PLACED BY OTHERS AND CIRCUMSTANCES BEYOND CONTROL OF THE CONTRACTOR. FAILURES ARE TO BE CORRECTED AT THE CONTRACTOR'S EXPENSE AND SUBJECT TO THE ONE YEAR GUARANTEE.

ANY DAMAGE TO EXISTING STRUCTURES AND SURROUNDING VEGETATION RESULTING FROM THE CONTRACTOR'S OPERATION SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AND SUBJECT TO THE INSPECTION AND APPROVAL OF THE ENGINEER.

METHOD OF MEASUREMENT

THERMAL BOND ASPHALT REPAIR WILL BE MEASURED BY THE SQUARE YARD AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. THE ACCEPTED QUANTITIES, MEASURED AS PROVIDED FOR ABOVE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR ITEM 251 PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN.

BASIS OF PAYMENT

THERMAL BOND ASPHALT REPAIR SHALL BE PAID FOR PER SQUARE FOOT FOR FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK AS SPECIFIED.

251 PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN, 50 SQUARE YARDS

ITEM 625 LUMINAIRE, CONVENTIONAL, AS PER PLAN (TYPE II, LED, 250 WATT, 120 VOLT)

IN ADDITION TO THE REQUIREMENTS OF ODOT CMS, LUMINAIRES SHALL BE AS FOLLOWS:

- SHOEBOX STYLE FIXTURE
- POWDER COATED BRONZE
- INCLUDE INTERNAL FUSING
- HAVE SEPARATE PHOTOELECTRIC CELLS
- TYPE II, 120 VOLT, 250 WATT NOMINAL EQUIVALENT
- LIGHT-EMITTING DIODE LAMP
- 50,000 LUMENS INITIAL
- 45,000 LUMENS MEAN
- 24,000 HOURS RATED LIFE

PAYMENT SHALL BE MADE AT THE UNIT PRICE BID FOR EACH OF ITEM 625, LUMINAIRE, CONVENTIONAL, AS PER PLAN AND SHALL INCLUDE ALL OTHER MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY.

ITEM 630 GROUND MOUNTED SUPPORT, NO. 3 POST, AS PER PLAN

ITEM 630 IS MODIFIED TO REMOVE TYPE F AND P (730.015) U-CHANNEL POSTS. PROVIDE ONLY TYPE S (730.016) SQUARE POSTS.

PAYMENT SHALL BE MADE PER FOOT OF ITEM 630 GROUND MOUNTED SUPPORT, NO. 3 POST, AS PER PLAN.

ITEM 630 SIGNING MISC.: RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGN ASSEMBLY

1.0 DESCRIPTION

THIS WORK SHALL CONSIST OF FURNISHING AND INSTALLING A RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGN ASSEMBLY. THE FLASHING UNIT SHALL BE 2 SIDED LED, CONNECTED TO 120 V AC POWER SUPPLY AND PEDESTRIAN ACTIVATED. MULTIPLE UNITS SHALL BE CONTROLLED VIA WIRED CONNECTIONS AND SYNCHRONIZED. THE UNIT SHALL BE COMPLIANT WITH THE MOST CURRENT FEDERAL MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

2.0 GENERAL REQUIREMENTS

2.1. EACH RRFB SHALL CONSIST OF TWO RAPIDLY AND ALTERNATELY FLASHING RECTANGULAR YELLOW INDICATIONS HAVING LED ARRAY BASED PULSING LIGHT SOURCES.

2.2. EACH RRFB SHALL BE A COMPLETE ASSEMBLY, CONSISTING OF BUT NOT LIMITED TO, SIGNAGE, SIGN MOUNTING HARDWARE, INDICATIONS AND ELECTRICAL COMPONENTS (WIRING, SOLID-STATE CIRCUIT BOARDS, ETC.).

2.3. THE DURATION OF A PREDETERMINED PERIOD OF OPERATION OF THE RRFB INSTALLATION FOLLOWING EACH ACTUATION SHALL BE 11.0 SECONDS AS PER MUTCD TIMING STANDARDS FOR PEDESTRIAN CLEARANCE TIMES.

3.0 FUNCTIONAL REQUIREMENTS

A. EACH RRFB SHALL BE ACTIVATED BY ADA COMPLIANT PUSHBUTTONS.

B. THE RRFB SHALL BE NORMALLY DARK, SHALL INITIATE OPERATION ONLY UPON PEDESTRIAN ACTUATION, AND SHALL CEASE OPERATION AFTER A PREDETERMINED TIME LIMIT (BASED ON MUTCD PROCEDURES).

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ITEM 630 SIGNING MISC.: RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGN ASSEMBLY - (CONTINUED)

C. EACH RRFB SHALL BE ACTIVATED VIA WIRED CONNECTIONS.

D. WHEN ACTIVATED, THE RRFB UNIT INDICATIONS SHALL FLASH IN A RAPIDLY ALTERNATING "WIG-WAG" FLASHING SEQUENCE (LEFT LIGHT ON, THEN RIGHT LIGHT ON).

