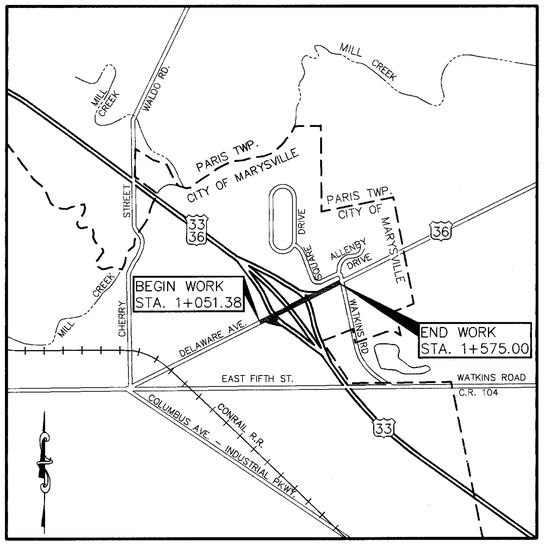

LOCATION MAP

LATITUDE: 40°14'10"

LONGITUDE: 83°21'00"

0 750 1500 3000 5000

SCALE IN FEET

PORTION TO BE IMPROVED.....
STATE & FEDERAL ROUTES.....
OTHER ROUTES.....

DESIGN DESIGNATION

	U.S. 36
CURRENT ADT (1994)	18,680
DESIGN YEAR ADT (2015)	28,310
D.H.V	2,831
D	58%
T	10%
LEGAL SPEED	35 mph
DESIGN SPEED	80 km/h
FUNCTIONAL CLASSIFICATION	ARTERIAL (URBAN)

DESIGN EXCEPTIONS

NONE

PLAN PREPARED BY:

CIVIL ENGINEERING ASSOCIATES, INC.
9015 ANTARES AVE.
COLUMBUS, OHIO 43240
(614) 433-9015

STATE OF OHIO JAMES E. GABRIEL NO. 33377 REGISTERED PROFESSIONAL ENGINEER

James E. Gabriel 5/24/99
CIVIL ENGINEERING ASSOC., INC. & ENVIRONMENTAL DESIGN GROUP DATE

TRAFFIC ENGINEERING SERVICES, INC.
3001 BETHEL ROAD, SUITE 207
COLUMBUS, OHIO 43220
(614) 459-1892

STATE OF OHIO Gerald L. Wilcox #E-34357 REGISTERED PROFESSIONAL ENGINEER

Gerald L. Wilcox 5/29/99
TRAFFIC ENGINEERING SERVICES, INC. DATE

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
UNI-36-21.194
CITY OF MARYSVILLE
UNION COUNTY

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UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL: 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON MEMBERS MUST BE CALLED DIRECTLY

STANDARD CONSTRUCTION DRAWINGS										SUPPLEMENTAL SPECIFICATIONS	
BP-7.1M	10-28-94	TC-21.20M	02-01-94	TC-51.12M	03-31-94	TC-85.20M	01-20-84	DM-4.3	4-29-99	806	09-09-97
		TC-41.10M	03-31-94	TC-52.10M	07-29-94			DM-4.4	4-29-99		
CB-2.2M	07-12-95	TC-41.20M	07-01-94	TC-52.20M	07-29-94	MT-95.30M	04-25-94			830	10-21-98
		TC-41.40M	03-31-94	TC-71.10M	09-01-93	MT-95.31M	04-25-94				
F-2.1M	04-08-97	TC-41.41M	03-31-94	TC-81.10M	11-24-93	MT-95.32M	04-25-94	HL-20.11M	03-31-95	877	4-13-99
F-3.2M	04-08-97	TC-42.10M	03-31-94	TC-82.10M	11-24-93	MT-95.40M	04-25-94	HL-30.11M	03-31-95		
		TC-42.20M	03-31-94	TC-83.10M	03-19-92	MT-97.10M	04-25-94	HL-30.21M	05-01-95	906	5-5-98
RM-4.3M	10-21-97	TC-51.11M	09-30-94	TC-83.20M	11-24-93	MT-105.10M	04-25-94	HL-30.22M	03-31-95		
		TC-52.11M	01-03-94	TC-84.20M	11-24-93	MT-105.11M	04-25-94	HL-60.11M	05-01-95	908	1-6-99

metric units

PROJECT DESCRIPTION

IMPROVEMENT OF THE INTERCHANGE OF U.S. ROUTE 36 & U.S. ROUTE 33 BY THE INSTALLATION OF TRAFFIC SIGNALS AT THE RAMP INTERSECTIONS AND CONSTRUCTING APPROPRIATE TURN LANES.

1997 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED ON 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 SET FORTH ON THE PLANS AND ESTIMATES.

CONSTRUCTION INITIATION

THE CONTRACTOR SHALL ADVISE THE DISTRICT OFFICE OF COMMUNICATIONS AT 1-(614) 363-1251, EXTENSION 469 OR BY FAX AT 1-(614) 369-7437 14 DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR WILL IMMEDIATELY INFORM THE DISTRICT OFFICE OF COMMUNICATIONS AND THE DISTRICT MAINTENANCE OF TRAFFIC ENGINEER (EXTENSION 323) 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.

FOR THE CITY OF MARYSVILLE:

Joel W. Allen 5-25-99
CITY ENGINEER DATE

PLANS CERTIFIED BY:

Dick Patrick 6/4/99
NAME: DATE:
DISTRICT 6
OHIO DEPT. OF TRANSPORTATION

Jack B. Marchbanks 6/8/99
DISTRICT DEPUTY DIRECTOR OF TRANSPORTATION DATE

Gordon Proctor 6/25/99
DIRECTOR, DEPARTMENT OF TRANSPORTATION DATE

FEDERAL PROJECT NO. TE21-6990(717)

PID NO. 18424

CONSTRUCTION PROJECT NO. UNI-36-21.194

RAILROAD INVOLVEMENT NONE

1/42

UNI-USR 36-21.194
990657
DIST 06

PID# 18424
09-29-99

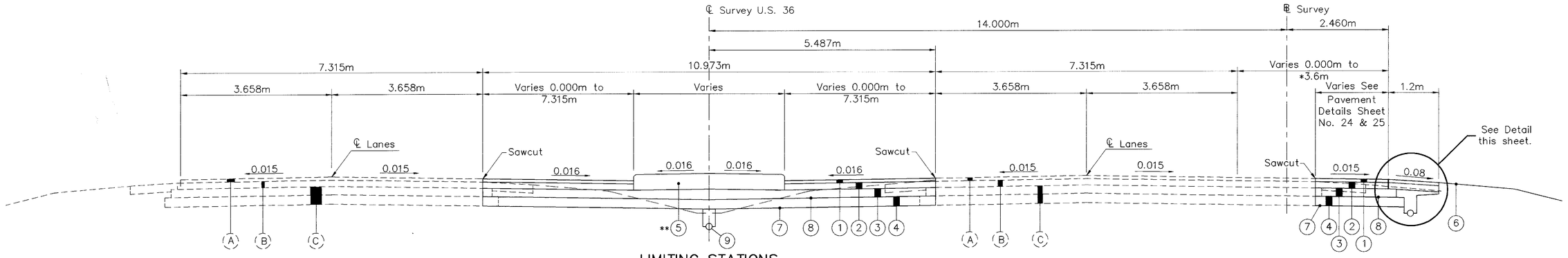
GFA FILE NAME: S:\97\ORIG\ST\18424.DWG LAST EDITED BY DELL ON: 05-18-99 @ 15:57

Note

See Pavement Detail Sheet 25/42 for variable width dimensions, and transitional width and location of raised concrete median.

TYPICAL SECTIONS

TYPE 404 ON 301

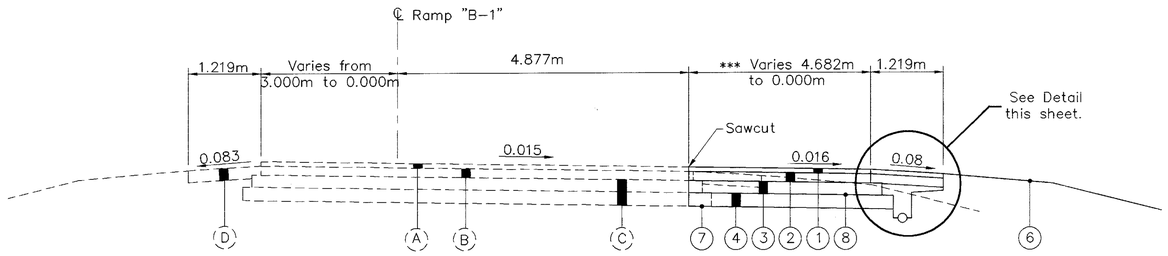


LIMITING STATIONS

Sta. 1+163.07 to Sta. 1+314.95 = 151.88m
Sta. 1+051.38 to Sta. 1+134.28 = 75.61m

* Transitions from 0.000m to 3.658m from Sta. 1+051.38 to Sta. 1+058.75

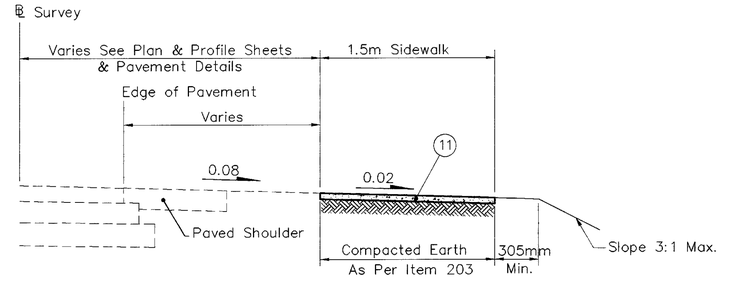
** Concrete Median constructed Sta. 1+166.00 to Sta. 1+311.50



*** Transitions from 4.682m to 0.00m from Sta. 0+015.52 to Sta. 0+033.70

RAMP "B-1" – LIMITING STATIONS

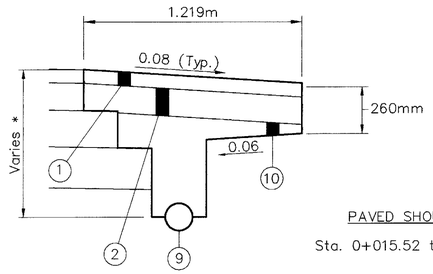
Sta. 0+015.52 to Sta. 0+068.00 = 52.48m



Concrete Walk

LIMITING STATIONS

Sta. 1+085.06 to Sta. 1+146.00 = 60.94m
Sta. 1+155.00 to Sta. 1+327.00 = 172.00m
Sta. 1+339.66 to Sta. 1+542.73 = 203.07m

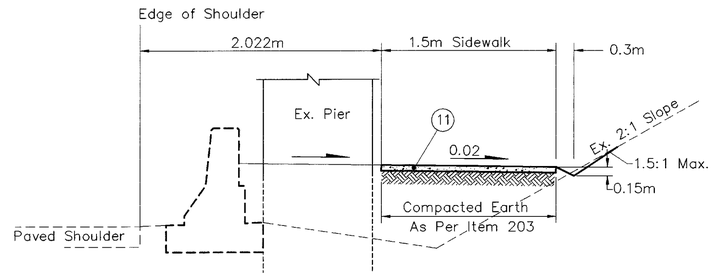


PAVED SHOULDER – RAMP "B-1"

Sta. 0+015.52 to Sta. 0+068.00 = 52.48m

PAVED SHOULDER DETAIL

Not To Scale



Concrete Walk @ Pier w/Concrete Barrier

LIMITING STATIONS

Sta. 1+220.00 to Sta. 1+264.00 = 44.00m

LEGEND

(1)	Item 448	32mm Asphalt Concrete, Surface Course, Type IH
(2)	Item 448	45mm Asphalt Concrete, Intermediate Course, Type I, PG 64-28
(3)	Item 301	150mm Bituminous Aggregate Base, PG 64-22
(4)	Item 304	200mm Aggregate Base
(5)	Item 830	Concrete Median
(6)	Item 659	Seeding and Mulching (See General Note)
(7)	Item 203	Subgrade Compaction
(8)	Item 408	Bituminous Prime Coat @ 1.8 L/m²
(9)	Item 605	100mm Unclassified Underdrain
(10)	Item 304	Aggregate Base, (Variable depth)
(11)	Item 608	100mm Concrete Walk
(A)		76mm± Asphalt Concrete (Resurfacing)
(B)		Asphalt Concrete
(C)		Aggregate Base
(D)		Aggregate Shoulder

CALCULATED WHG III CHECKED JEG

TYPICAL SECTIONS – U.S. 36

UNI-36-21.194

2/42

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ITEM	SHEET NUMBER															ITEM	ITEM EXTEN	QUANT.	UNIT	DESCRIPTION
	4	5	6	7	8	10	11	12	13	14	15	16	23							
																				ROADWAY
201																201	11000	Lump	Lump	Clearing and Grubbing
202							4.5	634.0								202	23000	638.5	Sq. M.	Pavement Removed
202								50.0								202	32000	50.0	Meter	Curb Removed
202								18.0								202	35100	18.0	Meter	Pipe Removed, 600m and under
202								1								202	58100	1	Each	Catch Basin Removed
202								1	1							202	58500	2	Each	Catch Basin Abandoned
202							3.0									202	75000	3.0	Meter	Fence Removed
202								1								202	75501	1	Each	Light Pole Foundation Removed, As Per Plan
203													429.7			203	12000	429.7	Cu. M.	Excavation Not Including Embankment Construction
203													623.3			203	20000	623.3	Cu. M.	Embankment
203						585.0										203	50000	585.0	Sq. M.	Subgrade Compaction
607							4.0									607	16000	4.0	Meter	Fence Rebuilt, Type 47
																				EROSION CONTROL
877	372															877	10000	372	Sq. M.	Temporary Seeding and Mulching
877	100															877	30100	100	Meter	Temporary Perimeter Filter Fabric Fence
877	16															877	30300	16	Meter	Temporary Inlet Protection Filter Fabric Fence
659													1859.6			659	10000	1859.6	Sq. M.	Seeding and Mulching
659	93															659	14000	93	Sq. M.	Repair Seeding and Mulching
659	93															659	20000	93	Kilogram	Commercial Fertilizer
659	19															659	35000	19	Cu. M.	Water
																				DRAINAGE
603								3.0								603	06100	3.0	Meter	375mm Conduit, Type C, 706.02
603							3.0		6.0							603	10600	9.0	Meter	600mm Conduit, Type C, 706.02
604								1	1							604	10900	2	Each	Inlet, Median, 1.8m
604																				
605							42	182	100	12						605	05200	336	Meter	100mm Unclassified Pipe Underdrain
																				PAVEMENT
301						281										301	46000	281	Cu. M.	Bituminous Aggregate Base, PG64-22
304						411										304	20000	411	Cu. M.	Aggregate Base
408						4.0										408	10000	4.0	Liters	Bituminous Prime Coat
448						90										448	46010	90	Cu. M.	Asphalt Concrete Intermediate Course, Type 1, PG64-28
448						64										448	50000	64	Cu. M.	Asphalt Concrete Surface Course, Type 1H
608							54.3	136.0	152.4	132.0	152.4	117.0				608	10000	744.1	Sq. M.	100mm Concrete Walk
608							1					2				608	51000	3	Each	Curb Ramp, Type 2
830								113.0	408.0	28.0						830	72000	549.0	Sq. M.	Concrete Median
																				LIGHTING
625								2								625	01500	2	Each	Cable Splicing Kits
625								1								625	14500	1	Each	Light Pole Foundation
625								126.0								625	23000	126.0	Meter	No. 4 AWG, 600 Volt Distribution Cable
625								37.5								625	25400	37.5	Meter	Conduit, 51mm, 713.04
625								13.5								625	25900	13.5	Meter	Conduit, Jacked or Drilled Under Pavement, 51mm
625								37.5								625	29000	37.5	Meter	Trench
625								2								625	30601	2	Each	Pullbox, 713.09, 600mm, As Per Plan
625								2								625	31510	2	Each	Pullbox Removed
625										1	1	3				625	31600	5	Each	Pullbox Misc: Pullbox Adjusted to Grade
625								1								625	32000	1	Each	Ground Rod
625								1								625	35011	1	Each	Remove & Recrect Existing Light Pole, As Per Plan
625								Lump								625	98200	Lump	Lump	Light Misc: Disconnect Existing Circuit, As Per Plan
																				MAINTENANCE OF TRAFFIC
614		40														614	11100	40	Hour	Law Enforcement Officer with Patrol Car
614		90														614	13300	90	Each	Barrier Reflectors, Type B
614				6	2											614	12400	8	Each	Temporary Impact Attenuator - Misc: G.R.E.A.T. Type
614		0.2														614	13000	0.2	Cu. M.	Bituminous Concrete for Maintaining Traffic
614		90														614	13350	90	Each	Object Marker
614		1														614	18500	1	Each	Portable Changeable Message Sign
614		0.80		0.79	0.44											614	22200	2.03	Kilometer	Temporary Edge Line, Class 1, 740.06, Type 1
616		4														616	10000	4	Cu. M.	Water
616		1														616	20000	1	M. Ton	Calcium Chloride
622				358.5	230											622	40020	588.5	Meter	Portable Concrete Barrier, 813mm
614		5														Special	61412500	5	Sq. M.	Replacement Sign
614		10														Special	61412600	10	Each	Replacement Drum
614		5														Special	61412760	5	Each	Flashing Arrow Panel
																				FOR TRAFFIC CONTROL SUMMARY, SEE SHEET 26.
614		Lump														614	11001	Lump	Lump	Maintaining Traffic, As Per Plan
806																806	16000	8	Month	Field Office, Type A
623																623	10000	Lump	Lump	Construction Layout Stakes
624																624	10000	Lump	Lump	Mobilization

CALCULATED WHG III
CHECKED JEG

GENERAL SUMMARY

UNI-36-21.194

3
42

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GENERAL NOTES

CLEARING AND GRUBBING
ALTHOUGH THERE ARE NO TREES AND/OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THIS PROJECT. A LUMP SUM QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

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

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

UNDERGROUND UTILITIES:
THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THIS PLAN ARE AS OBTAINED FROM THE OWNERS OF THE UTILITY AS REQUIRED BY SECTION 153.64 ORC.

UTILITY OWNERSHIP:
THE FOLLOWING UTILITIES AND OWNERS ARE LOCATED WITHIN THE WORK LIMITS OF THIS PROJECT:

TELEPHONE: SPRINT – UNITED TELEPHONE COMPANY
127 N. MAIN STREET
BELLEFONTAINE, OHIO 43311
(513) 599-9283

ELECTRIC: P.O. BOX 1247
DAYTON POWER & LIGHT COMPANY
COURTHOUSE PLAZA S.W.
DAYTON, OHIO 45401
(513) 331-4498

CABLE: WARNER CABLE
14500 INDUSTRIAL PARKWAY
MARYSVILLE, OHIO 43040
(513) 644-9171

GAS: COLUMBIA GAS OF OHIO, INC.
939 W. GOODALE BLVD.
COLUMBUS, OHIO 43312
(614) 460-2238

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.

ELEVATION DATUM
ALL ELEVATIONS ARE BASED ON THE FOLLOWING USGS DATUM:

LOT #1, MARYSVILLE SQUARE INDUSTRIAL COMMERCE PARK ON ALLENBY DRIVE, NORTH BOLT OF FIRE HYDRANT LOCATED 43' NORTH OF THE LOT LINE OF WEST OF SQUARE DRIVE.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL
THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE **AS PLACED BY THE CONTRACTOR WITH THE ENGINEER'S CONCURRENCE FOR** TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

877	TEMPORARY SEEDING AND MULCHING	372 SQ. METER
877	TEMPORARY INLET PROTECTION FILTER FABRIC FENCE	16 METER
877	TEMPORARY PERIMETER FILTER FABRIC FENCE	100 METER
659	COMMERCIAL FERTILIZER	93 KG
659	WATER	19 CU. METER
659	REPAIR SEEDING AND MULCHING	93 SQ. METER

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 ITEM 659, SEEDING AND MULCHING, ARE BASED ON THESE LIMITS.

