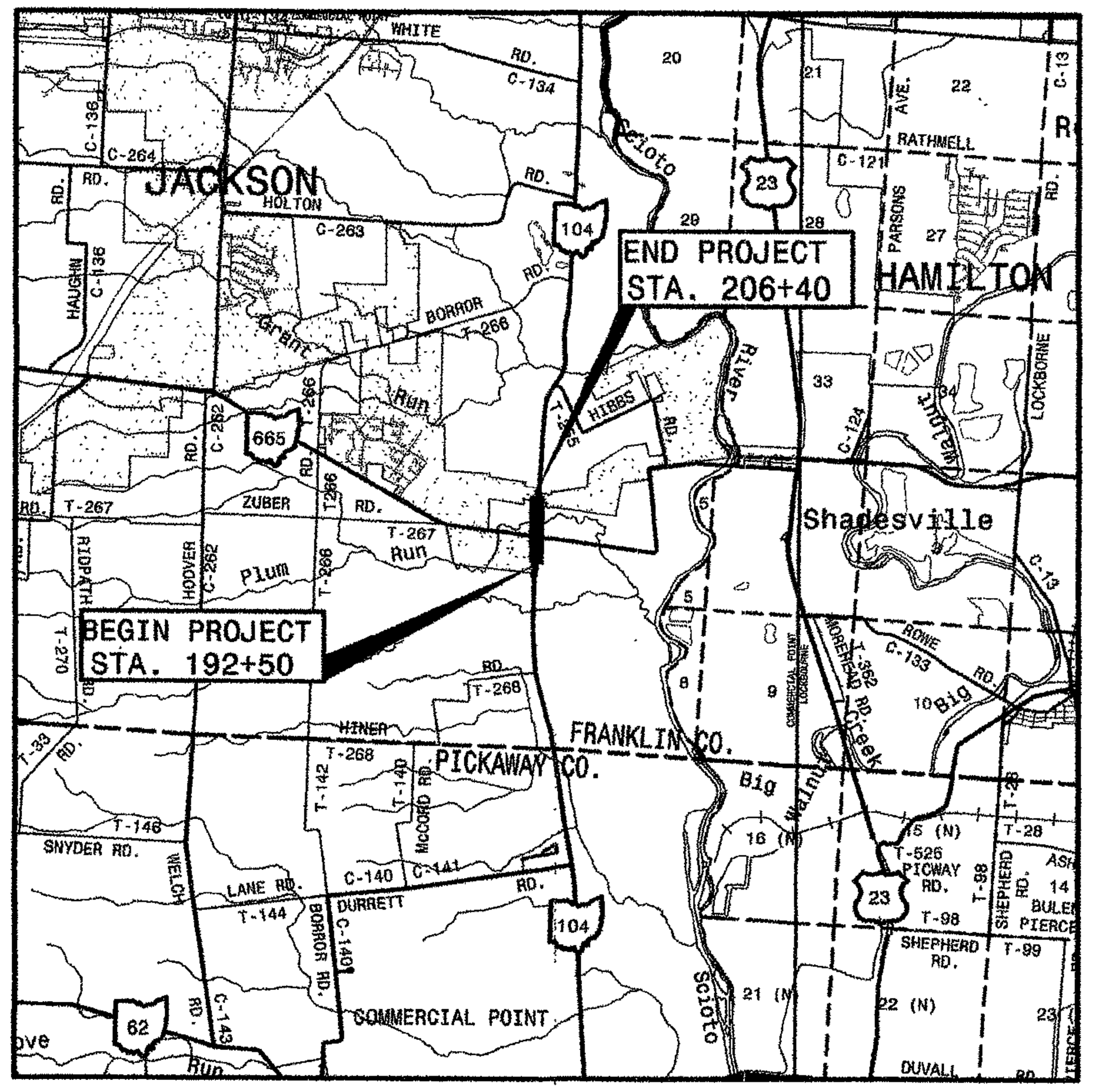


LOCATION MAP

LATITUDE: N 39° 49' 27"
LONGITUDE: W 83° 01' 59"

SCALE IN MILES

0 1 2 3 4 5

PORTION TO BE IMPROVED

STATE & FEDERAL ROUTES

OTHER ROADS

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
FRA-104-1.29
CITY OF GROVE CITY
JACKSON TOWNSHIP
FRANKLIN COUNTY

INDEX OF SHEETS

PROJECT DESCRIPTION

UPGRADING 0.34 MILES OF S.R. 104 BY WIDENING FOR LEFT TURN LANES. CONSTRUCTION ON EACH LEG OF S.R. 104 INTERSECTION, INCLUDING UPGRADING OF GUARDRAIL, DRAINAGE AND SHOULDERS, ALONG WITH 86' EXISTING STRUCTURE WIDENING. TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS.

2005 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATION 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.

UNDER AUTHORITY OF SECTION 4511.21, DIVISION (1) OF THE OHIO REVISED CODE, THE REVISED PRIMA FACIE SPEED LIMITS AS INDICATED HEREIN ARE DETERMINED TO BE REASONABLE AND SAFE, AND ARE HEREBY ESTABLISHED FOR THE DURATION OF THIS PROJECT. THE PRIMA FACIE SPEED LIMIT OR LIMITS HEREBY ESTABLISHED SHALL BECOME EFFECTIVE WHEN APPROPRIATE SIGNS GIVING NOTICE THEREOF ARE ERECTED.

PROJECT EARTH DISTURBED AREA	2.82 Ac.
CONTRACTOR EARTH DISTURBED AREA	0.13 Ac.
NOTICE OF INTENT EARTH DISTURBED AREA	4.90 Ac.

DESIGN DESIGNATION

S.R. 104		S.R. 665	
CURRENT YEAR ADT (2005)	= 10030	CURRENT YEAR ADT (2005)	= 6740
DESIGN YEAR ADT (2025)	= 16500	DESIGN YEAR ADT (2025)	= 16420
DESIGN HOURLY VOLUME(2025)	= 1650	DESIGN HOURLY VOLUME(2025)	= 1642
DIRECTIONAL DISTRIBUTION	= 70%	DIRECTIONAL DISTRIBUTION	= 55%
TRUCKS (24 HOUR B & C)	= 10.5%	TRUCKS (24 HOUR B & C)	= 9%
DESIGN SPEED	= 55 MPH	DESIGN SPEED	= 55 MPH
LEGAL LIMIT	= 55 MPH	LEGAL LIMIT	= 55 MPH
FUNCTIONAL CLASSIFICATION	= URBAN MINOR ARTERIAL	FUNCTIONAL CLASSIFICATION	= URBAN MINOR ARTERIAL

DESIGN EXCEPTIONS

DESIGN FEATURE	APPROVAL DATE	SHEET NO.'S
NONE		

STANDARD CONSTRUCTION DRAWINGS						SUPPLEMENTAL SPECIFICATIONS		SPECIAL PROVISIONS	
BP-3.1	10-19-07	HL-30.11	1-21-05	TC-21.20	1-19-07	800	10-19-07		
BP-4.1	7-16-04	HL-30.21	1-19-07	TC-41.20	1-19-07	802	4-15-05	NWP #3	11-26-03
		HL-30.22	1-21-05	TC-42.10	1-19-07	832	4-25-06		
CB-1.1	7-15-05			TC-42.20	7-16-04			FRANKLIN COUNTY	
CB-1.2	7-15-05	LA-1.1	7-28-00	TC-52-10	1-19-07	848	4-15-05	FLOODPLAIN PERMIT	10-1-07
DM-1.1	4-21-06	LA-1.2	7-28-00	TC-52.20	1-19-07				
DM-1.2	10-2[illegible]-05			TC-65-10	1-21-05				
DM-1.4	4-21-06	MT-97.10	9-05-06	TC-65.11	1-21-05				
DM-4.3	7-19-02	MT-97.12	9-05-06	TC-81.10	5-01-00				
DM-4.4	7-19-02	MT-101-70	10-18-02	TC-82.10	4-19-02				
GR-1.1	7-16-04	MT-102.10	10-20-06	TC-83.10	1-19-07				
GR-2.1	1-16-04	MT-102.20	9-5-06	TC-83.20	1-19-07				
GR-2.2	7-19-02	MT-105.10	10-18-02	TC-84.20	1-19-07				
GR-3.6	1-16-04	MT-105.11	10-18-02	TC-85.20	5-1-00				
GR-4.2	1-21-05								
GR-5.3	1-16-04	RM-1.1	4-21-06	AS-1-81	7-19-02				
		RM-4.2	10-19-07	DS-1-92	7-18-03				
HW-2.1	4-21-06			PCB-91	7-19-02				
HW-2.2	4-21-06			TST-1-99	10-17-03				

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

STATE OF OHIO
ALI MUSTAFA
E-61045
REGISTERED
PROFESSIONAL ENGINEER

PLANS PREPARED BY:

DYNOTEC
DYNOTEC, INC.
1925 E. Dublin-Granville Rd.; Suite 106
Columbus, Ohio 43229
614-880-7320 Fax: 614-880-7324

Ali Mustafa 1-27-06
ALI MUSTAFA DATE

APPROVED Jack R. Marchbanks
DATE 3/29/06 DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

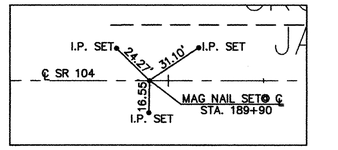
APPROVED James G. Beasley
DATE 11-7-07 DIRECTOR, DEPARTMENT OF TRANSPORTATION

CERTIFIED BY:
NAME: [signature] DATE: 3-28-06
DISTRICT 6
OHIO DEPT. OF TRANSPORTATION

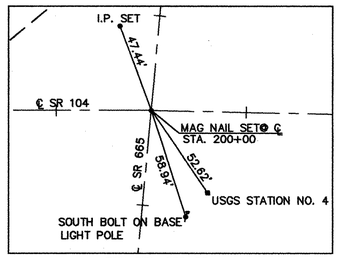
FEDERAL PROJECT NO. E050 (385)
PID NO. 16577
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE

FRA - 104 - 1.29

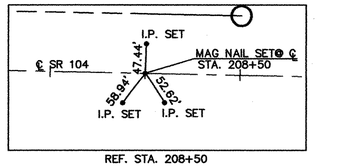
FRA-SR-104-1.29
080062 PID-16577
Dist6 1/25/2008



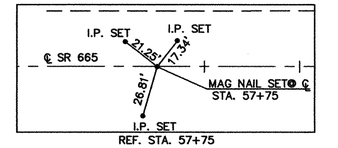
REF. STA. 189+90



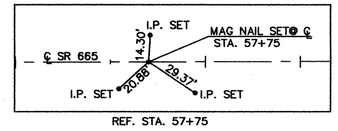
REF. STA. 200+00



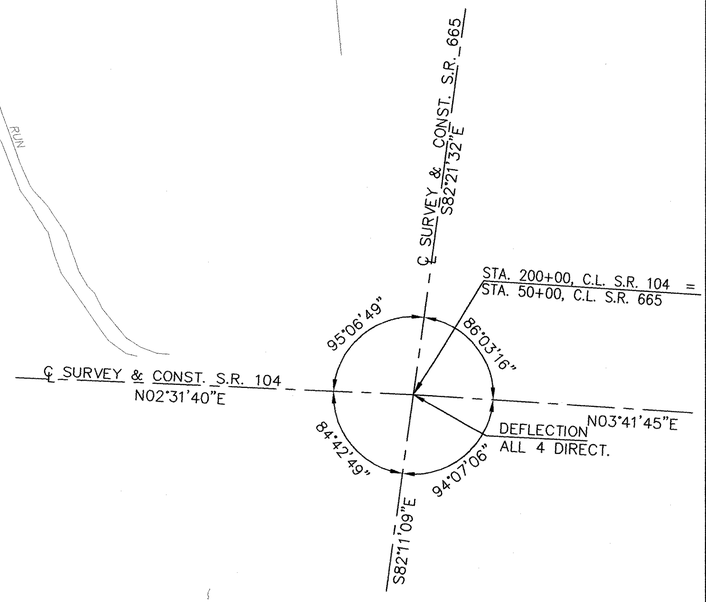
REF. STA. 208+50



REF. STA. 57+75



REF. STA. 57+75



DETAIL A

SCHEMATIC PLAN

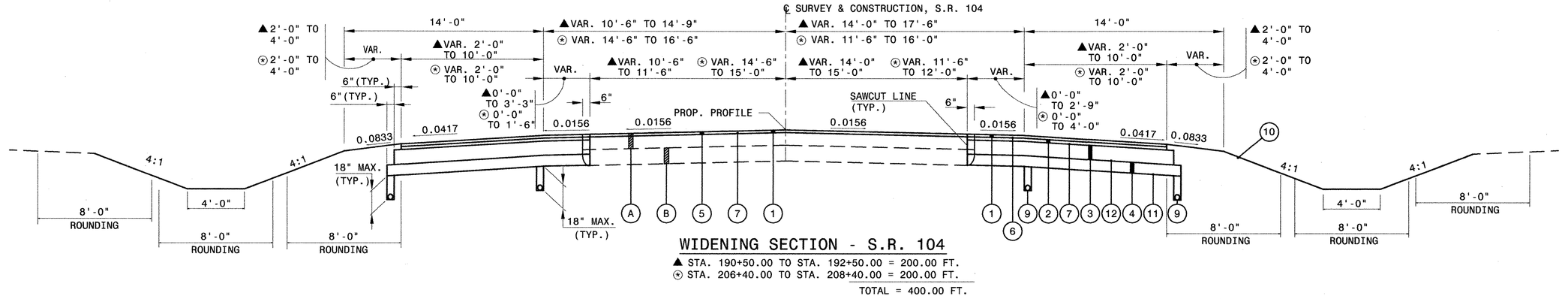
HORIZONTAL SCALE IN FEET
0 50 100 200

CALCULATED AM
CHECKED MO

FRA - 104 - 1.29

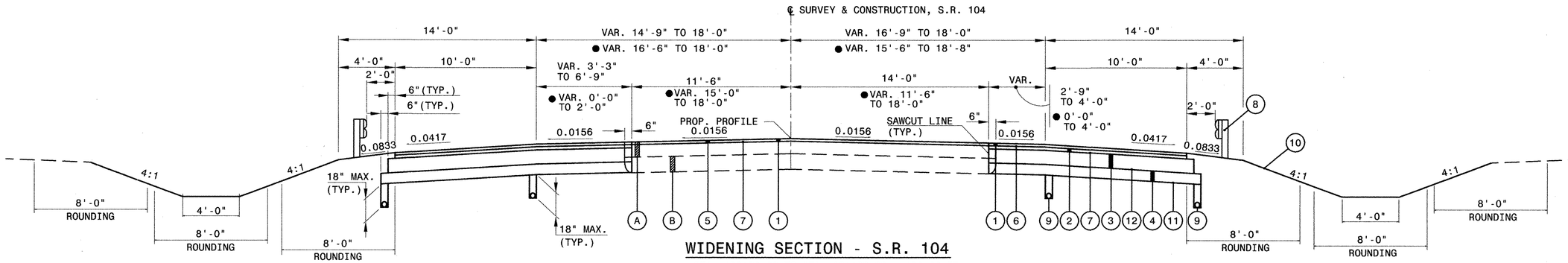
2
68

[[MOHAMED SALIM]] N:\JOBS\08172\DWG\FRA-104\104-GSA.DWG — JAN. 25, 2006 — 4:56PM — LAYOUT=LAYOUT1



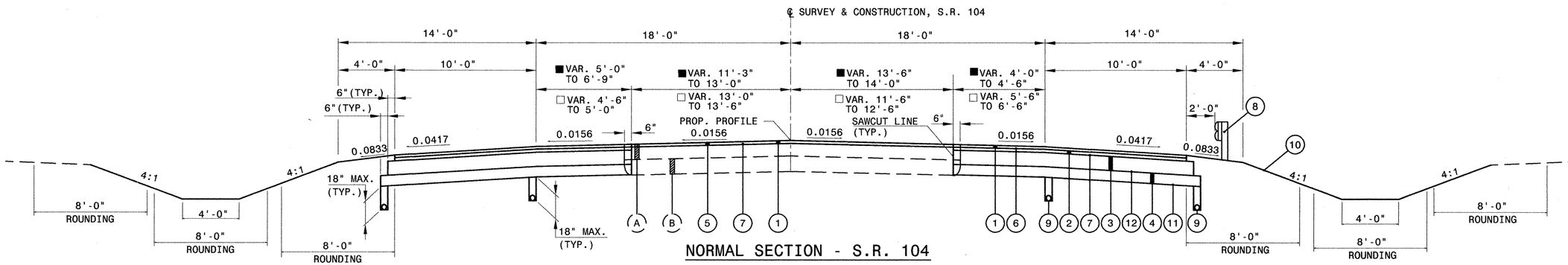
WIDENING SECTION - S.R. 104

▲ STA. 190+50.00 TO STA. 192+50.00 = 200.00 FT.
⊛ STA. 206+40.00 TO STA. 208+40.00 = 200.00 FT.
TOTAL = 400.00 FT.



WIDENING SECTION - S.R. 104

STA. 192+50.00 TO STA. 194+30.00 = 180.00 FT.
● STA. 205+10.00 TO STA. 206+40.00 = 130.00 FT.
TOTAL = 310.00 FT.

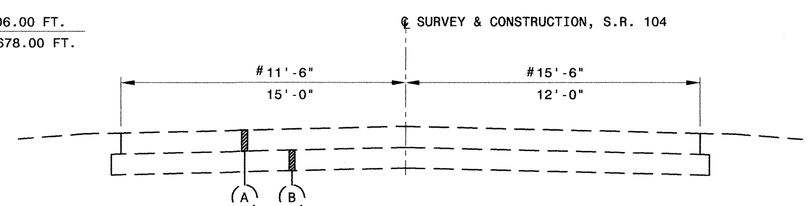


NORMAL SECTION - S.R. 104

■ STA. 194+30.00 TO STA. 199+02.00 = 472.00 FT.
(INTERSECTION) STA. 199+02.00 TO STA. 200+73.00
□ STA. 200+73.00 TO STA. 202+79.00 = 206.00 FT.
TOTAL = 678.00 FT.

LEGEND

1. ITEM 448 - 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22
2. ITEM 448 - 1 3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22
3. ITEM 301 - 8" ASPHALT CONCRETE BASE, PG 64-22
4. ITEM 304 - 6" AGGREGATE BASE
5. ITEM 254 - 1 1/2" PAVEMENT PLANING, ASPHALT CONCRETE
6. ITEM 407 - TACK COAT FOR INTERMEDIATE COURSE (APPLIED AT THE RATE OF 0.05 GAL./S.Y.)
7. ITEM 407 - TACK COAT (APPLIED AT THE RATE OF 0.075 GAL./S.Y. FOR ESTIMATION PURPOSES ONLY)
8. ITEM 606 - GUARDRAIL, TYPE 5
9. ITEM 605 - 4" BASE PIPE UNDERDRAIN
10. ITEM 659 - SEEDING AND MULCHING
11. ITEM 204 - SUBGRADE COMPACTION
12. ITEM 408 - PRIME COAT (APPLIED AT THE RATE OF 0.40 GAL./SY.)
13. ITEM 526 - REINFORCED CONCRETE APPROACH SLAB (T=12")
- (A) 8.75" ASPHALT CONCRETE
- (B) 8.75" AGGREGATE BASE
- (C) 7.75" ASPHALT CONCRETE
- (D) 8.25" AGGREGATE BASE
- (E) 4" CONCRETE BASE



TYPICAL SECTION OF ADJOINING PAVEMENT S.R. 104

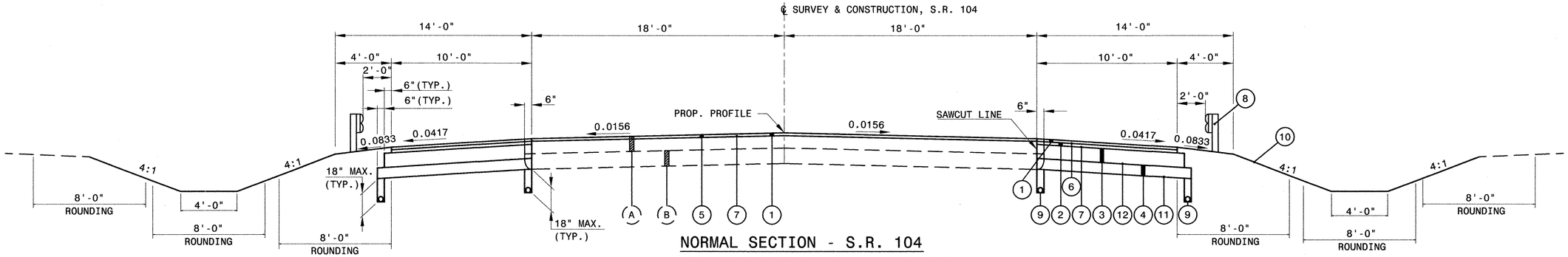
STA. 189+95
STA. 208+45

DESIGNED AM
CHECKED MO

TYPICAL SECTIONS

FRA-104-1.29

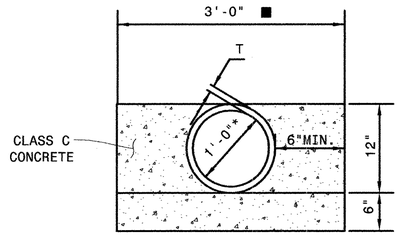
3
68



NORMAL SECTION - S.R. 104

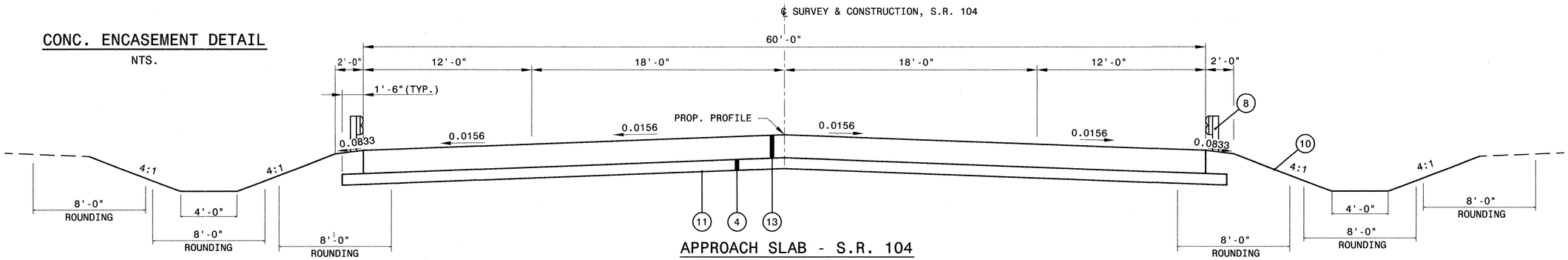
STA. 202+79.00 TO STA. 203+64.17 = 85.17 FT.
STA. 204+80.27 TO STA. 205+10.00 = 29.73 FT.
TOTAL = 114.90 FT.

	*	■	T
12" PIPE =	12"	3'-0"	2"
15" PIPE =	15"	3'-3"	2.25"
18" PIPE =	18"	3'-6"	2.5"



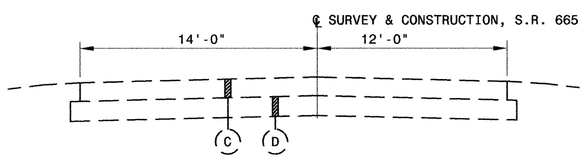
CONC. ENCASEMENT DETAIL

NTS.



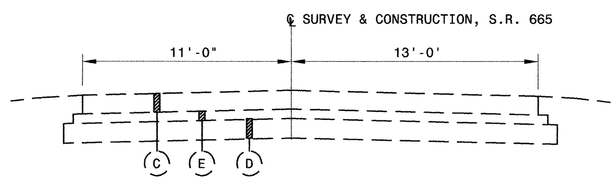
APPROACH SLAB - S.R. 104

STA. 203+64.17 TO STA. 203+79.17 = 15.00 FT.
STA. 204+65.27 TO STA. 204+80.27 = 15.00 FT.
TOTAL = 30.00 FT.



TYPICAL SECTION OF ADJOINING PAVEMENT S.R. 665

STA. 49+20



TYPICAL SECTION OF ADJOINING PAVEMENT S.R. 665

STA. 50+80

FOR LEGEND, SEE SHEET NO. 3

DESIGNED AM
CHECKED MO

TYPICAL SECTIONS

FRA-104-1.29

GENERAL NOTES

ELEVATION DATUM
ALL ELEVATIONS ARE BASED ON NAVD 88 DATUM.

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

COOPERATION BETWEEN CONTRACTORS:
THE CONTRACTOR'S ATTENTION SHALL BE DIRECTED TO SECTION 105.08 OF THE CMS. DURING THE DURATION OF THIS PROJECT, THERE WILL BE A POSSIBILITY OF ONE ADDITIONAL PROJECT BEGINNING CONSTRUCTION ADJACENT TO THE PROJECT LIMITS. THIS PROJECT IS LISTED BELOW

FRA-665-10.09

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

UTILITY OWNERSHIP:
LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS, TOGETHER WITH THEIR RESPECTIVE OWNERS:

SANITARY
SOLID WASTE AUTHORITY
OF CENTRAL OHIO
3851 LONDON-GROVEPORT RD.
GROVE CITY, OHIO 43123
(614) 871-5100

ELECTRIC
AEP
850 TECH CENTER DR.
GAHANNA, OHIO 43230-6605
(614) 883-6829

GAS
COLUMBIA GAS OF OHIO
920 W. GOODALE BLVD.
COLUMBUS, OHIO 43212
(614) 460-2169

TELEPHONE
AT&T
111 N. FOURTH ST.- 8TH FLR
COLUMBUS, OHIO 43215
(614) 223-8978

CONTINGENCY QUANTITIES
THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER", UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED FOR SUCH ITEMS SHALL BE INCORPORATED INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

CLEARING AND GRUBBING
ALL TREES AND STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED 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:

SIZE	NO. TREES	NO.STUMPS	TOTAL
18"	4	0	4

WORK LIMITS
THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

ADDITIONAL SOIL INFORMATION
THE SOIL PROFILE AND/OR STRUCTURE FOUNDATION INVESTIGATION SHEETS CONTAIN ALL AVAILABLE SOIL AND BEDROCK INFORMATION WHICH CAN BE CONVENIENTLY SHOWN. ADDITIONAL SUBSURFACE INVESTIGATION INFORMATION IS AVAILABLE FROM DISTRICT 6.

EROSION CONTROL
ITEM 601 IS PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE SHALL NOT BE REMOVED IN ORDER TO PLACE ANY OF THIS ITEM AND TURF OF A STABLE NATURE SHALL NOT BE REMOVED IN ORDER TO PLACE THIS ITEM. THE ENGINEER SHALL CHECK AND NON-PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES OF THIS ITEM WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION. IN ADDITION THIS ITEM SHALL MEET THE REQUIREMENT OF 108.04.

FARM DRAINS
ALL FARM DRAINS, WHICH ARE ENCOUNTERED DURING CONSTRUCTION, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING COLLECTORS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS, AND WHICH CROSS THE ROADWAY, SHALL BE REPLACED WITHIN THE RIGHT-OF-WAY LIMITS BY ITEM 603 CONDUIT, TYPE B, ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING COLLECTORS AND ISOLATED FARM DRAINS, WHICH ARE ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES, SHALL BE OUTLETTED INTO THE ROADWAY DITCH BY 603 TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE 12 INCHES ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES WHICH CROSS THE ROADWAY SHALL BE INTERCEPTED BY 603, TYPE E CONDUIT, AND CARRIED IN A LONGITUDINAL DIRECTION TO AN ADEQUATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE AND GRADE OF REPLACEMENTS SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE ON FINAL MEASUREMENTS.

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS AS PER STANDARD CONSTRUCTION DRAWING DM-1.1M, EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE. PAYMENT FOR THE EROSION CONTROL PADS AND ANIMAL GUARDS AND ANY NECESSARY BENDS OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

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

ITEM 603 4 INCH CONDUIT, TYPE E ..... = 50 FT.
ITEM 603 6 INCH CONDUIT, TYPE E ..... = 50 FT.
ITEM 603 8 INCH CONDUIT, TYPE E ..... = 50 FT.
ITEM 603 12 INCH CONDUIT, TYPE E ..... = 50 FT.

PROOF ROLLING
AN ESTIMATED QUANTITY FOR THIS ITEM HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.
ITEM 204 PROOF ROLLING ..... = 6.0 HOURS

SEEDING AND MULCHING
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.

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

ITEM 659 SOIL ANALYSIS TEST ..... = 1 EACH
ITEM 659 REPAIR SEEDING AND MULCHING ..... = 396 SQ. YD.
ITEM 659 INTER-SEEDING ..... = 396 SQ. YD.

SEEDING AND MULCHING OF LAWNS
IN ADDITION TO "AREAS IN FRONT OF RESIDENCES" REFERRED TO IN 870.13, THE SPECIAL PREPARATION SHALL BE EXTENDED TO ENCOMPASS ALL LAWNS AND/OR LAWN-LIKE AREAS AS DETERMINED BY THE ENGINEER.

TACK COAT & TACK COAT FOR INTERMEDIATE COARSE
THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT, AS DIRECTED BY THE ENGINEER. FOR ESTIMATING PURPOSES ONLY, THE PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF:

ITEM 407, TACK COAT ..... = 0.075 GAL. PER. SQ. YARD
ITEM 407, TACK COAT FOR INTERMEDIATE COURSE ..... = 0.05 GAL. PER. SQ. YARD

CONSTRUCTION NOISE
ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, ANY POWER-OPERATED CONSTRUCTION-TYPE DEVICE SHALL NOT BE OPERATED BETWEEN THE HOURS OF 9:00PM AND 8:00AM. IN ADDITION, ANY SUCH 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 PERFORMACE OF SUCH EQUIPMENT.

INDIANA BAT HABITAT
CLEARING OF ANY TREES THAT HAVE SUITABLE SUMMER BROOD REARING OR ROOSTING HABITAT FOR THE FEDERALLY ENDANGERED INDIANA BAT (LIVING OR STANDING DEAD TREES OR SNAGS WITH EXFOLIATING, PEELING OR LOOSE BARK, SPLIT TRUNKS AND/OR BRANCHES, OR CAVITIES), SHALL OCCUR ONLY DURING THE PERIOD BEFORE APRIL 15 AND AFTER SEPTEMBER 15, WHEN THIS SPECIES WOULD NOT BE USING SUCH HABITAT.

ANCHOR ASSEMBLY, TYPE E-98
THIS ITEM SHALL CONSIST FO FURNISHING AND INSTALLING EITHER OF THE FOLLOWING GUARDRAIL END TERMINALS.

1) THE ET-2000 (1997) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373)

THE LENGTH OF THE ET-2000 (1997) SYSTEM IS CONSIDERED TO BE 50'-00", INCLUSIVE OF TWO 25'-00" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DWG. NO	DRAWING NAME	DWG./ REV. DATE	ODOT APPROVAL DATE
SS265M	ET-2000 (1997) PLAN, ELEVATION & SECTIONS	6/20/97	3/6/98

2) THE SKT-350 MANUFACTURED BY ROAD SYSTEMS, INC., 2516 MALLORY LANE, STOW, OHIO 44224 (TELEPHONE: 330-346-0721).

THE LENGTH OF THE SKT-350 SYSTEMS IS CONSIDERED TO BE 50'-00", INCLUSIVE OF FOUR 12'-06" LONG RAIL ELEMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS.

DWG. NO	DRAWING NAME	DWG./ REV. DATE	ODOT APPROVAL DATE
SKT-4M	SEQUENTIAL KINKING TERMINAL (SKT-350) ASSEMBLY WITH 4 FOUNDATION TUBES	12/11/97	3/6/98

THE FACE OF THE TYPE E-98 IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19, APPROXIMATELY 18"X18".

REFER TO THE MANUFACTURER'S INSTRUCTION REGARDING THE INSTALLATION OF, AND THE GRADING AROUND, THE FOUNDATION TUBES AND GROUND STRUT. THE TOP OF ANY FOUNDATION TUBE SHOULD BE LESS THAN 4-INCHES ABOVE THE GROUND. THE PLACEMENT OF THE FOUNDATION TUBES SHOULD BE AN APPROPRIATE DEPTH BELOW THE LEVEL LINE IN ORDER TO MAINTAIN THE FINISHED GUARDRAIL HEIGHT OF 27-3/4-INCHES FROM THE EDGE OF THE SHOULDER.

ON-SITE GRADING IS REQUIRED IF THE TOP OF THE FOUNDATION TUBES OR TOP OF THE GROUND STRUT DOES PROJECT MORE THAN 4-INCHES ABOVE THE GROUND LINE.

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E-98, EACH, AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT A COMPLETE AND FUNCTIONAL ANCHOR ASSEMBLY SYSTEM, INCLUDING ALL RELATED TRANSITIONS, REFLECTIVE SHEETING, HARDWARE, GRADING, EMBANKMENT AND EXCAVATION NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

ITEM 604 - MONUMENT ASSEMBLY, AS PER PLAN:
THIS WORK SHALL CONSIST OF FURNISHING AND PLACING CENTERLINE MONUMENTS ½ INCH BELOW THE PROPOSED ASPHALT ELEVATION AT THE FOLLOWING STATION AS SHOWN ON SHEET NO. 64.

THE FOLLOWING ESTIMATED QUANTITIES HAS BEEN PROVIDED FOR PAVEMENT RESTORATION FOLLOWING INSTALLATION OF ITEM 604 MONUMENT ASSEMBLIES TO ½ INCH BELOW THE PROPOSED ASPHALT AT THE LISTED LOCATIONS.

ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22: ..... = 0.1 CU. YD.

ITEM 301 ASPHALT CONCRETE BASE, PG64-22: ..... = 0.5 CU. YD.

THE ABOVE QUANTITY IS BASED ON A 448 THICKNESS OF 1.5 INCHES AND A 301 THICKNESS OF 6 INCHES. THIS QUANTITY IS BASED ON A WIDTH OF TWO FEET AROUND THE PERIMETER OF THE MONUMENT ASSEMBLIES. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE ANY MATERIALS USED OUTSIDE THE LIMITS STATED ABOVE AT NO ADDITIONAL COST.

A REGISTERED SURVEYOR FROM DISTRICT 6 SURVEY DEPARTMENT SHALL BE RESPONSIBLE FOR REFERENCING AND VERIFYING THE LOCATIONS OF THE CENTERLINE MONUMENTS. THE CONTRACTOR SHALL NOTIFY THE SURVEY DEPARTMENT (1-740-363-1251) EXT 120 48 HOURS PRIOR TO START OF MONUMENT WORK. PAYMENT FOR THIS ITEM SHALL INCLUDE ALL NECESSARY LABOR, MISCELLANEOUS HARDWARE, AND EQUIPMENT REQUIRED FOR PLACEMENT AND INCLUDE ALL ASPHALT QUANTITIES LISTED ABOVE FOR PAVEMENT RESTORATION FOR MONUMENT ASSEMBLY INSTALLATIONS. PAYMENT WILL BE AT CONTRACT BID PRICE PER EACH. THE FOLLOWING QUANTITIY HAS BEEN PROVIDED AND THE TOTAL CARRIED TO THE GENERAL SUMMARY.

ITEM 604 MONUMENT ASSEMBLY, AS PER PLAN = 3 EACH

DESIGNED AM
CHECKED MO

GENERAL NOTES

FRA-104-1.29

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GENERAL NOTES

FENCE LENGTHS

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

COMMITMENTS

PRIOR TO COMMENCEMENT OF CONSTRUCTION, WRITTEN NOTIFICATION WILL BE MADE TO THE JACKSON TOWNSHIP FIRE AND POLICE OFFICIALS CONCERNING THE CONTRACTOR'S SCHEDULE AS IT RELATES TO MAINTENANCE OF TRAFFIC ISSUES.

JAKSON TOWNSHIP FIRE DEPARTMENT
3650 HOOVER RD.
GROVE CITY, OHIO 43123
TEL. (614) 875-5626

GROVE CITY POLICE DEPARTMENT
3360 PARK ST.
GROVE CITY, OHIO 43123
TEL. (614) 277-1710

PROVISIONS SET FORTH IN ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LOCATION AND DESIGN MANUAL, AND STANDARD DRAWINGS WILL BE USED TO ENSURE ADEQUATE EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION.

HOURS OF CONSTRUCTION OPERATION WILL CONFORM WITH ANY LOCAL ORDINANCES THAT MAY EXIST.

ACCORDING TO WELL LOGS AND DRILLING REPORTS OBTAINED FROM THE OHIO DEPARTMENT OF NATURAL RESOURCES, SIX PROPERTIES WITHIN THE PROJECT AREA HAVE WATER WELLS. THE EXACT LOCATION OF THE WELLS IS NOT SHOWN ON THE LOGS. ALTHOUGH NO FIELD VERIFICATIONS WERE MADE, IT IS NOT EXPECTED THAT ANY ARE WITHIN THE PROJECT FOOTPRINT. IF WELLS ARE ENCOUNTERED DURING CONSTRUCTION, HOWEVER, AND IF PUBLIC WATER IS AVAILABLE, THE WELLS SHOULD BE ABANDONED PER STATE OF OHIO TECHNICAL ORDINANCE FOR SEALING UNUSED WELLS, 1996, AND THE PROPERTY SHALL BE CONNECTED TO THE PUBLIC WATER SUPPLY.

COMPLIANCE WITH NWP #3

THE REMOVAL OF SEDIMENT IN PLUM RUN WILL BE LIMITED TO THE MINIMUM NECESSARY TO RESTORE THE WATERWAY IN THE IMMEDIATE VICINITY OF THE STRUCTURE TO THE APPROXIMATE DIMENSIONS THAT EXISTED WHEN THE STRUCTURE WAS BUILT, BUT CANNOT EXTEND FURTHER THAN 200 FEET IN ANY DIRECTION FROM THE STRUCTURE.

THE PLACEMENT OF RIPRAP WILL BE THE MINIMUM NECESSARY TO PROTECT OR TO ENSURE THE SAFETY OF THE STRUCTURE. ALL EXCAVATED MATERIALS WILL BE DEPOSITED AND RETAIND IN AN UPLAND AREA UNLESS OTHERWISE SPECIFICALLY APPROVED BY THE DISTRICT ENGINEER (USACE) UNDER SEPARATE AUTHORIZATION.

ANY BANK STABILIZATION MEASURES NOT DIRECTLY ASSOCIATED WITH THE STRUCTURE WILL REQUIRE A SEPARATE AUTHORIZATION FROM THE DISTRICT ENGINEER (USACE).

TOTAL SURFACE WATER AND VEGETATION IMPACTS ON EITHER SIDE OF REPLACEMENT STRUCTURE SHALL BE LIMITED TO THE GREATER OF 25 FEET BEYOND THE STRUCTURE, OR 25 FEET BEYOND THE TOE OF THE SLOPE OF THE STRUCTURE'S APPROACH EMBANKMENT. WHERE THE USE OF A CRANE IS NECESSARY TO CONDUCT MAINTENANCE ACTIVITY, TOTAL IMPACTS SHALL NOT EXCEED 50 FEET ON EITHER SIDE OF THE STRUCTURE OF APPROACH EMBANKMENT. IN EITHER CASE, TOTAL IMPACTS, INCLUDING THE STRUCTURE, SHALL NOT EXCEED 200 FEET. WIDTH SHALL BE MEASURED AT THE STRUCTURES' NARROWEST POINT AS IT CROSSES THE WATER BODY, AND BE MEASURED PARALLEL TO STREAM FLOW.

HISTORIC PROPERTIES

THE CONTRACTOR SHALL AVOID INVOLVEMENT WITH THE HISTORIC MARKER AT PARCEL #160-000031.

NO CONSTRUCTION, STORAGE OF MATERIALS, OR OTHER ACTIVITIES WILL BE ALLOWED PAST THE HISTORIC BOUNDARY LIMITS SHOWN ON THE PLANS.

STREAM CROSSINGS

IN-STREAM WORK (THE PLACEMENT OR REMOVAL OF TEMPORARY AND/OR PERMANENT WILL MATERIALS BELOW THE ORDINARY HIGH WATER MARK) WILL BE LIMITED WHERE PRACTICABLE AND ONLY CLEAN NON-ERODIBLE MATERIAL WILL BE USED FOR TEMPORARY CONSTRUCTION ACCESS FILLS. TEMPORARY FILLS WILL BE CONSTRUCTED SO AS TO ALLOW FOR FISH PASSAGE AND WILL NOT BACK UP WATER. TEMPORARILY PLACED MATERIAL WILL BE REMOVED AND THE STREAM BOTTOM RESTORED TO NEAR PRE-CONSTRUCTION CONDITIONS WHEN THE WORK IS COMPLETE.

THE SPECIFICATION SET FORTH IN THE MOST CURRENT VERSION OF ODOT'S CONSTRUCTION AND MATERIAL SPECIFICATIONS, LOCATION AND DESIGN MANUAL AND STANDARD DRAWINGS WILL BE USED TO ENSURE ADEQUATE EROSION AND SEDIMENT CONTROL DURING CONSTRUCTION.

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 ESTABLISED BY THE ENGINEER.

WOOD POSTS SHALL BE NOMINAL 4" BY 4" SQUARE OR 4 1/2" DIAMETER ROUND, AND CONFORM TO 710.14.

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

HARDWARE (PLATES, SCREWS, BOLTS, 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 ABSENCE OF 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 SHALL 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).

AN ESTIMATED QUANTITY HAS BEEN PROVIDED
BELOW TO BE USED "AS DIRECTED BY THE ENGINEER".

ITEM - SPECIAL MAILBOX SUPPORT SYSTEM, SINGLE ..... = 10 EA.

646 EXPOXY PAVEMENT MARKINGS, AS PER PLAN

THE EPOXY PAVEMENT MARKING MATERIAL FURNISHED UNDER THESE ITEMS SHALL BE EPOPLEX LS-60 AS FURNISHED BY EPOPLEX, MAPLE SHADE, NEW JERSEY.

646 EPOXY PAVEMENT MARKINGS - (POLYCARB) - ALTERNATE BID

THE EPOXY PAVEMENT MARKING MATERIAL SHALL BE MARK 55.4 AS FURNISHED BY POLYCARB, CLEVELAND, OHIO.

PAYMENT WILL BE AT THE NORMAL CONTRACT UNIT PRICE AS SPECIFIED IN ITEM 646.

DEMOLITION DEBRIS

THE CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID AND/OR LIMIT DEMOLITION DEBRIS FROM ENTERING THE STREAM. ANY MATERIAL THAT DOES FALL INTO THE STREAM SHALL BE REMOVED AS SOON AS POSSIBLE.

TREATED SEPTIC CONNECTIONS

TREATED SEPTIC FLOW MAY BE DISCHARGED INTO THE HIGHWAY DRAINAGE SYSTEM PROVIDED THE OWNER HAS ACQUIRED AN OFFICIAL PERMIT FROM THE (OHIO DEPARTMENT OF TRANSPORTATION) (COUNTY) (OR) (LOCAL AUTHORITY).

IN EACH CASE WHERE A PERMIT HAS BEEN ISSUED FOR MAKING A TREATED SEPTIC 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 CONNECTIONS:

ITEM 603 4 INCH CONDUIT, TYPE C ..... = 40 FT.

ITEM 603 4" CONDUIT, TYPE E, AS PER PLAN

THIS ITEM SHALL CONSIST OF TRENCHING, FURNISHING MATERIALS AND INSTALLING A 4" CONDUIT TYPE E UNDERDRAIN, AT EXISTING OR NEW PULL BOXES, AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY TWENTY (20) FEET FOR EACH PULL BOX. REFERENCE IS MADE TO SCD HL-30.11 FOR DETAILS OF DRAINING PULL BOXES.

AN ESTIMATED QUANTITY HAS BEEN PROVIDED BELOW TO BE USED AS DIRECTED BY THE ENGINEER.

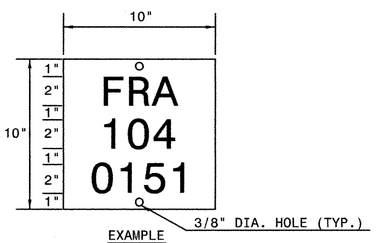
ITEM - 603 4 INCH CONDUIT, TYPE E, AS PER PLAN ..... = 220 FT.

ITEM 630 - SIGN, FLAT SHEET, AS PER PLAN
ITEM 630 - GROUND MOUNTED SUPPORT, NO. 2 POST

THESE ITEMS SHALL BE USED TO PLACE NEW STRUCTURE IDENTIFICATION SIGNS AT THE FOLLOWING STRUCTURE: FRA-104-1.29

EACH SIGN SHALL BE ATTACHED TO THE CONCRETE PARAPET WITH CONCRETE ANCHORS AT THE RIGHT, REAR LOCATION, IF THE BRIDGE DOES NOT HAVE A CONCRETE PARAPET, THE SIGN SHALL BE POST MOUNTED TO ONE NEW NO. 2 POST AS PER CONSTRUCTION DRAWING TC-41.20 MOST CURRENT REVISION USING TWO 5/8" ALUMINUM BOLTS 2 1/2" IN LENGTH. THE POST SHALL BE 7'-0" LONG.

SIGN SHALL BE SIZED AS PER THE EXAMPLE. SIGNS SHALL BE ALUMINUM AND HAVE A NON-REFLECTIVE WHITE SHEETING BACKGROUND AS PER CMS 730.20. THE LETTERS SHALL BE BLACK 2" IN HEIGHT, SERIES C STROKE WIDTH, AND SILK SCREENED AS CMS 730.22.



EXAMPLE

DESIGNED AM
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GENERAL NOTES

FRA-104-1.29

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GENERAL NOTES

1. IT IS INTENDED THAT THIS DRAWING BE USED FOR TREATMENT OF DROP-OFFS THAT DEVELOP DURING CONSTRUCTION OPERATIONS, AND THAT ARE NOT OTHERWISE PROVIDED FOR IN THE CONSTRUCTION PLANS. THE SUGGESTED TREATMENTS ARE INTENDED FOR HIGH VOLUME PROJECTS THAT WILL LAST AT LEAST SEVEN DAYS AND HAVE AN ACTIVE WORK ZONE 1 MILE [1.6 KM] OR LESS IN LENGTH. FOR GUIDANCE ON THE USE OF THIS SHEET, SEE L&D MANUAL VOLUME ONE, SECTION 500. WHERE THE PLANS DO NOT PROVIDE SPECIFIC ITEMS FOR LABOR, EQUIPMENT, OR MATERIALS TO IMPLE- MENT THE DROP-OFF TREATMENTS SPECIFIED HEREON, THEY SHALL BE INCLUDED FOR PAYMENT IN THE LUMP SUM BID FOR ITEM 614 - MAINTAINING TRAFFIC.

2. WHILE THE NEED FOR CERTAIN ADVISORY SIGNING IS NOTED HEREON, IT IS NOT INTENDED THAT THIS BE INDICATIVE OF ALL SIGNING THAT MAY BE REQUIRED TO ADVISE OR WARN MOTORISTS, AND ALL REQUIREMENTS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD) MUST BE FULFILLED.

3. IN URBAN OR OTHERWISE HEAVILY DEVELOPED AREAS WHERE PEDESTRIANS AND/OR BICYCLISTS MAY BE PRESENT IN SIG- NIFICANT NUMBERS, ADDITIONAL SIGNING AND PROTECTIVE MEASURES OTHER THAN THOSE SHOWN HEREON MAY BE REQUIRED.

4. THE DROP-OFF TREATMENT SELECTED FOR USE AT ANY GIVEN LOCATION SHALL BE AS APPROPRIATE FOR THE PREVAILING CONDITIONS AT THE SITE.

5. WHERE CONCRETE BARRIER IS SPECIFIED, IT SHALL BE IN ACCORDANCE WITH SCD RM-4.2 AND ITEM 622.

6. WHEN DRUMS ARE SPECIFIED FOR A DROP-OFF CONDITION, A MINIMUM NUMBER OF FOUR DRUMS SHALL BE USED. SPACING SHALL BE AS INDICATED IN THE PLANS OR AS SPECIFIED IN THE OMUTCD.

7. WHEN OW-151 (LOW SHOULDER) SIGNS OR OW-171 (UNEVEN LANES) AND OWP-171 SIGNS ARE REQUIRED, THEY SHALL BE PLACED 750' [230 M] IN ADVANCE OF THE CONDITION, ON ALL INTERSECTING ENTRANCE RAMPS WITHIN THE LIMITS OF THE CONDITION AND IMMEDIATELY BEYOND ALL INTER SECTING ROADWAYS WITHIN THE LIMITS OF THE CONDITION. WHEN THE DROP-OFF CONDITION EXTENDS MORE THAN 0.5 MILE [800 M], ADDITIONAL SIGNS SHOULD BE ERECTED AT INTERVALS OF 1.0 MILE [1600 M] OR LESS.

8. FOR LOCATIONS, SUCH AS AT RAMPS, LANE SHIFTS, LANE CLOSURES, ETC., WHERE TRAFFIC IS REQUIRED TO NEGOTIATE A DIFFERENCE IN ELEVATION BETWEEN PAVEMENTS, A 3:1 SLOPE TREATMENT SIMILAR TO THE OPTIONAL WEDGE TREATMENT SHALL BE PROVIDED.

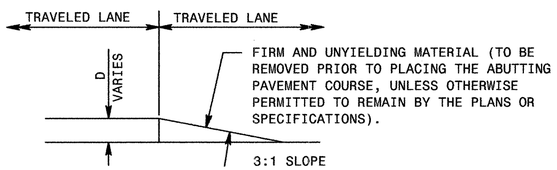
9. PORTABLE CONCRETE BARRIER SHALL BE PLACED ON THE SAME LEVEL AS THE TRAFFIC SURFACE AND SHALL NOT ENCROACH ON LANE WIDTH(S) DESIGNATED AS THE MINIMUM REQUIRED FOR TRAFFIC USE. WHERE DRUMS ARE USED, AND THEIR PRESENCE WOULD REDUCE TRAVELED LANE WIDTHS TO LESS THAN 10' [3.0 M], DRUMS MAY BE PLACED ON THE OPPOSITE LEVEL FROM THAT OF TRAFFIC PROVIDED THE DROPOFF DEPTH DOES NOT EXCEED 5" [125] AND APPROVAL IS GRANTED BY THE PROJECT ENGINEER.

10. PAVEMENT REPAIRS (OR SIMILAR WORK): A. LENGTHS GREATER THAN 60' [18 M] - UTILIZE APPROPRIATE TREATMENT FROM CONDITION I. B. LENGTHS OF 60' [18 M] OR LESS - REPAIRS SHALL BE EFFECTED IN ACCORDANCE WITH CMS 255.08. DRUMS MAY BE USED AS A SEPARTOR ADJACENT TO THE TRAVELED LANE.

OPTIONAL WEDGE TREATMENT

(MILLING OR RESURFACING)

1. THIS TREATMENT MAY BE USED WHEN PERMITTED FOR CONDITION I ONLY.
2. OW-171 AND OWP-171 SIGNS REQUIRED.



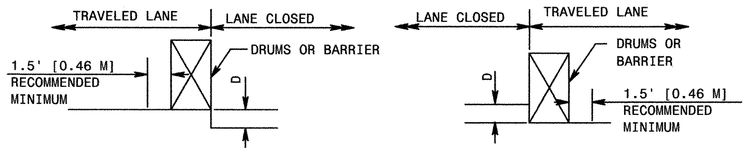
CONDITION I

DROP-OFFS BETWEEN TRAVELED LANES

1. THESE TREATMENTS ARE TO BE USED FOR RESURFACING, PAVEMENT PLANING, EXCAVATION, ETC. BETWEEN OR WITHIN TRAVELED LANES.

D	TREATMENT
≤1 1/2 " [<40]	ERECT OW-171 AND OWP-171 SIGNS.
1 1/2 "-3" [40-75]	1) LANE CLOSURE UTILIZING DRUMS* AS SHOWN BELOW OR 2) OPTIONAL WEDGE TREATMENT
>3"-5" [>75-125]	LANE CLOSURE UTILIZING DRUMS AS SHOWN BELOW.
>5" [>125]	LANE CLOSURE UTILIZING PORTABLE CONCRETE BARRIER AS SHOWN BELOW.

* CONES MAY BE USED FOR DAYTIME ONLY CONDITIONS.



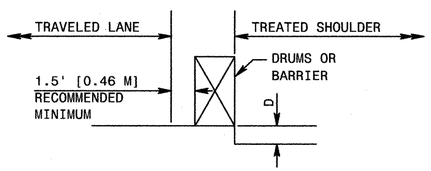
CONDITION II

DROP-OFFS WITHIN GRADED SHOULDER AREA

1. THE TREATMENTS INDICATED BELOW ARE FOR USE IN CONJUNCTION WITH RESURFACING, PLANING, OR EXCAVATIONS WITHIN THE GRADED SHOULDER AREA.
2. THE GRADED SHOULDER AREA IS THAT FLAT OR GRADUALLY SLOPING AREA BETWEEN THE EDGE OF A NORMALLY TRAVELED LANE AND THE MORE STEEPLY SLOPING DITCH FORESLOPE OR EMBANKMENT SLOPE. ITS SURFACE MAY BE SOIL OR TURF, AND/OR IT MAY BE INCLUSIVE OF A "TREATED" AREA (IMPROVED WITH AGGREGATES, ASPHALTIC MATERIALS OR CONCRETE). FOR THE PURPOSE HEREIN, ITS MAXIMUM WIDTH SHALL BE CONSIDERED TO BE 12' [3.6 M].

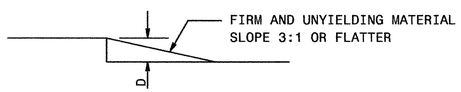
D	TREATMENT
<1 1/2 " [<40]	1) IF EDGELINES ARE PRESENT, NO TREATMENT IS NECESSARY OR 2) ERECT OW-171 AND OWP-171 SIGNS.
>1 1/2 "-5" [>40-125]	1) IF MINIMUM LANE WIDTH * REQUIREMENTS CAN BE MET, MAINTAIN LANES UTILIZING DRUMS AS SHOWN BELOW OR 2) IF MINIMUM. LANE WIDTH *REQUIREMENTS CANNOT BE MET, CLOSE ADJACENT LANE UTILIZING DRUMS OR 3) OPTIONAL SHOULDER TREATMENT.
>5"-12" [125-305] DAYLIGHT ONLY	IF MINIMUM LANE WIDTH * REQUIREMENTS CAN BE MET, MAINTAIN LANES UTILIZING DRUMS AS SHOWN BELOW.
>5"-24" [>125-610]	1) IF MINIMUM LANE WIDTH * REQUIREMENTS CAN BE MET, MAINTAIN LANES UTILIZING PORTABLE CONCRETE BARRIER AS SHOWN BELOW. OR 2) IF MINIMUM LANE WIDTH *REQUIREMENTS CANNOT BE MET, CLOSE ADJACENT LANE UTILIZING DRUMS.
>24" [>610]	LANE CLOSURE UTILIZING PORTABLE CONCRETE BARRIER AS SHOWN BELOW.

* MINIMUM LANE WIDTHS SHALL BE 10' [3.0 M] UNLESS OTHERWISE SPECIFIED IN THE PLANS.



OPTIONAL SHOULDER TREATMENT

1. THIS TREATMENT MAY NOT BE USED WITHIN A BITUMUNOS SHOULDER WHERE A HOT LONGITUDNAL JOINT PER CMS 401.15 IS REQUIRED.
2. OW-151 SIGNS REQUIRED.



CONDITION III

DROP-OFFS BEYOND GRADED SHOULDER OR BACK OF CURB

1. SEE NOTE 2 UNDER CONDITION II.
2. USE CHART A OR B BELOW, AS APPLICABLE.

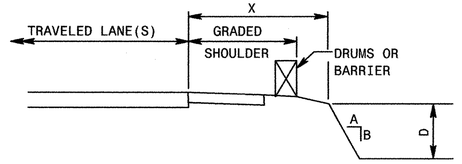
CHART A

USE FOR: 1. UNCURBED FACILITIES.

2. CURBED FACILITIES, WHERE:

A. CURBS ARE LESS THAN 6" [150] IN HEIGHT.

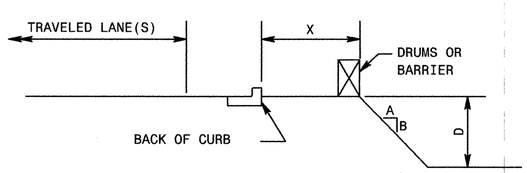
B. CURBS ARE 6" [150] OR GREATER IN HEIGHT AND THE LEGAL SPEED IS GREATER THAN 40 MPH [70 KM/H].



X	D	A/B	TREATMENT REQUIRED	
			DAY	NIGHT
0-4' [0-1.2 M]	ANY	ANY	(A)	(A)
4'-30' [1.2-9.1 M]	ANY	3:1 OR FLATTER	NONE	NONE
4'-12' [1.2-3.6 M]	≤3" [<75]	STEEPER THAN 3:1	NONE	NONE
4'-12' [1.2-3.6 M]	>3"-≤12" [>75-≤305]	STEEPER THAN 3:1	DRUMS	DRUMS
4'-12' [1.2-3.6 M]	>12" [>305]	STEEPER THAN 3:1	DRUMS	BARRIER
>12'-20' [>3.6-6.1 M]	<12" [<305]	STEEPER THAN 3:1	NONE	NONE
>12'-20' [>3.6-6.1 M]	>12"-≤24" [>305-≤610]	STEEPER THAN 3:1	DRUMS	DRUMS
>12'-20' [>3.6-6.1 M]	>24" [>610]	STEEPER THAN 3:1	DRUMS	BARRIER
>20'-30' [>6.1-9.1 M]	<24" [<610]	STEEPER THAN 3:1	NONE	NONE
>20'-30' [>6.1-9.1 M]	>24" [>610]	STEEPER THAN 3:1	DRUMS	BARRIER
>30' [>9.1 M]	ANY	ANY	NONE	NONE
(A) USE TREATMENT SPECIFIED UNDER CONDITION II.				

CHART B

USE FOR: CURBED FACILITIES, WHERE THE CURB IS 6" [150] OR GREATER IN HEIGHT AND THE LEGAL SPEED IS 40 MPH [70 KM/H] OR LESS.



X	D	A/B	TREATMENT REQUIRED	
			DAY	NIGHT
0-10' [0-3.0 M]	<12" [<305]	ANY	NONE	DRUMS
0-10' [0-3.0 M]	>12" [>305]	ANY	DRUMS	DRUMS
>10' [>3.0 M]	ANY	ANY	NONE	NONE

NOTE: ALL METRIC DIMENSIONS (IN BRACKETS []) ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

02-13-01

DROPOFFS IN WORK ZONES

OFFICE OF TRAFFIC ENGINEERING

FRA-104-1.29

MAINTENANCE OF TRAFFIC GENERAL NOTES

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.

DROPOFFS IN WORKZONE
THE DROPOFF ADJACENT TO THE TRAVELED LANE SHALL BE NO GREATER THAN 5 INCHES BELOW THE EXISTING PAVEMENT BY THE END OF EACH WORK DAY. THIS REQUIREMENT MAY BE MET BY TEMPORARILY PLACING SUBBASE AND BASE MATERIAL TO WITHIN 5 INCHES OF THE EXISTING GRADE ADJACENT TO THE TRAVELED LANE AND SLOPING THE MATERIAL AT 3:1 OR FLATTER WITHIN THE EXCAVATED AREA. PLACEMENT OF PROPOSED SUBBASE AND BASE MATERIAL SHALL FOLLOW AS CLOSELY AS POSSIBLE BEHIND EXCAVATION OPERATIONS DURING WORKING HOURS. THESE REQUIREMENTS SHALL BE MET AT NO ADDITIONAL COST.

BARRIER REFLECTORS AND/OR OBJECT MARKERS
BARRIER REFLECTORS AND/OR OBJECT MARKERS SHALL BE INSTALLED ON ALL PORTABLE CONCRETE BARRIER USED FOR TRAFFIC CONTROL. BARRIER REFLECTORS, OBJECT MARKERS AND THEIR INSTALLATION SHALL CONFORM TO ITEM 626 EXCEPT THAT THE SPACING SHALL BE 25 FEET.