E. ALL RRFB LIGHT INDICATIONS SHALL BE WIRE CONNECTED AND SYNCHRONIZED (ALL LIGHTS WILL TURN ON WITHIN 120 MSEC AND REMAIN SYNCHRONIZED THROUGHOUT THE DURATION OF THE FLASHING CYCLE).

F. EACH OF THE RRFB'S INDICATIONS SHALL FLASH AT 70 TO 80 FLASHES PER MINUTE.

G. UNIT SHALL BE LOW CURRENT/HIGH OUTPUT INCLUDING AUTOMATIC DIMMING CAPABILITIES FOR DAY AND NIGHT VISIBILITY.

4.0. MATERIALS

FURNISH A COMPLETE ASSEMBLY, CONSISTING OF BUT NOT LIMITED TO, SIGNAGE, SIGN MOUNTING HARDWARE, INDICATIONS, AND ELECTRICAL COMPONENTS (WIRING, SOLID-STATE CIRCUIT BOARDS, ETC.).

4.1 RRFB INDICATIONS

A. EACH RRFB INDICATION LENS SHALL BE A MINIMUM SIZE OF APPROXIMATELY 5" WIDE X 2" HIGH.

B. THE RRFB INDICATIONS SHALL BE ALIGNED HORIZONTALLY, WITH THE LONGER DIMENSION OF THE INDICATION HORIZONTAL. ON TWO-WAY BEACONS, THERE SHALL BE TWO INDICATIONS ON THE FRONT AND TWO INDICATIONS ON THE BACK. TWO-WAY BEACONS SHALL HAVE TWO INDICATIONS ON THE FRONT AND TWO INDICATIONS ON THE REAR.

C. EACH RRFB SHALL BE SUPPLIED WITH ALL REQUIRED HARDWARE TO INSTALL ASSEMBLY. ALL EXPOSED HARDWARE SHALL BE ANTI-VANDAL.

D. EACH RRFB SHALL BE LOCATED BETWEEN THE BOTTOM OF THE CROSSING WARNING SIGN AND THE TOP OF THE SUPPLEMENTAL DOWNWARD DIAGONAL ARROW PLAQUE.

E. THE LIGHT INTENSITY OF THE YELLOW INDICATIONS SHALL MEET THE MINIMUM SPECIFICATIONS OF SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) STANDARD J595 (DIRECTIONAL FLASHING OPTICAL WARNING DEVICES FOR AUTHORIZED EMERGENCY, MAINTENANCE, AND SERVICE VEHICLES) DATED JANUARY, 2005.

4.2 SIGNS

A. ALL SIGNS SHALL CONFORM TO MUTCD STANDARDS.

B. ALL SIGN BLANKS SHALL BE MINIMUM .080 GAUGE ALUMINUM, MINIMUM.

C. REFLECTIVE SHEETING TYPE H SHALL BE USED ON THE SIGN. SIGN SHEETING SHALL BE LISTED ON THE ODOT QUALIFIED PRODUCTS LIST (QPL).

D. ALL SIGN ASSEMBLIES SHALL USE ANTI-VANDAL FASTENERS TO MOUNT COMPONENTS TO SIGN AND SIGN TO FIXTURE.

E. ALL SIGN ASSEMBLIES SHALL BE AS SHOWN & SPECIFIED IN THE PLANS.

F. PROVIDE PEDESTRIAN PUSH BUTTONS SIGNS R10-25-9 (9" X 12"). SIGNS SHOULD BE MOUNTED ADJACENT TO OR INTEGRAL WITH EACH PEDESTRIAN PUSHBUTTON.

G. TWO SETS OF SIGNS SHALL BE REQUIRED PER EACH TWO-WAY UNIT FOR VIEW FROM EACH APPROACH.

H. SIGN MOUNTING HEIGHTS SHALL BE IN ACCORDANCE WITH ODOT STANDARD CONSTRUCTION DRAWINGS.

4.3 CONTROL CIRCUIT

A. WHEN ACTIVATED, THE TWO YELLOW INDICATIONS IN EACH RRFB SHALL FLASH IN A RAPIDLY ALTERNATING "WIG-WAG" FLASHING SEQUENCE (LEFT LIGHT ON, THEN RIGHT LIGHT ON).

B. THE CONTROL CIRCUIT SHALL HAVE THE CAPABILITY OF INDEPENDENTLY FLASHING UP TO TWO INDEPENDENT OUTPUTS. THE LED LIGHT OUTPUTS AND FLASH PATTERN SHALL BE COMPLETELY PROGRAMMABLE.

C. AS A SPECIFIC EXCEPTION TO 2012 MUTCD SECTION 4L.04 REQUIREMENTS FOR THE FLASH RATE OF BEACONS, RRFB'S SHALL USE A MUCH FASTER FLASH RATE. EACH OF THE TWO YELLOW INDICATIONS OF AN RRFB SHALL HAVE 70 TO 80 PERIODS OF FLASHING PER MINUTE AND SHALL HAVE ALTERNATING, BUT APPROXIMATELY EQUAL, PERIODS OF FLASHING LIGHT EMISSIONS AND DARK OPERATION. DURING EACH OF ITS 70 TO 80 FLASHING PERIODS PER MINUTE, THE YELLOW INDICATIONS ON THE LEFT SIDE OF THE RRFB SHALL EMIT TWO SLOW PULSES OF LIGHT AFTER WHICH AND THE YELLOW INDICATIONS ON THE RIGHT SIDE OF THE RRFB SHALL EMIT FOUR RAPID PULSES OF LIGHT FOLLOWED BY A LONG PULSE.

