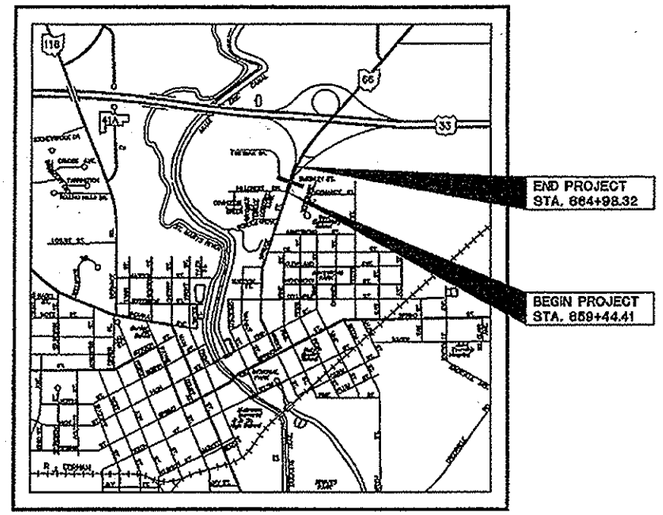
AUG - -66-12.50
140097 PID - 94726 Contract Proposal Available @ www.contracts.dot.state.oh.us/home
Dist 7 2/18/2014



LOCATION MAP

LATITUDE: N 40°-13'-33" LONGITUDE: W 84°-22'-58"

SCALE IN MILES
0 1.25 2.5 5

N

PORTION TO BE IMPROVED
STATE & FEDERAL ROUTES
OTHER ROADS

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

AUG-66-12.50

CITY OF ST. MARYS
NOBLE TOWNSHIP
AUGLAIZE COUNTY

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PROJECT DESCRIPTION

THE PROJECT CONSIST OF UPGRADING THE INTERSECTION OF STATE ROUTE 66 AND MCKINLEY ROAD/FORTMAN DRIVE INCLUDING WIDENING THE NORTH SIDE OF THE INTERSECTION, WITH THE INSTALLATION OF CURB AND GUTTER, PAVEMENT, AND STORM SEWER IMPROVEMENTS, AS WELL AS UPGRADING THE TRAFFIC SIGNAL.

LIMITED ACCESS

THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR IN ACCORDANCE WITH THE PROVISIONS OF SECTION 5511.02 OF THE OHIO REVISED CODE.

2013 SPECIFICATIONS

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

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.

DESIGN DESIGNATION

OPENING YEAR ADT (2014)	17120 (VEHICLES ENTERING INTERSECTION)
DESIGN YEAR ADT (2034)	21620 (VEHICLES ENTERING INTERSECTION)
DESIGN HOURLY VOLUME (2034)	2020
DIRECTIONAL DISTRIBUTION	50%
TRUCKS (24 HOUR B&C)	NB 5%, SB 7%, EB 2%, WB 10%
DESIGN SPEED	50 MPH SB, 35 MPH WB & NB, 25 MPH EB
LEGAL SPEED	50 MPH SB, 35 MPH WB & NB, 25 MPH EB

DESIGN FUNCTIONAL CLASSIFICATION –
URBAN MINOR ARTERIAL – SR 66
URBAN LOCAL – FORTMAN DRIVE/McKINLEY ROAD

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA	= 0.72 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA	= 0.25 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA	= 0.97 ACRES

DESIGN EXCEPTIONS

NONE REQUIRED

UNDERGROUND UTILITIES
CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG
CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY
OIL & GAS PRODUCERS PROTECTIVE
SERVICE CALL: 1-800-925-0988

PLAN PREPARED BY:

CHOICE ONE ENGINEERING
440 E. HOOVER ROAD
SIDNEY, OHIO 45365
(937) 497-9020
203 W. LOVELAND AVENUE
LOVELAND, OHIO 45140
(513) 239-8554
www.choiceoneengineering.com

ENGINEER'S SEAL:

STATE OF OHIO
ANTHONY V. SCHROEDER
52939
REGISTERED
PROFESSIONAL ENGINEER

SIGNED: Anthony V. Schroeder
DATE: 9-30-13

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	
				MT-95.31	07-19-13	TC-16.21	04-15-11			800	10-18-13
		CB-1.1	01-18-13	MT-95.41	07-19-13	TC-21.20	01-18-13	HL-10.13	10-16-09	821	04-20-12
				MT-95.50	07-19-13	TC-22.10	01-19-01	HL-20.11	01-19-07	921	04-20-12
				MT-97.10	07-19-13	TC-41.20	01-19-01	HL-30.11	01-18-13	987	01-16-09
				MT-97.12	07-19-13	TC-42.20	01-21-11	HL-30.21	10-21-11		
								HL-30.22	01-18-13		
BP-7.1	10-15-10			MT-99.20	07-19-13	TC-52.10	01-18-13				
				MT-101.70	07-19-13	TC-52.20	01-18-13	HL-40.10	01-19-07		
				MT-101.90	07-19-13	TC-71.10	10-19-12	HL-60.11	10-21-11		
				MT-105.10	07-19-13	TC-81.21	07-19-13	HL-60.12	10-21-11		
						TC-82.10	01-18-13			SPECIAL PROVISIONS	
		DM-1.1	01-18-13								
						TC-83.10	01-18-13				
						TC-83.20	04-20-12				
						TC-85.10	10-16-09				
						TC-85.20	01-18-13				

APPROVED
DATE 10-1-13 DIRECTOR OF PUBLIC SERVICE AND SAFETY

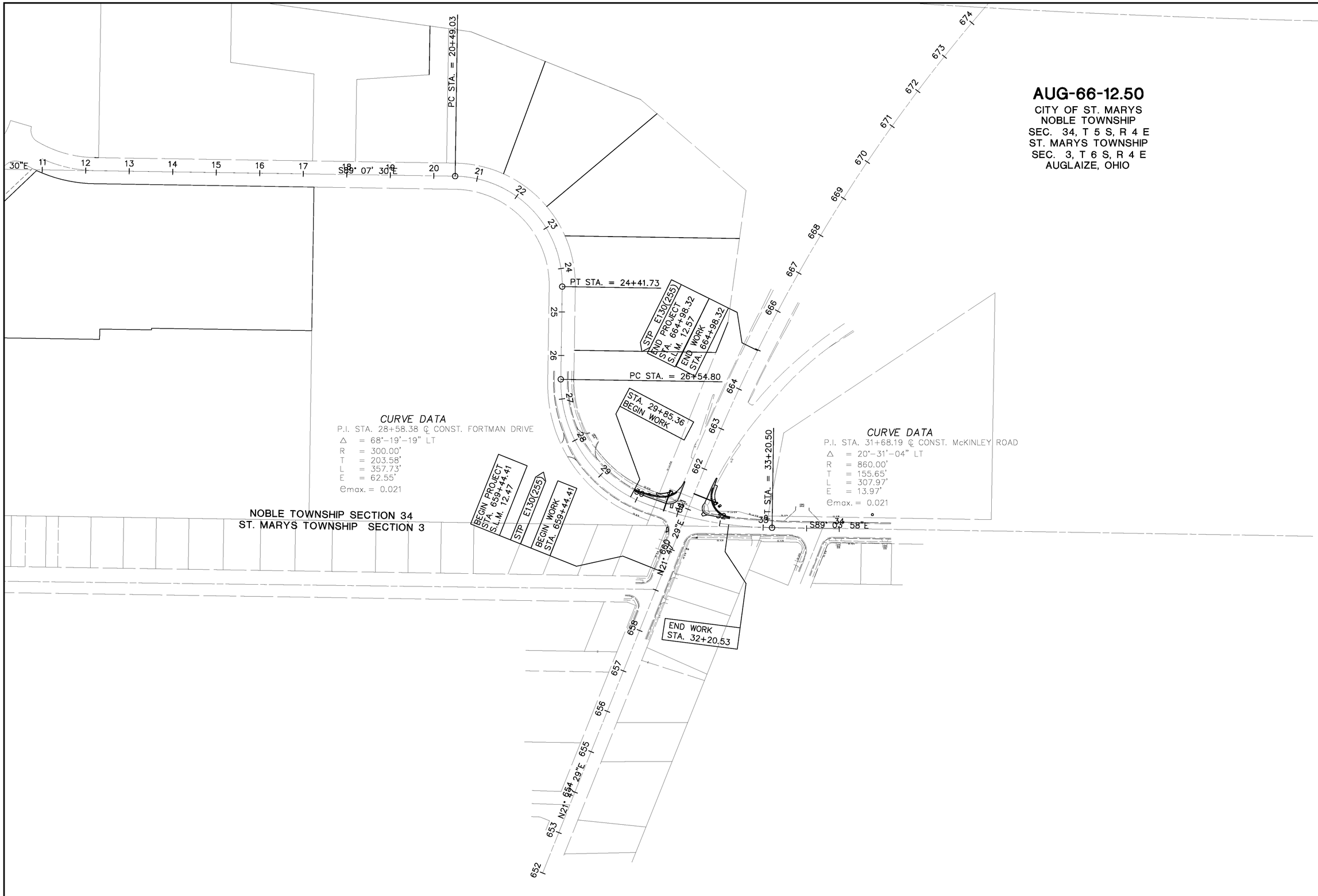
APPROVED Randy Chedley, P.E., P.S. / PRN
DATE 9/27/13 DISTRICT DEPUTY DIRECTOR

APPROVED
DATE 10-3-13 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E130(255)
PID NO. 94726
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
AUG-66-12.50

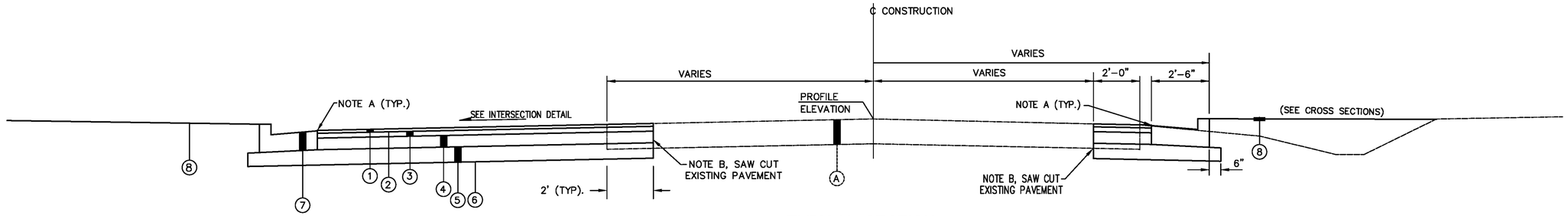
AUG-66-12.50

CITY OF ST. MARYS
NOBLE TOWNSHIP
SEC. 34, T 5 S, R 4 E
ST. MARYS TOWNSHIP
SEC. 3, T 6 S, R 4 E
AUGLAIZE, OHIO



SCHEMATIC PLAN

AUG-66-12.50



TYPICAL SECTION

STA. 29+85.36 TO STA. 32+20.53 = 235.17'
STA. 661+04.56 TO STA. 661+91.00 = 86.44'

NOTE A
ITEM 448 ASPHALT SURFACE COURSE IS TO BE LEVEL OR 1/8" ABOVE GUTTER PLATE.

NOTE B
TACK COAT FACE OF EXISTING PAVEMENT PRIOR TO ITEM 301 PLACEMENT AND ITEM 448 PLACEMENT, INCIDENTAL TO ITEM 448 ASPHALT CONCRETE.

LEGEND

1. ITEM 448, 2" ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG 64–22
2. ITEM 407, TACK COAT FOR INTERMEDIATE COURSE (APPLIED AT THE RATE OF 0.04 GALLONS PER SQUARE YARD)
3. ITEM 448, 2" ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, PG 64–22
4. ITEM 301, 6" ASPHALT CONCRETE BASE, PG 64–22
5. ITEM 304, 8" AGGREGATE BASE (IN TWO EQUAL LIFTS) (IF EXISTING PAVEMENT COMPOSITION IS THICKER THAN THE PROPOSED COMPOSITION, THE CONTRACTOR SHALL MATCH THE EXISTING PAVMENT COMPOSITION BY ADDING ADDITIONAL AGGREGATE BASE)
6. ITEM 204, SUBGRADE COMPACTION
7. ITEM 609, COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN
8. ITEM 659, SEEDING AND MULCHING

(A) EX. PAVEMENT AND BASE

PAVEMENT REPAIR LEGEND

FOR PLAN AND PROFILE SHEETS 12 AND 15

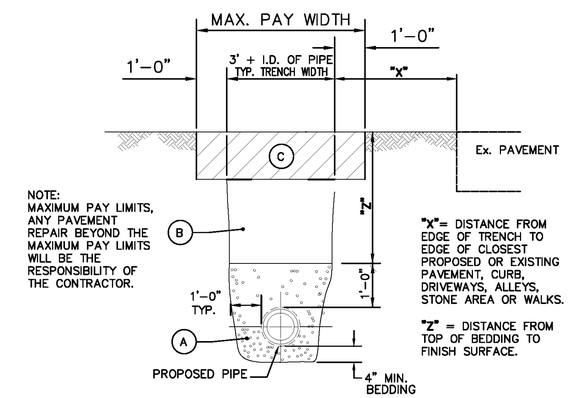
ASPHALT ROADWAY WIDENING
SEE TYPICAL SECTION ABOVE

CURB AND SIDEWALK:
ITEM 609, COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN

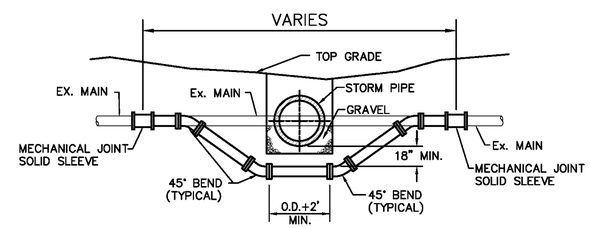
OR

ITEM 608, 4" CONCRETE WALK ON
ITEM 411, 3" STABILIZED CRUSHED AGGREGATE

CURB RAMP:
ITEM 608, CURB RAMP ON
ITEM 411, 3" STABILIZED CRUSHED AGGREGATE



TRENCH DETAIL



WATER RELOCATED GENERAL DETAIL

NOTE:
THE CITY WILL ONLY PAY UP TO THE MAXIMUM PAY WIDTH, UNLESS OTHERWISE SHOWN ON PLANS, FOR ITEM 304 AGGREGATE BASE, ITEM 448 ASPHALT CONCRETE, INTERMEDIATE COURSE, OR ITEM 448 ASPHALT CONCRETE, SURFACE COURSE, NO MATTER HOW DEEP THE STORM SEWER LINE IS OR WHAT THE EXISTING GROUND CONDITIONS ARE. IF THE CONTRACTOR IS ANTICIPATING MORE PAVEMENT REPAIR, THEY SHALL MAKE SURE IT IS PLACED IN THE BID PRICE.

TRENCH DETAIL NOTES

A. GRANULAR BEDDING SHALL BE WASHED GRAVEL (NO LIMESTONE), ODOT 603 TYPE 3 (#57 OR #67), OR OTHER APPROVED EQUIVALENT.

B. ALL TRENCHES WHERE "X" IS GREATER THAN "Z" FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS CAN BE COMPACTED EXISTING NATIVE MATERIAL IN 12" MAXIMUM LIFTS OR AS APPROVED BY THE CITY. NO MATERIAL SHALL BE USED FOR BACKFILLING THAT CONTAINS STONE, ROCKS, ETC., GREATER THAN 4" DIAMETER.

ALL TRENCHES WHERE "Z" IS GREATER THAN "X" FROM PROPOSED OR EXISTING PAVEMENT, CURB, DRIVEWAYS, ALLEYS, STONE AREA OR WALKS SHALL BE COMPACTED WITH GRANULAR BACKFILL MATERIAL ODOT 603 TYPE 1 OR TYPE 2, IN 6" MAXIMUM LIFTS OR LOW STRENGTH MORTAR BACKFILL ODOT ITEM 613 TYPE 1 UNTIL THE TOP OF THE COMPACTED GRANULAR BACKFILL OR LOW STRENGTH MORTAR BACKFILL IS HIGH ENOUGH WHERE "X" IS GREATER THAN "Z".

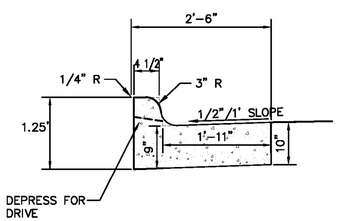
A DENSITY TEST ON GRANULAR BACKFILL OF 98% OF ASTM D698 STANDARD PROCTOR CURVE MAY BE REQUIRED TO BE PERFORMED BY A COMMERCIAL TESTING LAB SATISFACTORY TO THE CITY.

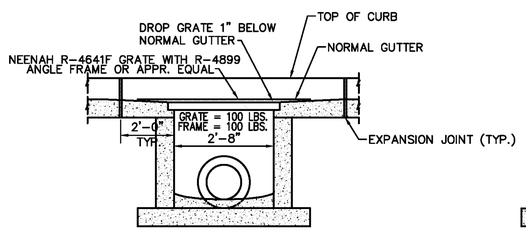
C. OFF–PAVEMENT AREAS SHALL BE PROVIDED WITH A MINIMUM OF 6" OF TOPSOIL OVER THE COMPACTED MATERIAL AND THEN SEEDED AND MULCHED PER ODOT ITEM 659.

IN–PAVEMENT AREAS SHALL FOLLOW TYPICAL SECTION.

D. THE OPEN ENDS OF ALL PIPES SHALL BE PLUGGED TO THE APPROVAL OF THE CITY BEFORE LEAVING THE WORK FOR THE NIGHT.

COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN





CURB AND GUTTER NOTES

1. CONCRETE SHALL BE ODOT QC MISC. (CEMENT ONLY – NO POZZOLAN MATERIAL) (SEE SPEC. 609, STATE OF OHIO CONSTRUCTION & MATERIAL SPECIFICATIONS).
2. A 1/4" CONTRACTION JOINT SHALL BE CONSTRUCTED AT 10' INTERVALS.
3. FORMS (METAL) MUST BE SET TRUE TO THE LINE AND GRADE AND MUST BE COATED OR OILED PRIOR TO THE PLACING OF ANY CONCRETE.
4. ALL FINISHED CONCRETE SHALL BE CURED IN ACCORDANCE WITH SPECIFICATIONS.
5. ALL EDGES AND JOINTS MUST BE DRESSED WITH PROPER TOOLS.
6. A 1" X 4" RECESS SHALL BE CONSTRUCTED INTO THE BACK OF THE CURB FOR SUPPORT, WHEREVER A PROPOSED SIDEWALK MEETS THE BACK OF PROPOSED CURB, AT ALL APPROACHES WALKS AND RADII THE FULL WIDTH OF THE PROPOSED WALK.

1. REFER TO SEC. 611 OF THE CONSTRUCTION AND MATERIAL SPECIFICATIONS, OHIO DEPT. OF TRANSPORTATION.
2. CASTING SIZE AND WEIGHT SHALL BE ESSENTIALLY THE SAME AND EQUALLY AS STRONG AS SPECIFIED ON STANDARD DETAIL #33
3. CATCH BASINS SHALL BE A MINIMUM OF 6" CONCRETE (PRECAST OR POURED IN PLACE)
4. BEARING AREAS OF FRAME AND GRATE SHALL BE SO FINISHED AS TO PROVIDE A FIRM AND EVEN SEAT FOR ALL PORTIONS OF THE GRATE IN THE FRAME AND NO PROJECTIONS SHALL EXIST ON BEARING AREAS.
5. PAYMENT FOR THE CURB AND GUTTER SHALL NOT BE INCLUDED IN THE PRICE BID FOR THE CATCH BASIN, UNLESS OTHERWISE NOTED.