WATERING PERMANENT SEEDED AREAS:
THE FOLLOWING ESTIMATED QUANTITY IS TO BE USED AS DIRECTED BY THE ENGINEER TO PROMOTE GROWTH AND TO CARE FOR THE PERMANENT SEEDED AREAS, AS PER 659.09:

ITEM 659	WATER	19 CU. METER

LIGHTING GENERAL NOTES

ITEM 202-LIGHT POLE FOUNDATION REMOVED. AS PER PLAN

This item of work shall include removing the existing concrete foundation to a depth of one foot below the final ground line except where interference with other lighting items may occur, then the entire foundation shall be removed and the hole backfilled. Payment shall be per each, Item 202-Light Pole Foundation Removed, As Per Plan.

ITEM 625-REMOVE AND REERECT EXISTING LIGHT POLE. AS PER PLAN

At the location indicated in the plans, the Contractor shall carefully remove the existing Light Pole, Bracket arm, Luminaries and Lamp from the existing foundation, the luminaries. the existing Pole and Bracket Cable shall be reused. The Light Pole, Bracket Arm, and Luminaries shall be reerected on a new Light Pole Foundation, and oriented as directed on the plans. Payment for this item of work shall be at the contract bid price for Item 625- Remove and Reerect Existing Light Pole, As Per Plan, and shall include all labor, materials including new connector kits, and all incidentals necessary to complete the work as directed.

ITEM 625-LIGHTING MISC.: DISCONNECT EXISTING CIRCUIT. AS PER PLAN

This item of work shall consist of disconnecting the existing circuit to perform the work necessary to cut cables, remove splice kits, and abandon the cables no longer needed. Although the cables which will need to be reused shall be cut in such a manner that sufficient cable remains for making reconnecting splices.

Payment will be made at the Lump Sum price bid for Item 625-Lighting Misc.: Disconnect Existing Circuit, As Per Plan, which shall be full compensation for all labor, materials, and incidentals required for the completion of the work in a satisfactory manner.

Payment for circuit connections is incidental to the price bid for each Item 625-Connector Kits or each Item 625-Cable Splicing Kit.

CALCULATED · CHECKED ·

GENERAL NOTES

UNI-36-21.194

DEA FILE NAME: S:\97\GSBO\ST78BGN1.DWG LAST EDITED BY: DELL ON: 05-21-99 @ 08:03
ST78BGN1 1:1

CONSTRUCTION INITIATION

THE CONTRACTOR SHALL ADVISE THE DISTRICT COMMUNICATIONS OFFICER AT 1-(740) 363-1251, EXTENSION 469 OR BY FAX AT 1-(740) 369-7437 FOURTEEN (14) DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR WILL IMMEDIATELY INFORM THE DISTRICT MAINTENANCE OF TRAFFIC ENGINEER (EXTENSION 323) 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.

ITEM 614 - MAINTAINING TRAFFIC, AS PER PLAN

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES BY USE OF THE EXISTING AND COMPLETED PAVEMENT.

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

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 ITEM 614 - MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, TO THE DISTRICT SIX MAINTENANCE OF TRAFFIC COORDINATOR, THE CONTRACTOR'S MAINTENANCE OF TRAFFIC PLAN WITH CONSTRUCTION PHASING DESCRIPTIONS, 17 DAYS PRIOR TO BEGINNING WORK.

IN ADDITION TO THE REQUIREMENTS OF ITEM 614 MAINTAINING TRAFFIC, THE FOLLOWING SHALL APPLY:

THE CLOSURES FOR PHASE 1 AND PHASE 2 SHALL BE ACCOMPLISHED BY APPLICATION OF DRUMS, PORTABLE CONCRETE BARRIER (PCB), AND TRAFFIC CONTROL DEVICES AS SHOWN ON ODOT STANDARD CONSTRUCTION DRAWING MT-95.40M AND APPLIED IN THE MOT PLAN FOR THIS PROJECT SHOWN ON SHEETS 6-9. PCB SHALL NOT BE INSTALLED OR REMOVED DURING THE HOURS OF 6 A.M. TO 9 A.M. OR 3 P.M. TO 6 P.M. WEEKDAYS

FOR SIGNAL INSTALLATION, NO LANE CLOSURE SHALL BE IMPLEMENTED ON WEEKENDS, WEEKDAYS DURING THE HOURS OF 6:00 A.M. TO 9:00 A.M. OR 3:00 P.M. TO 6:00 P.M. WEEKDAYS, OR WHEN PHASE 1 OR PHASE 2 WORK ZONES ARE IN PLACE. 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 ON ODOT STANDARD DRAWINGS MT-95.30M, MT-95.31M, MT-95.32M AND MT-97.10M. 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 C-11 THROUGH C-13 OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (OMUTCD). IF THE CONTRACTOR FAILS TO COMPLY WITH THE PROVISIONS FOR TRAFFIC CONTROL AS SET FORTH IN THESE PLANS AND PROVISIONS OF THE 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 ON A MINIMUM OF TWO (2) 3.35 METER LANES SHALL BE MAINTAINED BY USE OF THE EXISTING PAVEMENT. SHORT DURATION CLOSURE (10 MINUTES) MAY BE PERMITTED UNDER THE DIRECTION OF LAW ENFORCEMENT OFFICER(S) (LEO) WITH PATROL CAR TO ERECT SPAN WIRE. PAYMENTS FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR: ITEM 614 - MAINTAINING TRAFFIC, AS PER PLAN.

ITEM SPECIAL REPLACEMENT SIGN

FLAT SHEET, TYPE G SIGNS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS, AND THE PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER. PAYMENT FOR THE NEW SIGNS SHALL BE MADE AT THE BID PRICE PER SQUARE FOOT FOR ITEM SPECIAL REPLACEMENT SIGNS AND SHALL INCLUDE THE COST OF REMOVING AND DISPOSING OF THE DAMAGED SIGNS, HARDWARE SUPPORTS, AND ETC. REPLACEMENT SIGNS SHALL BE NEW, BUT OTHER MATERIALS MAY BE USED SUBJECT TO APPROVAL BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITY OF ITEM SPECIAL, REPLACEMENT SIGNS HAS BEEN CARRIED TO THE GENERAL SUMMARY SHEET, (SHEET 3). ITEM SPECIAL REPLACEMENT SIGN 5 SQ.METER

ITEM SPECIAL REPLACEMENT DRUM

DRUMS FURNISHED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE PLANS, SPECIFICATIONS AND PROPOSAL WHICH BECOME DAMAGED BY TRAFFIC FOR REASONS BEYOND THE CONTROL OF THE CONTRACTOR SHALL BE REPLACED IN KIND WHEN ORDERED BY THE ENGINEER AND PAID FOR UNDER ITEM SPECIAL REPLACEMENT DRUMS. PAYMENT FOR EACH DRUM SHALL INCLUDE:

(1) THE COST OF REMOVING AND DISPOSING OF THE DAMAGED DRUM,
(2) PROVIDING, MAINTAINING AND REMOVING NEW DRUMS IN ACCORDANCE WITH CONTRACT REQUIREMENTS FOR THE ORIGINAL DRUMS.

THE FOLLOWING QUANTITY OF ITEM SPECIAL - REPLACEMENT DRUM HAS BEEN CARRIED TO THE SUMMARY SHEET (SHEET 3). ITEM SPECIAL - REPLACEMENT DRUMS 10 EACH

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR:

IN ADDITION TO THE REQUIREMENTS OF 614 AND THE LATEST EDITION OF 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:

1. FOR LANE CLOSURES: DURING INITIAL SET-UP AND TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT OR WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED.

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

LAW ENFORCEMENT OFFICERS (L.E.O.'S) SHOULD NOT BE USED WHERE THE OMUTCD INTENDS THAT FLAGGERS BE USED. THE LEO'S 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 PROJECT 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:

OHIO HIGHWAY PATROL
1-614-466-2660.

LAW ENFORCEMENT OFFICERS WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS ABOVE SHALL BE PAID FOR ON A UNIT PRICE HOURLY BASIS UNDER ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN PROVIDED:
ITEM 614 - L.E.O. WITH PATROL CAR = 40 HOURS

IF THE CONTRACTOR WISHES TO UTILIZE LEO'S FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, THE CONTRACTOR MAY DO SO AT THE CONTRACTOR'S OWN EXPENSE. PAYMENT FOR THE EXCESS ABOVE THE CONTRACT REQUIREMENTS WILL BE INCLUDED UNDER ITEM 614 - MAINTAINING TRAFFIC.

metric units

ITEM 614 - TEMPORARY IMPACT ATTENUATOR MISC.: G.R.E.AT. TYPE

THIS WORK SHALL CONSIST OF FURNISHING IMPACT ATTENUATORS AS REQUIRED IN THE PLANS. THIS ITEM SHALL INCLUDE ALL RELATED HARDWARE, NOT SEPARATELY SPECIFIED, AS REQUIRED BY THE MANUFACTURER TO CONSTRUCT COMPLETE AND FUNCTIONAL G.R.E.AT. IMPACT ATTENUATOR SYSTEMS. THE ATTENUATORS SHALL BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND AT THE LOCATIONS SHOWN ON THE PLANS. THE IMPACT ATTENUATOR SHALL BE MANUFACTURED BY THE ENERGY ABSORPTION SYSTEMS, INC. ONE EAST WACKER DRIVE, CHICAGO, ILLINOIS 60601: TELEPHONE (312) 467-6750.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSPECTION, REPAIRING AND OTHERWISE RESTORING THE IMPACT ATTENUATOR IN ACCORDANCE WITH THE MANUFACTURER'S MAINTENANCE INSTRUCTIONS WHILE IT IS IN USE ON THE PROJECT. SUCH REPAIRS SHALL BE PERFORMED WITHIN 24 HOURS OF THE INCIDENT WHICH CAUSED THE DAMAGE TO THE PROJECT. IN ADDITION TO ANY EXTRA UNITS SUPPLIED FOR THIS PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING ALL NECESSARY MATERIALS, LABOR AND EQUIPMENT REQUIRED TO PERFORM THE ABOVE DESCRIBED RESTORATION OF THE ATTENUATOR.

FOR LOCATIONS OF THE TEMPORARY ATTENUATORS SEE PLAN SHEETS. THESE TEMPORARY ATTENUATORS SHALL BE BID PER EACH PER THE FOLLOWING ITEM DESCRIPTION:

ITEM 614 - TEMPORARY IMPACT ATTENUATOR MISC.: G.R.E.AT. TYPE
MODEL NO. 206206FN3GCZ, BIDIRECTIONAL

PAYMENT FOR THE ABOVE WORK SHALL BE MADE AT THE UNIT PRICE BID FOR EACH, ITEM 614, IMPACT ATTENUATOR AND SHALL BE CONSIDERED FULL PAYMENT FOR FURNISHING, INSTALLING AT THE SPECIFIED LOCATIONS, RESTORATION AFTER EACH VEHICLE IMPACT, INCLUDING LABOR, TOOLS, EQUIPMENT AND MISCELLANEOUS HARDWARE AND MATERIALS NECESSARY TO COMPLETE THESE ITEMS OF WORK.

ADDITIONAL MAINTENANCE OF TRAFFIC DEVICES

THE FOLLOWING ITEMS ARE TO BE USED WHEN IT HAS BEEN DETERMINED BY THE ENGINEER THAT ADDITIONAL MAINTENANCE OF TRAFFIC DEVICES NOT SHOWN IN THE MAINTENANCE OF TRAFFIC PLANS ARE REQUIRED.

SIGNS FURNISHED UNDER THIS ITEM SHALL INCLUDE SUPPORT AND MOUNTING HARDWARE.

PAVEMENT MARKINGS FURNISHED UNDER THIS ITEM SHALL INCLUDE INSTALLATION AND REMOVAL OF BOTH TEMPORARY AND PERMANENT.

THE FOLLOWING QUANTITIES FOR THESE ITEMS HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY

ITEM SPECIAL	FLASHING ARROW PANEL	5 EACH
ITEM 614	PORTABLE CHANGEABLE MESSAGE SIGN	1 EACH
ITEM 614	BITUMINOUS CONCRETE FOR MAINTENANCE OF TRAFFIC	20 CU. METERS
ITEM 614	TEMPORARY EDGE LINE, CLASS 1, 740.06 TYPE 1	0.800 KILOMETERS
ITEM 616	CALCIUM CHLORIDE	1 METRIC TON
ITEM 616	WATER	4 CU. METERS

PAYMENT FOR THESE ITEMS WILL BE AT THE CONTRACT UNIT PRICE INCLUDING ALL NECESSARY MATERIAL, PARTS EQUIPMENT, AND LABOR.

ITEM 614 - BARRIER REFLECTORS AND OBJECT MARKERS

THESE ITEMS SHALL CONSIST OF FURNISHING, INSTALLING AND MAINTAINING BARRIER REFLECTORS AND/OR OBJECT MARKETS INSTALLED ON ALL PORTABLE CONCRETE BARRIERS USED FOR MAINTAINING TRAFFIC. BARRIER REFLECTORS SHALL CONFORM TO ITEM 626 EXCEPT THAT THE SPACING SHALL BE 7.6 M (25 FEET) C TO C MAX.

OBJECT MARKERS, 229 MM X 381 MM (9" X 15") WITH ORANGE REFLECTIVE SHEETING, TYPE G (730.19), SHALL BE MOUNTED ON THE TOP SURFACE OF THE PCB BY THE USE OF AN APPROVED BRACKET. THE MOUNTING OF THE OBJECT MARKERS SHALL BE MIDWAY BETWEEN THE FACE MOUNTED BARRIER REFLECTORS AND ON THE TOP SURFACE OF EACH TAPERED END SECTION ALSO ON EACH EXPOSED END.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN PROVIDED FOR THE MAINTENANCE OF TRAFFIC AND CARRIED TO THE GENERAL SUMMARY:

ITEM 614-BARRIER REFLECTORS, TYPE B	90 EACH
ITEM 614-OBJECT MARKERS	90 EACH

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC NOTES

UNI-36-21.194

TYPICAL SECTIONS AND PHASING NOTES – PHASE 1

metric units

PHASE 1 NOTES

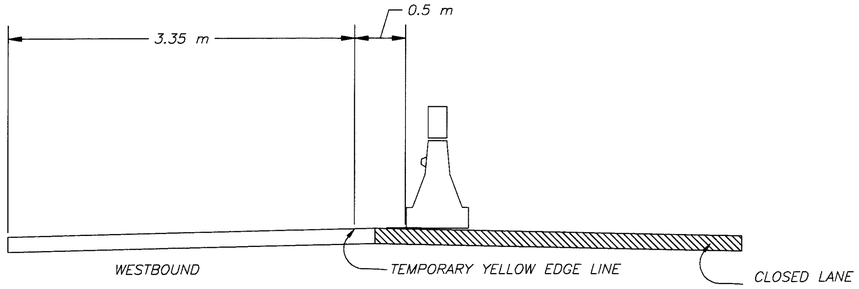
PHASE 1 MOT INVOLVES THE CLOSURE OF THE EB AND WB LEFT LANES BETWEEN THE US 33 RAMP INTERSECTIONS ON US 36. THIS IS FOR CONSTRUCTION OF NEW EB AND WB LEFT TURN LANES IN THE MEDIAN AREA.

THE NEW SIGNAL SPANS CAN BE ERECTED PRIOR TO PHASE 1 BUT THE SIGNALS SHALL NOT BE TURNED ON UNTIL ALL TURN LANES ARE BUILT AND ALL LANES ARE OPEN TO TRAFFIC AT THE PARTICULAR INTERSECTION.

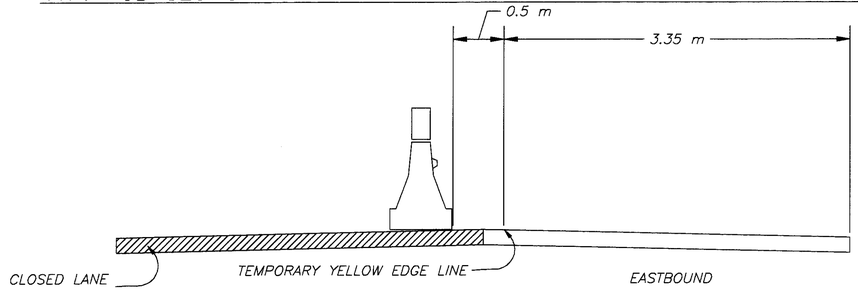
THE LANE CLOSURE IS ACCOMPLISHED BY USING PCB AND DRUMS. THE BASIS FOR THE PLAN IS STD. CONSTRUCTION DRAWING MT-95.40M. DRUMS SHALL BE SPACED AT TWELVE (12) METER INTERVALS CENTER TO CENTER EXCEPT ON TAPERS OR AT MEDIAN OPENINGS. WHERE DRUMS ARE USED AT MEDIAN OPENINGS, DRUMS SHALL BE SPACED AT TWO AND ONE HALF (2.5) METER INTERVALS.

JUST WEST OF THE PROJECT, THE EB CROSS SECTION TRANSITIONS FROM A TWO-LANE SECTION WITH A CENTER TURN LANE TO THE FOUR-LANE SECTION WITH A MEDIAN THAT CONTINUES THROUGH THE WORK ZONE. SINCE THE DISTANCE BETWEEN THAT TRANSITION AND THE BEGINNING OF THE TAPER AS SPECIFIED IN STD. CONSTRUCTION DRAWING MT-95.40M WOULD BE VERY SHORT, ONLY ONE 3.35 METER LANE SHALL BE OPEN TO TRAFFIC FROM THE EXISTING TRANSITION IN THE ROAD THROUGH THE WORK ZONE.

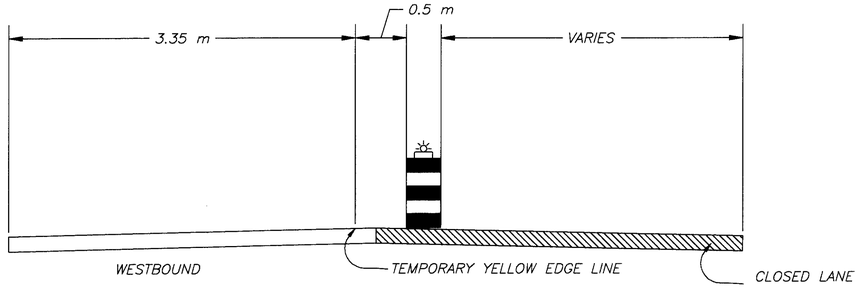
TYP. PCB SECTION – STA. 1+162.0 TO 1+314.9 & 1+344.7 TO 1+347.8



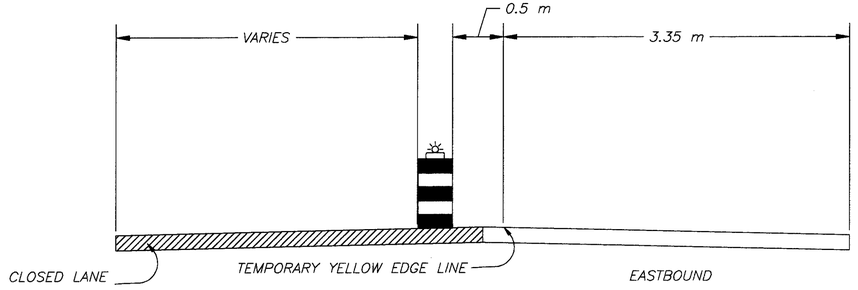
TYP. PCB SECTION – STA. 1+130.8 TO 1+133.9 & 1+163.1 TO 1+316.1



TYP. DRUM SECTION – STA. 1+347.8 TO 1+499.4



TYP. DRUM SECTION – STA. 0+889.2 TO 1+130.8



TYPICAL SECTIONS AND PHASING NOTES – PHASE 2

PHASE 2 NOTES

PHASE 2 MOT INVOLVES THE CLOSURE OF THE EB RIGHT LANE OF DELAWARE AVE. WEST OF THE DELAWARE AVE. (US 36) INTERSECTION WITH RAMPS A & B-1. THIS IS FOR THE REMOVAL OF THE EXISTING SLIP RAMP AND CONSTRUCTION OF A NEW EB RIGHT TURN LANE AT THE INTERSECTION.