PART-WIDTH CONSTRUCTION
BECAUSE OF THE NECESSITY TO BUILD THIS PROJECT UNDER TRAFFIC AND TO CONSTRUCT THE FULL PAVEMENT WIDTH IN STAGES, EXTREME CARE SHALL BE TAKEN TO PREVENT THE CONSTRUCTION OF A BUTT JOINT IN THE BASE COURSES. LONGITUDINAL JOINTS SHALL BE LAPPED AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP-3.1

ITEM 614 MAINTAINING TRAFFIC
A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT DURING SURFACE COURSE PAVING AND PCB SETUP, BY USE OF THE EXISTING PAVEMENT, EXISTING PAVED SHOULDER THE COMPLETED PAVEMENT AND ITEM 615 TEMPORARY PAVEMENT.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN SIGNS AND SIGN SUPPORTS, AS DETAILED IN THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC.

ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE B ..... = 20 CU. YD.
ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE C ..... = 20 CU. YD.
ITEM 616, WATER. ..... = 2 M. GAL.
ITEM 617, COMPACTED AGGREGATE ..... = 150 CU. YD.

NO WORK SHALL BE PERFORMED AND ALL EXISTING LANES SHALL BE OPEN TO TRAFFIC DURING THE FOLLOWING DESIGNATED HOLIDAYS OR EVENTS:

CHRISTMAS	NEW YEARS
MEMORIAL DAY	FOURTH OF JULY
LABOR DAY	THANKSGIVING

THE PERIOD OF TIME THAT THE LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENT FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF THE WEEK	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY-WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA-WIDE.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 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 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

TEMPORARY ACCESS TO DRIVES AND APPROACHES
THE FOLLOWING ESTIMATED QUANTITIES HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE MAINTENANCE OF TRAFFIC TO DRIVES AND APPROACHES. ALL DRIVES SHALL BE PROVIDED ACCESS AS PER 614.02(A)

ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE A OR B ..... ≤ 10 CU. YD.
ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE C ..... ≤ 10 CU. YD.
ITEM 614, ASPHALT CONCRETE FOR MAINTAINING TRAFFIC ..... ≤ 5 CU. YD.

MAINTENANCE OF TRAFFIC
ALL CONSTRUCTION ON THE DESIGNATED SIDE OF THE ROADWAY SHALL BE COMPLETED DURING EACH PHASE OF CONSTRUCTION. ALL SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE OHIO M.U.T.C.D. CURRENT EDITION.

ITEM 614- LAW ENFORCEMENT OFFICER (WITH PATROL CAR)
IN ADDITION TO THE REQUIREMENTS OF CMS 614 AND THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD), A UNIFORMED LAW ENFORCEMENT OFFICER (AND OFFICIAL PATROL CAR WITH WORKING TOP-MOUNTED EMERGENCY FLASHING LIGHTS) SHALL BE PROVIDED FOR CONTROLLING TRAFFIC FOR THE FOLLOWING TASKS:

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.

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

DURING A TRAFFIC SIGNAL INSTALLATION.

LAW ENFORCEMENT OFFICERS (LEOs) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LEOs ARE CONSIDERED TO BE EMPLOYED BY THE CONTRACTOR AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR ACTIONS. ALTHOUGH THEY ARE EMPLOYED BY THE CONTRACTOR, THE ENGINEER SHALL HAVE CONTROL OVER THEIR PLACEMENT. THE OFFICIAL PATROL CAR SHALL BE A PUBLIC SAFETY VEHICLE AS REQUIRED BY THE OHIO REVISED CODE. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THESE SERVICES WITH:

THE CIRCLEVILLE OHIO HIGHWAY PATROL POST
16395 U.S. RT. 23
ASHVILLE, OHIO 43103
PHONE: 1-740-983-2538
FAX: 1-740-983-6170

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

ITEM 614, LAW ENFORCEMENT OFFICER WITH PATROL CAR ..... = 120 HOURS

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

IF CONTRACTORS WISH TO UTILIZE LEOs FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, THEY MAY DO SO AT THEIR OWN EXPENSE. PAYMENT FOR THE EXCESS ABOVE THE CONTRACT REQUIREMENTS WILL BE INCLUDED UNDER ITEM 614, MAINTAINING TRAFFIC.

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 ..... = 10 M.GAL.

ITEM 614, WORK ZONE IMPACT ATTENUATOR FOR 24" WIDE HAZARDS (UNIDIRECTIONAL OR BIDIRECTIONAL)

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ONE OF THE FOLLOWING IMPACT ATTENUATORS:

1) THE QUADGUARD CZ, (24 INCHES (610 MILLIMETERS) WIDE SIX-BAY) WORK ZONE IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC., 35 EAST WACKER DRIVE, CHICAGO, IL 60601 (TELEPHONE: 312-467-6750).

THE LENGTH OF THE SIX-BAY QUADGUARD CZ IS 20'-9" (6.33 METERS). INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER	DRAWING NAME	DRAWING/ REVISION DATE	ODOT APROVAL DATE
QSCZCVR-T4	QUADGUARD CZ SYSTEM FOR CONSTRUCTION ZONE	5/13/99 REV.J	8/27/99
35-40-10	QUADGUARD SYSTEM CONCRETE PAD, CZ, QG	11/19/97 REV.D	8/27/99
35-40-16	QUADGUARD SYSTEM BACKUP ASSEMBLY, CZ, QG	7/30/99 REV.F	8/27/99
354051z	QUADGUARD CZ SYSTEM NOSE ASSEMBLY, CZ, QG, 24, 30, 36	5/17/99	8/27/99
35-40-18	TRANSITION ASSEMBLY, 4 OFFSET, QG	6/25/99 REV.F	8/27/99
35400260	QUADGUARD SYSTEM PCMB ANCHOR ASSEMBLY	11/19/97 REV.C	8/27/99

2) THE TRACC (TRINITY ATTENUATING CRASH CUSHION) MANUFACTURED BY TRINITY INDUSTRY, 1170 N. STATE STREET, GIRARD, OHIO 44420 (TELEPHONE: 330-545-4373).

THE TRACC IS 21'-0" (6.4 METERS) LONG AND 2'-7" (0.8 METER) WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER	DRAWING NAME	DRAWING/ REVISION DATE	ODOT APROVAL DATE
SS450	CRASH-CUSHION ATTENUATING TERMINAL PLAN, ELEVATION & SECTIONS	3/12/99 REV.1	8/27/99
SS455	TRACC TRANSITION TO W-BEAM MEDIAN BARRIER PLAN, ELEVATION & SECTIONS	2/18/99	8/27/99
SS461	TRACC TRANSITION TO CONCRETE SAFETY SHAPE BARRIER PLAN, ELEVATION. & SECTIONS	6/30/99 REV.1	8/27/99
SS462	TRACC TRANSITION TO CONCRETE BARRIER SINGLE SLOPE PLAN, ELEVATION & SECTIONS	6/30/99	8/27/99

3) THE BARRIER SYSTEMS, INC. TAU-II IMPACT ATTENUATOR, DISTRIBUTED BY ROAD SYSTEMS, INC., SALES SUPPORT, 2183 ELM TRACE, AUSTINTOWN, OHIO 44515, (TELEPHONE 330-799-9291).

THE TAU-II FOR THIS NOTE IS A PARALLEL 8-BAY UNIT 24' LONG AND 35' WIDE. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION AS DETAILED ON THE FOLLOWING PRE-APPROVED SHOP DRAWINGS:

DRAWING NUMBER	DRAWING NAME	DRAWING/ REVISION DATE	ODOT APROVAL DATE
A040416	UNIVERSAL TAU-II PARTS LIST	4/22/04	10/16/04
A040420	UNIVERSAL TAU-II FOUNDATION, FLUSH MOUNT BACKSTOP	4/28/04	10/16/04
A040105	UNIVERSAL TAU-II FOUNDATION, PCB BACKSTOP (REFERENCED ON A04020)	1/07/04	10/16/04
B040239	APPLICATION, FLUSH MOUNT BACKSTOP (TYPICAL FOR PARALLEL 60 MPH UNIT)	4/21/04	10/16/04

4) THE GREAT CZ IMPACT ATTENUATOR MANUFACTURED BY ENERGY ABSORPTION SYSTEMS, INC.

THIS ATTENUATOR MAY BE USED UNTIL JANUARY 1, 2007 IF THE ITEM WAS PURCHASED BEFORE OCTOBER 1, 1998 AND IS IN THE CONTRACTOR'S INVENTORY.

THE CONTRACTOR SHALL PROVIDE A REPLACEMENT UNIT WHEN AN IMPACT IS SEVERE ENOUGH TO REQUIRE COMPLETE REPLACEMENT OF THE ATTENUATOR. THE CONTRACTOR SHALL HAVE A SPARE PARTS PACKAGE AVAILABLE ON THE PROJECT SITE AT ALL TIMES WHEN AN ATTENUATOR IS IN PLACE. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE COMPLETE SPARE PARTS PACKAGE FOR EVERY ONE TO SIX UNITS INSTALLED ON THE PROJECT SITE. FOR EXAMPLE, FIVE INSTALLED UNITS REQUIRE ONE SPARE PARTS PACKAGE AND SEVEN INSTALLED UNITS REQUIRE TWO SPARE PARTS PACKAGES.

WHEN BIDIRECTIONAL DESIGNS ARE SPECIFIED, THE CONTRACTOR SHALL SUPPLY APPROPRIATE TRANSITIONS. PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID AND SHALL INCLUDE ALL LABOR, TOOLS, EQUIPMENT AND MATERIALS NECESSARY TO CONSTRUCT, MAINTAIN, REPAIR, REPLACE OR RELOCATE A COMPLETE AND FUNCTIONAL IMPACT ATTENUATOR SYSTEM, INCLUDING ALL RELATED BACKUPS, TRANSITIONS, LEVELING PADS, HARDWARE AND GRADING, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER.

DESIGNED AM
CHECKED MO

MAINTENANCE OF TRAFFIC GENERAL NOTES

FRA-104-1.29

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[[MOHAMED SALIM]] N:\JOBS\98172\DWG\FRA-104\S1040NC.DWG - JAN. 25, 2006 - 5:02PM - LAYOUT=GNC

MAINTENANCE OF TRAFFIC NOTES

CONSTRUCTION INITIATION :

THE CONTRACTOR SHALL ADVISE THE DISTRICT OFFICE OF COMMUNICATIONS AT 740-833-8069 OR BY FAX AT 740-833-8100 AND THE DISTRICT TRAFFIC MANAGEMENT ENGINEER AT 740-833-8323, FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR WILL IMMEDIATELY INFORM THE DISTRICT OFFICE OF COMMUNICATIONS AND THE DISTRICT TRAFFIC MANAGEMENT ENGINEER OF ANY AND ALL DELAYS AND/OR CHANGES REGARDING THE CONSTRUCTION PROJECT. THE PROJECT ENGINEER WILL PROVIDE CLARIFICATION FOR ANY QUESTIONS ABOUT THIS NOTIFICATION REQUIREMENT.

COORDINATION WITH O.D.O.T.'S CENTRAL OHIO TRAFFIC MANAGEMENT PROGRAM (COTMP) :

THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IN WRITING OF ALL TRAFFIC RESTRICTIONS AND UPCOMING MAINTENANCE OF TRAFFIC CHANGES ON A WEEKLY BASIS. WHEN DETOURS ARE PLANNED, THIS NOTIFICATION SHALL BE AT THE PRE-CONSTRUCTION MEETING OR 30 DAYS IN ADVANCE ONCE CONSTRUCTION HAS BEGUN. LANE AND RAMP CLOSURES FOR 2 OR MORE WEEKS SHALL BE REPORTED 2 WEEKS IN ADVANCE OF CLOSURE. LANE AND RAMP CLOSURES OF LESS THAN 2 WEEKS DURATION AND MORE THAN 2 DAYS SHALL BE REPORTED AT LEAST 3 WORKING DAYS IN ADVANCE. FOR SHORT TERM LANE OR RAMP CLOSURES (2 DAYS OR LESS) NOTIFICATION SHALL BE MADE AT LEAST 1 WORKING DAY IN ADVANCE. INFORMATION SHALL INCLUDE BUT NOT BE LIMITED TO ALL CONSTRUCTION ACTIVITIES THAT IMPACT TRAFFIC AT PRESENT AND IN THE NEXT 30 DAYS. THE CONTRACTOR SHALL DESIGNATE AN INDIVIDUAL WHO WILL BE RESPONSIBLE FOR PREPARING THIS REPORT AT THE PRE CONSTRUCTION MEETING. ANY UNFORESEEN IMPACTS TO TRAFFIC SHALL BE REPORTED TO THE PROJECT ENGINEER AS SOON AS POSSIBLE. THE PROJECT ENGINEER SHALL PROVIDE THIS INFORMATION TO COTMP. ALL CONSTRUCTION ACTIVITIES THAT INTERFERE WITH TRAFFIC SHALL BE REPORTED TO COTMP. THIS INFORMATION SHALL BE PROVIDED TO COTMP AT 740-833-8323 OR BY FAX AT 740-833-8090.

SEQUENCE OF CONSTRUCTION

PHASE I

S.R. 104

1. PROVIDE AND INSTALL CONSTRUCTION SIGNS ALONG S.R.104.
2. INSTALL NEW TRAFFIC SIGNAL
3. PROVIDE 2' WIDE SHOULDER STRENGTHENING ON LEFT SIDE OF S.R. 104 AS SHOWN ON PLANS USING MT-97.10
4. PROVIDE PORTABLE CONCRETE BARRIER (PCB) ON THE RIGHT SIDE OF EXISTING STRUCTURE.
5. PROVIDE WORK ZONE EDGE LINES, CENTERLINE, STOP LINES, AND DRUMS TO CONTROL TRAFFIC MOVEMENTS.
6. ADJUST NEW SIGNAL HEAD LOCATIONS TO PROVIDE SAFE TRAFFIC MOVEMENTS TO AND FROM S.R. 665.
7. MOVE TRAFFIC TO THE LEFT ON S.R. 104 MAINTAINING 11' MIN. LANE IN EACH DIRECTION, EXCEPT 10' MIN. LANE ON (NB) ONLY NORTH OF INTERSECTION.
8. SAWCUT (6") INSIDE OF EXISTING EDGE OF PAVEMENT ON THE RIGHT SIDE OF S.R. 104.
9. CUT 1'-9" FROM EDGE OF EXISTING STRUCTURE ON THE RIGHT SIDE OF S.R. 104 AND REMOVE 7' PORTION OF EXISTING APPROACH SLAB.
10. CONSTRUCT RIGHT SIDE OF S.R. 104 INCLUDING 10' PAVED SHOULDER UP TO ITEM 448, ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22.
11. CONSTRUCT STRUCTURE AND APPROACH SLAB ON THE RIGHT SIDE OF S. R 104.
12. PREPARE TEMPORARY GRADING, DITCHES AND DRIVEWAYS WITH CULVERTS ON THE RIGHT SIDE OF S.R. 104. BY MAINTAINING ACCESS TO RESIDENTS ON BOTH SIDES OF THE ROAD.
13. PLACE WORK ZONE CENTERLINE, EDGE LINES, STOP LINES, AND DRUMS ON THE RIGHT SIDE OF S.R. 104

PHASE II

S.R.104

1. PROVIDE AND INSTALL CONSTRUCTION SIGNS ALONG S.R. 104
2. PROVIDE PORTABLE CONCRETE BARRIERS (PCB'S) WITH TWO (2) ANCHORS ON THE LEFT SIDE OF EXISTING STRUCTURE.
3. SHIFT TRAFFIC TO RIGHT SIDE OF S.R. 104
4. SAWCUT (6") INSIDE OF EXISTING EDGE OF PAVEMENT AT LEFT SIDE OF S.R. 104.
5. SAWCUT 1'-9" FROM EDGE OF EXISTING STRUCTURE ON THE LEFT SIDE OF S.R. 104 AND REMOVE PORTION OF EXISTING APPROACH SLAB AND STRUCTURE.
6. ADJUST EXISTING SIGNAL HEAD LOCATIONS TO PROVIDE SAFE TRAFFIC MOVEMENTS TO AND FROM S.R. 665.
7. CONSTRUCT LEFT SIDE, INCLUDING PAVED SHOULDER OF S.R. 104 UP TO ITEM 448, ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22.
8. CONSTRUCT STRUCTURE AND REMAINING PART OF APPROACH SLAB ON THE LEFT SIDE OF S.R. 104
9. CONSTRUCT DRIVEWAYS WITH CULVERTS, DITCHES ON THE LEFT SIDE OF S.R. 104 BY MAINTAINING ACCESS TO RESIDENTS ON BOTH SIDES OF THE ROAD THROUGHOUT THE CONSTRUCTION PERIOD.
10. REMOVE PORTABLE CONCRETE BARRIERS (PCB'S) FROM SITE.

PHASE III (BY NOTES ONLY)

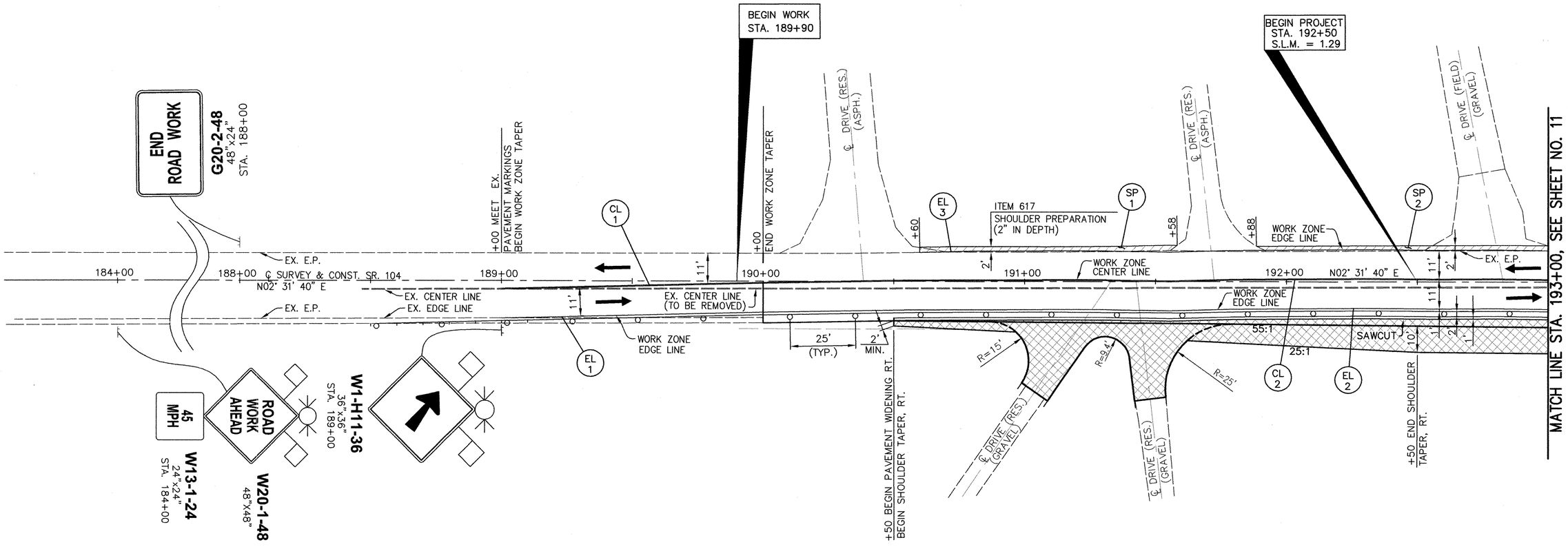
S. R. 104

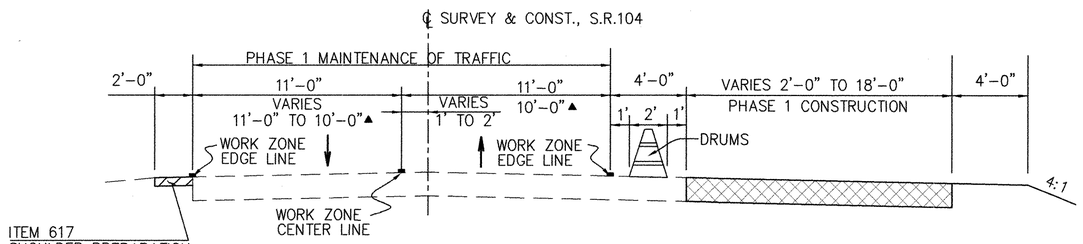
1. BEGIN PAVEMENT PLANING OF S.R. 104 BY USING FLAG MEN OR DRUMS USING MT-97.10.
2. CONSTRUCT FINAL LAYERS OF ITEM 448, ASPHALT CONCRETE SURFACE COURSE ON EXISTING PAVEMENT, ON NEWLY BUILT PAVED SHOULDERS AND NEWLY BUILT FULL DEPTH PAVEMENT.
3. PLACE PERMANENT PAVEMENT MARKINGS AND RPM'S.
4. COMPLETE SEEDING AND MULCHING ON BOTH SIDES OF S.R. 104.
5. COMPLETE ALL THE OTHER NECESSARY ITEMS BEFORE CLEANING SITE AND REMOVING ALL THE CONSTRUCTION SIGNS.

DESIGNED AM CHECKED MO

MAINTENANCE OF TRAFFIC NOTES

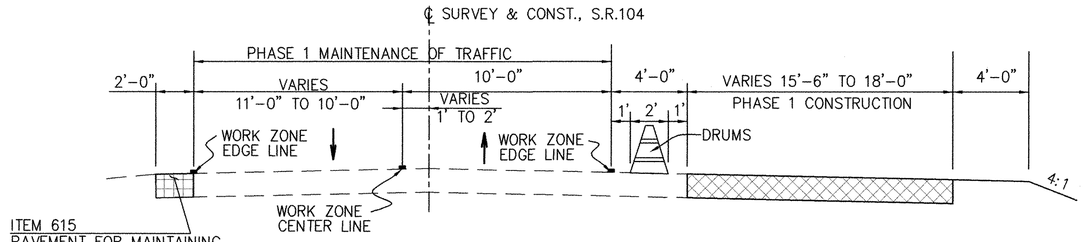
FRA-104-1.29





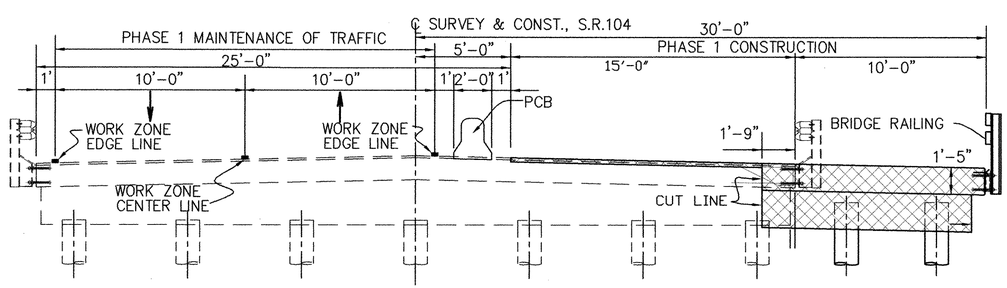
S.R.104 PHASE 1 CONSTRUCTION

STA. 190+50 TO STA. 199+50
▲ STA. 204+80.27 TO STA. 208+40



S.R.104 PHASE 1 CONSTRUCTION

STA. 200+60 TO STA. 203+64.17



S.R.104 PHASE 1 CONSTRUCTION(BRIDGE & APPROACH SLABS)

STA. 203+64.17 TO STA. 204+80.27

– FOR ADDITIONAL DETAILS, SEE BRIDGE SHEET 4/8

LEGEND

CL = WORK ZONE CENTERLINE
EL = WORK ZONE EDGE LINE
SP = SHOULDER PREPARATION
○ DRUMS
→ TRAFFIC FLOW PATTERN

PHASE 1 CONSTRUCTION

ITEM 617 SHOULDER PREPARATION (2" IN DEPTH)

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED AM
CHECKED MO

S.R. 104 - PHASE 1
MAINTENANCE OF TRAFFIC

FRA-104-1.29

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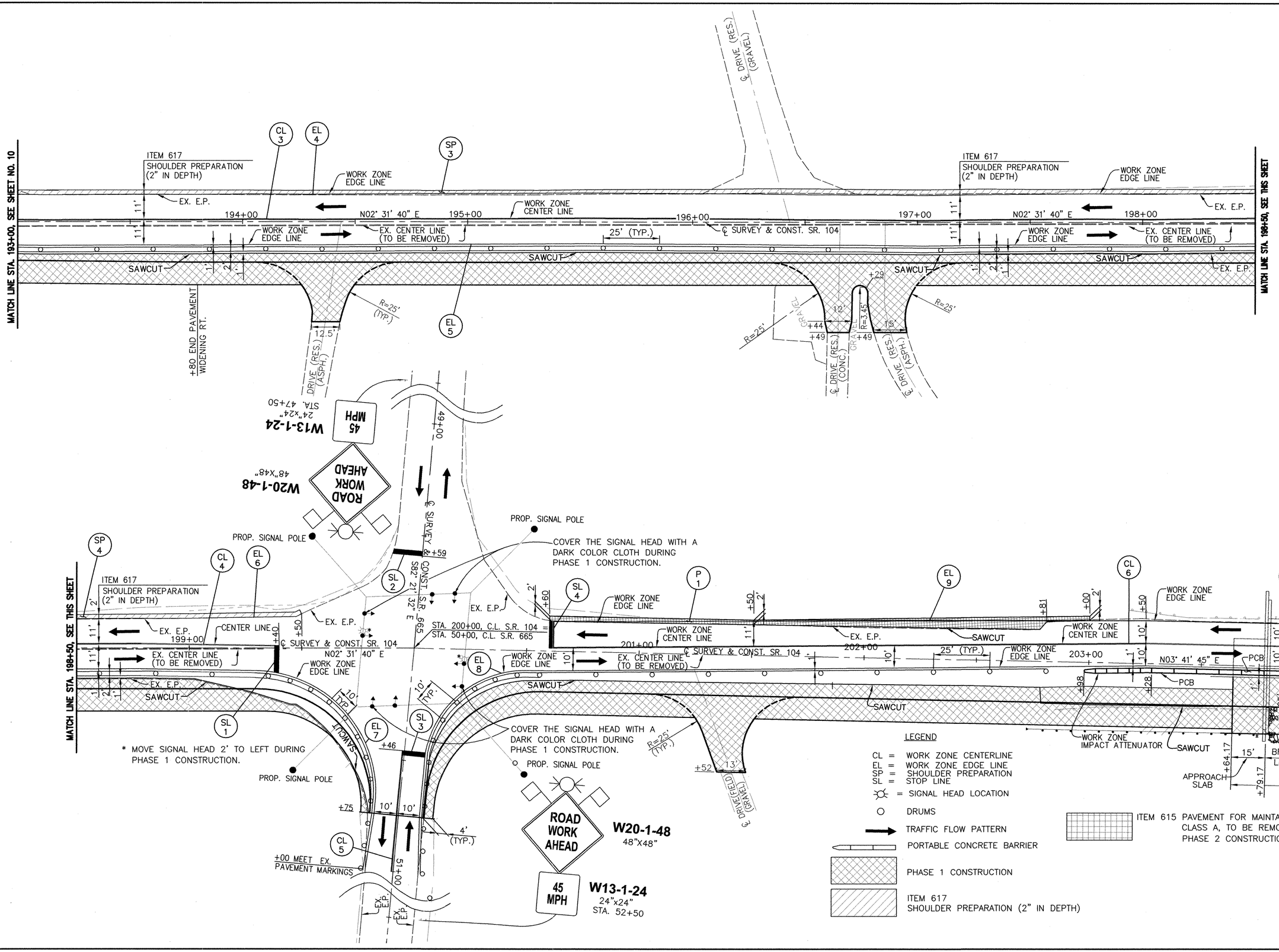

CALCULATED AM
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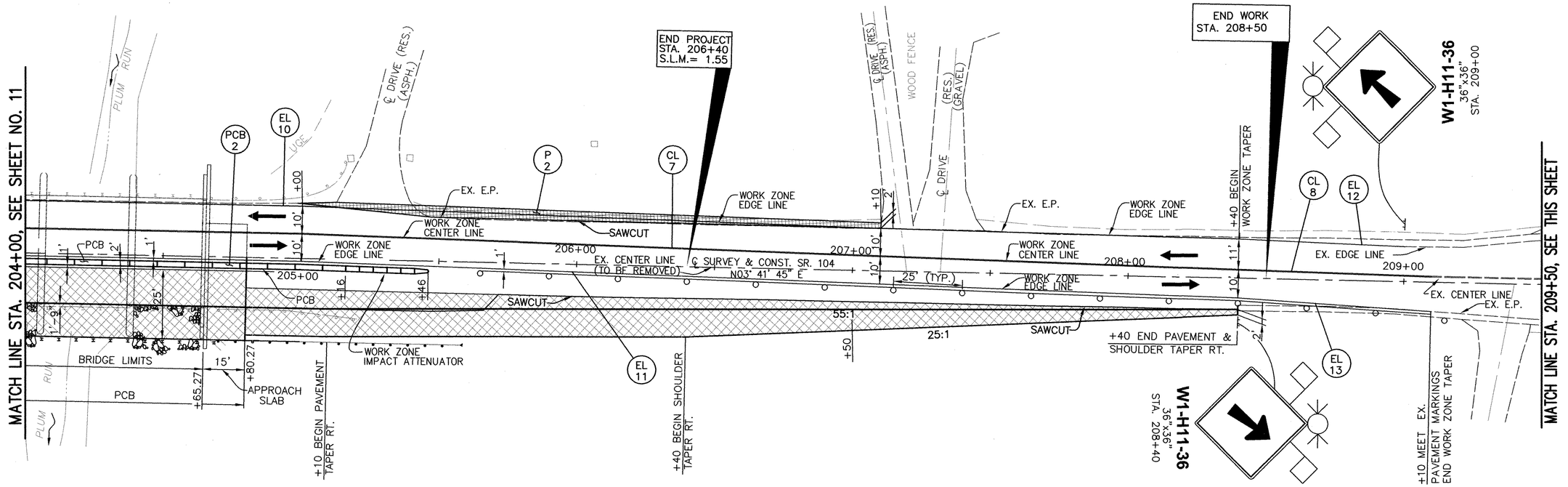
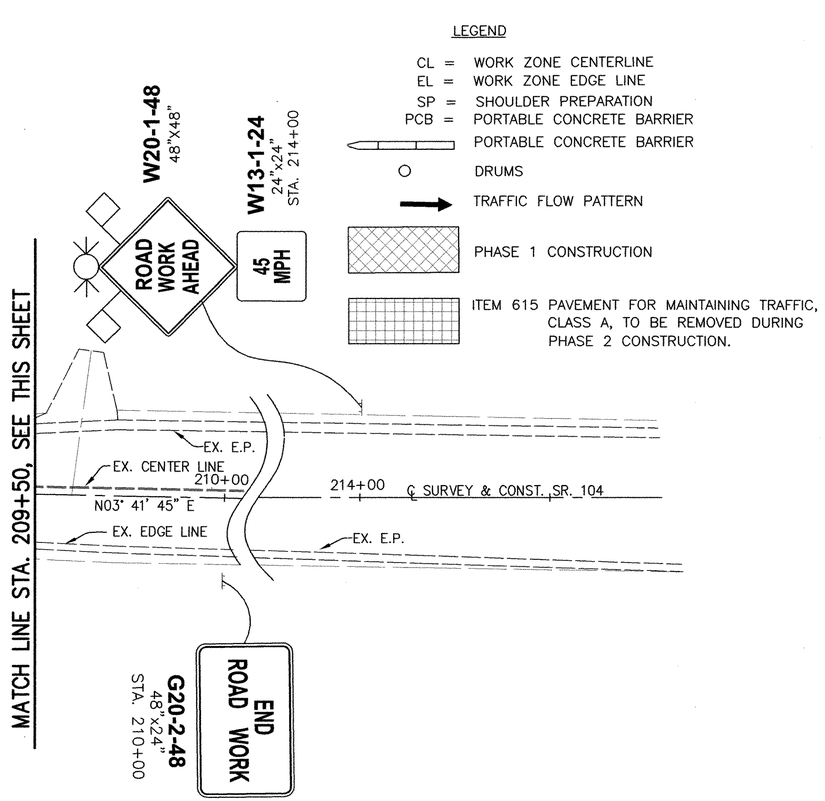
HORIZONTAL SCALE IN FEET
0 10 20 40

S.R. 104 PHASE 1
MAINTENANCE OF TRAFFIC

FRA-104-1.29





ESTIMATED QUANTITIES FOR PHASE 1 S.R. 104

SHT. NO.	REF NO.	STATION FROM	STATION TO	SIDE	614 WORK ZONE CENTERLINE, CLASS 1 DOUBLE SOLID YELLOW	614 WORK ZONE EDGE LINE, CLASS 1 WHITE	614 WORK ZONE CENTERLINE, CLASS 1, 740.06, TYPE I	614 WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE I	614 OBJECT MARKER	614 BARRIER REFLECTOR TYPE B2	614 WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL)	614 WORK ZONE STOPLINE, CLASS 1 WHITE	615 PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	617 SHOULDER PREPARATION	622 PORTABLE CONCRETE BARRIER 32"
					MILE	MILE	MILE	MILE	EACH	EACH	EACH	FT.	SQ. YD.	SQ. YD.	FT.
10	CL-1	189+00	190+00	LT./RT.			0.019								
10	CL-2	190+00	193+00	LT./RT.	0.057										
11	CL-3	193+00	198+50	LT.	0.104										
11	CL-4	198+50	199+40	LT.	0.017										
11	CL-5	50+46 TO 51+00	(S.R.665)	RT.	0.010										
11	CL-6	200+60	204+00	LT.	0.064										
12	CL-7	204+00	208+40	LT.	0.083										
12	CL-8	208+40	209+10	LT.			0.013								
10	EL-1	189+00	190+00	RT.				0.019							
10	EL-2	190+00	193+00	RT.		0.057									
10	EL-3	190+60	193+00	LT.		0.045									
11	EL-4	193+00	198+50	LT.		0.104									
11	EL-5	193+00	198+50	RT.		0.104									
11	EL-6	198+50	199+50	LT.		0.019									
11	EL-7	198+50	51+00 (S.R.665)	RT.		0.038									
11	EL-8	51+00 (S.R.665)	204+00	LT./RT.		0.089									
11	EL-9	200+60	204+00	LT.		0.064									
12	EL-10	204+00	208+40	LT.		0.083									
12	EL-11	204+00	208+40	RT.		0.083									
12	EL-12	208+40	209+10	LT.				0.013							
12	EL-13	208+40	209+10	RT.				0.013							
11	P-1	200+60	203+00	LT.									83		
12	P-2	205+00	207+10	LT.									71		
11	PCB-1	202+98	204+00	RT.					3	3	1				72
12	PCB-2	204+00	205+46	RT.					6	6	1				116
11	SL-1	199+40		LT./RT.								12			
11	SL-2	49+59	(S.R. 665)	RT.								13			
11	SL-3	50+46	(S.R. 665)	RT.								11			
11	SL-4	200+60		LT.								12			
10	SP-1	190+60	191+58	LT.										21.78	
10	SP-2	191+88	193+00	LT.										24.89	
11	SP-3	193+00	198+50	LT.										122.22	
11	SP-4	198+50	199+50	LT.										22.22	
SUB-TOTAL					0.335	0.686	0.032	0.045	9	9	2	48	154	191.11	188
TOTALS CARRIED TO GENERAL SUMMARY					0.34	0.69	0.03	0.05	9	9	2	48	154	191	188

CALCULATED AM CHECKED MO

HORIZONTAL SCALE IN FEET 0 10 20 40

S.R. 104 PHASE 1
MAINTENANCE OF TRAFFIC

FRA-104-1.29

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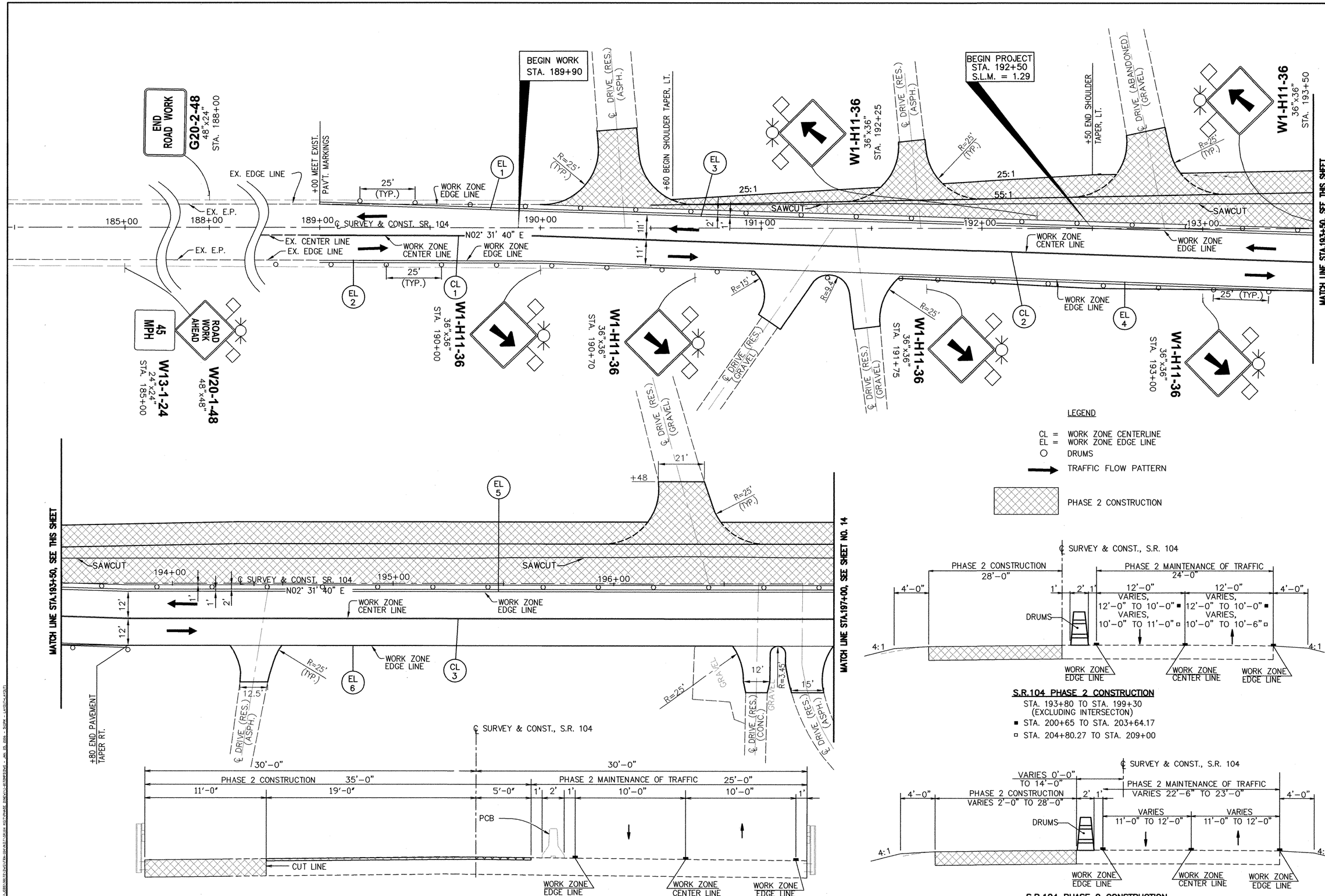

S.R.104 PHASE 2 CONSTRUCTION (BRIDGE & APPROACH SLABS)
STA. 203+64.17 TO STA. 204+80.27

S.R.104 PHASE 2 CONSTRUCTION
STA. 193+80 TO STA. 199+30
(EXCLUDING INTERSECTON)
■ STA. 200+65 TO STA. 203+64.17
▫ STA. 204+80.27 TO STA. 209+00

S.R.104 PHASE 2 CONSTRUCTION
STA. 190+60 TO STA. 193+80

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED AM
CHECKED MO

S.R. 104 - PHASE 2
MAINTENANCE OF TRAFFIC

FRA.-104-1.29

13
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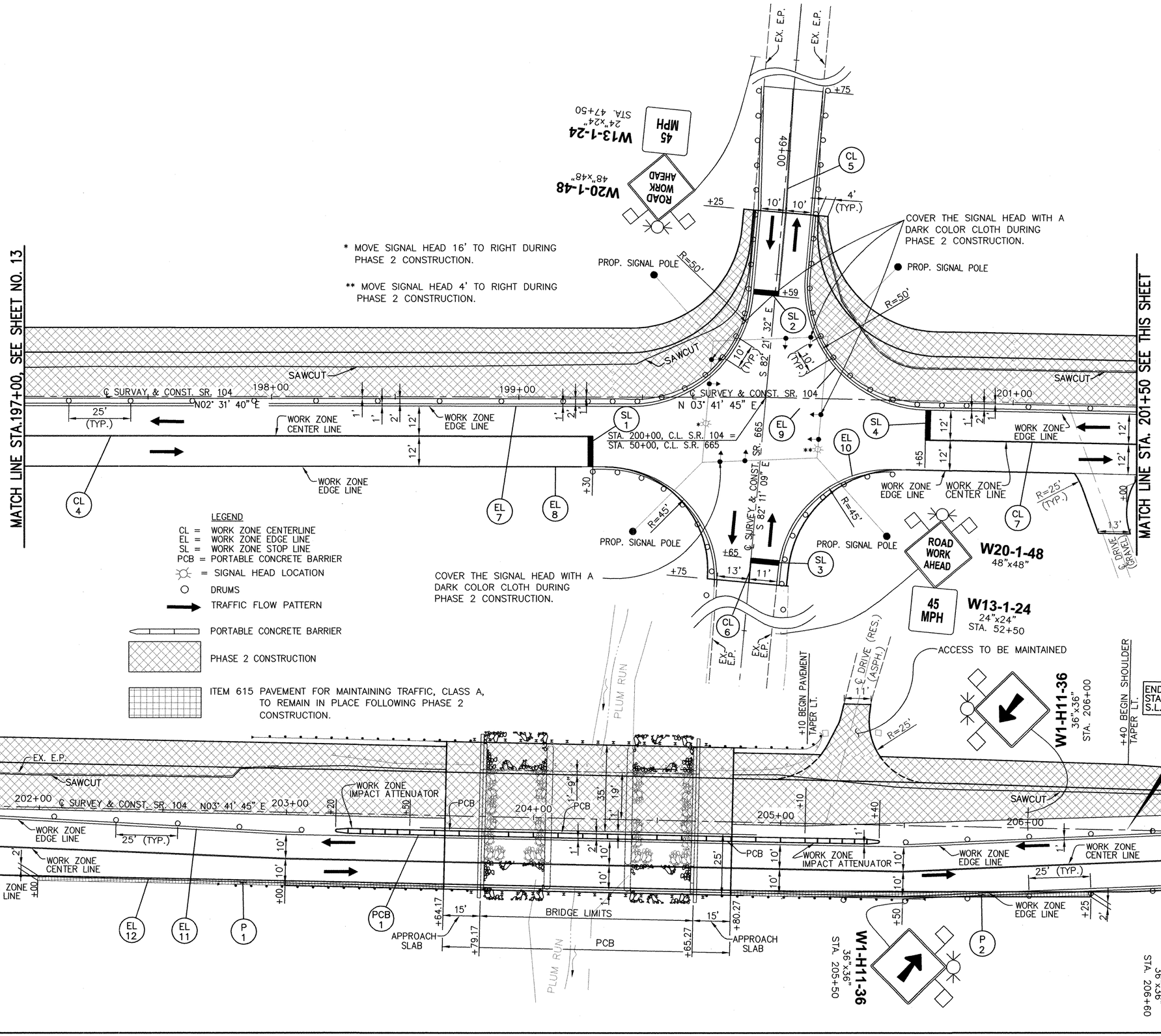

S.R. 104 - PHASE 2
MAINTENANCE OF TRAFFIC

CALCULATED AM
CHECKED MO

HORIZONTAL SCALE IN FEET
0 10 20 40

FRA.-104-1.29

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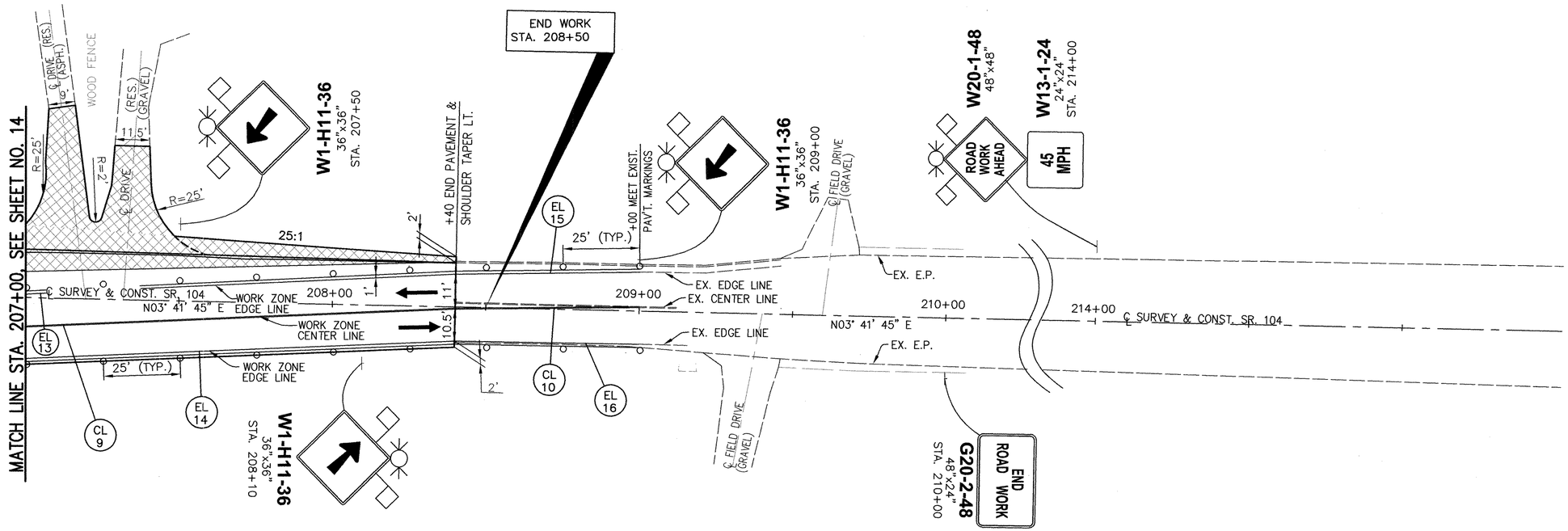

LEGEND

CL = WORK ZONE CENTERLINE
EL = WORK ZONE EDGE LINE
○ DRUMS
→ TRAFFIC FLOW PATTERN
▨ PHASE 2 CONSTRUCTION

ESTIMATED QUANTITIES FOR PHASE 2 S.R. 104

SHT. NO.	REF NO.	STATION FROM	STATION TO	SIDE	614 WORK ZONE CENTERLINE, CLASS 1 DOUBLE SOLID YELLOW	614 WORK ZONE EDGE LINE, CLASS 1 WHITE	614 WORK ZONE CENTERLINE, CLASS 1, 740.06, TYPE I	614 WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE I	614 OBJECT MARKER	614 BARRIER REFLECTOR TYPE B2	614 WORK ZONE IMPACT ATTENUATOR (BIDIRECTIONAL)	614 WORK ZONE STOPLINE CLASS 1, WHITE	615 PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	622 PORTABLE CONCRETE BARRIER 32"
					MILE	MILE	MILE	MILE	EACH	EACH	EACH	FT.	SQ. YD.	FT.
13	CL-1	189+00	190+00	RT.			0.019							
13	CL-2	190+00	193+50	RT.	0.066									
13	CL-3	193+50	197+00	RT.	0.066									
14	CL-4	197+00	199+30	RT.	0.044									
14	CL-5	48+75 (S.R.665)	49+59 (S.R.665)	LT.			0.016							
14	CL-6	50+65 (S.R.665)	50+75 (S.R.665)	℄			0.002							
14	CL-7	200+65	201+50	RT.	0.016									
14	CL-8	201+50	207+00	RT.	0.104									
15	CL-9	207+00	208+40	RT.	0.027									
15	CL-10	208+40	209+00	LT./RT.			0.011							
13	EL-1	189+00	190+00	LT.				0.019						
13	EL-2	189+00	190+00	RT.				0.019						
13	EL-3	190+00	193+50	LT./RT.		0.066								
13	EL-4	190+00	193+50	RT.		0.066								
13	EL-5	193+50	197+00	RT.		0.066								
13	EL-6	193+50	197+00	RT.		0.066								
14	EL-7	197+50	48+75 (S.R.665)	RT.		0.077								
14	EL-8	197+50	50+75 (S.R.665)	RT.		0.058								
14	EL-9	48+75 (S.R.665)	201+50	LT./RT.		0.046								
14	EL-10	50+75 (S.R.665)	201+50	LT./RT.		0.033								
14	EL-11	201+50	207+00	LT./RT.		0.104								
14	EL-12	201+50	207+00	RT.		0.104								
15	EL-13	207+00	208+40	LT.		0.027								
15	EL-14	207+00	208+40	RT.		0.027								
15	EL-15	208+40	209+00	LT.				0.011						
15	EL-16	208+40	209+00	RT.				0.011						
14	P-1	202+00	203+64.17	RT.									36	
14	P-2	204+80.27	206+25	RT.									32	
14	PCB-1	203+20	205+40	RT.					8	8	2			160
14	SL-1	199+30		RT.								12		
14	SL-2	49+59(S.R.665)		LT./RT.								10		
14	SL-3	50+65(S.R.665)		LT.								11		
14	SL-4	200+65		RT.								12		
SUB-TOTAL					0.323	0.740	0.048	0.060	8	8	2	45	68	160
TOTALS CARRIED TO GENERAL SUMMARY					0.32	0.74	0.05	0.06	8	8	2	45	68	160

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED AM
CHECKED MO

S.R. 104 - PHASE 2
MAINTENANCE OF TRAFFIC

FRA-104-1.29

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ITEM	SHEET NUMBERS																								ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	5	6	8	12	15	18	19	22	23	24	25	26	41			47		52												
																													ROADWAY	
201	LUMP																								201	11000	LUMP		CLEARING AND GRUBBING	
202												3													202	11004	3	EACH	STRUCTURE REMOVED	26
202									47																202	23000	47	SQ.YD.	PAVEMENT REMOVED	
202								180	123	224		43													202	35100	570	FT.	PIPE REMOVED, 24" AND UNDER	
202											271														202	38000	271	FT.	GUARDRAIL REMOVED	
202																		31							202	54000	31	EACH	RAISED PAVEMENT MARKER REMOVED	
202										2															202	58100	2	EACH	CATCH BASIN REMOVED	
202									508			125													202	75000	633	FT.	FENCE REMOVED (WOOD)	
202								18																	202	75000	18	FT.	FENCE REMOVED (STEEL)	
202									2	4	2														202	75300	8	EACH	PULL BOX REMOVED	
203													2735												203	10000	2735	CU.YD.	EXCAVATION	
203													1286												203	20000	1286	CU.YD.	EMBANKMENT	
204						5573																			204	10000	5573	SQ.YD.	SUBGRADE COMPACTION	
204	6																								204	45000	6	HOUR	PROOF ROLLING	
604	3																								604	38501	3	EACH	MONUMENT ASSEMBLY, AS PER PLAN	5
606											212.50														606	13000	212.5	FT.	GUARD RAIL, TYPE 5	
606											3														606	22010	3	EACH	ANCHOR ASSEMBLY, E-98	
606											1														606	26500	1	EACH	ANCHOR ASSEMBLY, TYPE T	
606											4														606	32160	4	EACH	BRIDGE TERMINAL ASSEMBLY, TYPE TST	
SPECIAL		10																							SPECIAL	69050100	10	EACH	MAILBOX SUPPORT SYSTEM, SINGLE	6
																												EROSION CONTROL	
601								4			7														601	21050	11	SQ.YD	TIED CONCRETE BLOCK MAT, TYPE 1	
601											63														601	32100	63	CU.YD.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
601										3															601	32200	3	CU.YD.	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
659	1																								659	00100	1	EACH	SOIL ANALYSIS TEST	
659													7925												659	10000	7925	SQ.YD.	SEEDING AND MULCHING	
659	396																								659	14000	396	SQ.YD.	REPAIR SEEDING AND MULCHING	
659	396																								659	15000	396	SQ.YD.	INTER - SEEDING	
659						0.71																			659	20000	0.71	TON	COMMERCIAL FERTILIZER	
659						1.64																			659	31000	1.64	ACRE	LIME	
659						17																			659	35000	17	M.GAL.	WATER	
832							1																		832	15000	LUMP		STORM WATER POLLUTION PREVENTION PLAN	
832							1																		832	30000	10000	EACH	EROSION CONTROL	
																												DRAINAGE	
602								12	3.9	0.3		5.1													602	20000	21.3	CU.YD.	CONCRETE MASONRY	
603		40																							603	00200	40	FT.	4" CONDUIT, TYPE C	
603	50																								603	00400	50	FT.	4" CONDUIT, TYPE E	
603		220																							603	00401	220	FT.	4" CONDUIT, TYPE E, AS PER PLAN	6
603								26		43	105														603	00510	174	FT.	6" CONDUIT, TYPE F FOR UNDERDRAIN OUTLETS	
603	50																								603	01400	50	FT.	6" CONDUIT, TYPE E	
603	50																								603	02500	50	FT.	8" CONDUIT, TYPE E	
603								164	98		36	53													603	04900	351	FT.	12" CONDUIT, TYPE D	
603	50																								603	05100	50	FT.	12" CONDUIT, TYPE E	
603										84															603	05700	84	FT.	15" CONDUIT, TYPE A	
603										84															603	07400	84	FT.	18" CONDUIT, TYPE B	
603										152															603	07600	152	FT.	18" CONDUIT, TYPE C	
604										1															604	04500	1	EACH	CATCH BASIN NO. 2-2B	
604										2															604	04900	2	EACH	CATCH BASIN NO. 2-3	
604								2			4														604	36600	6	EACH	PRECAST REINFORCED CONCRETE OUTLET	
605								1300	1600	1738	1096	960													605	06000	6694	FT.	4" BASE PIPE UNDERDRAINS	
																												PAVEMENT	
254						5869		147																	254	01000	6016	SQ.YD.	PAVEMENT PLANING, ASPHALT CONCRETE	
301						1023		27	13	2	4	9													301	46000	1078	CU.YD.	ASPHALT CONCRETE BASE, PG64-22	
304						833		3		5		4													304	20000	845	CU.YD.	AGGREGATE BASE	
407						785																			407	10000	785	GALLON	TACK COAT	
407						221																			407	14000	221	GALLON	TACK COAT FOR INTERMIDIATE COURSE	
408						1916																			408	10000	1916	GALLON	PRIME COAT	
448						215																			448	46050	215	CU.YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2 PG-64-22	
448						429																			448	47020	429	CU.YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1 PG-64-22	
448								9	4	1	1	3													448	48020	18	CU.YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1 PG-64-22 (DRIVEWAY)	
452									29																452	10000	29	SQ.YD.	6" NON-REINFORCED CONCRETE PAVEMENT	
615				154	68																				615	20000	222	SQ.YD.	PAVEMENT FOR MAINTAINING TRAFFIC, CLASS A	
617			150																						617	10100	150	CU.YD.	COMPACTED AGGREGATE	
617				191																					617	20000	191	SQ.YD.	SHOULDER PREPARATION	

DESIGNED AM
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GENERAL SUMMARY

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ITEM	SHEET NUMBERS 5	6	8	12		15	18	22	23	24	25	26	41	52	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
																			TRAFFIC CONTROL	
621														94	621	00100	94	EACH	RPM	
630														72	630	02100	72	FT.	GROUND MOUNTED SUPPORT, NO.2 POST	
630														169	630	03100	169	FT.	GROUND MOUNTED SUPPORT, NO.3 POST	
630														22.19	630	80100	22.19	SQ.FT.	SIGN, FLAT SHEET	
630														1.67	630	80101	1.67	SQ.FT.	SIGN, FLAT SHEET, AS PER PLAN	6
630														11	630	84900	11	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
630														21	630	85100	21	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
630														23	630	86002	23	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
646														0.72	646	10001	0.72	MILE	EDGE LINE, AS PER PLAN	6
646														0.51	646	10201	0.51	MILE	CENTER LINE, AS PER PLAN	6
646														750	646	10301	750	FT.	CHANNELIZING LINE, AS PER PLAN	6
646														78	646	10401	78	FT.	STOP LINE, AS PER PLAN	6
646														270	646	10601	270	FT.	TRANSVERSE / DIAGONAL LINE, AS PER PLAN	6
646														5	646	20301	5	EACH	LANE ARROW, AS PER PLAN	6
																			MAINTANCE OF TRAFFIC	
410			30												410	11000	30	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE B	
410			30												410	13000	30	CU.YD.	TRAFFIC COMPACTED SURFACE, TYPE C	
614			120												614	11100	120	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	
614				2		2									614	12338	4	EACH	WORKZONE IMPACT ATTENUATOR (BIDIRECTIONAL)	
614			5												614	13000	5	CU.YD.	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
614				9		8									614	13302	17	EACH	BARRIER REFLECTOR, TYPE B2	
614				9		8									614	13350	17	EACH	OBJECT MARKER, ONE WAY	
614				0.34		0.32									614	21000	0.66	MILE	WORK ZONE CENTER LINE, CLASS 1	
614				0.03		0.05									614	21200	0.08	MILE	WORK ZONE CENTER LINE, CLASS 1, 740.06, TYPE I	
614				0.69		0.74									614	22000	1.43	MILE	WORK ZONE EDGE LINE, CLASS 1	
614				0.05		0.06									614	22200	0.11	MILE	WORK ZONE EDGE LINE, CLASS 1, 740.06, TYPE I	
614				48		45									614	26000	93	FT.	WORK ZONE STOP LINE, CLASS 1	
616			12												616	10000	12	M.GAL	WATER	
622				188		160									622	40020	348	FT.	PORTABLE CONCRETE BARRIER, 32"	
																			FOR TRAFFIC SIGNAL GENERAL SUMMARY, SEE SHEET NO. 49	
																			FOR STRUCTURE QUANTITIES, SEE SHEET NO. 55	
																			ALTERNATE BID	
646														0.72	646	10001	0.72	MILE	EDGE LINE, -(POLYCARB)-, AS PER PLAN - ALTERNATE BID	6
646														0.51	646	10201	0.51	MILE	CENTER LINE, -(POLYCARB)-, AS PER PLAN - ALTERNATE BID	6
646														750	646	10301	750	FT.	CHANNELIZING LINE, -(POLYCARB)-, AS PER PLAN - ALTERNATE BID	6
646														78	646	10401	78	FT.	STOP LINE, -(POLYCARB)-, AS PER PLAN - ALTERNATE BID	6
646														270	646	10601	270	FT.	TRANSVERSE / DIAGONAL LINE, -(POLYCARB)-, AS PER PLAN - ALTERNATE BID	6
646														5	646	20301	5	EACH	LANE ARROW, -(POLYCARB)-, AS PER PLAN - ALTERNATE BID	6
614															614	11000	LUMP		MAINTAINING TRAFFIC	
619															619	16000	7	MONTH	FIELD OFFICE, TYPE A	
623															623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
624															624	10000	LUMP		MOBILIZATION	

DESIGNED AM
CHECKED MO

GENERAL SUMMARY

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PAVEMENT CALCULATIONS

RESURFACING AREA SR.104
SURFACE AREA FOR ITEM 448 & PAVEMENT PLANING

STA. 190+50 TO STA. 196+50	= 600' * 26.5'	=	15900.00	S.F.
STA. 196+50 TO STA. 199+03	= 253' * (26.5'+27.5')/2	=	6831.00	S.F.
INTERSECTION AREA (STA. 199+03 TO STA. 200+60 & STA. 49+25 TO STA. 50+75)		=	10361.00	S.F.
STA. 200+60 TO STA. 202+78	= 218 * 26.50'	=	5777.00	S.F.
STA. 202+78 TO STA. 203+79	= 101' * 36.50' – (24' * 15' APP. SLAB AREA)	=	3326.50	S.F.
STA. 204+65 TO STA. 205+69	= 104' * (37'+33.5')/2 – (24' * 15' APP. SLAB AREA	=	3306.00	S.F.
STA. 205+69 TO STA. 208+40	= 271' * 27'	=	7317.00	S.F.
	TOTAL	=	52818.50	S.F..

ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22
52818.50 S.F. * (1.5"/12)/27 = 244.53 C.Y.

ITEM 407 TACK COAT
52818.50 S.F./9 * 0.075 GAL./S.Y. = 440.15 GALS.

ITEM 254 PAVEMENT PLANING, ASPHALT CONCRETE
52818.50 S.F./9 = 5868.72 S.Y.

FULL DEPTH PAVEMENT AREA
SURFACE AREA FOR ITEM 448

STA. 190+50 TO STA. 192+50 (RT.)	= 200' * (2'+12.75')/2	=	1475.00	S.F.
STA. 190+50 TO STA. 192+50 (LT.)	= 200' * (2'+13.25')/2	=	1525.00	S.F.
STA. 192+50 TO STA. 193+80 (RT.)	= 130' * (12.75'+13.75')/2	=	1722.50	S.F.
STA. 192+50 TO STA. 194+30 (LT.)	= 180' * (13.25'+16.75')/2	=	2700.00	S.F.
STA. 193+80 TO STA. 199+02 (RT.)	= 522' * (13.75'+14.5')/2	=	7373.25	S.F.
STA. 194+30 TO STA. 199+02 (LT.)	= 472' * (16.75'+15')/2	=	7493.00	S.F.
SW. CORNER: STA. 199+02 (LT.) SR–104 TO STA. 49+25 (RT.) SR–665 BY COMPUTER AREA		=	1408.61	S.F.
SE. CORNER: STA. 190+02 (RT.) SR–104 TO STA. 50+75 (RT.) SR–665 BY COMPUTER AREA		=	846.61	S.F.
NE. CORNER: STA. 50+75 (LT.) SR–665 TO STA. 200+73 (RT) SR–104 BY COMPUTER AREA		=	1144.28	S.F.
NW. CORNER: STA. 49+25 (LT.) SR–665 TO STA. 200+73 (LT.) SR–104. BY COMPUTER AREA		=	791.68	S.F.
STA. 200+73 TO STA. 202+79 (RT.)	= 206' * (15.5'+16.5')/2	=	3296.00	S.F.
STA. 200+73 TO STA. 202+79 (LT.)	= 206' * (15'+14.5')/2	=	3038.50	S.F.
STA. 202+79 TO STA. 203+64.17 (LT./RT.)	= 85.17 * 20	=	1703.40	S.F.
STA. 204+80.27 TO STA. 205+10 (LT./RT.)	= 29.73 * 20	=	594.60	S.F.
STA. 205+10 TO STA. 205+69 (RT.)	= 59' * 10'	=	590.00	S.F.
STA. 205+69 TO STA. 206+40 (RT.)	= 71' * (15.25'+14')/2	=	1038.38	S.F.
STA. 206+40 TO STA. 208+40 (RT.)	= 200' * (14'+2')/2	=	1600.00	S.F.
STA. 206+40 TO STA. 208+40 (LT.)	= 200' * (12'+2')/2	=	1400.00	S.F.
	TOTAL	=	39740.81	S.F.

ITEM 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22
39740.81 S.F. *(1.50"/12)/27 = 183.99 C.Y.

ITEM 448 ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22
39740.81 S.F. * (1.75"/12)/27 = 214.65 C.Y.

SURFACE AREA FOR ITEM 301
USE SAME AREA OF ITEM 448 = 39740.81 S.F.
ADD LENGTH OF FULL DEPTH PAVEMENT:

STA. 190+50 (LT.) TO STA. 49+25 (RT.) S.R. 665	= 970.00	FT.
STA. 190+50 (RT.) TO STA. 50+75 (RT.) S.R. 665	= 950.00	FT.
STA. 49+25 (LT.) S.R. 665 TO STA. 203+64.17 (LT.)	= 364.17	FT.
STA. 50+75 (LT.) S.R. 665 TO STA. 203+64.17 (RT.)	= 371.17	FT.
STA. 204+80.27 TO STA. 208+40 (LT.)	= 359.73	FT.
STA. 204+80.27 TO STA. 208+40 (RT.)	= 359.73	FT.
TOTAL LENGTH	= 3374.80	FT.

= 3374.80' * 0.5' = 1687.40 S.F.
TOTAL = 41428.21 S.F.

ITEM 301 ASPHALT CONCRETE BASE, PG64–22
41428.21 S.F. * (8"/12)/27 = 1022.92 C.Y.

SURFACE AREA FOR ITEM 304 AGGREGATE BASE
USE SAME AREA OF ITEM 301 = 41428.21 S.F.
USE SAME LENGTH OF FULL DEPTH PAVEMENT. = 3374.80' * 0.5' = 1687.40 S.F.
TOTAL = 43115.61 S.F.

ITEM 304 AGGREGATE BASE
ADD APPROACH SLABS AREA (15' * 63') * 2 =1890.00 S.F.
(43115.61+1890.00) S.F. * (6"/12)/27 = 833.44 C.Y.

ITEM 407 TACK COAT FOR INTERMEDIATE COURSE
USE (FULL DEPTH) PAVEMENT SURFACE AREA OF ITEM 448: = 39740.81 S.F.
39740.81 S.F. / 9 * 0.05 GAL/S.Y = 220.78 GALS.

ITEM 407 TACK COAT
USE ITEM 301 ASPHALT CONCRETE BASE AREA = 41428.21 S.F.
(41428.21 S.F. / 9) * 0.075 GAL/S.Y = 345.24 GALS.

ITEM 408 PRIME COAT
USE ITEM 304 AGGREGATE BASE AREA = 43115.61 S.F.
(43115.61 S.F. /9) * 0.4 GAL/S.Y. = 1916.25 GALS.

ITEM 204 SUBGRADE COMPACTION

USE AREA OF ITEM 304 AGGREGATE BASE :	= 43115.61	S.F.	
AREA OF APPROACH SLABS :	= 1890.00	S.F.	
ADD TOTAL LENGTH OF PAVEMENT = 3374.80 * 1.5	= 5062.20	S.F.	
ADD LENGTH OF APPROACH SLABS = (15'+15') * 2 * 1.5	= 90.00	S.F.	
TOTAL AREA	= 50157.81	S.F. /9	= 5573.09 S.Y.

ITEM 659 COMMERCIAL FERTILIZER
7925 S.Y. * 9 * (20 LB./1000 S.F.)/2000 LB./TON = 0.71 TON ▲

ITEM 659 WATER
7925 S.Y. * 9 * 2 (120 GAL./1000 S.F.)/1000 GAL./M.GAL. = 17.12 M.GALS. (17M.GAL. ROUNDED) ▲

ITEM 659 LIME
7925 S.Y. * 9 /43560 = 1.64 ACRE ▲

▲ – ITEMS CARRIED TO GENERAL SUMMARY

QUANTITIES CARRIED TO GENERAL SUMMARY			
204	SUBGRADE COMPACTION		= 5573.09 S.Y. (5573 S.Y. ROUNDED)
254	PAVEMENT PLANING, ASPHALT CONCRETE		= 5868.72 S.Y. (5869 S.Y. ROUNDED)
301	ASPHALT CONCRETE BASE, PG64–22		= 1022.92 S.Y. (1023 C.Y. ROUNDED)
304	AGGREGATE BASE		= 833.44 S.Y. (833 C.Y. ROUNDED)
407	TACK COAT	: 440.15 + 345.24	= 785.39 GALS. (785 GALS ROUNDED)
407	TACK COAT FOR INTERMEDIATE COURSE		= 220.78 GALS (221 GALS ROUNDED)
408	PRIME COAT		= 1916.25 GALS (1916 GALS ROUNDED)
448	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22		= 214.65 C.Y. (215 C.Y. ROUNDED)
448	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22	: 244.53 + 183.99	= 428.52 C.Y. (429 C.Y. ROUNDED)

DESIGNED MS CHECKED AM

PAVEMENT CALCULATIONS

FRA-104-1.29

18
68

PROJECT DESCRIPTION

IMPROVE THE INTERSECTION OF S.R. 104 AND S.R. 665 BY ADDING TURN LANES TO S.R. 104. INSTALL NEW TRAFFIC SIGNAL AND WIDEN EXISTING BRIDGE OVER PLUM RUN TO ACCOMODATE NEW PAVEMENT WIDTH.

PROJECT DATA	
TOTAL AREA (R/W)	4.41 Ac
PROJECT EARTH DISTURBED AREA	2.82 Ac
CONTRACTOR EARTH DISTURBED AREA	0.13 Ac
NOI EARTH DISTURBED AREA	4.90 Ac
PRE-CONSTRUCTION RUNOFF COEFFICIENT	0.68
POST-CONSRUCTION RUNOFF COEFFICIENT	0.70
IMPERVIOUS AREA PRE-CONSTRUCTION	1.59 Ac
IMPERVIOUS AREA POST-CONSTRUCTION	2.44 Ac
SOIL DATA-SEE FRANKLIN CO. SOIL AND WATER CONSERVATION	
IMMEDIATE RECEIVING WATERS	PLUM RUN
SUBSEQUENT RECEIVING WATERS	SCIOTO RIVER

USGS QUANDRANT – COMMERCIAL POINT & HARRISBURG

LATITUDE: N 39° 49' 27"
LONGITUDE: W 83° 01' 59"

ITEM 832 EROSION CONTROL (EACH)
ITEM 832 STORM WATER POLLUTION PREVENTION PLAN (LUMP)

MATCH LINE STA. 201+00 SEE SHEET NO. 20

CALCULATED AM | CHECKED APW

HORIZONTAL SCALE IN FEET 0 40 80 160

PROJECT SITE PLAN

FRA. - S.R. 104 - 1.29

19
68

PROJECT SITE PLAN

FRA. - S.R. 104 - 1.29

20
68

CALCULATED AM
CHECKED APW

HORIZONTAL SCALE IN FEET
0 40 80 160

PROJECT DESCRIPTION

IMPROVE THE INTERSECTION OF S.R. 104 AND S.R. 665 BY ADDING TURN LANES TO S.R. 104. INSTALL NEW TRAFFIC SIGNAL AND WIDEN EXISTING BRIDGE OVER PLUM RUN TO ACCOMODATE NEW PAVEMENT WIDTH.

PROJECT DATA	
TOTAL AREA (R/W)	4.41 Ac
PROJECT EARTH DISTURBED AREA	2.82 Ac
CONTRACTOR EARTH DISTURBED AREA	0.13 Ac
NOI EARTH DISTURBED AREA	4.90 Ac
PRE-CONSTRUCTION RUNOFF COEFFICIENT	0.68
POST-CONSRUCTION RUNOFF COEFFICIENT	0.70
IMPERVIOUS AREA PRE-CONSTRUCTION	1.59 Ac
IMPERVIOUS AREA POST-CONSTRUCTION	2.44 Ac
SOIL DATA-SEE FRANKLIN CO. SOIL AND WATER CONSERVATION	
IMMEDIATE RECEIVING WATERS	PLUM RUN
SUBSEQUENT RECEIVING WATERS	SCIOTO RIVER

USGS QUANDRANT – COMMERCIAL POINT & HARRISBURG

LATITUDE: N 39° 49' 27"
LONGITUDE: W 83° 01' 59"

MATCH LINE STA. 201+00 SEE SHEET NO. 19

HISTORICAL BOUNDARY

STA.202+75 66.50' LT.

250' CONST. LIMITS

EX. R/W

℄ SURVEY & CONST. S.R.104 N03°41'45"E

203+00 204+00 205+00 206+00 207+00 208+00 209+00 210+00

JACKSON

TEMP. EASEMENT

12"STM

CONST. LIMITS

TOWNSHIP

14" STEEL

15" STM

12" CMP

CB

PROP. 18"STM

STA.202+28 58' RT.

175'

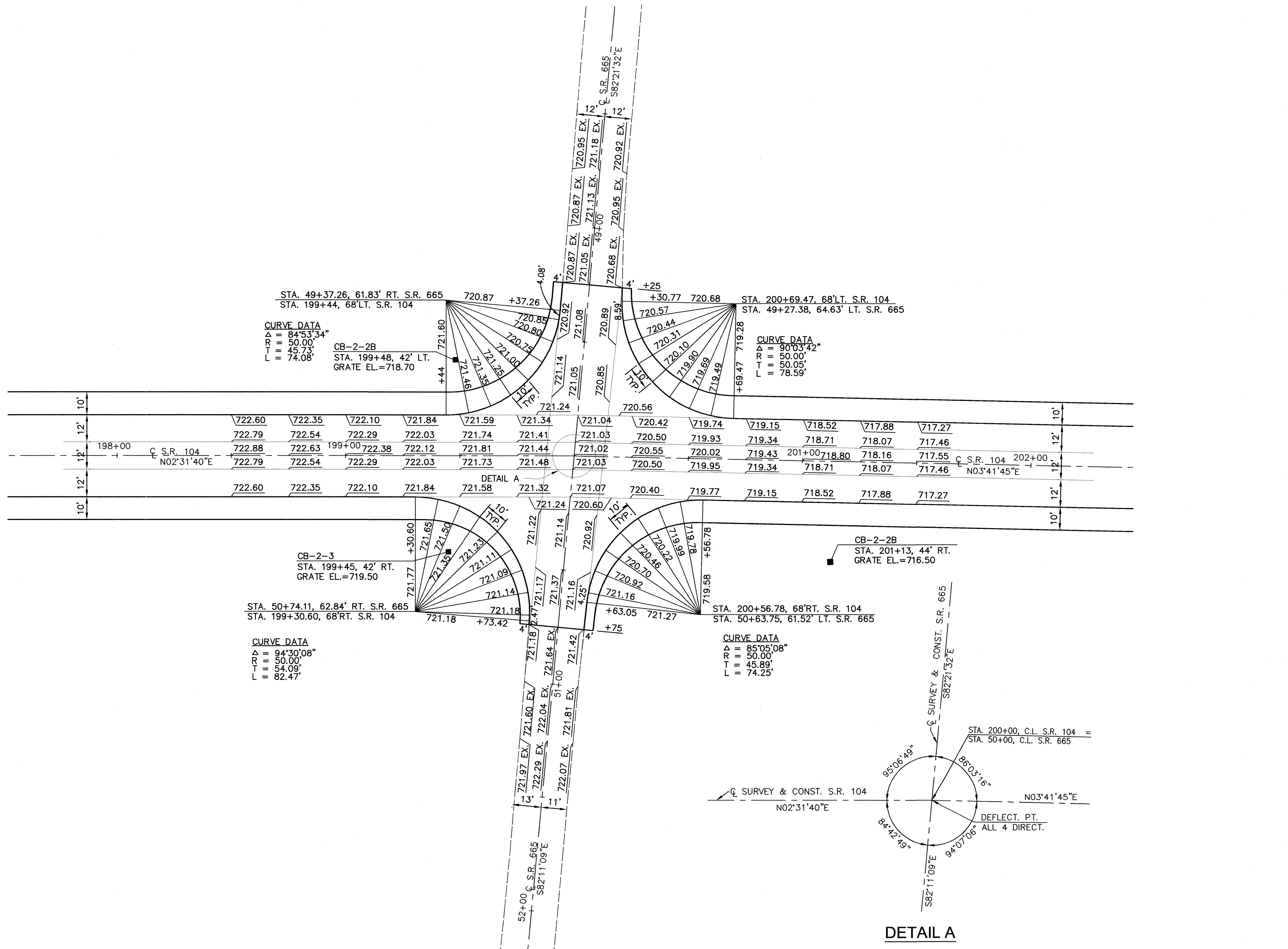
HISTORICAL BOUNDARY

TOWNSHIP CORP.

JACKSON GROVE CITY

PLUM RUN

ITEM 832 EROSION CONTROL (EACH)
ITEM 832 STORM WATER POLLUTION PREVENTION PLAN (LUMP)



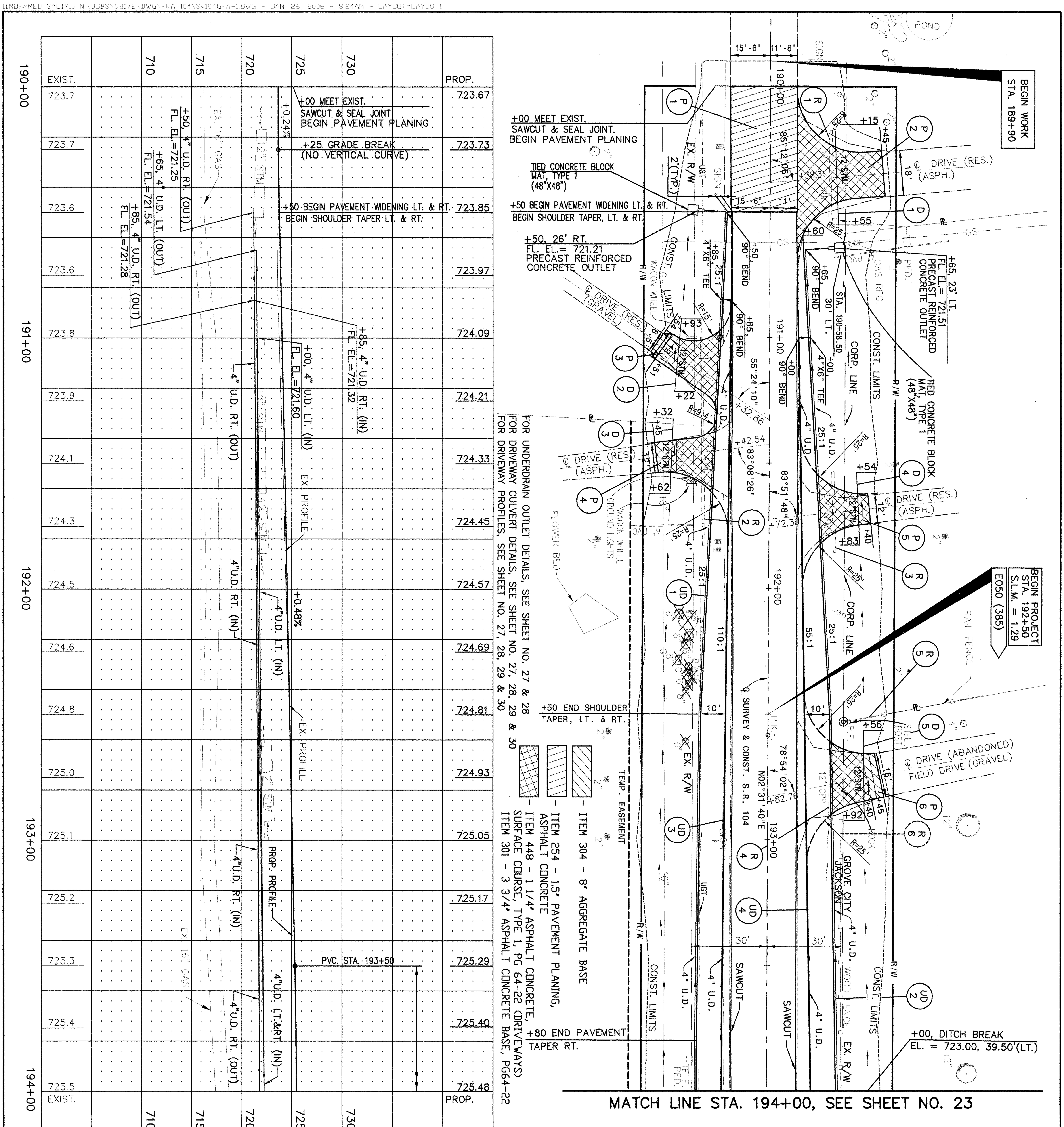
HORIZONTAL SCALE IN FEET

CALCULATED AM

CHECKED MO

INTERSECTION DETAIL

FRA - 104 - 1.29



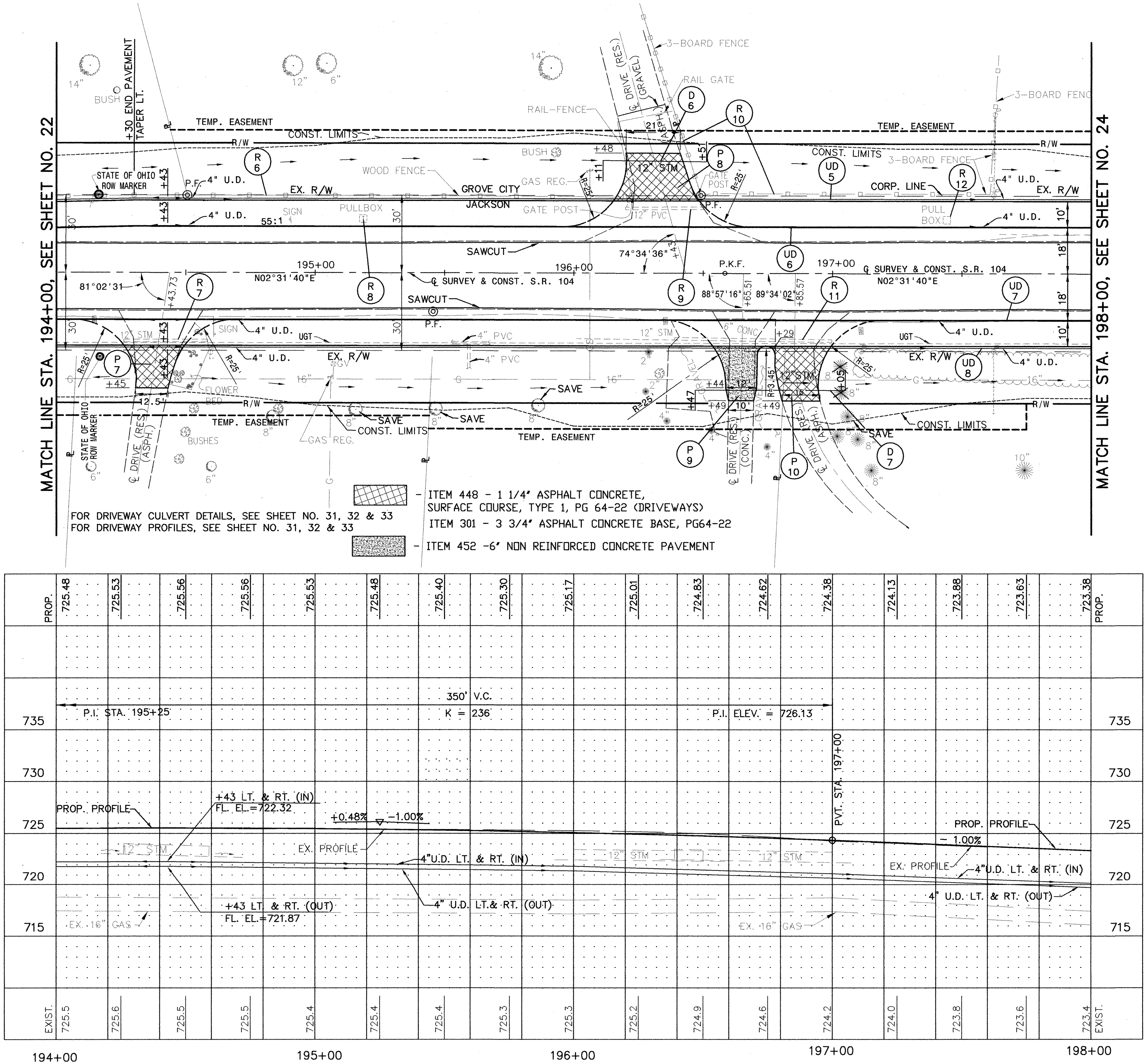
REF NO.	STATION FROM	STATION TO	SIDE	202 FENCE REMOVED (STEL) FT.	202 PIPE REMOVED, 24" AND UNDER FT.	254 PAVEMENT PLANING, ASPHALT S.Y.	301 ASPHALT CONCRETE BASE C.Y.	304 AGGREGATE BASE C.Y.	448 ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS) C.Y.	601 TIED CONCRETE BLOCK MAT, TYPE1 S.Y.	602 CONCRETE MASONRY C.Y.	603 6" CONDUIT, TYPE F, 707.33 FOR UNDERDRAIN OUTLETS FT.	603 12" CONDUIT, TYPE D FT.	604 PRECAST REINFORCED CONCRETE OUTLET EACH	605 4" BASE PIPE UNDERDRAINS FT.
D-1	190+15	190+55	LT.										40		
D-2	190+93	191+22	RT.								2.80		29		
D-3	191+32	191+62	RT.								2.89		30		
D-4	191+54	191+83	LT.								2.80		29		
D-5	192+56	192+92	LT.								3.47		36		
P-1	190+00	190+50	LT./RT.			147									
P-2	190+38.31		LT.				10.30		3.43						
P-3	191+32.86		RT.				4.90	0.76	1.63						
P-4	191+42.54		RT.				4.10		1.36						
P-5	191+72.36		LT.				3.91		1.30						
P-6	192+82.76		LT.				3.63	2.22	1.21						
R-1	190+38.31		LT.		34										
R-2	191+00	191+83	RT.		83										
R-3	191+72.36		LT.		33										
R-4	192+82.76		LT.		30										
R-5	192+53		LT.	18											
UD-1	190+50	194+00	RT.							1.78		9		1	350
UD-2	190+65	194+00	LT.							1.78		9		1	335
UD-3	190+85	194+00	RT.									4			315
UD-4	191+00	194+00	LT.									4			300
TOTALS CARRIED TO GENERAL SUMMARY				18	180	147	27	3	9	4	12	26	164	2	1300

FRA - 104 - 1.29

PLAN AND PROFILE - S.R. 104
STA. 190+00 TO STA. 194+00

CALCULATED AM
CHECKED MO

HORIZONTAL SCALE IN FEET 0 10 20 40



REF NO.	STATION FROM	STATION TO	SIDE	202 PAVEMENT REMOVED (6" CONC.) S.Y.	202 PIPE REMOVED, 24" AND UNDER FT.	202 FENCE REMOVED (WOOD) FT.	202 PULL BOX REMOVED EA.	301 ASPHALT CONCRETE BASE C.Y.	448 ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS) C.Y.	452 6" NON REINFORCED CONCRETE PAVEMENT S.Y.	602 CONCRETE MASONRY C.Y.	603 12" CONDUIT, TYPE D FT.	605 4" BASE PIPE UNDERDRAIN FT.
D-6	196+11	196+51	LT.								3.86	40	
D-7	196+47	197+05	RT.									58	
P-7	194+43.73		RT.					3.30	1.10				
P-8	196+43		LT.					5.28	1.76				
P-9	196+65.51		RT.	47						28.78			
P-10	196+85.57		RT.					4.20	1.40				
R-6	192+93	196+22	LT.			354							
R-7	194+43.73		RT.		32								
R-8	195+19		LT.				1						
R-9	196+43		LT.		30								
R-10	196+49	197+61	LT.			154							
R-11	196+65.51		RT.		61								
R-12	197+44		LT.				1						
UD-5	194+00	198+00	LT.										400
UD-6	194+00	198+00	LT.										400
UD-7	194+00	198+00	RT.										400
UD-8	194+00	198+00	RT.										400
TOTALS CARRIED TO GENERAL SUMMARY				47	123	508	2	13	4	29	3.9	98	1600

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED AM
CHECKED MO

PLAN AND PROFILE - S.R. 104
STA. 194+00 TO STA. 198+00

FRA - 104 - 1.29

MATCH LINE STA. 49+00, SEE SHEET NO. 42

MATCH LINE STA. 198+00, SEE SHEET NO. 23

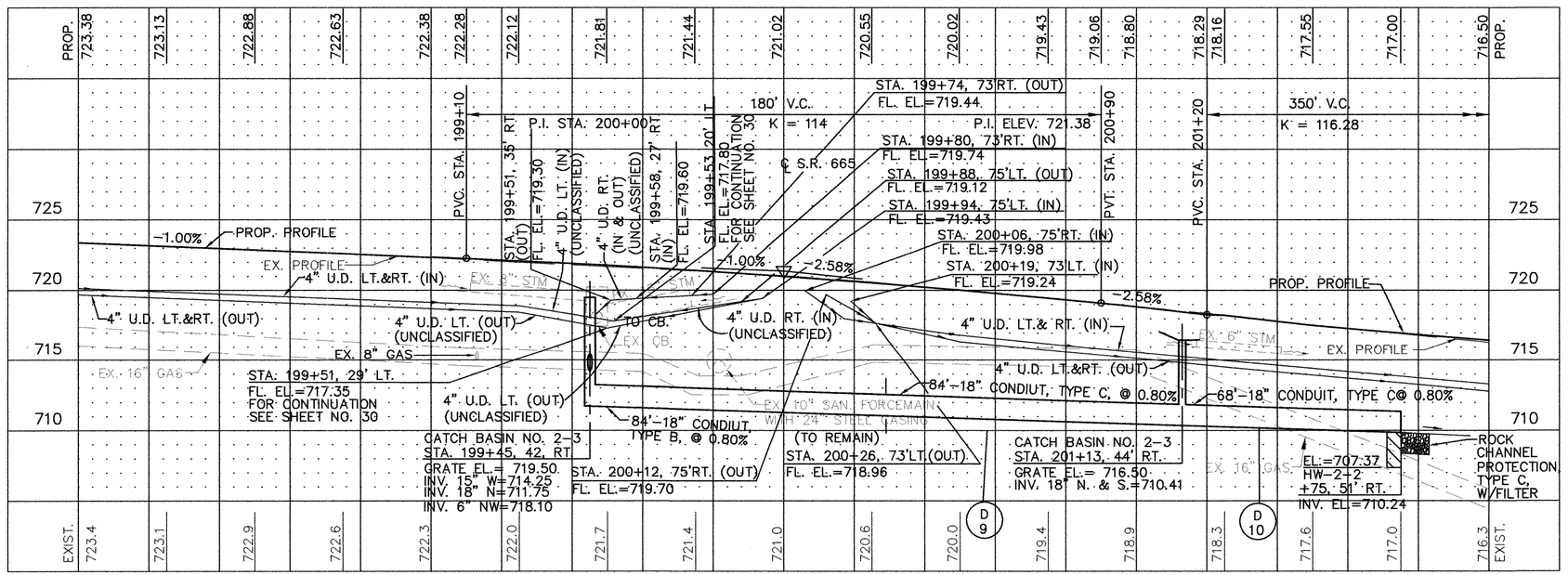
MATCH LINE STA. 202+00, SEE SHEET NO. 25

MATCH LINE STA. 51+00, SEE SHEET NO. 43

BENCHMARK NO. 1
AP. IN CM, AT NE CORNER OF INTERSECTION OF S.R. 104 & S.R. 665 43.10' E. OF C.L. OF S.R. 104, 34.6' N. OF C.L. OF S.R. 665. 0.75' ABOVE GR
ELEVATION = 721.591

- ITEM 304 - 8" AGGREGATE BASE
- ITEM 448 - 1 1/4" ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG 64-22 (DRIVEWAYS)
  ITEM 301 - 3 3/4" ASPHALT CONCRETE BASE, PG64-22

FOR STORMSEWER DETAIL, SEE SHEET NO. 35
FOR UNDERDRAIN DETAIL, SEE SHEET NO. 35
FOR CURVE DATA, SEE SHEET NO. 21
FOR DRIVEWAY PROFILE, SEE SHEET NO. 36



REF NO.	STATION FROM	STATION TO	SIDE	202 CATCH BASIN REMOVED EACH	202 PIPE REMOVED 24" AND UNDER FT.	202 PULL BOX REMOVED EACH	301 ASPHALT CONCRETE BASE C.Y.	304 AGGREGATE BASE C.Y.	448 ASPHAL CONCRETE SURFACE COURSE, TYPE1 PG-64-22 (DRIVEWAY) C.Y.	601 ROCK CHANNEL PROTECTION, TYPE C WITH FILTER C.Y.	602 CONCRETE MASONRY C.Y.	603 6" CONDUIT, TYPE F, (707.33) FOR UNDERDRAIN OUTLETS FT.	603 15" CONDUIT, TYPE A FT.	603 18" CONDUIT, TYPE B FT.	603 18" CONDUIT, TYPE C FT.	604 CATCH BASIN NO. 2-2B EACH	604 CATCH BASIN NO. 2-3 EACH	605 4" BASE, PIPE UNDERDRAINS FT.
D-8	199+46.50		LT./RT.										84			1		
D-9	199+45	201+13	RT.											84	84		1	
D-10	201+13	201+75	RT.							3.11	0.31	23						220
P-11	201+22.16		RT.									20						231
R-13	199+10	199+47	RT.	1	37			5	0.82									214
R-14	199+42		LT.			1												202
R-15	199+47		LT./RT.	1	60													205
R-16	199+47	199+73	RT.		45	1												216
R-17	49+52 (S.R.665)		RT.			1												230
R-18	50+55 (S.R.665)		LT.		62													220
R-19	200+40	201+02	LT.															1738
R-20	200+62		RT.			1												
R-21	201+22.16		RT.		20													
UD-9	198+00	49+25 (S.R.665)	LT./RT.															
UD-10	198+00	49+25 (S.R.665)	LT./RT.															
UD-11	198+00	50+75 (S.R.665)	RT.															
UD-12	198+00	50+75 (S.R.665)	RT.															
UD-13	49+25 (S.R.665)	202+00	LT.															
UD-14	49+25 (S.R.665)	202+00	LT.															
UD-15	50+75 (S.R.665)	202+00	LT./RT.															
UD-16	50+75 (S.R.665)	202+00	LT./RT.															
TOTALS CARRIED TO GENERAL SUMMARY				2	224	4	2	5	1	3	0.3	43	84	84	152	1	2	1738

CALCULATED AM
CHECKED MO

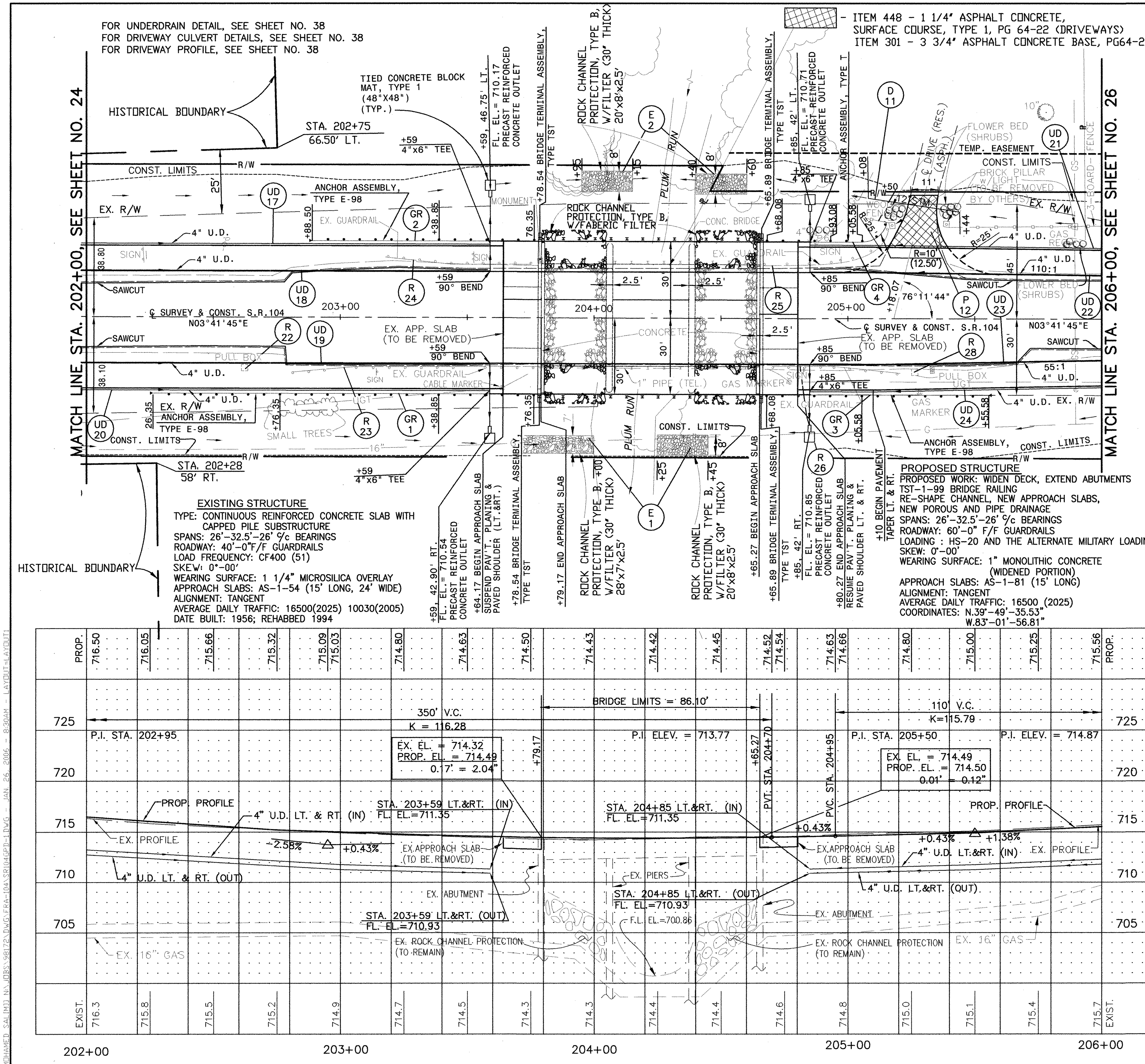
HORIZONTAL SCALE IN FEET
0 10 20 40

PLAN AND PROFILE - S.R. 104
STA. 198+00 TO STA. 202+00

FRA - 104 - 1.29

24
68

[MOHAMED SALIM] N:\JOBS\98172\DWG\FRA-104\SR104GPRC-1.DWG - JAN. 26, 2006 - 8:26AM - LAYOUT=LAYOUT1


FOR UNDERDRAIN DETAIL, SEE SHEET NO. 38
FOR DRIVEWAY CULVERT DETAILS, SEE SHEET NO. 38
FOR DRIVEWAY PROFILE, SEE SHEET NO. 38
ITEM 448 - 1 1/4" ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG 64-22 (DRIVEWAYS)
ITEM 301 - 3 3/4" ASPHALT CONCRETE BASE, PG64-22
MATCH LINE STA. 202+00, SEE SHEET NO. 24
MATCH LINE STA. 206+00, SEE SHEET NO. 26
HISTORICAL BOUNDARY
STA. 202+75 66.50' LT.
STA. 202+28 58' RT.
TIED CONCRETE BLOCK MAT, TYPE 1 (48"X48") (TYP.)
CONST. LIMITS
EX. R/W
ANCHOR ASSEMBLY, TYPE E-98
EX. GUARDRAIL
4" U.D.
SAWCUT
℄ SURVEY & CONST. S.R.104
N03°41'45"E
EX. APP. SLAB (TO BE REMOVED)
+59 90° BEND
+59 4"x6" TEE
ROCK CHANNEL PROTECTION, TYPE B, W/FABERIC FILTER
PLUM RUN
CONC. BRIDGE
1" PIPE (TEL.)
GAS MARKER
PULL BOX
SMALL TREES
FLOWER BED (SHRUBS)
TEMP. EASEMENT
BRICK PILLAR w/LIGHT (TO BE REMOVED BY OTHERS)
℄ DRIVE (RES.) 11' (ASPH.)
R=10' (12.50')
76°11'44"
110:1
55:1
+59, 46.75' LT. FL. EL.= 710.17 PRECAST REINFORCED CONCRETE OUTLET
+78.54 BRIDGE TERMINAL ASSEMBLY, TYPE TST
ROCK CHANNEL PROTECTION, TYPE B, W/FILTER (30" THICK) 20'x8'x2.5'
+85, 42' LT. FL. EL.= 710.71 PRECAST REINFORCED CONCRETE OUTLET
+65.89 BRIDGE TERMINAL ASSEMBLY, TYPE TST
ANCHOR ASSEMBLY, TYPE T
+59, 42.90' RT. FL. EL.= 710.54 PRECAST REINFORCED CONCRETE OUTLET
+64.17 BEGIN APPROACH SLAB
SUSPEND PAV'T. PLANING & PAVED SHOULDER (LT.&RT.)
+78.54 BRIDGE TERMINAL ASSEMBLY TYPE TST
+79.17 END APPROACH SLAB
ROCK CHANNEL PROTECTION, TYPE B, W/FILTER (30" THICK) 28'x7'x2.5'
ROCK CHANNEL PROTECTION, TYPE B, W/FILTER (30" THICK) 20'x8'x2.5'
+65.27 BEGIN APPROACH SLAB
+65.89 BRIDGE TERMINAL ASSEMBLY, TYPE TST
+85, 42' RT. FL. EL.= 710.85 PRECAST REINFORCED CONCRETE OUTLET
+80.27 END APPROACH SLAB RESUME PAV'T. PLANING & PAVED SHOULDER LT. & RT.
+10 BEGIN PAVEMENT TAPER LT. & RT.
EXISTING STRUCTURE
TYPE: CONTINUOUS REINFORCED CONCRETE SLAB WITH CAPPED PILE SUBSTRUCTURE
SPANS: 26'-32.5'-26' C/C BEARINGS
ROADWAY: 40'-0"F/F GUARDRAILS
LOAD FREQUENCY: CF400 (51)
SKEW: 0°-00'
WEARING SURFACE: 1 1/4" MICROSILICA OVERLAY
APPROACH SLABS: AS-1-54 (15' LONG, 24' WIDE)
ALIGNMENT: TANGENT
AVERAGE DAILY TRAFFIC: 16500(2025) 10030(2005)
DATE BUILT: 1956; REHABBED 1994
PROPOSED STRUCTURE
PROPOSED WORK: WIDEN DECK, EXTEND ABUTMENTS TST-1-99 BRIDGE RAILING RE-SHAPE CHANNEL, NEW APPROACH SLABS, NEW POROUS AND PIPE DRAINAGE
SPANS: 26'-32.5'-26' C/C BEARINGS
ROADWAY: 60'-0" F/F GUARDRAILS
LOADING : HS-20 AND THE ALTERNATE MILITARY LOADING
SKEW: 0°-00'
WEARING SURFACE: 1" MONOLITHIC CONCRETE (WIDENED PORTION)
APPROACH SLABS: AS-1-81 (15' LONG)
ALIGNMENT: TANGENT
AVERAGE DAILY TRAFFIC: 16500 (2025)
COORDINATES: N.39°-49'-35.53" W.83°-01'-56.81"
PROP. 716.50 716.05 715.66 715.32 715.09 715.03 714.80 714.63 714.50 714.43 714.42 714.45 714.52 714.54 714.63 714.66 714.80 715.00 715.25 715.56
BRIDGE LIMITS = 86.10'
350' V.C. K = 116.28
P.I. STA. 202+95
EX. EL. = 714.32 PROP. EL. = 714.49 0.17' = 2.04"
P.I. ELEV. = 713.77
110' V.C. K=115.79
P.I. STA. 205+50
EX. EL. = 714.49 PROP. EL. = 714.50 0.01' = 0.12"
P.I. ELEV. = 714.87
PVT. STA. 204+70
PVC. STA. 204+95
PROP. PROFILE
EX. PROFILE
-2.58%
+0.43%
+1.38%
4" U.D. LT. & RT. (IN)
4" U.D. LT. & RT. (OUT)
STA. 203+59 LT.&RT. (IN) FL. EL.=711.35
STA. 204+85 LT.&RT. (IN) FL. EL.=711.35
STA. 203+59 LT.&RT. (OUT) FL. EL.=710.93
STA. 204+85 LT.&RT. (OUT) FL. EL.=710.93
F.L. EL.=700.86
EX. APPROACH SLAB (TO BE REMOVED)
EX. ABUTMENT
EX. PIERS
EX. ROCK CHANNEL PROTECTION (TO REMAIN)
EX. 16" GAS
EXIST. 716.3 715.8 715.5 715.2 714.9 714.7 714.5 714.3 714.3 714.4 714.4 714.6 714.8 715.0 715.1 715.4 715.7
202+00 203+00 204+00 205+00 206+00

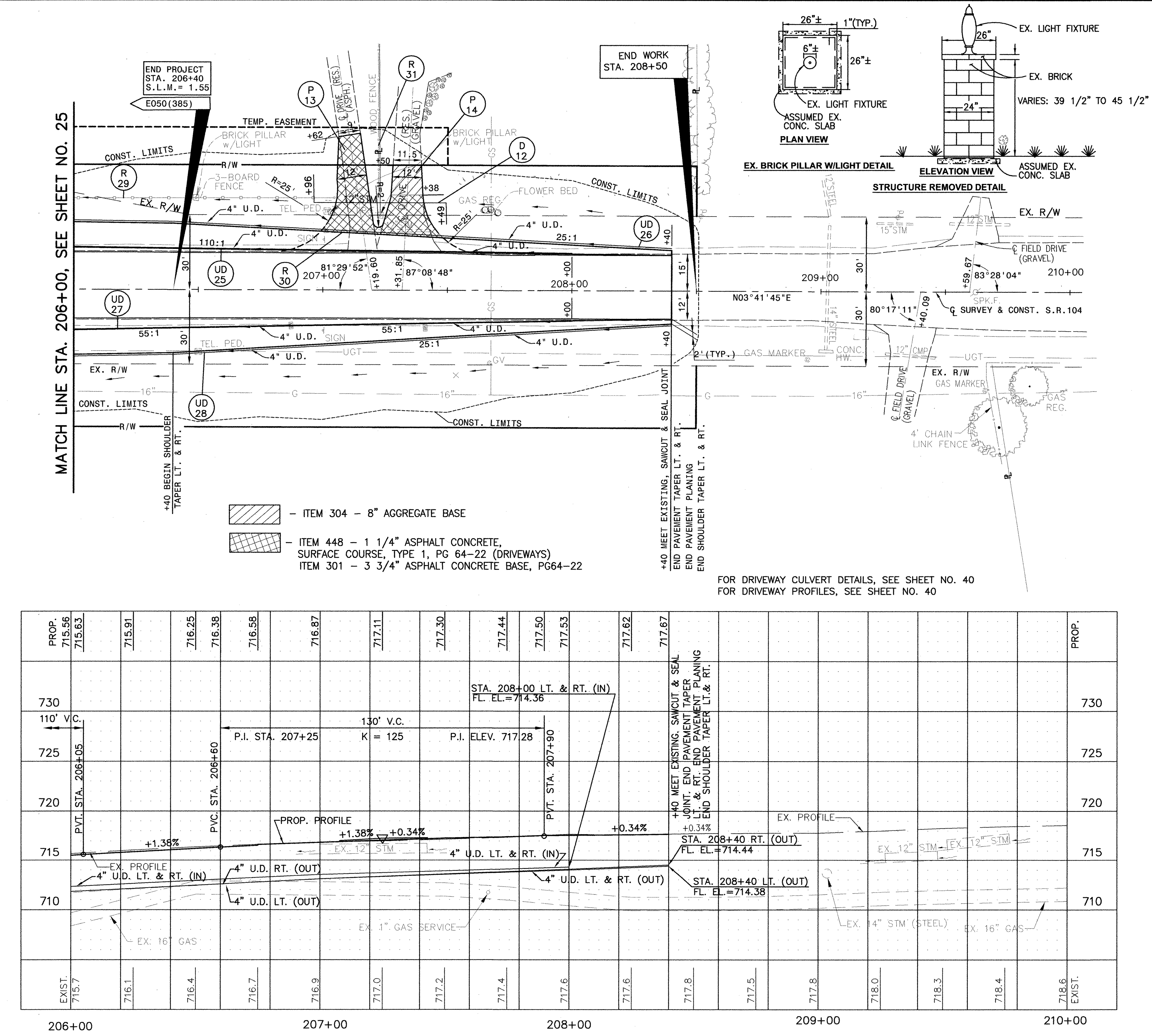
REF NO.	STATION FROM	STATION TO	SIDE	202 GUARDRAIL REMOVED (FT.)	202 PULL BOX REMOVED (EA.)	301 ASPHALT CONCRETE BASE (C.Y.)	448 ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS) (C.Y.)	601 ROCK CHANNEL PROTECTION, TYPE B WITH FILTER (C.Y.)	601 TIED CONCRETE BLOCK MAT, TYPE 1 (S.Y.)	603 6" CONDUIT, TYPE F, 707.33 FOR UNDERDRAIN OUTLETS (FT.)	603 12" CONDUIT, TYPE D (FT.)	604 PRECAST REINFORCED CONCRETE OUTLET (EACH)	605 4" BASE PIPE UNDERDRAIN (FT.)	606 GUARDRAIL, TYPE 5 (FT.)	606 ANCHOR ASSEMBLY, TYPE E-98 (EACH)	606 BRIDGE TERMINAL ASSEMBLY, TYPE TST (EACH)	606 ANCHOR ASSEMBLY, TYPE T (EACH)
D-11	205+18.07		LT.								36						
E-1	203+72	204+45	RT.					33									
E-2	203+95	204+60	LT.					30									
GR-1	202+26.35	203+76.35	RT.											100	1	1	
GR-2	202+88.85	203+76.35	LT.											37.50	1	1	
GR-3	204+68.08	205+55.58	RT.											37.50	1	1	
GR-4	204+68.08	205+16	LT.											37.50		1	1
P-12	205+18.07		LT.			3.70	1.24										
R-22	202+62		RT.		1												
R-23	202+81	203+78.54	RT.	98													
R-24	203+19	203+78.54	LT.	60													
R-25	204+65.89	205+16	LT.	58													
R-26	204+65.89	205+21	RT.	55													
R-27	NOT USED																
R-28	205+27		RT.		1												
UD-17	202+00	203+59	LT.										159				
UD-18	202+00	203+59	LT.						1.78	29		1	159				
UD-19	202+00	203+59	RT.						1.78	25		1	159				
UD-20	202+00	203+59	RT.										159				
UD-21	204+85	206+00	LT.										115				
UD-22	204+85	206+00	LT.						1.78	27		1	115				
UD-23	204+85	206+00	RT.						1.78	24		1	115				
UD-24	204+85	206+00	RT.										115				
TOTALS CARRIED TO GENERAL SUMMARY				271	2	4	1	63	7	105	36	4	1096	212.50	3	4	1

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED AM
CHECKED MO

PLAN AND PROFILE - S.R. 104
STA. 202+00 TO STA. 206+00

FRA - 104 - 1.29



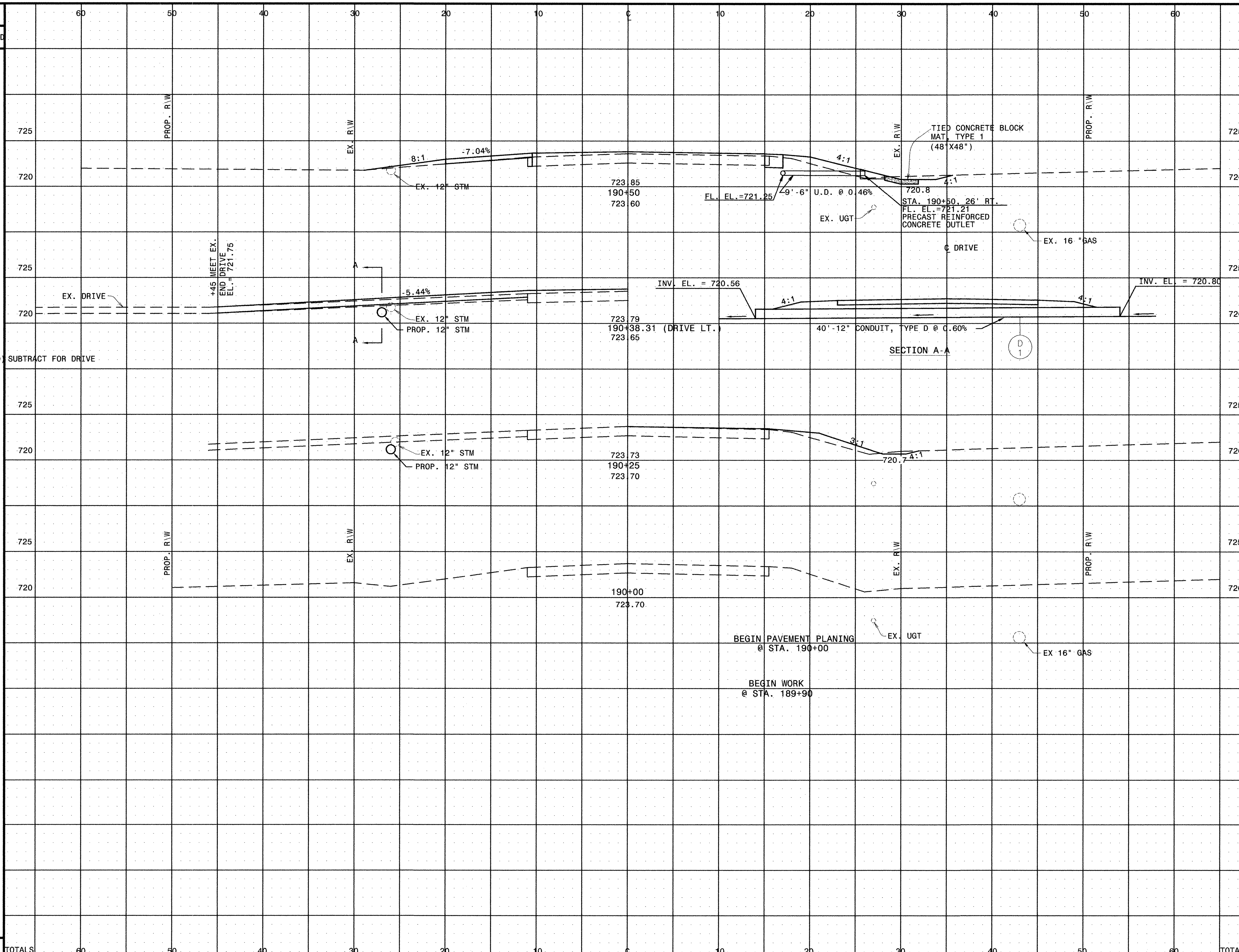
REF NO.	STATION FROM	STATION TO	SIDE	202 FENCE REMOVED (WOOD) FT.	202 PIPE REMOVED, 24" AND UNDER FT.	202 STRUCTURE REMOVED EA.	301 ASPHALT CONCRETE BASE C.Y.	304 AGGREGATE BASE C.Y.	448 ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS) C.Y.	602 CONCRETE MASONRY C.Y.	603 12" CONDUIT, TYPE D FT.	605 4" BASE PIPE UNDERDRAINS FT.
D-12	206+96	207+49	LT.							5.11	53	
P-13	207+19.60		LT.				6.02		2.00			
P-14	207+31.85		LT.				3.24	3.63	1.08			
R-29	206+00	207+05	LT.	105		2						
R-30	207+19.60		LT.		43							
R-31	207+23		LT.	20		1						
UD-25	206+00	208+40	LT.									240
UD-26	206+00	208+40	LT.									240
UD-27	206+00	208+40	RT.									240
UD-28	206+00	208+40	RT.									240
TOTALS CARRIED TO GENERAL SUMMARY				125	43	3	9	4	3	5.1	53	960

HORIZONTAL SCALE IN FEET: 0 10 20 40

CALCULATED AM
CHECKED MO

PLAN AND PROFILE - S.R. 104
STA. 206+00 TO STA. 210+00

FRA - 104 - 1.29



SEED WIDTH	SEED SQ.YD	AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
40		5	9		
	83			3	7
20		1	6		
	28			1	3
0		0	0		
TOTALS	81			4	10

DESIGNED AM
CHECKED MO

CROSS SECTIONS - S.R. 104
STA. 190+00 TO STA. 190+50

FRA - 104 - 1.29

SEED WIDTH	SEED SQ.YD	
25	88	
	(-102	SUBTRACT FOR DRIVE
38	88	
25		
	101	
48		
40	122	
	297	TOTALS

60 50 40 30 20 10 $\mathbb{C}_L$ 10 20 30 40 50 60

725
720

PROP. R\W
EX. R\W
721.48
4:1
4:1
4:1

724.33
191+50
724.11
-4.86%
EX. 12" STM
EX. UGT
+45 MEET EX END DRIVE EL.=722.70
EX. DRIVE
PROP. 12" STM WITH CONCRETE ENCASEMENT FOR DETAIL, SEE SHEET NO. 4
EX 16" GAS

C DRIVE
INV. EL. = 721.33
INV. EL. = 721.15
30'-12" CONDUIT, TYPE D @ 0.60% W/CONCRETE ENCASEMENT
SECTION C-C
D 3

724.29
191+42.54 (DRIVE RT.)
724.06
-4.86%
EX. 12" STM
+45 MEET EX END DRIVE EL.=722.70
EX. DRIVE
PROP. 12" STM WITH CONCRETE ENCASEMENT FOR DETAIL, SEE SHEET NO. 4
ADD FOR DRIVE

C DRIVE
INV. EL = 721.00
INV. EL. = 720.80
29'-12" CONDUIT, TYPE D @ 0.70% W/CONCRETE ENCASEMENT
SECTION B-B
D 2

724.25
191+32.86 (DRIVE RT.)
723.99
-6.68%
EX. 12" STM
+51 MEET EX END DRIVE EL.=721.96
EX. DRIVE
PROP. 12" STM
ADD FOR DRIVE

721.34

724.21
191+25
723.93
EX. 12" STM

721.20
+00, 4" U.D. LT. (OUT)
FL. EL.= 721.57
+00, 4" U.D. LT. (IN)
FL. EL = 721.60
4'-6" U.D. @ 0.75%

724.09
191+00
723.76
+36
+55
EX. 12" STM
PROP. 12" STM
EX. DRIVE

TIED CONCRETE BLOCK MAT, TYPE 1 (48"X48")
721.06
9'-6" U.D. @0.36%
STA. 190+65,23' LT.
FL. EL.= 721.51
PRECAST REINFORCED CONCRETE OUTLET
STA. +65, 4" U.D. LT. (IN)
FL. EL.= 721.54

723.97
190+75
723.60
+85, 4" U.D. RT. (IN)
FL. EL.= 721.32
4'-6" U.D. @ 1.00%
+85, 4" U.D. RT. (OUT)
FL. EL.= 721.28
EX. UGT
EX 16" GAS
721.00

AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
22	15		
		18	14
		2	0
		5	0
17	16		
		15	18
15	22		
		15	19
17	19		
		10	13
5	9		
		65	64

DESIGNED AM
CHECKED MO

CROSS SECTIONS - S.R. 104 STA. 190+75 TO STA. 191+50

FRA - 104 - 1.29

28
68

SEED WIDTH	SEED SQ.YD	
26	103	
48	133	
48	136	
50	108	
(-120)		SUBTRACT FOR DRIVE
28	74	
25		
	434	TOTALS

60 50 40 30 20 10 ℄ 10 20 30 40 50 60

725
720

PROP. R\W
+44 MEET EX END DRIVE EL.=723.71
EX. R\W
3.38%
EX. 12" STM
724.93
192+75
725.0
EX. R\W
4:1
721.80
4:1
PROP. R\W
EX. UGT
EX. 16" GAS

722.0
724.81
192+50
724.8
721.70
4:1

721.90
724.69
192+25
724.6
721.60

4:1
721.76
4:1
724.57
192+00
724.5
721.50

PROP. R\W
+38 MEET EX END DRIVE EL.=722.98
-6.25%
EX. 12" STM
724.45
191+75
724.3
EX. R\W
4:1
721.40
4:1
EX. 6" PVC
EX. UGT
EX. 16" GAS
℄ DRIVE

EX. DRIVE
+40 MEET EX END DRIVE EL.=722.80
D
-5.80%
EX. R\W
EX. 12" STM
D
PROP. 12" STM WITH CONCRETE ENCASEMENT FOR DETAIL, SEE SHEET NO. 4
724.44
191+72.36 (DRIVE LT.)
724.3
INV. EL. = 721.34
INV. EL. = 721.51
4:1
4:1
29'-12" CONDUIT, TYPE D @ 0.60%
W/CONCRETE ENCASEMENT
SECTION D-D
D
4
ADD FOR DRIVE

AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
32	14	30	16
32	20	27	20
27	24	28	21
34	22	29	18
28	17	23	15
22	15	4	0
		141	90