CATCH BASIN MISC.- TYPE "A", AS PER PLAN DETAIL

CALCULATED bhb
CHECKED AVS

TYPICAL SECTION

AUG-66-12.50

UTILITIES

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

ELECTRIC, STORM, SEWER, WATER, SIGNAL, AND STREETS
MUNICIPAL UTILITY
OFFICE CITY HALL
101 EAST SPRING ST.
ST. MARYS, OHIO 45885
(419) 394-3303 ATTN:
CRAIG MOELLER

GAS
DOMINION EAST OHIO GAS
150 S. JACKSON
LIMA, OHIO 45801
(419) 226-4829
ATTN: BRIAN HOLDEN

HIGHWAY LIGHTING
ODOT
1001 ST. MARYS AVE.
SIDNEY, OHIO 45365
(937) 497-6841

TELEPHONE
VERIZON
301 GRANDLAKE ROAD
CELINA, OHIO 45822
(419) 586-1807
ATTN: DAVE FRITZ

TELEPHONE SERVICE COMPANY
2 WILLIPIE STREET
WAPAKONETA, OH 45895
(419) 739-220
ATTN: RANDY HEINEL

CABLE
TIME WARNER CABLE
3100 ELIDA ROAD
LIMA, OHIO 45805
(419) 996-2272
ATTN: GARY HOHENBRINK

OHIO UTILITIES PROTECTION SERVICE
2 WORKING DAYS BEFORE YOU DIG
CALL TOLL FREE 800-362-2764

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

ELEVATION DATUM

ALL ELEVATIONS ARE BASED ON U.S.G.S. AND CITY OF ST. MARYS DATUM. THE B.M.'S FOR THIS PROJECT CAN BE FOUND ON THE RESPECTIVE PLAN SHEETS.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NEITHER ORDER MATERIALS NOR PERFORM WORK FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY 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.

ITEM 659, SEEDING AND MULCHING

QUANTITIES FOR SEEDING AND MULCHING ARE CALCULATED FOR THE SOIL AREAS BETWEEN THE RIGHT-OF-WAY LINES AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT-OF-WAY LINES COVERED BY TEMPORARY EASEMENTS.

WORK LIMITS

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

DEWATERING

ANY NECESSARY DEWATERING OR PUMPING NECESSARY FOR THE CONSTRUCTION OF ANY ITEMS SHALL BE INCIDENTAL TO THOSE PARTICULAR CONSTRUCTION ITEMS.

GUARDRAIL REMOVED FOR STORAGE

GUARDRAIL ALONG SR 66 THAT IS TO BE REMOVED FOR STORAGE SHALL BE DELIVERED TO ODOT'S COUNTY GARAGE.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

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

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

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

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEMS.

REVIEW OF DRAINAGE FACILITIES

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

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

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

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 CONDUIT ITEMS.

SAWCUT PAVEMENT JOINTS

SAWCUT PAVEMENT JOINTS SHALL BE INCLUDED IN THE PAYMENT OF ITEM 448, ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG 64-22. ASPHALT MATERIAL SHALL BE PLACED ON THE VERTICAL FACE OF SAWCUT JOINTS PRIOR TO PAVING AS PER 401.14. AFTER THE ASPHALT WORK IS COMPLETED, THE TRANSVERSE JOINTS SHALL BE SEALED WITH LIQUID ASPHALT. THE JOINT PREPARATION AND SEALING SHALL BE INCLUDED IN THE PAYMENT FOR ITEM 448, ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, PG 64-22.

ITEM 606 ANCHOR ASSEMBLY, TYPE E

THIS ITEM SHALL CONSIST OF FURNISHING AND INSTALLING ANY OF THE GUARDRAIL END TERMINALS AS LISTED ON ROADWAY ENGINEERING'S WEB PAGE UNDER ROADSIDE SAFETY DEVICES FOR APPROVED GUARDRAIL END TREATMENTS. INSTALLATION SHALL BE AT THE LOCATIONS SPECIFIED IN THE PLANS, IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE FACE OF THE TYPE E IMPACT HEAD SHALL BE COVERED WITH A SHEET OF TYPE G REFLECTIVE SHEETING, PER CMS 730.19.

REFER TO THE MANUFACTURER'S INSTRUCTIONS 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 29 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 FOR ITEM 606, ANCHOR ASSEMBLY, TYPE E, 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.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

WHEN IT IS NECESSARY TO SPLICE PROPOSED GUARDRAIL TO EXISTING GUARDRAIL, ONLY THE EXISTING GUARDRAIL SHALL BE CUT, DRILLED, OR PUNCHED. THE CONNECTION SHALL BE MADE USING A "W-BEAM RAIL SPLICE" AS SHOWN IN AASHTO M 180. PAYMENT SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE RESPECTIVE GUARDRAIL ITEMS.

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, DO NOT OPERATE POWER-OPERATED CONSTRUCTION-TYPE DEVICES BETWEEN THE HOURS OF 9:00 PM AND 7:00 AM. IN ADDITION, DO NOT OPERATE AT ANY TIME ANY DEVICE IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

ITEM 638 WATER WORKS, MISC: 12" WATER MAIN RELOCATED, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF THE WORK AS DESCRIBED IN OHIO DEPARTMENT OF TRANSPORTATION ITEM 638 WATER MAINS AND SERVICE BRANCHES, EXCEPT AS HEREIN MODIFIED.

THIS ITEM OF WORK SHALL INCLUDE THE RELOCATION OF THE EXISTING WATER MAIN TO AVOID CONFLICTS WITH THE PROPOSED CONSTRUCTION. THE ADJUSTMENT TO THE WATER MAIN SHALL BE DONE PER THE DETAIL SHOWN HEREIN THE PLANS. ALL NEW APPURTENANCE, PIPE, BLOCKING, RESTRAINING GLANDS, MECHANICAL JOINT SOLID SLEEVE, BACKFILL, ETC. SHALL BE INCLUDED IN THIS ITEM OF WORK. THIS ITEM SHALL ONLY BE PERFORMED WITH PRIOR APPROVAL FROM THE ENGINEER. THE RELOCATED WATER MAIN SHALL BE OF THE SAME TYPE AS THE EXISTING, OR AN APPROVED ALTERNATIVE.

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

ITEM 638 WATER WORKS, MISC.: 12" WATER MAIN RELOCATED AS PER PLAN. 40 FT

THE ABOVE ARE ESTIMATED QUANTITIES, BUT THIS ITEM COULD BE NON-PERFORMED IF DEEMED UNNECESSARY OR EXCEED THE ESTIMATED QUANTITY.

PAYMENT FOR ITEM 638 WATER WORKS, MISC.: 12" WATER MAIN RELOCATED, AS PER PLAN, FOR ALL OPERATION DESCRIBED ABOVE SHALL BE AT THE CONTRACT FOOT BID PRICE AND SHALL INCLUDE ALL MATERIAL, LABOR, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

CALCULATED bhb CHECKED AVS

GENERAL NOTES

AUG-66-12.50

ITEM 614, MAINTAINING TRAFFIC, AS PER PLAN

IT IS THE INTENTION TO PERFORM THE REQUIRED WORK WITHIN THESE PLANS WITH THE LEAST INCONVENIENCE TO, AND THE MAXIMUM SAFETY OF, THE CONTRACTOR, LOCAL MERCHANTS, PEDESTRIAN TRAFFIC AND THE TRAVELING PUBLIC.

REQUIREMENTS FOR MAINTAINING TRAFFIC AS SPECIFIED IN THE "OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS" (CURRENT EDITION, LATEST REVISION), PERTINENT PROVISIONS OF THE "OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS" (INCLUDING SUPPLEMENTAL SPECIFICATIONS) AND APPLICABLE STANDARD CONSTRUCTION DRAWINGS SHALL APPLY TO THIS PROJECT IN ADDITION TO THE FOLLOWING NOTES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SAFE AND EFFECTIVE VEHICULAR TRAFFIC CONTROL 24 HOURS A DAY FOR THE DURATION OF THIS PROJECT. THIS WILL INCLUDE PROVIDING, PLACING, MAINTAINING AND SUBSEQUENTLY REMOVING ALL NECESSARY TRAFFIC CONTROL DEVICES FOR ALL PROPOSED CONSTRUCTION OPERATIONS.

BEFORE THE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAME(S) AND TELEPHONE NUMBER(S) OF A PERSON OR PERSONS WHO CAN BE CONTACTED 24 HOURS A DAY BY THE ENGINEER, OR ANY OTHER INTERESTED POLICE AGENCY.

THIS PERSON OR PERSONS SHALL BE RESPONSIBLE FOR REPAIRING AND/OR REPLACING ALL TRAFFIC CONTROL DEVICES NEEDED TO MAINTAIN THE SAFETY OF THE TRAVELED PAVEMENT FOR THE DURATION OF THIS PROJECT. THIS PERSON SHALL HAVE AVAILABLE ALL MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY TO PERFORM THE REQUIRED REPAIRS WITHIN A REASONABLE PERIOD OF TIME AS PER C.M.S. 614.04.

THE CONTRACTOR SHALL ALSO SUBMIT A CONSTRUCTION SEQUENCING SCHEDULE PRIOR TO WORK BEGINNING FOR APPROVAL BY THE ENGINEER. THE CONSTRUCTION SEQUENCING SCHEDULE SHALL TAKE INTO CONSIDERATION ALL ASPECTS OF THE PROJECT INCLUDING, HOW LOCAL TRAFFIC TO THE BUSINESSES WILL BE MAINTAINED. THE CONSTRUCTION SEQUENCE WILL NEED TO BE APPROVED BY THE ENGINEER PRIOR TO ANY COMMENCEMENT OF WORK.

ACCESS TO AND FROM ALL LOCAL RESIDENTIAL AND BUSINESS DRIVES WITHIN THE LIMITS OF THIS PROJECT SHALL BE MAINTAINED AT ALL TIMES (24 HOURS A DAY) BY USING THE EXISTING PAVEMENT, TEMPORARY PAVEMENT, AND THE PROPOSED PAVEMENT UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

WHERE MORE THAN ONE ACCESS TO A BUSINESS OR RESIDENCE EXISTS, ONLY ONE ACCESS NEEDS TO BE MAINTAINED AT A TIME. WHERE ONLY ONE DRIVE EXISTS, ACCESS SHALL BE MAINTAINED AT ALL TIMES BY CONSTRUCTION OF ONE-HALF OF THE DRIVEWAY AT ONE TIME SUBJECT TO THE APPROVAL OF THE ENGINEER.

TEMPORARY ACCESS SHALL BE PROVIDED TO ALL DRIVEWAYS AND ALLEYS WITH A CHANGE IN ELEVATION FROM DRIVEWAY ACCESS TO TEMPORARY DRIVE RAMP NOT TO EXCEED 1-1/2".

THE CONTRACTOR SHALL NOTIFY THE ENGINEER 21 DAYS PRIOR TO THE START OF ANY DETOUR OR LANE RESTRICTIONS. THE ENGINEER IS REQUIRED TO PROVIDE A 21 DAY NOTIFICATION PRIOR TO THE START OF DETOUR/LANE RESTRICTIONS TO ODOT. THIS DETOUR/LANE RESTRICTION COMMUNICATION MUST STATE DATE OF CLOSURE AND LENGTH OF CLOSURE. ALL LOCAL SCHOOLS AND EMERGENCY SERVICES WHICH ARE LIKELY TO UTILIZE THIS SECTION OF SR 66 ARE TO BE NOTIFIED OF THE DETOUR NOT LESS THAT 2 WEEKS PRIOR TO ROAD CLOSURE.

THE CONTRACTOR SHALL GIVE THE CITY OF ST. MARYS AND ODOT DISTRICT 7 ROADWAY SERVICE MANAGER A MINIMUM OF 21 CALENDAR DAYS NOTICE PRIOR TO CLOSING ANY ROAD OR MOVEMENT TO TRAFFIC.

CITY OF ST. MARYS
101 E. SPRING STREET
ST. MARYS, OHIO 45885
(419) 394-3303 EXT. 3118

ODOT ROADWAY SERVICES MANAGER
1001 ST. MARYS AVE.
P.O. BOX 969
SIDNEY, OHIO 45365
(937) 497-6890

ANY DAMAGE TO MAINTENANCE OF TRAFFIC EQUIPMENT SUCH AS SIGNS, DRUMS, ETC. SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR WILL BE REQUIRED TO PROVIDE, ERECT, MAINTAIN (IN PROPER POSITION, CLEAN AND LEGIBLE, AND IN GOOD WORKING CONDITION) AND SUBSEQUENTLY REMOVE ALL LIGHTS, SIGNS, CONES, BARRICADES, EXISTING PAVEMENT MARKINGS, AND ANY OTHER TRAFFIC CONTROL DEVICES NECESSARY FOR THE MAINTENANCE OF TRAFFIC.

THE CONTRACTOR SHALL ADJUST THE LOCATION AND/OR SPACING OF ALL TRAFFIC CONTROL CHANNELING DEVICES AS DICTATED BY THE PROGRESS OF THE REQUIRED WORK TO ALLOW CONSTRUCTION ACCESS TO WORK AREAS WHILE MAINTAINING SAFE AND EFFECTIVE TRAFFIC CONTROL DURING ALL CONSTRUCTION OPERATIONS. THE ORIGINAL LOCATION, PLACEMENT, SPACING AND SUBSEQUENT RELOCATION OR REMOVAL OF ALL TRAFFIC CONTROL DEVICES SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL.

IT IS INTENDED THAT THE LOCAL TRAFFIC NOT BE SUBJECTED TO ANY LANE CLOSURES UNLESS ACTIVE WORK IS BEING PERFORMED IN OR IMMEDIATELY ADJACENT TO THE CLOSED LANE. THE ROADWAY SHALL NOT BE RESTRICTED TO ANY LANE CLOSURE DURING PERIODS OF INTERMITTENT OR IRREGULAR WORK, NOR CLOSED SOLELY FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER SHALL MAKE THE FINAL DETERMINATION AS TO WHAT CONSTITUTES ACTIVE WORK AND WHETHER OR NOT THE LANE CLOSURE IS JUSTIFIED.

IF, IN THE OPINION OF THE ENGINEER, THE LANE CLOSURE IS NOT JUSTIFIED, THEY MAY ORDER ALL OR PART OF THE LANE CLOSURE REOPENED TO LOCAL TRAFFIC (UNTIL SUCH TIME THIS CONDITION IS CORRECTED.)

THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY INTENDED CHANGES TO ANY EXISTING OR TEMPORARY TRAFFIC CONTROL DEVICES AND SHALL OBTAIN THE ENGINEER'S APPROVAL PRIOR TO MAKING THE CHANGES. THE CONTRACTOR SHALL ALSO NOTIFY THE ENGINEER AND LOCAL NEWSPAPER 48 HOURS IN ADVANCE OF ANY INTENDED LANE CLOSURES.

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL FURNISH AND APPLY WATER FOR DUST CONTROL AS DIRECTED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER FOR MAINTENANCE OF TRAFFIC:

ITEM 616 WATER.....10 M GALLONS

CONSTRUCTION SEQUENCE

THE CONTRACTOR SHALL FURNISH AND INSTALL ADVANCE WARNING "ROAD WORK AHEAD" (W20-1) SIGNS AND "END ROAD WORK" (G20-2) SIGNS AS WELL AS OTHER NECESSARY MAINTENANCE OF TRAFFIC SIGNS.

THE CONTRACTOR SHALL PROVIDE AT LEAST 2 WEEKS NOTICE TO THE ENGINEER PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE PREPARED TO ADVANCE WORK WITHOUT DELAY.

THE WORK SHALL CONSIST OF:

1. FILL IN AND GRADE AREA IN THE NORTHEAST AND NORTHWEST CORNERS OF THE INTERSECTION TO THE PROPOSED ELEVATIONS. ONCE THE GRADING IS COMPLETE AND THE SOIL IS COMPACTED, THE CONTRACTOR SHALL INSTALL THE PROPOSED POLE FOUNDATIONS, POLES, CONTROLLER FOUNDATION, CONTROLLER CABINET, CONTROLLER, PULL BOXES, SIGNAL CONDUIT, AND ANYTHING ELSE NEEDED FOR THE PROPOSED TRAFFIC SIGNAL. THE CONTRACTOR SHALL KEEP THE EXISTING TRAFFIC SIGNAL UP AND RUNNING WHILE THIS WORK IS BEING PERFORMED. THIS WORK SHALL BE COMPLETED FIRST BEFORE PROCEEDING WITH ANY OTHER CONSTRUCTION.

2. SWITCH THE EXISTING TRAFFIC CONTROLLER FROM ACTUATED TO PRE-TIMED.
PHASE 2 & PHASE 6 (SR 66):
GREEN = 40 SECONDS
YELLOW = 4 SECONDS
ALL RED = 2 SECONDS
PED WALK = 7 SECONDS
FLASHING DON'T WALK = 21 SECONDS

PHASE 4 & PHASE 8 (FORTMAN DRIVE/McKINLEY ROAD):
GREEN = 25 SECONDS
YELLOW = 4 SECONDS
ALL RED = 2 SECONDS
PED WALK = 6 SECONDS
FLASHING DON'T WALK = 19 SECONDS

3. CONTRACTOR HAS THE OPTION TO INSTALL A 4-WAY STOP CONTROL AT THE INTERSECTION FOR A MAXIMUM OF 72 HOURS IN ORDER TO SWITCH THE EXISTING TRAFFIC SIGNAL OVER TO THE NEW TRAFFIC SIGNAL. THE EXISTING LANE USAGE SIGNS SHALL BE COVERED AND THE APPROPRIATE SIGNAGE SHALL BE TEMPORARILY INSTALLED (i.e. STOP AHEAD SIGNS (W3-1), STOP SIGN (R1-1), ETC.) FOR THE 4-WAY STOP IN ORDER TO PREPARE MOTORISTS TO STOP.

4. ONCE THE NEW TRAFFIC SIGNAL IS UP AND RUNNING, THE REST OF THE PROPOSED WORK CAN BE COMPLETED.

THE SEQUENCE OF CONSTRUCTION NEEDS TO PROVIDE A WORK AREA FOR THE CONTRACTOR WHILE ALSO MAINTAINING TRAFFIC IN A MANNER WHICH IS SAFE FOR THE TRAVELING AND PEDESTRIAN PUBLIC.

FOR MAINTENANCE OF LOCAL, BUSINESS, AND EMERGENCY VEHICLE TRAFFIC PURPOSES LOCAL TRAFFIC MUST BE MAINTAINED AT ALL TIMES. MINIMUM LANE WIDTHS OF 11 FT. SHALL BE PROVIDED AT ALL TIMES ALONG WITH ADEQUATE RADII AT INTERSECTIONS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIAL NEEDED FOR MAINTAINING TRAFFIC THROUGH ALL STAGES OF CONSTRUCTION IN ACCORDANCE WITH ITEM 614, INCLUDING STIPULATIONS STATED ELSEWHERE ON THESE PLANS, SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

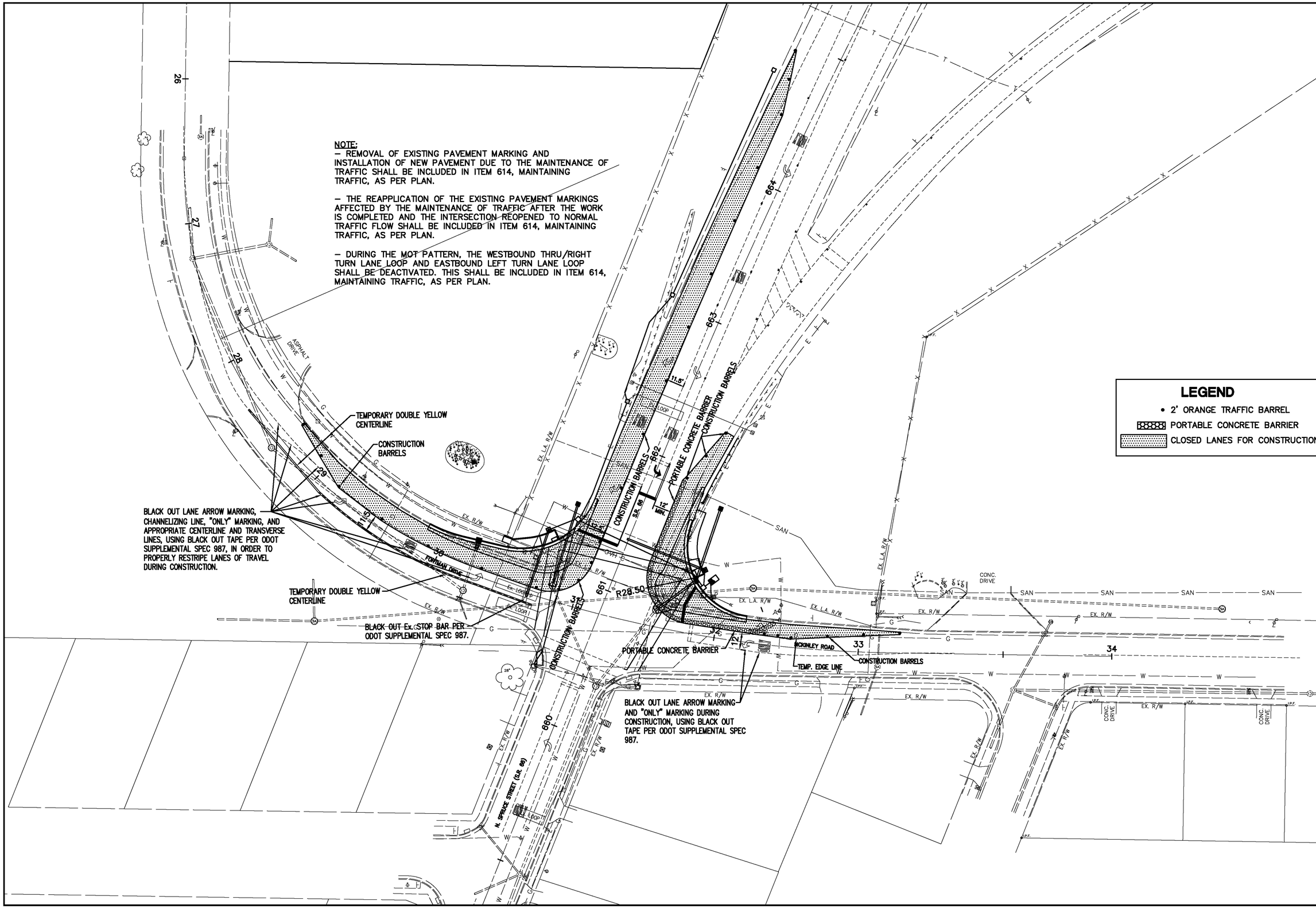
NOTIFICATION

THE CONTRACTOR SHALL NOTIFY THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 7 CONSTRUCTION ENGINEER TWO (2) WEEKS PRIOR TO BEGINNING WORK:

PHONE: 937-497-6722

ALTERNATE METHODS

THE CONTRACTOR MAY SUBMIT ALTERNATE METHODS FOR THE MAINTENANCE OF TRAFFIC, PROVIDED THE INTENT OF THE ABOVE PLAN PROVISIONS IS FOLLOWED AND NO ADDITIONAL INCONVENIENCE TO THE TRAVELING PUBLIC RESULTS THEREFROM. NO ALTERNATE PLAN SHALL BE PLACED INTO EFFECT UNTIL APPROVAL HAS BEEN GRANTED, IN WRITING, BY THE ENGINEER.