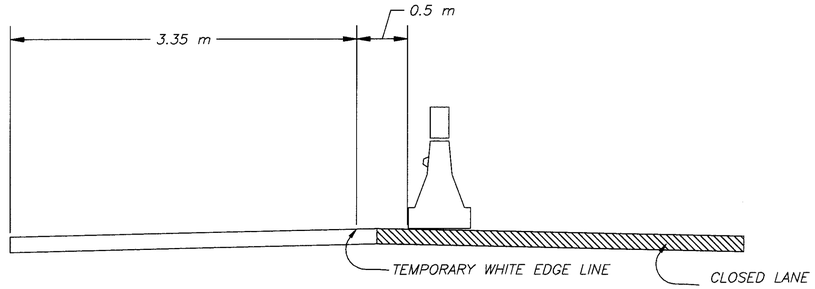
DURING PHASE 2, THE SIGNAL AT US 36 AND RAMPS C & D CAN BE ACTIVATED SINCE THE LANE CLOSURES WILL BE COMPLETE AND THE TURN LANES INSTALLED AT THAT INTERSECTION. THE SIGNAL AT THE INTERSECTION OF DELAWARE AVE. (US 36) AND RAMPS A & B-1 SHOULD NOT BE ACTIVATED UNTIL PHASE 2 IS COMPLETE AND ALL LANES ARE COMPLETELY OPEN TO TRAFFIC.

THE LANE CLOSURE IS ACCOMPLISHED BY USING PCB AND DRUMS. THE BASIS FOR THE PLAN IS STD. CONSTRUCTION DRAWING MT-95.40M. DRUMS SHALL BE SPACED AT TWELVE (12) METER INTERVALS CENTER TO CENTER EXCEPT ON TAPERS OR AT MEDIAN OPENINGS. WHERE DRUMS ARE USED AT MEDIAN OPENINGS, DRUMS SHALL BE SPACED AT TWO AND ONE HALF (2.5) METER INTERVALS. ALL CONFLICTING ROUTE MARKING SIGNAS SHALL BE COVERED.

PCB SHOULD ALSO BE PROVIDED ON RAMP "B-1" TO PROTECT TRAFFIC FROM THE EAST END OF THE WORK ZONE.

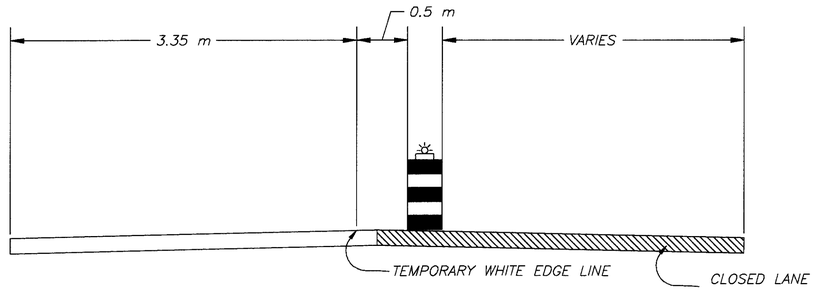
JUST WEST OF THE PROJECT, THE EB CROSS SECTION TRANSITIONS FROM A TWO-LANE SECTION WITH A CENTER TURN LANE TO THE FOUR-LANE SECTION WITH A MEDIAN THAT CONTINUES THROUGH THE WORK ZONE. SINCE THE DISTANCE BETWEEN THAT TRANSITION AND THE BEGINNING OF THE TAPER AS SPECIFIED IN STD. CONSTRUCTION DRAWING MT-95.40M WOULD BE VERY SHORT, ONLY ONE 3.35 METER LANE SHALL BE OPEN TO TRAFFIC FROM THE EXISTING TRANSITION IN THE ROAD THROUGH THE WORK ZONE. THE ARROW BOARD DIRECTING TRAFFIC TO THE LEFT SHALL NOT BE USED UNLESS DIRECTED BY THE ENGINEER TO PREVENT CONFUSION TO MOTORISTS WHO MAY THINK THEY ARE BEING DIRECTED INTO THE WESTBOUND LANES.

TYP. PCB SECTION – STA. 1+043.6 TO 1+142.5



EASTBOUND LANES

TYP. DRUM SECTION – STA. 0+792.0 TO 1+043.6



EASTBOUND LANES

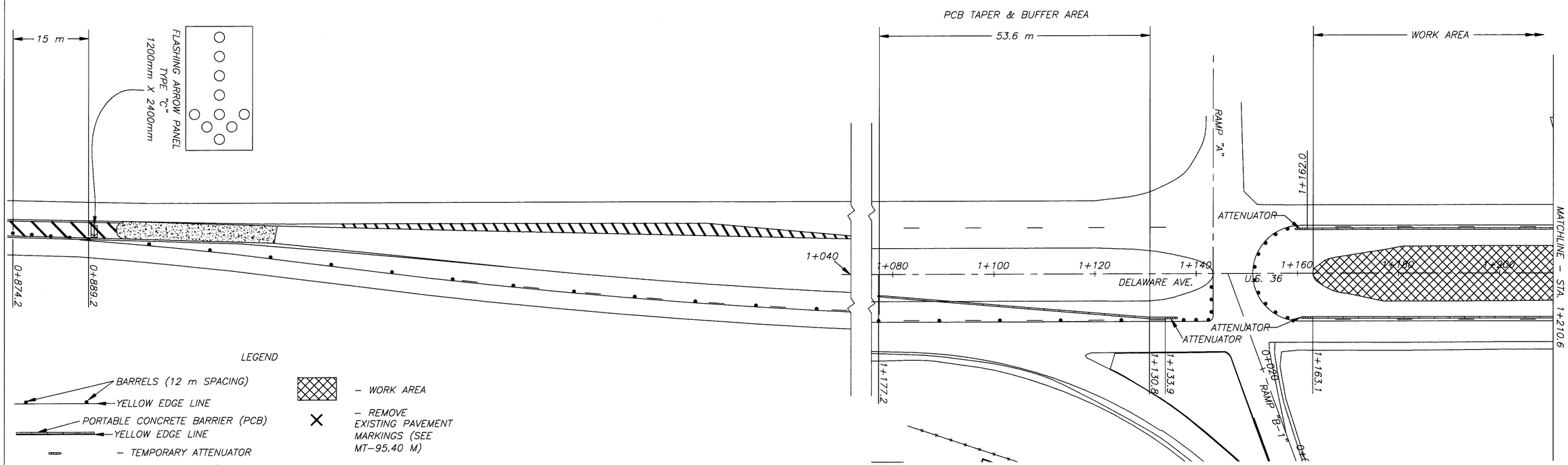
CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC CROSS SECTIONS

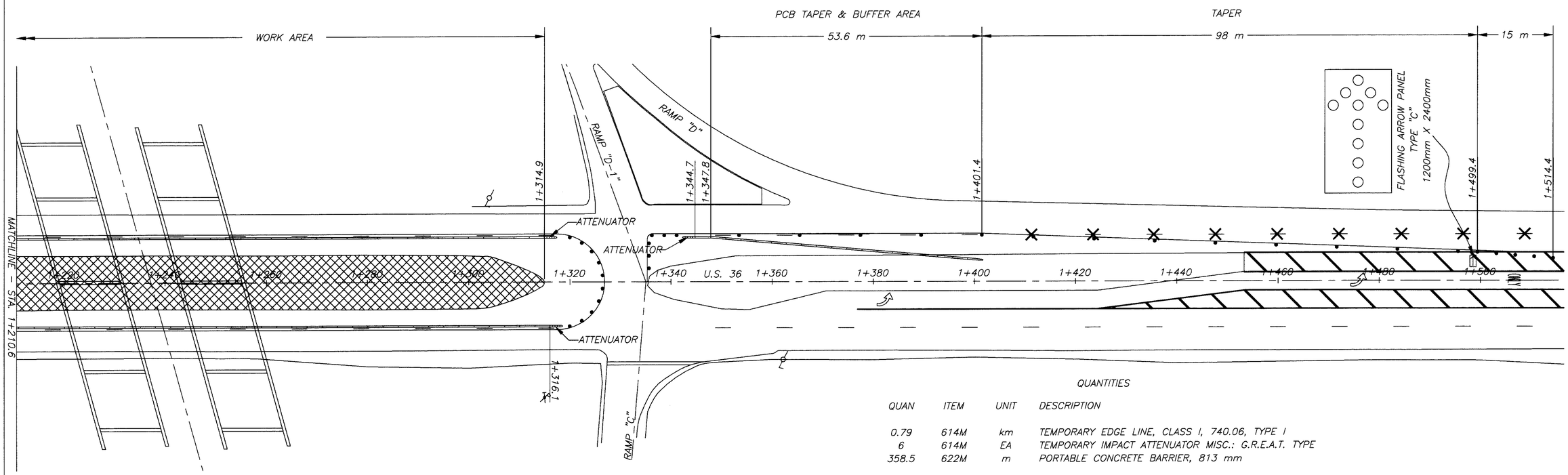
UNI-36-21.194

metric units

FOR ADDITIONAL DETAILS SEE SCD MT-95.40 M (SEE SHEET 9 FOR ADVANCE SIGNING DETAILS)



FOR ADDITIONAL DETAILS SEE SCD MT-95.40 M (SEE SHEET 9 FOR ADVANCE SIGNING DETAILS)



QUANTITIES

QUAN	ITEM	UNIT	DESCRIPTION
0.79	614M	km	TEMPORARY EDGE LINE, CLASS I, 740.06, TYPE I
6	614M	EA	TEMPORARY IMPACT ATTENUATOR MISC.: G.R.E.A.T. TYPE
358.5	622M	m	PORTABLE CONCRETE BARRIER, 813 mm

HORIZONTAL SCALE IN METERS
0 4 8 12 16 20

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC - PHASE 1
US 36

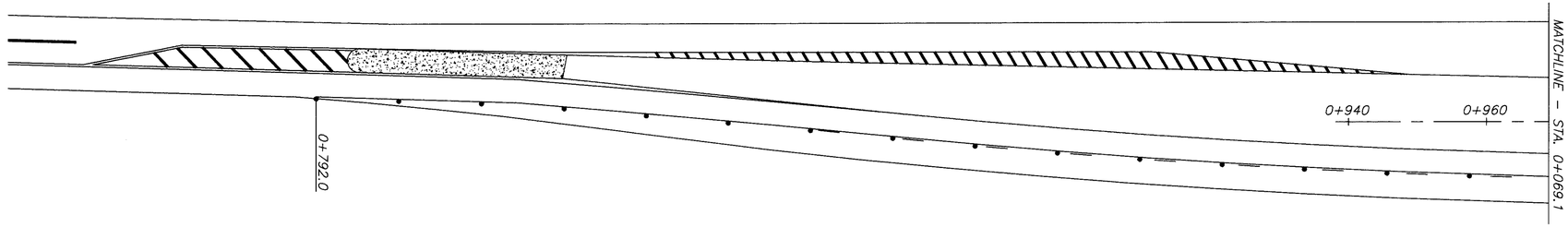
UNI-36-21.194

7
42

PLAN – PHASE 2

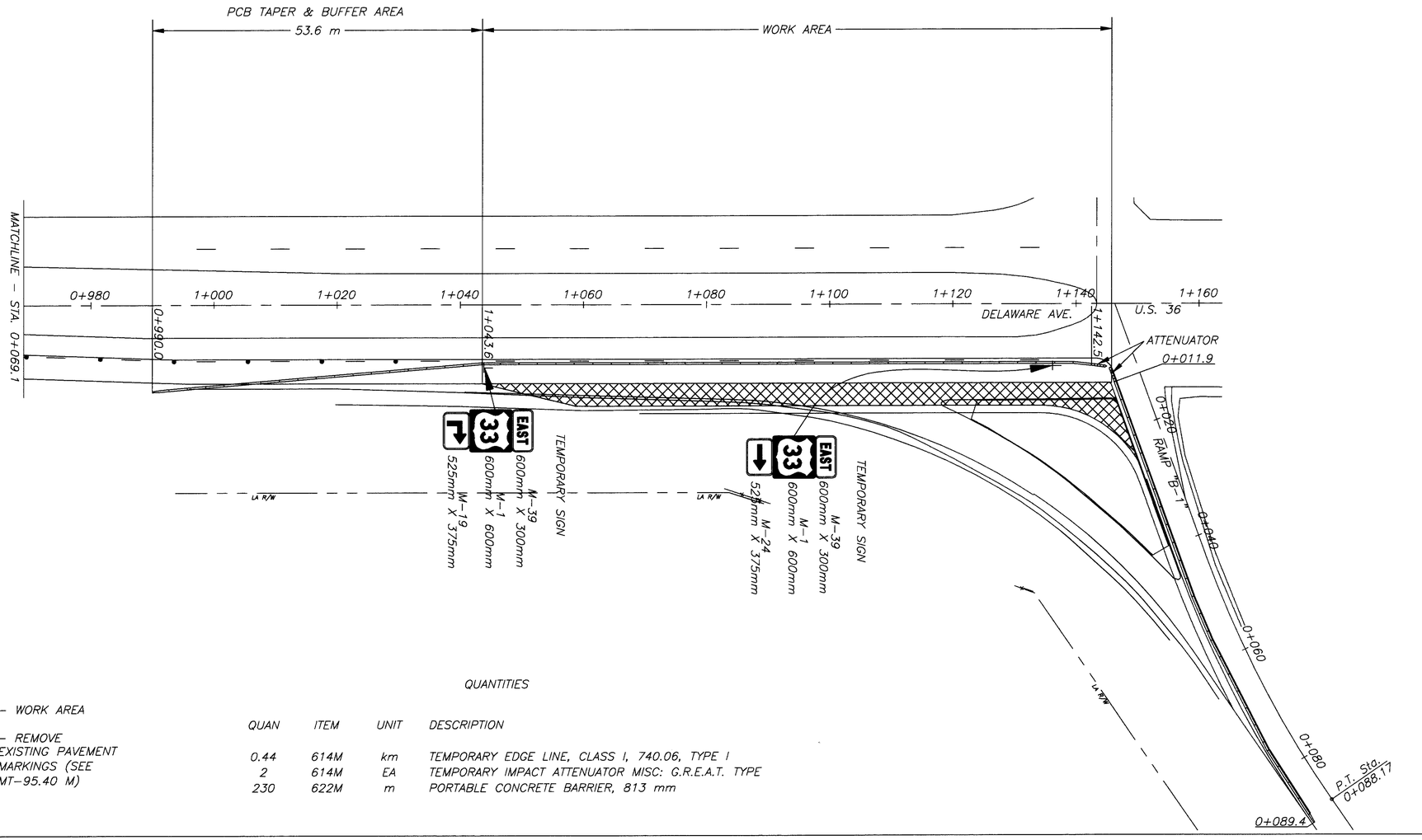
metric units

NOTE:
FOR ADVANCE SIGNING SEE SHEET 9.



NOTE:
THE ARROW BOARD SHOWN ON STANDARD DRAWING MT–95.40M SHALL NOT BE USED FOR THIS TRANSITION.

FOR ADDITIONAL DETAILS SEE SCD MT–95.40 M



LEGEND

- BARRELS (12 m SPACING)
- WHITE EDGE LINE
- PORTABLE CONCRETE BARRIER (PCB)
- WHITE EDGE LINE
- – TEMPORARY ATTENUATOR
- – WORK AREA
- – REMOVE EXISTING PAVEMENT MARKINGS (SEE MT–95.40 M)

QUANTITIES

QUAN	ITEM	UNIT	DESCRIPTION
0.44	614M	km	TEMPORARY EDGE LINE, CLASS I, 740.06, TYPE I
2	614M	EA	TEMPORARY IMPACT ATTENUATOR MISC: G.R.E.A.T. TYPE
230	622M	m	PORTABLE CONCRETE BARRIER, 813 mm

HORIZONTAL SCALE IN METERS
0 4 8 12 16 20

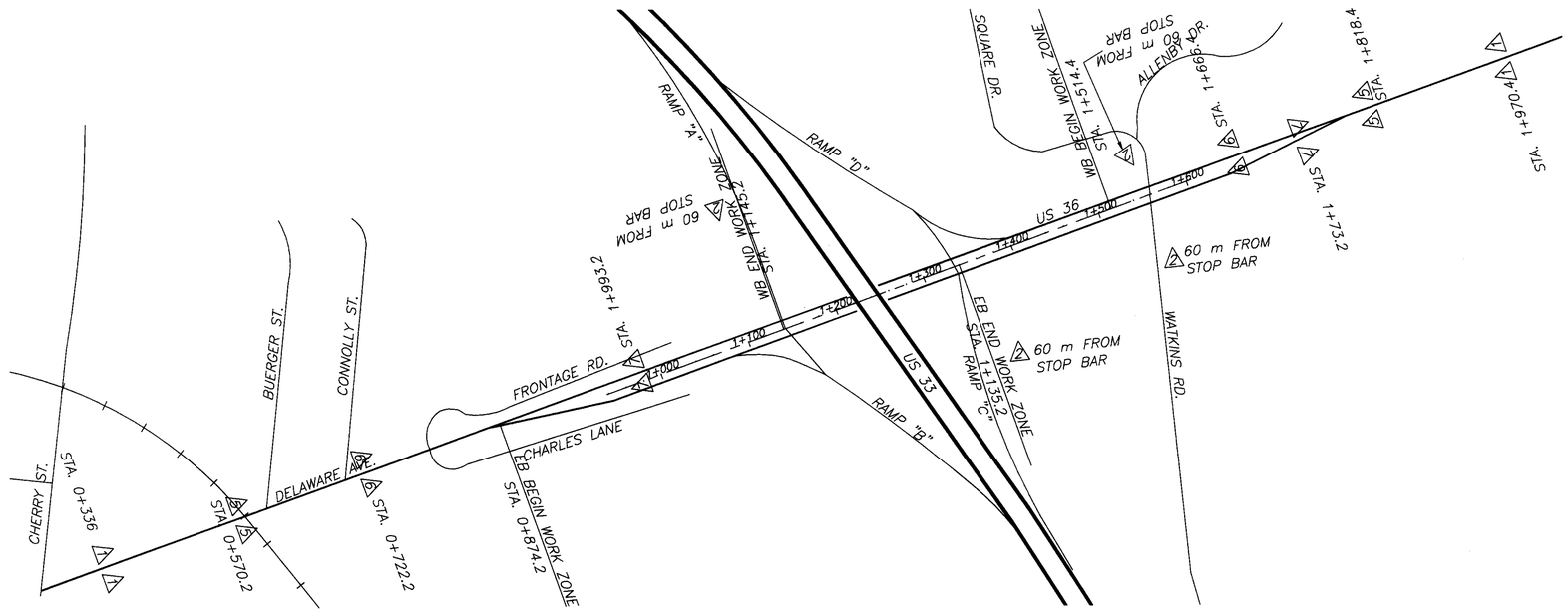
CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC – PHASE 2
US 36