DESIGNED AM
CHECKED MO

CROSS SECTIONS - S.R. 104
STA. 191+72.36 TO STA. 192+75

FRA - 104 - 1.29

29
68

FILE N:\JOBS\98172\DWG\FRA-104\S104GXG.DWG - PRINTED BY MOHAMED SALIM ON JAN. 26, 2006 AT 8:43AM

SEED WIDTH	SEED SQ.YD	
34	99	
37	107	
40	113	
41	114	
41	93	
26		
	526	TOTALS

AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
18	18	18	16
21	17	20	18
23	21	25	15
31	12	28	16
30	22	29	17
32	14		
		120	82

DESIGNED AM

CHECKED MO

CROSS SECTIONS - S.R. 104
STA. 192+82.76 TO STA. 194+00

FRA - 104 - 1.29

30
68

60 50 40 30 20 10 ℄ 10 20 30 40 50 60

PROP. R\W

EX. R\W

EX. R\W

PROP. R\W

725

720

4:1

723.0

722.8

725.48
194+00
725.5

EX. UGT

EX. 16"GAS

722.9

722.7

725.40
193+75
725.4

722.6

722.6

725.29
193+50
725.3

722.46

722.00

725.17
193+25
725.2

722.32

721.90

725.05
193+00
725.1

EX. UGT

EX. 16"GAS

EX. DRIVE

+45 MEET EX. END DRIVE EL.=723.75

E

-3.08%

E

PROP. 12" STM WITH CONCRETE ENCASEMENT FOR DETAIL SEE SHEET NO. 4

EX. 12" STM

724.97
192+82.76 (DRIVE LT.)
725.0

℄ DRIVE

INV. EL. = 722.04

INV. EL. = 722.27

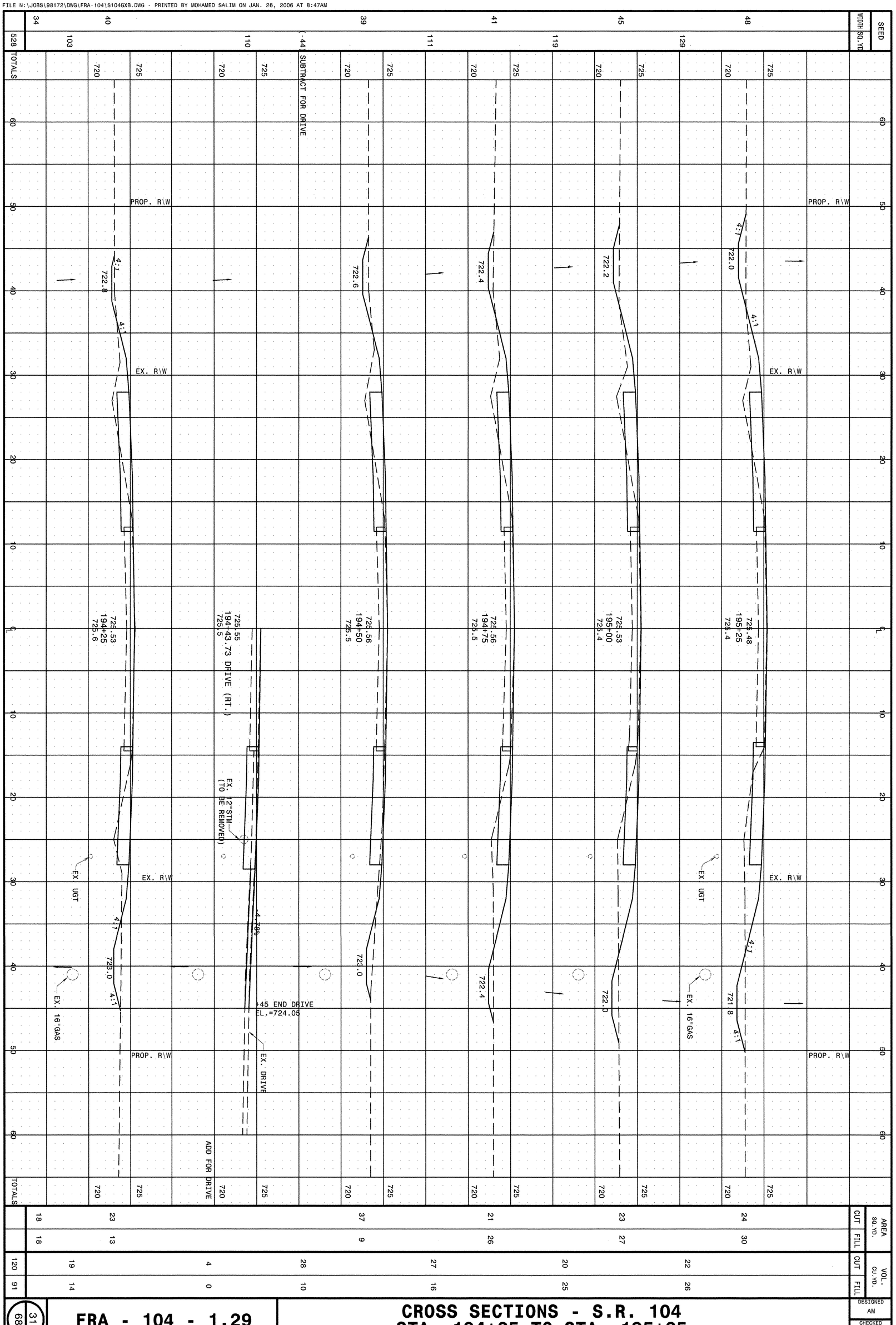
36' - 12" CONDUIT, TYPE D @ 0.64%
W/CONCRETE ENCASEMENT

SECTION E-E

D 5

FILE N:\JOBS\98172\DWG\FRA-104\S104GXA.DWG - PRINTED BY MOHAMED SALIM ON JAN. 26, 2006 AT 8:47AM

FILE N:\JOBS\98172\DWG\FRA-104\S104GXB.DWG - PRINTED BY MOHAMED SALIM ON JAN. 26, 2006 AT 8:47AM



31
68

FRA - 104 - 1.29

CROSS SECTIONS - S.R. 104
STA. 194+25 TO STA. 195+25

DESIGNED AM
CHECKED MO

SEED WIDTH	SEED SQ.YD	
55	117	
		(-80) SUBTRACT FOR DRIVE
29		
	113	
52		
	139	
48		
	136	
50		
	136	
48		
	561	TOTALS

PROP. R\W
EX. R\W
PROP. 12" STM
4:1
721.6
724.83
196+50
724.9
EX. 12"STM
EX. UGT
4.5:1
721.3
EX. 16"GAS
+48 MEET EX. END DRIVE EL. = 723.35
F
EX. DRIVE
-4.17%
PROP. 12" STM WITH CONCRETE ENCASEMENT FOR DETAIL, SEE SHEET NO. 4
EX. 12"STM (TO BE REMOVED)
724.88
196+43 DRIVE (LT.)
725.0
℄ DRIVE
INV. EL. = 721.84
INV. EL. = 721.60
ADD FOR DRIVE
40'-12" CONDUIT, TYPE D @ 0.60% W/CONCRETE ENCASEMENT
D 6
SECTION F-F
+47 MEET EX. END DRIVE EL. = 723.35
725.01
196+25
725.2
721.4
725.17
196+00
725.3
721.7
721.5
725.30
195+75
725.3
721.8
721 6
725.40
195+50
725.4
721.9
721.7

AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
91	1	10	0
		63	5
45	10		
		42	14
46	20		
		36	23
31	30		
		29	28
31	30		
		25	28
24	30		
TOTALS		205	98

DESIGNED AM
CHECKED MO

CROSS SECTIONS - S.R. 104 STA. 195+50 TO STA. 196+50

FRA - 104 - 1.29

32
68

SEED WIDTH	SEED SQ.YD	
42	124	
47	139	
53		
55	135	
	(-113)	SUBTRACT FOR DRIVE
44	138	
	423	TOTALS

AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
23	18		
		30	13
41	11		
		45	10
56	10		
		42	9
7	0		
		58	5
34	9		
91	1		
		182	37

DESIGNED AM

CHECKED MO

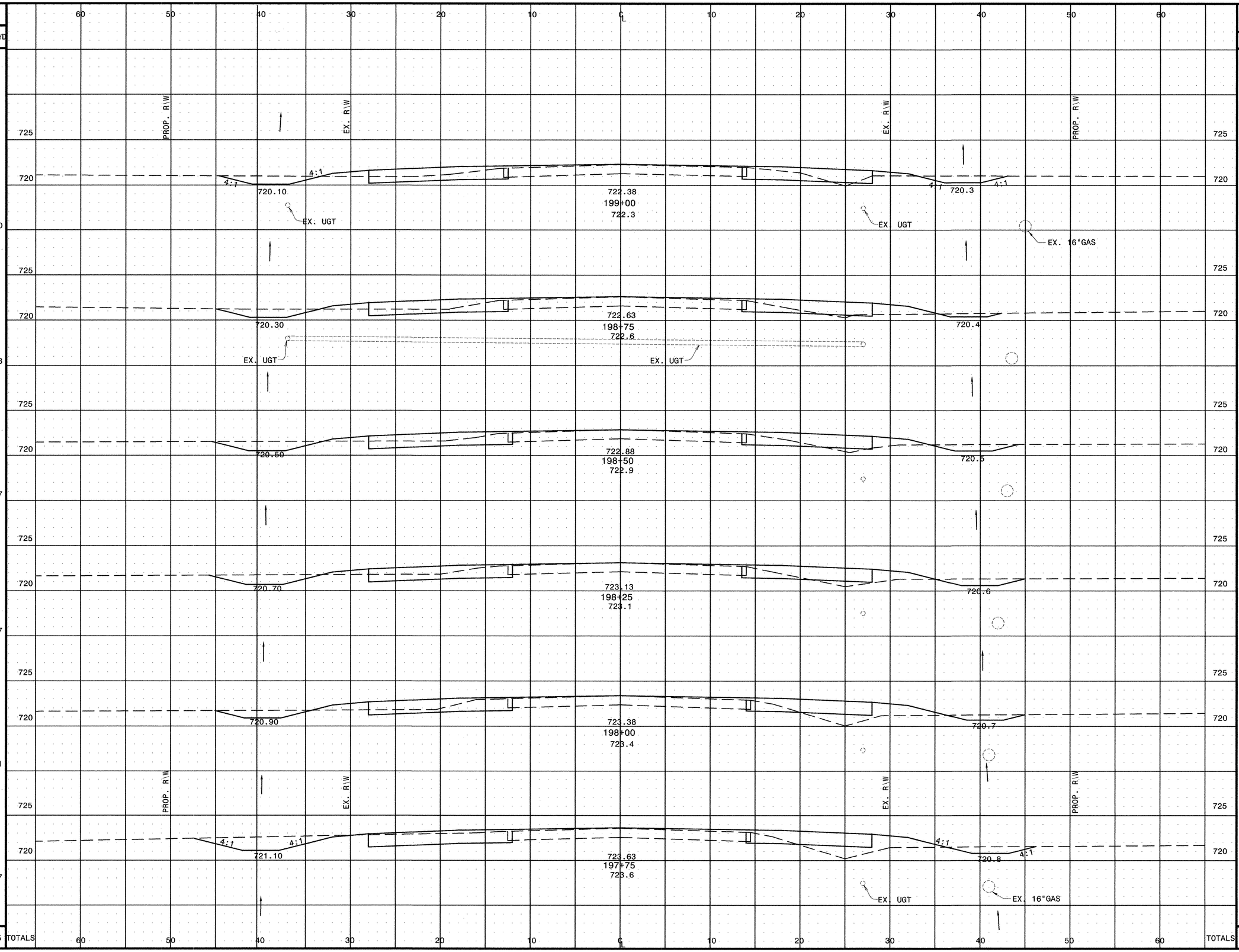
CROSS SECTIONS S.R. 104 STA. 196+65.51 TO STA. 197+50

FRA - 104 - 1.29

33
68

PROP. R\W
EX. R\W
EX. R\W
PROP. R\W
725
720
4:1
721.2
723.88
197+50
723.8
EX. UGT
EX. 16"GAS
720.9
721.3
724.13
197+25
724.0
721.0
721.4
724.38
197+00
724.2
EX. 12"STM
(TO BE REMOVED)
5:1
PROP. 12" STM
721.1
H
+49 END DRIVE
EL.= 723.55
-1.14
EX. DRIVE
724.52
196+85.57 DRIVE (RT.)
724.5
ADD FOR DRIVE
721.5
724.62
196+75
724.6
C DRIVE
INV. EL. = 721.35
INV. EL. = 721.00
58'-12" CONDUIT, TYPE D @ 0.60%
SECTION G-G & H-H
D 7
G
+49 END DRIVE
EL.= 723.80
-0.81%
724.69
196+65.51 DRIVE (RT.)
724.8
EX. 12"STM
(TO BE REMOVED)
EX. UGT
EX. 16"GAS

SEED WIDTH	SEED SQ.YD	AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
36	100	34	5	28	6
36	103	26	9	27	7
38	107	33	7	31	8
39	107	33	10	27	13
38	111	26	17	32	15
42	117	44	15	31	15
42		23	18		
	645 TOTALS			176	64



DESIGNED AM
CHECKED MO

CROSS SECTIONS S.R. 104
STA. 197+75 TO STA. 199+00

FRA - 104 - 1.29

34
68

SEED	
WIDTH	SQ.YD
0	0
0	0
49	108
35	108
43	118
42	108
36	
	425

AREA SQ.YD.		VOL. CU.YD.		DESIGNED	CHECKED
CUT	FILL	CUT	FILL	AM	MO
0	0	0	0		
0	0				
0	0	0	0		
45	4	21	2		
48	3	43	3		
34	5	38	4		
		102	9		

60 50 40 30 20 10 $\mathcal{L}$ 10 20 30 40 50 60 TOTALS

725 720

(+42) ADD AREA (RT.) OF S.R. 665 @ INTERSECTION

EX. 12"STM

720.55
200+25
720.6

EX. UGT

EX. 16"GAS

PROP. 18" STM.

721.02
200+00
721.0

PROP. 18" STM.

721.44
199+75
721.4

EX. UGT

EX. 10" SAN. FORCEMAIN W/24" STEEL CASING (TO REMAIN)

PROP. 18" STM.

CB-2-3 CATCH BASIN
STA. 199+45, 42' RT.
GRATE EL.=719.50
INV. 15" W=714.28
INV. 18" N=711.75
INV. 6" NW=718.10

CB-2-2B CATCH BASIN
STA. 199+48, 42' LT.
GRATE EL.=718.70
INV. 15" E=714.95
INV. 6" NE=716.90

EX. R\W

13'-6" U.D. @ 3.50%

10'-6" U.D. @ 4.50%

+52, 4" U.D., 32' RT.
FL. EL.=719.36

3'-6" U.D. @ 3.00%

719.90

4:1

721.81
199+50
721.7

EX.CB

EX. 12"STM

+53, 4" U.D., 19' LT.
FL. EL.=717.80

EX. CB (TO BE REMOVED)

EX. 8" STM.

12'-6" U.D. @ 10.50%

EX. 8"GAS

EX. UGT

+51-4" U.D., 29' LT.
FL. EL.=717.35

84'-15" CONDUIT, TYPE A, @0.80%

+57-4" U.D., 26' RT.
FL. EL.=719.60

D 8

PROP. R\W

EX. R\W

719.50

722.12
199+25
722.0

720.0

EX. UGT

EX. 8"GAS

EX. UGT

EX. 16"GAS

TOTALS

CROSS SECTIONS S.R. 104 STA. 199+25 TO STA. 200+25

FRA -104-1.29

35
68

CROSS SECTIONS - S.R. 104
STA. 200+50 TO STA. 201+75

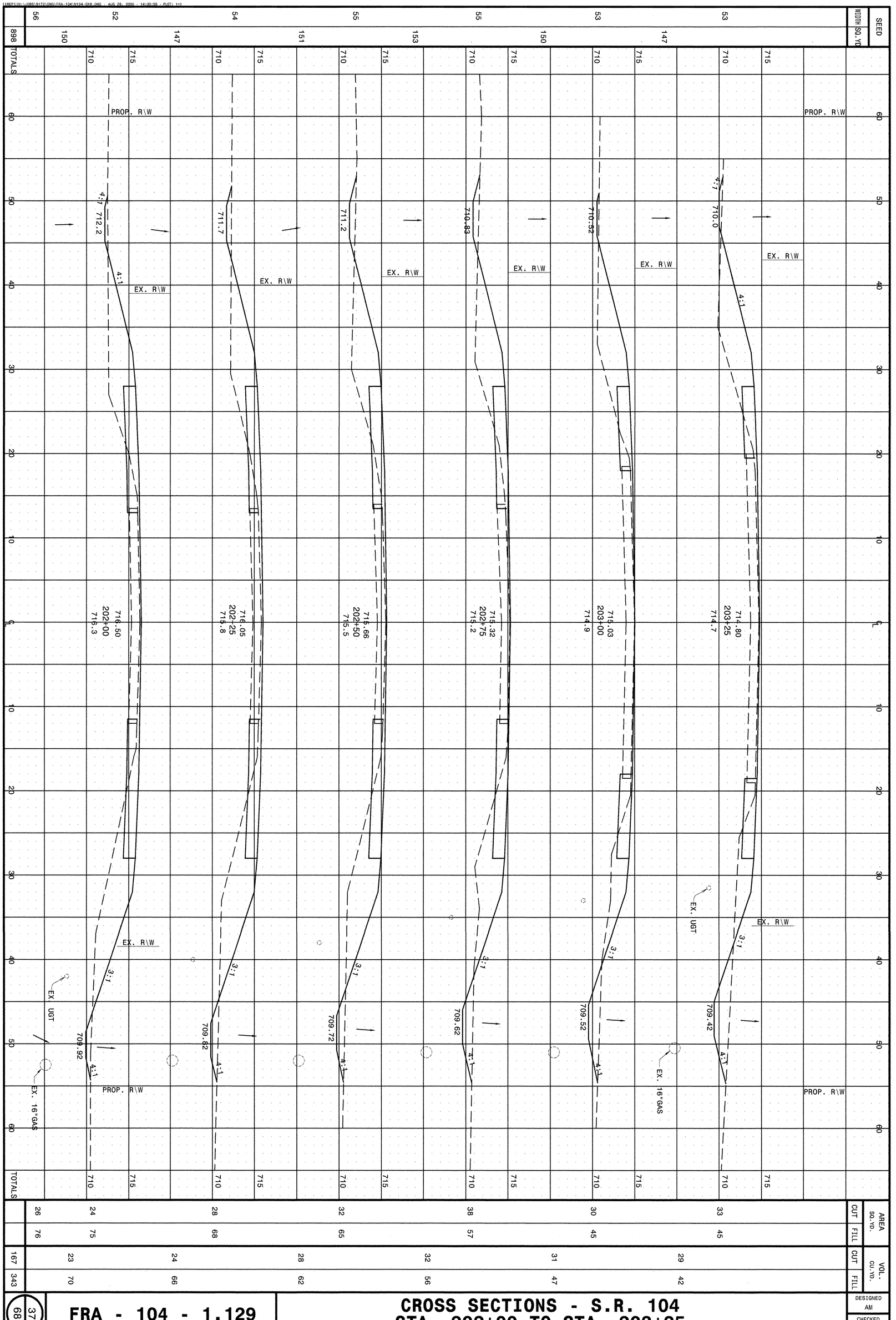
FRA - 104 - 1.29

DESIGNED AM | CHECKED MO

SEED WIDTH	SEED SQ.YD	
56	156	
56	140	
45	126	
	(-51)	SUBTRACT FOR DRIVE
46	139	
54	144	
50	(+288)	ADD AREA (LT.) OF S.R. 665 @ INTERSECTION
0	69	
	1011	TOTALS

AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
26	76	18	75
13	85	25	51
41	26	50	16
		4	0
67	9	90	4
128	0	119	0
129	0	60	0
0	0		
		366	146

36
68



FRA - 104 - 1.129

CROSS SECTIONS - S.R. 104
STA. 202+00 TO STA. 203+25

68 37

SEED WIDTH	SEED SQ.YD	
28		
	(-53)	SUBTRACT FOR DRIVE
108		
50		
149		
57		
62		
AHEAD		
BACK	0	STA. 204+65.27
AHEAD	0	
BACK	57	STA. 203+79.17
26		
57		
160		
58		
154		
53		
TOTALS	606	

AREA SQ.YD.		VOL. CU.YD.	
CUT	FILL	CUT	FILL
32	11	33	16
		4	0
40	23	55	40
78	64	28	23
AHEAD 78	64		
BACK 0	0	0	0
AHEAD 0	0		
BACK 71	82	11	13
71	82	45	67
27	62	28	50
33	45		
TOTALS 204	209		

DESIGNED AM
CHECKED MO

CROSS SECTIONS - S.R. 104
STA. 203+50 TO STA. 205+25

FRA - 104 - 1.29

38
68

FILE N:\JOBS\98172\DWG\FRA-104\N104-GXC.DWG - PRINTED BY MOHAMED SALIM ON JAN. 26, 2006 A. 9:02AM

SEED		AREA SQ.YD.		VOL. CU.YD.		
WIDTH	SQ.YD	CUT	FILL	CUT	FILL	
55	151	133	0	125	0	
54	140	136	0	116	0	
47	124	114	0	82	1	
42	118	64	2	55	4	
43	125	55	7	51	8	
47	104	54	9	40	9	
28		32	11			
	762 TOTALS			469	22	

PROP. R\W
EX. R\W
4:1
714.7
716.58
206+75
716.7
EX. UGT
EX. 16"GAS
3:1
5:1
714.4
716.25
206+50
716.4
714.2
715.91
206+25
716.1
713.6
715.56
206+00
715.7
713.1
715.25
205+75
715.4
712.0
715.00
205+50
715.1
713.5
712.3
711.3
EX. 16" GAS
720
715
710
60 50 40 30 20 10 ℄ 10 20 30 40 50 60

CROSS SECTIONS - S.R. 104
STA. 205+50 TO STA. 206+75

FRA - 104 - 1.29

39
68

DESIGNED AM
CHECKED MO

FILE N:\JOBS\98172\DWG\FRA-104\N104-GXD.DWG - PRINTED BY MOHAMED SALIM ON JAN. 26, 2006 AT 9:04AM

SEED WIDTH	SEED SQ.YD	
51	147	
55	146	
	(-163)	SUBTRACT FOR DRIVES
50	153	
60	160	
55		
	443	TOTALS

AREA SQ.YD. CUT	AREA SQ.YD. FILL	VOL. CU.YD. CUT	VOL. CU.YD. FILL
51	4	61	3
81	2	74	1
79	0	95	0
127	0	120	0
133	0		
		350	4

DESIGNED AM

CHECKED MO

CROSS SECTIONS - S.R. 104 STA. 207+00 TO STA. 207+75

FRA - 104 - 1.29

60 50 40 30 20 10 ℄ 10 20 30 40 50 60

PROP. R\W — EX. R\W — EX. R\W — PROP. R\W

710 / 715 / 720

4:1 — 715.2 — 4:1 — 4:1 — 715.3 — 4:1

717.44
207+75
717.4

EX. UGT

EX. 16" GAS

715.0 — 715.2

717.30
207+50
717.2

10' VC.
P.I. EL.=716.47

+50 MEET EX. END DRIVE EL. =717.74

K

EX. DRIVE

DRIVE PROFILE

+5.52%

PROP. 12" STM WITH CONCRETE ENCASEMENT FOR DETAIL, SEE SHEET NO. 4

717.17
207+31.85 DRIVE(LT.)
717.1

PROP. 12" STM

717.11
207+25
717.0

715.0

℄ DRIVE 20

℄ DRIVE

10' VC.
P.I. EL.=716.28

INV. EL. = 714.64

INV. EL. = 715.00

+62 MEET EX. END DRIVE EL. =718.60

J

DRIVE PROFILE

+6.82%

4:1 — 4:1

53'-12" CONDUIT, TYPE D @ 0.67% W/CONCRETE ENCASEMENT

SECTION J-J

SECTION K-K

D 12

PROP. 12" STM WITH CONCRETE ENCASEMENT FOR DETAIL, SEE SHEET NO. 4

717.06
207+19.60 DRIVE(LT.)
717.0

PROP. R\W — EX. R\W — EX. R\W — PROP. R\W

4:1 — 715.0 — 4:1 — 5:1 — 714.9 — 4:1

716.87
207+00
716.9

EX. UGT

EX. 16" GAS

TOTALS

SEED	
WIDTH	SQ.YD.
	7925
0	
40	
40	67
	101
33	
	117
51	
	285

TOTALS CARRIED TO GENERAL SUMMARY

TOTALS CARRIED TO GENERAL SUMMARY

60 50 40 30 20 10 $\mathcal{L}$ 10 20 30 40 50 60

720
715

EX. R\W

EX. R\W

209+00
717.2

EX. UGT

EX. 16" GAS

208+75
717.5

PROP. R\W

PROP. R\W

208+50
717.8

AHEAD STA. 208+40

BACK

END WORK @ 208+40

STA. 208+40 AHEAD

BACK

4:1 715.5 4:1

4:1 715.3 4:1

717.62
208+25
717.6

PROP. R\W

EX. R\W

END DITCH WORK @ 208+12 (RT.)

EX. R\W

PROP. R\W

4:1 716.3 4:1

4:1 716.0 4:1

717.53
208+00
717.6

END DITCH WORK @ 208+00 (LT.)

EX. UGT

EX. 16" GAS

TOTALS

60 50 40 30 20 10 $\mathcal{L}$ 10 20 30 40 50 60

AREA SQ.YD.		VOL. CU.YD.	
CUT	FILL	CUT	FILL
		2735	1286
0	0		
20	9		
		11	5
20	9		
		19	7
22	6		
		34	5
51	4		
		64	17

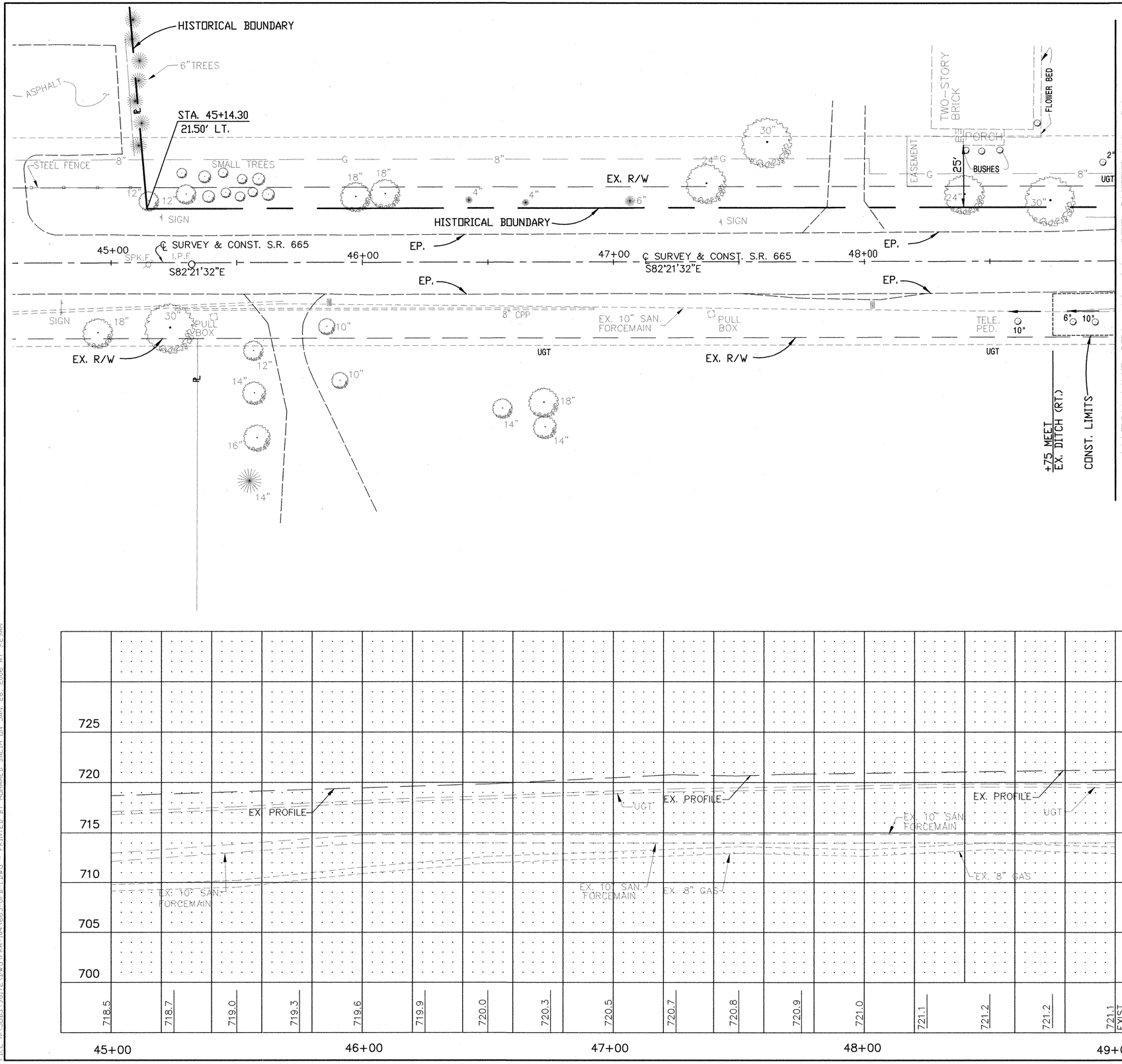
DESIGNED AM

CHECKED MO

CROSS SECTIONS - S.R. 104 STA. 208+00 TO STA. 209+00

FRA - 104 - 1.29

41
68



STATION FROM	STATION TO	SIDE	REF NO.	TOTAL

CALCULATED AM
CHECKED MO

HORIZONTAL SCALE IN FEET
0 10 20 40

PLAN AND PROFILE - S.R. 665
STA. 45+00 TO STA. 49+00

FRA - 104 - 1.29

42
68

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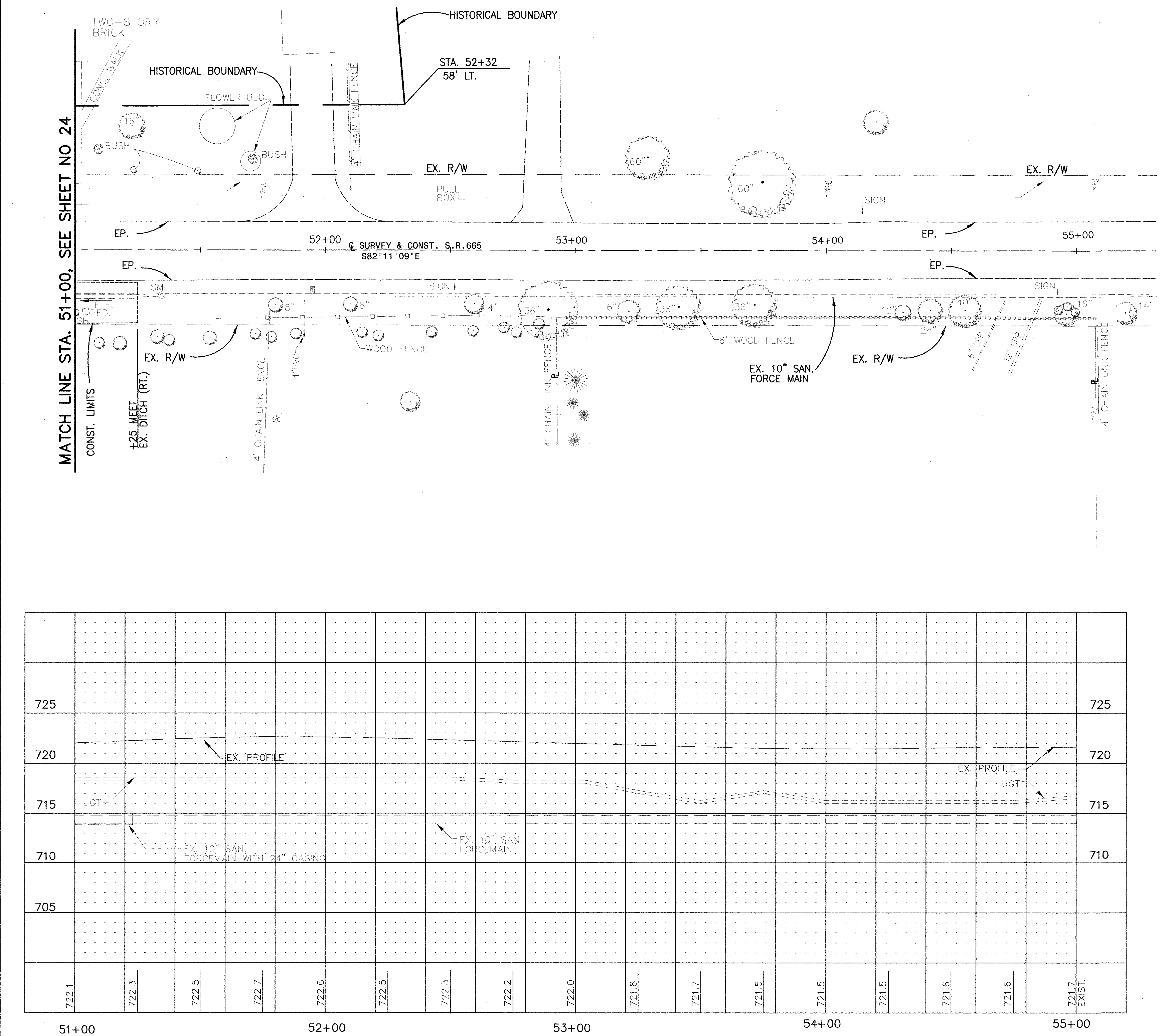

FILE N:\JOBS\98172\DWG\FRA-104\665-GPD-1.DWG - PRINTED BY MOHAMED SALIM ON JAN. 26, 2006 AT 9:30AM

REF NO.	STATION FROM	STATION TO	SIDE	TOTAL

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED AM
CHECKED MO

PLAN AND PROFILE - S.R. 665
STA. 51+00 TO STA. 55+00

FRA - 104 - 1.29

MAINTENANCE OF TRAFFIC SIGNAL /FLASHER INSTALLATIONS

IN ADDITION TO THE REQUIREMENTS OF THE APPLICABLE MAINTENANCE OF TRAFFIC ITEMS, THE FOLLOWING SHALL APPLY:

NO LANE CLOSURE SHALL BE IMPLEMENTED DURING THE HOURS: 6:00 A.M. TO 9:00 A.M. OR 3:00 P.M. TO 6:00 P.M., WEEKDAYS. WHEN IT IS NECESSARY TO CLOSE ONE LANE OF TRAFFIC ADJACENT TO THE WORK, THE CLOSURE SHALL BE ACCOMPLISHED BY THE APPLICATION OF TRAFFIC CONTROL DEVICES AS SHOWN IN ODOT STANDARD CONSTRUCTION DRAWING (SCD) MT-95.31, MT-95.32 AND MT-97.10. ALL ADVANCE WARNING SIGNS FOR ANY CONDITION WHICH RESTRICTS TRAFFIC SHALL BE ERECTED BEFORE ANY SUCH RESTRICTION IS PUT INTO EFFECT. ALL SUCH SIGNS SHALL BE COVERED OR REMOVED FROM THE VIEW OF TRAFFIC WHEN THEY ARE NOT APPLICABLE, AS DETERMINED BY THE ENGINEER.

FOR WORK WHICH IS CONFINED TO THE SHOULDER, TRAFFIC CONTROL SHALL CONFORM TO FIGURES 698-5, 698-7, 698-8 AND 698-10 OF THE ODOT TRAFFIC ENGINEERING MANUAL (TEM). IF THE CONTRACTOR FAILS TO COMPLY WITH THE PROVISIONS FOR TRAFFIC CONTROL AS SET FORTH IN THESE PLANS AND PROVISIONS OF THE TEM AND OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD) AND THE FAILURE RESULTS IN A CONDITION AT THE WORK SITE WHICH IS UNSAFE FOR TRAFFIC, THE ENGINEER SHALL SUSPEND WORK UNTIL THE CONTRACTOR COMPLIES WITH THE NECESSARY REQUIREMENTS.

TWO-WAY TRAFFIC SHALL BE MAINTAINED BY USE OF THE EXISTING PAVEMENT. ONE-WAY TRAFFIC MAY BE PERMITTED DURING PLACEMENT OF LOOPS, SIGNAL STRAIN POLES AND VEHICULAR SIGNAL HEADS, SUBJECT TO THE APPROVAL OF THE ENGINEER. SHORT DURATION CLOSURE (10 MINUTES) MAY BE PERMITTED UNDER THE DIRECTION OF A FLAGGER(S) OR LAW ENFORCEMNET OFFICER(S) (LEO) TO ERECT SPAN WIRE. ALL QUEUED TRAFFIC SHALL CLEAR WORK AREA PRIOR TO ESTABLISHING ANOTHER CLOSURE. WITH THE EXCEPTION OF SEPARATE PAY ITEMS, PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT BID PRICE FOR THE APPLICABLE MAINTAINING TRAFFIC ITEMS.

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

A) EXISTING SIGNAL 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.

B) NEW OR REUSED SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE ITEMS 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. COMMUNICATIONS MUST BE ESTABLISHED WITH THE DEPARTMENT'S OHIO EMERGENCY MANAGEMENT ASSOCIATION (OEMA) AT 614-799-9238. 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 IN SERVICE WITHIN FOUR HOURS AFTER THE CONTRACTOR HAS BEEN NOTIFIED OF AN 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 THIS 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 THIS

LOCATION WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND ANY SUBSEQUENT BILLINGS FOR POLICE SERVICES AND MAINTENANCE SERVICES BY THE LOCAL PROVIDING AGENCY FORCES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE THE CONTRACTOR IN ACCORDANCE WITH PROVISIONS OF SECTION 105.01.

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,

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.

632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH 632.26 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL STORED ON THE PROJECT IN A SAFE PLACE AND DELIVERED NO LATER THAN ONE WEEK FOLLOWING REMOVAL TO ODOT DISTRICT 6 ROADWAY SERVICES, 400 E. WILLIAM STREET, DELAWARE, OHIO 43015 ATTN: TOM JACOBY.

ITEMS TO BE STORED:

CONTROLLER

STRAIN POLE FOUNDATION ELEVATIONS

ELEVATION OF FOUNDATIONS SHALL BE IN ACCORDANCE WITH TC-21.20 PROVIDED THE EXISTING SLOPE IS LESS THAN 6:1.

AT LOCATIONS WHERE THE EXISTING SLOPE IS 6:1 OR GREATER, THE BURIED DEPTH OF FOUNDATION, AS SHOWN IN STANDARD DRAWING TC-21.20 SHALL APPLY TO THE LOW SIDE OF THE SLOPE. THE TOP OF THE FOUNDATION SHALL BE SET 2 INCHES ABOVE THE EXISTING SURFACE ON THE HIGH SIDE OF THE SLOPE. THE ADDITIONAL DEPTH OF FOUNDATION NECESSARY TO MEET THESE REQUIREMENTS SHALL BE ADDED TO THE FORMED TOP.

CALCULATED | CHECKED

TRAFFIC SIGNAL GENERAL NOTES 1 OF 2
SR 104 AND SR 665

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632 POWER SERVICE, AS PER PLAN

POWER SERVICE SHALL BE AS PER SPECIFICATION 632 AND STANDARD CONSTRUCTION DRAWING TC-83.10 WITH THE FOLLOWING EXCEPTIONS:

1. THE METER BASE MOUNTING HEIGHT SHALL BE NO MORE THAN FIVE (5) FEET HIGH TO THE CENTER OF THE METER BASE FROM THE GROUND.

2. THE SERVICE SHALL BE METERED 100 AMP POWER SERVICE. THE METER SHALL HAVE A LEVER OPERATED BYPASS.

3. THE POWER ADDRESS IS 999 LONDON-GROVEPORT ROAD, GROVE CITY, OH 43123-8971. FOR ELECTRICAL SAFETY INSPECTION, CONTACT TOM JACOBY AT 740-815-6007. ACCOUNT OWNER IS THE OHIO DEPARTMENT OF TRANSPORTATION.

DISCONNECT SWITCH ENCLOSURES FURNISHED IN ACCORDANCE WITH ITEM 632, POWER SERVICE, AS PER PLAN, SHALL INCLUDE A PAD-LOCK EQUAL TO MASTER NO. 4BKA OR WILSON BOHANNON 660, WITH LOCK BODY OF BRONZE OR BRASS AND KEYING SHALL BE TO THE STATE MASTER.

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF THE POWER COMPANY 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 ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS. THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES TO ESTABLISH NEW POWER SERVICE.

ITEM 633 CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS2, AS PER PLAN

THE ELECTRICAL TRAFFIC CONTROL EQUIPMENT PROVIDED SHALL MEET THE FOLLOWING SPECIFICATIONS. THE EQUIPMENT PROVIDED AS PART OF THIS CONTRACT SHALL BE THE LATEST MODEL, CURRENTLY UNDER PRODUCTION AND NEW. THE CONTROLLER CABINET AND ACCESSORIES SHALL MEET THE NEMA TS-2, 1992 STANDARD FOR ACTUATED CONTROLLER UNITS. THE CATALOG NUMBER FOR THE P CABINET SHALL BE EL 712 OR NEWER. THE CABINET SHALL BE ALUMINUM WITH THE NATURAL ALUMINUM FINISH INSIDE AND OUTSIDE. THE LOAD BAY SHALL BE THE TF5016 OR NEWER, WITH 16 LOAD SWITCH POSITIONS. PROVIDE ONLY THE EXACT NUMBER OF LOAD SWITCHES REQUIRED FOR EACH SPECIFIC INTERSECTION. EACH LOAD SWITCH SHALL HAVE LIGHT EMITTING DIODES (LEDs) FOR THE CONTROLLER OUTPUT AND LOAD SWITCH OUTPUT AND 8 FLASH RELAY POSITIONS, BUT ONLY SUPPLY THE EXACT NUMBER OF RELAYS NEEDED FOR EACH SPECIFIC INTERSECTION. ALSO PROVIDE 1 NEMA 2-CIRCUIT FLASHER AND AN MMU MONITOR.

EACH CABINET SHALL COME EQUIPPED WITH A CABINET DETECTOR RACK (CDR) INCLUDING A BUS INTERFACE UNIT (BIU) AND THE EXACT NUMBER OF FOUR CHANNEL DETECTOR CARDS WITH SOFTWARE REQUIRED FOR EACH INTERSECTION.

THE CABINET SHALL BE EQUIPPED WITH A CABINET POWER SUPPLY (CPS).

AN AUXILIARY POWER PANEL AND ENCLOSURE SHALL BE MOUNTED ON THE OUTSIDE OF THE UPPER SECTION OF THE CONTROLLER CABINET, ON THE SAME SIDE AS THE CIRCUIT SREAKERS. THE STANDARD DRAWING FOR THE AUXILLARY POWER PANEL IS INCLUDED IN THIS PLAN AND SHALL MEET THOSE SPECIFICATIONS.

A CABINET DOOR OPEN SWITCH AND A CABINET LIGHT ON/OFF SWITCH SHALL ALSO BE SUPPLIED.

THE PHASE OMIT OPERATION SHALL BE ACHIEVED THROUGH CONTROLLER PROGRAMMING. THE PHASE OMIT OPERATION WILL ALLOW LEAD LEFT AND PREVENT LAG LEFTS WHERE APPLICABLE.

THE FOLLOWING INFORMATION SHALL BE ON ALL LABELS IN THE CONTROLLER CABINET TO IDENTIFY THE WIRING AND FUNCTION:

LOOP DETECTOR LEAD-IN CABLE:
PHASE NUMBER SERVICE, DIRECTION, MOVEMENT TYPE, AND LOOP PLAN NUMBER

SIGNAL HEAD FIELD WIRING:
PHASE NUMBER, DIRECTION, MOVEMENT TYPE, AND COLOR (RED, YELLOW, GREEN, YELLOW ARROW, GREEN ARROW) OR PEDESTRIAN MOVEMENT.

THE CONTROLLER TIMER SHALL BE THE MOST CURRENT MODEL NEMA TS-2 TYPE 2 AND HAVE INTERNAL TIME BASE CONTROL.

EACH CONDUIT ENTRANCE TO THE CABINET SHALL BE SEALED WITH A RUBBER PIPE/CONDUIT SEAL GASKET. THE SEAL SHALL BE OF A MATERIAL AND TYPE TIGHTLY FITTING AND ABLE TO SEAL OUT WATER, INSECTS, RODENTS, AND DIRT. THE SEAL SHALL BE EASILY REMOVED FOR SERVICE INSTALLATIONS OR CABLE REPLACEMENTS,

PAYMENT FOR ITEM 633, CONTROLLER, UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS2, AS PER PLAN, WILL BE AT THE CONTRACT BID PRICE COMPLETE AND IN PLACE AND CONNECTIONS TESTED AND ACCEPTED.

PREPARATION WITH RESPECT TO CONNECTIONS AND INTERFACES WITH CABINET AND CONTROLLER HARDWARE SHALL BE MADE AVAILABLE FOR FUTURE RADIO INTERCONNECT.

INSPECTION

DISTRICT SIX ROADWAY SERVICES SHALL BE NOTIFIED ONE WEEK PRIOR TO THE TRANSFERRING OPERATION FROM THE OLD SYSTEM TO THE NEW SYSTEM. DISTRICT SIX ROADWAY SERVICES PERSONNEL SHALL BE PRESENT AT THE TIME OF CHANGE OVER AND WILL PERFORM A PRELIMINARY INSPECTION TO INSURE SAFE OPERATION OF THE NEW SYSTEM.

THE SIGNAL SHALL BE INSPECTED JUST PRIOR TO THE TEN DAY PERFORMANCE TEST SPECIFIED IN THE CMS 632.28. ALL OTHER PAY ITEMS SHALL BE COMPLETED INCLUDING THE ELECTRICAL TESTS SPECIFIED IN 632.28 (G) AND FUNCTIONAL TEST SPECIFIED IN 632.27 (F). ALL DEFICIENCIES FOUND DURING THE FINAL INSPECTION SHALL BE CORRECTED BEFORE THE COMPLETION OF THE TEN DAY PERFORMANCE TEST. ANY MAJOR DEFICIENCY WHICH MAY EFFECT THE OPERATION OF THE SIGNAL SHALL CONSTITUTE A RE-START OF THE TEN DAY PERFORMANCE TEST. THE TEST SHALL NOT RE-START UNTIL ALL OF THESE CORRECTIONS ARE COMPLETED. THE TEN DAY PERFORMANCE TEST MUST BE COMPLETED SUCCESSFULLY BEFORE THE SIGNAL WILL BE APPROVED.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE ELECTRICAL SYSTEMS INSTALLED, IN WHOLE OR IN PART, SHALL OPERATE SATISFACTORILY FOR A PERIOD OF NINETY (90) DAYS FOLLOWING COMPLETION OF THE TEN 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. MATERIAL AND LABOR COSTS INCURRED IN CORRECTING UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR. THE GUARANTEE SHALL COVER THE FOLLOWING ITEMS OF THE TRAFFIC CONTROL SYSTEM: CONTROLLER, LOOP DETECTOR UNITS, MONITORS AND ASSOCIATED EQUIPMENT. ANY MANUFACTURERS GUARANTEE FOR EQUIPMENT SHALL BE PROVIDED TO THE ROADWAY SERVICES DEPARTMENT. THE COST OF GUARANTEEING THE TRAFFIC CONTROL SYSTEM WILL BE INCIDENTIAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE OF THE VARIOUS ITEMS MAKING UP THE SYSTEM.

CALCULATED | CHECKED

TRAFFIC SIGNAL GENERAL NOTES 2 OF 2
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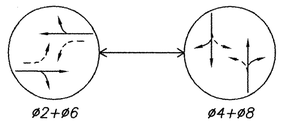
PHASING DIAGRAM

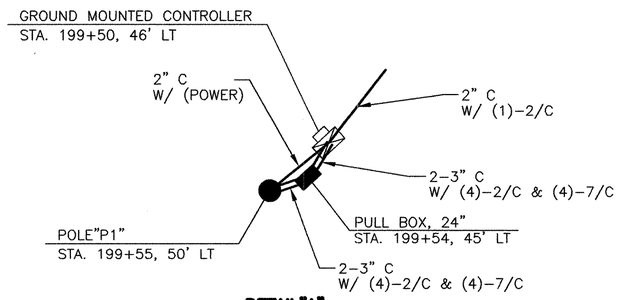


SIGNAL HEADS

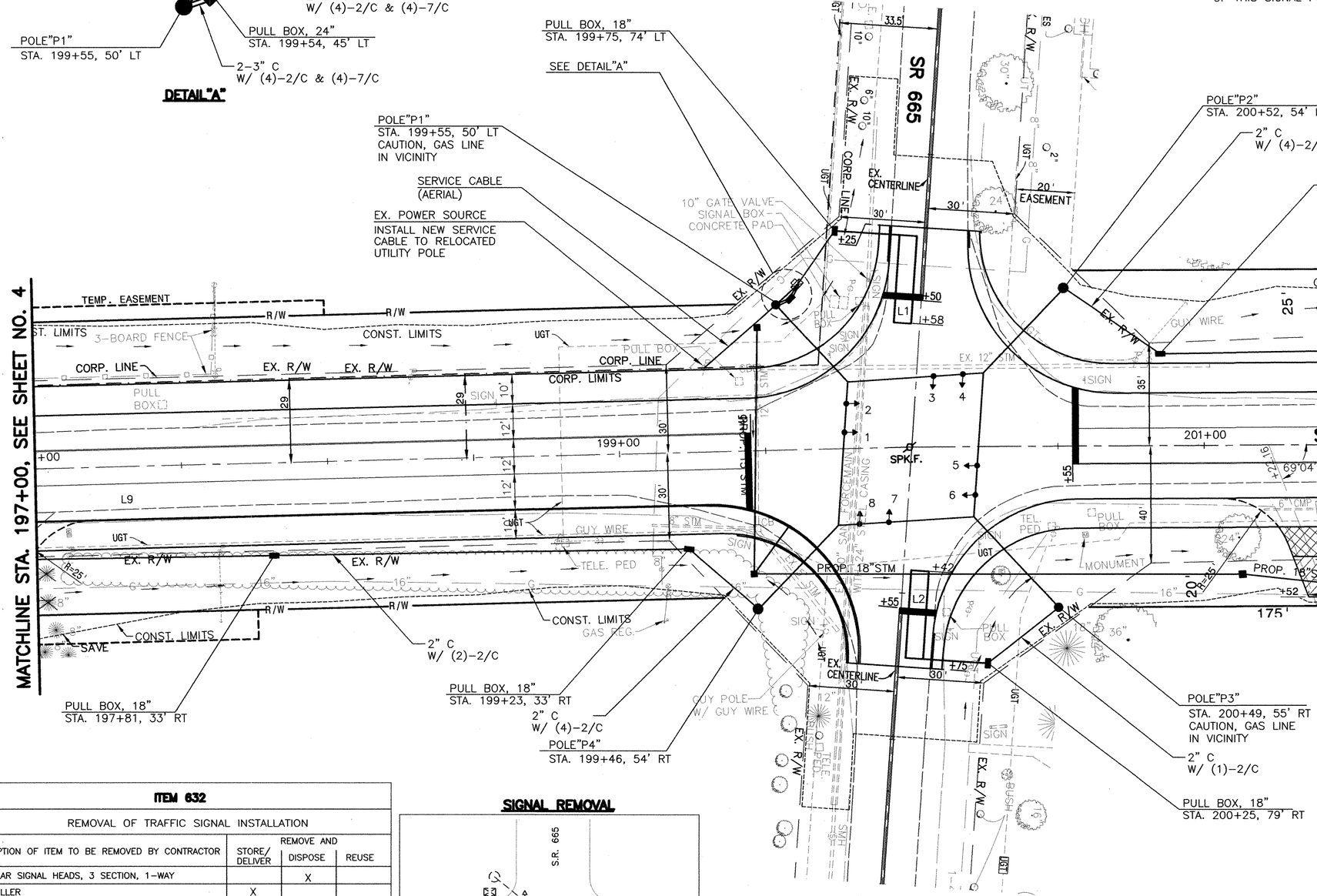
1,2,3,4,5,6,7,8

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUIT, PULLBOXES AND OTHER INCIDENTALS TO OBTAIN AND MAKE CONNECTIONS TO CONTROLLER.
2. THE CONTRACTOR SHALL COORDINATE AND OBTAIN POWER SERVICE FROM AEP AT THE LOCATION SHOWN ON THE PLAN.
3. FOR QUANTITIES, POLE CHART, AND WIRING DIAGRAM, SEE SHEET No. 6 OF 6.
4. PAVEMENT MARKINGS ARE SHOWN FOR CLARITY ONLY AND ARE NOT PART OF THIS SIGNAL PLAN.



DETAIL"A"

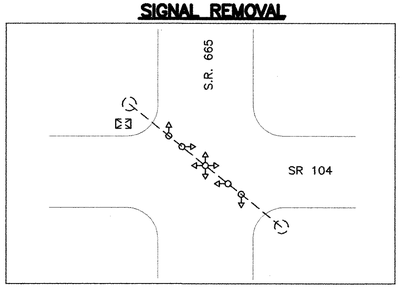


ITEM 632

REMOVAL OF TRAFFIC SIGNAL INSTALLATION

DESCRIPTION OF ITEM TO BE REMOVED BY CONTRACTOR	REMOVE AND STORE/ DELIVER	REMOVE AND DISPOSE	REMOVE AND REUSE
VEHICULAR SIGNAL HEADS, 3 SECTION, 1-WAY		X	
CONTROLLER	X		
CABINET		X	
(2) STRAIN POLES		X	
CABLE, WIRE, & PULL BOXES		X	

SIGNAL REMOVAL



SIGNAL TIMING CHART

PHASE (ø)	1	2	3	4	5	6	7	8
MIN GREEN (TRUE)	(FUTURE)	10	(FUTURE)	10	(FUTURE)	10	(FUTURE)	10
PASSAGE TIME		5.5		5		5.5		5
MAXIMUM GREEN 1		50		50		50		50
MAXIMUM GREEN 2								
YELLOW CLEARANCE		4		4		4		4
RED CLEARANCE		1		1		1		1
ADDED INTITAL (SEC. PER ACT.)								
MAXIMUM INITIAL								
TIME BEFORE REDUCTION (TBR)								
TIME TO REDUCE (TTR)								
MINIMUM GAP		3		3		3		3
START UP GREEN		X				X		
START UP YELLOW								
START UP RED				X				X
MINIMUM RECALL		ON				ON		
MAXIMUM RECALL								
LOCKING DETECTOR								
NON-LOCK		X		X		X		X
FLASH		Y		R		Y		R

HORIZONTAL SCALE IN FEET
0 10 20 40

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TRAFFIC SIGNAL PLAN
SR 104 AND SR 665

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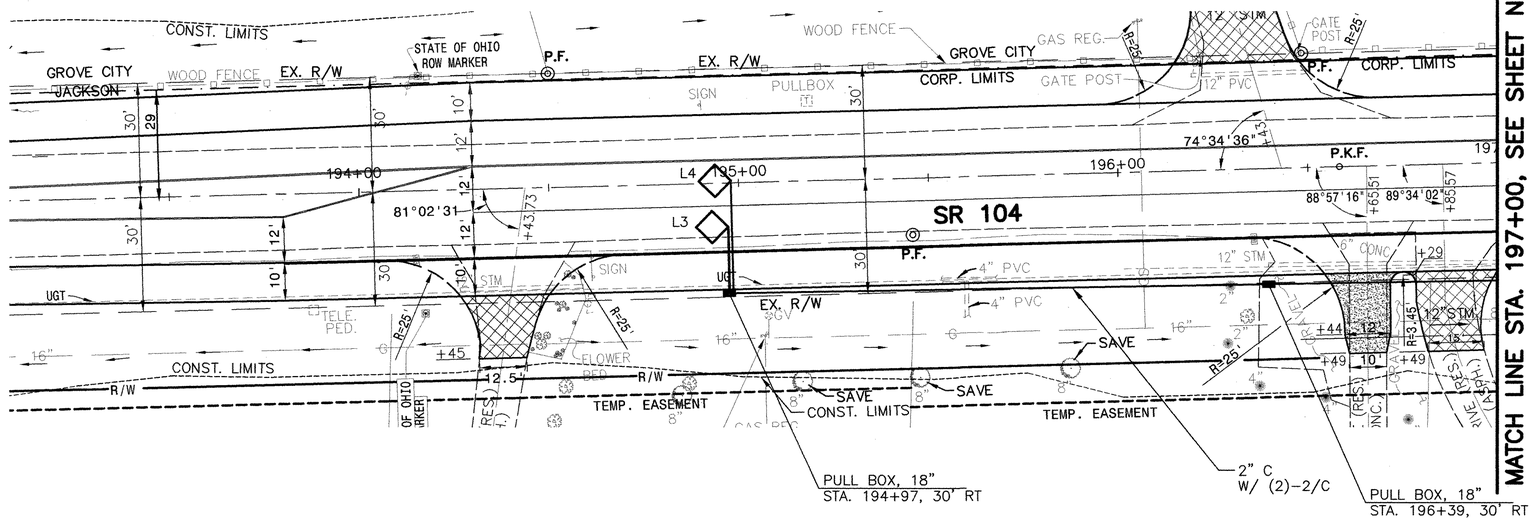
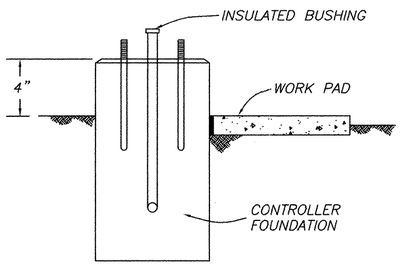
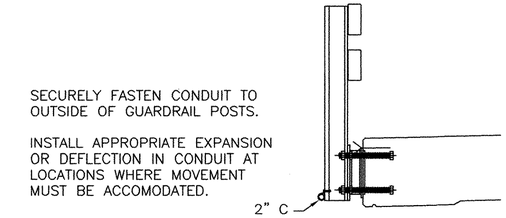


TYPICAL CONTROLLER FOUNDATION ELEVATION

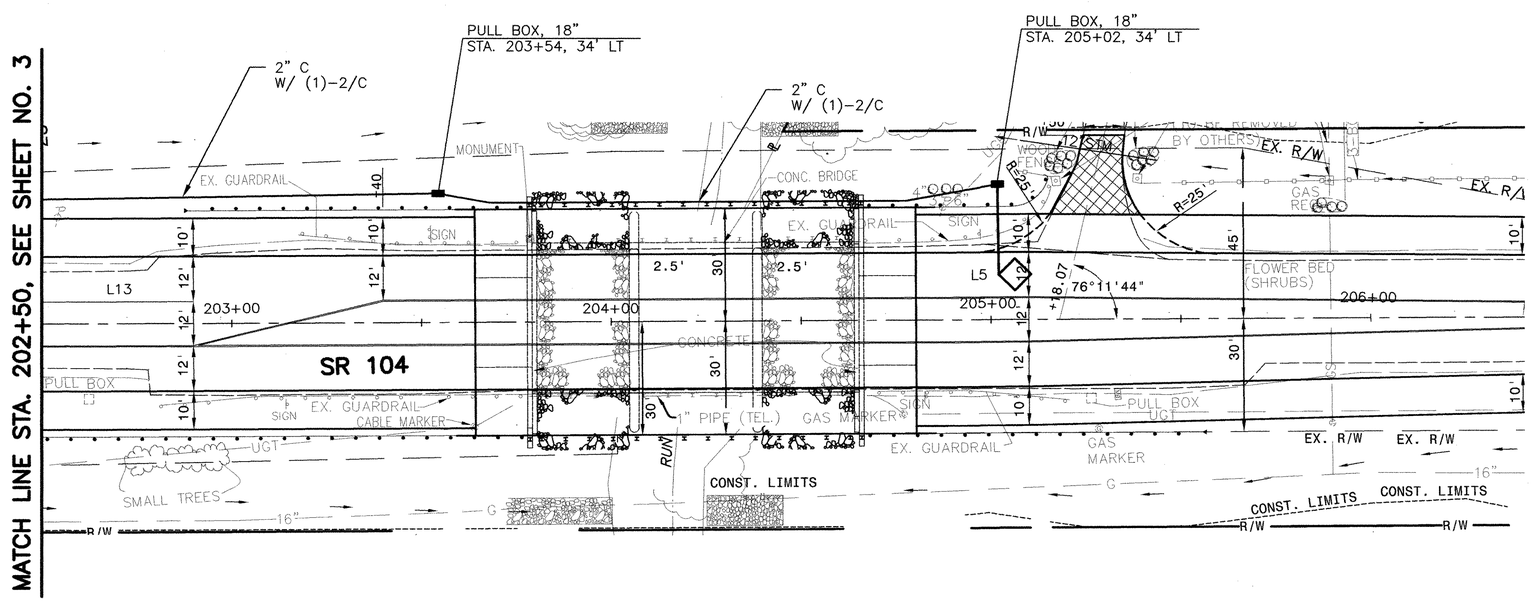


SIGNAL DISPLAY

PHASE	MOVEMENT	INTERVAL	SIGNAL NO. 1	2	3	4	5	6	7	8
2 + 6	SR104	RW	G	G	R	R	G	G	R	R
		C1	Y	Y	R	R	Y	Y	R	R
		C2	R	R	R	R	R	R	R	R
4 + 8	SR665	RW	R	R	G	G	R	R	G	G
		C1	R	R	Y	Y	R	R	Y	Y
		C2	R	R	R	R	R	R	R	R
FLASH			Y	Y	R	R	Y	Y	R	R



CONDUIT ATTACHMENT DETAIL



TRAFFIC SIGNAL PLAN
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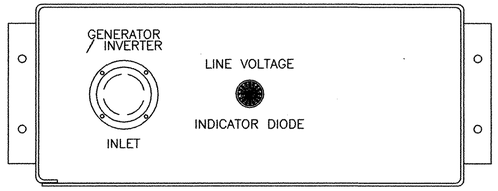
MATERIAL SPECIFICATIONS FOR GENERATOR / INVERTER POWER PANEL EQUIPMENT

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.