D. THE FLASH RATE OF EACH INDIVIDUAL YELLOW INDICATION, AS APPLIED OVER THE FULL ON-OFF SEQUENCE OF A FLASHING PERIOD OF THE INDICATION, SHALL NOT BE BETWEEN 5 AND 30 FLASHES PER SECOND, TO AVOID FREQUENCIES THAT MIGHT CAUSE SEIZURES.

E. THE CONTROL CIRCUIT SHALL BE SEALED WATERTIGHT TO ELIMINATE DIRT CONTAMINATION AND ALLOW FOR SAFE HANDLING IN ALL WEATHER CONDITIONS.

F. THE LED'S SHALL BE SEALED AGAINST DUST AND MOISTURE INTRUSION AS PER THE REQUIREMENTS OF NEMA STANDARD 250-1991 FOR TYPE 4 ENCLOSURE AND TO PROTECT ALL INTERNAL LED AND ELECTRICAL COMPONENTS.

4.4 POWER SUPPLY

A. POWER SHALL BE PROVIDED AS 120 VOLT ALTERNATING CURRENT. 15 AMP CIRCUIT BREAKER PROTECTION SHALL ALSO BE PROVIDED.

B. HOUSING SHALL BE A LOCKABLE, WEATHERPROOF, CORROSION-RESISTANT ENCLOSURE. EACH ENCLOSURE SHALL BE FURNISHED WITH AT LEAST ONE PADLOCK WITH A BRONZE OR BRASS LOCK BODY AND CORROSION PROTECTED STEEL SHACKLE. ALL PADLOCKS REQUIRED BY THE PROJECT SHALL BE KEYED ALIKE.

C. ALL FASTENERS USED SHALL BE ANTI-VANDAL.

4.5 COMMUNICATIONS

A. COMMUNICATIONS BETWEEN POLES AND PUSHBUTTONS SHALL BE BY WIRING.

4.6 PUSHBUTTON

A. PEDESTRIAN PUSHBUTTONS SHALL BE INSTALLED AT PLAN LOCATIONS TO PROVIDE PEDESTRIAN ACTUATION OF THE SIGNAL. PEDESTRIAN PUSHBUTTONS SHALL BE IN COMPLIANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA). PUSHBUTTONS ARE TO BE MOUNTED 42" ABOVE GROUND LEVEL.

B. PEDESTRIAN PUSHBUTTONS SHALL BE PRESSURE ACTIVATED WITH A NON-MOVING BUTTON AND PROVIDE BOTH A TWO-TONE AUDIBLE BEEP AND A VISIBLE, MOMENTARY LED TO NOTIFY THE USER THAT THE SWITCH WAS ACTIVATED. AN ACCEPTABLE PUSHBUTTON SHALL BE THE BULL DOG, MANUFACTURED BY POLARA ENGINEERING, INC., OR APPROVED EQUAL. THE OUTER HOUSING COLOR SHALL BE BLACK AND THE BUTTON SHALL BE SILVER. A CLEAR BEAD OF SILICON SEALANT SHALL BE APPLIED TO THE TOP OF THE PUSHBUTTON HOUSING (1 INCH EACH SIDE OF TOP CENTER) AGAINST THE POLE TO PREVENT WATER FROM ENTERING THE BACK OF THE PUSHBUTTON HOUSING.

4.7 POLE & BASE

A. THE RRFB MUST MOUNT ON STANDARD, 30 FOOT LIGHT POLE WITH BREAKAWAY BASE AS SPECIFIED IN THE PLANS. FIELD ADJUSTED POLES TO MAINTAIN THE PROPER SIGN MOUNTING HEIGHT AND ORIENTATION, UNLESS SPECIFIED OTHERWISE IN THE PLANS.

B. THE EXTERIOR COLOR OF ALL SURFACES, INCLUDING ALL ANCHOR BOLT COVERS, SHALL BE PAINTED DARK BRONZE (FEDERAL COLOR NO. 595-37056). THE POLE SHALL BE ALUMINUM AND POWDER COATED DARK BRONZE.

4.0 CONSTRUCTION

THE RRFB WILL BE ASSEMBLED AND CONSTRUCTED BY THE CONTRACTOR AS SHOWN AND SPECIFIED ON THE PLANS.

5.0 WARRANTY

WARRANTY SHALL BE 2 YEARS FROM THE DATE OF FINAL ACCEPTANCE.

6.0 MEASUREMENT

THE CITY WILL MEASURE THE ITEM COMPLETE IN PLACE, INCLUDING ALL MATERIALS, TESTING, LABOR AND SOFTWARE FOR A FULLY FUNCTIONAL UNIT. THE FOUNDATION, POWER SERVICE AND GROUND ROD ARE SEPARATELY ITEMIZED AND PAID FOR. THE RRFB ASSEMBLY INCLUDES THE FOLLOWING ITEMS: POLE, RAPID RECTANGULAR FLASHING BEACONS, SIGNS, SIGN SUPPORT ASSEMBLIES, PEDESTRIAN PUSHBUTTON, CONTROLLER, ANCHOR BOLTS, AND ALL OTHER MISCELLANEOUS HARDWARE REQUIRED FOR INSTALLATION.