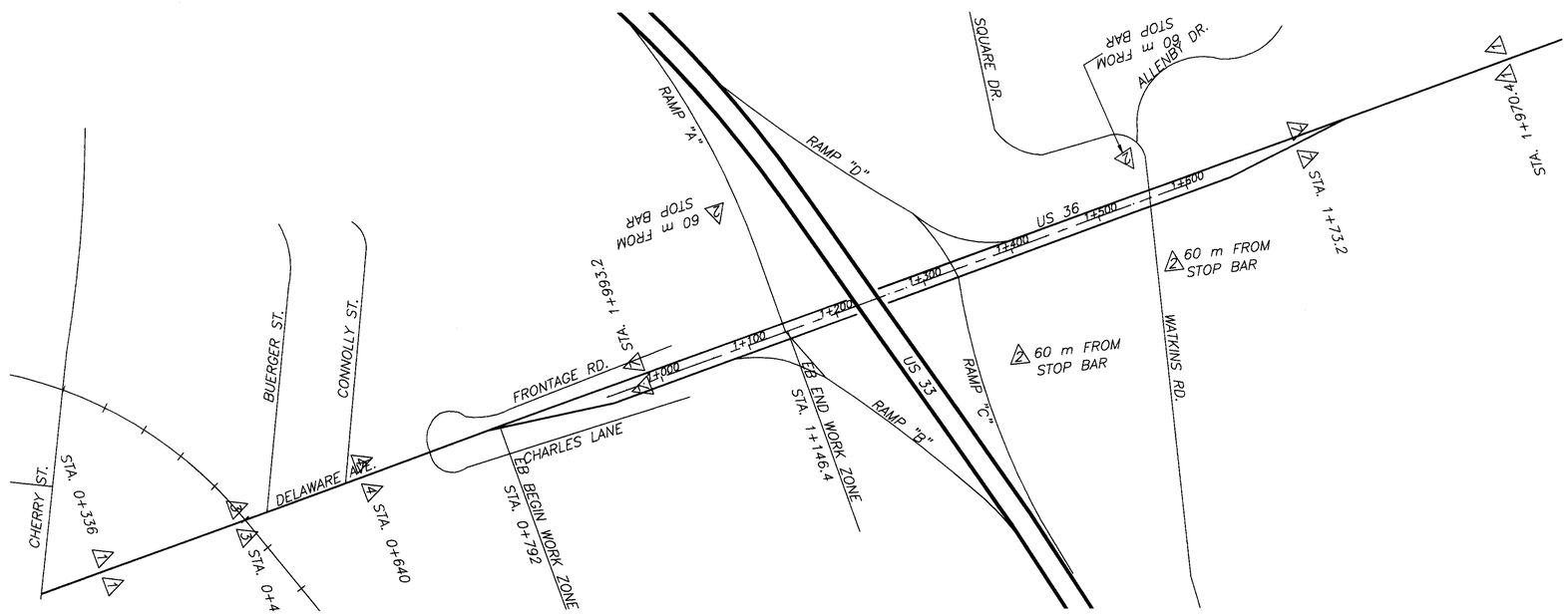
UNI–36–21.194

metric units

PHASE 1



PHASE 2



SIGN LEGEND

TYPE A FLASHING WARNING LIGHT

ROAD CONSTRUCTION AHEAD

OW–128
1200mm X 1200mm
1

ROAD CONSTRUCTION AHEAD

OW–128
1200mm X 1200mm
2

TYPE A FLASHING WARNING LIGHT

RIGHT LANE CLOSED AHEAD

OW–122
1200mm X 1200mm
3

OW–60C
1200mm X 1200mm
4

TYPE A FLASHING WARNING LIGHT

LEFT LANE CLOSED AHEAD

OW–123
1200mm X 1200mm
5

OW–60D
1200mm X 1200mm
6

END CONSTRUCTION

OC–8
1500mm X 600mm
7

NOTE:

SIGNS 1, 2, 7 SHALL BE PRESENT THROUGH THE ENTIRE PROJECT.

CALCULATED | CHECKED

TRAFFIC – ADVANCE SIGNING PLAN
MAINTENANCE OF TRAFFIC – US 36

UNI–36–21.194

9
42

CALCULATIONS

CALCULATED WHG III
CHECKED JEG

ITEM 301 – 150mm BITUMINOUS AGGREGATE BASE, PG 64–22

MAINLINE
Sta. 1+163.07 to Sta. 1+314.95 = 1336.68 sq. m x 0.15m = 200.50 Cu. M.

TURN LANE
Sta. 1+051.38 to Sta. 1+134.28 = 257.27 sq. m x 0.15m = 38.59 Cu. M.

RAMP "B–1"
Sta. 0+015.52 to Sta. 0+068.00 = 278.15 sq. m x 0.15m = 41.72 Cu. M.

TOTAL ITEM 301 – (200.50 + 38.59 + 41.72) = 280.81 Cu. Yd. use 281.00 Cu. Yd.

ITEM 304 – 200mm AGGREGATE BASE, PG 64–22

MAINLINE
Sta. 1+163.07 to Sta. 1+314.95 = 1381.17 sq. m. x 0.20m = 276.23 Cu. M.

TURN LANE
Sta. 1+051.38 to Sta. 1+134.28 = 271.08 sq. m x 0.20m = 54.22 Cu. M.

RAMP "B–1"
Sta. 0+015.52 to Sta. 0+068.00 = 295.47 sq. m x 0.20m = 59.09 Cu. M.

TOTAL ITEM 304 – (276.23 + 54.22 + 59.09) = 389.54 Cu. Yd. use 390.00 Cu. Yd.

ITEM 448 – 32mm ASPHALT CONCRETE, SURFACE COURSE, TYPE IH

MAINLINE
Sta. 1+163.07 to Sta. 1+314.95 = 1292.04 sq. m x 0.032m = 41.35 Cu. M.

TURN LANE
Sta. 1+051.38 to Sta. 1+134.28 = 243.43 sq. m x 0.032m = 7.79 Cu. M.

RAMP "B–1"
Sta. 0+015.52 to Sta. 0+068.00 = 278.84 sq. m x 0.032m = 8.92 Cu. M.

TOTAL ITEM 448 (32mm) – (41.35 + 7.79 + 8.92) = 58.06 Cu. Yd. use 58.00 Cu. Yd.

ITEM 448 – 45mm ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, PG 64–28

MAINLINE
Sta. 1+163.07 to Sta. 1+314.95 = 1292.04 sq. m x 0.045m = 58.14 Cu. M.

TURN LANE
Sta. 1+051.38 to Sta. 1+134.28 = 243.43 sq. m x 0.045m = 10.95 Cu. M.

RAMP "B–1"
Sta. 0+015.52 to Sta. 0+068.00 = 278.84 sq. m x 0.045m = 12.55 Cu. M.

TOTAL ITEM 448 (45mm) – (58.14 + 10.95 + 12.55) = 81.64 Cu. Yd. use 82.00 Cu. Yd.

ITEM 408 – BITUMINOUS PRIME COAT @ 1.8 L/m^2

MAINLINE
Sta. 1+163.07 to Sta. 1+314.95 = 1381.17 sq. m x 1.8 L/m^2 = 2.49 Liters

TURN LANE
Sta. 1+051.38 to Sta. 1+134.28 = 271.08 sq. m x 1.8 L/m^2 = 0.49 Liters

RAMP "B–1"
Sta. 0+015.52 to Sta. 0+068.00 = 295.47 sq. m x 1.8 L/m^2 = 0.53 Liters

TOTAL ITEM 408 – (2.49 + 0.49 + 0.53) = 3.51 Liters use 4.00 Liters

ITEM 304 – AGGREGATE BASE, (VARIABLE DEPTH)
SHOULDER – TURN LANE & RAMP "B–1"
Sta. 1+051.38 to Sta. 1+134.28 = 82.9m x 0.15 sq. m = 12.44 Cu. M.
Sta. 0+015.52 to Sta. 0+068.00 = 52.48m x 0.15 sq. m = 7.87 Cu. M.

TOTAL ITEM 304 (VAR. DEPTH) – (12.44 + 7.87) = 20.31 Cu. M. use 21.00 Cu. M.

ITEM 448 – 32mm ASPHALT CONCRETE, SURFACE COURSE, TYPE 1H
SHOULDER – TURN LANE & RAMP "B–1"
Sta. 1+051.38 to Sta. 1+134.28 = 82.90m x 1.219m x 0.032m = 3.23 Cu. M.
Sta. 0+015.52 to Sta. 0+068.00 = 52.48m x 1.219m x 0.032m = 2.05 Cu. M.

TOTAL ITEM 448 (32mm) – (3.23 + 2.05) = 5.28 Cu. M. use 6.0 Cu. M.

ITEM 448 – 45mm ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1, PG64–28
SHOULDER – TURN LANE & RAMP "B–1"
Sta. 1+051.38 to Sta. 1+134.28 = 82.90m x 1.219m x 0.045m = 4.55 Cu. M.
Sta. 0+015.52 to Sta. 0+068.00 = 52.48m x 1.219m x 0.045m = 2.88 Cu. M.

TOTAL ITEM 448 (45mm) – (4.55 + 2.88) = 7.43 Cu. M. use 8.00 Cu. M.

ITEM 203 – SUBGRADE COMPACTION

MAINLINE
Sta. 1+163.07 to Sta. 1+314.95 = 1381.17 sq. m x 0.3m = 414.35 Sq. M.

TURN LANE
Sta. 1+051.38 to Sta. 1+134.28 = 271.08 sq. m x 0.3m = 81.32 Sq. M.

RAMP "B–1"
Sta. 0+015.52 to Sta. 0+068.00 = 295.47 sq. m x 0.3m = 88.64 Sq. M.

TOTAL ITEM 203 – (414.35 + 81.32 + 88.64) = 584.31 Sq. M. use 585.00 Sq. M.

ITEM 877 – TEMPORARY SEEDING AND MULCHING
1859.6 sq. m. x 0.20 = 371.92 sq. m. use 372.00 sq. m.

ITEM 659 – COMMERCIAL FERTILIZER
1859.6 sq. m. x 1/1000 sq. m. x 50 kg = 92.98 kg. use 93.0 kg.

ITEM 659 – WATER
1859.6 sq. m. x 1/1000 sq. m. x 10 cu. m. = 18.60 cu. m. use 19.0 cu. m.

ITEM 659 – REPAIR SEEDING AND MULCHING
1859.6 sq. m. x 0.05 = 92.98 sq. m. use 93.0 sq. m.

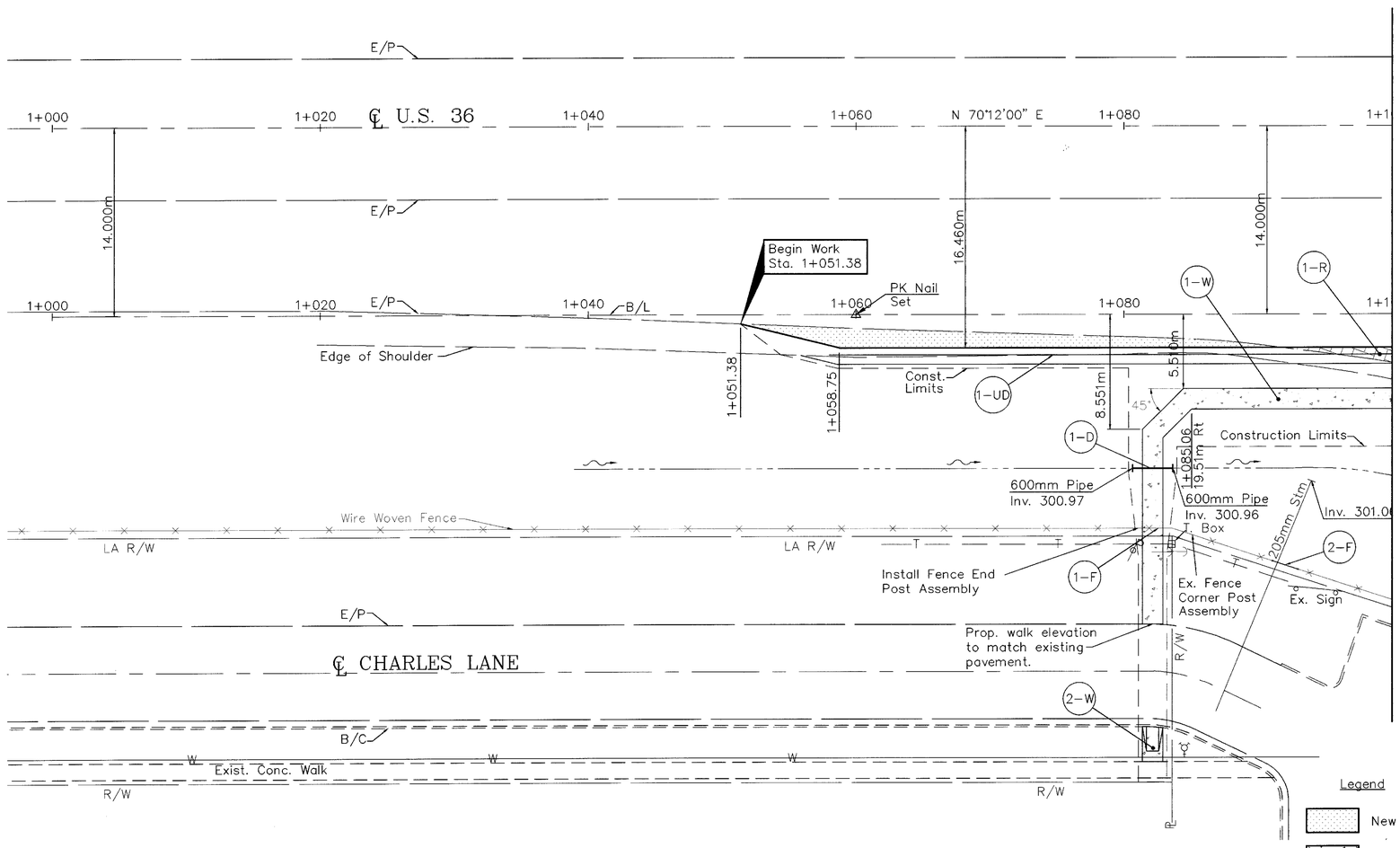
ESTIMATED QUANTITIES ARE CARRIED TO GENERAL SUMMARY SHEET 3/42.

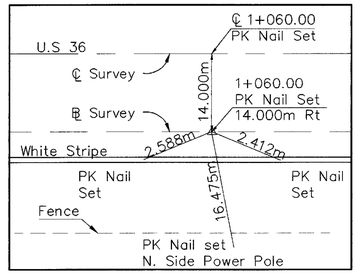
CALCULATIONS

UNI–36–21.194

10
42

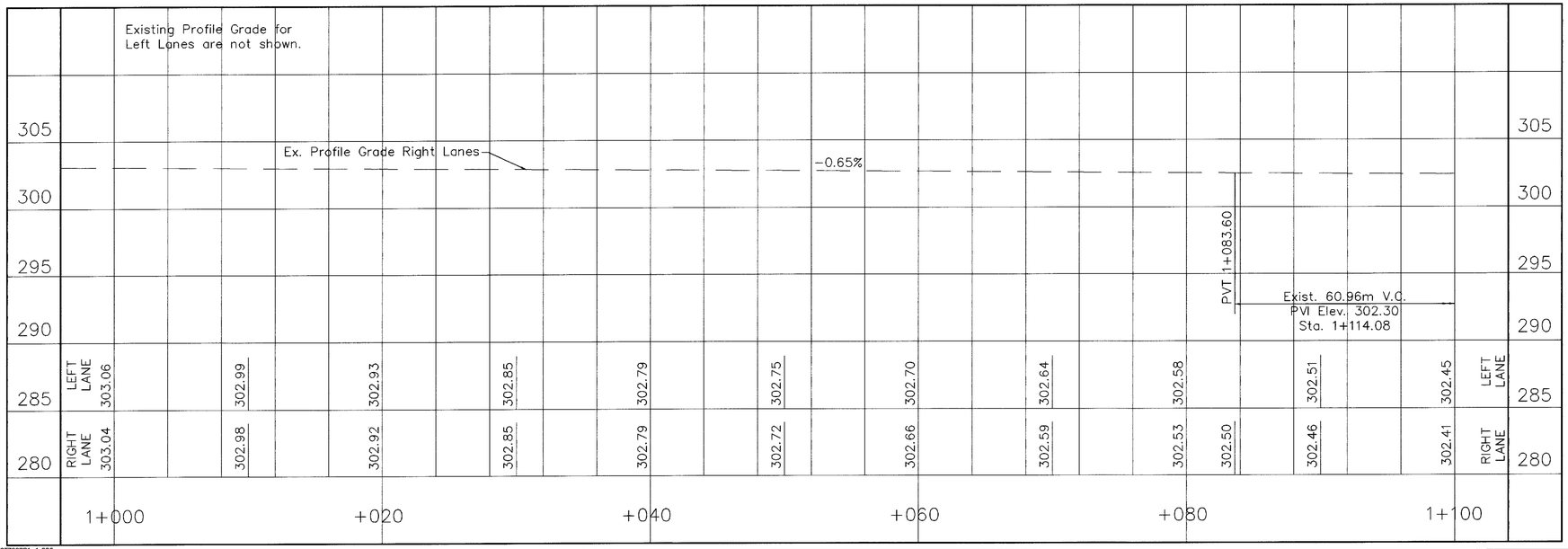
DEA FILE NAME: S:\97\0680\ST788052.DWG LAST EDITED BY: DELL ON: 05–21–99 @ 08:01
ST788052 5:1





Reference Points

Not To Scale



REF. NO.	STATION TO STATION	SIDE	SQ. M. PAVEMENT REMOVED	SQ. M. 100mm CONCRETE WALK	EACH CURB RAMP TYPE 2	M. 600mm CONDUIT TYPE C, 706.02	M. 100mm UNCLASSIFIED PIPE UNDERDRAIN	M. FENCE, TYPE 47 REBUILT	M. FENCE REMOVED
			202	608	608	603	605	607	202
1-R	1+093 – 1+100	R	4.5						3.0
1-D	1+079 – 1+082	R				3.0			
1-W	1+082 – 1+100	R		50.4	1				
2-W	1+082 – 1+100	R		3.9					
1-F	1+082	R						2.0	3.0
2-F	1+092	R						2.0	
1-UD	1+058 – 1+100	R					42.0		
	TOTALS CARRIED TO SHEET 3.		4.5	54.3	1	3.0	42.0	4.0	3.0