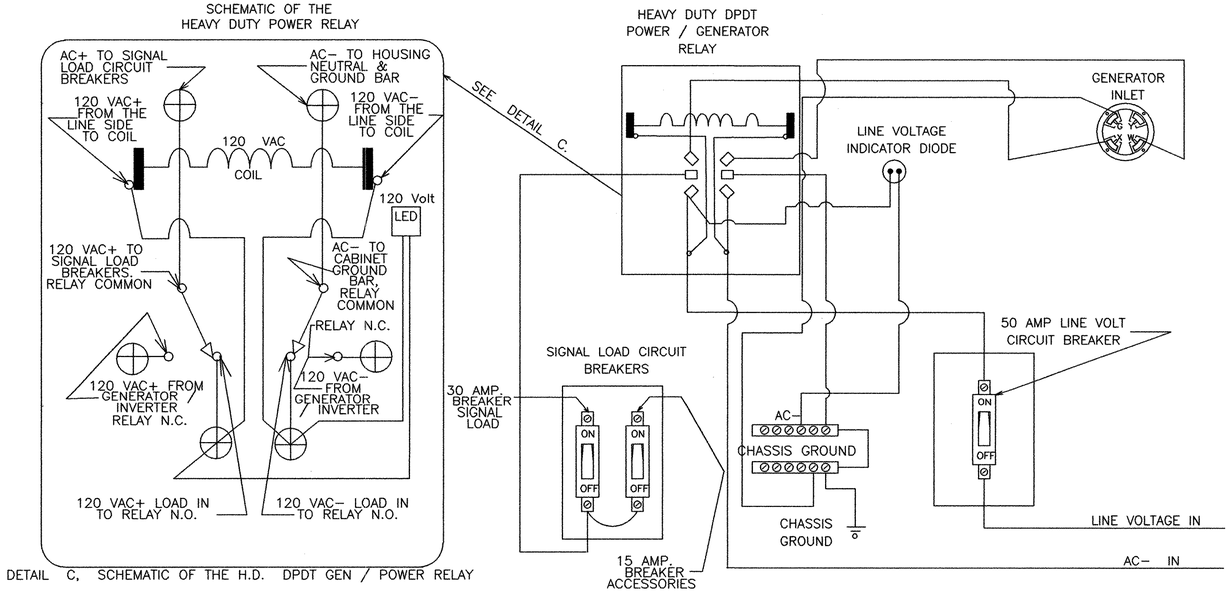
HEAVY DUTY POWER RELAY shall be 30 amp, 120 VAC, DPDT and SHALL BE an OMRON, Model (MGN2C-M) . (The MG seriese dust cover is required) To order, call 1-800-556-6766

LINE VOLTAGE INDICATOR LIGHT --- The indicator light shall be a 120 V 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 the N.E.C.



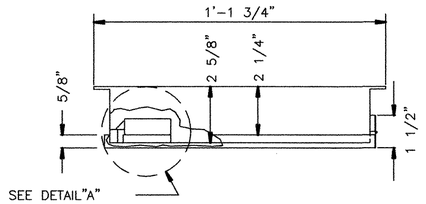
FRONT VIEW OF GENERATOR / INVERTER POWER PANEL



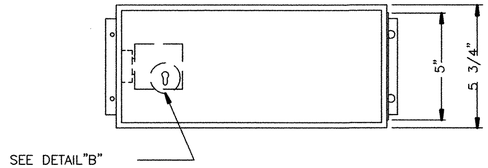
DETAIL C, SCHEMATIC OF THE H.D. DPDT GEN / POWER RELAY

ELECTRICAL HOOKUP DETAIL FOR THE GENERATOR POWER PANEL

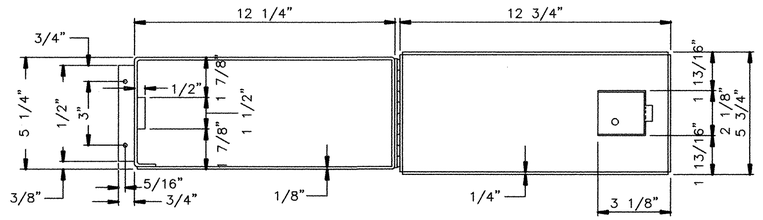
GENERATOR POWER PANEL ENCLOSURE



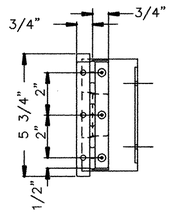
TOP VIEW



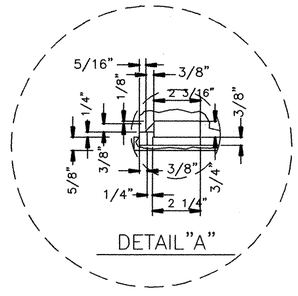
FRONT VIEW CLOSED DOOR



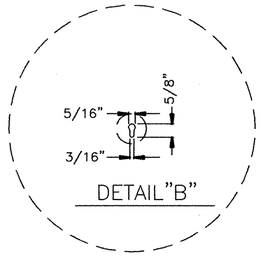
FRONT VIEW OPEN DOOR



RIGHT SIDE VIEW
CLOSED DOOR



DETAIL"A"



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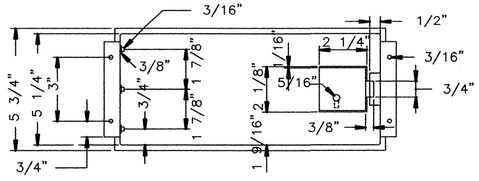

BACK VIEW CLOSED DOOR

CALCULATED | CHECKED

AUXILLARY POWER PANEL
SR 104 AND SR 665

FRA - 104 - 1.29

5 / 6

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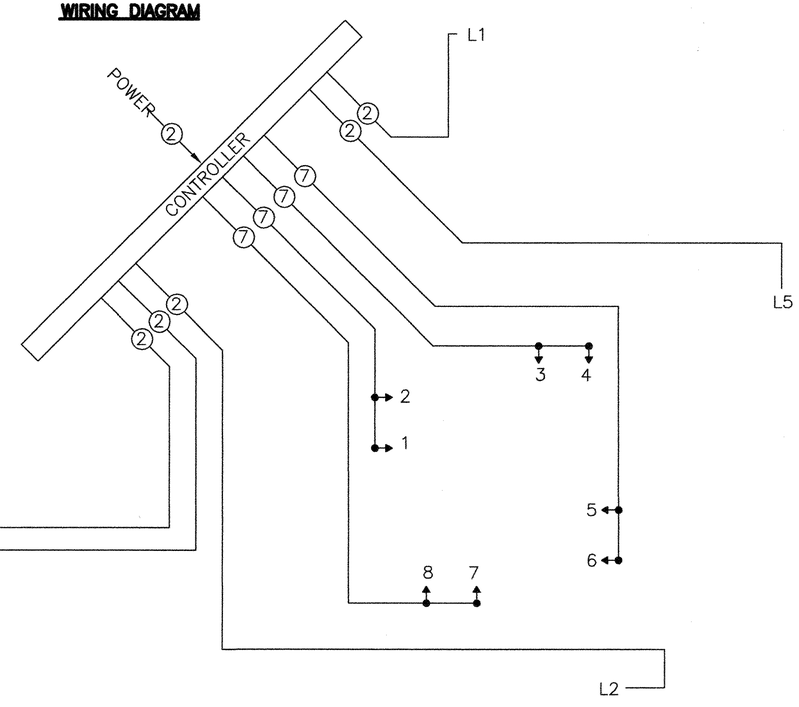
TRAFFIC SIGNAL GENERAL SUMMARY

ITEM	EXT.	QUAN	UNIT	DESCRIPTION	SEE SHEET
625	25400	845	FT	CONDUIT, 2", 725.04	
625	25500	20	FT	CONDUIT, 3", 725.04	
625	29000	812	FT	TRENCH	
625	30700	10	EACH	PULL BOX, 725.08, 18"	
625	30706	1	EACH	PULL BOX, 725.08, 24"	
625	32000	5	EACH	GROUND ROD	
632	05000	8	EACH	VEHICULAR SIGNAL HEAD, (LED), 3 SECTION, 12" LENS, 1-WAY	
632	25000	8	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
632	26500	5	EACH	DETECTOR LOOP	
632	30200	349	FT	MESSENGER WIRE, 7 STRAND, 3/8" DIAMETER WITH ACCESSORIES	
632	40700	612	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
632	64001	4	EACH	STRAIN POLE FOUNDATION, AS PER PLAN	44
632	65200	2940	FT	LOOP DETECTOR LEAD-IN CABLE	
632	67190	156	FT	POWER CABLE, 1 CONDUCTOR, NO. 8 AWG	
632	69800	50	FT	SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG	
632	70001	1	EACH	POWER SERVICE, AS PER PLAN	45
632	83000	4	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 10	
632	90101	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	44
633	01551	1	EACH	CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS2, AS PER PLAN	45
633	67000	1	EACH	CABINET RISER	
633	67100	1	EACH	CABINET FOUNDATION	
633	67200	1	EACH	CONTROLLER WORK PAD	

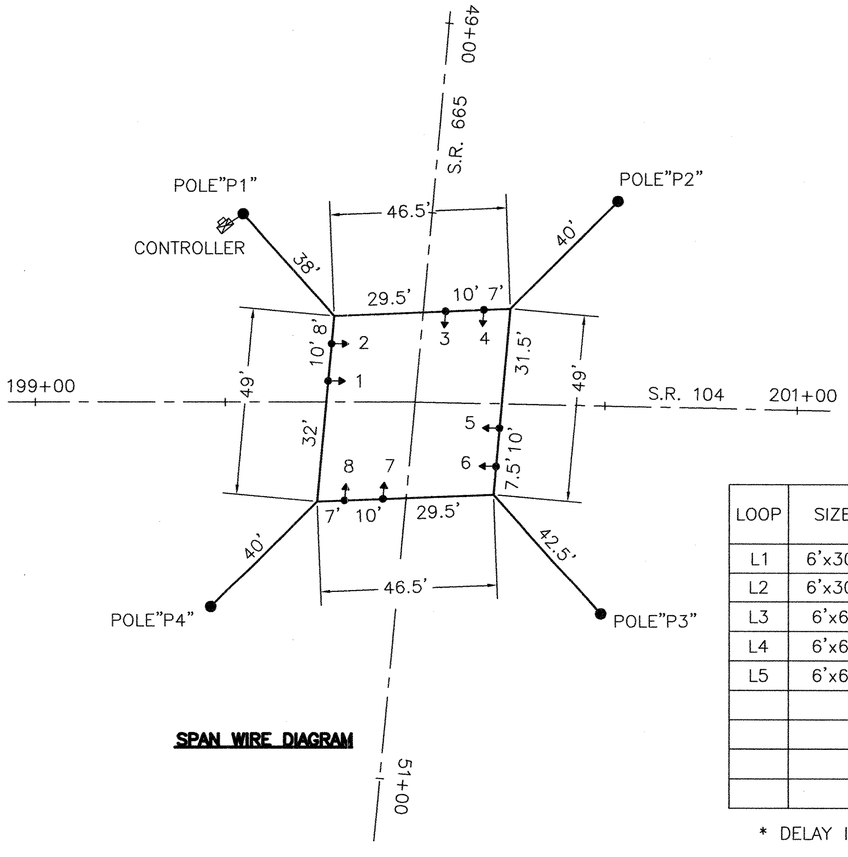
POLE ORIENTATION

POLE	STATION & OFFSET	POLE HEIGHT	DESIGN	INDEX ANGLE	POWER METER	POWER SERVICE	CABLE ENTRANCE	2" CAPPED CONDUIT ELL (FUTURE USE)
P1	199+55, 50' LT	32'	10	135	270	270	180	
P2	200+52, 54' LT	32'	10	225			180	270
P3	200+49, 55' RT	32'	10	135			180	270
P4	199+46, 54' RT	32'	10	225			180	270

WIRING DIAGRAM



SPAN WIRE DIAGRAM

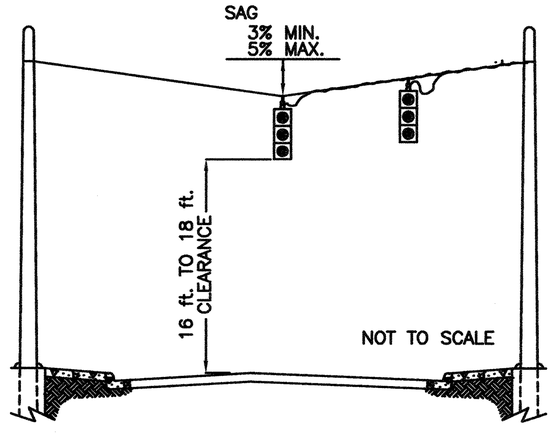


LOOP DETECTOR CHART

LOOP	SIZE	TURNS	MODE	MEMORY	DELAY* (SEC.)	UNIT	CHANNEL	PHASE	EXT. (SEC.)
L1	6'x30'	3	PRESENCE	OFF	3	1	1	ø4	
L2	6'x30'	3	PRESENCE	OFF	3	1	2	ø8	
L3	6'x6'	4	PULSE	ON		2	1	ø2	5.5
L4	6'x6'	4	PULSE	ON		2	2	ø2	5.5
L5	6'x6'	4	PULSE	ON		2	3	ø6	5.5

* DELAY INHIBIT, DURING GREEN PHASE

TYPICAL SIGNAL ELEVATION



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED SS
CHECKED HJF

TRAFFIC SIGNAL GENERAL SUMMARY & PLAN DETAILS
SR 104 AND SR 665

FRA - 104 - 1.29

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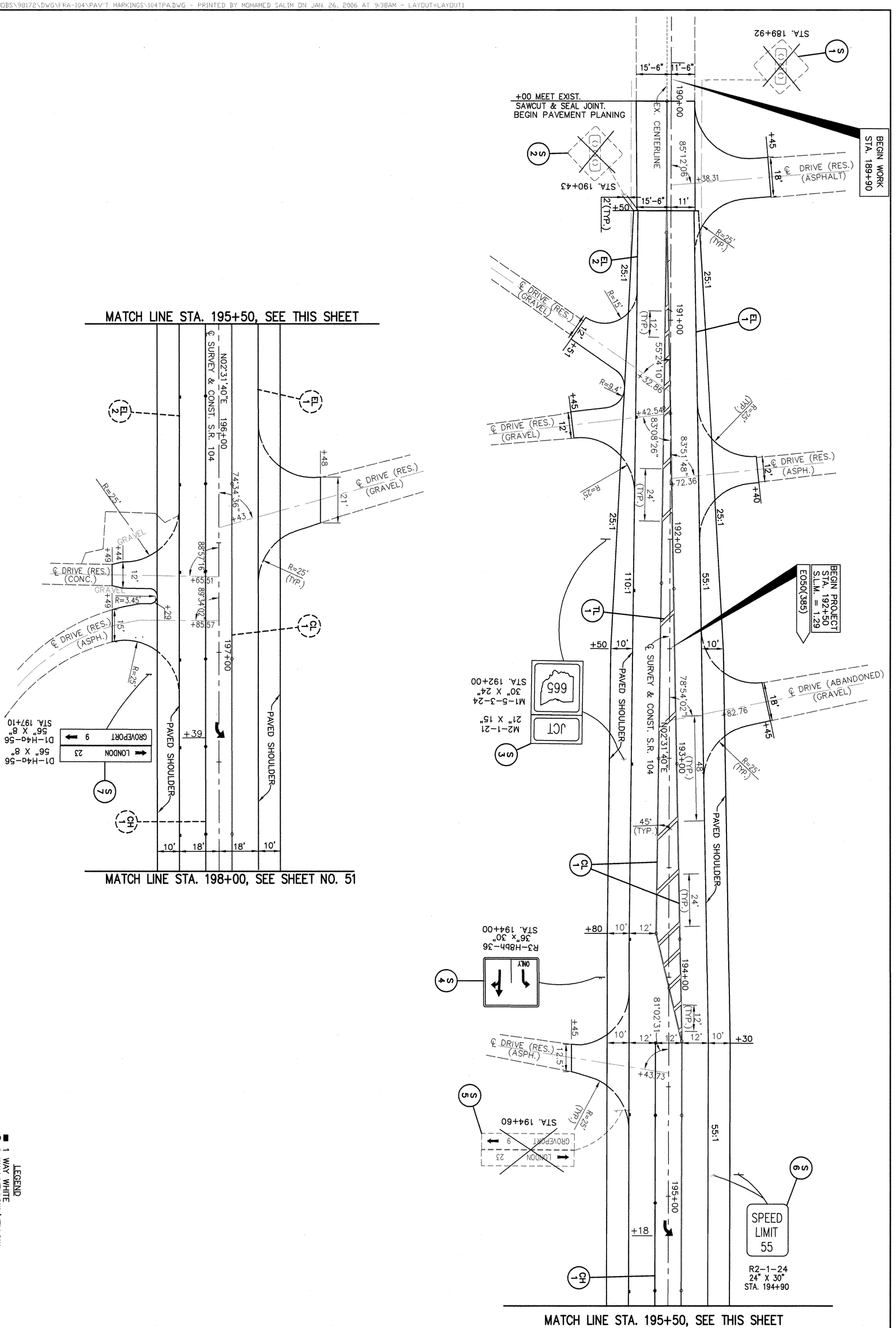
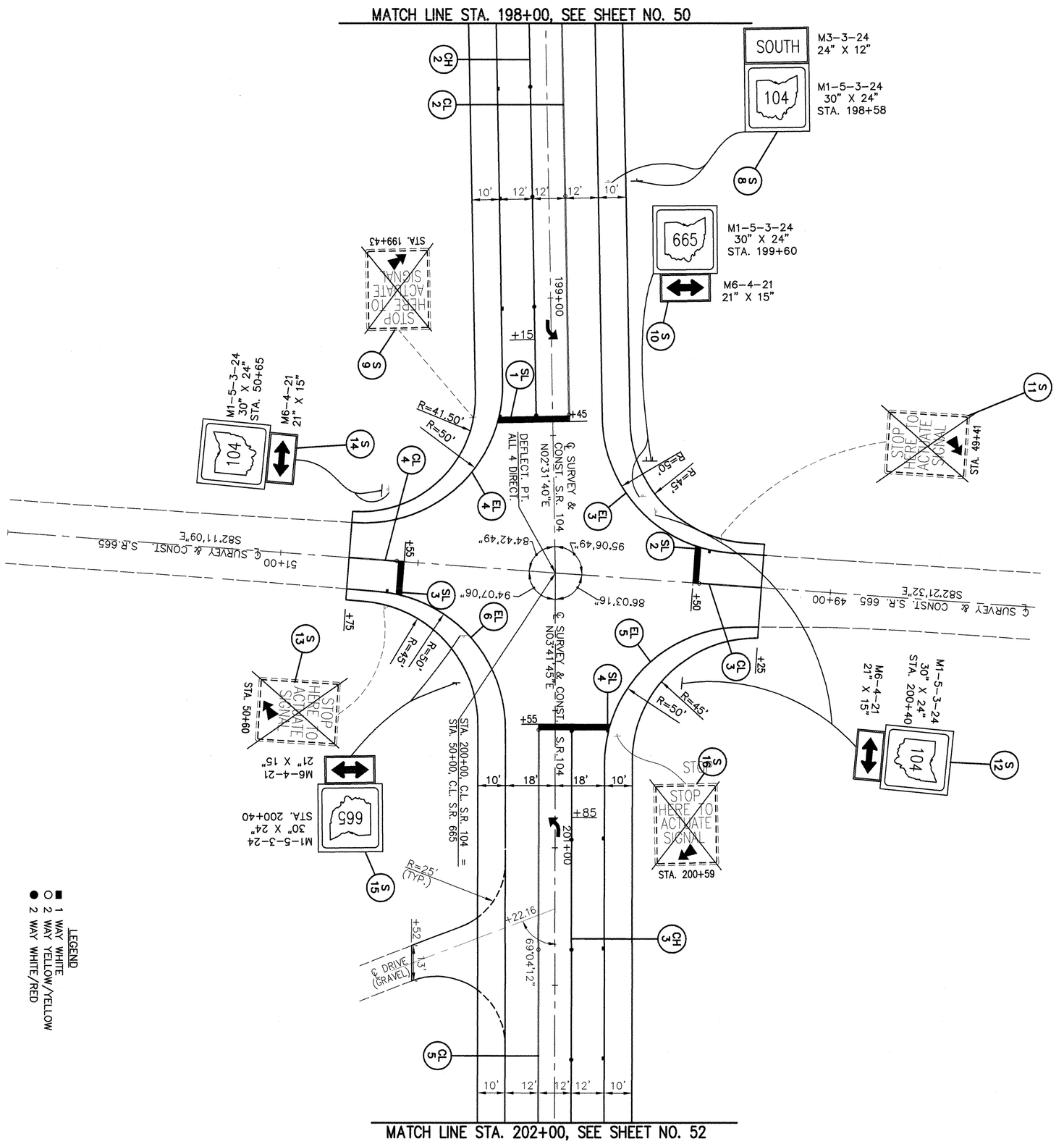
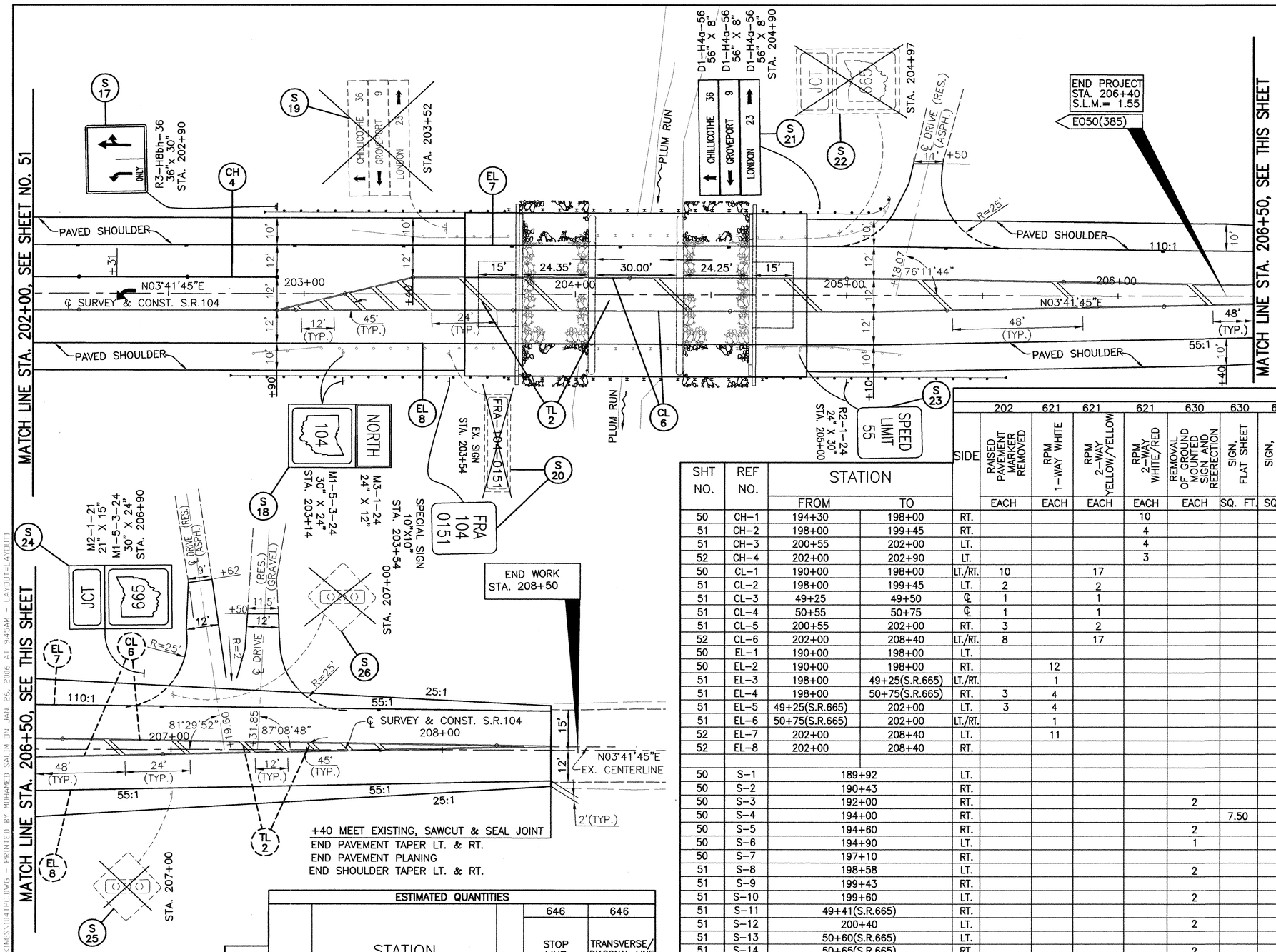


LEGEND
1 WAY WHITE
2 WAY YELLOW/YELLOW
2 WAY WHITE/RED

50 / 68	FRA-104-1.29	S.R. 104 SIGNING AND PAVEMENT MARKING PLAN	CALCULATED AM CHECKED MO 0 10 20 40 HORIZONTAL SCALE IN FEET



51/68	FRA-104-1.29	S.R. 104 SIGNING AND PAVEMENT MARKING PLAN	CALCULATED AM CHECKED MO	0 10 20 40 HORIZONTAL SCALE IN FEET



LEGEND
- ■ 1 WAY WHITE
- ○ 2 WAY YELLOW/YELLOW
- ● 2 WAY WHITE/RED

HORIZONTAL SCALE IN FEET: 0, 10, 20, 40

CALCULATED AM
CHECKED MO

SHT NO.	REF NO.	STATION FROM	STATION TO	SIDE	646 STOP LINE (24" WHITE)	646 TRANSVERSE/ DIAGONAL LINE (24" YELLOW)
					FT.	FT.
51	SL-1	199+45		LT./RT.	26	
51	SL-2	49+50		RT.	14	
51	SL-3	50+55		LT.	12	
51	SL-4	200+55		LT./RT.	26	
50	TL-1	190+50	194+30	LT./RT.		98
52	TL-2	202+90	208+40	LT./RT.		172
	TOTALS CARRIED TO GENERAL SUMMARY				78	270

ESTIMATED QUANTITIES

SHT NO.	REF NO.	STATION FROM	STATION TO	SIDE	202 RAISED PAVEMENT MARKER REMOVED	621 RPM 1-WAY WHITE	621 RPM 2-WAY YELLOW/YELLOW	621 RPM 2-WAY WHITE/RED	630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	630 SIGN, FLAT SHEET	630 SIGN, FLAT SHEET, AS PER PLAN	630 GROUND MOUNTED SUPPORT, NO.2 POST	630 GROUND MOUNTED SUPPORT, NO.3 POST	630 REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	646 EDGE LINE (WHITE)	646 CENTER LINE (DOUBLE YELLOW)	646 CHANNELLIZING LINE (WHITE)	646 LANE ARROW 96" WHITE
					EACH	EACH	EACH	EACH	EACH	SQ. FT.	SQ. FT.	FT.	FT.	EACH	EACH	MILE	MILE	FT.	EACH
50	CH-1	194+30	198+00	RT.				10										370	2
51	CH-2	198+00	199+45	RT.				4										145	1
51	CH-3	200+55	202+00	LT.				4										145	1
52	CH-4	202+00	202+90	LT.				3										90	1
50	CL-1	190+00	198+00	LT./RT.	10		17										0.223		
51	CL-2	198+00	199+45	LT.	2		2										0.027		
51	CL-3	49+25	49+50	℄	1		1										0.005		
51	CL-4	50+55	50+75	℄	1		1										0.004		
51	CL-5	200+55	202+00	RT.	3		2										0.027		
52	CL-6	202+00	208+40	LT./RT.	8		17										0.225		
50	EL-1	190+00	198+00	LT.												0.152			
50	EL-2	190+00	198+00	RT.		12										0.152			
51	EL-3	198+00	49+25(S.R.665)	LT./RT.		1										0.044			
51	EL-4	198+00	50+75(S.R.665)	RT.	3	4										0.042			
51	EL-5	49+25(S.R.665)	202+00	LT.	3	4										0.042			
51	EL-6	50+75(S.R.665)	202+00	LT./RT.		1										0.044			
52	EL-7	202+00	208+40	LT.		11										0.121			
52	EL-8	202+00	208+40	RT.												0.121			
50	S-1	189+92		LT.										1	1				
50	S-2	190+43		RT.										1	1				
50	S-3	192+00		RT.				2				13			1				
50	S-4	194+00		RT.						7.50		26							
50	S-5	194+60		RT.				2							2				
50	S-6	194+90		LT.				1					13		1				
50	S-7	197+10		RT.									26						
51	S-8	198+58		LT.				2					13		1				
51	S-9	199+43		RT.										1	1				
51	S-10	199+60		LT.				2					13		1				
51	S-11	49+41(S.R.665)		RT.										1	1				
51	S-12	200+40		LT.				2					13		1				
51	S-13	50+60(S.R.665)		LT.										1	1				
51	S-14	50+65(S.R.665)		RT.				2					13		1				
51	S-15	200+40		RT.				2					13		1				
51	S-16	200+59		LT.										1	1				
52	S-17	202+90		LT.						7.50		26							
52	S-18	203+14		RT.				2					13		1				
52	S-19	203+52		LT.				3							2				
52	S-20	203+54		RT.							1.67	7		1	1				
52	S-21	204+90		LT.									26						
52	S-22	204+97		LT.										2	1				
52	S-23	205+00		RT.				1					13		1				
52	S-24	206+90		LT.						7.19			13						
52	S-25	207+00		RT.										1	1				
52	S-26	207+00		LT.										1	1				
	SUB-TOTALS				31	33	40	21	21	22.19	1.67	72	169	11	23	0.718	0.511	750	5
	TOTALS CARRIED TO GENERAL SUMMARY				31		94		21	22.19	1.67	72	169	11	23	0.72	0.51	750	5

S.R. 104
SIGNING AND PAVEMENT MARKING PLAN

FRA-104-1.29

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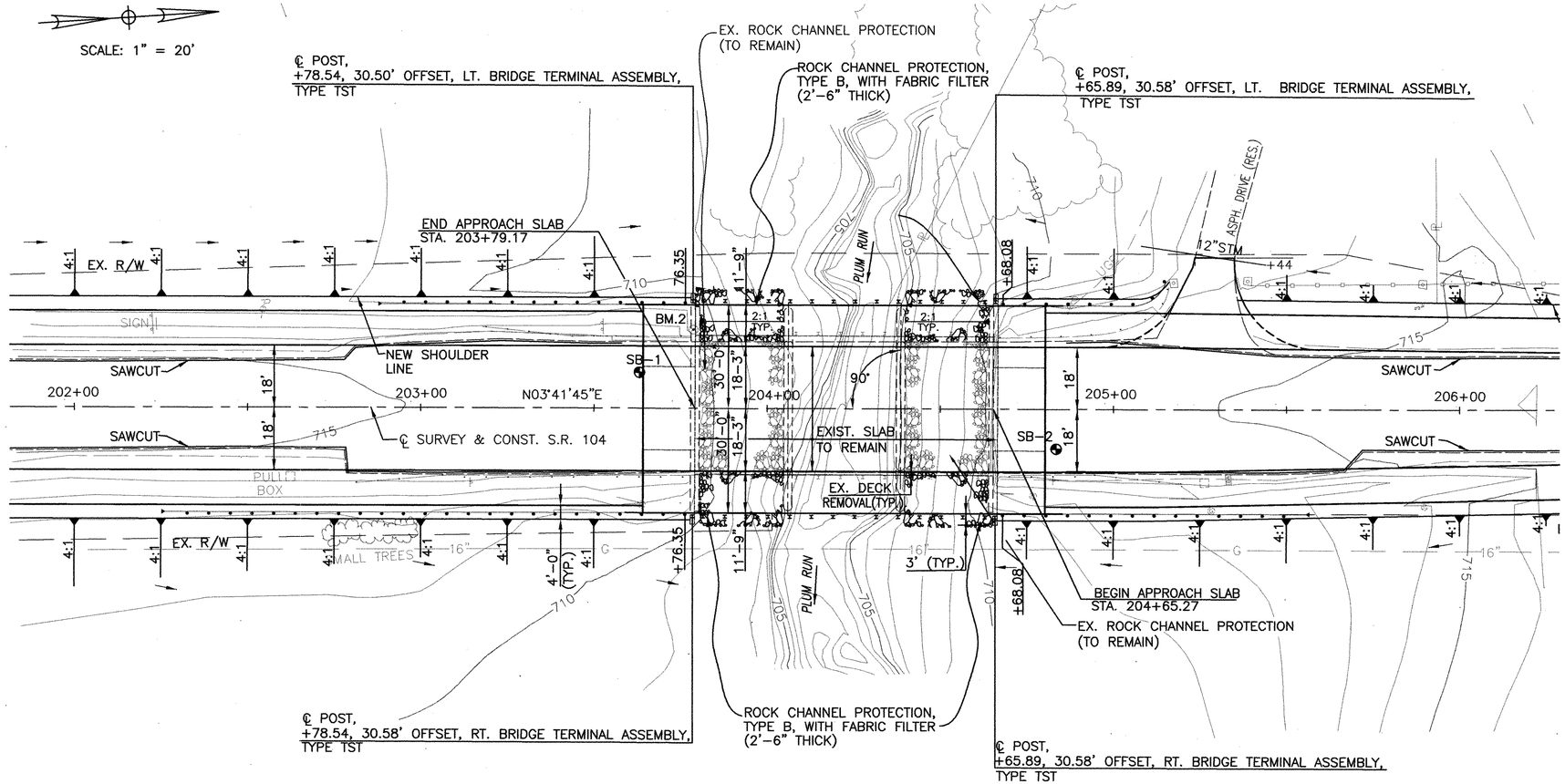
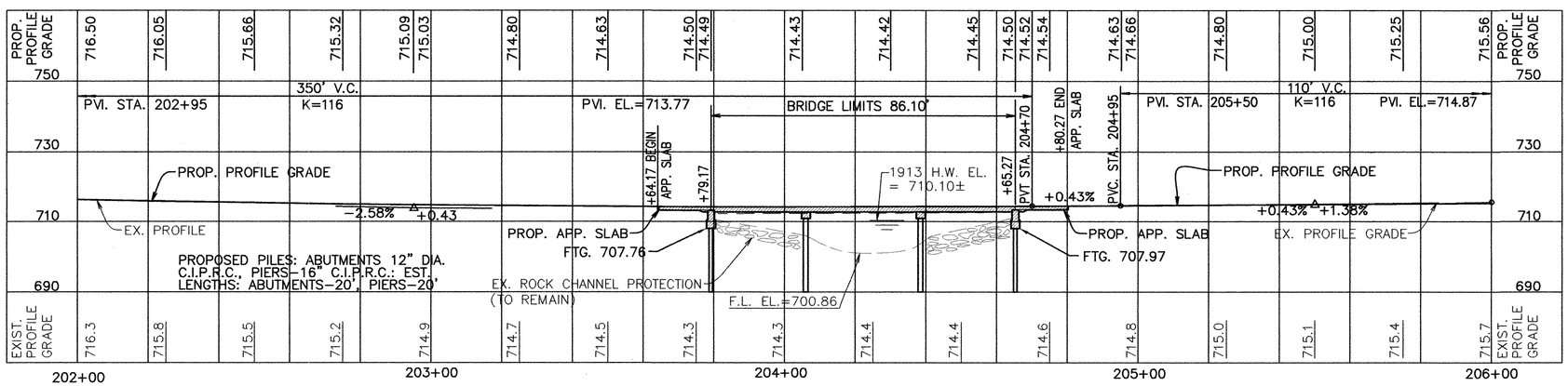


PLAN



PROFILE ALONG ℄ SURVEY & CONSTRUCTION (S.R. 104)

BENCHMARK

BRASS PLATE IN S.W. CORNER OF BRIDGE NO. FRA-104-0151 OVER PLUM RUN. 0.09 MI. N. OF INT. OF S.R. 104 & S.R. 665. 21 FT. W. OF CENTERLINE OF S.R. 104.

ELEVATION = 713.93

TRAFFIC DATA

CURRENT A.D.T.(2005) = 10030
DESIGN YEAR A.D.T.T.(2025) = 1733
DESIGN YEAR A.D.T.(2025) = 16500

HYDRAULIC DATA FROM EXISTING PLANS

DRAINAGE AREA = 5.89 SQ. MI.
HW_5 = 707.59
HW_{20} = 709.59
1913 HW ELEV = 710.10±

SB-1: INDICATES CORE BORING

EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS-SECTIONS

EXISTING STRUCTURE

TYPE: CONTINUOUS REINFORCED CONCRETE SLAB WITH CAPPED PILE SUBSTRUCTURE
SPANS: 26'-32.5'-26' c/c BEARINGS
ROADWAY: 40'-0" F/F GUARDRAILS
LOAD FREQUENCY: CF400 (51)
SKEW: 0°-00'
WEARING SURFACE: 1 1/4" MICROSILICA OVERLAY
APPROACH SLABS: AS-1-54 (15' LONG, 24' WIDE)
ALIGNMENT: TANGENT
DATE BUILT: 1956; REHABILITATED 1994

PROPOSED STRUCTURE

PROPOSED WORK: WIDEN DECK ON BOTH SIDES, CONC. OVERLAY EX. DECK, EXTEND SUBSTRUCT., TST-1-99 BRIDGE RAILING, RE-SHAPE CHANNEL, NEW APPROACH SLABS, NEW POROUS BACKFILL AND PIPE DRAINAGE.
TYPE: CONTINUOUS REINFORCED CONCRETE SLAB WITH CAPPED PILE SUBSTRUCTURE
SPANS: 26'-32.5'-26' c/c BEARINGS
ROADWAY: 60'-0" F/F GUARDRAILS
LOADING : HS-20 AND THE ALTERNATE MILITARY LOADING
SKEW: 0°-00'
WEARING SURFACE: 1" MONOLITHIC CONCRETE
APPROACH SLABS: AS-1-81 (15' LONG)
ALIGNMENT: TANGENT
COORDINATES: N 39°-49'-35.53"
W 83°-01'-56.81"

DESIGN AGENCY
DYNOTEC, INC.
CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
RAK	MEP	TAI	2/11/05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSB	—	2508494	

FRANKLIN COUNTY
STA. 203+79.17
STA. 204+65.27

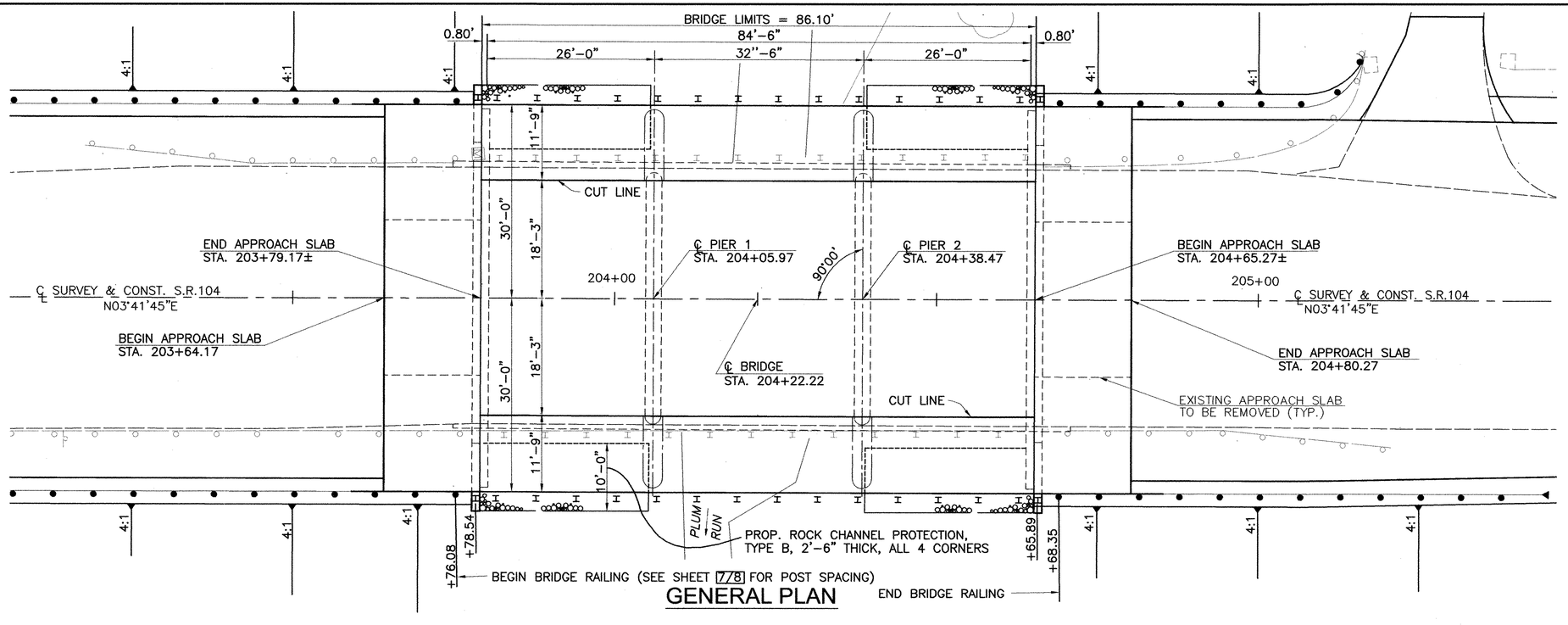
SITE PLAN
BRIDGE NO. FRA-104-0151
OVER PLUM RUN

FRA-104-1.29
PID No. - 16577

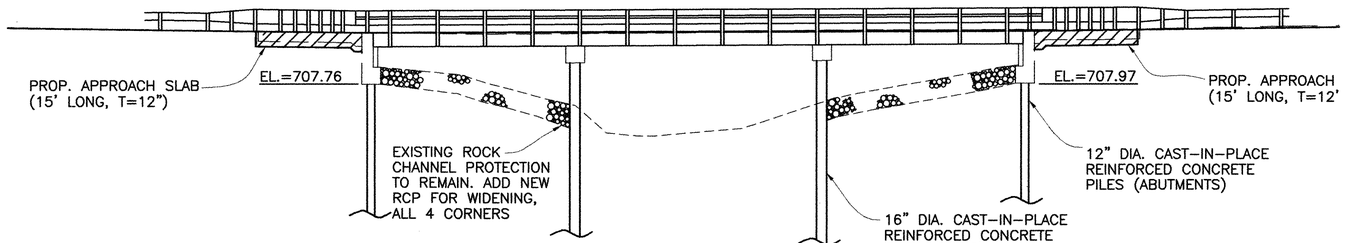
1 / 8

53
68

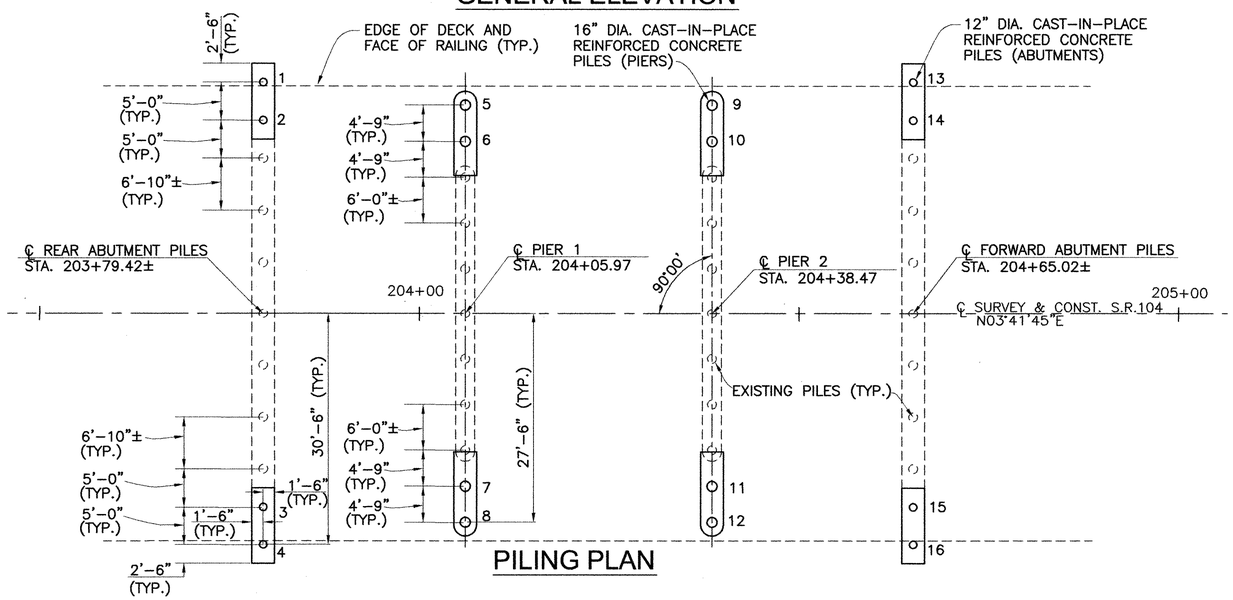
N:\JOBS\98172\DWG\FRA-104\BRIDGE PLANS\98172SPA.DWG PRINTED BY [MOHAMED SALIM] - JAN. 26, 2006 - 9:49AM



GENERAL PLAN



GENERAL ELEVATION



PILING PLAN

DESIGN AGENCY	DYNOTEC, INC. CONSULTING ENGINEERS
REVIEWED TAI	DATE 2/11/05
STRUCTURE FILE NUMBER	2508494
DRAWN MEP	REVISED —
DESIGNED RAK	CHECKED JSB

GENERAL PLAN & ELEVATION & PILING PLAN
BRIDGE NO. FRA-104-0151
OVER PLUM RUN

FRA-104-1.29
PID No. - 16577

2 / 8

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GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS
AS-1-81 (07-19-02) DS-1-92 (07-18-03)
PCB-91 (07-19-02) TST-1-99 (10-17-03)

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, 2002, AND THE ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING:

EXISTING STRUCTURE: CF400-51
PROPOSED WIDENING: HS-20 AND THE ALTERNATE MILITARY LOADING, FUTURE WEARING SURFACE OF 60 PSF.

DESIGN STRESSES: (PROPOSED)

CONCRETE CLASS HP-COMPRESSIVE STRENGTH 4500 PSI (SUPERSTRUCTURE)
CONCRETE CLASS C-COMPRESSIVE STRENGTH 4000 PSI (SUBSTRUCTURE)
REINFORCING STEEL - ASTM A615, A616, A617, GRADE 60,
MINIMUM YIELD STRENGTH 60,000 psi
SPIRAL REINFORCEMENT MAY BE PLAIN
BARS, ASTM A82 OR A615

MONOLITHIC WEARING SURFACE

IS ASSUMED, FOR DESIGN PURPOSED, TO BE 1" THICK. EXISTING DECK HAS 1 1/4" MICROSILICA MODIFIED CONCRETE OVERLAY (1994)

DECK PROTECTION METHOD:

EPOXY COATED REINFORCING STEEL, 2 1/2" CONCRETE COVER, STEEL DRIP STRIP, TREATING ENTIRE TOP OF DECK SLAB WITH SRS, SEALING EDGES OF DECK AND 6" OF DECK SOFFIT.

PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD REMOVAL AND THE WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. ALL WORK SHALL BE DONE IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

EXISTING STRUCTURE VERIFICATION:

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK, BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, AND 105.02.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS THAT HAVE BEEN VERIFIED IN THE FIELD.

CUT LINE CONSTRUCTION JOINT PREPARATION:

SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, SHALL BE LEFT IN INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACE- MENT, ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCMENT TO REMOVED LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THE JOINT SURFACE AND EXPOSED REINFORCEMENT SHALL BE THROUGHLY CLEANED OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS.

EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH BUT ALL PACK AND LOOSE RUST SHALL BE REMOVED. EXISTING CONCRETE SURFACES WHICH NEW CONCRETE WILL BE PLACED AGAINST SHALL BE WET, BUT WITHOUT FREE WATER, AT THE TIME OF CONCRETE PLACEMENT.

SUBSTRUCTURE CONCRETE REMOVAL

SHALL BE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 LBS. FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, HAMMERS NOT EXCEEDING 90 POUNDS, MAY BE USED WITH THE APPROVAL OF THE ENGINEER.

ESTIMATED QUANTITIES

CALC'D. RAK 01-18-05 CHK'D. JSB 11-03-05

ITEM	ITEM EXT.	TOTAL	UNIT	DESCRIPTION	SUPER.	ABUTS.	PIERS	GEN'L.	SHEET
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN				LUMP	3
202	22900	80	SQ.YD.	APPROACH SLAB REMOVED				80	
503	21300	LUMP		UNCLASSIFIED EXCAVATION		LUMP			
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	00500	200	FT.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN		200			
507	00550	200	FT.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED		200			
507	00700	200	FT.	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, DRIVEN			200		
507	00750	200	FT.	16" CAST-IN-PLACE REINFORCED CONCRETE PILES, FURNISHED			200		
509	10000	27,648	POUND	EPOXY COATED REINFORCING STEEL	22,030	3,370	2,248		
509	20001	500	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN				500	3
510	10000	478	EA.	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT	422	56			
511	50000	110	CU.YD.	CLASS HP CONCRETE, BRIDGE DECK	110				
511	50200	31	CU.YD.	CLASS C CONCRETE, SUBSTRUCTURE		22	9		
511	52000	LUMP		CLASS HP CONCRETE, TEST SLAB	LUMP				
512	10100	191	SQ.YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	51	54	86		
512	10400	574	SQ.YD.	TREATING OF CONCRETE SURFACES WITH SRS	574				
517	70000	185	FT.	RAILING (TWIN STEEL TUBE)	185				
518	21231	LUMP		POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN		LUMP			3
518	40000	132	FT.	6" PERFORATED CORRUGATED PLASTIC PIPE		132			
518	40010	39	FT.	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS		39			
519	11100	2	SQ.FT.	PATCHING CONCRETE STRUCTURE		2			
523	20000	2	EACH	DYNAMIC LOAD TESTING		1	1		
526	10001	200	SQ.YD.	REINFORCED CONCRETE APPROACH SLAB (T=12"), AS PER PLAN				200	3
601	32104	68	CU.YD.	ROCK CHANNEL PROTECTION, TYPE B WITH FABRIC FILTER				68	
848	10000	225	SQ. YD.	MICRO SILICA MODIFIED CONCRETE OVERLAY USING HYDRO DEMOLITION 1.5"	225				
848	20000	225	SQ.YD.	SURFACE PREPARATION USING HYDRO DEMOLITION	225				
848	30000	2	CU. YD.	MICRO SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS), MATERIAL ONLY	2				
SPECIAL	51822300	200	FT.	STEEL DRIP STRIP	200				

SURVEY DISC ON STRUCTURE

A SURVEY DISC IS CURRENTLY ON THE TOP OF THE SOUTHWEST WINGWALL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST ONE (1) WEEK IN ADVANCE OF DEMOLITION OF THE TOP OF THE WINGWALL SO THAT THE DISTRICT SURVEYOR CAN MOVE THE DISC TEMPORARILY FOR CONSTRUCTION. AFTER THE DISC HAS BEEN MOVED, DEMOLITION CAN PROCEED.

THE CONTRACTOR, LATER, SHALL NOTIFY THE ENGINEER AT LEAST ONE (1) WEEK IN ADVANCE OF POURING THE CONCRETE FOR THE COMPLETION OF THE LENGTHENED ABUTMENT. THE ENGINEER WILL PROVIDE THE CONTRACTOR WITH ONE (1) NEW SURVEY DISC (OBTAINED FROM THE DISTRICT SURVEYOR) WHICH THE CONTRACTOR SHALL PLACE IN THE SURFACE OF THE FRESH CONCRETE OF THE LENGTHENED WINGWALL. THE LOCATION OF THE DISC SHALL BE ON THE ABUTMENT AND ON A FLAT HORIZONTAL SURFACE BEYOND THE EDGE OF DECK AND RAILING. THE BENCHMARK SHALL BE ACCESSIBLE TO A SURVEYOR'S ROD WITHOUT ANY OBSTRUCTIONS. COST OF THIS WORK IS CONSIDERED INCIDENTAL TO THE CONCRETE BID ITEM.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE)

THE ULTIMATE BEARING VALUE FOR THE 12" CAST-IN-PLACE REINFORCED CONCRETE PILES IS 52 TONS PER PILE AND 65 TONS PER PILE FOR THE 16" PILES.

ABUTMENT PILES (12")
8 PILES 25' LONG, ORDER LENGTH
1 DYNAMIC LOAD TEST

PIER PILES (16")
8 PILES 25' LONG, ORDER LENGTH
1 DYNAMIC LOAD TEST

PIER PILES:

SHALL BE DRIVEN TO EL. 690.0 OR BELOW.

PILE DRIVING CONSTRAINTS:

PRIOR TO DRIVING NEW PILES THE SPILL-THROUGH SLOPES AND THE BRIDGE APPROACH EMBANKMENT BEHIND THE ABUTMENTS SHALL BE CONSTRUCTED UP TO THE LEVEL OF THE SUBGRADE ELEVATION FOR A MINMUM DISTANCE OF 200 FEET BEHIND EACH ABUTMENT. THE EXCAVATION FOR THE ABUTMENT FOOTINGS AND THE INSTALLATION OF THE ABUTMENT PILES SHALL NOT BEGIN UNTIL AFTER THE ABOVE REQUIRED EMBANKMENT HAS BEEN CONSTRUCTED.

ITEM 509 REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN:

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEERS TO BE UNUSABLE BECAUSE OF THE CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCEMENT STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE. REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT.

ITEM 509 EPOXY COATED REINFORCING STEEL AS PER PLAN:

IN ADDITION TO THE PROVISIONS OF ITEM 509, FIELD CUT THE REINFORCING STEEL DESIGNATED IN THE PLANS, AS NECESSARY, IN ORDER TO MAINTAIN THE REQUIRED CLEARANCES AND BAR SPACINGS. REPAIR ALL DAMAGE TO THE EPOXY COATING, AS A RESULT OF THIS WORK, ACCORDING TO 709.00.

REINFORCING STEEL:

NEW REINFORCING STEEL MAY REQUIRE FIELD CUTTING OR BENDING TO BE PROPERLY FITTED. PAYMENT SHALL BE INCLUDED IN THE APPLICABLE CONCRETE ITEM.

DOWEL HOLES:

THIS ITEM SHALL INCLUDE THE DRILLING OF HOLES INTO CONCRETE AND THE FURNISHING AND PLACING OF GROUT INTO HOLES. NON-SHRINK EPOXY GROUT SHALL BE USED IN ACCORDANCE WITH CMS 510 AND 705.02. DEPTH OF HOLES SHALL BE AS SHOWN ON PLANS. COST SHALL BE INCLUDED IN RESPECTIVE 511 ITEMS.

POROUS BACKFILL WITH FILTER FABRIC, AS PER PLAN

2'-0" THICK, FOR LENGTHENED ABUTMENTS, SHALL EXTEND UP TO THE PLANE OF THE SUBGRADE, TO 1 FOOT BELOW THE EMBANKMENT SURFACE, AND LATERALLY TO THE ENDS OF THE WINGWALLS.

ITEM 526 REINFORCED CONCRETE APPROACH SLAB (T=12"), AS PER PLAN

THE APPROACH SLAB SHALL BE CONSTRUCTED AS PER CMS 526 AND STD. DWG. AS-1-81, EXCEPT THAT MECHANICAL CONNECTORS SHALL BE USED TO CONNECT THE TRANSVERSE STEEL SINCE THE SLABS ARE TO BE BUILT IN TWO PHASES.