7.0 PAYMENT

THE CITY WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE PER EACH AS FOLLOWS:

ITEM - 630E97700 EACH SIGNING MISC.: RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGN ASSEMBLY

ITEM 632 POWER SERVICE, AS PER PLAN

IN ADDITION TO SECTION 632.24, THE PROPOSED POWER SERVICE DROP SHALL BE AT APPROXIMATE LOCATION INDICATED ON THE PLANS.

THE ADDRESS IS:
4599 COSGRAY ROAD, HILLIARD

ELECTRIC POWER SHALL BE OBTAINED FROM THE COLUMBUS SOUTHERN POWER (AMERICAN ELECTRIC POWER), 1 RIVERSIDE PLAZA, COLUMBUS, OH 43215-2372 (614) 716-1000. POWER SHALL BE SUPPLIED VIA A 2-WIRE, 120 VOLT POWER SERVICE. THE CONTRACTOR SHALL CONTACT THE METER SECTION OF COLUMBUS SOUTHERN POWER FOR INFORMATION REGARDING THE METER BASE INSTALLATION PRIOR TO ORDERING POLES.

THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT THE POWER COMPANY FOR THE ELECTRIC SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES WITH THE EXCEPTION OF NORMAL MONTHLY ENERGY CHARGES.

PROVIDE A 2 INCH GALVANIZED CONDUIT FROM THE CONTROLS TO THE POWER SERVICE POINT, AS DIRECTED BY THE ENGINEER. PROVIDE 5 FEET OF COILED SLACK AT THE SPLICE POINT FOR ADDITIONAL CONNECTIONS. FURNISH AND INSTALL DISCONNECT SWITCHES, AS DIRECTED BY THE ENGINEER.

ALL ELECTRIC SERVICES ARE TO BE POLE MOUNTED. SERVICE CABLE MUST BE RUN IN A CONDUIT SEPARATE FROM SIGNAL CABLE AND LOOP LEAD-IN WIRE.

THE POWER SERVICE SHALL BE INSTALLED IN ACCORDANCE WITH ODOT STANDARD CONSTRUCTION DRAWING TC-83.10.

PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR EACH OF ITEM 632 POWER SERVICE, AS PER PLAN AND SHALL INCLUDE ALL MATERIAL, EQUIPMENT, AND INCIDENTALS NECESSARY FOR MAKING A COMPLETE POWER SERVICE CONNECTION.

ITEM 644 CROSSWALK LINE, AS PER PLAN

IN ADDITION TO SECTION 644, THE PROPOSED CROSSWALK LINES SHALL INCLUDE THE FOLLOWING FEATURES:

EXTRA GRIT FOR INCREASED COEFFICIENT OF FRICTION.

"LADDER STYLE" CROSSWALK TYPE INCLUDING 24 INCH LONGITUDINAL LINES AS SHOWN IN THE DETAILS IN THE PLANS.

PAYMENT WILL BE MADE PER FOOT OF ITEM 644 CROSSWALK LINE, AS PER PLAN WHICH SHALL BE FULL COMPENSATION FOR ALL MATERIALS, LABOR AND INCIDENTALS.

PADLOCKS AND KEYS

PADLOCKS FURNISHED SHALL BE EITHER BRASS OR BRONZE, EQUAL TO AMERICAN LOCK #1207B, KEYCODE 43737, AND SHALL BE KEYED IN ACCORDANCE WITH CMS ITEM 631.06. PAYMENT SHALL BE INCLUDED IN THE BID FOR THE ITEM(S) BEING LOCKED.

GROUNDING AND BONDING

THE REQUIREMENTS OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS (CMS) AND THE HL AND 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. IF MULTIPLE CONDUIT RUNS BEGIN AND END AT THE SAME POINTS, ONLY ONE EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED.

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

C. 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:

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

CALCULATED
M.L.S.
CHECKED
L.A.S.

TRAFFIC CONTROL - GENERAL NOTES

FRA-COSGRAY
ROAD RRFB

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GROUNDING AND BONDING - (CONTINUED)