SCALE IN METERS 5 0 2.5 5

CALCULATED WHG III
CHECKED JEG

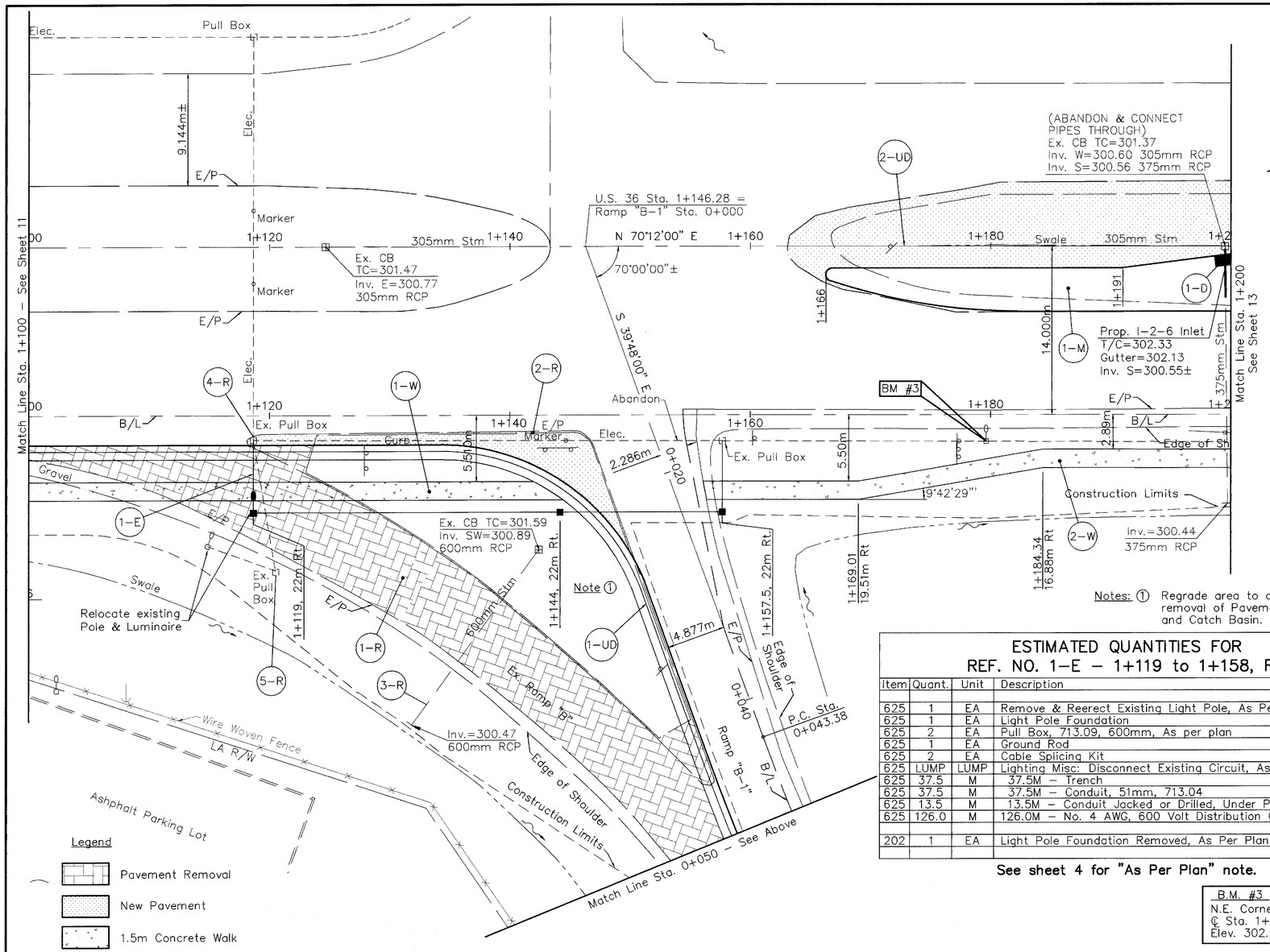
PLAN AND PROFILE
STA. 1+000 TO STA. 1+100

UNI-36-21.194

11
42

CEA FILE NAME: S:\27\088D\ST788PP1.DWG LAST EDITED BY DELL ON: 03-21-98 @ 10:11

ST788PP1-1:200



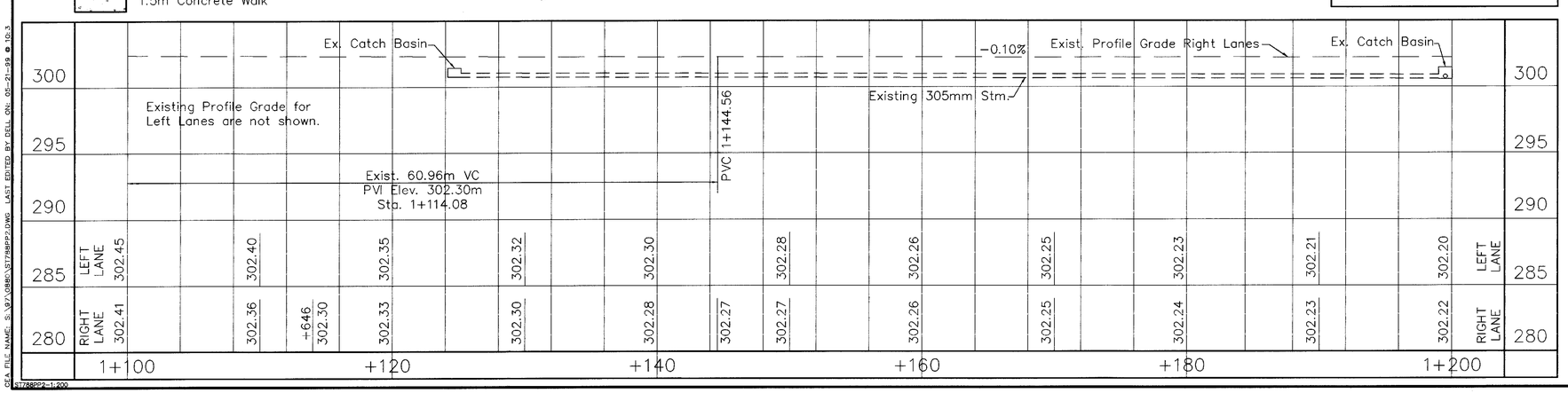
Notes: ① Regrade area to drain to ditch after removal of Pavement, Storm Sewer and Catch Basin.

ESTIMATED QUANTITIES FOR REF. NO. 1-E – 1+119 to 1+158, Rt.

Item	Quant.	Unit	Description
625	1	EA	Remove & Reerect Existing Light Pole, As Per Plan
625	1	EA	Light Pole Foundation
625	2	EA	Pull Box, 713.09, 600mm, As per plan
625	1	EA	Ground Rod
625	2	EA	Cable Splicing Kit
625	LUMP	LUMP	Lighting Misc: Disconnect Existing Circuit, As Per Plan
625	37.5	M	37.5M – Trench
625	37.5	M	37.5M – Conduit, 51mm, 713.04
625	13.5	M	13.5M – Conduit Jacked or Drilled, Under Pavement, 51mm
625	126.0	M	126.0M – No. 4 AWG, 600 Volt Distribution Cable
202	1	EA	Light Pole Foundation Removed, As Per Plan

See sheet 4 for "As Per Plan" note.

B.M. #3
N.E. Corner of Light Pole Base,
℄ Sta. 1+179.64, 16.22m Rt.
Elev. 302.2195m



| REF. NO. | STATION TO STATION | SIDE | | |

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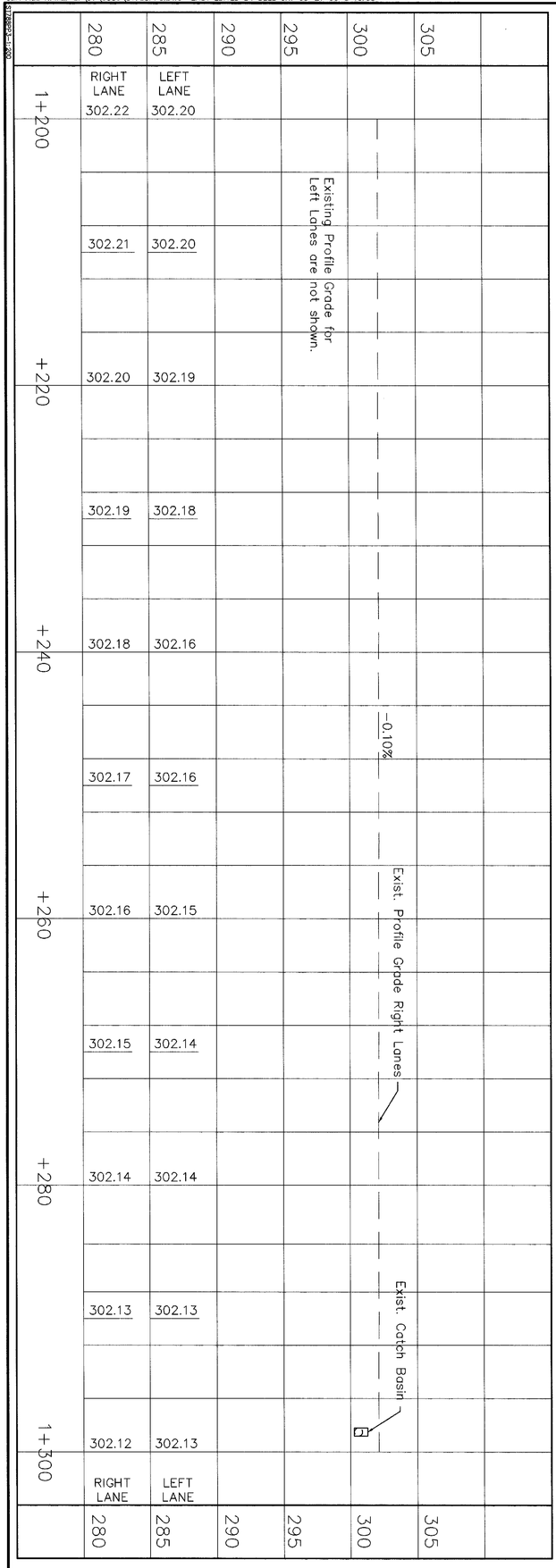
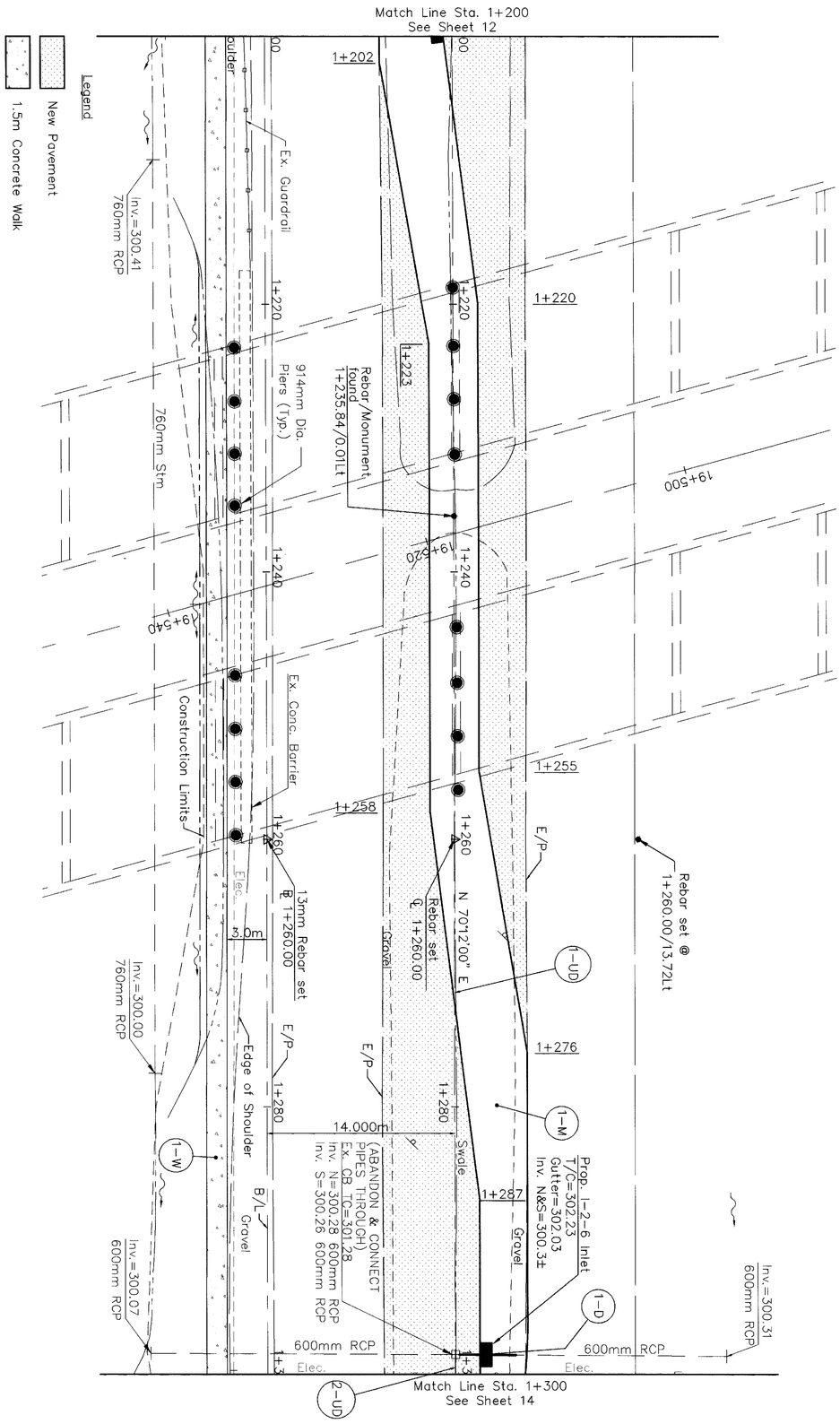




REF. NO.	STATION TO STATION	SIDE	202 CATCH BASIN ABANDONED	603 CONDUIT 600mm, 706.02	604 INLET, MEDIAN, 1.8m	605 100mm UNCLASSIFIED PIPE UNDERDRAIN	608 100mm CONCRETE WALK		830 CONCRETE MEDIAN
			EACH	M.	EACH	SQ. M.	SQ. M.		SQ. M.
1-R	1+267	L							
2-R	1+283	R							
1-D	1+298.5	L	1	6	1				
1-W	1+200 – 1+300	R					152.4		
1-M	1+200 – 1+300	℄							408.0
1-UD	1+200 – 1+299	℄				99.0			
2-UD	1+299 – 1+300	℄				1.0			
TOTALS CARRIED TO SHEET 3.			1	6	1	100.0	152.4		408.0

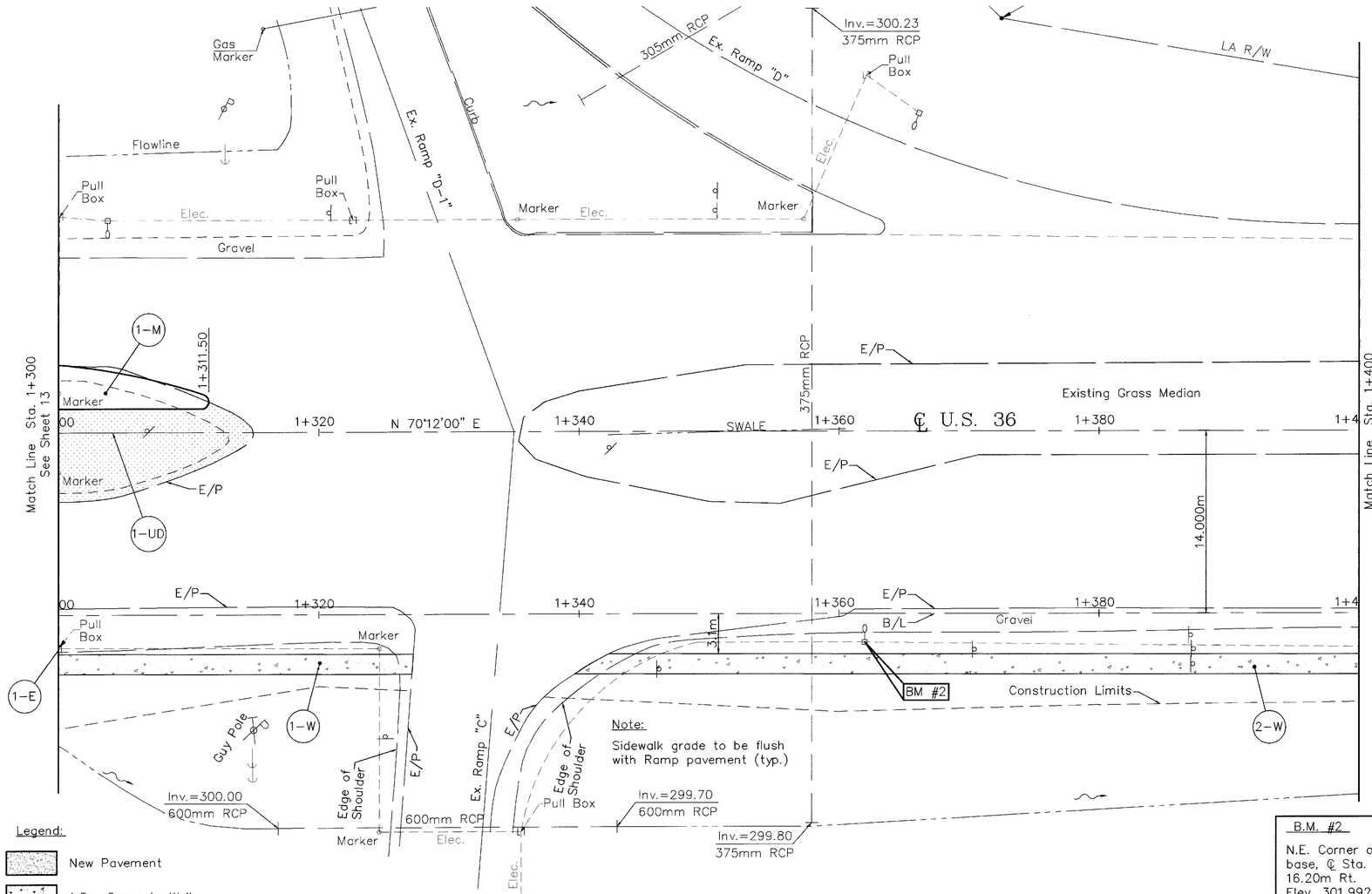
13/42

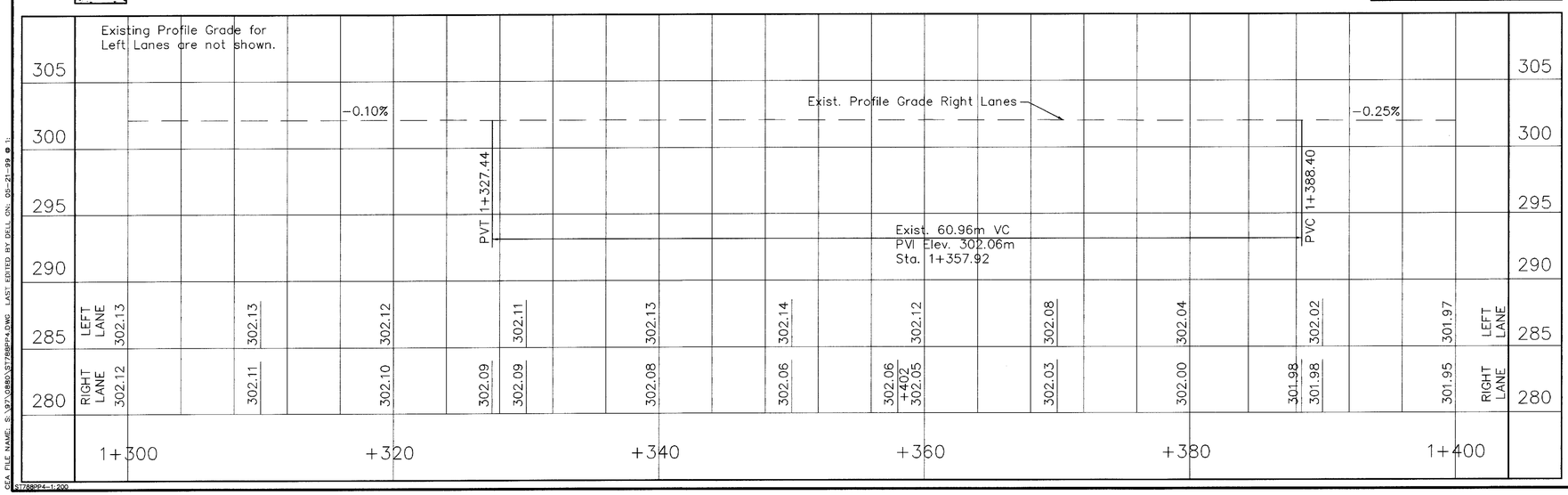
UNI-36-21.194

PLAN AND PROFILE
STA. 1+200 TO STA. 1+300

CALCULATED WHG III
CHECKED JEG

SCALE IN METERS
5 0 5
2.5





REF. NO.	STATION TO STATION	SIDE	830 CONCRETE MEDIAN SQ. M.	625 PULLBOX MISC: PULLBOX ADJUSTED TO GRADE EACH	608 100mm CONCRETE WALK SQ. M.	605 100mm UNCLASSIFIED PIPE UNDERDRAIN M.
1-R	1+307	℄				
2-R	1+346	R				
3-R	1+387	R				
1-W	1+300 – 1+327	R			42.0	
2-W	1+341 – 1+400	R			90.0	
1-M	1+300 – 1+311.5	L	28.0			
1-UD	1+300 – 1+312	℄				12.0
1-E	1+300	R		1		
TOTALS CARRIED TO SHEET 3.			28.0	1	132.0	12.0