DESIGN AGENCY
DYNOTEC, INC.
CONSULTING ENGINEERS

DATE 2/11/05
REVIEWED TAI
STRUCTURE FILE NUMBER 2508494
DRAWN MEP
REVISED —
DESIGNED RAK
CHECKED JSB

GENERAL NOTES, & ESTIMATED QUANTITIES
BRIDGE NO. FRA-104-0151
OVER PLUM RUN

FRA-104-1.29
PID No. - 16577

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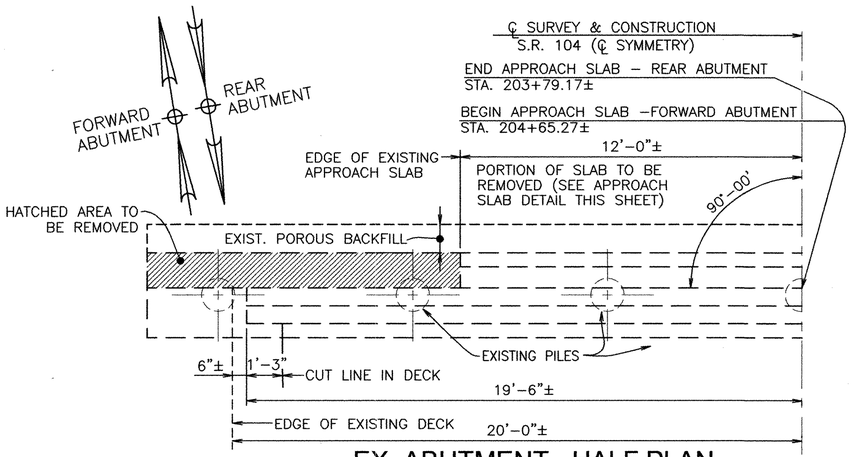
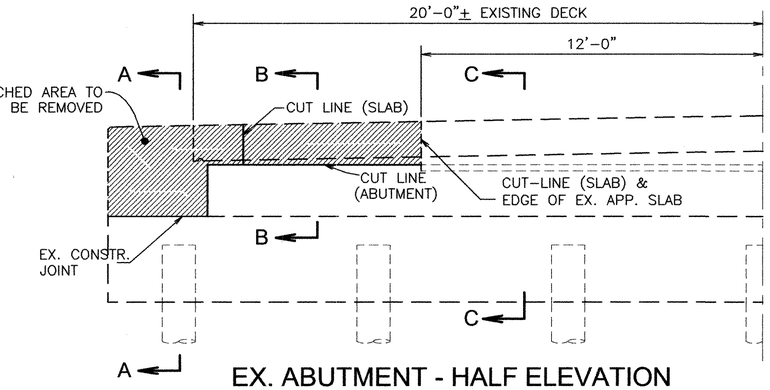
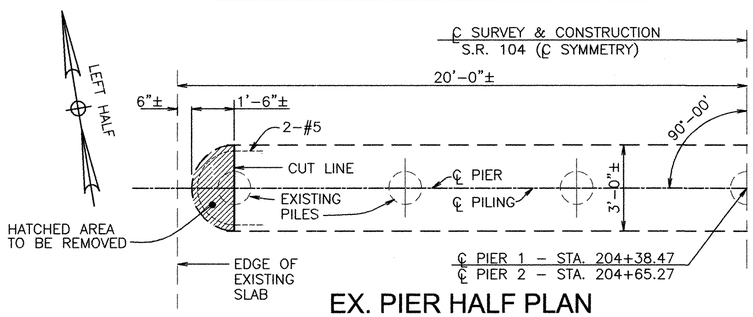


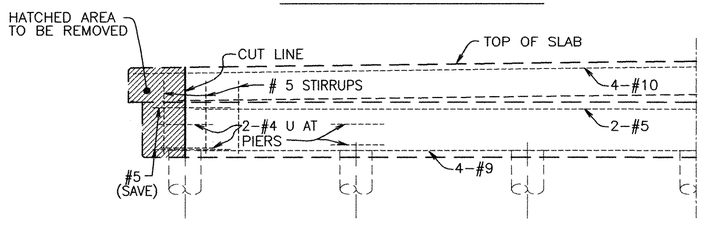
EX. ABUTMENT - HALF PLAN
(DECK NOT SHOWN)



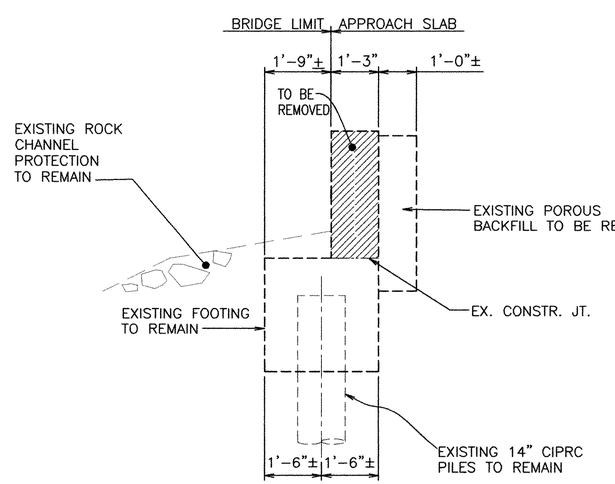
EX. ABUTMENT - HALF ELEVATION



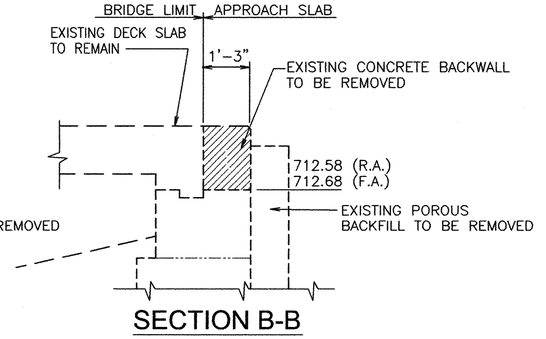
EX. PIER HALF PLAN



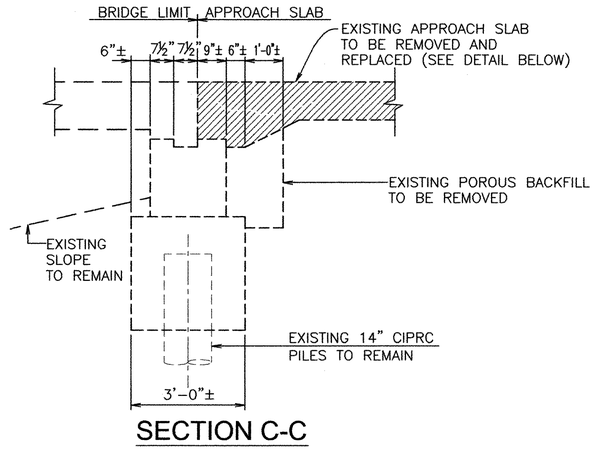
EX. PIER HALF ELEVATION



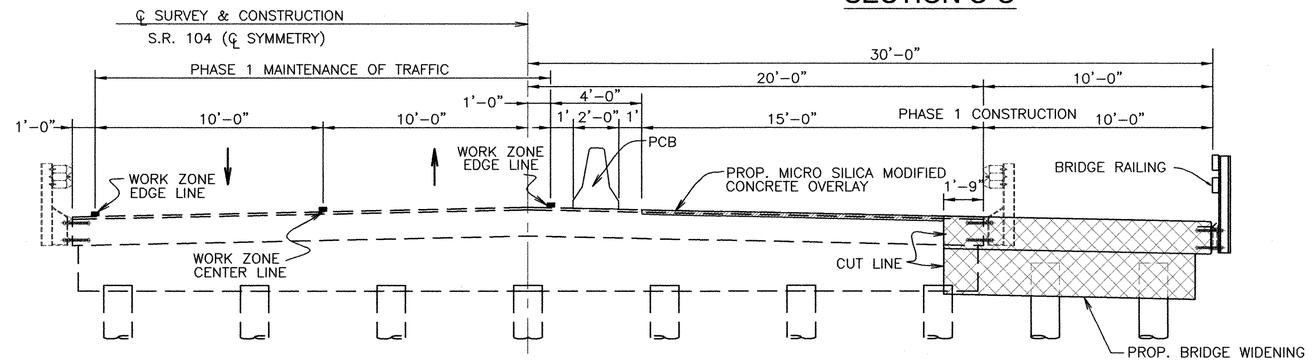
SECTION A-A



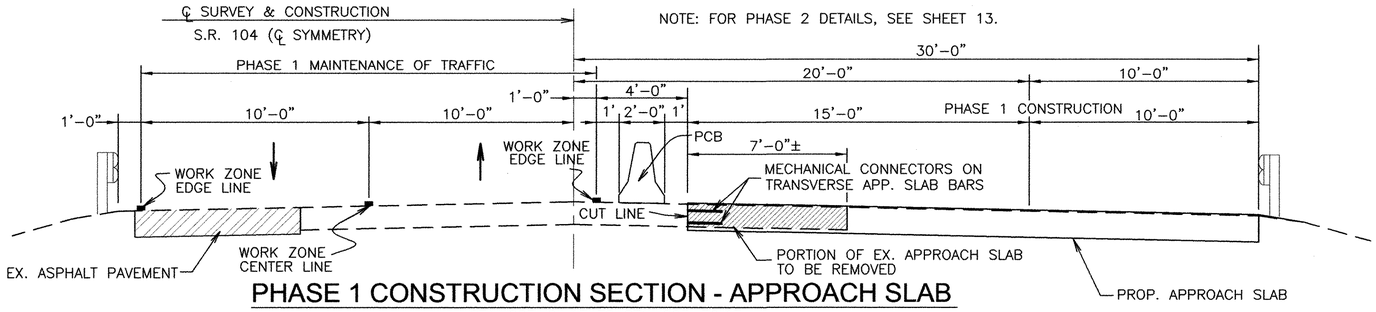
SECTION B-B



SECTION C-C



PHASE 1 CONSTRUCTION SECTION - SUPERSTRUCTURE
STA. 203+79.17 TO STA. 204+65.27



PHASE 1 CONSTRUCTION SECTION - APPROACH SLAB
STA. 203+64.17 TO STA. 203+79.17
STA. 204+65.27 TO STA. 204+80.27

DESIGN AGENCY
DYNOTEC, INC.
CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
RAK	MEP	TAI	2/11/05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSB	—	2508494	

REMOVAL AND STAGED CONSTRUCTION DETAILS
BRIDGE NO. FRA-104-0151
OVER PLUM RUN

FRA-104-1.29
PID No. - 16577

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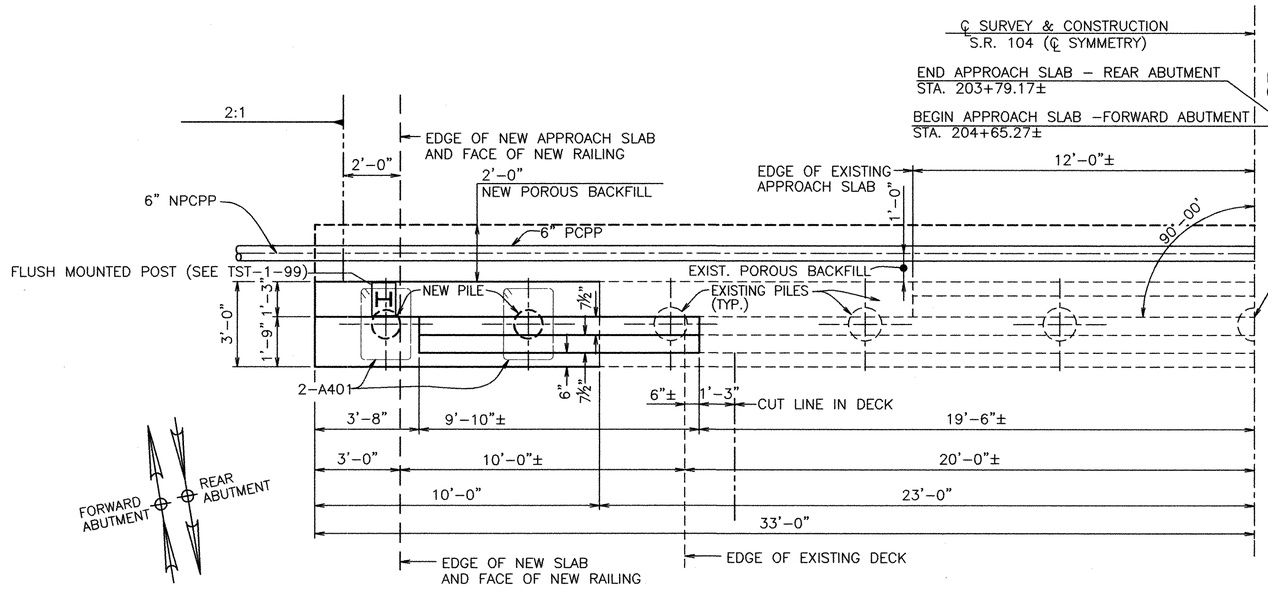
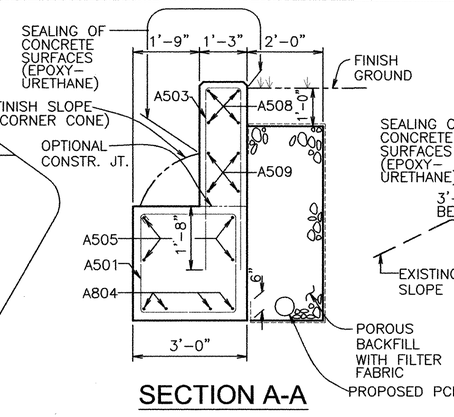


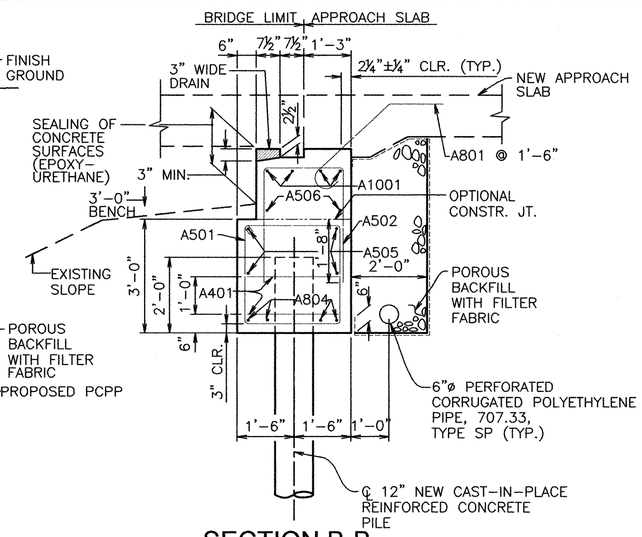
HALF PLAN

LEGEND

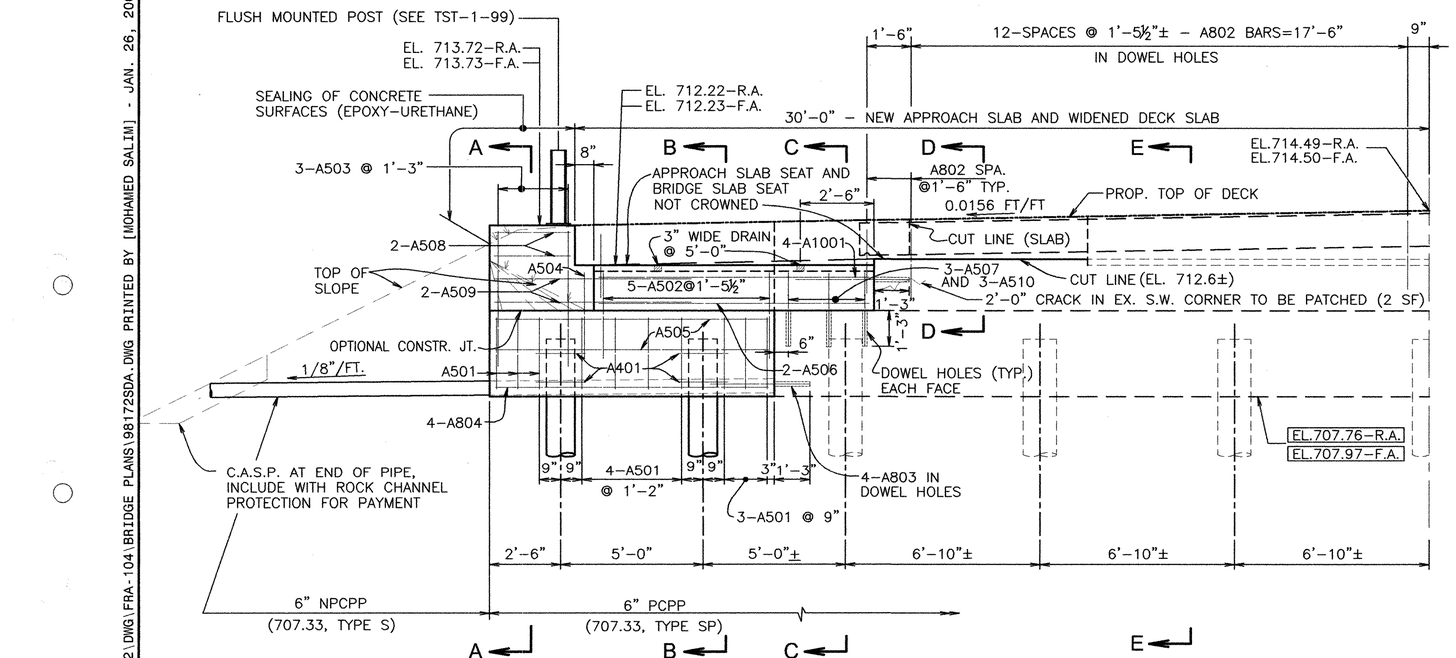
PROP. ELEV. EL. 712.28
EX. ELEV. EL. 713.94



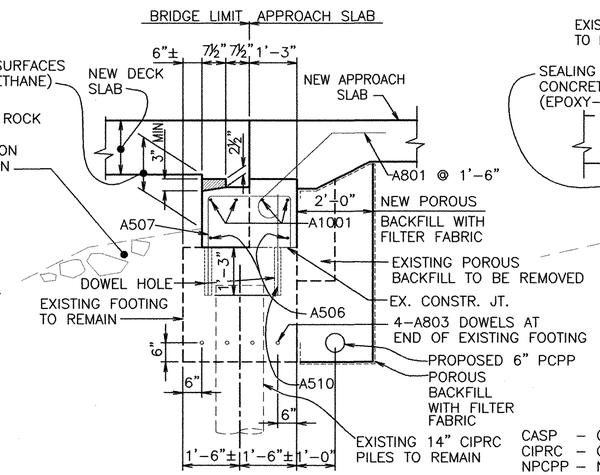
SECTION A-A



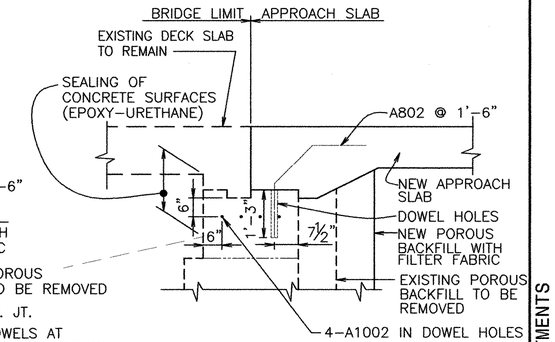
SECTION B-B



HALF ELEVATION

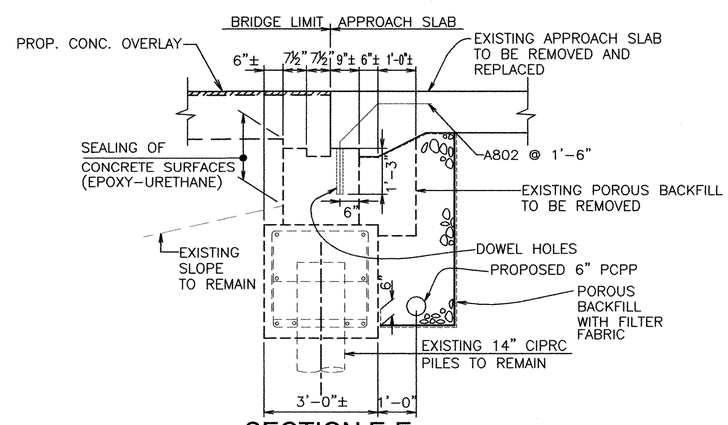


SECTION C-C



SECTION D-D

CASP – CRUSHED AGGREGATE SLOPE PROTECTION
CIPRC – CAST–IN–PLACE REINFORCED CONCRETE
NPCPP – NON–PERFORATED CORRUGATED POLYETHYLENE PIPE
PCPP – PERFORATED CORRUGATED POLYETHYLENE PIPE
RA – REAR ABUTMENT
FA – FORWARD ABUTMENT



SECTION E-E

DESIGN AGENCY
DYNOTEC, INC.
CONSULTING ENGINEERS

DESIGNED RAK | DRAWN MEP | CHECKED JSB | REVIEWED TAI | DATE 2/11/05 | REVISED — | STRUCTURE FILE NUMBER 2508494

ABUTMENTS
BRIDGE NO. FRA-104-0151
OVER PLUM RUN

FRA-104-1.29
PID No. - 16577

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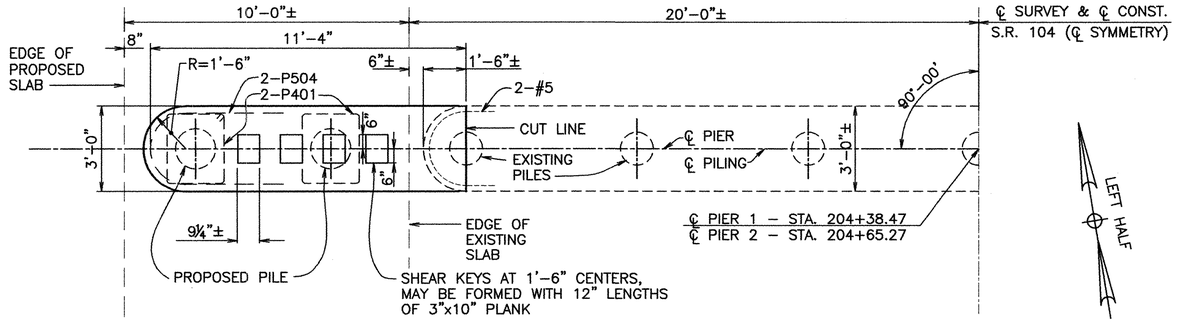
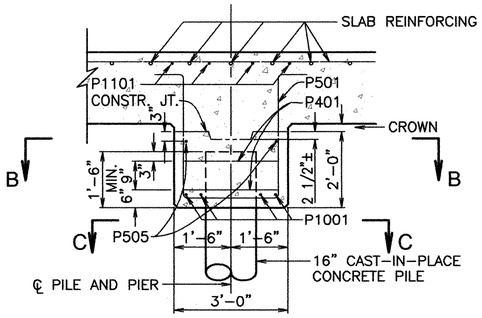
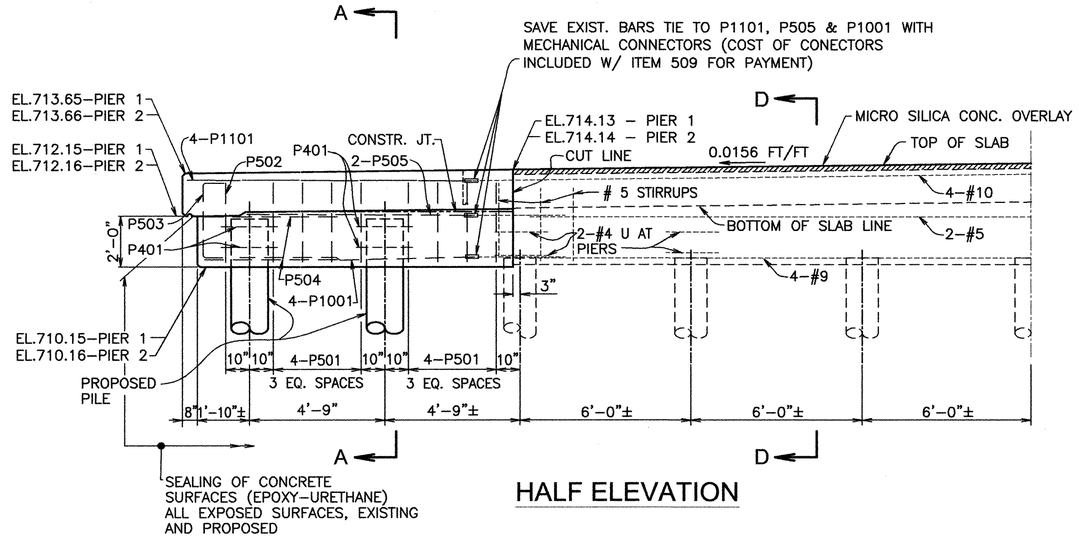


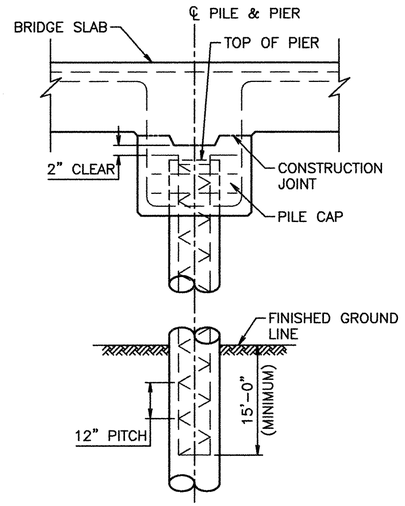
HALF PLAN



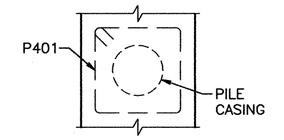
SECTION A-A



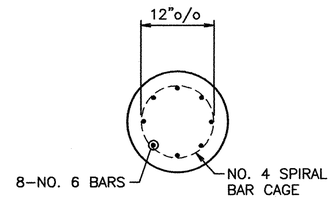
HALF ELEVATION



CONCRETE PILE REINFORCEMENT



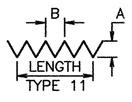
SECTION B-B



SECTION C-C

SHOWING 16" CAST-IN-PLACE REINFORCED CONCRETE PILE (REINFORCED CONCRETE PILES SHALL NOT BE ENCASED OR GALVANIZED)

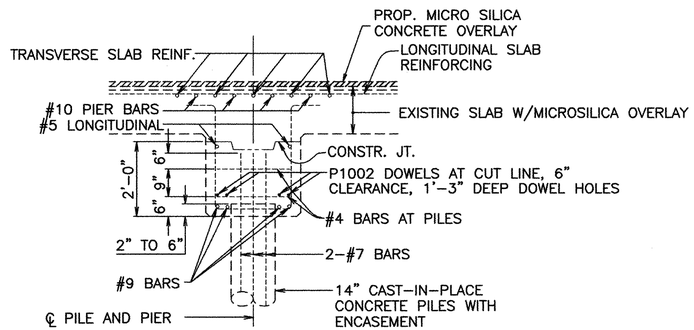
REINFORCING STEEL IN PILES :
SHALL BE EPOXY COATED AND BE INCLUDED WITH ITEM 507, 16 INCH CAST-IN-PLACED PILES FURNISHED, FOR PAYMENT.



PIER PILE REINFORCING									
MARK	NO.		TOTAL	LENGTH	WEIGHT	TYPE	DIMENSIONS		
	P1	P2					A	B	C
SP401	4		4	19'-5"	199*	11	1'-0"	1'-0"	23
SP402		4	4	21'-11"	216*	11	1'-0"	1'-0"	25
P601	32		32	19'-5"	933*	STR			
P602		32	32	21'-11"	1053*	STR			
				TOTAL	2401*				

* FOR INFORMATION ONLY

FALSEWORK SUPPORT :
ATTACHMENT OF THE FALSEWORK SUPPORT MEMBERS TO PIER PILES WILL BE PERMITTED IF THE ATTACHMENT IS MADE TO THE PORTION OF PILE ENCASED IN THE PIER CAP. THERE SHALL BE NO ECCENTRIC LOADS PRODUCED IN THE PILES BY ATTACHED FALSEWORK SUPPORT MEMBERS.



SECTION D-D
(EXISTING)

DESIGN AGENCY
DYNOTEC, INC.
CONSULTING ENGINEERS

DESIGNED	DRAWN	REVISED	DATE
RAK	MEP	TAI	2/11/05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSB	—	2508494	

PIER DETAILS
BRIDGE NO. FRA-104-0151
OVER PLUM RUN

FRA-104-1.29
PID No. - 16577

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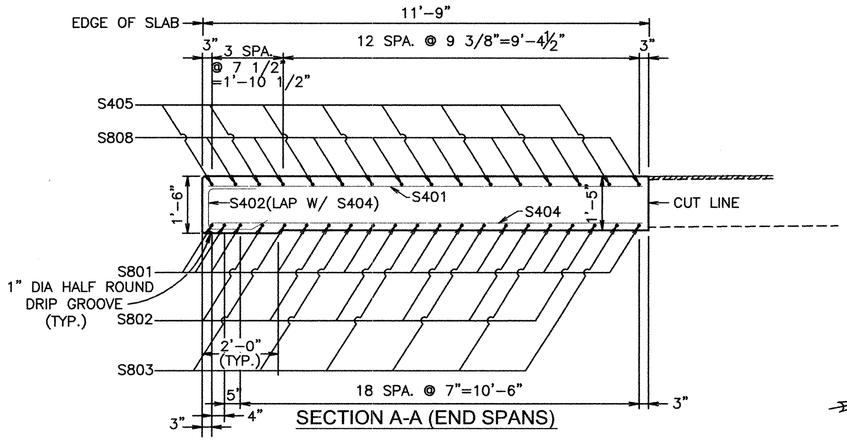
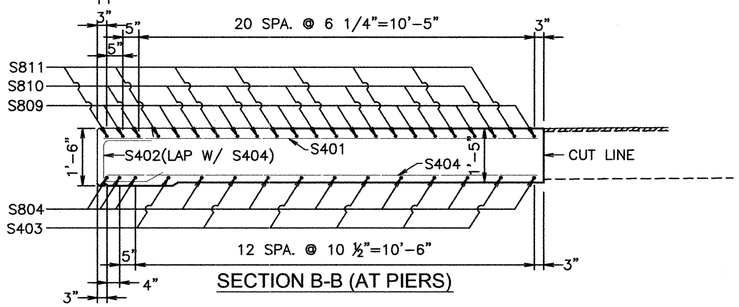
SUPERSTRUCTURE NOTES

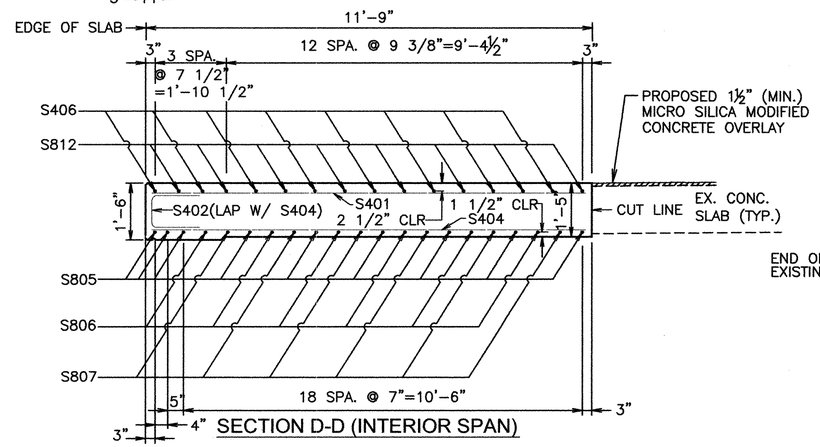
TWIN STEEL TUBE BRIDGE RAILING: SEE STANDARD DRAWING TST-1-99
STAINLESS STEEL DRIP STRIP: SEE STANDARD DRAWING DS-1-92



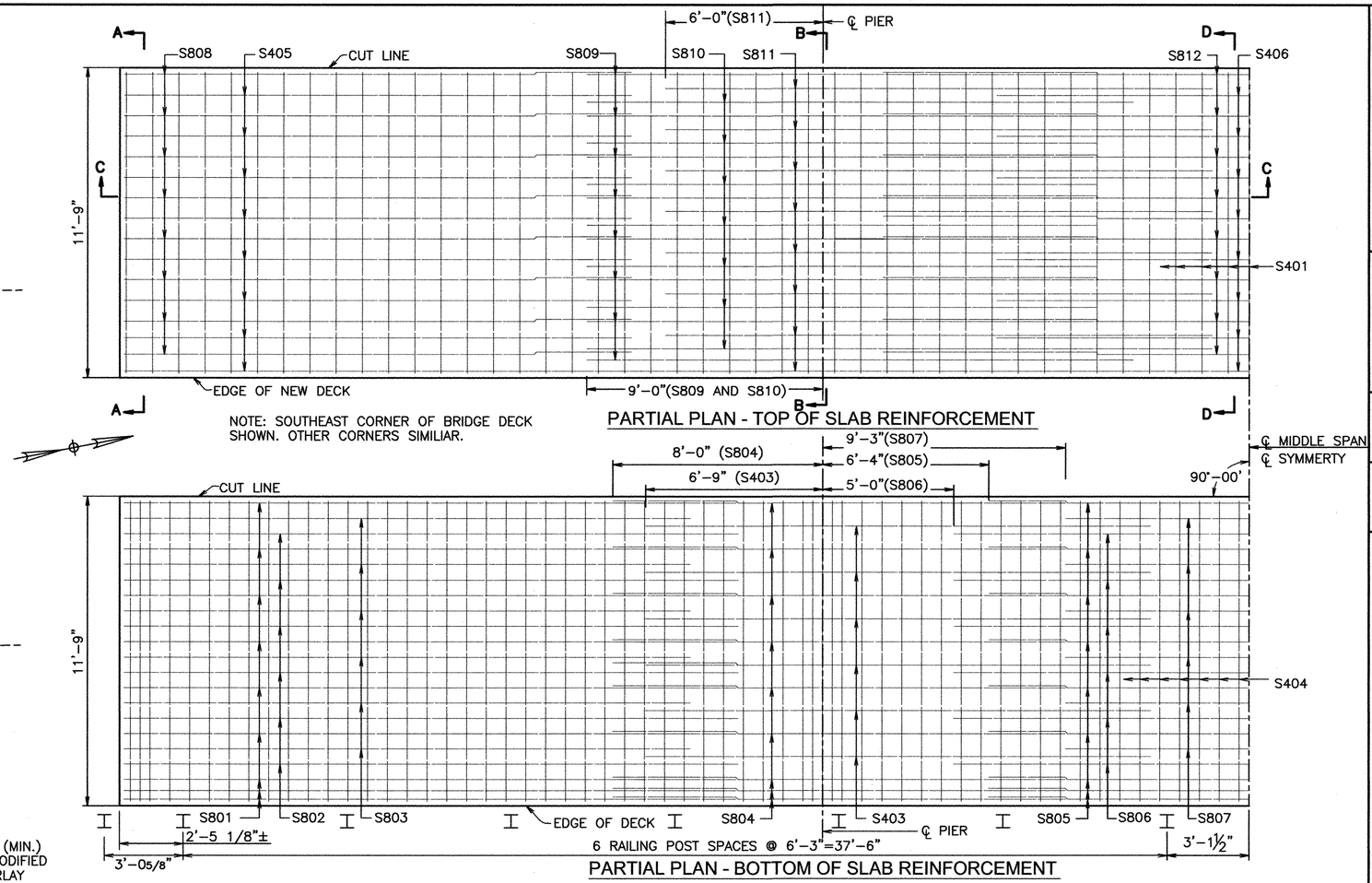
SECTION A-A (END SPANS)



SECTION B-B (AT PIERS)

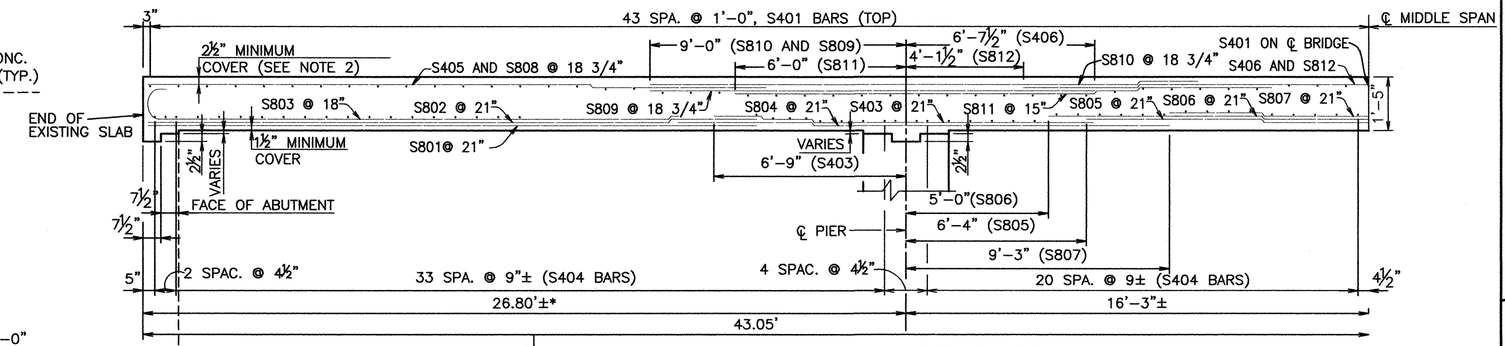


SECTION D-D (INTERIOR SPAN)

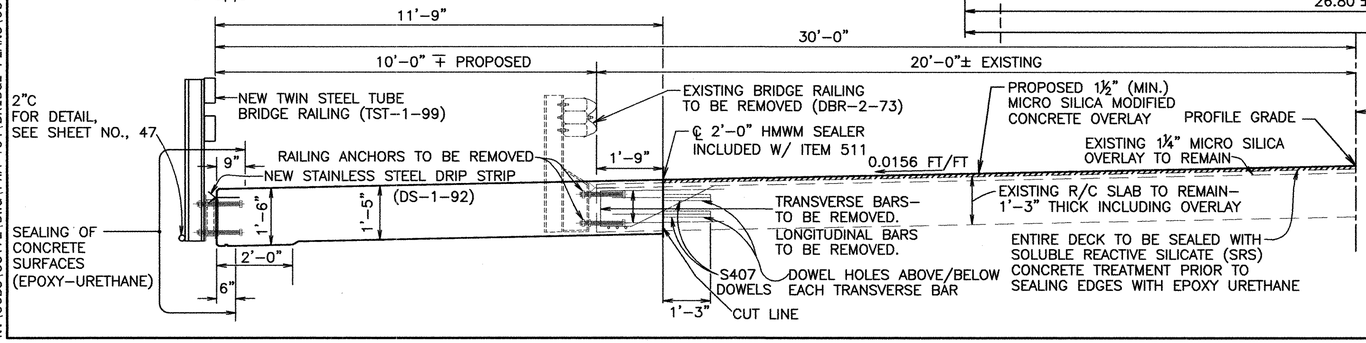


PARTIAL PLAN - TOP OF SLAB REINFORCEMENT

PARTIAL PLAN - BOTTOM OF SLAB REINFORCEMENT



LONGITUDINAL SECTION C-C



NOTES

1) CONCRETE COVER OVER THE TOP MAT OF REINFORCING STEEL SHALL COINCIDE WITH THE EXISTING SLAB.

2) EXISTING DECK TO BE OVERLAID WITH MICRO SILICA MODIFIED CONCRETE USING HYDRO DEMOLITION. FOR DETAILS AND NOTES, SEE SUPPLEMENTAL SPECIFICATION 848 (4/15/05).

3) THE PROPOSED WIDENED PORTION OF THE DECK WILL BE CONSTRUCTED TO THE PROPOSED DECK OVERLAY GRADE, AND THE LONGITUDINAL JOINT SEALED WITH HMWM.

DESIGN AGENCY
DYNOTEC, INC.
CONSULTING ENGINEERS

DESIGNED	DRAWN	REVIEWED	DATE
RAK	MEP	TAI	2/11/05
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JSB	—	2508494	

SUPERSTRUCTURE DETAILS
BRIDGE NO. FRA-104-0151
OVER PLUM RUN

FRA-104-1.29
PID No. - 16577

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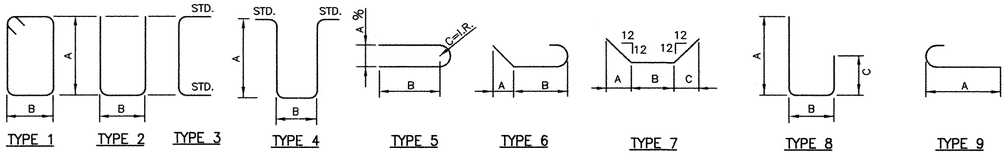
PIER REINFORCING

MARK	NUMBER		TOTAL	LENGTH	WEIGHT	TYPE	DIMENSION		
	P1	P2					A	B	C
P401	8	8	16	9'–4"	100	1	2'–6"	2'–0"	
P501	16	16	32	9'–4"	312	4	2'–9"	2'–8"	
P502	2	2	4	9'–2"	38	4	2'–9"	2'–6"	
P503	2	2	4	4'–2"	17	3	2'–9"		
P504	4	4	8	10'–8"	89	5	2'–6"	3'–5"	
* P505	4	4	8	9'–4"	78	STR			
* P1001	8	8	16	9'–4"	643	STR			
* P1101	8	8	16	11'–5"	971	STR			
				TOTAL	2248				

* BARS REQUIRE MECHANICAL CONNECTOR



BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED AND THE FIRST TWO DIGITS WHERE FOUR ARE USED INDICATE THE BAR SIZE NUMBER.

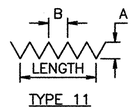
EXAMPLE: A501

A = LOCATION OF THE BAR IN THE STRUCTURE (ABUTMENT)
5 = # 5 (5/8" DIA.) REINFORCING BAR
01 = SEQUENCE NUMBER

EXAMPLE: P1103

P = LOCATION OF THE BAR IN THE STRUCTURE (PIERS),
11 = # 11 (1 3/8" DIA.) REINFORCING BAR
03 = SEQUENCE NUMBER

BAR DIMENSIONS SHOWN ARE OUT–TO–OUT UNLESS NOTED. ALL REINFORCING STEEL TO BE EPOXY COATED, GRADE 60. STRAIGHT BARS ARE INDICATED BY "STR".



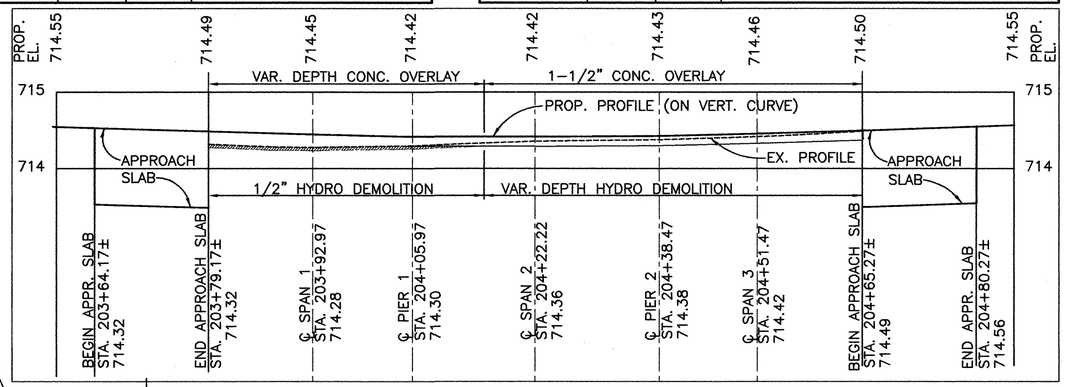
TYPE 11

ABUTMENT REINFORCING

MARK	NUMBER		TOTAL	LENGTH	WEIGHT	TYPE	DIMENSION		
	RA	FA					A	B	C
A401	8	8	16	9'–0"	96	1	2'–6"	1'–9"	
A501	20	20	40	11'–0"	459	1	2'–7"	2'–8"	
A502	10	10	20	7'–8"	160	2	3'–0"	1'–11"	
A503	6	6	12	10'–2"	127	2	4'–9"	11"	
A504	2	2	4	6'–8"	28	2	3'–0"	11"	
A505	8	8	16	9'–7"	160	STR			
A506	4	4	8	9'–6"	79	STR			
A507	6	6	12	5'–10"	73	8	2'–7"	2'–2"	1'–4"
A508	8	8	16	2'–8"	45	STR			
A509	8	8	16	2'–6"	115	STR			
A510	6	6	12	6'–11"	31	STR			
A801	16	16	32	4'–8"	399	6	1'–0"	2'–10"	
A802	26	26	52	3'–4"	463	7	1'–0"	1'–5"	1'–0"
A803	8	8	16	3'–6"	150	STR			
A804	8	8	16	9'–7"	409	STR			
A1001	8	8	16	9'–6"	405	STR			
A1002	8	8	16	4'–0"	171	STR			
				TOTAL	3370				

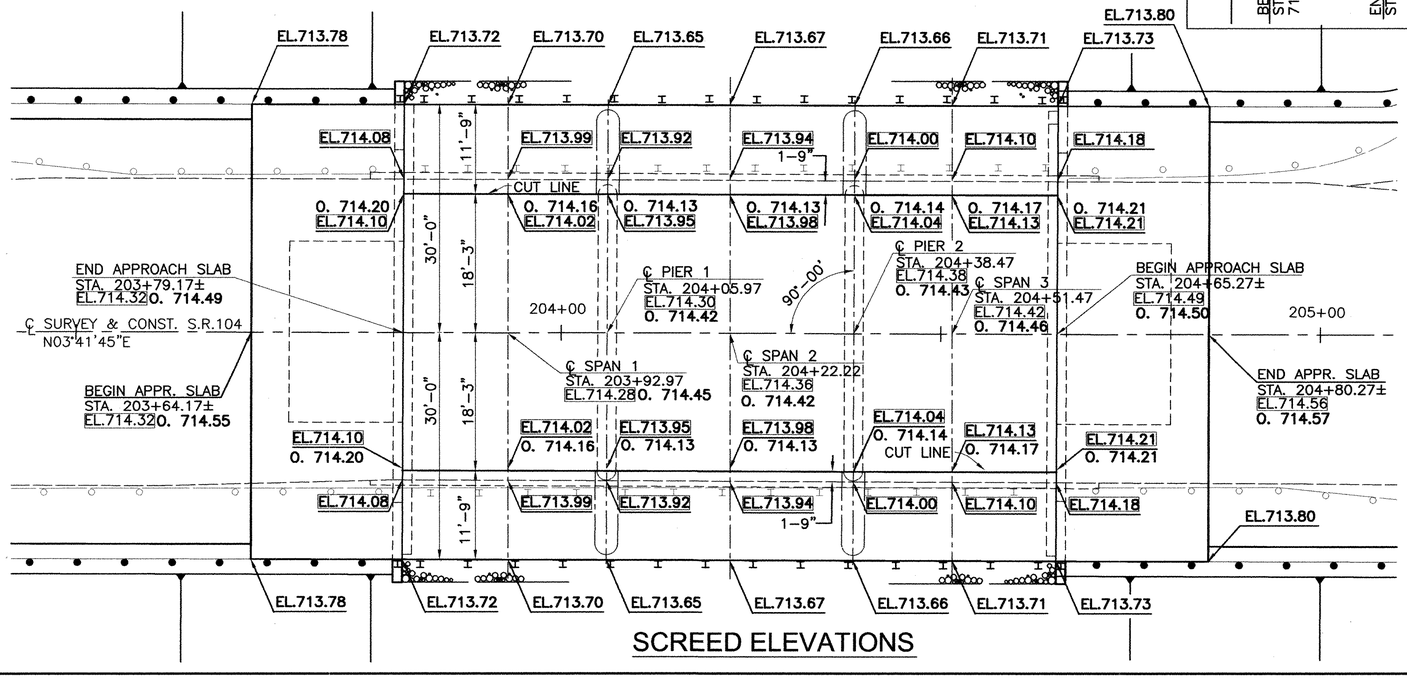
SUPERSTRUCTURE REINFORCING

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSION				
					A	B	C	D	E
S401	174	12'–10"	1492	STR					
S402	248	5'–7"	925	10	1'–3"	1'–0"	1'–8"	1'–8"	10"
S403	24	13'–6"	216	STR					
S404	248	12'–10"	2126	STR					
S405	28	19'–4"	362	STR					
S406	8	19'–3"	103	STR					
S407	422	2'–6"	705	STR					
S801	36	21'–5"	2059	STR					
S802	24	21'–6"	1378	STR					
S803	24	19'–8"	1260	9	18'–6"				
S804	36	17'–3"	1658	STR					
S805	18	19'–10"	953	STR					
S806	12	18'–3"	585	STR					
S807	12	18'–3"	585	STR					
S808	32	21'–9"	1858	STR					
S809	36	17'–6"	1682	STR					
S810	28	19'–4"	1445	STR					
S811	32	18'–10"	1609	STR					
S812	16	24'–1"	1029	STR					
		TOTAL	22030						



DECK PROFILE

EXISTING DECK TO BE OVERLAID WITH MICRO SILICA MODIFIED CONCRETE USING HYDRO DEMOLITION. FOR DETAILS AND NOTES, SEE SUPP. SPEC. 848 (4/15/05).



SCREED ELEVATIONS

LEGEND
PROPOSED SCREED ELEVATION EL. 714.09
EXISTING DECK ELEVATION EL. 713.81
PROPOSED CONCRETE OVERLAY ELEVATION 0. 714.01

NOTES
1) SCREED ELEVATIONS ARE AT EDGES OF DECK, AT TOP OF DECK AND ARE CORRECTED FOR DEAD LOAD DEFLECTION. IN ADDITION, ALLOWANCE MUST BE MADE FOR THE DEFLECTION OF ANY FALSEWORK MEMBERS SUPPORTING THE ACTUAL CONCRETE PLACEMENT.

2) EXISTING DECK ELEVATIONS SHALL BE USED TO DETERMINE THE PROPOSED DECK ELEVATIONS. MATCH EXISTING PROFILE ALONG CUT EDGES.

3) THE PROPOSED WIDENED PORTION OF THE DECK WILL BE CONSTRUCTED TO THE PROPOSED DECK OVERLAY GRADE, AND THE LONGITUDINAL JOINT SEALED WITH HMWM.

DESIGN AGENCY
DYNOTEC, INC.
CONSULTING ENGINEERS

DESIGNED RAK | DRAWN MEP | CHECKED JSB | REVIEWED TAI | DATE 2/11/05 | REVISED — | STRUCTURE FILE NUMBER 2508494

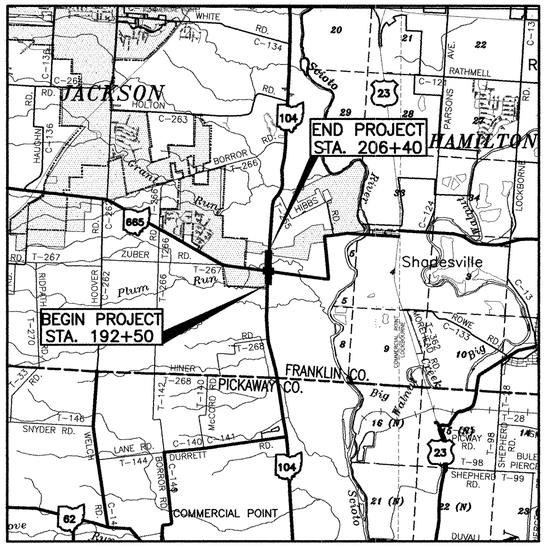
REINFORCING STEEL LIST, & SCREED TABLE

BRIDGE NO. FRA-104-0151
OVER PLUM RUN

FRA-104-1.29
PID No. - 16577

8 / 8

60
68



LOCATION MAP

LATITUDE: N 39° 49' 27"
LONGITUDE: W 83° 01' 59"

SCALE IN MILES

0 1 2 3 4 5

PORTION TO BE IMPROVED

STATE & FEDERAL ROUTES

OTHER ROADS

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

FRA-104-1.29

JACKSON TOWNSHIP
FRANKLIN COUNTY

PROJECT DESCRIPTION

UPGRADING 0.34 MILES OF S.R. 104 BY WIDENING FOR LEFT TURN LANES. CONSTRUCTION ON EACH LEG OF S.R. 104 INTERSECTION, INCLUDING UPGRADING OF GUARDRAIL, DRAINAGE AND SHOULDERS, ALONG WITH 86' EXISTING STRUCTURE WIDENING. TRAFFIC CONTROL SIGNS AND PAVEMENT MARKINGS.

INDEX OF SHEETS

RIGHT-OF-WAY

UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

APPROVED _____
DATE _____ DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION

APPROVED _____
DATE _____ DIRECTOR, DEPARTMENT OF TRANSPORTATION

PLANS PREPARED BY:
DYNOTEC, INC.
Consulting Engineers · Surveyors
1925 E. DUBLIN-GRANVILLE ROAD, SUITE 106
COLUMBUS, OHIO 43229 - PHONE (614)880-7320

CERTIFIED BY:
NAME: DATE:
DISTRICT 6
OHIO DEPT. OF TRANSPORTATION

FEDERAL PROJECT NO. E050 (385)
PID NO. 16577
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
FRA - 104 - 1.29

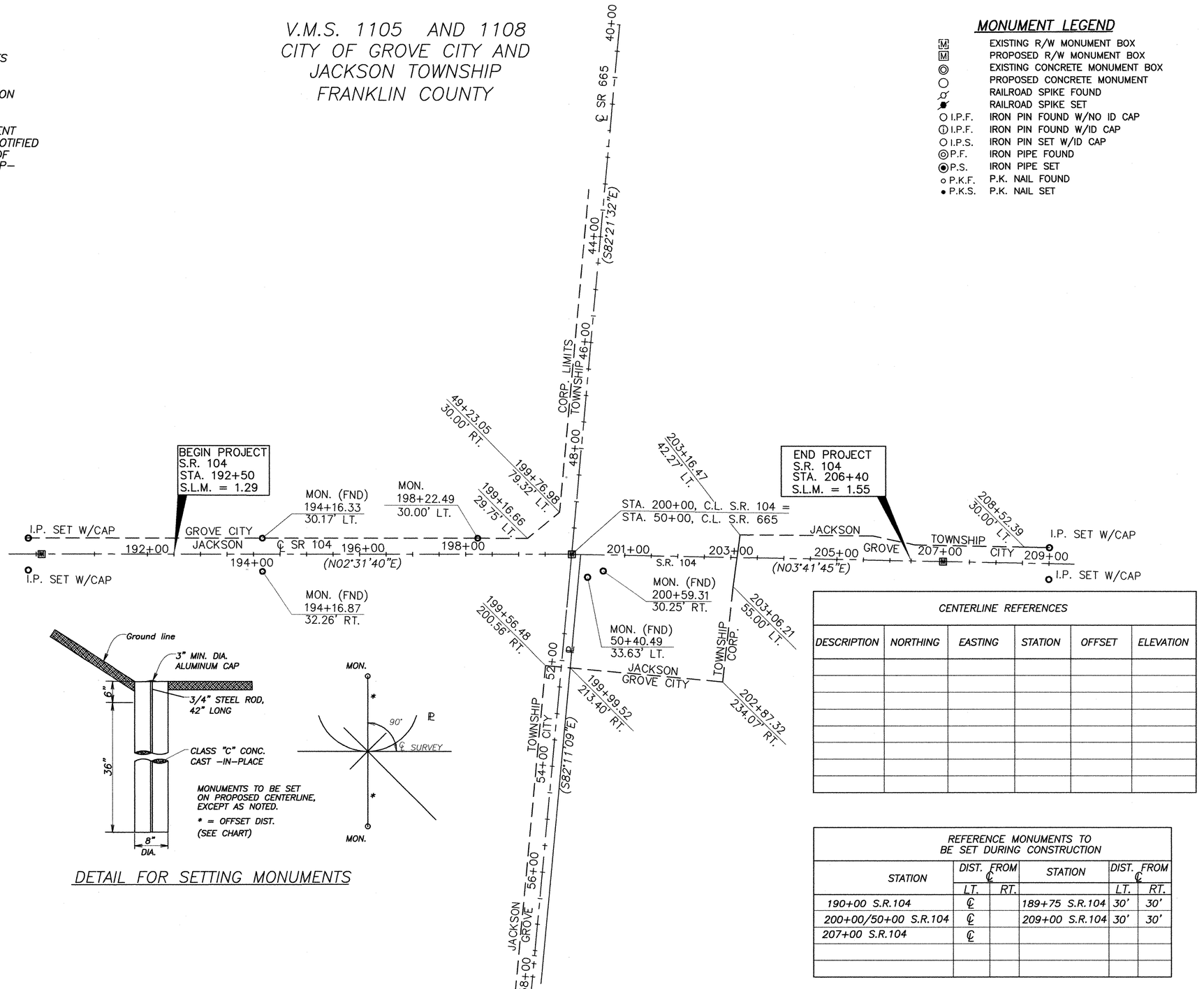
THE PROPOSED RIGHT OF WAY SHALL BE REFERENCED FROM THE CENTERLINE OF SURVEY

CENTERLINE MONUMENTS AND CENTERLINE REFERENCE MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM–1.1 (REV. 4–29–99) OF THE OHIO DEPARTMENT OF TRANSPORTATION. THE PLACING OF THE MONUMENTS SHALL BE UNDER THE DIRECTION OF A REGISTERED SURVEYOR AND ARE TO BE SET, AS SHOWN BY THE HIGHWAY CONTRACTOR AT THE TIME OF CONSTRUCTION. ANY ALTERATIONS, WITH PRIOR APPROVAL OF THE OHIO DEPARTMENT OF TRANSPORTATION, SHALL BE NOTED AND O.D.O.T. SHALL BE NOTIFIED OF THE NEW LOCATIONS. MONUMENTS WILL HAVE AN ACCURACY OF + OR – 0.02 FEET. CONTACT SHOULD BE MADE WITH SURVEY OPERATIONS MANAGER WHEN MONUMENTS ARE SET.

V.M.S. 1105 AND 1108
CITY OF GROVE CITY AND JACKSON TOWNSHIP
FRANKLIN COUNTY

MONUMENT LEGEND

▣	EXISTING R/W MONUMENT BOX
▣	PROPOSED R/W MONUMENT BOX
◎	EXISTING CONCRETE MONUMENT BOX
○	PROPOSED CONCRETE MONUMENT
	RAILROAD SPIKE FOUND
	RAILROAD SPIKE SET
I.P.F.	IRON PIN FOUND W/NO ID CAP
I.P.F.	IRON PIN FOUND W/ID CAP
I.P.S.	IRON PIN SET W/ID CAP
P.F.	IRON PIPE FOUND
P.S.	IRON PIPE SET
P.K.F.	P.K. NAIL FOUND
P.K.S.	P.K. NAIL SET



DETAIL FOR SETTING MONUMENTS

NOTE:
ALL STATIONS AND OFFSETS ARE FROM THE CENTERLINE OF THE SURVEY AND CONSTRUCTION LINE.

BASIS OF BEARINGS

I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE FOR THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION 1N 1999 BY WOOLPERT INC.

BEARINGS ARE BASED ON THE OHIO STATE PLANE COORDINATE SYSTEM AS PER NAD 83. CONTROL FOR BEARINGS WAS FROM COORDINATES OF MONUMENTS NUMBER S043 AND S051 ESTABLISHED BY THE FRANKLIN COUNTY ENGINEERING DEPARTMENT USING GLOBAL POSITIONING SYSTEM PROCEDURES AND EQUIPMENT. THE BEARING BETWEEN MONUMENTS BEING SOUTH 87° 30' 11" EAST.

JAMES R. HILL, P.S. DATE
REG. SURVEYOR No. 6919

CENTERLINE REFERENCES

DESCRIPTION	NORTHING	EASTING	STATION	OFFSET	ELEVATION

REFERENCE MONUMENTS TO BE SET DURING CONSTRUCTION

STATION	DIST. FROM ℄ LT.	DIST. FROM ℄ RT.	STATION	DIST. FROM ℄ LT.	DIST. FROM ℄ RT.
190+00 S.R.104	℄		189+75 S.R.104	30'	30'
200+00/50+00 S.R.104	℄		209+00 S.R.104	30'	30'
207+00 S.R.104	℄				

NOTE:
THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED BY USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 6 OFFICE (FRA–104–1.50 & FRA–665–11.97) AND EXISTING PROPERTY CORNER PINS (FOUND) ALONG S.R. 665 AND S.R. 104.