II. 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. 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.

6. PAYMENT

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

CALCULATED
MLS
CHECKED
LAS

TRAFFIC CONTROL - GENERAL NOTES

FRA - COSGRAY
ROAD RRFB

SHEET NO.	REFERENCE NO.	LOCATION	STATION		SIDE	251 PARTIAL DEPTH PAVEMENT REPAIR, AS PER PLAN	621 RPM, LOW PROFILE, YELLOW/YELLOW	621 RAISED PAVEMENT MARKER REMOVED	644 EDGE LINE, 6"	644 CENTER LINE	644 CROSSWALK LINE, AS PER PLAN	644 WORD ON PAVEMENT, 96"	644 BIKE CROSSING SYMBOL, 96"	644 YIELD LINE	644 REMOVAL OF PAVEMENT MARKING
			FROM	TO											
21	M1	COSGRAY RD	105+83		R								1		
21	W1	COSGRAY RD	106+24		R							1			
21	Z1	COSGRAY RD	106+74		R									10	
21	X1	COSGRAY RD	107+23	107+41	L-R						27				
21	E1	COSGRAY RD	107+73	107+88	R			15							
21	D1	COSGRAY RD	107+82	107+97	C					15					
21	Z2	COSGRAY RD	107+84		L									10	
21	E2	COSGRAY RD	107+88	108+03	L			15							
21	W2	COSGRAY RD	108+34		L						1				
21	M2	COSGRAY RD	108+74		L							1			
21		COSGRAY RD	105+77	108+87	C		20								
21		COSGRAY RD	105+77	108+87	C			4							
21		COSGRAY RD	107+23	107+41	C										54
21		COSGRAY RD	107+73	108+03	C										120
21		COSGRAY RD	107+73	108+02	C	50									
TOTAL FEET									30	15					
TOTAL, MILES									0.01	0.01					
TOTALS CARRIED TO GENERAL SUMMARY						50	20	4	0.01	0.01	27	2	2	20	174

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PAVEMENT MARKING - SUBSUMMARY	CALCULATED MLS CHECKED LAS
FRA - COSGRAY ROAD RRFB	19 24

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630		630		630		630		630		630	
							GROUND MOUNTED SUPPORT, NO. 3 POST, AS PER PLAN	FT	SIGN POST REFLECTOR, FLOURESCENT YELLOW-GREEN	EACH	SIGN POST REFLECTOR, RED	EACH	SIGN, FLAT SHEET, TYPE H	SQ FT	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	EACH
21	S1	COSGRAY RD	104+30	R	W11-15 W11-15P W16-9P	30X30 24X18 24X12	14.0		1			6.25 3.00 2.00						
21	S2	COSGRAY RD	106+72	R	R1-5	36X36	14.0					9.00						
21	S3	COSGRAY RD	107+16	R	W11-1	30X30							1			1		
21	S4	COSGRAY RD	107+85	L	R1-5	36X36	14.0					9.00						
21	S5	COSGRAY RD	108+59	L	W11-1	30X30							1			1		
21	S6	COSGRAY RD	111+10	L	W11-15 W11-15P W16-9P	30X30 24X18 24X12	14.0		1			6.25 3.00 2.00						
21	S7	COSGRAY RD	112+04	L	W11-1	30X30							1			1		
21	S8	HERITAGE RAIL TRAIL	49+71	R	W1-3R	18X18	14.0					2.25						
21	S9	HERITAGE RAIL TRAIL	50+04	L	D3-1	24X9						2.00						
21	S10	HERITAGE RAIL TRAIL	50+21	R	W3-1	18X18	14.0					2.25						
21	S11	HERITAGE RAIL TRAIL	50+68	L	R1-1	18X18							1			1		
21	S12	HERITAGE RAIL TRAIL	51+30	L	R5-3	24X24	14.0					4.00						
21	S13	HERITAGE RAIL TRAIL	51+40	R	R1-1	18X18	14.0			1		3.00						
21	S14	HERITAGE RAIL TRAIL	51+86	R	R5-3	24X24	14.0					4.00						
21	S15	HERITAGE RAIL TRAIL	51+89	L	R1-1	18X18	14.0			1		3.00						
21	S16	HERITAGE RAIL TRAIL	51+95	L	R1-1	18X18							1			1		
21	S17	HERITAGE RAIL TRAIL	52+17	L	D3-1	24X9						2.00						
21	S18	HERITAGE RAIL TRAIL	52+21	L	W3-1	18X18	14.0					2.25						
21	S19	HERITAGE RAIL TRAIL	52+60	L	W1-2L	18X18	14.0					2.25						
TOTALS CARRIED TO GENERAL SUMMARY							168.0		2	2		67.50		5		5		

CALCULATED ML'S	CHECKED LAS	SIGNING - SUBSUMMARY

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PAVEMENT MARKING LEGEND

- | | |
|---|------------------------------------|
| (E) = EDGE LINE (6" WHITE) | (W) = WORD ON PAVEMENT (96" WHITE) |
| (D) = CENTER LINE (DOUBLE SOLID YELLOW) | (X) = CROSSWALK LINE AS PER PLAN |
| (M) = SYMBOL ON PAVEMENT (96" WHITE) | (Z) = YIELD LINE (24"x36" WHITE) |