CALCULATED BHB
CHECKED AVS

MAINTENANCE OF TRAFFIC

AUG-66-12.50

SHEET NUMBER 4	10	11	ITEM	ITEM EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET No.
							ROADWAY	
	454		202	30000	454	SQ. FT.	WALK REMOVED	
	174		202	32500	174	FT	CURB AND GUTTER REMOVED	
	82		202	35100	82	FT	PIPE REMOVED, 24" AND UNDER	
	102		202	38100	102	FT	GUARDRAIL REMOVED FOR STORAGE	
	1		202	42000	1	EACH	ANCHOR ASSEMBLY REMOVED, TYPE A	
	4		202	58100	4	EACH	CATCH BASIN REMOVED	
		296	203	10000	296	CU. YD.	EXCAVATION	
		81	203	20000	81	CU. YD.	EMBANKMENT	
	345		204	10000	345	SQ. YD.	SUBGRADE COMPACTION	
	1		606	26100	1	EACH	ANCHOR ASSEMBLY, TYPE E	4
	416		608	10000	416	SQ. FT.	4" CONCRETE WALK	
	187		608	52000	187	SQ. FT.	CURB RAMP	
							EROSION CONTROL	
		78	659	00300	78	CU. YD.	TOPSOIL	
		700	659	10000	700	SQ. YD.	SEEDING AND MULCHING	
		35	659	14000	35	SQ. YD.	REPAIR SEEDING AND MULCHING	
		35	659	15000	35	SQ. YD.	INTER-SEEDING	
		0.09	659	20000	0.09	TON	COMMERCIAL FERTILIZER	
		4	659	35000	4	M GAL.	WATER	
							DRAINAGE	
	59		611	04400	59	FT	12" CONDUIT, TYPE B, 706.02	
	43		611	05900	43	FT	15" CONDUIT, TYPE B, 706.02	
	52		611	06100	52	FT	15" CONDUIT, TYPE C, 706.02	
	2		611	98470	2	EACH	CATCH BASIN, No. 2-2B	
	2		611	98690	2	EACH	CATCH BASIN, MISC.: TYPE A, AS PER PLAN	3
							PAVEMENT	
	47		301	46000	47	CU. YD.	ASPHALT CONCRETE BASE, PG 64-22	
	77		304	20000	77	CU. YD.	AGGREGATE BASE	
	11		407	14000	11	GAL.	TACK COAT FOR INTERMEDIATE COURSE	
	6		411	10000	6	CU. YD.	STABILIZED CRUSHED AGGREGATE	
	16		448	46050	16	CU. YD.	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG 64-22	
	16		448	47020	16	CU. YD.	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22	
	189		609	12001	189	FT	COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN	3
	25		609	26000	25	FT	CURB, TYPE 6	
							WATER WORKS	
40			638	98600	40	FT	WATER WORKS, MISC. 12" WATER MAIN RELOCATED, AS PER PLAN	4

CALCULATED gca CHECKED AVS

GENERAL SUMMARY

AUG-66-12.50

SHEET NUMBER																			ITEM	ITEM EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET No.
			21		27	28																		
																							LIGHTING	
			1																625	00450	1	EACH	CONNECTION, FUSED PULL APART	
			1																625	00460	1	EACH	CONNECTION, UNFUSED PULL APART	
			2																625	00480	2	EACH	CONNECTION, UNFUSED PERMANENT	
			1																625	14100	1	EACH	LIGHT POLE FOUNDATION, 24" X 8' DEEP	
			85																625	24000	85	FT	1-1/2" DUCT CABLE WITH TWO NO. 4 AWG 600 VOLT CABLES	
			1																625	30700	1	EACH	PULL BOX, 725.08, 18"	
			1																625	35011	1	EACH	REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN	21
			1																625	75500	1	EACH	LIGHT POLE FOUNDATION REMOVED	
																							TRAFFIC CONTROL	
					4														630	79100	4	EACH	SIGN HANGER ASSEMBLY, MAST ARM	
					30														630	80100	30	SQ. FT.	SIGN, FLAT SHEET	
						2													630	85100	2	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
						3													630	86010	3	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION	
						2													630	87520	2	EACH	REMOVAL OF POLE MOUNTED SIGN AND REERECTION	
						.01													644	00100	.01	MILE	EDGE LINE, 4"	
						.01													644	00300	.01	MILE	CENTER LINE	
						45													644	00400	45	FT	CHANNELIZING LINE, 8"	
						69													644	00500	69	FT	STOP LINE	
						440													644	00600	440	FT	CROSSWALK LINE	
						1													644	01300	1	EACH	LANE ARROW	
						231													644	30000	231	FT	REMOVAL OF PAVEMENT MARKING	
																							TRAFFIC SIGNALS	
					393														625	25409	393	FT	CONDUIT, 2", 725.051, AS PER PLAN	
					14														625	25505	14	FT	CONDUIT, 3", 725.051, AS PER PLAN	
					107														625	25909	107	FT	CONDUIT, JACKED OR DRILLED, 725.052, 3", AS PER PLAN	23
					100														625	25909	100	FT	CONDUIT, JACKED OR DRILLED, 725.052, 4", AS PER PLAN	23
					3														625	30700	3	EACH	PULL BOX, 725.08, 18"	
					2														625	30706	2	EACH	PULL BOX, 725.08, 24"	
					3														625	31510	3	EACH	PULL BOX REMOVED	
			1		3														625	32000	4	EACH	GROUND ROD	
					3														632	05001	3	EACH	VEHICULAR SIGNAL HEAD, LED, 3-SECTION, 12" LENS, 1-WAY, AS PER PLAN	23
					2														632	05081	2	EACH	VEHICULAR SIGNAL HEAD, LED, 5-SECTION, 12" LENS, 1-WAY, AS PER PLAN	23
					8														632	20731	8	EACH	PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN, TYPE D2, AS PER PLAN	23
					8														632	25000	8	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
					8														632	25010	8	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD	
					8														632	26001	8	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	23
					10														632	26501	10	EACH	DETECTOR LOOP, AS PER PLAN	
					1526														632	40300	1526	FT	SIGNAL CABLE, 3 CONDUCTOR, NO. 14 AWG	
					1558														632	40500	1558	FT	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
					1029														632	40700	1029	FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
					2														632	64010	2	EACH	SIGNAL SUPPORT FOUNDATION	
					2432														632	65200	2432	FT	LOOP DETECTOR LEAD-IN CABLE	
					40														632	68200	40	FT	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG	
					40														632	69500	40	FT	SERVICE CABLE, 2 CONDUCTOR, NO. 6 AWG	
					1														632	70001	1	EACH	POWER SERVICE, AS PER PLAN	23
					1														632	70400	1	EACH	CONDUIT RISER, 2" DIAMETER	
					1														632	80603	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 12, AS PER PLAN	23
					1														632	80621	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 13, AS PER PLAN	23
					1														632	90101	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION FOR STORAGE, AS PER PLAN	24
					3														632	90400	3	EACH	SIGNALIZATION, MISC.: UPGRADE EXISTING TRAFFIC SIGNAL HEAD BACK PLATE	24

CALCULATED bhb
CHECKED AVS

GENERAL SUMMARY

AUG-66-12.50

SHEET NUMBER																			ITEM	ITEM EXTENSION	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET No.
	5				27																			
																							TRAFFIC SIGNALS (CONTINUED)	
					1														633	01581	1	EACH	CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS-1,	24
																							(ECONOLITE ASC/3-2100), AS PER PLAN	
					1														633	67000	1	EACH	CABINET RISER	
					1														633	67100	1	EACH	CABINET FOUNDATION	
					1														633	67201	1	EACH	CONTROLLER WORK PAD, AS PER PLAN	24
																							MAINTENANCE OF TRAFFIC	
	10																		616	10000	10	M GAL	WATER	5
																			614	11001	LUMP		MAINTAINING TRAFFIC, AS PER PLAN	5
																			623	10000	LUMP		CONSTRUCTION LAYOUT STAKES AND SURVEYING	
																			624	10000	LUMP		MOBILIZATION	

CALCULATED bhb
CHECKED AVS

GENERAL SUMMARY

AUG-66-12.50

PAVEMENT QUANTITIES

SHEET NO.	REFERENCE NO.	STATION FROM	STATION TO or AT	SIDE	DISTANCE "D"	AVERAGE WIDTH "W"	SURFACE AREA A = D X W				204 SUBGRADE COMPACTION			301 6" ASPHALT CONCRETE BASE, PG64-22		304 AGGREGATE BASE			407 TACK COAT FOR INTERMEDIATE COURSE APPLIED AT 0.04 GAL PER SQ. YD.			448 ASPHALT CONCRETE INTERMEDIATE COURSE TYPE 2, PG. 64-22	448 ASPHALT CONCRETE SURFACE COURSE TYPE 1, PG. 64-22		609 COMBINATION CURB AND GUTTER, TYPE 2, AS PER PLAN	
							SQ. FT.				SQ. YD.			CU. YD.		CU. YD.			GAL.			CU. YD.	CU. YD.		FT.	
15	1P	29+85.36	30+83.05	LT	MEASURED IN CAD						33.67					7.50									101	
15	2P	29+85.36	30+96.67	LT	MEASURED IN CAD		1205.76				133.97			22.33		29.77			5.36			7.44	7.44			
15	3P	661+17.28	661+66.77	RT	MEASURED IN CAD						29.33					6.51									88	
15	4P	661+98.01	661+91.00	RT	MEASURED IN CAD		1335.60				148.40			24.73		32.98			5.94			8.24	8.24			
TOTALS (THIS SHEET)											345.37			47.06		76.76			11.3			15.68	15.68		189	
TOTALS CARRIED TO GENERAL SUMMARY											345			47		77			11			16	16		189	

ROADWAY QUANTITIES

REF. NO.	PLAN & PROFILE SHEET NO.	STATION FROM	STATION TO/AT	SIDE	202 CATCH BASIN REMOVED	202 CURB AND GUTTER REMOVED	202 WALK REMOVED	202 GUARDRAIL REMOVED FOR STORAGE	202 ANCHOR ASSEMBLY REMOVED, TYPE A	202 PIPE REMOVED, 24" AND UNDER				411 3" STABILIZED CRUSHED AGGREGATE		606 ANCHOR ASSEMBLY, TYPE E		611 12" CONDUIT, TYPE B, 706.02	611 15" CONDUIT, TYPE B, 706.02	611 15" CONDUIT, TYPE C, 706.02	611 CATCH BASIN, MISC.: TYPE A, AS PER PLAN	611 CATCH BASIN, NO 2-2B		608 4" CONCRETE WALK	608 CURB RAMP		609 CURB, TYPE 6
					EACH	FT	SQ. FT.	FT.	EACH	FT.				CU. YD.		EACH		FT.	FT.	FT.	EACH	EACH		SQ. FT.	SQ. FT.		FT.
1R	15		30+23.63	LT	1																						
2R	15	29+85.36	30+88.60	LT		101																					
3R	15	30+39.02	30+85.07	LT			258																				
4R	15	660+88.90	661+22.03	LT	1					34																	
5R	15	661+29.31	662+31.50	RT				102	1																		
6R	15	661+00.02	661+33.95	RT	1					35																	
7R	15	661+09.64	661+27.08	RT			158																				
8R	15	31+56.79	31+68.93	LT	1					13																	
9R	15	31+57.42	32+20.52	LT		73																					
1D	15		30+23.22	LT															8		1						
2D	15	660+88.90	661+47.83	LT														59				1					
3D	15	661+00.35	661+81.76	RT															35	52	1	1					
1SW	15	660+35.52	660+45.43	LT			38							0.35										38			
2SW	15	30+39.07	30+77.30	LT										2.30										156	93		25
3SW	15	661+30.48	661+74.95	RT										2.92										222	94		
GR1	15	661+81.50	662+31.50	RT												1											
TOTALS CARRIED TO GENERAL SUMMARY					4	174	454	102	1	82				6		1		59	43	52	2	2		416	187		25

CALCULATED MJT
CHECKED AVS

PAVEMENT CALCULATIONS/ESTIMATED QUANTITIES

AUG-66-12.50

EARTHWORK TABLE

SHEET NO.	LOCATION AND STATION	ITEM 203 EXCAVATION	ITEM 203 EMBANKMENT		ITEM 659 TOPSOIL	ITEM 659 SEEDING AND MULCHING	ITEM 659 REPAIR SEEDING AND MULCHING	ITEM 659 INTER-SEEDING	ITEM 659 COMMERCIAL FERTILIZER	ITEM 659 WATER
		CU. YD.	CU. YD.		CU. YD.	SQ. YD.	SQ. YD.	SQ. YD.	TON	M GAL.
	STATE ROUTE 66				TOTALS FOR ITEM 659 TOPSOIL CARRIED TO GENERAL SUMMARY 111 CU. YD. PER 1000 SQ. YD. OF PERMANENT SEED AREA = 700 SQ. YD./1000 X 111 CU. YD. = 77.70 CU. YD.		TOTALS FOR ITEM 659 REPAIR SEEDING AND MULCHING CARRIED TO GENERAL SUMMARY 5% OF THE PERMANENT SEEDING AND MULCHING AREA = 700 SQ. YD. X 5% = 35 SQ. YD.	TOTALS FOR ITEM 659 INTER-SEEDING CARRIED TO GENERAL SUMMARY 5% OF THE PERMANENT SEEDING AND MULCHING AREA = 700 SQ. YD. X 5% = 35 SQ. YD.	TOTALS FOR ITEM 659 COMMERCIAL FERTILIZER CARRIED TO GENERAL SUMMARY 700 SQ. YD. x 9/1000 X 30/2000 =0.09 TON PLUS INTER-SEEDING 35 SQ. YD. X 9/1000 X 20/2000 = 0.003 TON TOTAL = 0.09 + 0.003 = 0.09 TON	TOTALS FOR ITEM 659 WATER CARRIED TO GENERAL NOTES 700 SQ. YD. x 0.0027 M. GAL/SQ. YD. = 1.89 M. GAL X 2 APPLICATIONS = 3.78 M. GAL
13	STA. 659+50 TO STA. 661+00	56	0			11				
14	STA. 661+28 TO STA. 662+50	94	54			558				
	McKINLEY ROAD/ FORTMAN									
16	STA. 28+64.52 TO STA. 30+24.16	10	0			47				
17	STA. 30+50 T STA. 31+00	65	9			44				
18	STA. 31+50 TO STA. 32+00	50	12			15				
19	STA. 32+50 TO STA. 33+00	21	6			25				
TOTALS CARRIED TO GENERAL SUMMARY		296	81		78	700	35	35	0.09	4

CALCULATED bhb
CHECKED AVS

ESTIMATED QUANTITIES - EARTHWORK

AUG-66-12.50

BEGIN PROJECT
STA. 659+44.41
S.L.M. 12.47

STP E130(255)

BEGIN WORK
STA. 659+44.41

JAY NORTON &
CAROL BOEHRINGER
915 SPRUCE STREET
OR 512-1009

N. SPRUCE STREET (S.R. 66) CONST. LIMIT

660
N21° 47' 29"E

LARRY A. FRY
908 SPRUCE STREET
OR 566-460

END WORK
STA. 32+20.53

PROP. TYPE A CB #1
STA. 30+23.22, 23.77 LT

PROP. 2-2B CB #2
STA. 30+83.31, 69.16 LT

12" TYPE B

15" TYPE B

15" TYPE C

PROP. TYPE A CB #3
STA. 31+80.98, 36.81 LT

EX. POWER POLE TO BE RELOCATED, BY CTX

±81.50
TYPE E

PROP. TYPE 2-2B CB #4
STA. 31+89.68, 88.52 LT

±31.50

S.R. 66

661 662 663 664

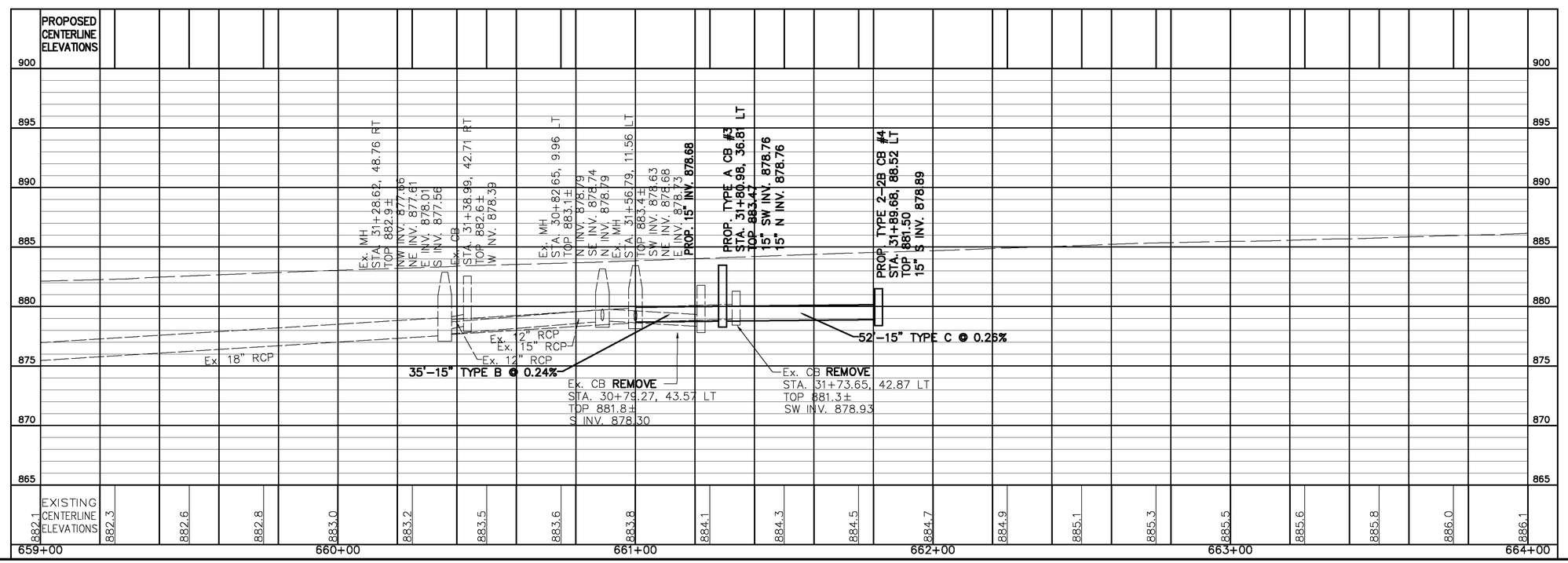
STP E130(255)

END PROJECT
STA. 664+98.32
S.L.M. 12.57

END WORK
STA. 664+98.32

BENCHMARK ELEV. 887.93
FIRE HYDRANT BOLT @ TIP OF
ARROW NORTH EAST CORNER OF
SPRUCE ST. AND FORTMAN DR.