FILE NO.:
RECEIVED_____, 20___
AT ____:____AM PM
BOOK _____ PAGE _____
FRANKLIN COUNTY RECORDER

N

SCALE IN FEET
0 100 200

P.I.D. 16577

R/W DES. J.R.H.
R/W REV. AM

CENTERLINE SURVEY PLAT

FRA–104–1.29

1/8

61/68

[MOHAMED SALIM] N:\JOBS\98172\DWG\FRA-104\RIGHT OF WAY\RW1A.DWG – JAN 26, 2006 – 10:19AM – LAYOUT=LAYOUT1

V.M.S. 1105, 6115 AND 1108
CITY OF GROVE CITY AND
JACKSON TOWNSHIP
FRANKLIN COUNTY

CONVENTIONAL SIGNS

County Line
Township Line
Section Line
Corporation Line
Fence Line(existing)
Fence Line(proposed)
Center Line
Trees ,Stumps ,(to be removed)
Utility Poles:Telephone , Power , Light
Limited Access(only)
Right of Way(only)
Limited Access & Right of Way
Existing Right of Way
Property Line (in existing fence)
Railroad
Guardrail(existing) (proposed)

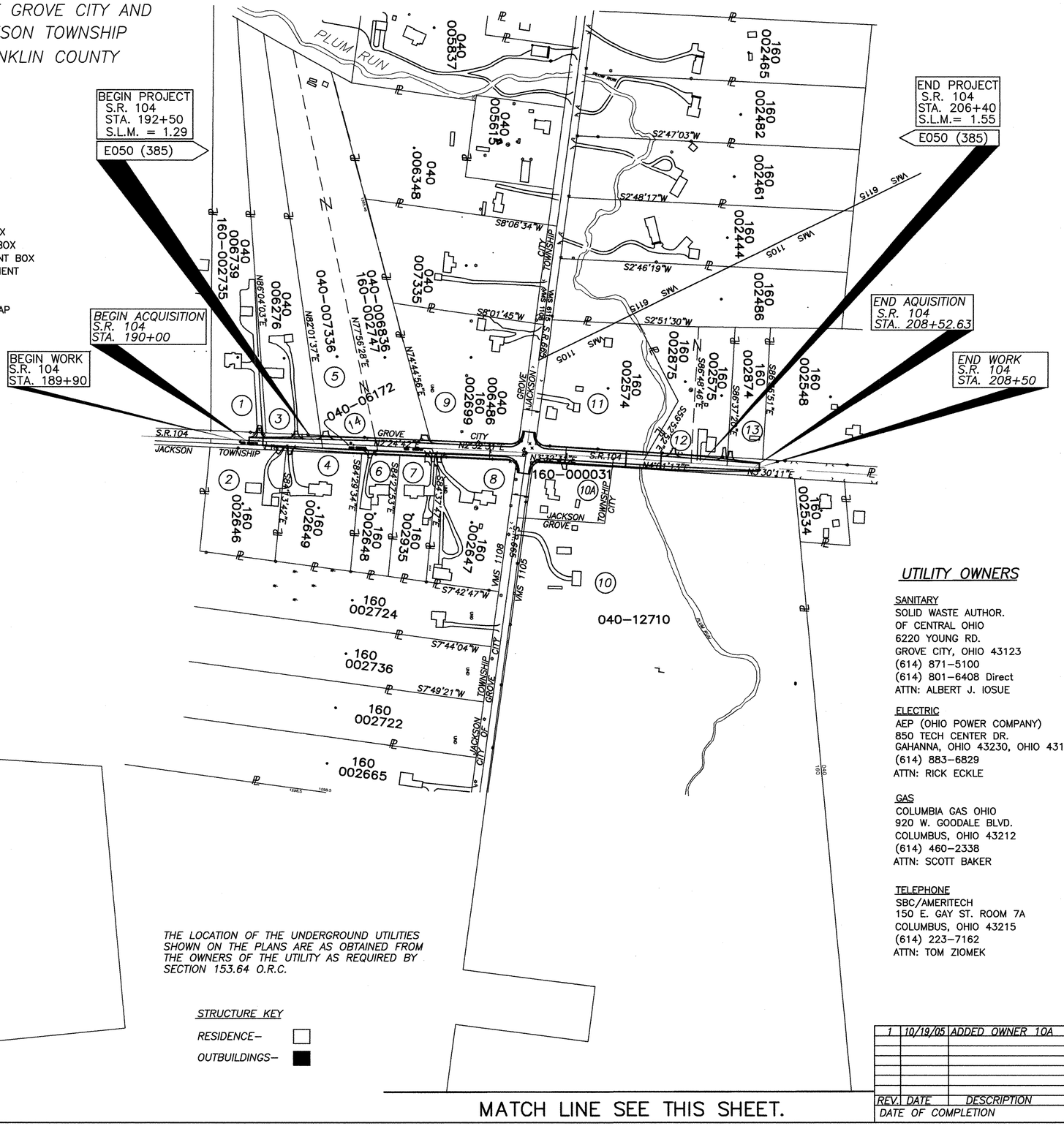
MONUMENT LEGEND

	EXISTING R/W MONUMENT BOX
	PROPOSED R/W MONUMENT BOX
	EXISTING CONCRETE MONUMENT BOX
	PROPOSED CONCRETE MONUMENT
	RAILROAD SPIKE FOUND
	RAILROAD SPIKE SET
I.P.F.	IRON PIN FOUND W/NO ID CAP
I.P.F.	IRON PIN FOUND W/ID CAP
I.P.S.	IRON PIN SET W/ID CAP
P.F.	IRON PIPE FOUND
P.S.	IRON PIPE SET
P.K.F.	P.K. NAIL FOUND
P.K.S.	P.K. NAIL SET

PROPERTY OWNERS

1–THOMAS J. BLOOMER
2–JAMES T. AND PATRICIA G. HICKS
3–JAMES E. AND KAREN L. MONTGOMERY
4–DOROTHY CLINE
5–ROBERT S. AND MONA L. WAKELAND
6–DON AND DOROTHY CURRY
7–DON AND DOROTHY CURRY AND FAITH E. JUSTICE
8–HAROLD AND JUDITH REEVES
9–HASAN YOUSEF
10–M/I HOMES OF CENTRAL OHIO, LLC.
10A–KIP A AND BARBARA R THOMPSON
11–ROBERT AND MARILYN J. STOUT
12–JEROME J. GRESAK SR. AND SUSAN GRESAK
13–PAUL D. AND KELLY J. YOKUM
14–DANIEL M. SLANE

MATCH LINE SEE THIS SHEET.



MATCH LINE SEE THIS SHEET.

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

STRUCTURE KEY

RESIDENCE–
OUTBUILDINGS–

UTILITY OWNERS

SANITARY
SOLID WASTE AUTHOR.
OF CENTRAL OHIO
6220 YOUNG RD.
GROVE CITY, OHIO 43123
(614) 871–5100
(614) 801–6408 Direct
ATTN: ALBERT J. IOSUE

ELECTRIC
AEP (OHIO POWER COMPANY)
850 TECH CENTER DR.
GAHANNA, OHIO 43230, OHIO 43123
(614) 883–6829
ATTN: RICK ECKLE

GAS
COLUMBIA GAS OHIO
920 W. GOODALE BLVD.
COLUMBUS, OHIO 43212
(614) 460–2338
ATTN: SCOTT BAKER

TELEPHONE
SBC/AMERITECH
150 E. GAY ST. ROOM 7A
COLUMBUS, OHIO 43215
(614) 223–7162
ATTN: TOM ZIOMEK

REV.	DATE	DESCRIPTION
1	10/19/05	ADDED OWNER 10A
		DATE OF COMPLETION

N

0 100 200 400 SCALE IN FEET

P.I.D. 16577

R/W DES. J.R.H.
R/W REV. A.M.

PROPERTY MAP

FRA–104–1.29

2/8

62/68

TOTAL NUMBER OF
15 OWNERSHIPS
23 PARCELS
0 TOTAL TAKES

0 OWNERSHIPS WITH STRUCTURES INVOLVED
0 OWNERSHIPS WITH "P" ITEMS

SUMMARY OF ADDITIONAL RIGHT OF WAY

PARCEL	OWNER	SH. NO.	OWNERS BOOK	RECORD PAGE	RECORD AREA	AUTOR'S PARCEL	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED INSTRUMENT
1WD	THOMAS J. BLOOMER	4	INST. 200009070180971		4.976	040-006739	0.137	0.0636	0.0386	0.025		4.814		STATE		
					0.070	160-002735	0.070	0.0204	0.0204	0.000		0.0496				
	GRAND TOTAL				5.046		0.207	0.0840	0.0590	0.025		4.8636				
2WD	JAMES T. AND PATRICIA G. HICKS	4	O.R.16622	I-06	2.558	160-002646	0.095	0.106	0.046	0.060			2.403	STATE		
3WD	JAMES E. AND KAREN L. MONTGOMERY	4,5	O.R.7645	D-12	5.022	040-006276	0.206	0.297	0.206	0.091		4.725		STATE		
4WD	DOROTHY CLINE	4,5	O.R.15533	J-14	2.711	160-002649	0.095	0.221	0.095	0.126			2.490	STATE		
4T		4,5						0.032		0.032				STATE	GRADING	
5WD	ROBERT S. AND MONA L. WAKELAND	4,5	O.R.14797	C-16	4.817	040-007336	0.000	0.0905	0.000	0.0905		4.7265		STATE		
		5	O.R.12068	G-06	4.939	040-006836	0.137	0.228	0.137	0.091		4.711				
		5	O.R.12068	G-06	0.0691	160-002747	0.0689	0.0689	0.0689	0.000		0.000				
	GRAND TOTAL				9.8251		0.2059	0.3874	0.2059	0.1815		9.4375				
5T		5	O.R.12068	G-06		040-006836		0.023		0.023					GRADING	
6WD	DON AND DOROTHY CURRY	5	O.R.28670	F-06	1.414	160-002648	0.047	0.111	0.047	0.064			1.303	STATE		
6T		5						0.016		0.016				STATE	GRADING	
7WD	DON CURRY, DOROTHY CURRY AND FAITH E. JUSTICE	5	INST. 200204010081280		1.450	160-002935	0.047	0.111	0.047	0.064			1.339	STATE		
7T		5						0.032		0.032				STATE	GRADING	
8WD	HAROLD AND JUDITH REEVES	5,6	O.R.10196	C-01	3.486	160-002647	0.610	0.309	0.197	0.112			2.764	STATE		
8T		5,6						0.022		0.022				STATE	GRADING	
9WD	HASAN YOUSEF	5,6	INST. 199904280106093		4.963	040-006486	0.575	0.434	0.304	0.130				STATE		
					0.115	160-002699	0.115	0.117	0.117	0.00					AS PER SURVEY ACREAGE 0.117	
	GRAND TOTAL				5.078		0.690	0.551	0.421	0.130		4.258				
9T		5,6						0.018		0.018					GRADING	
10WD	M/I HOMES OF CENTRAL OHIO LLC.	7,8	INST. 200310010314742		145.190	040-12710	3.470	0.683	0.384	0.299		141.421		STATE		
10ASH	KIP A. AND BARBARA R. THOMPSON	6,7	INST. 200506210120647		1.520	160-000031	0.564	0.398	0.309	0.089		0.867		STATE		
11WD	ROBERT AND MARILYN J. STOUT	6,7	O.R.1938	H-18	5.010	160-002574	0.727	0.620	0.448	0.172		4.111		STATE		
12WD	JEROME J. GRESAK Sr. AND SUSAN GRESAK	7,8	INST. 199904120090526		1.454	160-002875	0.163	0.181	0.163	0.018		1.273		STATE		
		7,8	INST. 199904080087564		1.480	160-002575	0.095	0.149	0.095	0.054		1.331		STATE		
	GRAND TOTAL				2.934		0.258	0.330	0.258	0.072		2.604				
12T		7,8						0.094	0.000	0.094					GRADING & CONST. OF DRIVEWAY	
13WD	PAUL D. AND KELLY J. YOKUM	8	INST. 199811040282703		1.499	160-002874	0.089	0.149	0.089	0.060		1.350		STATE		
13T		8						0.009		0.009				STATE	GRADING & CONST. OF DRIVEWAY	
14WD	DANIEL M. SLANE	5	OR 4909	H-17	0.311	040-006172	0.206	0.206	0.206	0.000		0.105		STATE	NET RESIDUE ON S.R. 665	

(RECORD AREA AFTER OUTSALES) MINUS (TOTAL P.R.O.) MINUS (NET TAKE) = NET RESIDUE

NOTE: ALL AREAS ARE IN ACRES

NOTE:
ALL TEMPORARY PARCELS TO BE OF 12 MONTHS DURATION.

NOTE:
UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR UNLESS NOTED OTHERWISE.

REV.	DATE	DESCRIPTION
1	7/5/05	ADDED OWNER 10A, MOD. 10WD
2	10/19/05	CHANGED NAME OF PARCEL 10ASH

SJN 46079(0)
P.I.D. 16577
R/W DES. J.R.H.
R/W REV. AM
F.P.N. E050 (885)
SUMMARY OF ADDITIONAL RIGHT OF WAY
FRA - 104 - 1.29
3 / 8
63
68

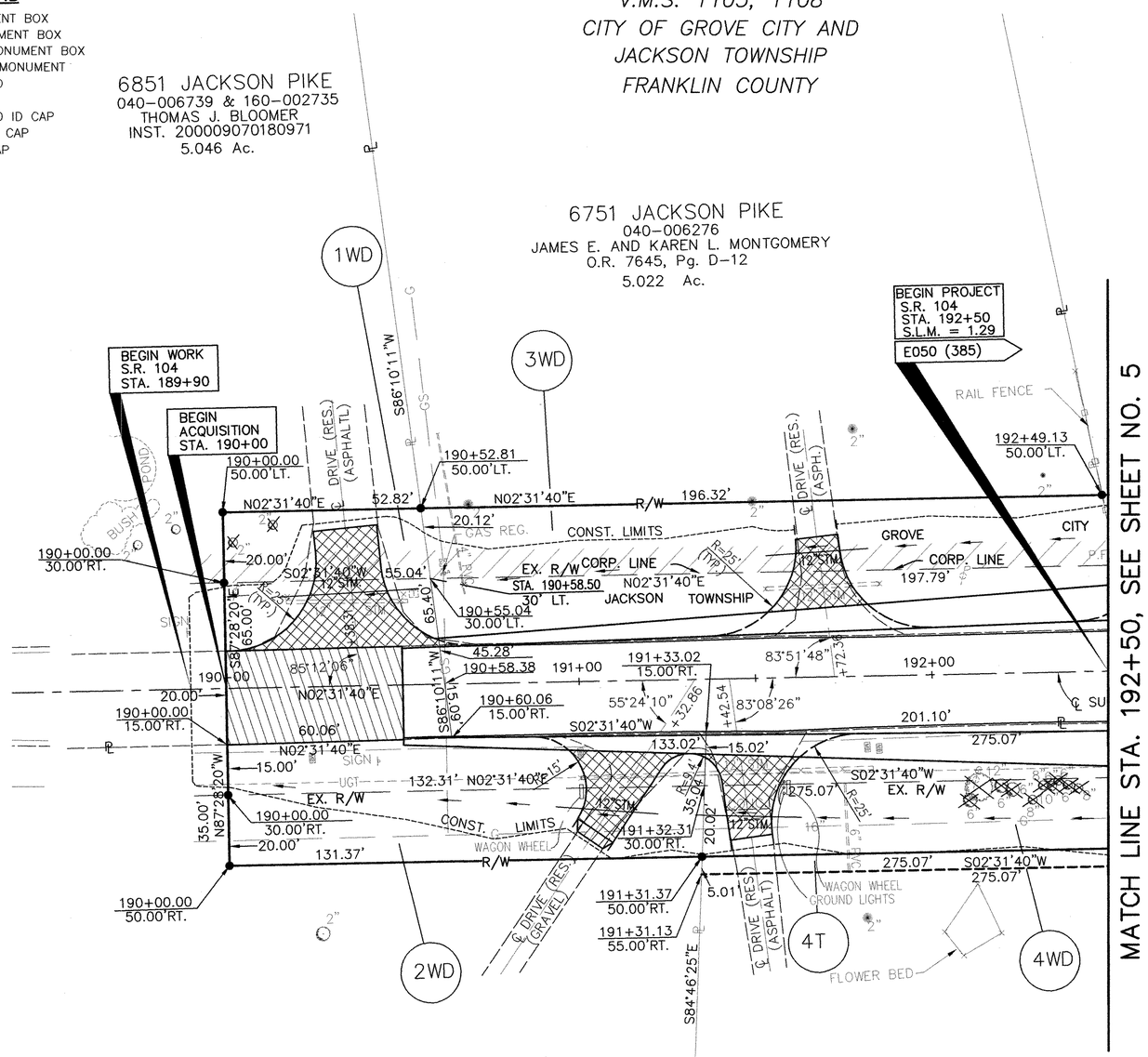
MONUMENT LEGEND

[M]	EXISTING R/W MONUMENT BOX
[M]	PROPOSED R/W MONUMENT BOX
◎	EXISTING CONCRETE MONUMENT BOX
○	PROPOSED CONCRETE MONUMENT
☼	RAILROAD SPIKE FOUND
●	RAILROAD SPIKE SET
O I.P.F.	IRON PIN FOUND W/NO ID CAP
O I.P.F.	IRON PIN FOUND W/ID CAP
● I.P.S.	IRON PIN SET W/ID CAP
◎ P.F.	IRON PIPE FOUND
◉ P.S.	IRON PIPE SET
o P.K.F.	P.K. NAIL FOUND
• P.K.S.	P.K. NAIL SET

V.M.S. 1105, 1108
CITY OF GROVE CITY AND
JACKSON TOWNSHIP
FRANKLIN COUNTY

6851 JACKSON PIKE
040-006739 & 160-002735
THOMAS J. BLOOMER
INST. 20000907018097I
5.046 Ac.

6751 JACKSON PIKE
040-006276
JAMES E. AND KAREN L. MONTGOMERY
O.R. 7645, Pg. D-12
5.022 Ac.



6862 JACKSON PIKE
160-002646
JAMES T. & PATRICIA G. HICKS
O.R. 16622, PG. I-06
2.558 Ac.(INCL. 0.095 Ac. R/W)

6830 JACKSON PIKE
160-002649
DOROTHY CLINE
O.R. 15533, Pg. J-14
2.711 Ac.(INCL. 0.095 Ac. R\W)

NOTE:
THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED BY USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 6 OFFICE (FRA-104-1.50 & FRA-665-11.97) AND EXISTING PROPERTY CORNER PINS (FOUND) ALONG S.R. 665 AND S.R. 104.

REV.	DATE	DESCRIPTION
		DATE OF COMPLETION

N

SCALE IN FEET 0 20 40

P.I.D. 16577

R/W DES. J.R.H.
R/W REV. AM

RIGHT OF WAY PLAN
STA.189+00.00 TO STA.192+50.00(S.R.104)

FRA-104-1.29

4/8
64/68

[MOHAMED SALIM] N:\JOBS\98172\DWG\FRA-104\RIGHT-OF-WAY\RW5C.DWG -- JAN. 26, 2006 -- 10:27AM -- LAYOUT=LAYOUT1

MONUMENT LEGEND

- EXISTING R/W MONUMENT BOX
- PROPOSED R/W MONUMENT BOX
- EXISTING CONCRETE MONUMENT BOX
- PROPOSED CONCRETE MONUMENT
- RAILROAD SPIKE FOUND
- RAILROAD SPIKE SET
- I.P.F. IRON PIN FOUND W/NO ID CAP
- I.P.F. IRON PIN FOUND W/ID CAP
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- P.F. IRON PIPE FOUND
- P.S. IRON PIPE SET
- P.K.F. P.K. NAIL FOUND
- P.K.S. P.K. NAIL SET

V.M.S. 1105, 6115 AND 1108
CITY OF GROVE CITY AND
JACKSON TOWNSHIP
FRANKLIN COUNTY

JACKSON PIKE
040-007336
ROBERT S. AND MONA L. WAKELAND
O.R. 14797, Pg. C-16
4.817 Ac.

6725 JACKSON PIKE
040-006836 & 160-002747
ROBERT S. AND MONA L. WAKELAND
O.R. 12068, Pg. G-06
5.008 Ac.

1011 LONDON GROVEPORT RD.
040-006486
HASAN YOUSEF
INST. 199904280106093
5.078 Ac.

MATCH LINE STA. 192+50, SEE SHEET NO. 4

MATCH LINE STA. 197+00, SEE SHEET NO. 6

DANIEL M. SLANE
OR 04909 H17
040-006172
TRACK 1
TRACK 2

6830 JACKSON PIKE
160-002649
DOROTHY CLINE
O.R. 15533, Pg. J-14
2.711 Ac.(INCL. 0.095 Ac. R\W)

6804 JACKSON PIKE
160-002648
DON AND DOROTHY CURRY
O.R. 28670, Pg. F-06
1.414 Ac.(0.095 Ac. R/W)

6782 JACKSON PIKE
160-002935
DON AND DOROTHY CURRY
AND FAITH E. JUSTICE
INST. 200204010081280
1.450 Ac.

NOTE:
THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED BY USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 6 OFFICE (FRA-104-1.50 & FRA-665-11.97) AND EXISTING PROPERTY CORNER PINS (FOUND) ALONG S.R. 665 AND S.R. 104.

REV.	DATE	DESCRIPTION
		DATE OF COMPLETION

SCALE IN FEET 0 20 40

P.I.D. 16577

R/W DES. J.R.H.
R/W REV. AM

RIGHT OF WAY PLAN
STA.192+50.00 TO STA.197+00.00(S.R.104)

FRA-104-1.29

5/8

65/68

[[MOHAMED SALIM]] N:\JOBS\98172\DWG\FRA-104\RIGHT-OF-WAY\RWSD.DWG - JAN. 26, 2006 - 10:29AM - LAYOUT=LAYOUT1

MONUMENT LEGEND

- EXISTING R/W MONUMENT BOX
- PROPOSED R/W MONUMENT BOX
- EXISTING CONCRETE MONUMENT BOX
- PROPOSED CONCRETE MONUMENT
- RAILROAD SPIKE FOUND
- RAILROAD SPIKE SET
- I.P.F. IRON PIN FOUND W/NO ID CAP
- I.P.F. IRON PIN FOUND W/ID CAP
- I.P.S. IRON PIN SET W/ID CAP
- P.F. IRON PIPE FOUND
- P.S. IRON PIPE SET
- P.K.F. P.K. NAIL FOUND
- P.K.S. P.K. NAIL SET

V.M.S. 1105, 6115 AND 1108
CITY OF GROVE CITY AND
JACKSON TOWNSHIP
FRANKLIN COUNTY

1011 LONDON GROVEPORT RD.
040-006486 & 160-002699
HASAN YOUSEF
INST. 199904280106093
5.078 Ac.

920 LONDON GROVEPORT RD.
160-002574
ROBERT AND MARILYN J. STOUT
O.R. 1938, Pg. H-18
5.010 Ac.

6878 JACKSON PIKE
160-002647
HAROLD AND JUDITH REEVES
O.R. 10196, Pg.C-01
3.486 Ac.

7620 JACKSON PIKE
160-000031
KIP A. AND BARBARA R. THOMPSON
INST. 200506210120647
1.520 Ac

MATCH LINE STA. 197+00, SEE SHEET NO. 5

MATCH LINE STA. 202+00, SEE SHEET NO. 7

NOTE:
THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED BY USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 6 OFFICE (FRA-104-1.50 & FRA-665-11.97) AND EXISTING PROPERTY CORNER PINS (FOUND) ALONG S.R. 665 AND S.R. 104.

REV.	DATE	DESCRIPTION
1	7/5/05	ADDED OWNER 10A, MOD. 10WD
2	10/19/05	CHANGED NAME OF PARCEL 10ASH

P.I.D. 16577

R/W DES. J.R.H.
R/W REV. AM

SCALE IN FEET 0 20 40

RIGHT OF WAY PLAN
STA.197+00.00 TO STA.202+00.00(S.R.104)

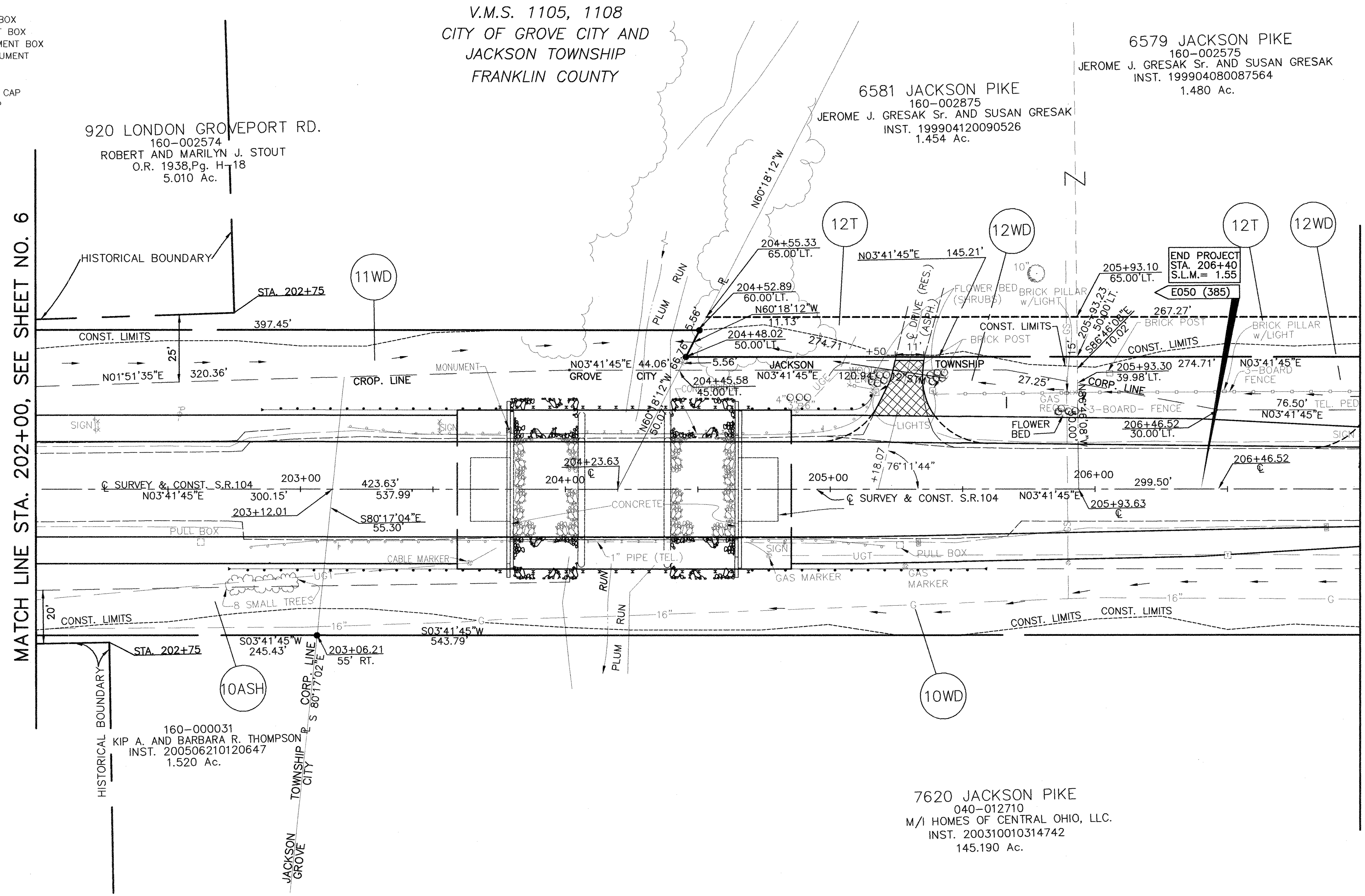
FRA-104-1.29

6/8

66/68

MONUMENT LEGEND

- EXISTING R/W MONUMENT BOX
- PROPOSED R/W MONUMENT BOX
- EXISTING CONCRETE MONUMENT BOX
- PROPOSED CONCRETE MONUMENT
- RAILROAD SPIKE FOUND
- RAILROAD SPIKE SET
- I.P.F. IRON PIN FOUND W/NO ID CAP
- I.P.F. IRON PIN FOUND W/ID CAP
- I.P.S. IRON PIN SET W/ID CAP
- P.F. IRON PIPE FOUND
- P.S. IRON PIPE SET
- P.K.F. P.K. NAIL FOUND
- P.K.S. P.K. NAIL SET



V.M.S. 1105, 1108
CITY OF GROVE CITY AND
JACKSON TOWNSHIP
FRANKLIN COUNTY
920 LONDON GROVEPORT RD.
160-002574
ROBERT AND MARILYN J. STOUT
O.R. 1938,Pg. H-18
5.010 Ac.
6581 JACKSON PIKE
160-002875
JEROME J. GRESAK Sr. AND SUSAN GRESAK
INST. 199904120090526
1.454 Ac.
6579 JACKSON PIKE
160-002575
JEROME J. GRESAK Sr. AND SUSAN GRESAK
INST. 199904080087564
1.480 Ac.
160-000031
KIP A. AND BARBARA R. THOMPSON
INST. 200506210120647
1.520 Ac.
7620 JACKSON PIKE
040-012710
M/I HOMES OF CENTRAL OHIO, LLC.
INST. 200310010314742
145.190 Ac.
MATCH LINE STA. 202+00, SEE SHEET NO. 6
MATCH LINE STA.207+00.00 SEE SHEET NO. 8
HISTORICAL BOUNDARY
STA. 202+75
CONST. LIMITS
CROP. LINE
℄ SURVEY & CONST. S.R.104
N03°41'45"E
PLUM RUN
END PROJECT
STA. 206+40
S.L.M.= 1.55
E050 (385)
11WD
12T
12WD
10ASH
10WD
JACKSON
TOWNSHIP
GROVE
CITY
CORP. LINE
8 SMALL TREES
PULL BOX
CABLE MARKER
GAS MARKER
CONCRETE
1" PIPE (TEL.)
3-BOARD FENCE
BRICK PILLAR w/LIGHT
BRICK POST
FLOWER BED
℄ DRIVE (RES.)

NOTE:
THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED BY USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 6 OFFICE (FRA-104-1.50 & FRA-665-11.97) AND EXISTING PROPERTY CORNER PINS (FOUND) ALONG S.R. 665 AND S.R. 104.

REV.	DATE	DESCRIPTION
1	7/5/05	ADDED OWNER 10A, MOD. 10WD
2	10/19/05	CHANGED NAME OF PARCEL 10ASH

0 20 40 SCALE IN FEET

P.I.D. 16577

R/W DES. J.R.H.
R/W REV. AM

RIGHT OF WAY PLAN
STA.202+00.00 TO STA.207+00.00(S.R.104)

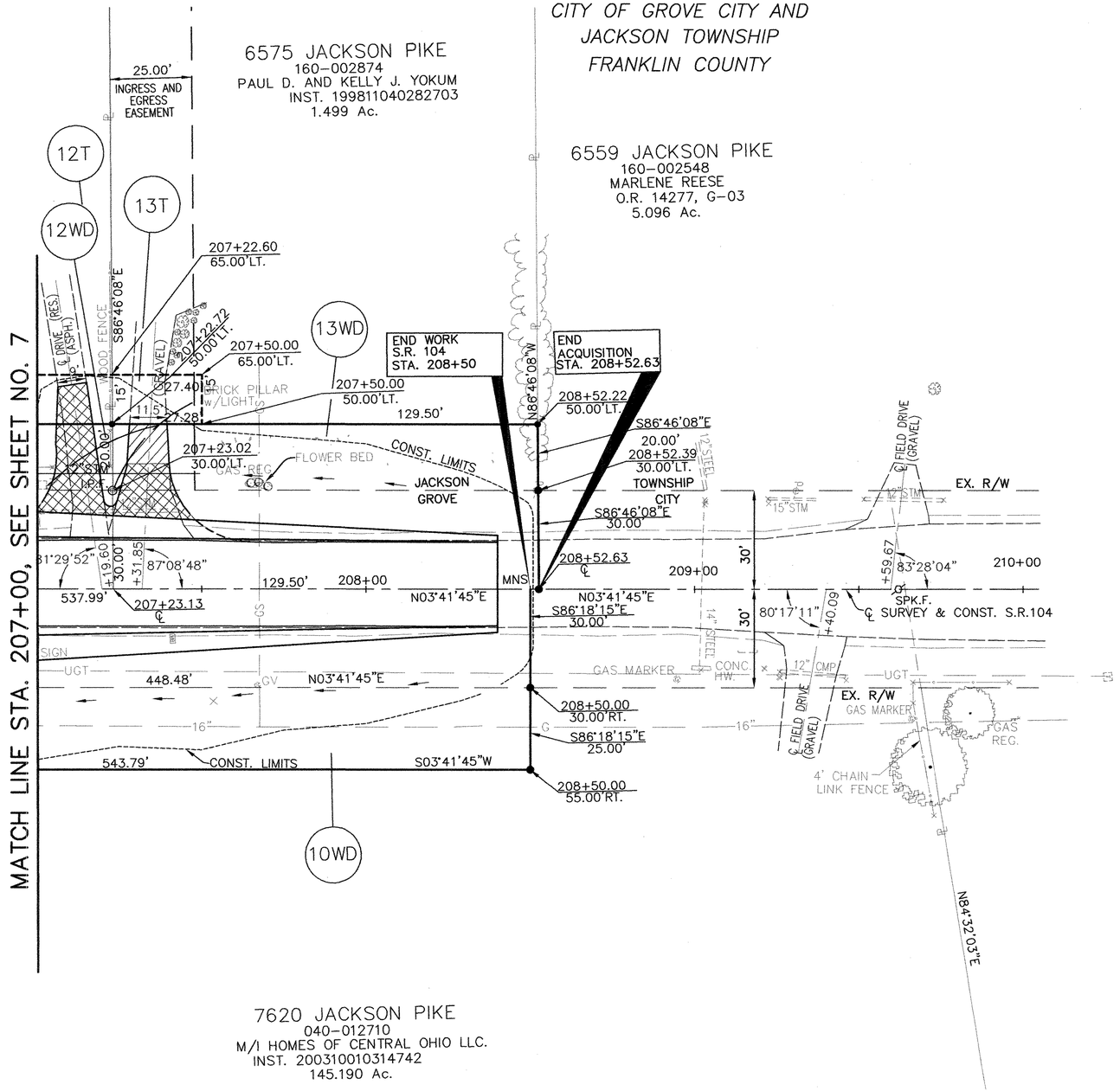
FRA-104-1.29

7/8

MONUMENT LEGEND

- EXISTING R/W MONUMENT BOX
- PROPOSED R/W MONUMENT BOX
- EXISTING CONCRETE MONUMENT BOX
- PROPOSED CONCRETE MONUMENT
- RAILROAD SPIKE FOUND
- RAILROAD SPIKE SET
- I.P.F. IRON PIN FOUND W/NO ID CAP
- I.P.F. IRON PIN FOUND W/ID CAP
- I.P.S. IRON PIN SET W/ID CAP
- P.F. IRON PIPE FOUND
- P.S. IRON PIPE SET
- P.K.F. P.K. NAIL FOUND
- P.K.S. P.K. NAIL SET

V.M.S. 1105, 1108
CITY OF GROVE CITY AND
JACKSON TOWNSHIP
FRANKLIN COUNTY



7620 JACKSON PIKE
040-012710
M/I HOMES OF CENTRAL OHIO LLC.
INST. 200310010314742
145.190 Ac.

NOTE:
THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED BY USING DOCUMENTATION ON FILE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 6 OFFICE (FRA-104-1.50 & FRA-665-11.97) AND EXISTING PROPERTY CORNER PINS (FOUND) ALONG S.R. 665 AND S.R. 104.

REV.	DATE	DESCRIPTION
1	7/5/05	ADDED EASEMENT TO OWNER 13, MOD. 10WD

SCALE IN FEET: 0, 20, 40

P.I.D. 16577

R/W DES. J.R.H.
R/W REV. AM

RIGHT OF WAY PLAN
STA.202+00.00 TO STA.207+00.00(S.R.104)

FRA-104-1.29

8/8

68/68

[[MOHAMED SALIM]] N:\JOBS\98172\DWG\FRA-104\RIGHT-OF-WAY\RW5B.DWG - JAN. 26, 2006 - 10:34AM - LAYOUT=LAYOUT1

GEOLOGY OF THE SITE

GEOLOGICALLY, THE AREA LIES ON THE GLACIATED COLUMBUS LOWLAND OF THE SOUTHERN OHIO LOAMY TILL PLAIN. LOWLANDS, SURROUNDED BY RELATIVE UPLANDS AND INTERVENING END AND RECESSIONAL MORAINES, CHARACTERIZE THIS AREA. MORAINES ARE DEPOSITED WHEN DEBRIS MELTS OUT OF THE ICE SHEET, WHILE THE GLACIER IS EITHER ADVANCING OR RETREATING FOR A PERIOD OF TIME. OUTWASH DEPOSITS ARE ALSO PREVALENT ALONG PLUM RUN, AS SEEN BY THE SAND AND GRAVEL LAYERS ENCOUNTERED IN THE BORING LOGS. BASED ON THE BORINGS DRILLED AND THE BEDROCK TOPOGRAPHY MAP OF THE COMMERCIAL POINT, OHIO QUADRANGLE, OBTAINED FROM THE OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR), THE TOP OF BEDROCK UNDERLYING THE SITE FORMS A NARROW VALLEY, THAT ROUGHLY FOLLOWS THE SCIOTO RIVER, AND SLOPES UPWARD FROM THE TOWN OF SHADEVILLE TOWARDS THE SITE. THE BEDROCK SURFACE RANGES BETWEEN ELEVATIONS 600 AND 630 FEET. BEDROCK IS AT APPROXIMATELY 620 TO 630 FEET AT THE BRIDGE LOCATION. THE UNDERLYING BEDROCK CONSISTS OF DEVONIAN-AGED SHALE OF THE OHIO-OLENTANGY SHALE UNDIVIDED FORMATION.

EXPLORATION

TWO (2) ENGINEERING TEST BORINGS, DESIGNATED SB-1 AND SB-2, WERE DRILLED AT THE LOCATIONS SHOWN OH SHEET 2. THE BORING LOCATIONS WERE DESIGNATED AND FIELD STAKED BY REPRESENTATIVES OF RESOURCE INTERNATIONAL, INC. (RII). THE BORINGS WERE LOCATED APPROXIMATELY 15 FEET AWAY FROM THE APPROACH SLABS, ABOUT 10 FEET FROM THE CENTERLINE. THE BORINGS, DRILLED ON DECEMBER 17 AND 18, 2002, WERE DRILLED WITH A TRUCK MOUNTED ROTARY DRILLING MACHINE, UTILIZING 3.75-INCH HOLLOW-STEM AUGERS TO ADVANCE THE HOLES.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

BOTH BORINGS EXHIBITED APPROXIMATELY 10 INCHES OF ASPHALT OVERLYING 6 INCHES OF BASE MATERIAL. THE SUBSURFACE SOIL CONSISTS OF INTERBEDDED LAYERS OF COHESIVE AND GRANULAR SOIL. THE COHESIVE SOIL IS DESCRIBED AS BROWN, MEDIUM STIFF TO HARD, SANDY SILT OR CLAYEY SILT WITH LESSER AMOUNTS OF CLAY, SAND AND GRAVEL (ODOT A-4A AND A-6A). SOME LAYERS ARE DESCRIBED AS SILTY SAND LAYERS, WHICH ARE MORE GRANULAR THAN THE COHESIVE LAYERS DESCRIBED ABOVE, BUT HAVE SIMILAR CLASSIFICATION. THE GRANULAR SOIL IS GENERALLY DESCRIBED AS BROWN AND/OR GRAY, MEDIUM DENSE TO VERY DENSE, GRAVEL AND SAND WITH LESSER AMOUNTS OF SILT AND CLAY (ODOT A-1-B AND A-2-6). A MORE COMPREHENSIVE DESCRIPTION OF WHAT WAS ENCOUNTERED DURING THE DRILLING PROCESS MAY BE FOUND ON SHEETS 3 AND 4.

MANY SOIL PROPERTIES, INCLUDING SOIL CONSISTENCY AND SHEAR STRENGTH (OF COHESIVE SAMPLES), ARE PRIMARILY DERIVED FROM STANDARD PENETRATION BLOW COUNTS AND HAND PENETROMETER READINGS (PERFORMED ON COHESIVE SAMPLES IF APPLICABLE). BLOW COUNTS RANGED FROM 7 BPF TO REFUSAL. REFUSAL IS DEFINED AS OBTAINING IN EXCESS OF 50 BLOWS WITH LESS THAN 6 INCHES OF PENETRATION. THE UNCONFINED COMPRESSIVE STRENGTH OF THE SOIL, AS OBTAINED FROM THE HAND PENETROMETER, RANGED FROM 2.0 KSF TO IN EXCESS OF 9.0 KSF (THE LIMIT OF THE INSTRUMENT).

OVERALL, NATURAL MOISTURE CONTENTS OF THE SOIL SAMPLES TESTED RANGED FROM 8% TO 21%. THE NATURAL MOISTURE CONTENT OF THE COHESIVE SOIL SAMPLES TESTED FOR PLASTICITY INDEX WERE 1% BELOW THEIR CORRESPONDING PLASTIC LIMITS. IN GENERAL, THE SOIL EXHIBITED NATURAL MOISTURE CONTENTS ESTIMATED TO BE AT TO ABOVE OPTIMUM MOISTURE LEVELS.

GROUNDWATER WAS INITIALLY ENCOUNTERED IN THE BORINGS AS SHOWN ON THE FOLLOWING TABLE.

GROUNDWATER TABLE

BORING NO.	GROUNDWATER DEPTH INITIALLY ENCOUNTERED	GROUNDWATER DEPTH @ COMPLETION	CAVE-IN DEPTH
SB-1	16.5	15.0*	17.0
SB-2	15.5	17.5*	18.3

**CAVE-IN OF THE BOREHOLES OCCURED AFTER REMOVAL OF THE AUGERS WHICH MAY CAUSE INACCURATE GROUNDWATER LEVEL READINGS*

PLEASE NOTE THAT CAVE-IN OCCURRED IN BOTH BORINGS AFTER REMOVING THE AUGERS. THE CAVING LIKELY INFLUENCED THE GROUNDWATER READING (I.E., THE CAVED-IN MATERIAL MAY HAVE DISPLACED THE WATER IN THE BOREHOLE OR SMALL VOLUMES OF WATER SEEPAGE MAY HAVE COLLECTED ON TOP OF THE CAVED-IN SOIL [OR SOIL BRIDGE]). GROUNDWATER LEVELS AND/OR THE PRESENCE OF GROUNDWATER ARE CONSIDERED TO BE DEPENDENT ON SEASONAL FLUCTUATIONS IN PRECIPITATION.

LEGEND

Press and/or Drive Sample and/or Core Boring Location-Plan View.

Horizontal Bar on Boring Log indicates the Depth the Sample was Taken.

X/Y/Z — Figures Beside the Boring Log in Profile indicate the Number of Blows for Standard Penetration Test.

X = Number of Blows for First 6 Inches

Y = Number of Blows for Second 6 Inches

Z = Number of Blows for Third 6 Inches

W — Indicates Free Water level

▼ — Indicates Static Water level

Particle Size Definitions

Boulders	Cobbles	Gravel	C.Sand	F.Sand	Silt	Clay
8"	3"	No. 10	No. 40	No. 200		
		2.0mm	0.42mm	0.074mm		0.005mm

GENERAL INFORMATION

Borings are made by means of a truck mounted rotary drilling machine. Standard Penetration testing was performed at 2.5 to 5.0-foot intervals. The Standard Penetration Test (ASTM D 1586) is conducted by using a 140-pound hammer falling 30.0 inches to drive a 2-inch O.D. split-barrel sampler 18.0 inches Driving resistance is recorded on the boring logs in terms of blows per 6-inch interval of the driving distance. The second and third intervals are added to obtain the number of blows per foot.

The boring log sheet shows graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the Standard Penetration Tests in three 6-inch increments, field sample number, and sample description based on laboratory tests and the Ohio Department of Transportation Classification System. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sample cannot be driven, a wash sample is procured for visual classification to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Note--all available soil and bedrock information which can be conveniently shown on the structure foundation investigation sheets has been so reported. Additional subsurface investigations may have been made to study some special aspect of the project. Copies of the data, if any, may be inspected in the District Deputy Director's Office (District 6), The Soils Section of the Office of Roadway Engineering, or in the Office of Bridges at 1980 West Broad Street, Columbus, Ohio 43223.

The purpose of this subsurface investigation is to develop soils information specifically for foundation design purposes and is not intended to be used for construction estimating or bidding. Information shown was obtained for use in establishing design criteria for the project. The accuracy of the data presented is not guaranteed by the State of Ohio or Consultant and is not to be construed as part of the plans governing construction of the project.

RESOURCE INTERNATIONAL INC.
3481 ENTERPRISE DRIVE
WESTERVILLE, OHIO 43081
(614) 895-1959

DRAWN KAL | CHECKED GPH
DATE 3/31/03 | DATE 3/31/03

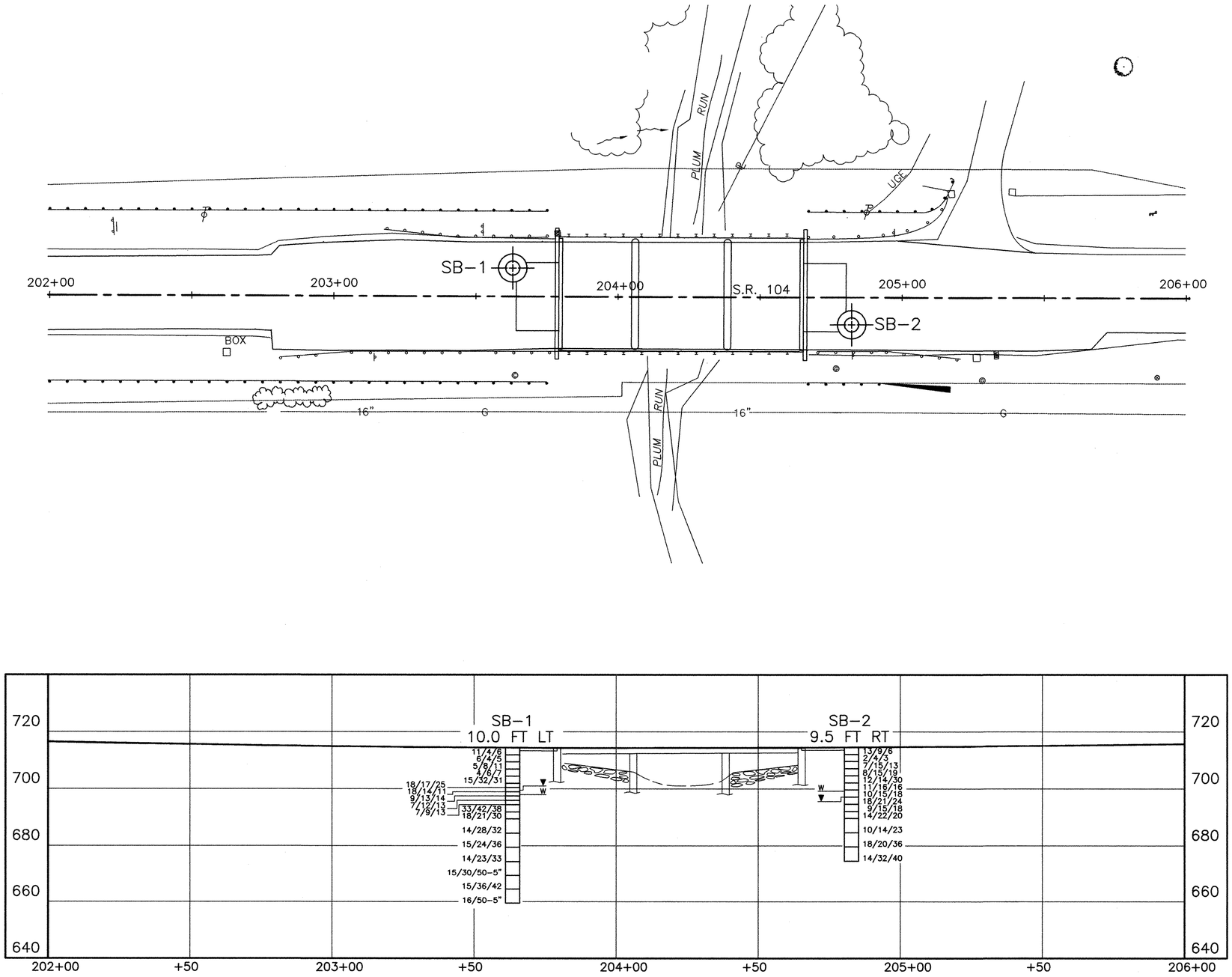
STRUCTURE FOUNDATION INVESTIGATION

SR 104 OVER PLUM RUN

FRA-104-1.24

1/4

RESOURCE INTERNATIONAL INC.
PROJECT NO. W-8106
FILENAME: 104-01-CVR.DWG
DATE: 3/31/03



PROFILE ALONG ℄ S.R. 104

RESOURCE INTERNATIONAL INC. FILENAME: 104-02-PP.DWG
PROJECT NO. W-8106 DATE: 3/31/03

DRAWN	REVIEWED	DATE	DATE	CHECKED
KAL		3/31/03	3/31/03	GPH

HORIZONTAL SCALE IN FEET
0 20 40

STRUCTURE FOUNDATION INVESTIGATION

SR 104 OVER PLUM RUN

FRA-104-1.24

2/4

Log of Boring

Date Started: 12/17/02 Sampler's Type 3.75" HSA Water Elev. 15.0* Ft

Date Finished: 12/17/02 * Cave-in @ 15.0 Ft

Boring No. SB-1 Station & Offset 203+63, 10' Lt Surface Elev. 714.35 ft

ELEV (FT)	DEPTH (FT)	STD. PEN/ RQD	REC. %	DESCRIPTION	SAMPLE NO.	PHYSICAL CHARACTERISTICS % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	ODOT CLASS
714.4				9.5" – Asphalt 0.8										
				6" – Sand and gravel base										
711.9		11 4 6	33	Brown SANDY SILT, some clay, trace gravel. 1.3	SS-1									
				–SS-1: ODOT A-6a										
709.4	5.0	6 4 5	39		SS-2	7	8	21	40	24	32	13	18	A-6a
				6.0										
706.9		5 8 11	22	Brown SANDY SILT, some clay, trace gravel. 7.5	SS-3									
				Brown GRAVEL and SAND, some silt and clay.										
704.4	10.0	4 6 7	44	–SS-4: Visual ODOT A-2-6	SS-4	35	22	8	35				10	VISUAL
				11.0										
701.9		15 32 31	61	Tan and brown SILTY SAND, little gravel, little clay. 12.5	SS-5	18	22	10	50					VISUAL
700.4		18 17 25	67	Tan and brown SILTY SAND, little gravel, little clay. 14.0	SS-6								11	
				–SS-6: Visual ODOT A-4a										
698.9	15.0	18 14 11	50	Tan and brown GRAVEL, some sand, little silt and clay.	SS-7									
697.4		9 13 14	44	–SS-8: Visual ODOT A-1-b	SS-8	58	15	6	21				11	VISUAL
				–groundwater initially encountered @ 16.5'										
695.9		7 12 13	56		SS-9									
694.4	20.0	7 9 13	56		SS-10									
				20.5										
				Gray SAND, some silt and clay, trace gravel.										
691.9		33 42 38	61	–SS-11: Visual ODOT A-3a 22.7	SS-11	2	22	50	26				13	VISUAL
				Gray CLAYEY SILT, some sand, little gravel.										
689.4	25.0	18 21 30	83		SS-12									
684.4	30.0	14 28 32	78		SS-13								10	
679.4	35.0	15 24 36	83		SS-14									
				37.5										
				Gray SANDY SILT, some clay, little gravel.										
674.4	40.0	14 23 33	78		SS-15								9	
669.4	45.0	15 30 50/5"	71		SS-16									
664.4	50.0	15 36 42	100		SS-17								10	

Boring No. SB-1 (CONTINUED)

ELEV (FT)	DEPTH (FT)	STD. PEN/ RQD	REC. %	DESCRIPTION	SAMPLE NO.	PHYSICAL CHARACTERISTICS % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	ODOT CLASS
660.4	55.0	16 50/5"	100	55.0	SS-18									

Bottom of Boring = 55.0 feet

FILENAME: 104-03-DATA.DWG
DATE: 3/31/03
RESOURCE INTERNATIONAL INC.
PROJECT NO. W-8106

RESOURCE INTERNATIONAL INC.
22 EAST MAIN STREET
WESTERVILLE, OHIO 43081
(614) 885-1959

DRAWN KAL | REVIEWED GPH
DATE 3/31/03 | DATE 3/31/03

STRUCTURE FOUNDATION INVESTIGATION
SR 104 OVER PLUM RUN

FRA-104-1.24

3/4

Log of Boring

Date Started: 12/18/02 Sampler's Type 3.75" HSA Water Elev. 17.5*

Date Finished: 12/18/02 * Cave-in @ 17.5 Ft

Boring No. SB-2 Station & Offset 204+82, 9.5' Rt Surface Elev. 714.68 ft

ELEV (FT)	DEPTH (FT)	STD. PEN/ RQD	REC. %	DESCRIPTION	SAMPLE NO.	PHYSICAL CHARACTERISTICS % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	ODOT CLASS
714.7				10.0" – Asphalt 0.8										
				6" – Sand and gravel base 1.3										
712.2		13 9 6	44	Brown SILTY SAND, little gravel, 3.0	SS-1									
				Brown SANDY SILT, some clay, little gravel.										
709.7	5.0	2 4 3	50	–SS-2: ODOT A-6a 5.5	SS-2	14	17	18	51		27	11	15	A-6a
				Brown SANDY SILT, some clay, little gravel.										
707.2		7 15 13	39	8.0	SS-3									
				Brown SANDY SILT, some clay, little gravel.										
704.7	10.0	8 15 19	78	–SS-4: Visual ODOT A-6a	SS-4	15	15	19	51				11	VISUAL
702.2		12 14 30	44	12.5	SS-5									
				Brown GRAVEL (limestone fragments), some SAND, some silt and clay. 15.0										
699.7	15.0	11 16 16	61	Brown SAND, some gravel, (limestone fragments), trace silt.	SS-6	44	19	12	25				8	VISUAL
697.2		10 15 18	78	–groundwater initially encountered @ 15.5'	SS-7									
694.7	20.0	18 21 24	67	21.0	SS-8									
				Brown changing to gray SAND, some gravel, some silt and clay.										
692.2		9 15 18	89		SS-9	26	31	23	20				21	VISUAL
689.7	25.0	14 22 20	22		SS-10									
684.7	30.0	10 14 23	83		SS-11								13	
				33.5										
				Brown changing to gray SAND, trace gravel, trace silt.										
679.7	35.0	18 20 36	89	37.0	SS-12									
				Gray CLAYEY SILT, some sand, trace gravel.										
674.7	40.0	14 32 40	67	40.0	SS-13								10	

Bottom of Boring = 40 feet

RESOURCE INTERNATIONAL INC.
281 ENTERPRISE DR.
WESTERVILLE, OHIO 43081
(614) 895-1959

DRAWN KAL | REVIEWED GPH
DATE 3/31/03 | DATE 3/31/03

STRUCTURE FOUNDATION INVESTIGATION
SR 104 OVER PLUM RUN

FRA-104-1.24

4/4

RESOURCE INTERNATIONAL INC. FILENAME: 104-04-DATA.DWG
PROJECT NO. W-8106 DATE: 3/31/03

SPECIAL PROVISIONS

WATERWAY PERMITS
FOR

CRS: FRA-104-1.10 PID 16577

U.S. ARMY CORPS OF ENGINEERS
PERMIT NUMBER: NWP #3

OHIO EPA
PERMIT NUMBER: NA

EFFECTIVE DATE: 11/26/03

NATIONWIDE PERMIT #3 - MAINTENANCE

Activities related to:
(i) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable, structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards which are necessary to make repair, rehabilitation, or replacement, are permitted, provided the adverse environmental effects resulting from such repair, rehabilitation, or replacement are minimal. Currently serviceable means useable as is or with some maintenance, but not so degraded as to essentially require reconstruction. This NWP authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the District Engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(ii) Discharges of dredged or fill material, including excavation, into all waters of the United States to remove accumulated sediments and debris in the vicinity of, and within, existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and the placement of new or additional rip rap to protect the structure, provided the permittee notifies the District Engineer in accordance with General Condition 13. The removal of sediment is limited to the minimum necessary to restore the waterway in the immediate vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend further than 200 feet in any direction from the structure. The placement of rip rap must be the minimum necessary to protect the structure or to ensure the safety of the structure. All excavated materials must be deposited and retained in an upland area unless otherwise specifically approved by the District Engineer under separate authorization. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the District Engineer.

(iii) Discharges of dredged or fill material, including excavation, into all waters of the United States for activities associated with the restoration of upland areas damaged by a storm, flood, or other discrete event, including the construction, placement, or installation of upland protection structures and minor dredging to remove obstructions in water of the US. (Uplands lost as a result of a storm, flood, or other discrete event can be replaced without a Section 404 permit provided the uplands are restored to their original pre-event location. This NWP is for the activities in waters of the US associated with the replacements of the uplands.) The permittee must notify the District Engineer, in accordance with General Condition 13, within 12 months of the date of the damage and the work must commence, or be under contract to commence, within two years of the date of the damage. The permittee should provide evidence, such as a recent topographic survey or photographs, to justify

the extent of the proposed restoration. The restoration of the damaged areas cannot exceed the contours, or ordinary high water mark, that existed before the damage. The District Engineer retains the right to determine the extent of the pre-existing conditions and the extent of any restoration work authorized by this permit. Minor dredging to remove obstructions from the adjacent waterbody is limited to 50 cubic yards below the plane of the ordinary high water mark, and is limited to the amount necessary to restore the pre-existing bottom contours of the waterbody. The dredging may not be done primarily to obtain fill for any restoration activities. The discharge of dredged or fill material and all related work needed to restore the upland must be part of a single and complete project. This permit cannot be used in conjunction with NWP 18 or NWP 19 to restore damaged upland areas. This permit cannot be used to reclaim historic lands lost, over an extended period, to normal erosion processes.

This permit does not authorize maintenance dredging for the primary purpose of navigation and beach restoration. This permit does not authorize new stream channelization or stream relocation projects. Any work authorized by this permit must not cause more than minimal degradation of water quality, more than minimal changes to the flow characteristics of the stream, or increase flooding (See General Conditions 9 and 21).

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure of fill that does not qualify for the Section 404(f) exemption for maintenance.

Nationwide 3 Specific Regional Conditions

i. Notification required prior to the use of vertical sheet piling and closed structures in the special habitat waters of Lake Erie (See General Conditions, Critical Resource waters (1)).

ii The Pre-Construction Notification (PCN) for activities involving the removal of accumulated sediments and debris in the vicinity of existing structures, to restore the waterway to the approximate dimensions that existed when the structure was built, must include evidence of such dimensions. If this information is not available, the PCN must include evidence of the existing depths immediately outside the proposed work area.

WATER QUALITY CERTIFICATION

Pursuant to Section 401 of the Clean Water Act, the Ohio Environmental Protection Agency hereby certifies that activities authorized by these Permits, undertaken in accordance with all of the special and general conditions listed below, will comply with the applicable provisions of the Clean Water Act and applicable Ohio water quality standards. Those NWPs with no special Water Quality Certification (WQC) conditions remain subject to general WQC conditions unless otherwise indicated (Reference 1 below).

Water Quality Certification – Special Conditions:

The Ohio State Certification General Limitations and Conditions apply to this nationwide permit.

Ohio State Water Quality Certification Special Conditions and Limitations:

1. Total surface water and vegetation impacts on either side of the replacement structure shall be limited to the greater of 25 feet beyond the structure, or 25 feet beyond the toe of the slope of the structure's approach embankment. [Where the use of a crane is necessary to conduct a maintenance activity, total impacts shall not exceed 50 feet on either side of the structure or approach embankment]. In either case, total impacts, including the structure, shall not exceed 200 feet [except for stabilization projects]. Width shall be measured at the structure's narrowest point as it crosses the waterbody, and be measured parallel to stream flow.

2. Culvert replacement:
   a. This Certification shall only authorize minor deviations from the existing structure's centerline and minor deviations in culvert dimensions, unless these deviations are necessary to follow current safety standards.

3. Bridge Replacement:
   a. This Certification shall only authorize minor deviations from the existing structure's centerline, unless these deviations are necessary to follow current safety standards.
   b. Bridge replacements shall not result in additional lanes unless necessary to follow current safety standards.

4. Maintenance or repair of existing fills (stabilization projects):
   a. Impacts from maintenance or repair of existing fills shall not exceed the dimensions of the fill prior to the damage; and
   b. This nationwide shall not authorize the replacement of existing structures that are open to the flow of water with structures that are not open to the flow of water.

5. For replacement vertical bulkheads, the following conditions apply:
   a. For ship channels and harbors adjacent to federal navigation channels within the following harbors: Sandusky Harbor, Huron Harbor, Vermilion Harbor, Lorain Harbor, Conneaut Harbor, Port Clinton Harbor, Rocky River Harbor, Cleveland Harbor, Fairport Harbor, Ashtabula Harbor, and Toledo Harbor, 1,000 feet of existing vertical bulkheads may be replaced if recessed areas for aquatic habitat, or other aquatic habitat improvements, are incorporated within the design and construction of the replacement vertical bulkhead;
   b. For all other areas, except Lake Erie, Lake Erie Islands, or Sandusky Bay, up to 1,000 feet of existing vertical bulkheads may be replaced. Toe stone shall be placed at the base of these replacement vertical bulkheads except in areas where the shoreline is composed of bedrock and slopes are predominately greater than 75 percent;
   c. Replacement vertical bulkheads are not to be placed more than one foot waterward of the intersection of the ordinary high water level of the waterbody and the existing shoreline;

d. Minor dredging necessary for the installation of the replacement vertical bulkhead is authorized;

e. Placement of fill between the replacement vertical bulkhead and existing shoreline is authorized; and

f. Toe stone shall be placed at the base of these replacement vertical bulkheads except in areas where the original shoreline is composed of bedrock and slopes are predominately greater than 75 percent or where the placement of toe stone would interfere with shipping activity. When required, toe stone shall be placed at an average rate of one-third the total height of the replacement vertical bulkhead at a 2:1 slope.

6. Removal of accumulated sediment:

a. Removal of accumulated sediment shall occur only once per year, except in cases of emergency situations which threaten life of property.

B. Removal of accumulated sediments shall be limited to low-flow conditions whenever practicable, except in cases of emergency situations which threaten life or property.