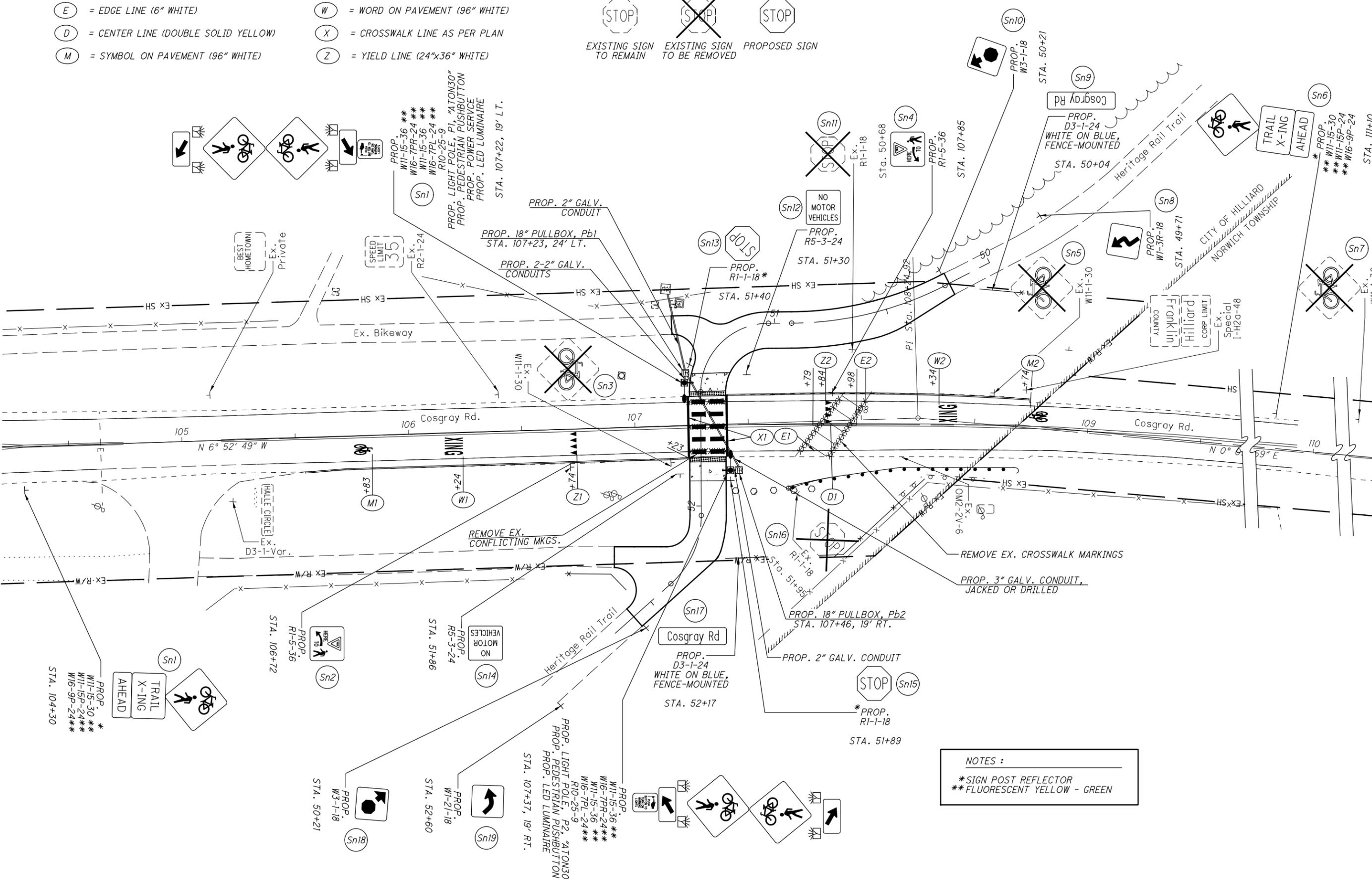
SIGN LEGEND

- | | | |
|-------------------------|-----------------------------|---------------|
| | | |
| EXISTING SIGN TO REMAIN | EXISTING SIGN TO BE REMOVED | PROPOSED SIGN |