SCALE IN METERS 5 0 2.5 5

CALCULATED WHG III CHECKED JEG

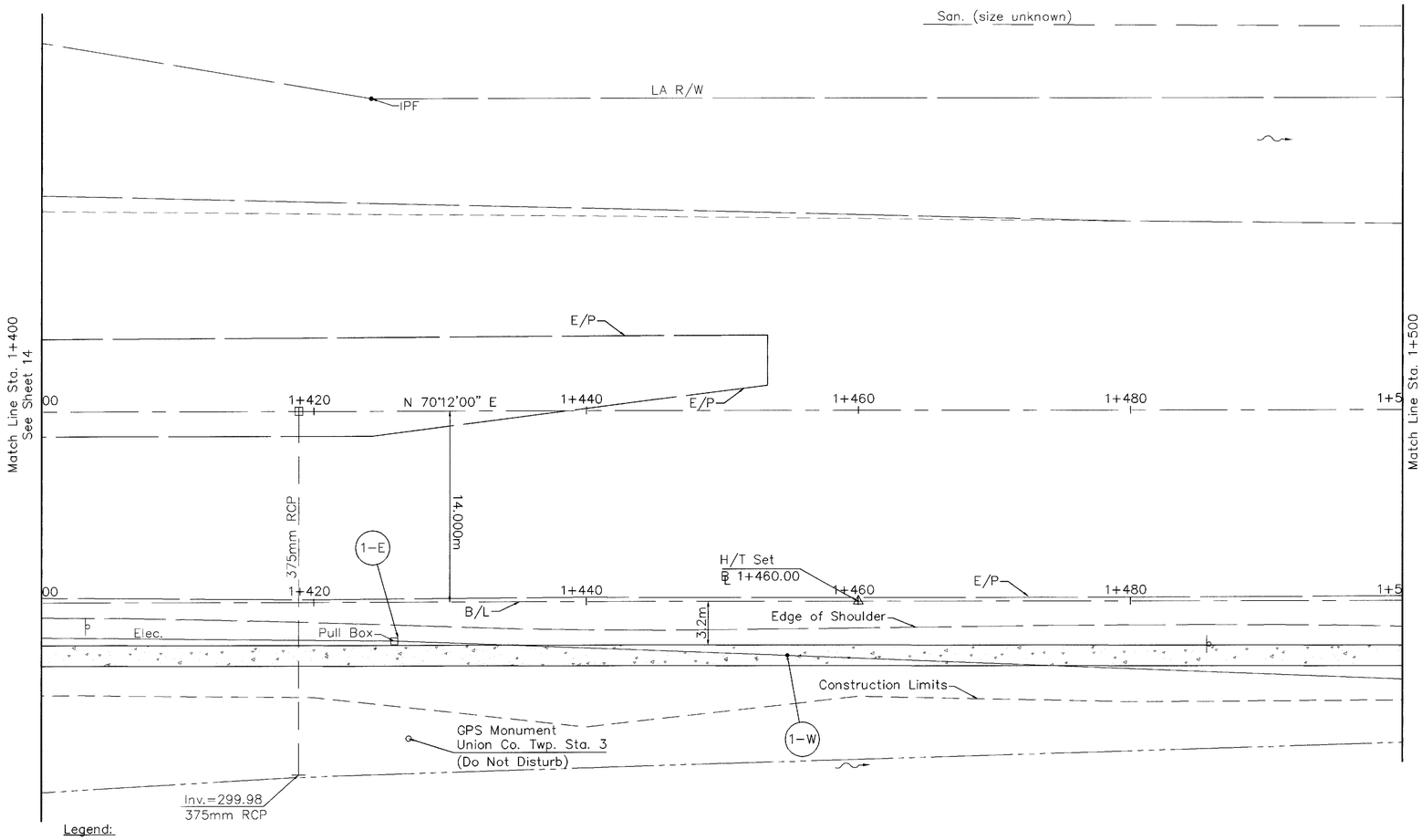
PLAN AND PROFILE STA. 1+300 TO STA. 1+400

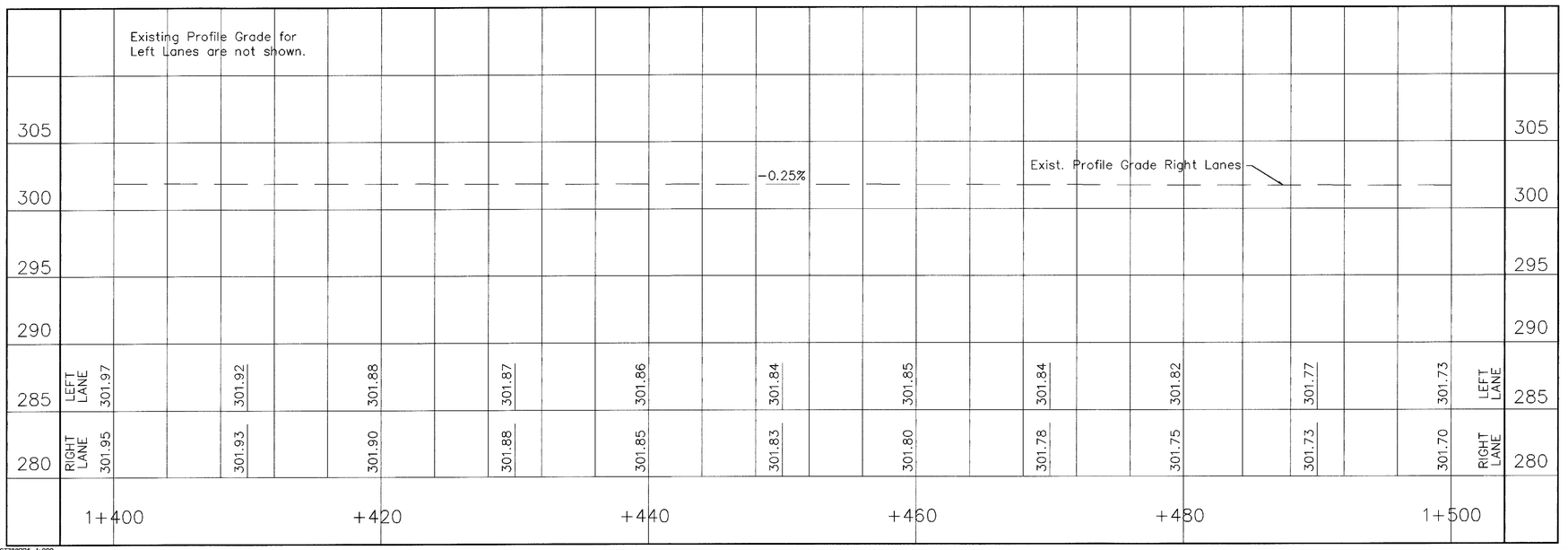
UNI-36-21.194

14/42

CFA FILE NAME: S:\97\0880\ST788PP4.DWG LAST EDITED BY DELL ON: 05-21-99 @ 1:

S1788PP4-1.200





REF. NO.	STATION TO STATION	SIDE	625 PULLBOX MISC: PULLBOX ADJUSTED TO GRADE EACH	608 100mm CONCRETE WALK SQ. M.
1-E	1+426	R	1	
1-W	1+400 – 1+500	R		152.4
TOTALS CARRIED TO SHEET 3.			1	152.4

SCALE IN METERS 5 0 5 2.5

CALCULATED WHG III CHECKED JEG

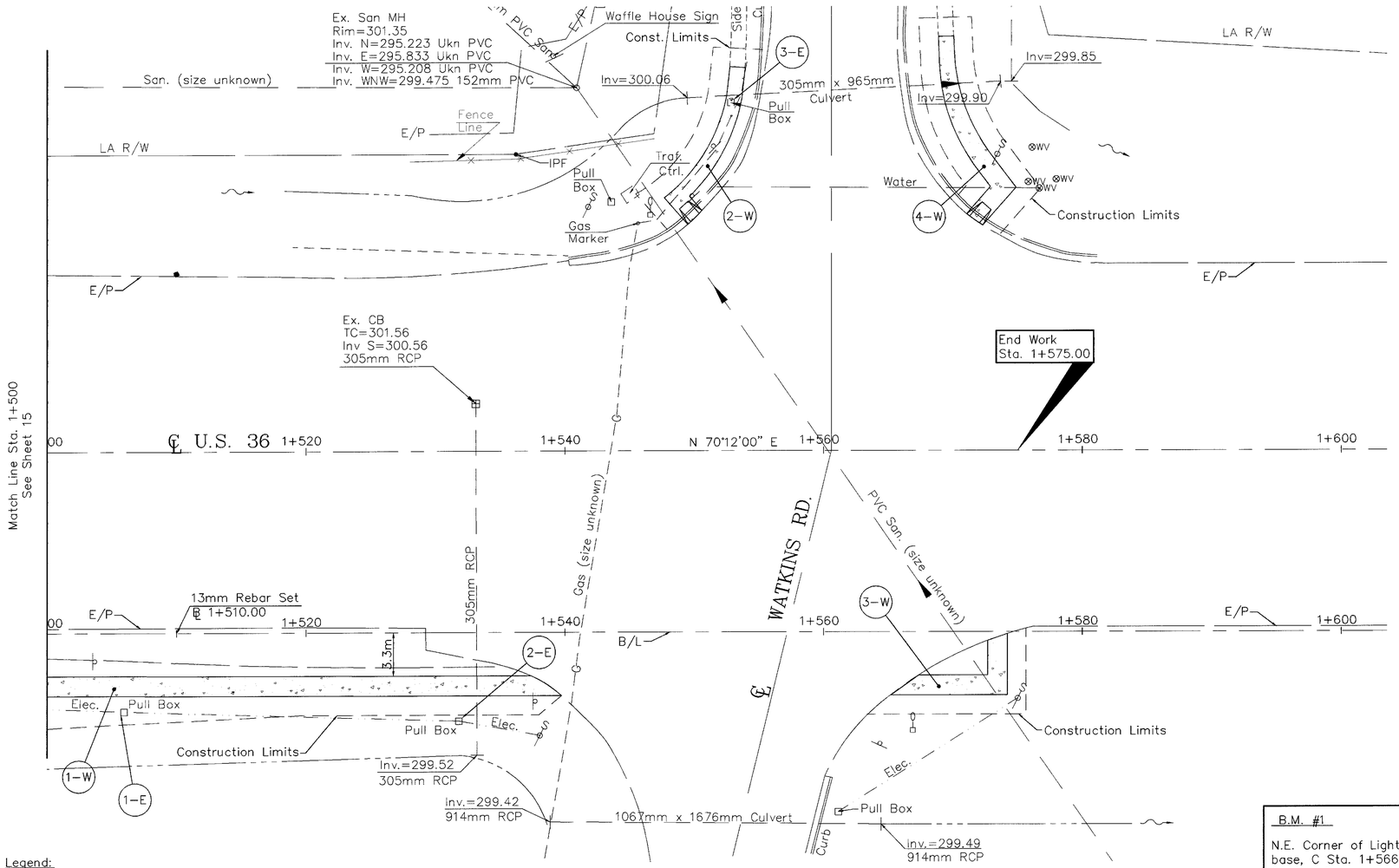
PLAN AND PROFILE
STA. 1+400 TO STA. 1+500

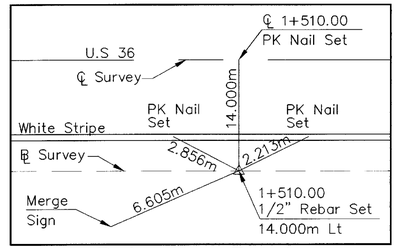
UNI-36-21.194

15/42

CEA FILE NAME: S:\97\0980\S1788PP5.DWG, LAST EDITED BY DELL ON: 05-21-99 @ 08:17

S1788PP5-1:200





Reference Points

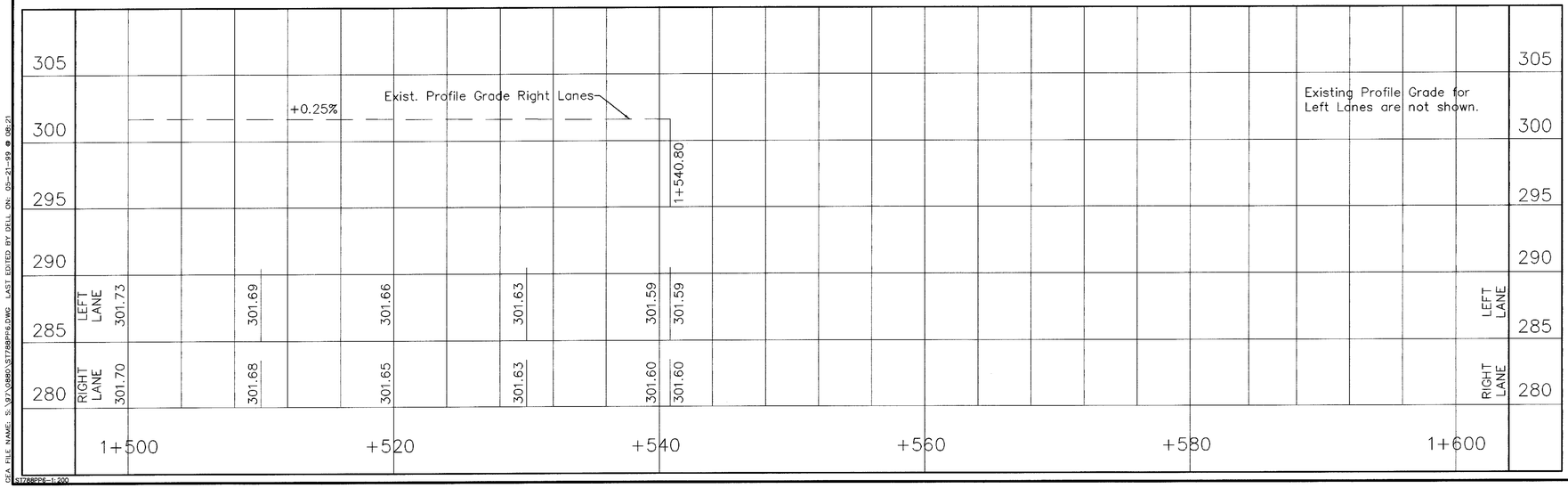
Not To Scale

Legend:

1.5m Concrete Walk

B.M. #1

N.E. Corner of Light Pole base, C Sta. 1+566.91, 21.54m Rt.
Elev. 301.4326m



REF. NO.	STATION TO STATION	SIDE	608 100mm CONCRETE WALK SQ. M.	608 CURB RAMP TYPE 2 EACH	625 PULLBOX MISC.: PULLBOX ADJUST TO GRADE EACH
1-W	1+500 – 1+540	R	61.0		
2-W	1+500 – 1+540	L	19.0	1	
3-W	1+500 – 1+540	R	16.5		
4-W	1+500 – 1+540	L	20.5	1	
1-E	1+506	R			1
2-E	1+532	R			1
3-E	1+553	L			1
	TOTALS CARRIED TO SHEET 3.		117.0	2	3

SCALE IN METERS 5 0 2.5 5

CALCULATED WHG III

CHECKED JEG

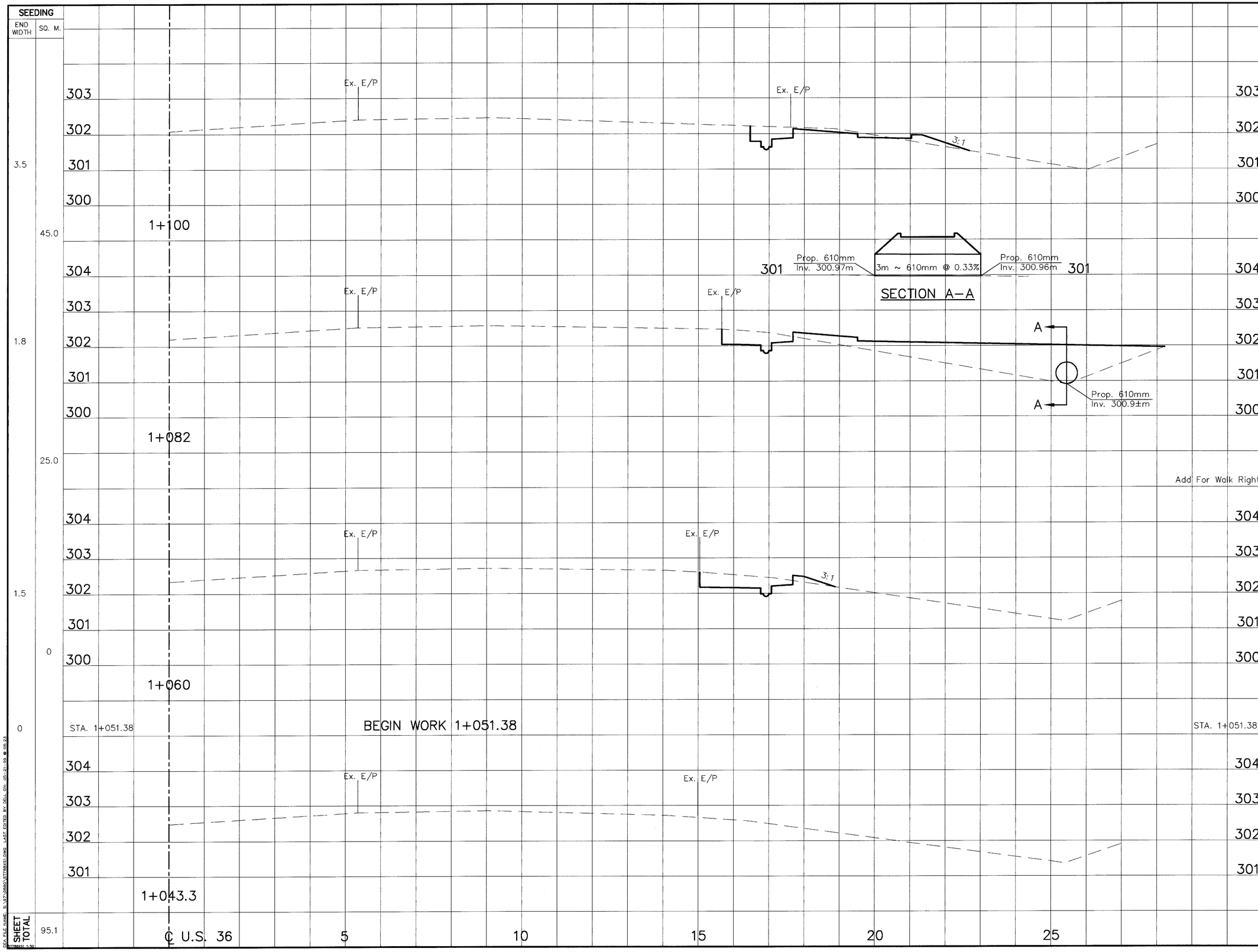
PLAN AND PROFILE
STA. 1+500 TO STA. 1+600

UNI-36-21.194

16
42

CFA FILE NAME: S:\07\0890\ST788PP6.DWG LAST EDITED BY DELL ON: 05-21-99 @ 08:21

ST788PP6-1:200



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0.7	0.23		
		14.4	3.78
0.9	0.19		
		22.6	3.52
		0	9.52
1.15	0.14		
		4.96	0.60
0	0		
SHEET TOTAL		41.96	17.42