BENCHMARK ELEV. 883.67
MONUMENT BOX #243 IN PAVEMENT
@ APPROX STA. 26+54

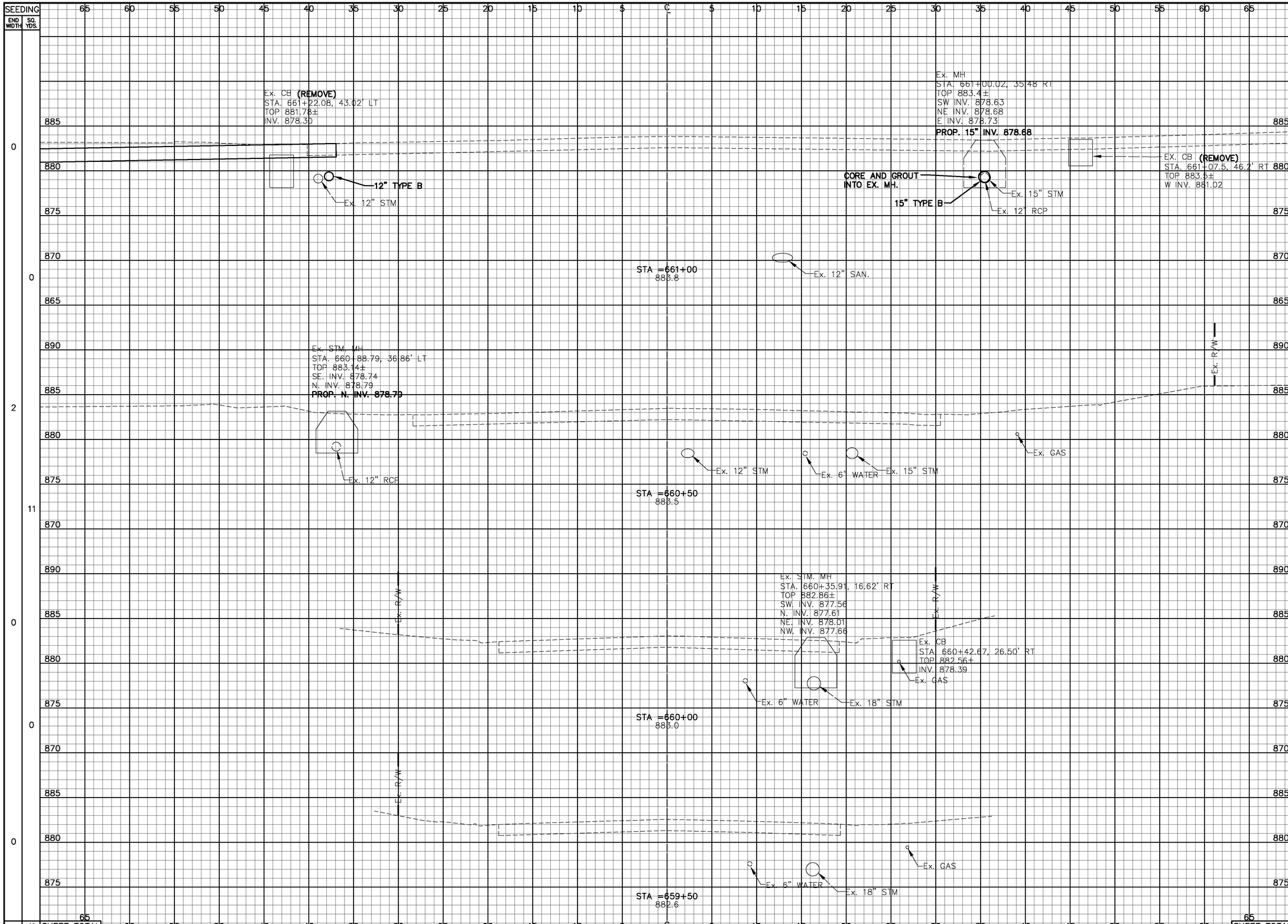


SCALE IN FEET
0 10 20 40

CALCULATED BHB
CHECKED AVS

PLAN AND PROFILE N. SPRUCE STREET (S.R. 66)
STA. 659+00 TO STA. 664+00

AUG-66-12.50

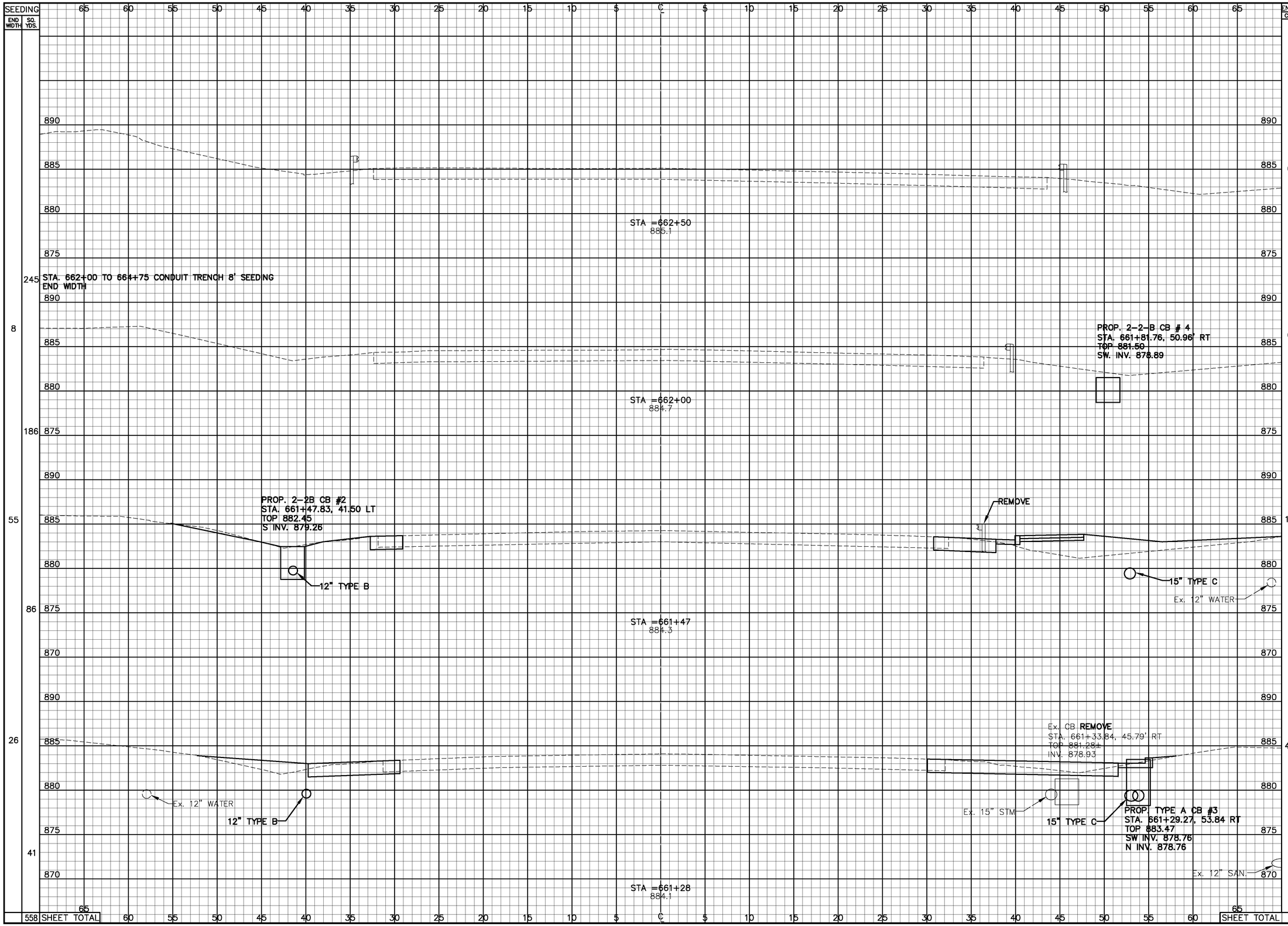


SEEDING END WIDTH	SEEDING SQ. YDS.	END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0	60	0		
				56	0
2		0	0		
11				0	0
0		0	0		
0				0	0
0		0	0		
11	SHEET TOTAL			56	0