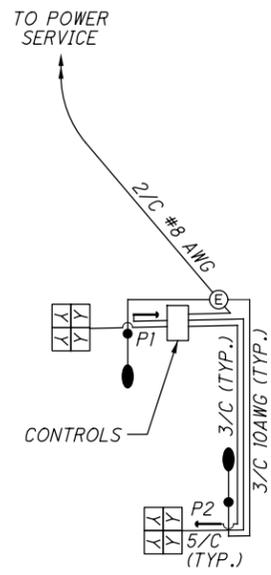
CALCULATED
MLS
CHECKED
LAS

0 20 40
HORIZONTAL SCALE IN FEET

TRAFFIC CONTROL PLAN



NOTES :
 * SIGN POST REFLECTOR
 ** FLUORESCENT YELLOW - GREEN



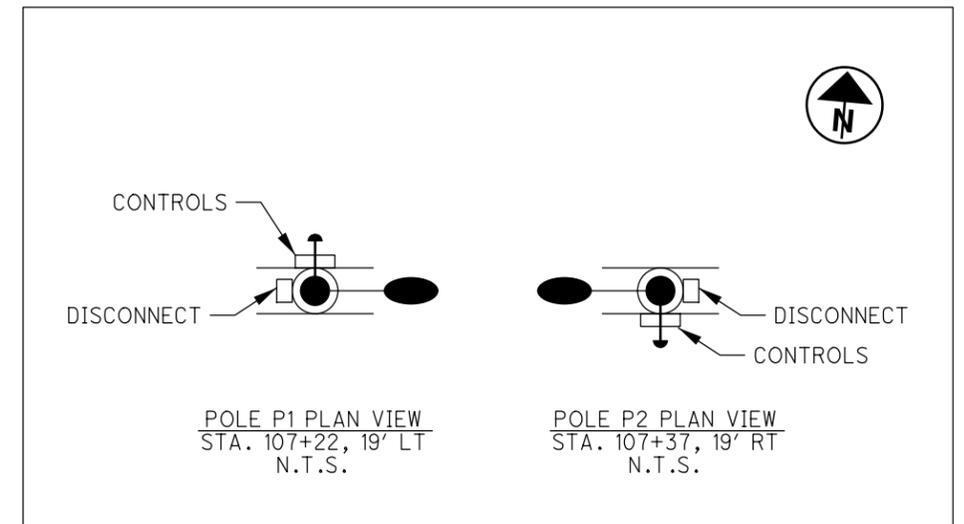
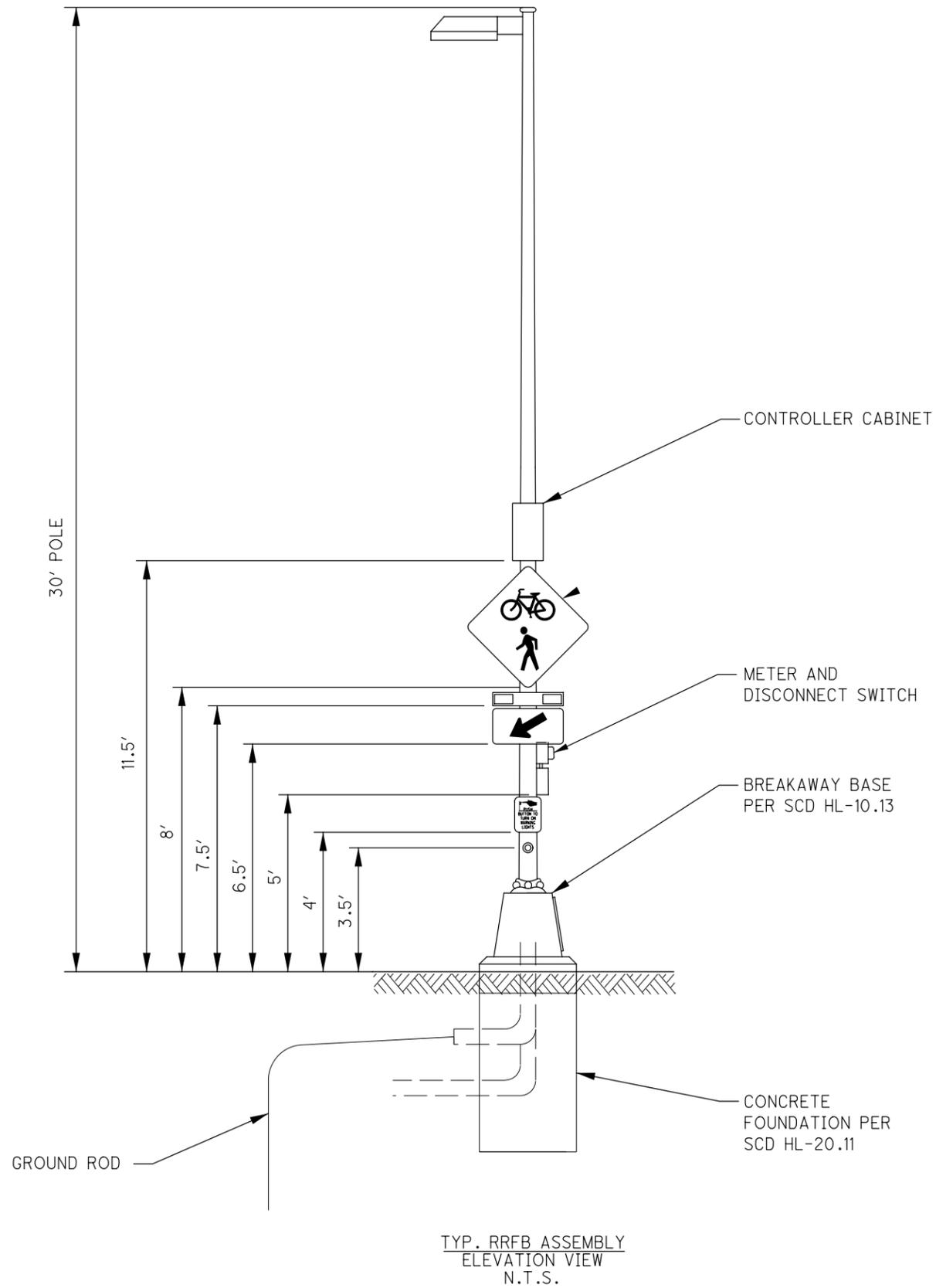
WIRING DIAGRAM
N.T.S.