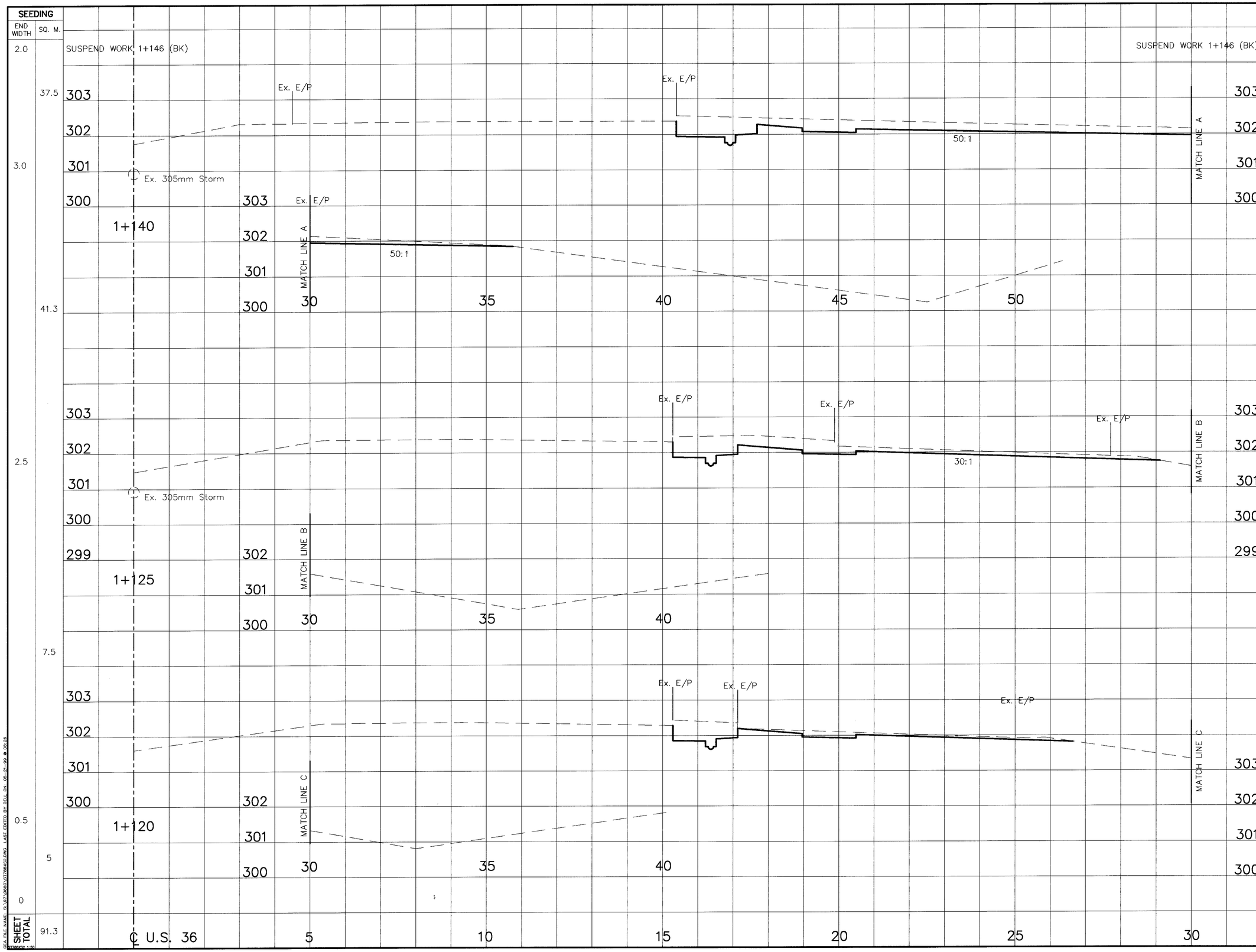
Add For Walk Right

CALCULATED

CHECKED

CROSS SECTION SHEET – STA. 1+043 TO STA. 1+100

UNI–36–21.194



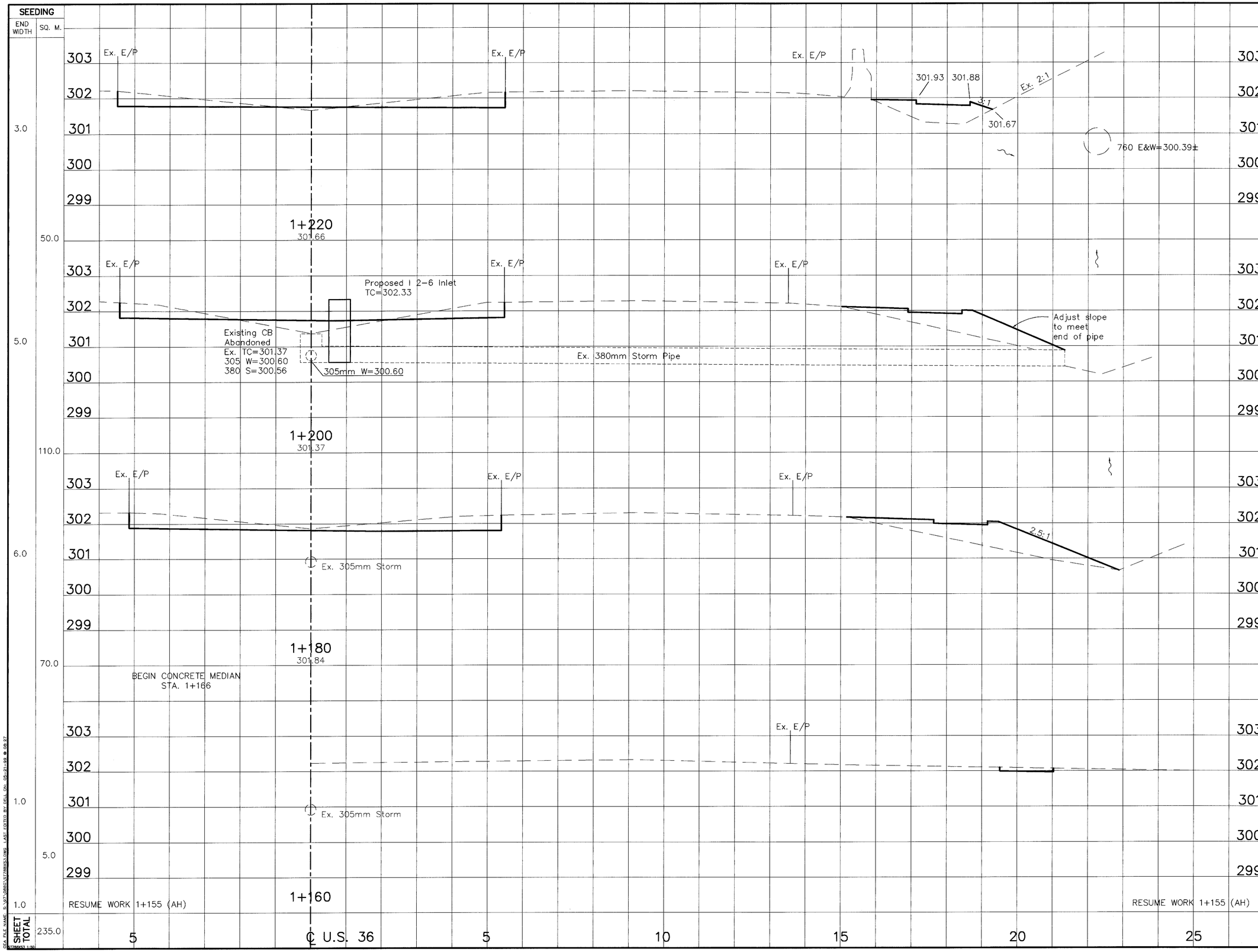
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
2.63	0		
		22.0	0
4.71	0		
		58.2	0
3.05	0		
		11.9	0
1.71	0		
		24.1	2.3
SHEET TOTAL		116.2	2.3

CALCULATED

CHECKED

CROSS SECTION SHEET – STA. 1+120 TO STA. 1+140

UNI-36-21.194



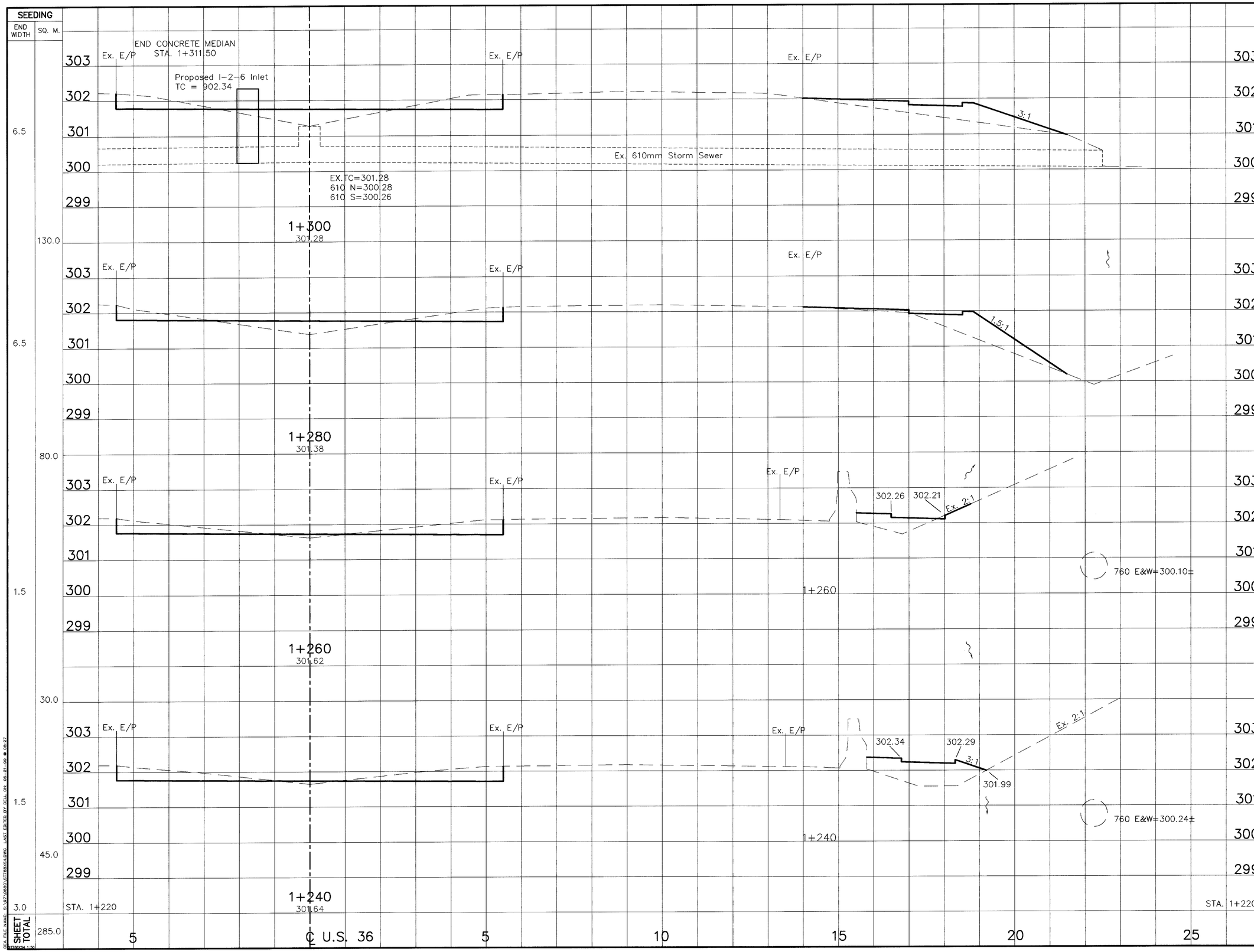
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
2.05	1.37		
		37.3	44.0
1.68	3.03		
		45.4	59.1
2.86	2.89		
		30.2	28.9
0.16	0		
		0.8	0
0.16	0		
SHEET TOTAL		113.7	134.1

CALCULATED

CHECKED

CROSS SECTION SHEET – STA. 1+160 TO STA. 1+220

UNI-36-21.194



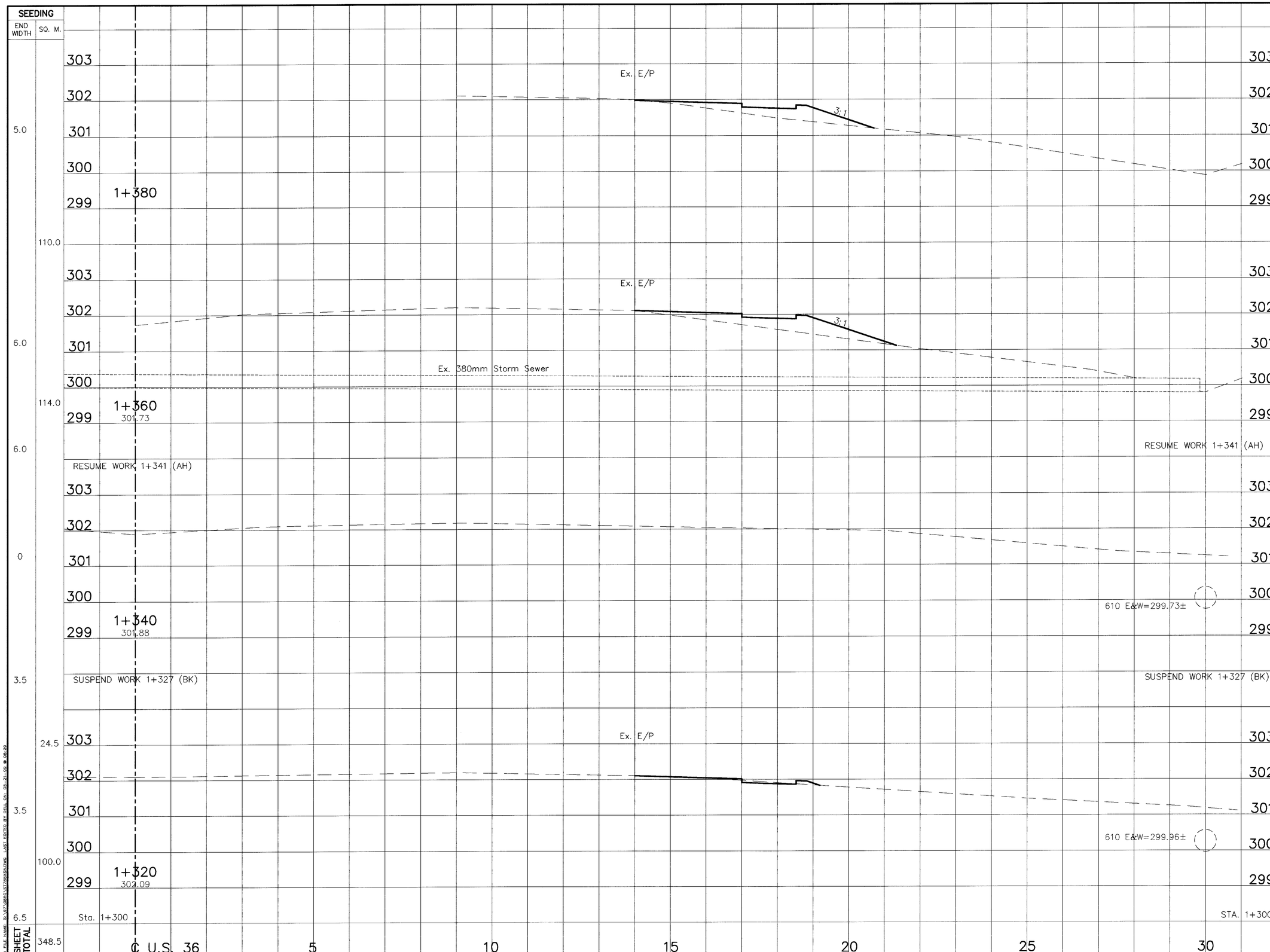
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
1.53	3.01		
		27.2	57.1
1.19	2.70		
		31.3	35.6
1.94	0.86		
		41.0	27.4
2.16	1.88		
		42.1	32.5
2.05	1.37		
SHEET TOTAL		141.6	138.5

CALCULATED

CHECKED

CROSS SECTION SHEET – STA. 1+240 TO STA. 1+300

UNI-36-21.194



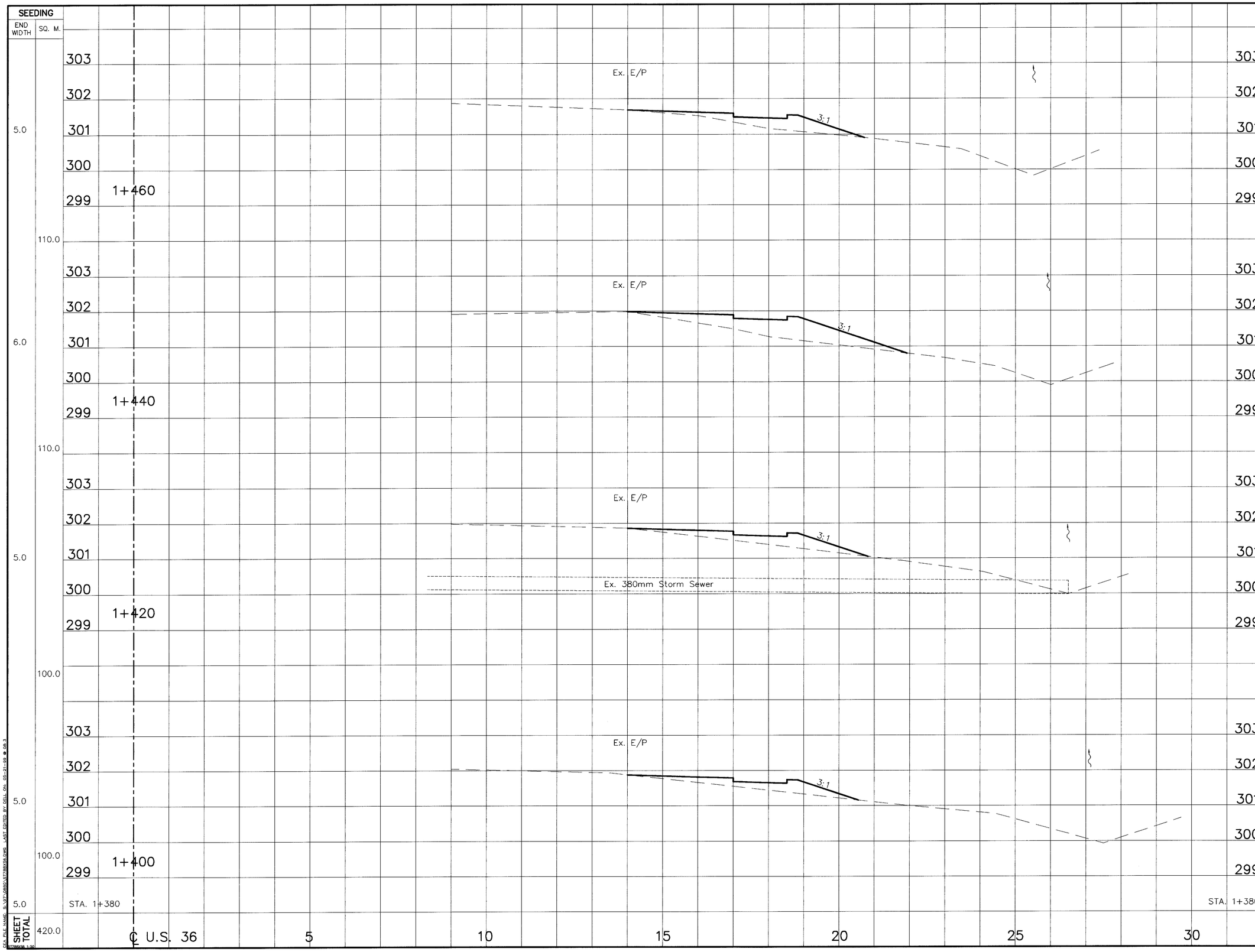
END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	1.25		
		0	29.3
0	1.68		
		0	31.9
0	1.68		
0	0		
0.05	0.11		
		0.4	0.8
0.05	0.11		
		15.8	31.2
1.53	3.01		
SHEET TOTAL		16.2	93.2