CALCULATED BHB
CHECKED AVS

CROSS SECTIONS - N. SPRUCE ST. (S.R. 66)
STA. 659+50 TO STA. 661+00

AUG-66-12.50

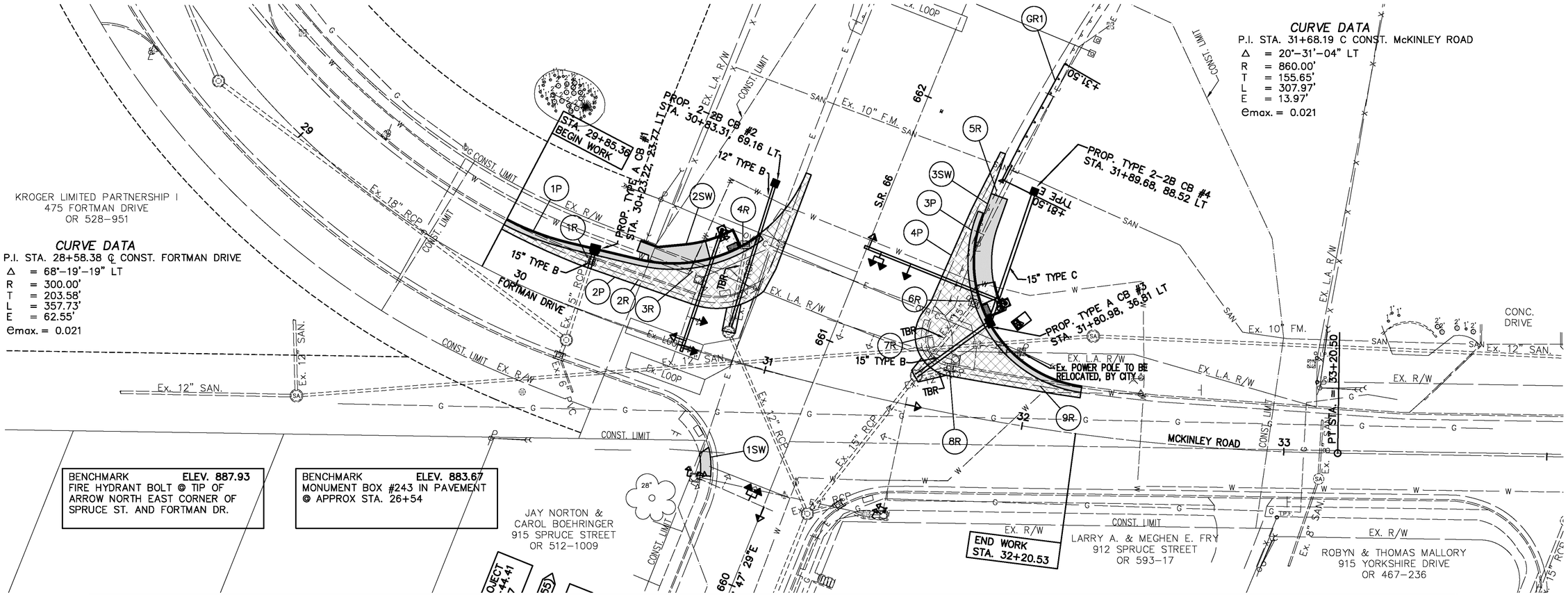


CALCULATED BHB

CHECKED AVS

CROSS SECTIONS - N. SPRUCE ST. (S.R. 66)
STA. 661+28 TO STA. 662+50

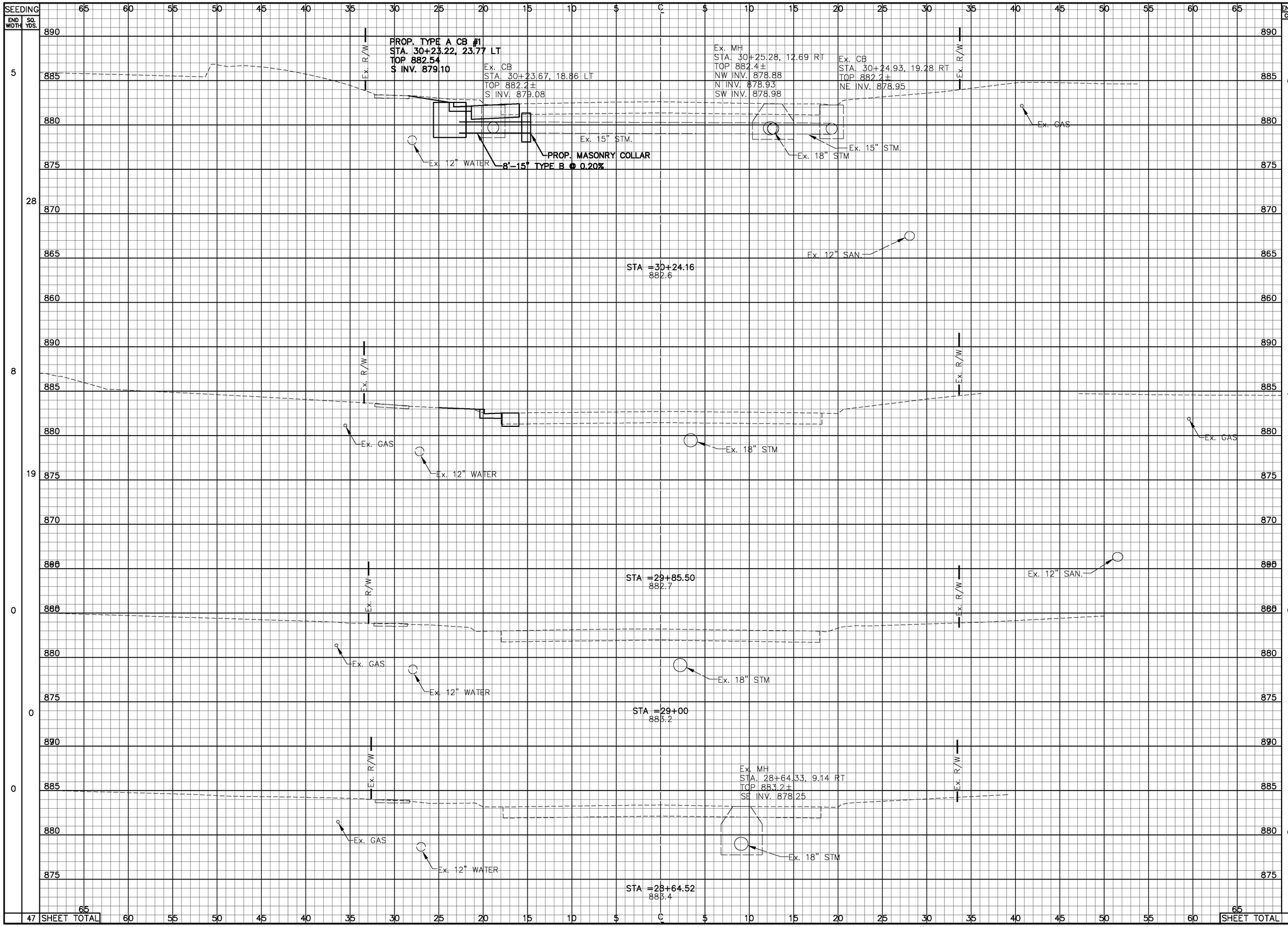
AUG-66-12.50



CALCULATED BHB
CHECKED AVS

PLAN AND PROFILE FORTMAN DRIVE/McKINLEY ROAD STA. 29+00 TO STA. 34+00

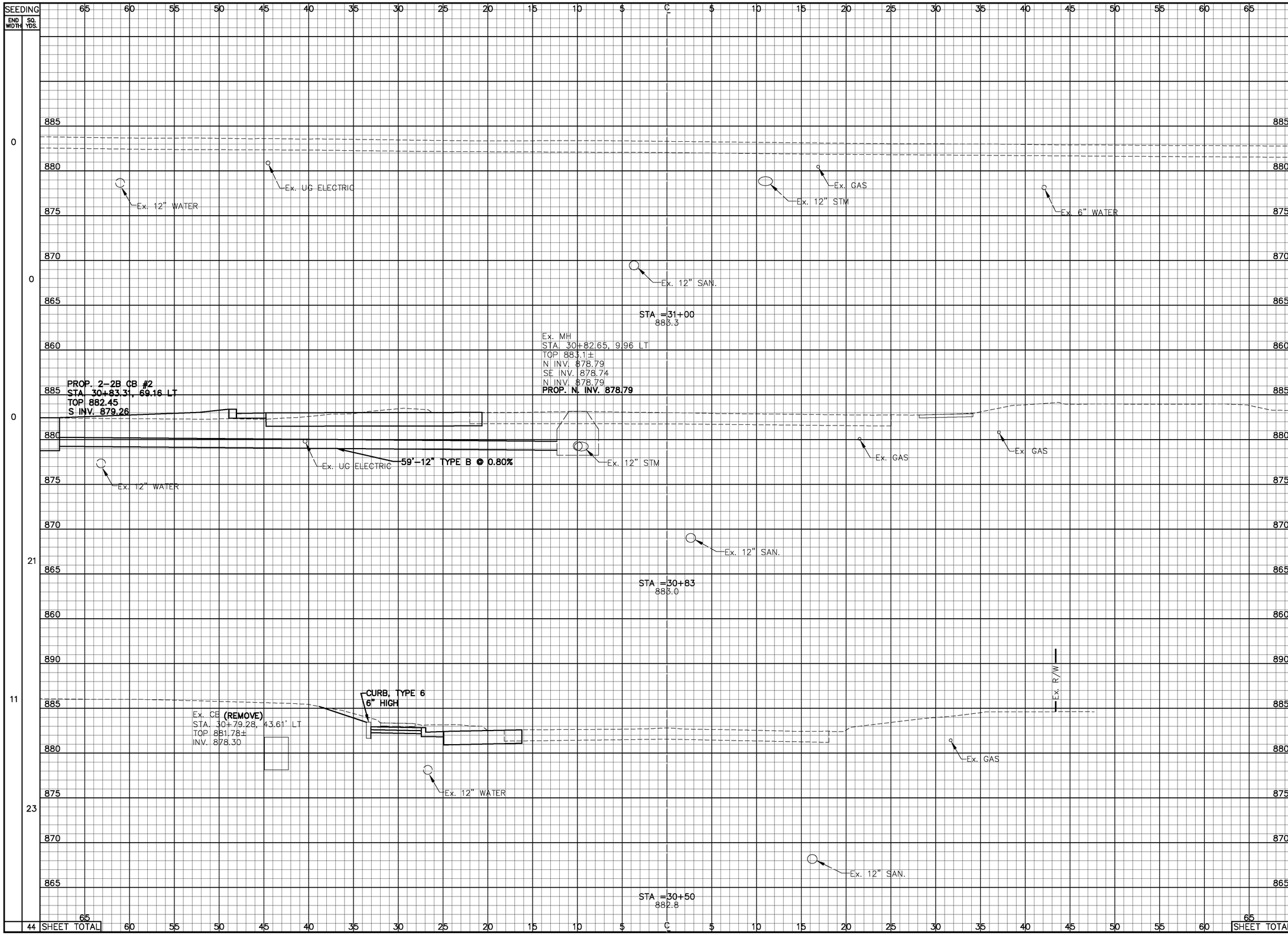
AUG-66-12.50



CROSS SECTIONS - FORTMAN DRIVE/McKINLEY ROAD
STA. 28+64.52 TO STA. 29+85.50

AUG-66-12.50

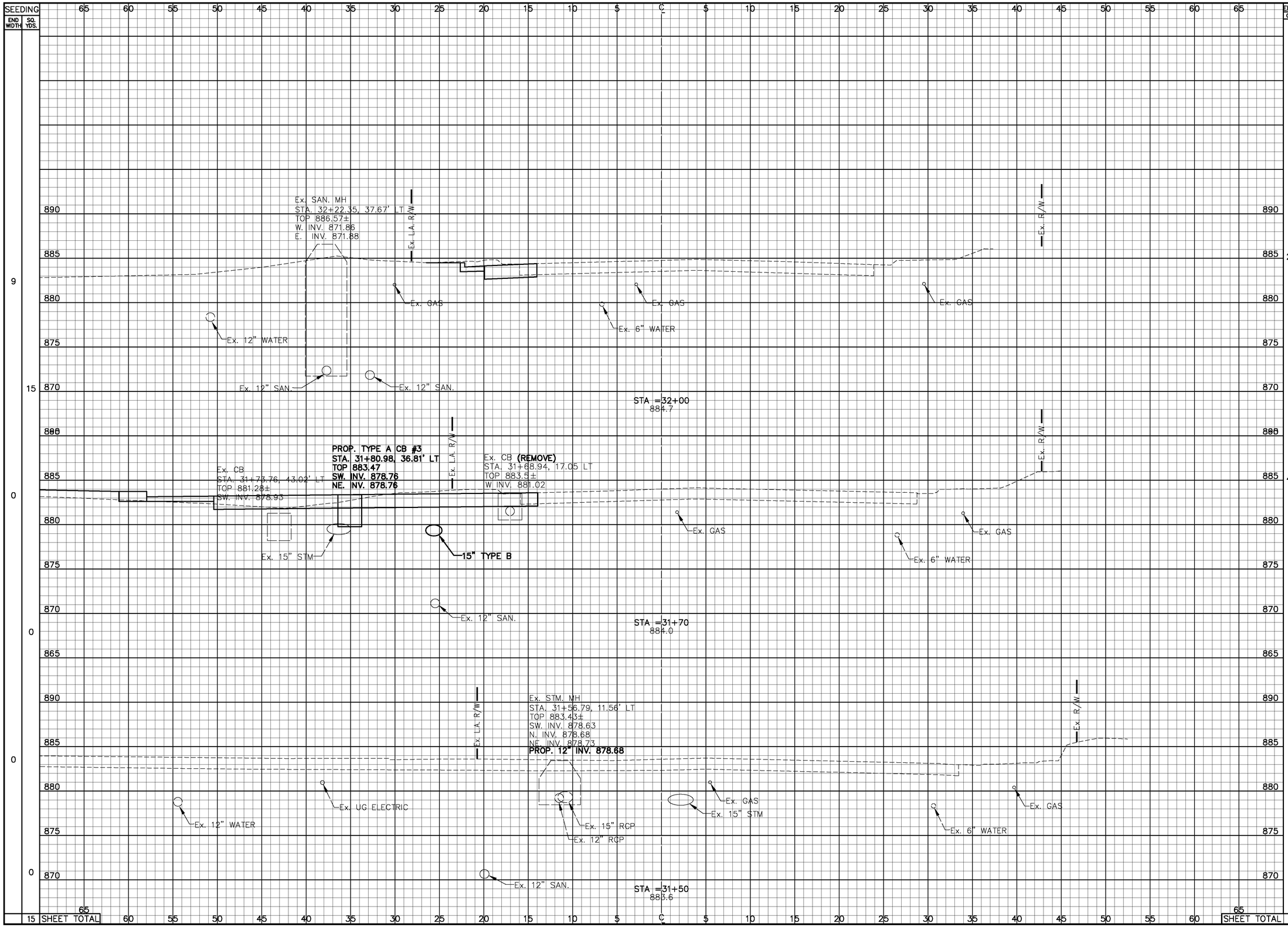
16
29



CROSS SECTIONS - FORTMAN DRIVE/McKINLEY ROAD
STA. 30+50 TO STA. 31+00

AUG-66-12.50

17
29



CROSS SECTIONS - FORTMAN DRIVE/McKINLEY ROAD
STA. 31+50 TO STA. 32+00

AUG-66-12.50

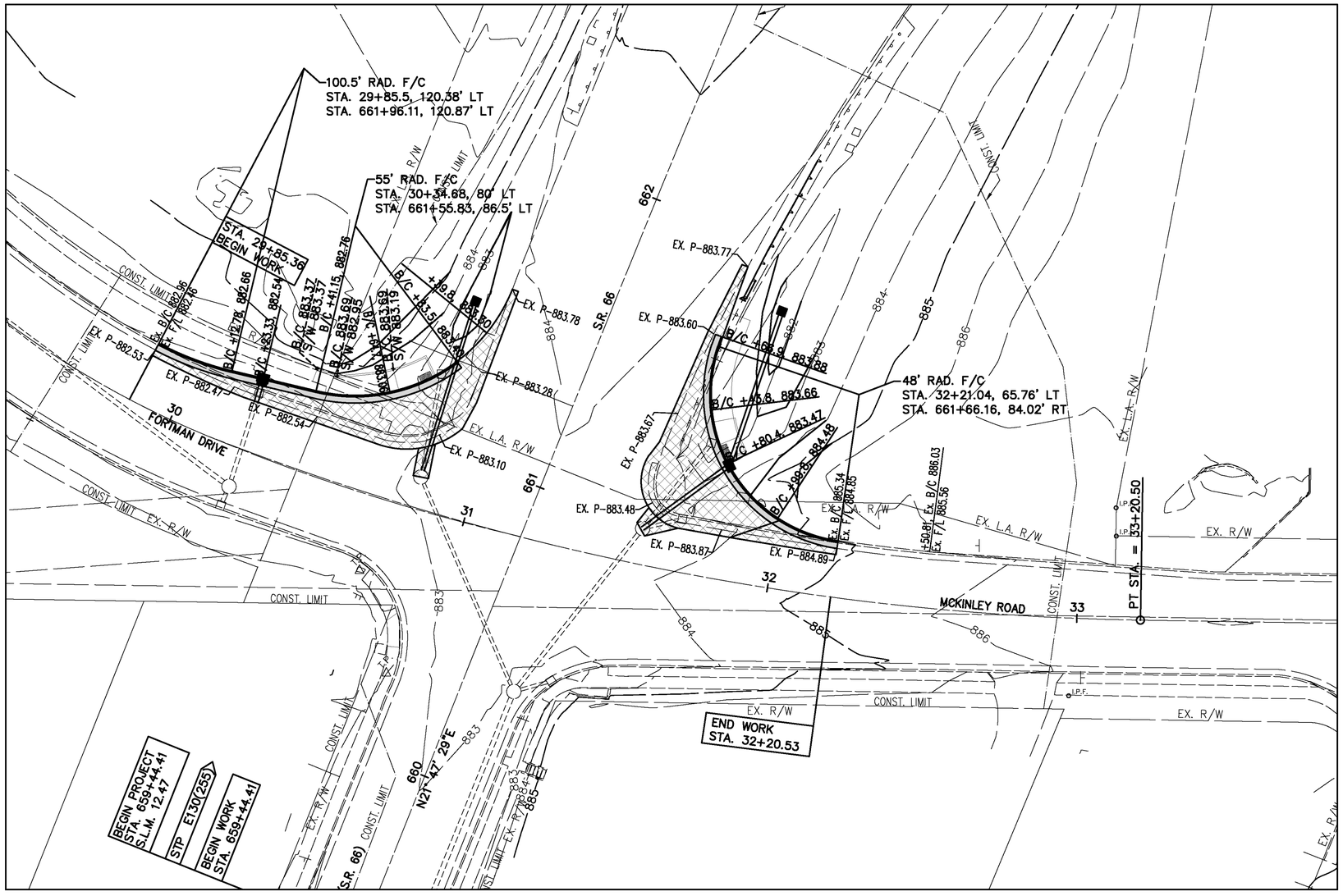
CALCULATED BHB

CHECKED AVS

CROSS SECTIONS - FORTMAN DRIVE/McKINLEY ROAD
STA. 32+50 TO STA. 33+00

AUG-66-12.50

19
29



LEGEND

B/C = BACK OF CURB
F/C = FACE OF CURB
S/W = TOP OF SIDEWALK
Ex. B/C = Ex. BACK OF CURB
Ex. F/C = Ex. FACE OF CURB
Ex. F/L = Ex. FLOW LINE
Ex. P = Ex. PAVEMENT ELEVATION

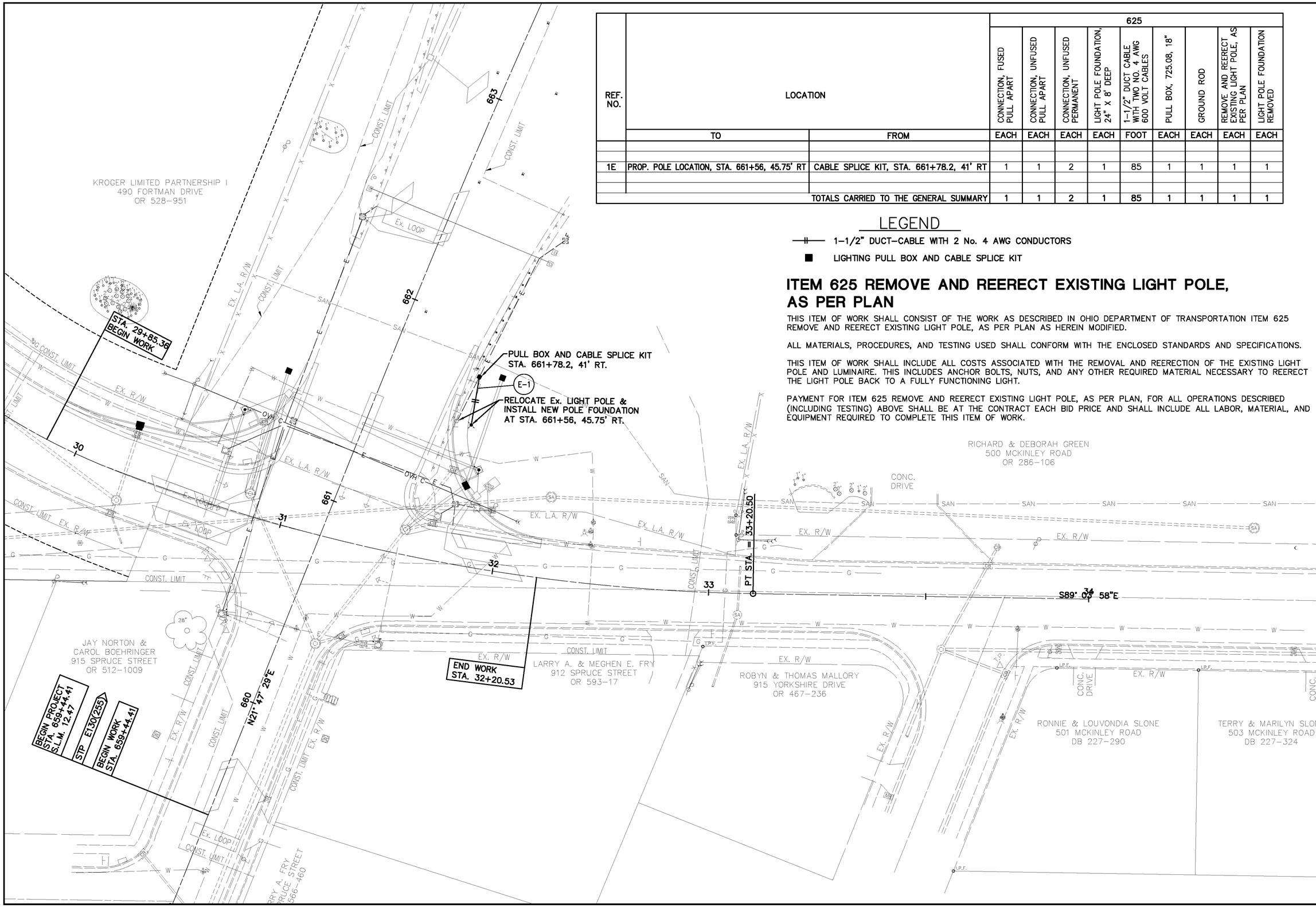
N

0 10 20 40
SCALE IN FEET

CALCULATED BHB
CHECKED AVS

PAVEMENT DETAILS

AUG-66-12.50



REF. NO.	LOCATION		625								
			CONNECTION, FUSED PULL APART	CONNECTION, UNFUSED PULL APART	CONNECTION, UNFUSED PERMANENT	LIGHT POLE FOUNDATION, 24" X 8' DEEP	1-1/2" DUCT CABLE WITH TWO NO. 4 AWG 600 VOLT CABLES	PULL BOX, 725.08, 18"	GROUND ROD	REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN	LIGHT POLE FOUNDATION REMOVED
	TO	FROM	EACH	EACH	EACH	EACH	FOOT	EACH	EACH	EACH	EACH
1E	PROP. POLE LOCATION, STA. 661+56, 45.75' RT	CABLE SPLICE KIT, STA. 661+78.2, 41' RT	1	1	2	1	85	1	1	1	1
		TOTALS CARRIED TO THE GENERAL SUMMARY	1	1	2	1	85	1	1	1	1

LEGEND

—#— 1-1/2" DUCT-CABLE WITH 2 No. 4 AWG CONDUCTORS

■ LIGHTING PULL BOX AND CABLE SPLICE KIT

ITEM 625 REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF THE WORK AS DESCRIBED IN OHIO DEPARTMENT OF TRANSPORTATION ITEM 625 REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN AS HEREIN MODIFIED.

ALL MATERIALS, PROCEDURES, AND TESTING USED SHALL CONFORM WITH THE ENCLOSED STANDARDS AND SPECIFICATIONS.

THIS ITEM OF WORK SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL AND REERECTION OF THE EXISTING LIGHT POLE AND LUMINAIRE. THIS INCLUDES ANCHOR BOLTS, NUTS, AND ANY OTHER REQUIRED MATERIAL NECESSARY TO REERECT THE LIGHT POLE BACK TO A FULLY FUNCTIONING LIGHT.

PAYMENT FOR ITEM 625 REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED (INCLUDING TESTING) ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

N

0 10 20 40 SCALE IN FEET

CALCULATED MJT
CHECKED AVS

ELECTRIC LIGHTING PLAN

AUG-66-12.50

ODOT STANDARD CONSTRUCTION DRAWINGS

THE FOLLOWING STANDARD CONSTRUCTION DRAWINGS SHALL BE USED FOR THIS TRAFFIC SIGNAL INSTALLATION:

TC-16.21	TC-52.20	TC-85.10	HL-30.22
TC-21.20	TC-71.10	TC-85.20	HL-40.10
TC-22.10	TC-81.21	HL-10.13	HL-60.11
TC-41.20	TC-82.10	HL-20.11	HL-60.12
TC-42.20	TC-83.10	HL-30.11	
TC-52.10	TC-83.20	HL-30.21	

POWER SUPPLY FOR TRAFFIC SIGNAL

ELECTRIC POWER SHALL BE OBTAINED FROM THE CITY OF ST. MARYS AT THE LOCATION INDICATED ON THE TRAFFIC PLANS. POWER SUPPLIED SHALL BE 120 VOLTS, SINGLE PHASE, 30 AMP.

TRENCHING FOR CONDUIT

THE COST OF ALL TRENCHING ASSOCIATED WITH THE INSTALLATION OF CONDUIT CALLED FOR IN THE TRAFFIC SIGNAL AND ELECTRICAL PLANS SHALL BE INCIDENTAL TO AND INCLUDED IN THE CONTRACT UNIT PRICE FOR ITEM 625 CONDUIT.

GUARANTEE

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

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

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

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

STAINLESS STEEL HARDWARE

HARDWARE FOR ALL SIGNS AND SIGNALS SHALL CONFORM TO 730.10 OF THE ODOT SPECIFICATIONS, THE COST OF STAINLESS STEEL HARDWARE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PERTINENT CONTRACT ITEMS.

GROUNDING AND BONDING

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

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

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

B. WHEN AN EQUIPMENT GROUNDING CONDUCTOR IS REQUIRED IN PLASTIC CONDUIT (725.05), THE INSTALLATION SHALL INCLUDE A SEPARATE EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO THE CONDUCTORS SPECIFIED.

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

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

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

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

GROUNDING AND BONDING (CONTINUED)

2. CONDUITS.

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

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

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

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

3. WIRE FOR GROUNDING AND BONDING.

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

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

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

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

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

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

4. GROUND ROD.

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

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

5. THE GREEN CONDUCTOR IN SIGNAL CABLES (CONDUCTOR #4) SHALL NOT BE USED TO SUPPLY POWER TO A SIGNAL INDICATION. IT WILL BE CONNECTED TO THE SIGNAL BODY AS AN EQUIPMENT GROUND IN ALUMINUM HEADS AND IT WILL BE UNUSED IN PLASTIC HEADS. UNUSED CONDUCTORS SHALL BE GROUNDED IN THE CABINET. TYPICAL USE OF CONDUCTORS IS AS FOLLOWS:

COND. NO.	COLOR	VEHICLE SIGNAL	PEDESTRIAN SIGNAL
1	BLACK	GREEN BALL	#1 WALK
2	WHITE	AC NEUTRAL	AC NEUTRAL
3	RED	RED BALL	#1 DW/FDW
4	GREEN	EQUIPMENT GROUND	EQUIPMENT GROUND
5	ORANGE	YELLOW BALL	#2 DW/FDW
6	BLUE	GREEN ARROW	#2 WALK
7	WHITE/BLACK STRIPE	YELLOW ARROW	NOT USED

6. POWER SERVICE AND DISCONNECT SWITCH.

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

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

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

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

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

ITEM 614 MAINTAINING TRAFFIC, AS PER PLAN

IN ADDITION TO ITEM 614, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING TRAFFIC SIGNAL INSTALLATIONS WITHIN THE PROJECT UNDER THE FOLLOWING CONDITIONS:

NEW SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS APPROVED, IN WRITING, BY THE ENGINEER.

GENERAL

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

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. 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, AND SHALL MAKE PERMANENT REPAIRS OR REPLACEMENT AS SOON THEREAFTER AS POSSIBLE.

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 RESPONSIBLE FOR THE DAMAGE.

WHERE THE CONTRACTOR HAS FAILED TO, OR CANNOT RESPOND TO, AN OUTAGE OR SIGNAL EQUIPMENT MALFUNCTION, AT THESE LOCATIONS WITHIN HIS RESPONSIBILITY, ANY SUBSEQUENT BILLINGS TO THE CITY FOR POLICE SERVICES AND MAINTENANCE SERVICES SHALL BE DEDUCTED FROM MONIES DUE OR TO BECOME DUE TO THE CONTRACTOR.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS FORCES.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE REVISIONS TO THE SIGNAL. WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 4 HOURS AND SHALL NOT INCLUDE THE HOURS OF 7 TO 9 AM AND 4 TO 6 PM. ANY SIGNALIZED INTERSECTION, WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED, BY THE CONTRACTOR, BY THE INSTALLATION OF TEMPORARY "STOP" SIGNS ON THE SIDE STREETS.

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.

DOCUMENTATION

THE CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF MALFUNCTIONS INCLUDING:

TIME OF NOTIFICATION OF MALFUNCTION;
TIME OF WORK CREWS ARRIVAL TO CORRECT THE MALFUNCTION;
ACTIONS TAKEN TO CORRECT THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
A DIAGNOSIS OF REASON FOR THE MALFUNCTION AND PROBABILITY OF REOCCURRENCE;
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 THE COMPLETION OF EACH REPAIR.

FOR ADDITIONAL INFORMATION REGARDING MAINTENANCE OF TRAFFIC, PLEASE SEE SHEET 5, ITEM 614 MAINTAINING TRAFFIC, AS PER PLAN NOTE.

ITEM 625 CONDUIT JACKED OR DRILLED, 725.052, 3", AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF THE WORK AS DESCRIBED IN OHIO DEPARTMENT OF TRANSPORTATION ITEM 625 CONDUIT JACKED OR DRILLED, EXCEPT AS HEREIN MODIFIED.

ALL MATERIALS, PROCEDURES, AND TESTING USED SHALL CONFORM WITH THE ENCLOSED STANDARDS AND SPECIFICATIONS.

ALL CONDUIT CAPABLE OF HORIZONTAL DIRECTIONAL DRILLING SHALL BE EPEC-40-HDPE.