YELLOW/YELLOW RAISED REFLECTIVE PAVEMENT MARKERS SHALL BE PLACED AT THE FOLLOWING STATIONS ON CENTERLINE

105+77
106+01
106+23
106+43
106+61
106+77
106+91
107+03
107+13
107+21
107+43
107+51
107+61
107+73
107+87
107+93
108+21
108+41
108+63
108+87

SUB-SUMMARY			
ITEM	QUAN.	UNIT	DESCRIPTION
625	50	FT	CONDUIT, JACKED OR DRILLED, 725.04, 3"
625	50	FT	CONDUIT, 2", 725.04
625	38	FT	TRENCH
625	2	EACH	PULL BOX, 725.08, 18"
625	2	EACH	LUMINAIRE, CONVENTIONAL, AS PER PLAN (TYPE II, LED, 250 WATT, 120 VOLT)
625	2	EACH	LIGHT POLE FOUNDATION, 24" X 6' DEEP
625	2	EACH	GROUND ROD
630	2	EACH	SIGNING, MISC.: RECTANGULAR RAPID FLASHING BEACON (RRFB) SIGN ASSEMBLY
632	110	EACH	SIGNAL CABLE, 3 CONDUCTOR, NO. 14 AWG
632	130	EACH	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
632	125	EA	SIGNAL CABLE, 3 CONDUCTOR, NO. 10 AWG
632	1	EACH	POWER SERVICE, AS PER PLAN
632	60	FT	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG

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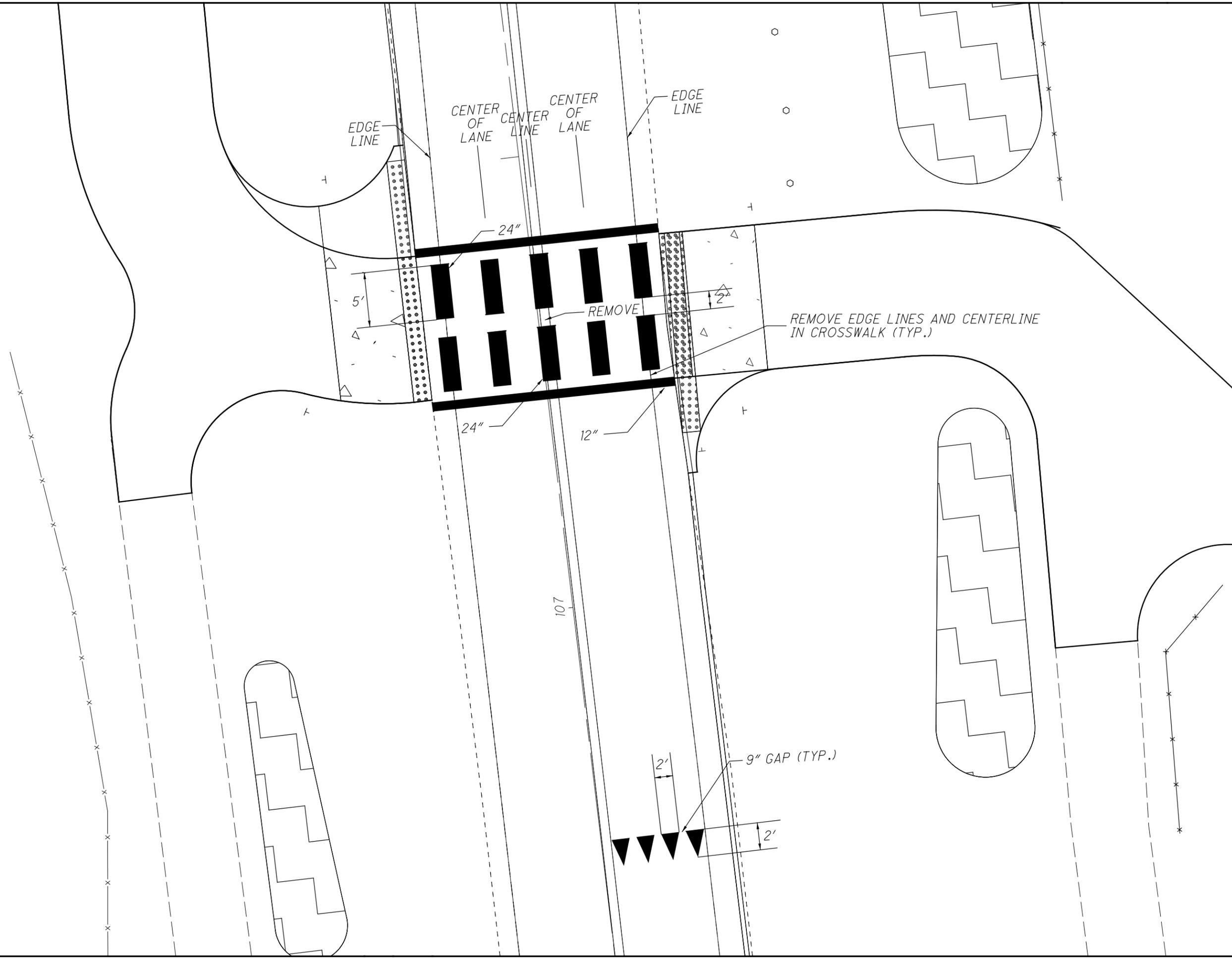


CALCULATED	MLS
CHECKED	LAS

TRAFFIC CONTROL DETAIL

FRA-COSGRAY
 ROAD RRFB

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CALCULATED
ML/S
CHECKED
L/AS

0 5 10
HORIZONTAL
SCALE IN FEET

TRAFFIC CONTROL DETAIL

**FRA-COSGRAY
ROAD RRFB**