NATIONWIDE PERMIT CONDITIONS

GENERAL CONDITIONS:

The following general conditions must be followed in order for any authorization by a NWP to be valid:

1. Navigation. No activity may cause more than a minimal adverse effect on navigation.

2. Proper Maintenance. Any structure or fill authorized shall be properly maintained, including maintenance to ensure public safety.

3. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

4. Aquatic Life Movements. No activity may substantially disrupt the necessary life-cycle movements of those species of aquatic life indigenous to the waterbody, including those species which normally migrate through the area, unless the activity's primary purpose is to impound water. Culverts placed in streams must be installed to maintain low flow conditions.

5. Equipment. Heavy equipment working in wetlands must be placed on mats, or other measures must be taken to minimize soil disturbance.

6. Regional and Case-By-Case Conditions. The activity must comply with any regional

conditions which may have been added by the division engineer (see 33 CFR 330.4(e) and with any case specific conditions added by the Corps or by the State or tribe in its section 401 Water Quality Certification and Coastal Zone management Act consistency determination.

7. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System; or in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status; unless the appropriate Federal agency, with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation, or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency in the area (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

8. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

9. Water Quality.

(a) In certain States and tribal lands an individual Section 401 water quality certification must be obtained or waived (see 33 CFR 330.4(c)).

(b) For NWPs 12, 14, 17, 18, 32, 39, 40, 42, 43, and 44, where the State or tribal 401 certification (either generically or individually) does not require or approve water quality management measures, the permittee must provide water quality management measures that will ensure that the authorized work does not result in more than minimal degradation of water quality (or the Corps determines that compliance with state or local standards, where applicable, will ensure no more than minimal adverse effect on water quality). An important component of water quality management includes stormwater management that minimizes degradation of the downstream aquatic system, including water quality (refer to General Condition 21 for stormwater management requirements). Another important component of water quality management is the establishment and maintenance of vegetated buffers next to open waters, including streams (refer to General Condition 19 for vegetated buffer requirements for the NWPs). This condition is only applicable to projects that have the potential to affect water quality. While appropriate measures must be taken, in most cases it is not necessary to conduct detailed studies to identify such measures or to require monitoring.

10. Coastal Zone Management. In certain states, an individual state coastal zone management consistency concurrence must be obtained or waived (see Section 330.4(d)).

11. Endangered Species.

(a) No activity is authorized under any NWP which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which is likely to destroy or adversely modify the critical habitat of such species. Non-federal permittees shall notify the District Engineer if any listed species or critical habitat might be affected or is in the vicinity of

the project, or is located in the designated critical habitat and shall not begin work on the activity until notified by the District Engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that may affect Federally-listed endangered or threatened species or designated critical habitat, the notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. As a result of formal or informal consultation with the FWS or NMFS, the District Engineer may add species-specific regional endangered species conditions to the NWPs.

(b) Authorization of an activity by a NWP does not authorize the "take" of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with "incidental take" provisions, etc.) from the USFWS or the National Marine Fisheries Service (NMFS), both lethal and non-lethal "takes" of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the USFWS and NMFS or their World Wide Web pages at http://www.fws.gov/r9endspp/endspp.html and http://www.nmfs.noaa.gov/prot_res/overview/es.html, respectively.

12. Historic properties. No activity which may affect historic properties listed, or eligible for listing, in the National Register of Historic Places is authorized, until the District Engineer has complied with the provisions of 33 CFR Part 325, Appendix C. The prospective permittee must notify the District Engineer if the authorized activity may affect any historic properties listed, determined to be eligible, or which the prospective permittee has reason to believe may be eligible for listing on the National Register of Historic Places, and shall not begin the activity until notified by the District Engineer that the requirements of the National Historic Preservation Act have been satisfied and that the activity is authorized. Information on the location and existence of historic resources can be obtained from the State Historic Preservation Office and the National Register of Historic Places (see 33 CFR 330.4(g)). For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the notification must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

13. Notification.

(a) Timing: where required by the terms of the NWP, the prospective permittee must notify the District Engineer with a preconstruction notification (PCN) as early as possible. The District Engineer must determine if the PCN is complete within 30 days of the date of receipt and can request the additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the District Engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the District Engineer. The prospective permittee shall not begin the activity:

(1) Until notified in writing by the District Engineer that the activity may proceed

under the NWP with any special conditions imposed by the District or Division Engineer; or

(2) If notified in writing by the District or Division Engineer that an individual permit is required; or

(3) Unless 45 days have passed from the District Engineer's receipt of the complete notification and the prospective permittee has not received written notice from the District or Division Engineer. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Notification: The notification must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) Brief description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause; any other NWP(s), Regional General Permit(s), or Individual Permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP (Sketches usually clarify the project and when provided result in a quicker decision.);

(4) For NWPs 7, 12, 14, 18, 21, 34, 38, 39, 40, 41, 42, and 43, the PCN must also include a delineation of affected special aquatic sites, including wetlands, vegetated shallows (e.g., submerged aquatic vegetation, seagrass beds), and riffle and pool complexes (see paragraph 13(f));

(5) For NWP 7 (Outfall Structures and Maintenance), the PCN must include information regarding the original design capacities and configurations of those areas of the facility where maintenance dredging or excavation is proposed.

(6) For NWP 14 (Linear Transportation Crossings), the PCN must include a compensatory mitigation proposal to offset permanent losses of waters of the US and a statement describing how temporary losses of waters of the US will be minimized to the maximum extent practicable;

(7) For NWP 21 (Surface Coal Mining Activities), the PCN must include an Office of Surface Mining (OSM) or state-approved mitigation plan, if applicable. To be authorized by this NWP, the District Engineer must determine that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are minimal both individually and cumulatively and must notify the project sponsor of this determination in writing;

(8) For NWP 27 (Stream and Wetland Restoration Activities), the PCN must include documentation of the prior condition of the site that will be reverted by the permittee.

(9) For NWP 29 (Single-Family Housing), the PCN must also include:

(i) Any past use of this NWP by the individual permittee and/or the

permittee's spouse;
(ii) A statement that the single-family housing activity is for a personal residence of the permittee;
(iii) A description of the entire parcel, including its size, and a delineation of wetlands. For the purpose of this NWP, parcels of land measuring 1/4 acre or less will not require a formal on-site delineation. However, the applicant shall provide an indication of where the wetlands are and the amount of wetlands that exists on the property. For parcels greater than 1/4 acre in size, formal wetland delineation must be prepared in accordance with the current method required by the Corps. (See paragraph 13(f));
(iv) A written description of all land (including, if available, legal descriptions) owned by the prospective permittee and/or the prospective permittee's spouse, within a one mile radius of the parcel, in any form of ownership (including any land owned as a partner, corporation, joint tenant, co-tenant, or as a tenant-by-the-entirety) and any land on which a purchase and sale agreement or other contract for sale or purchase has been executed;

(10) For NWP 31 (Maintenance of Existing Flood Control Facilities), the prospective permittee must either notify the District Engineer with a PCN prior to each maintenance activity or submit a five year (or less) maintenance plan. In addition, the PCN must include all of the following:

(i) Sufficient baseline information identifying the approved channel depths and configurations and existing facilities. Minor deviations are authorized, provided that the approved flood control protection or drainage is not increased;
(ii) A delineation of any affected special aquatic sites, including wetlands; and,
(iii) Location of the dredged material disposal site;

(11) For NWP 33 (Temporary Construction, Access, and Dewatering), the PCN must also include a restoration plan of reasonable measures to avoid and minimize adverse effects to aquatic resources;
(12) For NWPs 39, 43, and 44, the PCN must also include a written statement to the District Engineer explaining how avoidance and minimization for losses of waters of the US were achieved on the project site;
(13) For NWP 39 and NWP 42, the PCN must include a compensatory mitigation proposal to offset losses of waters of the US or justification explaining why compensatory mitigation should not be required. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;
(14) For NWP 40 (Agricultural Activities), the PCN must include a compensatory mitigation proposal to offset losses of waters of the US. This NWP does not

authorize the relocation of greater than 300 linear-feet of existing serviceable drainage ditches constructed in non-tidal streams unless, for drainage ditches constructed in intermittent non-tidal streams, the District Engineer, waives this criterion in writing, and the District Engineer has determined that the project complies with all terms and conditions of this NWP, and that any adverse impacts of the project on the aquatic environment are minimal, both individually and cumulatively;
(15) For NWP 43 (Stormwater Management Facilities), the PCN must include, for the construction of new stormwater management facilities, a maintenance plan (in accordance with state and local requirements, if applicable) and a compensatory mitigation proposal to offset losses of waters of the US. For discharges that cause the loss of greater than 300 linear feet of an intermittent stream bed, to be authorized, the District Engineer must determine that the activity complies with the other terms and conditions of the NWP, determine adverse environmental effects are minimal both individually and cumulatively, and waive the limitation on stream impacts in writing before the permittee may proceed;
(16) For NWP 44 (Mining Activities), the PCN must include a description of all waters of the US adversely affected by the project, a description of measures taken to minimize adverse effects to waters of the US, a description of measures taken to comply with the criteria of the NWP, and a reclamation plan (for all aggregate mining activities in isolated waters and non-tidal wetlands adjacent to headwaters and any hard rock/mineral mining activities);
(17) For activities that may adversely affect Federally-listed endangered or threatened species, the PCN must include the name(s) of those endangered or threatened species that may be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work; and
(18) For activities that may affect historic properties listed in, or eligible for listing in, the National Register of Historic Places, the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property.

(c) Form of Notification: The standard Individual Permit application form (Form ENG 4345) may be used as the notification but must clearly indicate that it is a PCN and must include all of the information required in (b) (1)-(18) of General Condition 13. A letter containing the requisite information may also be used.

(d) District Engineer's Decision: In reviewing the PCN for the proposed activity, the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. The prospective permittee may submit a proposed mitigation plan with the PCN to expedite the process. The District Engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed work are minimal. If the District Engineer determines that the activity complies with the terms and conditions of the NWP

and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the District Engineer will notify the permittee and include any conditions the District Engineer deems necessary. The District Engineer must approve any compensatory mitigation proposal before the permittee commences work. If the prospective permittee is required to submit a compensatory mitigation proposal with the PCN, the proposal may be either conceptual or detailed. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the District Engineer will expeditiously review the proposed mitigation plan. The District Engineer must review the plan within 45 days of receiving a complete PCN and determine whether the conceptual or specific proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the District Engineer to be minimal, the District Engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP. If the District Engineer determines that the adverse effects of the proposed work are more than minimal, then the District Engineer will notify the applicant either:

(1) That the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an Individual Permit;
(2) that the project is authorized under the NWP subject to the applicant's submission of a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level; or
(3) that the project is authorized under the NWP with specific modifications or conditions.

Where the District Engineer determines that mitigation is required in order to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period. The authorization will include the necessary conceptual or specific mitigation or a requirement that the applicant submit a mitigation proposal that would reduce the adverse effects on the aquatic environment to the minimal level. When conceptual mitigation is included, or a mitgation plan is required under item (2) above, no work in waters of the US will occur until the District Engineer has approved a specific mitigation plan.

(e) Agency Coordination: The District Engineer will consider any comments from Federal and State agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level. For activities requiring notification to the District Engineer that result in the loss of greater than ½ acre of waters of the US, the District Engineer will provide immediately (e.g., via facsimile transmission, overnight mail, or other expeditious manner) a copy to the appropriate Federal or state offices (USFWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will then have 10 calendar days from the date the material is transmitted to telephone or fax the District Engineer notice that they intend to provide substantive, site-specific comments. If so contacted by an agency, the District Engineer will wait an additional 15 calendar days before making a decision on the notification. The District Engineer will fully consider agency comments received within the specified time frame, but will

provide no response to the resource agency, except as provided below. The District Engineer will indicate in the administrative record associated with each notification that the resource agencies' concerns were considered. As required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act, the District Engineer will provide a response to NMFS within 30 days of receipt of any Essential Fish Habitat conservation recommendations. Applicants are encouraged to provide the Corps multiple copies of notifications to expedite agency notification.

(f) Wetland Delineations: Wetland Delineations must be prepared in accordance with the current method required by the Corps (For NWP 29 see paragraph (b)(9)(iii) for parcels less than 1/4-acre in size). The permittee may ask the Corps to delineate the special aquatic site. There may be some delay if the Corps does the delineation. Furthermore, the 45-day period will not start until the wetland delineation has been completed and submitted to the Corps, where appropriate.

14. Compliance Certification. Every permittee who has received NWP verification from the Corps will submit a signed certification regarding the completed work and any required mitigation. The certification will be forwarded by the Corps with the authorization letter and will include:

(a) A statement that the authorized work was done in accordance with the Corps authorization, including any general or specific conditions;
(b) A statement that any required mitigation was completed in accordance with the permit conditions; and
(c) The signature of the permittee certifying the completion of the work and mitigation .

15. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the US authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit (e.g. if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the US for the total project cannot exceed 1/3-acre).

16. Water Supply Intakes. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in the proximity of a public water supply intake except where the activity is for repair of the public water supply intake structures or adjacent bank stabilization.

17. Shellfish Beds. No activity, including structures and work in navigable waters of the US or discharges of dredged or fill material, may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4.

18. Suitable Material. No activity, including structures and work in navigable waters of the US discharges of dredged or fill material, may consist of unsuitable material (e.g. trash, debris, car bodies, asphalt, etc.) and material used for construction or discharged must be free from toxic

pollutants in toxic amounts (see Section 307 of the CWA).

19. Mitigation. The District Engineer will consider the factors discussed below when determining the acceptability of appropriate and practicable mitigation necessary to offset adverse affects on the aquatic environment that are more than minimal.

(a) The project must be designed and constructed to avoid and minimize adverse effects to waters of the US to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing or compensating) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland impacts requiring a PCN, unless the District Engineer determines in writing that some other form of mitigation would be more environmentally appropriate and provides a project-specific waiver of this requirement. Consistent with National policy, the District Engineer will establish a preference for restoration of wetlands as compensatory mitigation, with preservation used only in exceptional circumstances.

(d) Compensatory mitigation (i.e., replacement or substitution of aquatic resources for those impacted) will not be used to increase the acreage losses allowed by the acreage limits of some of the NWPs. For example, 1/4-acre of wetlands cannot be created to change a 3/4-acre loss of wetlands to a ½-acre loss associated with NWP 39 verification. However, ½-acre of created wetlands can be used to reduce the impacts of a ½-acre loss of wetlands to the minimum impact level in order to meet the minimal impact requirement associated with NWPs.

(e) To be practicable, the mitigation must be available and capable of being done considering costs, existing technology, and logistics in light of the overall project purposes. Examples of mitigation that may be appropriate and practicable include, but are not limited to: reducing the size of the project; establishing and maintaining wetland or upland vegetated buffers to protect open waters such as streams; and replacing losses of aquatic resource functions and values by creating, restoring, enhancing, or preserving similar functions and values, preferably in the same watershed;

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the establishment, maintenance, and legal protection (e.g., easements, deed restrictions) of vegetated buffers to open waters. In many cases, vegetated buffers will be the only compensatory mitigation required. Vegetated buffers should consist of native species. The width of the vegetated buffers required will address documented water quality or aquatic habitat loss concerns. Normally, the vegetated buffer will be 25 to 50 feet wide on each side of the stream, but the District Engineer may require slightly wider vegetated buffers to address documented water quality or habitat loss concerns. Where both wetlands and open waters exist on the project site, the Corps will determine the appropriate compensatory mitigation (e.g., stream buffers or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where vegetated buffers are determined to be the most appropriate form of compensatory mitigation, the District Engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland impacts.

(g) Compensatory mitigation proposals submitted with the "notification" may be either conceptual or detailed. If conceptual plans are approved under the verification, then the Corps

will condition the verification to require detailed plans be submitted and approved by the Corps prior to construction of the authorized activity in waters of the US.

(h) Permittees may propose the use of mitigation banks, in-lieu fee arrangements or separate activity-specific compensatory mitigation. In all cases that require compensatory mitigation, the mitigation provisions will specify the party responsible for accomplishing and/or complying with the mitigation plan.

20. Spawning Areas. Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., excavate, fill, or smother downstream by substantial turbidity) of an important spawning area are not authorized.

21. Management of Water Flows. To the maximum extent practicable, the activity must be designed to maintain preconstruction downstream flow conditions (e.g., location, capacity, and flow rates). Furthermore, the activity must not permanently restrict or impede the passage of normal or expected high flows (unless the primary purpose of the fill is to impound waters) and the structure or discharge of dredged or fill material must withstand expected high flows. The activity must, to the maximum extent practicable, provide for retaining excess flows from the site, provide for maintaining surface flow rates from the site similar to preconstruction conditions, and provide for not increasing water flows from the project site, relocating water, or redirecting water flow beyond preconstruction conditions. Stream channelizing will be reduced to the minimal amount necessary, and the activity must, to the maximum extent practicable, reduce adverse effects such as flooding or erosion downstream and upstream of the project site, unless the activity is part of a larger system designed to manage water flows. In most cases, it will not be a requirement to conduct detailed studies and monitoring of water flow. This condition is only applicable to projects that have the potential to affect waterflows. While appropriate measures must be taken, it is not necessary to conduct detailed studies to identify such measures or require monitoring to ensure their effectiveness. Normally, the Corps will defer to state and local authorities regarding management of water flow.

22. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to the acceleration of the passage of water, and/or the restricting its flow shall be minimized to the maximum extent practicable. This includes structures and work in navigable waters of the US, or discharges of dredged or fill material.

23. Waterfowl Breeding Areas. Activities, including structures and work in navigable waters of the US or discharges of dredged or fill material, into breeding areas for migratory waterfowl must be avoided to the maximum extent practicable.

24. Removal of Temporary Fills. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

25. Designated Critical Resource Waters. Critical resource waters include, NOAA-designated

marine sanctuaries, National Estuarine Research Reserves, National Wild and Scenic Rivers, critical habitat for Federally listed threatened and endangered species, coral reefs, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the District Engineer after notice and opportunity for public comment. The District Engineer may also designate additional critical resource waters after notice and opportunity for comment.

(a) Except as noted below, discharges of dredged or fill material into waters of the US are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, and 44 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters. Discharges of dredged or fill materials into waters of the US may be authorized by the above NWPs in National Wild and Scenic Rivers if the activity complies with General Condition 7. Further, such discharges may be authorized in designated critical habitat for Federally listed threatened or endangered species if the activity complies with General Condition 11 and the USFWS or the NMFS has concurred in a determination of compliance with this condition.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with General Condition 13, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The District Engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

26. Fills Within 100-Year Floodplains. For purposes of this General Condition, 100-year floodplains will be identified through the existing Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Maps or FEMA-approved local floodplain maps.

(a) Discharges in Floodplain; Below Headwaters. Discharges of dredged or fill material into waters of the US within the mapped 100-year floodplain, below headwaters (i.e., five cfs), resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, 43, and 44.

(b) Discharges in Floodway; Above Headwaters. Discharges of dredged or fill material into waters of the US within the FEMA or locally mapped floodway, resulting in permanent above-grade fills, are not authorized by NWPs 39, 40, 42, and 44.

(c) The permittee must comply with any applicable FEMA-approved state or local floodplain management requirements.

27. Construction Period. For activities that have not been verified by the Corps and the project was commenced or under contract to commence by the expiration date of the NWP (or modification or revocation date), the work must be completed within 12-months after such date (including any modification that affects the project). For activities that have been verified and the project was commenced or under contract to commence within the verification period, the work must be completed by the date determined by the Corps. For projects that have been verified by the Corps, an extension of a Corps approved completion date may be requested. This request must be submitted at least one month before the previously approved completion date.

FURTHER INFORMATION

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other Federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

DEFINITIONS

Best Management Practices (BMPs): BMPs are policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural. A BMP policy may affect the limits on a development.

Compensatory Mitigation: For purposes of Section 10/404, compensatory mitigation is the restoration, creation, enhancement, or in exceptional circumstances, preservation of wetlands and/or other aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Creation: The establishment of a wetland or other aquatic resource where one did not formerly exist.

Enhancement: Activities conducted in existing wetlands or other aquatic resources that increase one or more aquatic functions.

Ephemeral Stream: An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Farm Tract: A unit of contiguous land under one ownership that is operated as a farm or part of a farm.

Flood Fringe: That portion of the 100-year floodplain outside of the floodway (often referred to as "floodway fringe").

Floodway: The area regulated by Federal, state, or local requirements to provide for the discharge of the base flood so the cumulative increase in water surface elevation is no more than a designated amount (not to exceed one foot as set by the National Flood Insurance Program) within the 100-year floodplain.

Independent Utility: A test to determine what constitutes a single and complete project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Intermittent Stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water from stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of Waters of the US: Waters of the US that include the filled area and other waters that are permanently adversely affected by flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent above-grade, at-grade, or below-grade fills that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the US is the threshold measurement of the impact to existing waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and values. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Impacts to ephemeral streams are not included in the linear foot measurement of loss of stream bed for the purpose of determining compliance with the linear foot limits of NWPs 39, 40, 42, and 43. Water of the US temporarily filled, flooded, excavated, or drained, but restored to preconstruction contours and elevations after construction, are not included in the measurement of loss of waters of the US.

Non-tidal Wetland: A non-tidal wetland is a wetland (i.e., a water of the US) that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open Water: An area that, during a year with normal patterns of precipitation, has standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. The term "open water" includes rivers, streams, lakes, and ponds. For the purposes of the NWPs, this term does not include ephemeral waters.

Perennial Stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Permanent Above-grade Fill: A discharge of dredged or fill material into waters of the US,

including wetlands, that results in a substantial increase in ground elevation and permanently converts part or all of the waterbody to dry land. Structural fills authorized by NWPs 3, 25, 36, etc. are not included.

Preservation: The protection of ecologically important wetlands or other aquatic resources in perpetuity through the implementation of appropriate legal and physical mechanisms. Preservation may include protection of upland areas adjacent to wetlands as necessary to ensure protection and/or enhancement of the overall aquatic ecosystem.

Restoration: Re-establishment of wetland and/or other aquatic resource characteristics and function(s) at a site where they have ceased to exist, or exist in a substantially degraded state.

Riffle and Pool Complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Single and Complete Project: The term single and complete project is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers (see definition of independent utility). For linear projects, the single and complete project (i.e., a single and complete crossing) will apply to each crossing of a separate water of the US (i.e., a single waterbody) at that location. An exception is for linear projects crossing a single waterbody several times at separate and distant locations: each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies.

Stormwater Management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater Management Facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and BMPs, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream Bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not

considered part of the stream bed.

Stream Channelization: The manipulation of a stream channel to increase the rate of water flow through the stream channel. Manipulation may include deepening, widening, straightening, armoring, or other activities that change the stream cross-section or other aspects of stream channel geometry to increase the rate of water flow through the stream channel. A channelized stream remains a water of the US, despite the modifications to increase the rate of water flow.

Tidal Wetland: A tidal wetland is a wetland (i.e., water of the US) that is inundated by tidal waters. The definition of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line (i.e., spring high tide line) and are inundated by tidal waters two times per lunar month, during spring high tides.

Vegetated Buffer: A vegetated upland or wetland area next to rivers, streams, lakes, or other open waters which separates the open water from developed areas, including agricultural land. Vegetated buffers provide a variety of aquatic habitat functions and values (e.g., aquatic habitat for fish and other aquatic organisms, moderation of water temperature changes, and detritus for aquatic food webs) and help improve or maintain local water quality. A vegetated buffer can be established by maintaining an existing vegetated area or planting native trees, shrubs, and herbaceous plants on land next to open-waters. Mowed lawns are not considered vegetated buffers because they provide little or no aquatic habitat functions and values. The establishment and maintenance of vegetated buffers is a method of compensatory mitigation that can be used in conjunction with te restoration, creation, enhancement, or preservation of aquatic habitats to ensure that activities authorized by NWPs result in minimal adverse effects to the aquatic environment. (See General Condition 19.)

Vegetated Shallows: Vegetated shallows are special aquatic sties under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: A waterbody is any area that in a normal year has water flowing or standing above ground to the extent that evidence of an ordinary high water mark is established. Wetlands contiguous to the waterbody are considered part of the waterbody.

REGIONAL GENERAL CONDITIONS

1. Notifications for all Nationwide permits should include a location map (USGS topographical map) and project drawings on 8.5" x 11" paper.

2. Nationwide Permits shall not authorize any activity which impact bogs and/or fens.

3. No Nationwide permit may be used in Lake Erie for purposes of diverting water from the Great Lakes.

4. In order to determine if a project meets the terms and conditions of the Ohio EPA's 401 water quality certification, two copies of the following information is necessary:

(a) All wetland delineations must include the latest approved version of the Ohio Rapid Assessment Method (ORAM) for wetland evaluation, long form. (This will assist OEPA in determining the category of wetland the applicant proposes to impact.)

(b) Photographs of the wetland.

NOTE: This information is in addition to the required information listed under General Condition 13 (Notification) of the NWP.

5. Notification is required for all work in the following designated Critical Resource Waters:

Special Habitat water of Lake Erie: Special habitat waters of Lake Erie including the shoreline, off shore islands, rock outcrops, and adjacent waters within the boundaries defined as 82 22' 30" West Longitude, 83 07' 30" West Longitude, 41 33' 00" North Latitude and 42 00' 00" North Latitude.

Piping Plover Critical Habitat: In Ohio, two areas have been designated critical habitat for the piping plover (Charadrius melodus) and are defined as lands 0.62 miles inland from normal high water line. Unit OH-1, extends from the mouth of Sawmill Creek to the western property boundary of Sheldon Marsh State Natural Area, Erie County, encompassing approximately 2.0 miles. Unit OH-2, extends from the eastern boundary line of Headland Dunes Nature Preserve to the western boundary of the Nature Preserve and Headland Dunes State Park, Lake County, encompassing approximately 0.5 mile.

Big and Little Darby Creeks (National Wild and Scenic River System): Big Darby Creek from Champaign-Union County line downstream to the Conrail railroad trestle and from the confluence with the Little Darby Creek downstream to the Scioto River. Little Darby Creek from the Lafayette-Plain City Road Bridge downstream to within 0.8 mile from the confluence with Big Darby Creek. Total designation is approximately 82 miles.

Little Beaver Creek (National Wild and Scenic River System): Little Beaver Creek main stem, from the confluence of West Fork with Middle Fork near Williamsport to mouth; North Fork from confluence of Brush Run and North Fork to confluence of North Fork with main stem at Fredericktown; Middle Fork from vicinity of Co. Rd. 901 (Elkton Road) bridge crossing to confluence of Middle Fork with West Fork near Williamsport; West Form from vicinity of Co. Rd. 914 (Y-Camp Road) bridge crossing east to

confluence of West Fork with Middle Fork near Williamsport. Total designation is 33 miles

Little Miami River: (Scenic component of the National System from Clifton to Foster) The portion from Foster to the Ohio River was designated a Recreational component of the National System. Total designation is 92 miles.

6. Notification is required for all activities in state Wild and Scenic Rivers (see list below). The following are **State Wild and Scenic Rivers**:

Little Miami River - Clermont County line at Loveland to headwaters, including North Fork, Clermont County line at Loveland to confluence with East Fork and from the confluence with East Fork to Ohio River. Miles designated (approximate): 105

Sandusky River - US Rt. 30 in Upper Sandusky to Roger Young Memorial Park in Fremont. Miles designated (approximate): 65

Olentangy River - Delaware Dam to Old Wilson Road in Worthington. Miles designated (approximate): 22

Little Beaver Creek - Wild segments - West Fork from 1/4 mile downstream from Twp. Rd. 914 to confluence with Middle Fork. North Fork from Twp. Rd. 952 to confluence with Little Beaver Creek. Little Beaver Creek from confluence of West and Middle Forks downstream to 3/4 mile north of Grimm's Bridge. Scenic segments - North Fork from Ohio-Pennsylvania line downstream to Jackman Road. Middle Fork from Elkton Rd. (Twp. Rd. 901) downstream to confluence with West Fork. Little Beaver Creek from 3/4 mile north of Grimm's Bridge downstream to the Ohio-Pennsylvania line. Miles designated (approximate): Wild 20, Scenic 16

Grand River - Wild segment - from Harpersfield covered bridge downstream to Norfolk and Western Railroad trestle south of Painesville. Scenic segment - from St. Rt. 322 bridge in Ashtabula County downstream to Harpersfield covered bridge. Miles designated (approximate): Scenic 33, Wild 23

Upper Cuyagoga River - Troy-Burton Township line in Geauga County to US Rt. 14. Miles designated (approximate): 25

Maumee River - Scenic segment - Ohio-Indiana line to St. Rt. 24 bridge west of Defiance. Recreational segment - St. Rt. 24 bridge west of Defiance to US Rt. 25 bridge near Perrysburg. Miles designated (approximate): Scenic 43, Recreational 53

Stillwater River System - Recreational segment - Englewood dam to confluence with Great Miami River. Scenic segments - Stillwater River from Riffle Road bridge in Darke Co. to Englewood dam. Greenville Creek from the Ohio-Indiana state line to the

confluence with the Stillwater. Miles designated (approximate): Scenic 83, Recreational 10

Chagrin River - Aurora Branch from St. Rt. 82 bridge downstream to confluence with Chagrin. Chagrin River from confluence with Aurora Branch downstream to St. Rt. 6 bridge. East Branch from Heath Road bridge downstream to confluence with Chagrin. Miles designated (approximate): 49

Big and Little Darby Creeks - Big Darby Creek from the Champaign-Union County line downstream to the U.S. Rt. 40 Bridge, from the northern boundary of Battelle-Darby Creek Metro Park to the confluence with the Little Darby Creek downstream to the Scioto River. Little Darby Creek from the Lafayette-Plain City Road Bridge downstream to the confluence with Big Darby Creek. Miles designated (approximate): 84

Kokosing River - Knox/Morrow County line to confluence with Mohican River. North Branch of Kokosing from confluence with East Branch downstream to confluence with main stem. Miles designated (approximate): 48

OHIO STATE CERTIFICATION GENERAL LIMITATIONS AND CONDITIONS (WATER QUALITY CERTIFICATION)

1. Streams

a) Temporary or permanent impacts to intermittent and perennial streams for any single and complete project are limited to a maximum of two hundred (200) linear feet [except for NWPs 3, 12, 21, 27, and 41];

b) Temporary or permanent impacts to ephemeral streams for any single and complete project are limited to a maximum of three hundred (300) linear feet [except for NWPs 3, 12, 21, 27, and 41];

c) Temporary or permanent impacts to Exceptional Warmwater Habitat (EWH), Cold Water Habitat (CWH), Seasonal Salmonid (SS), or any equivalent designation, or with an antidegradation category of State Resource Water, Superior High Quality Water (except as it applies to Lake Erie), Outstanding National Resource Waters, or Outstanding High Quality Waters are prohibited [except for NWP 3 and maintenance activities covered under NWP 7, 12, and 33];

d) Temporary or permanent impacts to the designated portions of national or state scenic rivers are prohibited [except for NWP 3 and maintenance activities under NWP 12];

e) Stream reconstruction activities shall adhere to natural channel design techniques;

f) Off-site stream or buffer improvements and/or mitigative measures required by the

Corps:

i. In order of priority, these measures shall focus on 1) the stream segment being impacted, 2) upstream segments and tributaries, 3) the receiving stream. The measures should, to the extent practicable, consider the causes and sources of impairment of the stream where the measures would be undertaken if the stream is listed as impaired in the most recent final report submitted to the United States environmental protection agency by the director of Ohio EPA to fulfill the requirements of Section 303(d) of the Clean Water Act. The current list of impaired streams, as of the date of this certification, can be found on the Ohio EPA web site at (Tables 1 through 6):
http://www.epa.state.oh.us/dsw/tmdl/303dnotc.html

ii. If the applicant cannot find appropriate mitigation on streams listed in section a) above, mitigation shall be in the Ohio EPA 8-digit watershed.

g) On-site stream or buffer improvements and/or mitigative measures required by the Corps:

i. Vegetative buffers on both stream banks an appropriate length; and

ii. A minimum width of 25 feet for preservation of existing vegetative buffers; or
iii. A minimum width of 50 feet for re-vegetating buffers cleared during construction.

h) Compensatory mitigation for linear projects (e.g., highways) in streams may be mitigated for by the following, in descending order of practicability:

i. Stream impacts associated with a linear project may be mitigated on-site, defined as within one mile of the linear project, in each Ohio EPA 8-digit watershed as shown in OAC 3745-1-54(F)(2); or
ii. Stream impacts associated with a linear project may be mitigated at a single stream mitigation location or stream mitigation bank (if and when such a bank is established), acceptable to the director, within each Ohio EPA 8-digit watershed in which the impacts occur; or
iii. If no stream mitigation bank, acceptable to the director, is located within the Ohio EPA 8-digit watershed in which the impact occurs, then mitigation may occur in another Ohio EPA 8-digit watershed impacted by the linear project; at a single stream mitigation location, or a stream mitigation bank acceptable to the director; or
iv. In no stream mitigation bank exists within any of the watersheds connected with the linear project, then mitigation should occur within the watershed in which the largest impacts (in terms of area) occur.

2. Wetlands

a) Temporary or permanent impacts to Category 3 wetlands are prohibited.

b) Temporary or permanent impacts to Category 1 and 2 wetlands for any single and complete project are limited to a maximum total of ½ acre [except for NWP 21 & 27].

c) Wetland mitigation shall adhere to the requirements set forth in Ohio EPA's Wetland Water Quality Standards (OAC 3745-1-50 through 54). [In the event that suitable mitigation cannot be located on-site (within one mile) or within the watershed, mitigation may be located outside of the watershed if there are significant ecological reasons to do so].

3. General

a) Impacts shall be measured linearly from upstream to downstream, including the length of stream impoundments, when calculating the total length of stream impacts [except for NWP 12, for which impacts shall be measured bank-to-bank].

b) NWPs cannot be combined to increase any of the aforementioned limitations.

c) Authorization under this Certification does not relieve the permittee from the responsibility of obtaining any other federal, state or local permits, approvals or authorizations required by law including without limitation, National Pollutant Discharge Elimination System (NPDES) permits or Permits to install (PTIs).

d) In order to control pollution of public waters by soil sediment from accelerated stream channel erosion and flood plain erosion caused by accelerated stormwater runoff from development areas, permittees shall comply with Ohio Administrative Code 1501:15-1-05 Stream Channel and Floodplain Erosion, or successor rule, as applicable to the project pursuant to OAC 1501:15-1-02.

e) OAC 1501:15-1-05 states that the peak rates of runoff from an area after development may be no greater than the peak rates of runoff from the same area before development for all twenty-four-hour storms from one to one-hundred-year frequency.

f) Locally required post development stormwater ponds shall incorporate specific design features for water quality such as those listed in Chapter One of the Ohio Department of Natural Resource's *Rainwater and Land Development: Ohio's Standards for Stormwater Management, Land Development and Urban Stream Protection, 2nd Ed. Mecklenburg, Dan. Ohio Department of Natural Resources, Division of Soil and Water Conservation 1996* (or successor document), to the extent allowed by local stormwater requirements. These features include: infiltration trenches, extended detention, wet pools, forebays, aquatic benches and wetlands, optimum flow length, reverse flow pipe, optimum pool depth, shading and buffer plants, and runoff reuse.

g) The Best Management Practices (BMPs) listed below shall be utilized with all NWPs when applicable.

i. The filling of, and discharge of dredged material into, Category 3 wetlands is

prohibited under this permit;
ii. Only suitable material, free of toxic contaminants in other than trace quantities, shall be used as fill material;
iii. The use of asphalt and rubber tires as fill is prohibited under this permit;
iv. All hydric topsoil removed from a trench shall be separated and saved for later placement as the topmost backfill layer when the trench is refilled;
v. The stockpiling of side-cast dredged material in wetlands in excess of three (3) months is prohibited;
vi. The applicant will comply with all requirements for final stabilization of the site contained in applicable NPDES construction stormwater permits for the site;
vii. Vegetated buffer strips extending to the top of both stream banks and beyond as stipulated by the Corps or Ohio EPA, using native tree and shrub species with rapid growth characteristics, shall be planted as soon as practicable after impacting stream channel slopes;
viii. Impacts to surface water buffer vegetation shall be minimized to the maximum extent practicable;

ix. Excavating equipment shall not be placed below the Ordinary High Water Mark (OHWM) of any surface water, except when no other alternative is practicable. When no other alternative is practicable to placing excavating equipment below the OHWM, entry to surface waters shall be through a single point of access per stream bank whenever practicable to minimize disturbance to buffer vegetation;
x. In-stream activities shall not result in the permanent destabilization of the stream banks or stream bed so that aquatic habitat from turbidity, erosion or scouring is minimized;
xi. In-stream work shall be conducted during low-flow conditions whenever practicable in order to minimize adverse impacts to water quality away from the project site, except in cases of emergency situations which threaten life or property;
xii. All dredged material placed at an upland site shall be controlled so that sediment runoff to remaining streams and wetlands is minimized to the maximum extent practicable; and
xiii. Disturbed areas shall be controlled so that sediment runoff to remaining streams and wetlands is minimized to the maximum extent practicable.

INFORMATION ON NATIONWIDE PERMIT VERIFICATION

Verification of the applicability of this Nationwide permit is valid for two years from the date of affirmation unless the Nationwide permit is modified, suspended or revoked. This verification will remain valid for two years if during this two year period the Nationwide permit is reissued without modification or your activity complies with any subsequent permit modification. Please note that if you commence or are under contract to commence this activity in reliance of your permit prior to the date this Nationwide permit is suspended or revoked, or is

modified such that your activity no longer complies with the terms and conditions, you have twelve months from the date of permit modification, expiration, or revocation to complete the activity under the present terms and conditions of this permit, unless this permit has been subject to the provisions of discretionary authority.

It is your responsibility to remain informed of changes to the Nationwide Permit program. A public notice announcing any changes will be issued when they occur. Finally, note that if your activity is not undertaken within the two year period or the project specifications have changed, you must immediately notify this office to determine the need for further approval or reverification.

Possession of this permit does not obviate you of the need to contact all appropriate state and/or local government officials to insure that the project complies with their requirements.

SPECIAL PROVISIONS

FRANKLIN COUNTY
FLOODPLAIN PERMIT

CO-RT-SEC

FRA-104-1.29
PID: 16577

DATE: 10/01/07

Franklin County
Where Government Works

Economic Development & Planning Department
James Schimmer, Director

October 1, 2007

ODOT District 6
Attn: Janice Gartner
400 E. William St.
Columbus, OH 43015

Re: State Route 104 bridge over Plum Run, Jackson Township, Franklin County

Ms. Gartner:

This correspondence is in reference to the request for approval of a National Flood Insurance Program (NFIP) Development Permit for the above-mentioned bridge. The plans submitted with the application for the development permit match the plans approved by Franklin County for the FEMA approved CLOMR 07-05-4831R. I have included a copy of the approved NFIP Development Permit. Upon completion of the project ODOT will need to apply to FEMA for a LOMR to ensure that the construction was completed as indicated in the plans submitted for the CLOMR. The LOMR application will require community acknowledgement by Franklin County.

If you have any questions please feel free to contact me at 614-719-8832 or by email at mybrown@franklincountyohio.gov

Sincerely,

Matt Brown
Planner

Enclosures

280 East Broad Street, Columbus, Ohio 43215-6304
Tel: 614-462-3094 Fax: 614-462-7155 www FranklinCountyOhio gov

NATIONAL FLOOD INSURANCE PROGRAM (NFIP) DEVELOPMENT PERMIT # NFIP 07-16
UNINCORPORATED FRANKLIN COUNTY, OHIO; FEMA COMMUNITY #390167

FRANKLIN COUNTY DEVELOPMENT DEPARTMENT
280 East Broad Street, Room 202
Columbus, Ohio 43215-6304
(614) 462-3094

A. Applicant (Name & Mailing Address), ODOT District 6
Attn: Janice Gartner
400 E. William St.
Delaware OH 43015
(740)833-8362
Telephone: _____ Date: 9/10/07

B Address/Location of Project: S.R. 164 over Plum Run

Tax District/Parcel Number _____ Township: Jackson

NFIP Watercourse: Plum Run Panel # 333G Zone: Floodway & AE

Base Flood Elevation. 719.8720 Flood Protection Elevation:

C. Nature of Proposed Activity Bridge widening over Plum Run to accomodate left turn lane at S.R. 665.

D. Zoning Case Number. _____ Action:

Comments:

D. NFIP Hearing Date: _____ Action:

Comments:

E. Elevation Certificates.

F. Applicant's Signature: Janice Gartner on behalf of ODOT Date: 9/10/07

NFIP Action: ☒ Approval ☐ Denial

Comments: Submitted Plans match plans approved for CLOMR.
Must receive all required State and/or Federal permits.

NFIP Permit Issued by "The Franklin County Development Department" under the authority of Franklin County NFIP Regulation

_____ Date: 10-1-07

GEOLOGY OF THE SITE

GEOLOGICALLY, THE AREA LIES ON THE GLACIATED COLUMBUS LOWLAND OF THE SOUTHERN OHIO LOAMY TILL PLAIN. LOWLANDS, SURROUNDED BY RELATIVE UPLANDS AND INTERVENING END AND RECESSIONAL MORAINES, CHARACTERIZE THIS AREA. MORAINES ARE DEPOSITED WHEN DEBRIS MELTS OUT OF THE ICE SHEET, WHILE THE GLACIER IS EITHER ADVANCING OR RETREATING FOR A PERIOD OF TIME. OUTWASH DEPOSITS ARE ALSO PREVALENT ALONG PLUM RUN, AS SEEN BY THE SAND AND GRAVEL LAYERS ENCOUNTERED IN THE BORING LOGS. BASED ON THE BORINGS DRILLED AND THE BEDROCK TOPOGRAPHY MAP OF THE COMMERCIAL POINT, OHIO QUADRANGLE, OBTAINED FROM THE OHIO DEPARTMENT OF NATURAL RESOURCES (ODNR), THE TOP OF BEDROCK UNDERLYING THE SITE FORMS A NARROW VALLEY, THAT ROUGHLY FOLLOWS THE SCIOTO RIVER, AND SLOPES UPWARD FROM THE TOWN OF SHADEVILLE TOWARDS THE SITE. THE BEDROCK SURFACE RANGES BETWEEN ELEVATIONS 600 AND 630 FEET. BEDROCK IS AT APPROXIMATELY 620 TO 630 FEET AT THE BRIDGE LOCATION. THE UNDERLYING BEDROCK CONSISTS OF DEVONIAN-AGED SHALE OF THE OHIO-OLENTANGY SHALE UNDIVIDED FORMATION.

EXPLORATION

TWO (2) ENGINEERING TEST BORINGS, DESIGNATED SB-1 AND SB-2, WERE DRILLED AT THE LOCATIONS SHOWN OH SHEET 2. THE BORING LOCATIONS WERE DESIGNATED AND FIELD STAKED BY REPRESENTATIVES OF RESOURCE INTERNATIONAL, INC. (RII). THE BORINGS WERE LOCATED APPROXIMATELY 15 FEET AWAY FROM THE APPROACH SLABS, ABOUT 10 FEET FROM THE CENTERLINE. THE BORINGS, DRILLED ON DECEMBER 17 AND 18, 2002, WERE DRILLED WITH A TRUCK MOUNTED ROTARY DRILLING MACHINE, UTILIZING 3.75-INCH HOLLOW-STEM AUGERS TO ADVANCE THE HOLES.

INVESTIGATIONAL FINDINGS AND OBSERVATIONS

BOTH BORINGS EXHIBITED APPROXIMATELY 10 INCHES OF ASPHALT OVERLYING 6 INCHES OF BASE MATERIAL. THE SUBSURFACE SOIL CONSISTS OF INTERBEDDED LAYERS OF COHESIVE AND GRANULAR SOIL. THE COHESIVE SOIL IS DESCRIBED AS BROWN, MEDIUM STIFF TO HARD, SANDY SILT OR CLAYEY SILT WITH LESSER AMOUNTS OF CLAY, SAND AND GRAVEL (ODOT A-4A AND A-6A). SOME LAYERS ARE DESCRIBED AS SILTY SAND LAYERS, WHICH ARE MORE GRANULAR THAN THE COHESIVE LAYERS DESCRIBED ABOVE, BUT HAVE SIMILAR CLASSIFICATION. THE GRANULAR SOIL IS GENERALLY DESCRIBED AS BROWN AND/OR GRAY, MEDIUM DENSE TO VERY DENSE, GRAVEL AND SAND WITH LESSER AMOUNTS OF SILT AND CLAY (ODOT A-1-B AND A-2-6). A MORE COMPREHENSIVE DESCRIPTION OF WHAT WAS ENCOUNTERED DURING THE DRILLING PROCESS MAY BE FOUND ON SHEETS 3 AND 4.

MANY SOIL PROPERTIES, INCLUDING SOIL CONSISTENCY AND SHEAR STRENGTH (OF COHESIVE SAMPLES), ARE PRIMARILY DERIVED FROM STANDARD PENETRATION BLOW COUNTS AND HAND PENETROMETER READINGS (PERFORMED ON COHESIVE SAMPLES IF APPLICABLE). BLOW COUNTS RANGED FROM 7 BPF TO REFUSAL. REFUSAL IS DEFINED AS OBTAINING IN EXCESS OF 50 BLOWS WITH LESS THAN 6 INCHES OF PENETRATION. THE UNCONFINED COMPRESSIVE STRENGTH OF THE SOIL, AS OBTAINED FROM THE HAND PENETROMETER, RANGED FROM 2.0 KSF TO IN EXCESS OF 9.0 KSF (THE LIMIT OF THE INSTRUMENT).

OVERALL, NATURAL MOISTURE CONTENTS OF THE SOIL SAMPLES TESTED RANGED FROM 8% TO 21%. THE NATURAL MOISTURE CONTENT OF THE COHESIVE SOIL SAMPLES TESTED FOR PLASTICITY INDEX WERE 1% BELOW THEIR CORRESPONDING PLASTIC LIMITS. IN GENERAL, THE SOIL EXHIBITED NATURAL MOISTURE CONTENTS ESTIMATED TO BE AT TO ABOVE OPTIMUM MOISTURE LEVELS.

GROUNDWATER WAS INITIALLY ENCOUNTERED IN THE BORINGS AS SHOWN ON THE FOLLOWING TABLE.

GROUNDWATER TABLE

BORING NO.	GROUNDWATER DEPTH INITIALLY ENCOUNTERED	GROUNDWATER DEPTH @ COMPLETION	CAVE-IN DEPTH
SB-1	16.5	15.0*	17.0
SB-2	15.5	17.5*	18.3

**CAVE-IN OF THE BOREHOLES OCCURED AFTER REMOVAL OF THE AUGERS WHICH MAY CAUSE INACCURATE GROUNDWATER LEVEL READINGS*

PLEASE NOTE THAT CAVE-IN OCCURRED IN BOTH BORINGS AFTER REMOVING THE AUGERS. THE CAVING LIKELY INFLUENCED THE GROUNDWATER READING (I.E., THE CAVED-IN MATERIAL MAY HAVE DISPLACED THE WATER IN THE BOREHOLE OR SMALL VOLUMES OF WATER SEEPAGE MAY HAVE COLLECTED ON TOP OF THE CAVED-IN SOIL [OR SOIL BRIDGE]). GROUNDWATER LEVELS AND/OR THE PRESENCE OF GROUNDWATER ARE CONSIDERED TO BE DEPENDENT ON SEASONAL FLUCTUATIONS IN PRECIPITATION.

LEGEND

Press and/or Drive Sample and/or Core Boring Location-Plan View.

Horizontal Bar on Boring Log indicates the Depth the Sample was Taken.

X/Y/Z — Figures Beside the Boring Log in Profile indicate the Number of Blows for Standard Penetration Test.

X = Number of Blows for First 6 Inches

Y = Number of Blows for Second 6 Inches

Z = Number of Blows for Third 6 Inches

W — Indicates Free Water level

▼ — Indicates Static Water level

Particle Size Definitions

Boulders	Cobbles	Gravel	C.Sand	F.Sand	Silt	Clay
8"	3"	No. 10	No. 40	No. 200		
		2.0mm	0.42mm	0.074mm		0.005mm

GENERAL INFORMATION

Borings are made by means of a truck mounted rotary drilling machine. Standard Penetration testing was performed at 2.5 to 5.0-foot intervals. The Standard Penetration Test (ASTM D 1586) is conducted by using a 140-pound hammer falling 30.0 inches to drive a 2-inch O.D. split-barrel sampler 18.0 inches Driving resistance is recorded on the boring logs in terms of blows per 6-inch interval of the driving distance. The second and third intervals are added to obtain the number of blows per foot.

The boring log sheet shows graphic plot of the information obtained, including depth and elevation of the sample, number of blows for the Standard Penetration Tests in three 6-inch increments, field sample number, and sample description based on laboratory tests and the Ohio Department of Transportation Classification System. Results of strength and consolidation testing, if performed, appear on separate enclosures.

At depths where materials are bouldery or gravelly to the extent that the sample cannot be driven, a wash sample is procured for visual classification to determine the general character of the material. These samples are not considered sufficiently representative to warrant laboratory testing.

Note--all available soil and bedrock information which can be conveniently shown on the structure foundation investigation sheets has been so reported. Additional subsurface investigations may have been made to study some special aspect of the project. Copies of the data, if any, may be inspected in the District Deputy Director's Office (District 6), The Soils Section of the Office of Roadway Engineering, or in the Office of Bridges at 1980 West Broad Street, Columbus, Ohio 43223.

The purpose of this subsurface investigation is to develop soils information specifically for foundation design purposes and is not intended to be used for construction estimating or bidding. Information shown was obtained for use in establishing design criteria for the project. The accuracy of the data presented is not guaranteed by the State of Ohio or Consultant and is not to be construed as part of the plans governing construction of the project.

RESOURCE INTERNATIONAL INC.
3481 ENTERPRISE DRIVE
WESTERVILLE, OHIO 43081
(614) 895-1959

DRAWN KAL | CHECKED GPH
DATE 3/31/03 | DATE 3/31/03

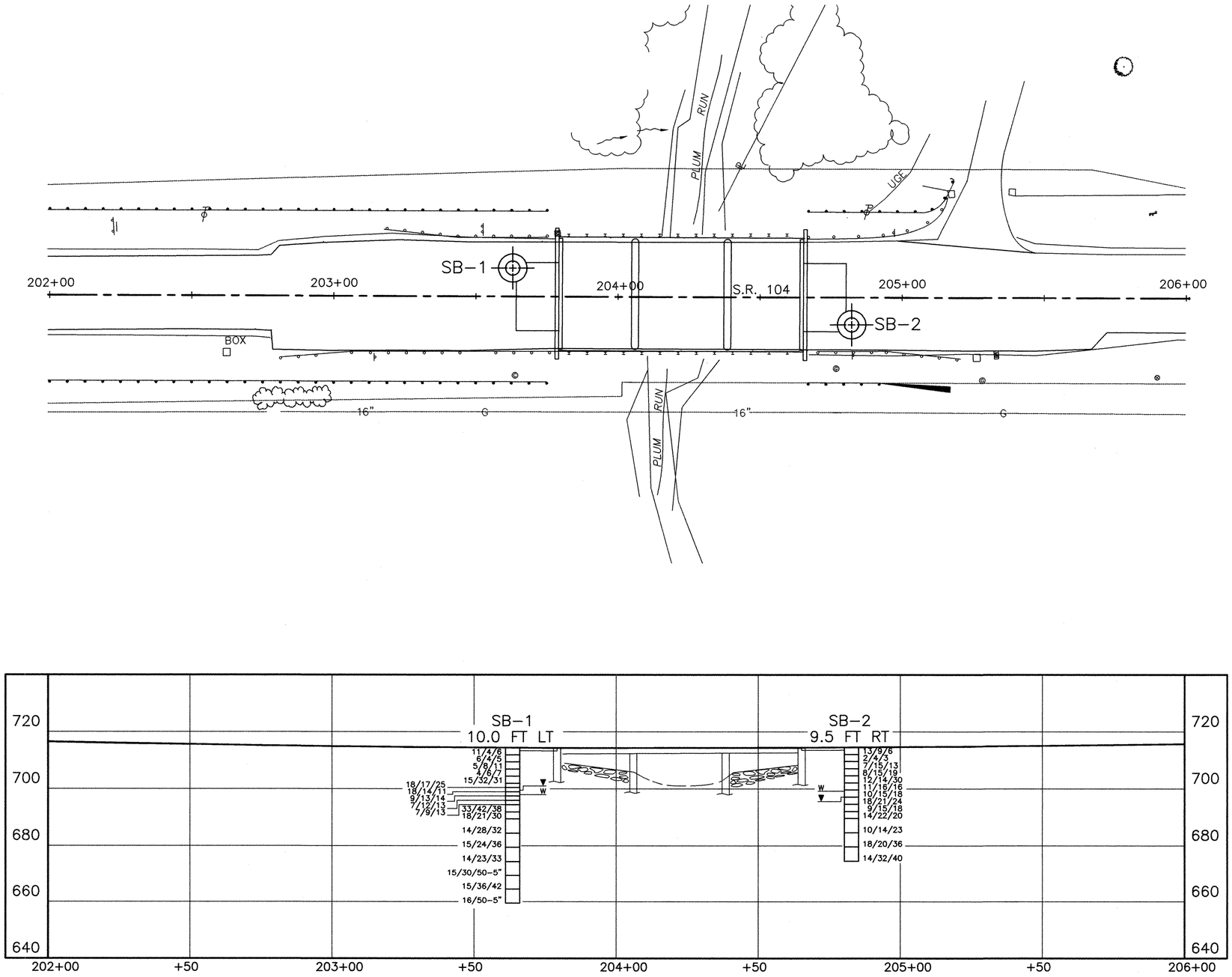
STRUCTURE FOUNDATION INVESTIGATION

SR 104 OVER PLUM RUN

FRA-104-1.24

1/4

RESOURCE INTERNATIONAL INC.
PROJECT NO. W-8106
FILENAME: 104-01-CVR.DWG
DATE: 3/31/03



PROFILE ALONG ℄ S.R. 104

RESOURCE INTERNATIONAL INC. FILENAME: 104-02-PP.DWG
PROJECT NO. W-8106 DATE: 3/31/03

DRAWN	REVIEWED	DATE	DATE	CHECKED
KAL		3/31/03	3/31/03	GPH

HORIZONTAL SCALE IN FEET
0 20 40

STRUCTURE FOUNDATION INVESTIGATION

SR 104 OVER PLUM RUN

FRA-104-1.24

2/4

Log of Boring

Date Started: 12/17/02 Sampler's Type 3.75" HSA Water Elev. 15.0* Ft

Date Finished: 12/17/02 * Cave-in @ 15.0 Ft

Boring No. SB-1 Station & Offset 203+63, 10' Lt Surface Elev. 714.35 ft

ELEV (FT)	DEPTH (FT)	STD. PEN/ RQD	REC. %	DESCRIPTION	SAMPLE NO.	PHYSICAL CHARACTERISTICS % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	ODOT CLASS
714.4				9.5" – Asphalt 0.8										
				6" – Sand and gravel base										
711.9		11 4 6	33	Brown SANDY SILT, some clay, trace gravel. 1.3	SS-1									
				–SS-1: ODOT A-6a										
709.4	5.0	6 4 5	39		SS-2	7	8	21	40	24	32	13	18	A-6a
				6.0										
706.9		5 8 11	22	Brown SANDY SILT, some clay, trace gravel. 7.5	SS-3									
				Brown GRAVEL and SAND, some silt and clay.										
704.4	10.0	4 6 7	44	–SS-4: Visual ODOT A-2-6	SS-4	35	22	8	35				10	VISUAL
				11.0										
701.9		15 32 31	61	Tan and brown SILTY SAND, little gravel, little clay. 12.5	SS-5	18	22	10	50					VISUAL
700.4		18 17 25	67	Tan and brown SILTY SAND, little gravel, little clay. 14.0	SS-6								11	
				–SS-6: Visual ODOT A-4a										
698.9	15.0	18 14 11	50	Tan and brown GRAVEL, some sand, little silt and clay.	SS-7									
697.4		9 13 14	44	–SS-8: Visual ODOT A-1-b	SS-8	58	15	6	21				11	VISUAL
				–groundwater initially encountered @ 16.5'										
695.9		7 12 13	56		SS-9									
694.4	20.0	7 9 13	56		SS-10									
				20.5										
				Gray SAND, some silt and clay, trace gravel.										
691.9		33 42 38	61	–SS-11: Visual ODOT A-3a 22.7	SS-11	2	22	50	26				13	VISUAL
				Gray CLAYEY SILT, some sand, little gravel.										
689.4	25.0	18 21 30	83		SS-12									
684.4	30.0	14 28 32	78		SS-13								10	
679.4	35.0	15 24 36	83		SS-14									
				37.5										
				Gray SANDY SILT, some clay, little gravel.										
674.4	40.0	14 23 33	78		SS-15								9	
669.4	45.0	15 30 50/5"	71		SS-16									
664.4	50.0	15 36 42	100		SS-17								10	

Boring No. SB-1 (CONTINUED)

ELEV (FT)	DEPTH (FT)	STD. PEN/ RQD	REC. %	DESCRIPTION	SAMPLE NO.	PHYSICAL CHARACTERISTICS % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	ODOT CLASS
660.4	55.0	16 50/5"	100	55.0	SS-18									

Bottom of Boring = 55.0 feet

FILENAME: 104-03-DATA.DWG
DATE: 3/31/03
RESOURCE INTERNATIONAL INC.
PROJECT NO. W-8106

RESOURCE INTERNATIONAL INC.
22 EAST MAIN STREET
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DRAWN KAL | REVIEWED GPH
DATE 3/31/03 | DATE 3/31/03

STRUCTURE FOUNDATION INVESTIGATION
SR 104 OVER PLUM RUN

FRA-104-1.24

3/4

Log of Boring

Date Started: 12/18/02 Sampler's Type 3.75" HSA Water Elev. 17.5*

Date Finished: 12/18/02 * Cave-in @ 17.5 Ft

Boring No. SB-2 Station & Offset 204+82, 9.5' Rt Surface Elev. 714.68 ft

ELEV (FT)	DEPTH (FT)	STD. PEN/ RQD	REC. %	DESCRIPTION	SAMPLE NO.	PHYSICAL CHARACTERISTICS % AGG.	% C.S.	% F.S.	% SILT	% CLAY	L.L.	P.I.	W.C.	ODOT CLASS
714.7				10.0" – Asphalt 0.8										
				6" – Sand and gravel base 1.3										
712.2		13 9 6	44	Brown SILTY SAND, little gravel, 3.0	SS-1									
				Brown SANDY SILT, some clay, little gravel.										
709.7	5.0	2 4 3	50	–SS-2: ODOT A-6a 5.5	SS-2	14	17	18	51		27	11	15	A-6a
				Brown SANDY SILT, some clay, little gravel.										
707.2		7 15 13	39	8.0	SS-3									
				Brown SANDY SILT, some clay, little gravel.										
704.7	10.0	8 15 19	78	–SS-4: Visual ODOT A-6a	SS-4	15	15	19	51				11	VISUAL
702.2		12 14 30	44	12.5	SS-5									
				Brown GRAVEL (limestone fragments), some SAND, some silt and clay. 15.0										
699.7	15.0	11 16 16	61	Brown SAND, some gravel, (limestone fragments), trace silt.	SS-6	44	19	12	25				8	VISUAL
697.2		10 15 18	78	–groundwater initially encountered @ 15.5'	SS-7									
694.7	20.0	18 21 24	67	21.0	SS-8									
				Brown changing to gray SAND, some gravel, some silt and clay.										
692.2		9 15 18	89		SS-9	26	31	23	20				21	VISUAL
689.7	25.0	14 22 20	22		SS-10									
684.7	30.0	10 14 23	83		SS-11								13	
				33.5										
				Brown changing to gray SAND, trace gravel, trace silt.										
679.7	35.0	18 20 36	89	37.0	SS-12									
				Gray CLAYEY SILT, some sand, trace gravel.										
674.7	40.0	14 32 40	67	40.0	SS-13								10	

Bottom of Boring = 40 feet

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STRUCTURE FOUNDATION INVESTIGATION
SR 104 OVER PLUM RUN

FRA-104-1.24

4/4

RESOURCE INTERNATIONAL INC. FILENAME: 104-04-DATA.DWG
PROJECT NO. W-8106 DATE: 3/31/03