THE HORIZONTAL DIRECTIONAL DRILLING SHALL BE IN ACCORDANCE WITH ASTM F1962 AT THE LOCATIONS SHOWN ON THE PLANS.

THIS ITEM OF WORK SHALL INCLUDE FURNISHING AND INSTALLING ALL FITTINGS, BENDS, TEES, COUPLINGS, RESTRAINTS, TRACING WIRE, PULL STRING, ETC. AND SHALL INCLUDE THE COST FOR THE HORIZONTAL DIRECTIONAL DRILLING OF THE CONDUIT.

THIS ITEM OF WORK SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE HORIZONTAL DIRECTIONAL DRILLING OF THE CONDUIT. THIS INCLUDES ANY REQUIRED BORING PITS, DEWATERING, BACKFILLING OF PITS, COMPACTION, ASPHALT, GRAVEL AND CONCRETE REPAIR, SEEDING AND MULCHING, LANDSCAPING REPAIR, ETC. NECESSARY TO RESTORE THE AREA BACK TO EQUAL OR BETTER CONDITIONS.

PAYMENT FOR ITEM 625 CONDUIT JACKED OR DRILLED, 725.052, 3", AS PER PLAN, FOR ALL OPERATIONS DESCRIBED (INCLUDING TESTING AND PURITIES) ABOVE SHALL BE AT THE CONTRACT FOOT BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 625 CONDUIT JACKED OR DRILLED, 725.052, 4", AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF THE WORK AS DESCRIBED IN OHIO DEPARTMENT OF TRANSPORTATION ITEM 625 CONDUIT JACKED OR DRILLED, EXCEPT AS HEREIN MODIFIED.

ALL MATERIALS, PROCEDURES, AND TESTING USED SHALL CONFORM WITH THE ENCLOSED STANDARDS AND SPECIFICATIONS.

ALL CONDUIT CAPABLE OF HORIZONTAL DIRECTIONAL DRILLING SHALL BE EPEC-40-HDPE.

THE HORIZONTAL DIRECTIONAL DRILLING SHALL BE IN ACCORDANCE WITH ASTM F1962 AT THE LOCATIONS SHOWN ON THE PLANS.

THIS ITEM OF WORK SHALL INCLUDE FURNISHING AND INSTALLING ALL FITTINGS, BENDS, TEES, COUPLINGS, RESTRAINTS, TRACING WIRE, PULL STRING, ETC. AND SHALL INCLUDE THE COST FOR THE HORIZONTAL DIRECTIONAL DRILLING OF THE CONDUIT.

THIS ITEM OF WORK SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE HORIZONTAL DIRECTIONAL DRILLING OF THE CONDUIT. THIS INCLUDES ANY REQUIRED BORING PITS, DEWATERING, BACKFILLING OF PITS, COMPACTION, ASPHALT, GRAVEL AND CONCRETE REPAIR, SEEDING AND MULCHING, LANDSCAPING REPAIR, ETC. NECESSARY TO RESTORE THE AREA BACK TO EQUAL OR BETTER CONDITIONS.

PAYMENT FOR ITEM 625 CONDUIT JACKED OR DRILLED, 725.052, 4", AS PER PLAN, FOR ALL OPERATIONS DESCRIBED (INCLUDING TESTING AND PURITIES) ABOVE SHALL BE AT THE CONTRACT FOOT BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 VEHICULAR SIGNAL HEAD, LED, 3-SECTION, 12 INCH LENS, 1-WAY, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL APPLY:

1. VEHICULAR SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2. PIPE, SPACERS AND FITTINGS SHOULD BE CONSTRUCTED OF GALVANIZED STEEL OR ALUMINUM.
3. THE COLOR OF THE VEHICULAR SIGNAL HEAD SHALL BE **YELLOW** AND THE VISORS SHALL BE **YELLOW**.
4. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
5. EACH OPTICAL SECTION SHALL BE FITTED WITH A TUNNEL TYPE VISOR OPEN AT THE BOTTOM.
6. MAST ARM MOUNTED SIGNAL HEADS SHALL BE RIGID MOUNTED AS PER STANDARD DRAWING TC-85.20.
7. SIGNAL HEADS TO BE MOUNTED WITH THE **RED** LIGHT CENTERED ON THE MAST ARM.
8. ALL SIGNAL HEADS SHALL BE FITTED WITH LOUVERED BLACK BACK PLATES WITH A YELLOW RETROREFLECTIVE BORDER.
9. CLEARANCE BETWEEN THE BOTTOM OF THE SIGNAL HEAD BACK PLATE AND PAVEMENT SHALL BE A MINIMUM OF 17'-0" AND A MAXIMUM OF 18'-0".
10. THE CONTRACTOR SHALL PROVIDE THE CITY, IN WRITING, THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS TO BE USED IN THE TRAFFIC SIGNAL HEADS PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

PAYMENT FOR ITEM 632 VEHICULAR SIGNAL HEAD, LED, 3-SECTION, 12 INCH LENS, 1-WAY, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 VEHICULAR SIGNAL HEAD, LED, 5-SECTION, 12 INCH LENS, 1-WAY, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL APPLY:

1. VEHICULAR SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2. PIPE, SPACERS AND FITTINGS SHOULD BE CONSTRUCTED OF GALVANIZED STEEL OR ALUMINUM.
3. THE COLOR OF THE VEHICULAR SIGNAL HEAD SHALL BE **YELLOW** AND THE VISORS SHALL BE **YELLOW**.
4. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
5. EACH OPTICAL SECTION SHALL BE FITTED WITH A TUNNEL TYPE VISOR OPEN AT THE BOTTOM.
6. MAST ARM MOUNTED SIGNAL HEADS SHALL BE RIGID MOUNTED AS PER STANDARD DRAWING TC-85.20.
7. SIGNAL HEADS TO BE MOUNTED WITH THE **YELLOW** LIGHT CENTERED ON THE MAST ARM.
8. ALL SIGNAL HEADS SHALL BE FITTED WITH LOUVERED BLACK BACK PLATES WITH A YELLOW RETROREFLECTIVE BORDER.
9. CLEARANCE BETWEEN THE BOTTOM OF THE SIGNAL HEAD BACK PLATE AND PAVEMENT SHALL BE A MINIMUM OF 17'-0" AND A MAXIMUM OF 18'-0".
10. THE CONTRACTOR SHALL PROVIDE THE CITY, IN WRITING, THE LED MANUFACTURER NAME, SERIAL NUMBER, PART NUMBER, DESCRIPTION OF LAMP, AND DATE OF MANUFACTURE FOR ALL LED UNITS TO BE USED IN THE TRAFFIC SIGNAL HEADS PRIOR TO INSTALLATION, FOR ACCEPTANCE AND WARRANTY PURPOSES.

PAYMENT FOR ITEM 632 VEHICULAR SIGNAL HEAD, LED, 5-SECTION, 12 INCH LENS, 1-WAY, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN, TYPE D2, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL APPLY:

1. PEDESTRIAN SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS.
2. THE COLOR OF THE PEDESTRIAN SIGNAL HEAD, VISOR AND ALL MOUNTING HARDWARE SHALL BE **BLACK**.
3. PROPER EXTERIOR COLOR SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.
4. EACH PEDESTRIAN SIGNAL SHALL BE FITTED WITH A STANDARD VISOR AT LEAST 7 INCHES IN LENGTH. NO GRID TYPE SUNSHADES SHALL BE PERMITTED.
5. THE PEDESTRIAN SIGNAL SHALL DISPLAY THE UPRAISED HAND AND WALKING PERSON SYMBOLS SIDE-BY-SIDE, NOT SUPERIMPOSED ON ONE ANOTHER.
6. WITH THE EXCEPTION OF PEDESTAL MOUNTED PEDESTRIAN SIGNAL HEADS, ALL PEDESTRIAN SIGNAL HEADS SHALL BE MOUNTED WITH PIPE BRACKETS AND FITTINGS WHICH ARE BOLTED TO THE SIGNAL POLES. NO BANDING OR 'CLAMSHELL' MOUNTING SHALL BE PERMITTED.
7. MOUNTING BRACKETS FOR THE PEDESTRIAN SIGNAL HEAD SHALL BE BOLTED TO THE SIDE OF THE SIGNAL POLE OR PEDESTAL AS SHOWN IN THE PLANS AND THEN ORIENTED TO ITS RESPECTIVE CROSSWALK.

PAYMENT FOR ITEM 632 PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN, TYPE D2, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 PEDESTRIAN PUSHBUTTON, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS 632 AND 732, THE FOLLOWING REQUIREMENTS SHALL APPLY:

1. THE PUSHBUTTON ASSEMBLY SHALL HAVE A DIE CAST ALUMINUM BODY AND A 316 STAINLESS STEEL BUTTON.
2. THE PUSHBUTTON SHALL HAVE A PIEZO DRIVEN SOLID STATE SWITCH.
3. THE PUSHBUTTON ASSEMBLY SHALL HAVE AN INTEGRAL INDICATOR LIGHT THAT ILLUMINATES WHEN THE BUTTON IS PUSHED.
4. THE PUSHBUTTON SHALL SOUND A TONE WHEN THE BUTTON IS PUSHED AND SOUND A DIFFERENT TONE WHEN THE BUTTON IS RELEASED.

PAYMENT FOR ITEM 632 PEDESTRIAN PUSHBUTTON, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 POWER SERVICE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS 632 AND 732 AND SCD TC-83.10, THE FOLLOWING REQUIREMENTS SHALL APPLY:

1. THE METER BASE MOUNTING HEIGHT SHALL BE NO MORE THAN 5 FEET HIGH TO THE CENTER OF THE METER BASE FROM THE GROUND.
2. THE CONTRACTOR SHALL SUPPLY THE NECESSARY METER BASES.
3. ALL POWER SERVICES SHALL BE METERED. THE METER SHALL HAVE A LEVER OPERATED BYPASS.

DISCONNECT SWITCH ENCLOSURES FURNISHED IN ACCORDANCE WITH CMS ITEM 632, POWER SERVICE, AS PER PLAN, SHALL INCLUDE A PADLOCK 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. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNTIL THE SIGNAL IS ACCEPTED BY THE MAINTAINING AGENCY.

PAYMENT FOR ITEM 632 POWER SERVICE, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 DETECTOR LOOP, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS 632 AND 732, THE FOLLOWING REQUIREMENT SHALL APPLY:

EACH LOOP WIRE SHALL BE ENCLOSED IN A SEPARATE 3/4" CONDUIT BETWEEN THE CURB OR EDGE OF PAVEMENT AND THE PULL BOX AS SHOWN ON THE PLANS.

PAYMENT FOR ITEM 632 DETECTOR LOOP, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 12, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS ITEM 632 AND ITEM 732 AND SCD TC-81.21, THE SIGNAL SUPPORTS SHALL BE FURNISHED INSTALLED AND MEET THE FOLLOWING ADDITIONAL REQUIREMENTS;

A 3" CONDUIT ELL IN LIEU OF A STANDARD 2" CONDUIT ELL SHALL BE INSTALLED IN EACH SIGNAL SUPPORT FOUNDATION AS REQUIRED BY ODOT SCD TC-21.20. SEE THE POLE ORIENTATION DIAGRAM FOR THE RESPECTIVE TRAFFIC SIGNAL PLAN FOR FURTHER INFORMATION.

PAYMENT FOR ITEM 632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 12, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 13, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS ITEM 632 AND ITEM 732 AND SCD TC-81.21, THE SIGNAL SUPPORTS SHALL BE FURNISHED INSTALLED AND MEET THE FOLLOWING ADDITIONAL REQUIREMENTS;

A 3" CONDUIT ELL IN LIEU OF A STANDARD 2" CONDUIT ELL SHALL BE INSTALLED IN EACH SIGNAL SUPPORT FOUNDATION AS REQUIRED BY ODOT SCD TC-21.20. SEE THE POLE ORIENTATION DIAGRAM ON THE RESPECTIVE TRAFFIC SIGNAL PLAN FOR FURTHER INFORMATION.

PAYMENT FOR ITEM 632 SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 13, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION FOR STORAGE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS 632.26, THE EQUIPMENT SALVAGED FROM THE EXISTING TRAFFIC SIGNAL INSTALLATIONS SHALL BE IDENTIFIED ON THE PLANS AS "REMOVAL ITEMS FOR STORAGE". EQUIPMENT THE CITY DETERMINES HAS NO VALUE SHALL BE DISPOSED OF BY THE CONTRACTOR WHICH MAY INCLUDE CABLE NO LONGER IN SERVICE, MISCELLANEOUS CABINET EQUIPMENT DETERMINED BY THE CITY TO BE UNSERVICEABLE, AND ILLEGIBLE SIGNS AS DETERMINED BY THE CITY. A CONTROLLER CABINET TO BE SALVAGED SHALL INCLUDE ALL EQUIPMENT INSIDE OF THE CABINET INCLUDING BUT NOT LIMITED TO THE CONTROLLER, LOOP DETECTOR UNITS, MALFUNCTION MANAGEMENT UNIT, AND LOAD SWITCHES. EQUIPMENT TO BE SALVAGED SHALL BE TRANSFERRED TO A LOCATION WITHIN THE CITY FOR STORAGE. CONTACT CRAIG MOELLER (419.394.3303) AT THE CITY FOR STORAGE LOCATION OF EQUIPMENT.

REMOVE ITEMS NOT SHOWN ON THE TRAFFIC SIGNAL PLANS AS PROPOSED OR EXISTING EQUIPMENT. ITEMS TO BE REMOVED SHALL INCLUDE EXISTING POLE FOUNDATIONS, CONTROLLER CABINET FOUNDATION, AND ANY OTHER ITEM NEEDED TO BE REMOVED AS PART OF THE TRAFFIC SIGNAL WORK. ALL OF THIS WORK SHALL BE INCLUDED IN THIS LINE ITEM.

PAYMENT FOR ITEM 632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION FOR STORAGE, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 633 CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS-1, (ECONOLITE MODEL ASC/3-2100), AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATIONS 633 AND 733, THE FOLLOWING REQUIREMENTS SHALL APPLY:

THE CONTROLLER SHALL BE AN ECONOLITE MODEL ASC/3–2100.

THE MICRO COMPUTER–BASED CONTROLLER SHALL BE CAPABLE OF OPERATING AS FULL OR SEMI–ACUATED VOLUME DENSITY CONTROL WITH PEDESTRIAN TIMING IN EITHER AN ISOLATED LOCATION OR AS PART OF A COORDINATED SYSTEM OF CONTROLLERS. THE CONTROLLER UNIT SHALL BE FURNISHED IN ACCORDANCE WITH NEMA TS–2 TYPE 2 (1998) STANDARDS AND SHALL BE CONNECTED TO A MALFUNCTION MANAGEMENT UNIT AND TO RACK MOUNTED DETECTOR AMPLIFIERS IN A HYBRID NEMA TS–1 CABINET WITH POINT TO POINT WIRING FOR THE TERMINALS AND FACILITIES AS SPECIFIED IN TABLE 13–3 OF THE TS1–1983 STANDARD.

THE CONTROLLER SHALL PROVIDE A LCD DISPLAY AND SHALL USE AN ENGLISH MENU FORMAT FOR DATA ENTRY AND INFORMATION DISPLAY. THE LCD SHALL BE A MULTIPLE ANGLE DISPLAY THAT HAS AN ADJUSTABLE INTENSITY WITH BACKLIGHTING.

TRAFFIC RESPONSIVE COORDINATION PATTERNS MAY BE SELECTED BY EITHER OF THE FOLLOWING 2 METHODS: A CYCLE–SPLIT–OFFSET (CSO) PATTERN OR BY A SPECIFIC TIMING PLAN.

THE MALFUNCTION MANAGEMENT UNIT SHALL BE OF A RECORDING TYPE AND SHALL BE PRE–WIRED FOR A 12–POSITION BACK PANEL.

CABINET EQUIPMENT
THE CABINETS SHALL BE UNPAINTED NATURAL ALUMINUM, COMMERCIALLY SMOOTH AND FREE OF DEFECTS THAT WOULD IMPAIR SERVICEABILITY OR DETRACT FROM GENERAL APPEARANCE. THE CABINET SHALL BE FURNISHED FULLY EQUIPPED WITH THE FOLLOWING FEATURES READY FOR CONTROLLER INSTALLATION AS REQUIRED:

THE CABINET SHALL BE FURNISHED WITH TWO REMOVABLE SHELVES MOUNTED ON ADJUSTABLE CHANNELS. ALL MOUNTING HARDWARE SHALL BE INCLUDED.

A LIGHT SWITCH SHALL BE FURNISHED AND INSTALLED IN THE CABINET. A 60W INCANDESCENT LAMP SHALL BE FURNISHED AND INSTALLED WITH A 14–INCH (MINIMUM) FLEXIBLE ARM TO ILLUMINATE THE FIELD TERMINALS. THE LAMP SHALL BE WIRED TO EITHER A 15 AMP ON/OFF TOGGLE SWITCH MOUNTED ON THE POWER PANEL OR TO A DOOR ACTIVATED SWITCH MOUNTED NEAR THE TOP OF THE DOOR.

THE CABINET SHALL BE FURNISHED WITH LOAD SWITCHES FOR A 12–POSITION BACKBOARD TO ALLOW FOR MAXIMUM PHASE UTILIZATION FOR WHICH THE CABINET IS DESIGNED. ALL LOAD SWITCHES SHALL BE SUPPORTED BY A BRACKET EXTENDING AT LEAST HALF THE LENGTH OF THE LOAD SWITCH.

THE CABINET SHALL BE FURNISHED WITH LOOP DETECTOR UNIT, DELAY AND EXTEND TYPE FOR EACH LOOP DETECTOR IN THE INTERSECTION. INSTALL AND TUNE DETECTOR UNITS TO THEIR LOOPS WITH THE SENSITIVITY SET FOR OPTIMUM OPERATION AND ANY INTERFERENCE OR CROSS TALK ELIMINATED BETWEEN OTHER DETECTOR UNITS IN THE CABINET. PERFORM A FIELD CHECK TO ENSURE THAT NO EXTRANEOUS DETECTIONS ARE OCCURRING BY OBSERVING EACH DETECTOR UNIT'S OPERATION TO DETERMINE THAT A SIGNAL OCCURS ONLY WHEN A VEHICLE ENTERS ITS ASSOCIATED LOOP. IF ACTUATIONS ARE OBSERVED WHEN THERE IS NO VEHICLE IN THE LOOP, ELIMINATE THE EXTRANEOUS DETECTIONS. THE UNITS SHALL BE SELF–TUNING. IF MULTI–CHANNEL DETECTOR UNITS ARE SUPPLIED, THEY SHALL INCORPORATE PROVISIONS FOR SEQUENTIAL SCANNING TO ELIMINATE CROSS TALK BETWEEN DETECTOR LOOPS.

ALL CONTROLLER AND MALFUNCTION MANAGEMENT UNIT CABLES SHALL BE OF SUFFICIENT LENGTH TO ALLOW THE UNITS TO BE PLACED ON EITHER SHELF OR ON THE TOP OF THE CABINET IN THE OPERATING MODE. CONNECTING CABLES SHALL BE SLEEVED IN A BRAIDED NYLON MESH. THE USE OF EXPOSED TIE–WRAPS OR INTERWOVEN CABLES IS UNACCEPTABLE.

THE CABINET SHALL BE EQUIPPED WITH A MOMENTARY PUSHBUTTON CONTACT SWITCH FOR SUBSTITUTING MANUAL OPERATION OF INTERNAL TIMING FOR AUTOMATIC INTERVAL TIMING. THE SWITCH IS TO BE MOUNTED ON A 5 FOOT MINIMUM FLEXIBLE WEATHERPROOF EXTENSION CORD IN ACCORDANCE WITH ITEM 733.03.A.2(J).

THE CABINET SHALL BE OF A DOOR IN DOOR TYPE WITH A #1 KEY FOR THE POLICE DOOR AND A CORBIN TYPE TUMBLE LOCK KEYED FOR A #2 KEY ON THE MAIN DOOR. A RESEALABLE POUCH SHALL BE MOUNTED TO THE INSIDE DOOR OF THE CABINET AND SHALL BE SUFFICIENT TO ACCOMMODATE ONE COMPLETE SET OF WIRING, SIGNAL, AND TIMING PLANS.

THE EIGHT (8) PHASE (12 POSITION) CABINET SHALL BE GROUND MOUNTED (AS SPECIFIED ON THE SIGNAL PLANS) AND FURNISHED WITH ALL NECESSARY CABINET MOUNTING HARDWARE. THE CABINET SHALL BE A M36 SIZE CABINET WITH APPROXIMATE DIMENSIONS OF 58"H X 36"W X 18"D.

FIBER OPTIC ETHERNET TRANSCEIVER
IF THE CONTROLLER IS NOT CAPABLE OF THE DIRECT FIBER OPTIC CONNECTIONS, THE CONTRACTOR SHALL FURNISH AND INSTALL A FULLY MANAGED ETHERNET SWITCH THAT PROVIDES DUAL FIBER OPTICAL ETHERNET (T10/100 BASE–TX) PORTS USING INDUSTRY STANDARD FIBER OPTIC CONNECTORS AND FAST ETHERNET (T10/100 BASE–TX) PORTS. THE TRANSCEIVER SHALL OPERATE ON 120VAC, 10 WATTS AND SHALL MEET OR EXCEED NEMA TS2 ENVIRONMENTAL REQUIREMENTS.

THE TRANSCEIVER SHALL INTERFACE TO A SINGLE MODE FIBER OPTIC CABLE USING INDUSTRY STANDARD CONNECTORS. IT SHALL BE CAPABLE OF OPERATING OVER A DISTANCE OF AT LEAST 10KM WITH AN OPTICAL POWER BUDGET OF 17DB. THE TRANSCEIVER SHALL BE CAPABLE OF OPERATING IN A FAULT–TOLERANT FIBER OPTIC LOOP.

THE TRANSCEIVER SHALL BE FULLY COMPLIANT WITH IEEE 802.3, 802.3U AND 802.3Z. THE TRANSCEIVER SHALL PROVIDE FULL–DUPLEX OPERATION AND FLOW CONTROL.

THE TRANSCEIVER SHALL PROVIDE A SIMPLE AND INTUITIVE USER INTERFACE FOR CONFIGURATION AND MONITORING OF THE TRANSCEIVER VIA STANDARD HTML GRAPHICAL WEB BROWSER, INCLUDING DETAILED ON–LINE HELP. EVENT LOGGING AND RECORDING SHALL BE INCLUDED.

CONTROLLER AND CABINET TESTING
THE CONTRACTOR SHALL PERFORM BENCH TESTING OF THE COMPONENTS OF THIS SECTION ON THE CONTROLLER CABINET. TESTING OF THE MALFUNCTION MANAGEMENT UNIT SHALL BE DONE BY THE CONTRACTOR BEFORE INSTALLING THE INTERSECTION CONTROLLER AND CABINET IN THE FIELD. SOFTWARE AND FIRMWARE SHALL BE LOADED ON THE CONTROLLER AND CHECKED FOR CORRECT OPERATION OF TIMING PLANS, PHASING SCHEMES, AND PRE–EMPTS.

TESTING OF COMPONENTS BY THE CONTRACTOR FOR PROPER OPERATION SHALL INCLUDE THE FOLLOWING MINIMUM REQUIREMENTS:

1. TERMINAL SCREWS TIGHTENED.
2. CORRECT TERMINAL JUMPERS.
3. FAN & THERMOSTAT OPERATION.
4. DOOR CLOSER SWITCH OPERATION.
5. MALFUNCTION MANAGEMENT UNIT TEST.
6. FORCE HARDWIRE CONFLICTS FOR ALL PHASE COMBINATIONS TO VERIFY STOP TIMING AND CONFLICT INDICATION.
7. GFI RECEPTACLE TEST
8. POLICE PANEL OPERATION
9. MAINTENANCE PANEL OPERATION.
10. DETECTORS.
11. TEST FOR PHASE OPERATION, SEQUENCE AND INTERVAL LENGTH ON MIN RECALL, MAX RECALL AND NO CALL.
12. SHELVES, MOUNTING.
13. ALL PANELS, MOUNTING.
14. ATSI MALFUNCTION MANAGEMENT UNIT TEST TO DOCUMENT THE MALFUNCTION MANAGEMENT UNIT OPERATION. THE TEST RESULTS ARE TO BE LOGGED AND FURNISHED TO THE ENGINEER.
15. PROPER FLASH SEQUENCE.
16. AUXILIARY EQUIPMENT OPERATION.
17. CABINET LAMP.
18. SIGNAL OUTPUTS ARE TO BE TESTED WHILE CONNECTED TO A MIN 60 WATT LOAD ON EACH SIGNAL INDICATION

A WRITTEN REPORT STATING THE CABINET INTERSECTION NUMBER, DATE AND TIME OF TEST, SIGNED OFF BY THE TECHNICIAN WHO PERFORMED THE TESTS, SHALL BE SUBMITTED TO THE ENGINEER UPON SUCCESSFUL COMPLETION OF THE ABOVE TESTS. THE SUCCESSFUL TESTING SHALL BE DEMONSTRATED TO THE ENGINEER PRIOR TO INSTALLATION IF REQUESTED. THE TEST AREA MAY BE ERECTED AT A LOCATION DETERMINED BY THE CONTRACTOR. ALL COSTS RELATED TO INSPECT AND OBSERVE THE BENCH TESTING SHALL BE INCLUDED IN THIS LINE ITEM.

THE CONTROLLER AND ALL RELATED COMPONENTS SHALL BE IN PERFECT WORKING ORDER AND READY FOR INSTALLATION/OPERATION AT THE SPECIFIED INTERSECTION AS A RESULT OF THE WORK DESCRIBED IN THIS ITEM. THE COST FOR THE CONTROLLER AND CABINET TESTING SHALL BE INCLUDED IN THE PRICE OF THE CONTROLLER FURNISHED COMPLETE.

DOCUMENTATION
– TWO (2) COMPLETE SETS OF WIRING DIAGRAMS AND PARTS LISTS SHALL BE PROVIDED BY THE CONTRACTOR.
– USER MANUALS
– DEVICE PROGRAMMING MANUALS
– INSTALLATION AND DIAGNOSTIC MANUALS

SOFTWARE OR FIRMWARE UPDATES SHALL BE ACCOMPANIED BY COMPLETE DOCUMENTATION THAT REFERENCES AN UPGRADE VERSION, PROVIDES A LIST OF IMPROVED CAPABILITIES WITH THE UPGRADE, AND PROVIDES A LIST OF PROBLEMS RESOLVED WITH THE UPGRADE (IF APPLICABLE). ALL FUNCTIONS, FEATURES, AND CAPABILITIES NOT ADDRESSED SHALL OPERATE AS INTENDED BEFORE THE UPGRADE WAS IMPLEMENTED. ALL SOFTWARE AND FIRMWARE UPGRADES AND NEW RELEASES FOR FEATURES FURNISHED AS A PART OF THIS CONTRACT SHALL BE FREE OF CHARGE FOR TWO (2) YEARS AFTER THE COMPLETION OF THE 10–DAY PERFORMANCE TEST.

PAYMENT FOR ITEM 633 CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS–1, (ECONOLITE MODEL ASC/3–2100), AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 633 CONTROLLER WORK PAD, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF ODOT SPECIFICATION 633, THE FOLLOWING REQUIREMENTS SHALL APPLY:

THE DIMENSIONS OF THE CONTROLLER WORK PAD SHALL BE 4' x 4' x 4".

PAYMENT FOR ITEM 633 CONTROLLER WORK PAD, AS PER PLAN, FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

ITEM 632 SIGNALIZATION, MISC.: UPGRADE EXISTING TRAFFIC SIGNAL HEAD BACK PLATE

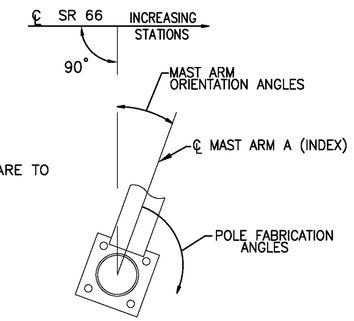
THIS ITEM SHALL CONSIST OF THE REMOVAL OF THE BACK PLATES ON THE EXISTING SIGNAL HEADS (E1, E2, AND S1) THAT SHALL REMAIN IN USE AND REPLACED WITH NEW LOUVERED BLACK BACK PLATES WITH A YELLOW RETROREFLECTIVE BORDER. ALL NECESSARY LABOR, MATERIAL AND EQUIPMENT SHALL BE INCLUDED IN THIS PAY ITEM.

THE EXISTING SIGNAL HEADS WERE MANUFACTURED BY ECONOLITE CONTROL PRODUCTS, 3360 E. LA PALMA AVENUE, ANAHEIM, CA. 92806.

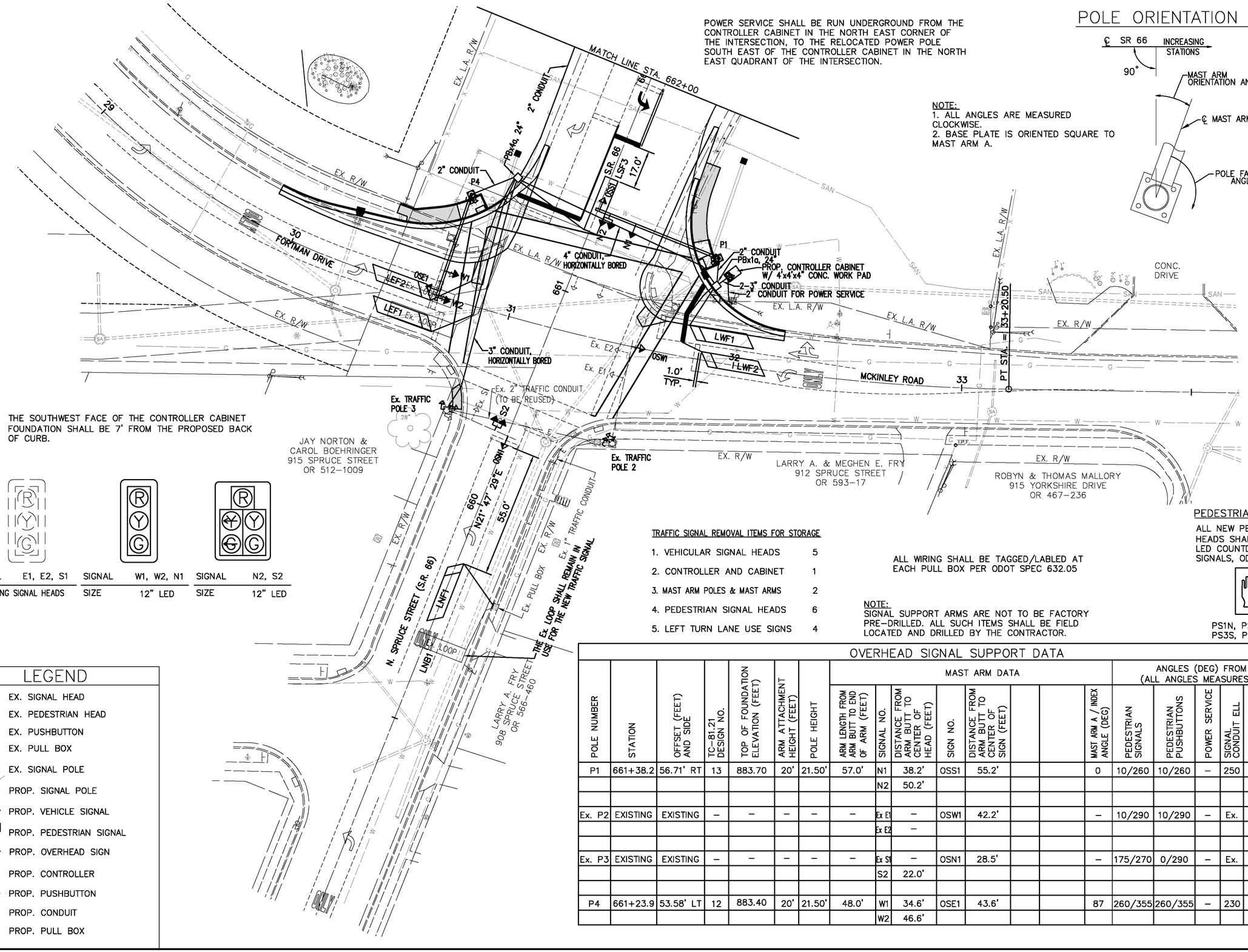
PAYMENT FOR ITEM 632 SIGNALIZATION, MISC.: UPGRADE EXISTING TRAFFIC SIGNAL BACK PLATE FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE AT THE CONTRACT EACH BID PRICE AND SHALL INCLUDE ALL LABOR, MATERIAL AND EQUIPMENT REQUIRED TO COMPLETE THIS ITEM OF WORK.

POWER SERVICE SHALL BE RUN UNDERGROUND FROM THE CONTROLLER CABINET IN THE NORTH EAST CORNER OF THE INTERSECTION, TO THE RELOCATED POWER POLE SOUTH EAST OF THE CONTROLLER CABINET IN THE NORTH EAST QUADRANT OF THE INTERSECTION.

POLE ORIENTATION DETAIL



NOTE:
1. ALL ANGLES ARE MEASURED CLOCKWISE.
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A.



THE SOUTHWEST FACE OF THE CONTROLLER CABINET FOUNDATION SHALL BE 7' FROM THE PROPOSED BACK OF CURB.

SIGNAL	E1, E2, S1	SIGNAL	W1, W2, N1	SIGNAL	N2, S2
EXISTING SIGNAL HEADS		SIZE	12" LED	SIZE	12" LED

TRAFFIC SIGNAL REMOVAL ITEMS FOR STORAGE

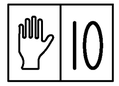
1. VEHICULAR SIGNAL HEADS 5
2. CONTROLLER AND CABINET 1
3. MAST ARM POLES & MAST ARMS 2
4. PEDESTRIAN SIGNAL HEADS 6
5. LEFT TURN LANE USE SIGNS 4

ALL WIRING SHALL BE TAGGED/LABLED AT EACH PULL BOX PER ODOT SPEC 632.05

NOTE:
SIGNAL SUPPORT ARMS ARE NOT TO BE FACTORY PRE-DRILLED. ALL SUCH ITEMS SHALL BE FIELD LOCATED AND DRILLED BY THE CONTRACTOR.

PEDESTRIAN SIGNAL HEADS

ALL NEW PEDESTRIAN SIGNAL HEADS SHALL BE 16" X 18" LED COUNTDOWN PEDESTRIAN SIGNALS, ODOT TYPE D2



PS1N, PS1E, PS2S, PS2E, PS3S, PS3W, PS4N, PS4W

LEGEND

- EX. SIGNAL HEAD
- EX. PEDESTRIAN HEAD
- EX. PUSHBUTTON
- EX. PULL BOX
- EX. SIGNAL POLE
- PROP. SIGNAL POLE
- PROP. VEHICLE SIGNAL
- PROP. PEDESTRIAN SIGNAL
- PROP. OVERHEAD SIGN
- PROP. CONTROLLER
- PROP. PUSHBUTTON
- PROP. CONDUIT
- PROP. PULL BOX

OVERHEAD SIGNAL SUPPORT DATA

POLE NUMBER	STATION	OFFSET (FEET) AND SIDE	TC-81.21 DESIGN NO.	TOP OF FOUNDATION ELEVATION (FEET)	ARM ATTACHMENT HEIGHT (FEET)	POLE HEIGHT	MAST ARM DATA: ARM LENGTH FROM ARM BUTT TO END OF ARM (FEET)	SIGNAL NO.	DISTANCE FROM ARM BUTT TO CENTER OF HEAD (FEET)	SIGN NO.	DISTANCE FROM ARM BUTT TO CENTER OF SIGN (FEET)			MAST ARM A / INDEX ANGLE (DEG)	ANGLES (DEG) FROM INDEX LINE (ALL ANGLES MEASURES CLOCKWISE C): PEDESTRIAN SIGNALS	PEDESTRIAN PUSHBUTTONS	POWER SERVICE	SIGNAL CONDUIT ELL			HANDHOLE	SIGN
P1	661+38.2	56.71' RT	13	883.70	20'	21.50'	57.0'	N1	38.2'	OSS1	55.2'			0	10/260	10/260	–	250			180	–
								N2	50.2'													
Ex. P2	EXISTING	EXISTING	–	–	–	–	–	Ex E1	–	OSW1	42.2'			–	10/290	10/290	–	Ex.			–	–
								Ex E2	–													
Ex. P3	EXISTING	EXISTING	–	–	–	–	–	Ex S1	–	OSN1	28.5'			–	175/270	0/290	–	Ex.			–	–
								S2	22.0'													
P4	661+23.9	53.58' LT	12	883.40	20'	21.50'	48.0'	W1	34.6'	OSE1	43.6'			87	260/355	260/355	–	230			180	–
								W2	46.6'													

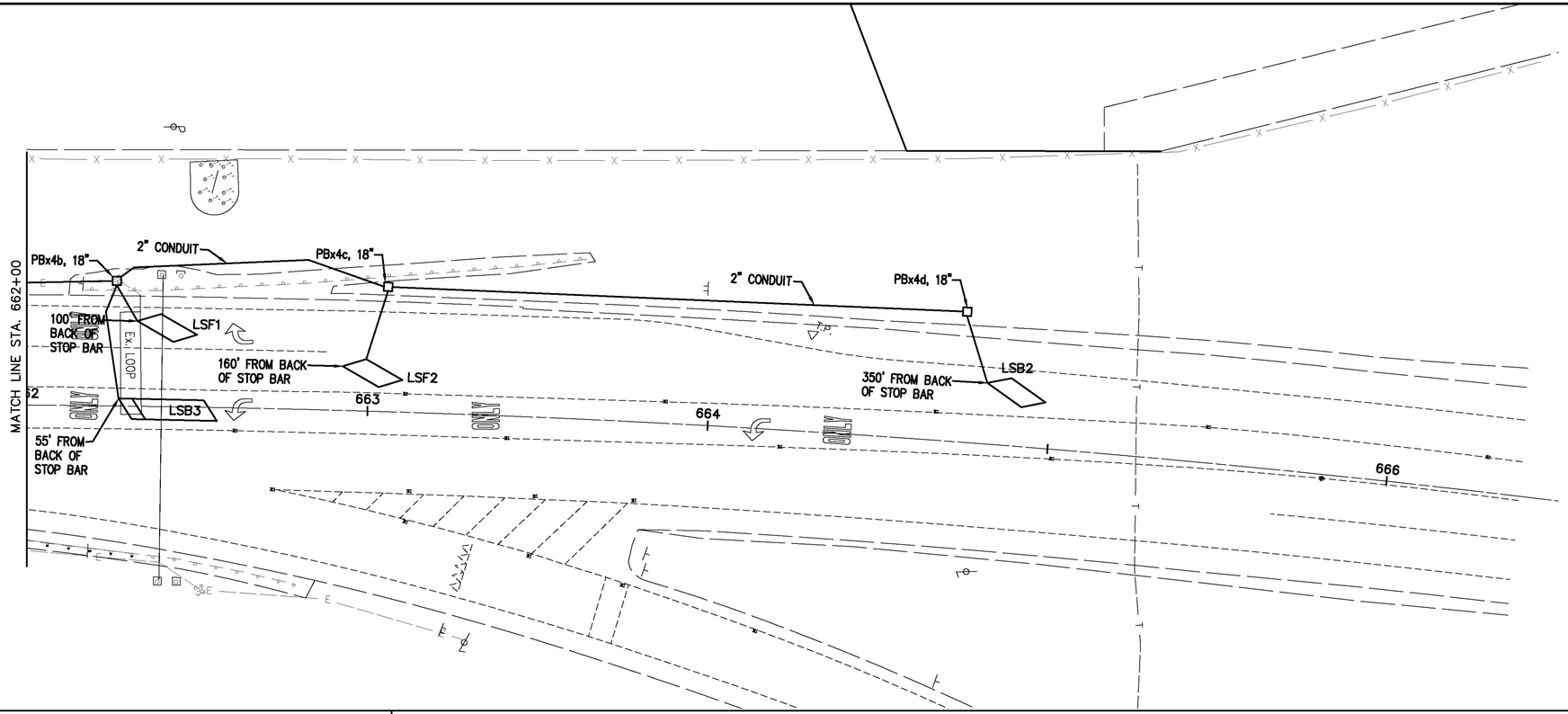
N

SCALE IN FEET: 0 10 20 40

CALCULATED MJT
CHECKED AVS

INTERSECTION IMPROVEMENTS OF SR 66 AND McKINLEY RD/FORTMAN DR
TRAFFIC SIGNAL PLAN

AUG-66-12.50



LOOP DETECTOR SUMMARY

LOOP	TYPE	SIZE	No. OF TURNS	ASSOC. PHASE	TYPE AMPLIFIER	DELAY OVERRIDE	EXT. (SEC)	DELAY (SEC)	
LNB1	EXISTING	EXISTING	EXISTING	2	DELAY/EXTEND		2.5		
LNF1	POWERHEAD	6 X 25	3 + 3	5	DELAY/EXTEND	Ø5 GRN	3.0	3	ASSIGNED Ø
				2	DELAY/EXTEND		3.0		CROSS SWITCH Ø
LSF1	A.D.D.	A=4.5	4	6	DELAY/EXTEND		2.5		
LSB2	A.D.D.	A=4.5	4	6	DELAY/EXTEND		3.0		
LSF2	A.D.D.	A=4.5	4	6	DELAY/EXTEND		2.5		
LSB3	POWERHEAD	6 X 25	3 + 3	1	DELAY/EXTEND	Ø1 GRN	3.5	3	ASSIGNED Ø
				6	DELAY/EXTEND		3.5		CROSS SWITCH Ø
LSF3	RECTANGULAR	6 X 25	3	6	DELAY/EXTEND	Ø6 GRN	0.0	10	ASSIGNED Ø
				1	DELAY/EXTEND	Ø1 GRN	0.0	10	CROSS SWITCH Ø
LEF1	POWERHEAD	6 X 25	3 + 3	4	DELAY/EXTEND		0.0		
LEF2	POWERHEAD	6 X 25	3 + 3	4	DELAY/EXTEND	Ø4 GRN	0.0	3	
LWF1	POWERHEAD	6 X 25	3 + 3	8	DELAY/EXTEND	Ø8 GRN	0.0	10	
LWF2	POWERHEAD	6 X 25	3 + 3	8	DELAY/EXTEND	Ø8 GRN	0.0	3	

NOTES: ALL LOOP DETECTORS SHALL BE CENTERED IN THEIR RESPECTIVE LANES UNLESS OTHERWISE SHOWN. FIELD LOCATION AND LAYOUT SHALL BE COORDINATED WITH THE CITY BEFORE INSTALLATION. ALL LOOPS ARE TO BE IN PRESENCE MODE.

PULL BOX DATA

PULL BOX NUMBER	STATION	OFFSET (FEET) AND SIDE	PULL BOX SIZE
PBx1a	661+26.6	60.19' RT	24"
PBx4a	661+38.2	37.48' LT	24"
PBx4b	662+26.0	36.70' LT	18"
PBx4c	663+05.0	36.70' LT	18"
PBx4d	664+73.5	38.30' LT	18"

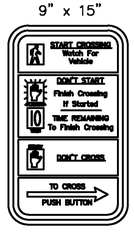
30" x 36"

SIGN	OSE1, OSS1, OSW1, OSN1
SIZE	R3-5L

THE EXISTING LEFT TURN LANE USE SIGNS SHALL BE REMOVED AND THE NEW LEFT TURN LANE USE SIGNS SHALL BE ATTACHED TO THE MAST ARM NEAREST TO ITS ASSOCIATED LANE, AS SHOWN ON THE PLANS. THE EXISTING RIGHT TURN LANE USE SIGN SHALL REMAIN.

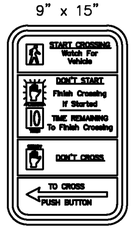
PEDESTRIAN SIGNS (R10-3e)

9" x 15"



PEDESTRIAN SIGN WITH ARROW POINTING TO THE RIGHT SHALL BE PLACED ABOVE THE PEDESTRIAN PUSHBUTTONS Pb1S, Pb2W, Pb3N, Pb4E.

9" x 15"



PEDESTRIAN SIGN WITH ARROW POINTING TO THE LEFT SHALL BE PLACED ABOVE THE PEDESTRIAN PUSHBUTTONS Pb1W, Pb2N, Pb3E, AND Pb4S.

LEGEND

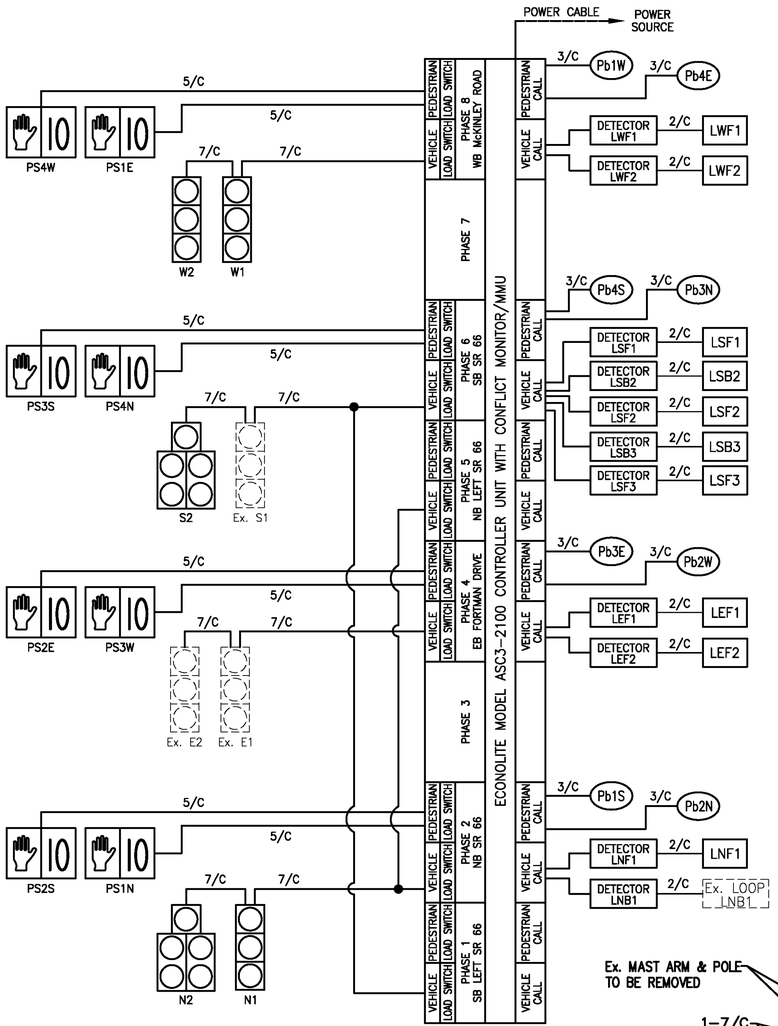
- EX. SIGNAL HEAD
- EX. PEDESTRIAN HEAD
- EX. PUSHBUTTON
- EX. PULL BOX
- EX. SIGNAL POLE
- PROP. SIGNAL POLE
- PROP. VEHICLE SIGNAL
- PROP. PEDESTRIAN SIGNAL
- PROP. OVERHEAD SIGN
- PROP. CONTROLLER
- PROP. PUSHBUTTON
- PROP. CONDUIT

0 10 20 40
SCALE IN FEET

CALCULATED MJT
CHECKED AVS

INTERSECTION IMPROVEMENTS OF SR 66 AND McKINLEY RD/FORTMAN DR
TRAFFIC SIGNAL PLAN

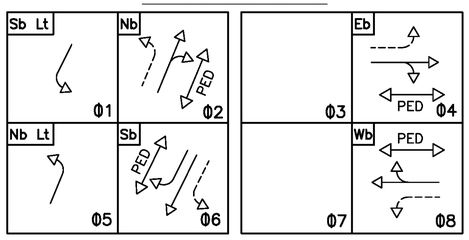
AUG-66-12.50



WIRING DIAGRAM

2/C = SHIELDED LOOP LEAD-IN CABLE
3/C = 3 CONDUCTOR SIGNAL CABLE
5/C = 5 CONDUCTOR SIGNAL CABLE
7/C = 7 CONDUCTOR SIGNAL CABLE

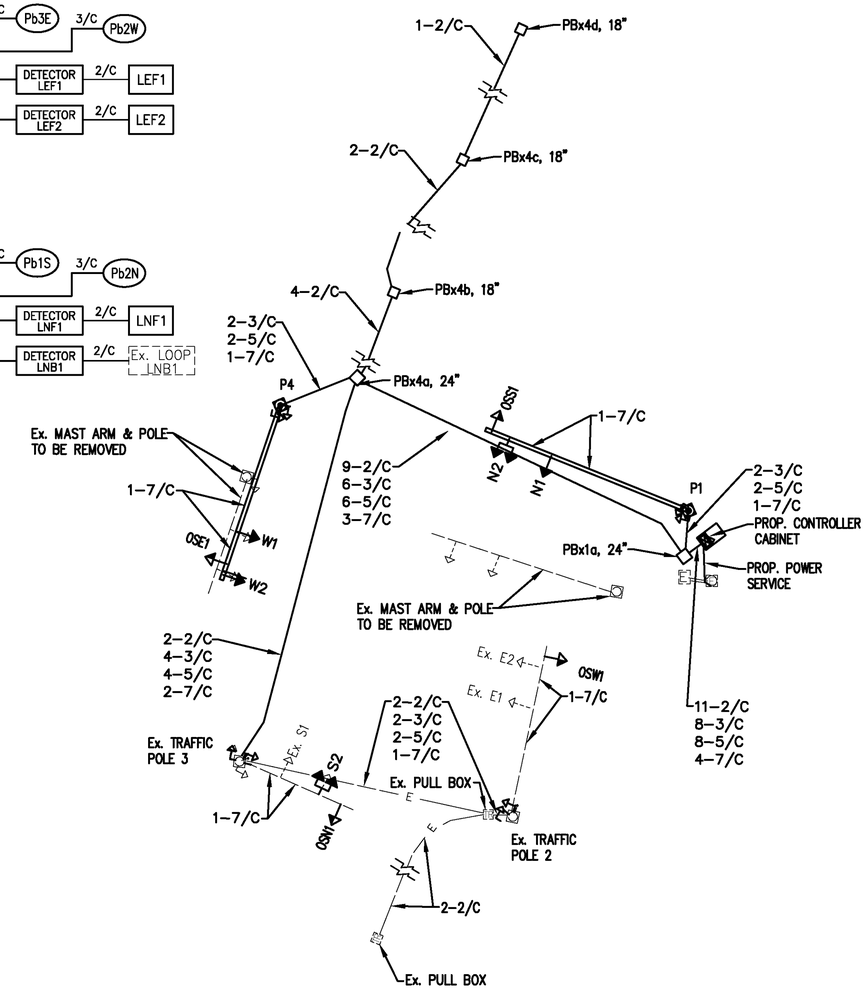
PHASE SEQUENCE



NOTE: FOLLOWS DEFINITIONS IN NEMA TS-1-1994 INCLUDING ALL REVISIONS THERETO.

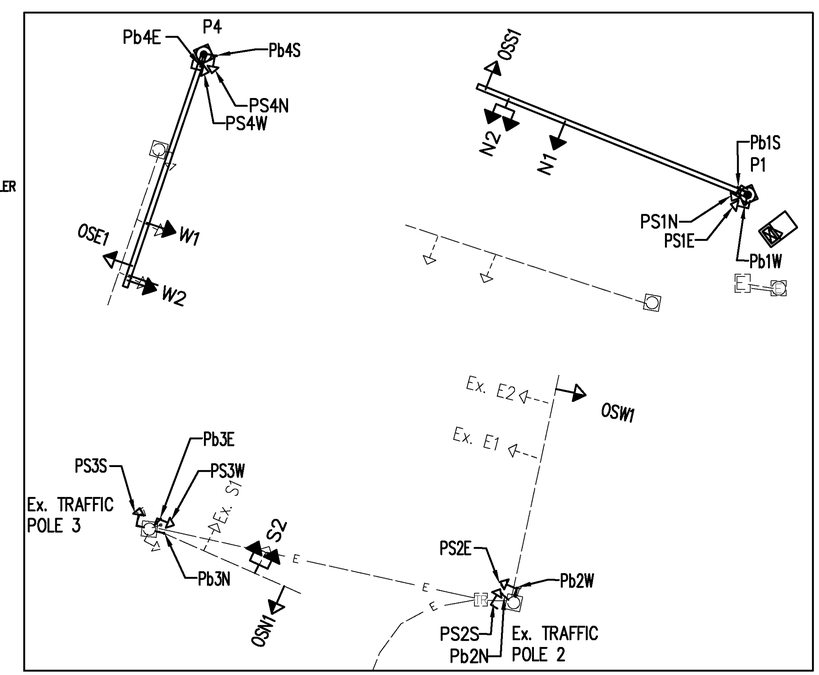
TIMING CHART

CPU										
START IN				PHASE TIMING						
			CONTROLLER Φ	1	2	3	4	5	6	7	8
			INTERSECTION Φ	SB Lt	NB		EB	NB Lt	SB		WB
FLASH	X		RECALL MAX.	OFF	OFF		OFF	OFF	OFF		OFF
ALL RED			MIN.	OFF	ON		OFF	OFF	ON		OFF
FLASH/AR			PED.	OFF	OFF		OFF	OFF	OFF		OFF
TIME	10		NON ACT 1								
FIRST			2								
PHASES	2,6		NON-LOCK MEMORY	ON	ON		ON	ON	ON		ON
GREEN	X		ADDED PER ACT								
YELLOW			INITIAL MIN.	8	15		8	8	15		8
EXCLUSIVE			MAX.								
PHASES			PED WALK		7		7		7		7
GENERAL			PROTECT		21		28		21		28
			EXTENSION PRESET	0.1	0.1		3.5	0.1	0.1		3.5
DUAL ENTRY	ON		MIN.								
G.P.T.			REDUCTION BEFORE								
SIM. GAP	ON		TO MIN.								
MAX. EXT.			MAXIMUM I	20	45		30	20	45		30
RED 1-4			II								
REST 5-8			CLEAR YELLOW	4.0	4.0		4.0	4.0	4.0		4.0
MIN. RED			RED	2.0	2.0		2.0	2.0	2.0		2.0
CON. SERV.			MANUAL FLASH		Y		R		Y		R
REST IN WALK			(ON/OFF)		OFF		OFF		OFF		OFF



S.R. 66/McKINLEY RD. TRAFFIC SIGNAL SUB-SUMMARY

ITEM	QUAN.	UNIT	DESCRIPTION
625	393	FT.	CONDUIT, 2", 725.051, AS PER PLAN
625	14	FT.	CONDUIT, 3", 725.051, AS PER PLAN
625	107	FT.	CONDUIT, JACKED OR DRILLED, 725.052, 3", AS PER PLAN
625	100	FT.	CONDUIT, JACKED OR DRILLED, 725.052, 4", AS PER PLAN
625	3	EACH	PULL BOX, 725.08, 18"
625	2	EACH	PULL BOX, 725.08, 24"
625	3	EACH	PULL BOX REMOVED
625	3	EACH	GROUND ROD
630	4	EACH	SIGN HANGER ASSEMBLY, MAST ARM
630	30	S.F.	SIGN, FLAT SHEET
632	3	EACH	VEHICULAR SIGNAL HEAD, LED, 3-SECTION,
			12 INCH LENS, 1-WAY, AS PER PLAN
632	2	EACH	VEHICULAR SIGNAL HEAD, LED, 5-SECTION,
			12 INCH LENS, 1-WAY, AS PER PLAN
632	8	EACH	PEDESTRIAN SIGNAL HEAD, LED, COUNTDOWN, TYPE D2, AS PER PLAN
632	8	EACH	COVERING OF VEHICULAR SIGNAL HEAD
632	8	EACH	COVERING OF PEDESTRIAN SIGNAL HEAD
632	8	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	10	EACH	DETECTOR LOOP, AS PER PLAN
632	1526	FT.	SIGNAL CABLE, 3 CONDUCTOR, NO. 14 AWG
632	1558	FT.	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
632	1029	FT.	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
632	2	EACH	SIGNAL SUPPORT FOUNDATION
632	2432	FT.	LOOP DETECTOR LEAD-IN CABLE
632	40	FT.	POWER CABLE, 2 CONDUCTOR, NO. 6 AWG
632	40	FT.	SERVICE CABLE, 2 CONDUCTOR, NO. 6 AWG
632	1	EACH	POWER SERVICE, AS PER PLAN
632	1	EACH	CONDUIT RISER, 2" DIAMETER
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 12, AS PER PLAN
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.21, DESIGN 13, AS PER PLAN
632	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION FOR STORAGE, AS PER PLAN
632	3	EACH	SIGNALIZATION, MISC.: UPGRADE EXISTING TRAFFIC SIGNAL HEAD BACK PLATE
633	1	EACH	CONTROLLER UNIT, TYPE TS2/A2, WITH CABINET, TYPE TS-1,
			(ECONOLITE MODEL ASC/3-2100), AS PER PLAN
633	1	EACH	CABINET RISER
633	1	EACH	CABINET FOUNDATION
633	1	EACH	CONTROLLER WORK PAD, AS PER PLAN



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SCALE IN FEET 0 10 20 40

CALCULATED MJT
CHECKED AVS

INTERSECTION IMPROVEMENTS OF SR 66 AND McKINLEY RD/FORTMAN DR
TRAFFIC SIGNAL PLAN

AUG-66-12.50

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO or AT	SIDE			630 REMOVAL OF GROUND MOUNTED SIGN AND REERECTION EACH	630 REMOVAL OF GROUND MOUNTED POST SUPPORT AND REERECTION EACH	630 REMOVAL OF POLE MOUNTED SIGN AND REERECTION EACH				644 EDGE LINE, 4" MILE	644 CENTER LINE MILE	644 CHANNELIZING LINE, 8" FT.	644 STOP LINE FT.	644 CROSSWALK LINE FT.	644 LANE ARROW EACH	644 REMOVAL OF PAVEMENT MARKING FT.	
29	CL-1	STATE ROUTE 66	661+70.93	661+95.88	RT										.005						
29	CH-1	STATE ROUTE 66	661+31.43	661+75.77	LT											45					
29	CW-1	McKINLEY ROAD/ FORTMAN DR.		31+64.72	RT/LT													146			
29	CW-2	McKINLEY ROAD/ FORTMAN DR.		30+76.852	RT/LT													118			
29	CW-3	STATE ROUTE 66		661+27.18	RT/LT													176			
29	EL-1	STATE ROUTE 66	661+26.36	661+55.84	LT									.006							
29	EL-2	STATE ROUTE 66	661+58.27	662+00.23	RT									.008							
29	SL-1	STATE ROUTE 66		661+31.40	LT												30				
29	SL-2	STATE ROUTE 66		661+70.90	RT/LT												12				
29	SL-3	McKINLEY ROAD/ FORTMAN DR.		31+76.50	LT												27				
29	R-1	STATE ROUTE 66		661+96.00	RT/LT															12	
29	R-2	STATE ROUTE 66		661+75.80	LT															12	
29	R-3	STATE ROUTE 66		661+25.90	LT															12	
29	R-4	STATE ROUTE 66	661+26.93	661+30.23	LT															5	
29	R-5	McKINLEY ROAD/ FORTMAN DR.		31+66.02	LT															9	
29	R-6	McKINLEY ROAD/ FORTMAN DR.	31+66.98	31+76.47	LT															10	
29	R-7	McKINLEY ROAD/ FORTMAN DR.		31+56.74	RT/LT															100	
29	R-8	STATE ROUTE 66	661+17.66	662+00.37	RT															83	
29	S-1	STATE ROUTE 66		662+16.17	LT			1	2												
29	S-2	STATE ROUTE 66		661+59.40	RT			1	1												
29	S-3	STATE ROUTE 66		661+55.00	RT					2											
29		STATE ROUTE 66		661+71.00	RT/LT														1		
SUBTOTAL								2	3	2				.014	.005	45	69	440	1	231	
TOTALS CARRIED TO TRAFFIC CONTROL SUMMARY OR GENERAL SUMMARY								2	3	2				.01	.01	45	69	440	1	231	

CALCULATED BHB
CHECKED AVS

SIGNING AND PAVEMENT MARKING SUB-SUMMARY

AUG-66-12.50

SIGN LEGEND

- NEW SIGN
- EXISTING SIGN TO REMAIN
- EXISTING SIGN TO BE REMOVED AND REERECTED

N

0 10 20 40
SCALE IN FEET

CALCULATED BHB
CHECKED AVS

PAVEMENT MARKING AND SIGNING PLAN

AUG-66-12.50