CALCULATED

CHECKED

CROSS SECTION SHEET – STA. 1+320 TO STA. 1+380

UNI-36-21.194



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	1.21		
		0	36.8
0	2.47		
		0	37.4
0	1.27		
		0	23.7
0	1.10		
		0	23.5
0	1.25		
SHEET TOTAL		0	121.4

CALCULATED

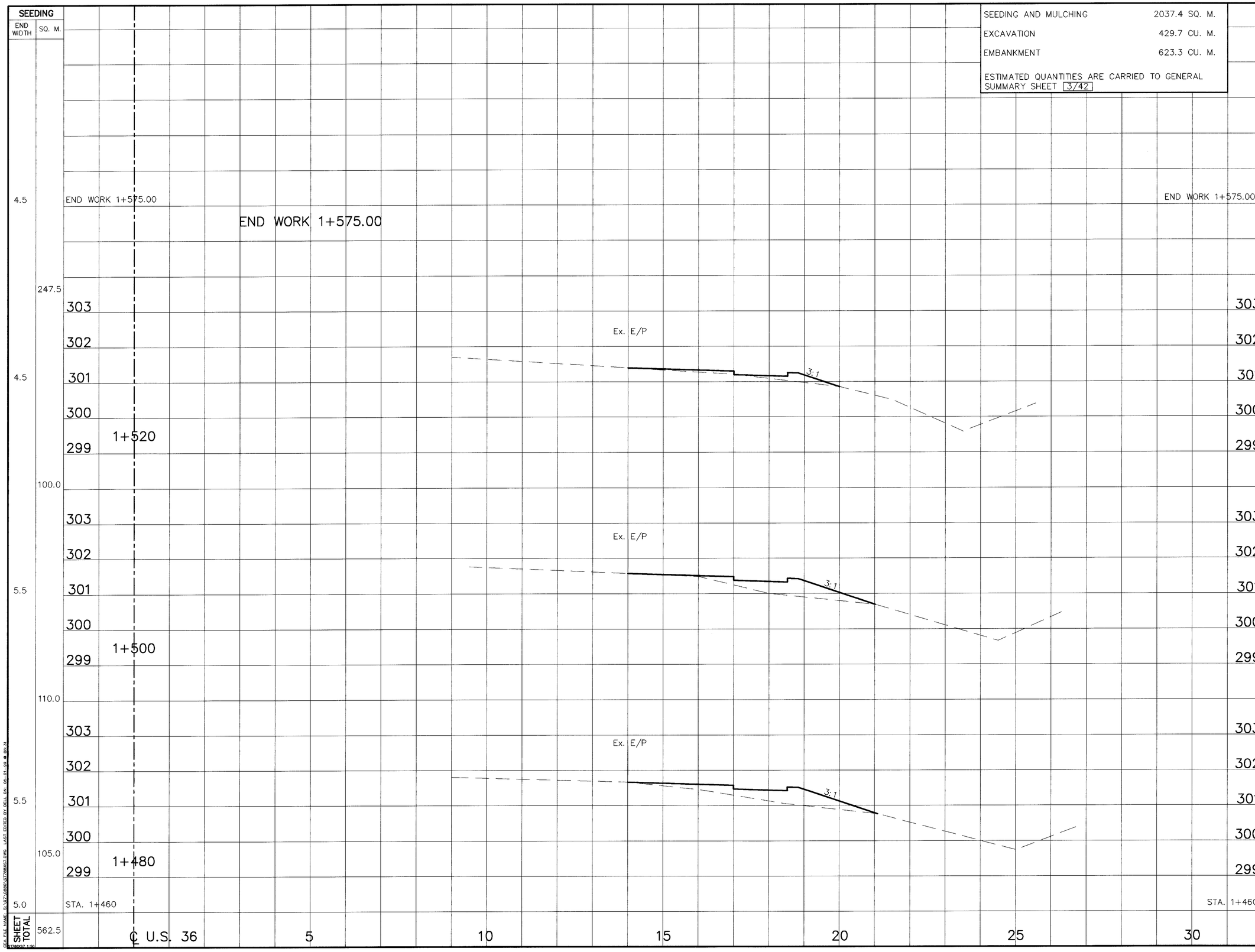
CHECKED

CROSS SECTION SHEET – STA. 1+400 TO STA. 1+460

UNI-36-21.194

SEEDING AND MULCHING	2037.4 SQ. M.
EXCAVATION	429.7 CU. M.
EMBANKMENT	623.3 CU. M.

ESTIMATED QUANTITIES ARE CARRIED TO GENERAL SUMMARY SHEET 3/42



END AREA CUT	END AREA FILL	VOLUME CUT	VOLUME FILL
0	0		
		0	24.2
0	0.44		
		0	17.1
0	1.27		
		0	27.8
0	1.51		
		0	27.2
0	1.21		
SHEET TOTAL		0	96.3

CALCULATED

CHECKED

CROSS SECTION SHEET – STA. 1+480 TO STA. 1+575

UNI-36-21.194

℄ U.S. 36

Begin Work Sta. 1+051.38

1+040 1+060 1+080 1+100 1+120 1+140 1+160 1+180

N 70°12'00" E

Ex. Edge of Pvmt.

Ex. 302.73 302.71 Ex. 302.66 302.61 Ex. 302.59 302.54 Ex. 302.52 302.47 Ex. 302.46 302.41 Ex. 302.40 302.35 Ex. 302.37 302.32 Ex. 302.33 302.28 Ex. 302.32 302.27

1+040 B/L

PK Nail Set

16.460m 14.000m 5.50m 8.551m

Tie into Existing

1+051.38 1+058.75

Const. Limits

Gravel

Curb

Elec.

Ex. Pull Box

E/P

Marker

Abandon

Ex. CB TC=301.59 Inv. SW=300.89 600mm RCP

Ex. CB TC=301.47 Inv. E=300.77 305mm RCP

305mm Stm

U.S. 36 Sta. 1+146.28 = Ramp "B-1" Sta. 0+000

70°00'00"±

S 39°48'00" E

1+166

Swale

BM #3

2.286m 0+020

19°42'29"

1+169.01 19.51m Rt

1+184.34 16.88m Rt

1+157.5, 22m Rt.

1+144, 22m Rt.

1+119, 22m Rt.

1+085.06 19.51m Rt

Construction Limits

600mm Pipe Inv. 300.97

600mm Pipe Inv. 300.96

Inv. 301.06

Ex. Box

205mm Stm

Ex. Sign

LA R/W

R/W

℄ CHARLES LANE

Wire Woven Fence

Ashphalt Parking Lot

Ex. Ramp "B"

Inv.=300.47 600mm RCP

Edge of Shoulder

Ex. 302.23 4.877m

Ex. 302.13

Ex. Ramp "B-1" 302.09

302.13 302.03 301.99

0+040

P.C. Sta. 0+043.38

B/L

Exist. Curve Data:

P.I. Sta. 0+065.89 Ramp "B-1"
△=14°41'43"
Dc=10°00'00"
R=174.639m
T=22.519m
L=44.790m
E=1.445m

0+060

4.877m

End Work Sta. 0+068 Ramp "B-1"

Ex. Ramp "B-1"

0+080

P.T. Sta. 0+088.17

Exist. Curve Data:

P.I. Sta. 0+047.52 Ramp "B"
△=53°23'44"
R=94.488m
T=47.518m
L=88.057m
E=11.275m

℄ U.S. 36

Edge of Pavement

3.00m 3.00m 2.73m 3.00m 3.00m 3.00m 3.00m 1.65m

302.27 302.29 302.31 302.33 302.35 302.37 302.40 302.42 Ex. 302.23

P.C. Sta. 1+134.279 (U.S. 36)

P.T. Sta. 0+028.591 (Ramp "B-1")

℄ Ex. Ramp "B-1"

Edge of Pavement

Curve Data:

P.I. Sta. 1+147.110, 16.459m Rt.
△=70°06'19"
R=18.288m
T=12.830m
L=22.377m
E=4.052m
P.C. Sta. 1+134.279, 16.459m Rt.
P.T. Sta. 0+028.591, 4.866m Rt.

Legend:

Pavement Removal

New Pavement

1.5m Concrete Walk

CEA FILE NAME: S:\97-0880\ST7880E2.DWG LAST EDITED BY DELL ON: 05-21-99 @ 10:17

ST7880E2-1:200

SCALE IN METERS 5 0 2.5 5

CALCULATED ... CHECKED ...

– RAMP "B-1" AND RIGHT TURN LANE

PAVEMENT DETAILS – R

UNI-36-21.194

24
42

SCALE IN METERS 5 0 5 2.5

CALCULATED ... CHECKED ...

PAVEMENT DETAIL – CONCRETE MEDIAN AND LEFT TURN LANES

UNI-36-21.194

25/42

Legend:

1.5m Concrete Walk

New Pavement

CFA FILE NAME: S:\97\0880\ST880E1.DWG LAST EDITED BY DELL ON: 05-21-99 @ 08:35

ST880E1-1:200

			SIGNING PLAN SHEET 38 OF 42	PAVEMENT MARKING SHEET 35 OF 42	INTERCONNECT PLAN SHEET 34 OF 42	TC NOTES SHEET 27 OF 42	SIGNAL MODIFICATION US 36 AT WATKINS RD. SHEET 33 OF 42	SIGNAL PLAN US 36 AT RAMPS C & D-1 SHEET 32 OF 42	SIGNAL PLAN US 36 AT RAMPS A & B-1 SHEET 30 OF 42	ITEM	ITEM EXT.	QUANTITY TOTAL	UNIT	DESCRIPTION
														SIGNALIZATION
						72				603M	00400	72	m	100mm CONDUIT, TYPE E
					172.2			377.4	197.2	625M	25402	746.8	m	CONDUIT, 51 MM, 713.07
								10.2	8.4	625M	25502	18.6	m	CONDUIT, 76 MM, 713.07
					101.6			274.4	197.2	625M	29000	573.2	m	TRENCH
								10		625M	29600	10	m	TRENCH IN PAVED AREA, TYPE B
								6	4	625M	30700	10	EA	PULL BOX, 713.08, 450 MM
								1	1	625M	30706	2	EA	PULL BOX, 713.08, 600 MM
								5	5	625M	32000	10	EA	GROUND ROD
								7	8	632M	00301	15	EA	VEHICULAR SIGNAL HEAD, 3 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN
								1		632M	00501	1	EA	VEHICULAR SIGNAL HEAD, 5 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN
							8	2	2	632M	20600	12	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2
								8	8	632M	25000	16	EA	COVERING OF VEHICULAR SIGNAL HEAD
								2	2	632M	25010	4	EA	COVERING OF PEDESTRIAN SIGNAL HEAD
								7	6	632M	26500	13	EA	DETECTOR LOOP
								5	5	632M	27005	10	EA	LOOP DETECTOR UNIT, AS PER PLAN
								124.7	124.9	632M	30200	249.6	m	MESSENGER WIRE, 7 STRAND, 9 MM DIAMETER WITH ACCESSORIES
								180.2	112.3	632M	40500	292.5	m	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
							64.6	70.2	120.6	632M	40700	255.4	m	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
								73.9	59.4	632M	40900	133.3	m	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG
								4	4	632M	64000	8	EA	STRAIN POLE FOUNDATION
								543.4	333.5	632M	65200	876.9	m	LOOP DETECTOR LEAD-IN CABLE
								160.1	8.7	632M	67200	168.8	m	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG
									43.7	632M	69400	43.7	m	SERVICE CABLE, 2 CONDUCTOR, NO. 8 AWG
									1	632M	70001	1	EA	POWER SERVICE, AS PER PLAN
								4	4	632M	82600	8	EA	STRAIN POLE, TYPE TC-81.10M, DESIGN 6
								1	1	633M	34001	2	EA	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
								1	1	633M	64001	2	EA	PREEMPTION, AS PER PLAN
								1.4	1.4	633M	70000	2.8	m^3	CONCRETE FOR CABINET FOUNDATION
								1.04	1.04	633M	70500	2.08	m^2	CONTROLLER WORK PAD
														INTERCONNECT
					410.2					632M	53202	410.2	m	INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG., SOLID, REA (PE-39)
														PAVEMENT MARKINGS
				0.4						644M	00100	.4	km	EDGE LINE
				341.4						644M	00400	341.4	m	CHANNELIZING LINE
				90.3						644M	00500	90.3	m	STOP LINE
				253.6						644M	00600	253.6	m	CROSSWALK LINE
				55.2						644M	00700	55.2	m	TRANSVERSE LINE
				8						644M	01300	8	EA	LANE ARROW
				3						644M	01400	3	EA	WORD ON PAVEMENT, 1800mm
				27.2						644M	30000	27.2	m	REMOVAL OF PAVEMENT MARKING
														SIGNS
			58.9							630M	02100	58.9	m	GROUND MOUNTED SUPPORT, NO. 2 POST
			58.38							630M	03100	58.38	m	GROUND MOUNTED SUPPORT, NO. 3 POST
			7.9							630M	06400	7.9	m	GROUND MOUNTED SUPPORT, S 100X 11.5 BEAM
			2							630M	09000	2	EA	BREAKAWAY BEAM CONNECTION
								2	2	630M	79000	4	EA	SIGN HANGER ASSEMBLY, SPAN WIRE
			1							630M	79500	1	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED
			13.05					0.72	0.72	630M	80102	14.49	m^2	SIGN, FLAT SHEET, TYPE G
			2.09							630M	80204	2.09	m^2	SIGN, EXTRUSHEET, TYPE G
			3							630M	82000	3	EA	SIGN BACKING ASSEMBLY
			2							630M	84500	2	EA	GROUND MOUNTED BEAM SUPPORT FOUNDATION
			32							630M	85000	32	EA	REMOVAL OF GROUND MOUNTED SIGN AND STORAGE
			27							630M	85100	27	EA	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION
			19							630M	86002	19	EA	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL
			2							630M	86102	2	EA	REMOVAL OF GROUND MOUNTED BEAM SUPPORT AND DISPOSAL
														ALTERNATE BID
								1	1	633M	34001	2	EA	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR,
														AS PER PLAN, PEEK, ALTERNATE BID

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

metric units

CALCULATED TS

CHECKED GW

TRAFFIC CONTROL GENERAL SUMMARY

UNI-36-21.194

GENERAL

THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC SIGNAL EQUIPMENT, IN CONFORMANCE TO THESE PLANS AND SPECIFICATIONS, AND THE 1997 STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AND ALL SUPPLEMENTAL SPECIFICATIONS. HE SHALL INSTALL ALL TRAFFIC SIGNAL EQUIPMENT IN CONFORMANCE TO THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS LATEST REVISION, AND IN CONFORMANCE TO THE OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF DESIGN SERVICE STANDARD CONSTRUCTION DRAWINGS.

CONSTRUCTION INITIATION

THE CONTRACTOR SHALL ADVISE THE DISTRICT OFFICE OF COMMUNICATIONS AT
1-740-363-1251, EXTENSION 469
OR BY FAX AT 1-(740) 369-7437
AND THE DISTRICT CORRIDOR MANAGEMENT ENGINEER AT
1-740-363-1251, EXTENSION 323
14 DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES. THE CONTRACTOR WILL IMMEDIATELY INFORM THE DISTRICT OFFICE OF COMMUNICATIONS AND THE DISTRICT CONGESTION MANAGEMENT ENGINEER OF ANY AND ALL DELAYS AND/OR CHANGES REGARDING THE CONSTRUCTION PROJECT.

UNDERDRAINS FOR PULLBOXES

REFERENCE IS MADE TO STANDARD CONSTRUCTION DRAWINGS FOR DETAILS OF DRAINING PULLBOXES. UNDERDRAINS FOR PULLBOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 6 METERS. AN ESTIMATED QUANTITY OF 15M OF ITEM 603M 100 MM CONDUIT TYPE E IS INCLUDED IN THE GENERAL SUMMARY FOR THIS PURPOSE.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THE CONTRACT 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 UNITS, MONITORS AND ASSOCIATED 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.

STOP-AND-GO SIGNAL ACTUATION

THE NEW SIGNAL, INSTALLED BY THE CONTRACTOR, SHALL OPERATE IN A "FLASH" MODE FOR SEVEN (7) CONSECUTIVE DAYS BEFORE BEING PLACED IN A "STOP-AND-GO" MODE FOR THE TEN (10) DAY BURN TEST.

THE SIGNAL SHALL NOT BE PLACED IN "STOP-AND-GO" OPERATION EITHER THE DAY PRECEDING OR DURING:

A) A NATIONAL HOLIDAY
B) A HOLIDAY WEEKEND
C) A WEEKEND

A DAY BETWEEN A NATIONAL HOLIDAY AND A SATURDAY OR SUNDAY IS CONSIDERED A PART OF THE WEEKEND (EX: THE FRIDAY AFTER THANKSGIVING IS CONSIDERED PART OF THE WEEKEND). THE ROADWAY SERVICES MANAGER SHALL BE NOTIFIED TWO (2) FULL WORKING DAYS PRIOR TO FLASH OPERATION AND BE NOTIFIED A MINIMUM OF TWO (2) FULL WORKING DAYS PRIOR TO PLACING THE SIGNAL ON STOP-AND-GO. A REPRESENTATIVE OF THE ROADWAY SERVICES MANAGER SHALL BE PRESENT AT THE TIME THE SIGNAL GOES ON STOP-AND-GO TO PERFORM THE SIGNAL INSPECTION.

IMMEDIATELY BEFORE PLACING THE NEW SIGNAL INSTALLATION IN "STOP-AND-GO" MODE, THE CONTRACTOR SHALL INSTALL OR UNCOVER THE WARNING SIGNS EQUIPPED WITH ORANGE FLAGS AND TYPE B FLASHING WARNING LIGHTS AS SHOWN ON SHEET 41. THE FLAGS SHALL BE 450 mm X 450 mm IN SIZE AND MADE OF ORANGE VINYL MATERIAL. THE W-47 ASSEMBLIES WILL BE SUPPLIED AND INSTALLED BY THE CONTRACTORS AS PART OF THE CONTRACT. IN ADDITION TO THESE REQUIREMENTS, THE CONTRACTOR SHALL FOLLOW "NEW SIGNAL ACTIVATION" SHOWN ON SHEET 41. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE FOR: ITEM 614 - MAINTAINING TRAFFIC, AS PER PLAN.

INSPECTION

THE SIGNALS SHALL BE INSPECTED JUST PRIOR TO THE START OF THE TEN (10) DAY PERFORMANCE TEST SPECIFIED IN CMS 632.26(6). ALL OTHER CONSTRUCTION PAY ITEMS SHALL BE COMPLETED INCLUDING ELECTRICAL TESTS SPECIFIED IN 632.27(1) - (4) AND FUNCTIONAL TEST SPECIFIED IN 632.27(5).

THE PROJECT ENGINEER SHALL NOTIFY THE APPROPRIATE ROADWAY SERVICES PERSONNEL AT DISTRICT SIX (6) OF THE COMPLETION OF SIGNAL CONSTRUCTION PRIOR TO THE TEN (10) DAY PERFORMANCE TEST.

THE DISTRICT SIX (6) CONSTRUCTION DEPARTMENT SHALL FOLLOW ALL PROCEDURES SET FORTH IN THE STANDARD OPERATING PROCEDURE OPS-211 SECTION D, PARAGRAPH 3 AND THE DIVISION OF CONSTRUCTION STANDARD OPERATING PROCEDURE PH-C-104.

ALL DEFICIENCIES FOUND DURING THE FINAL INSPECTION SHALL BE CORRECTED BEFORE THE COMPLETION OF THE TEN (10) DAY BURN TEST. ANY MAJOR DEFICIENCIES WHICH MAY AFFECT THE OPERATION OF THE SYSTEM SHALL CONSTITUTE A RESTART OF THE TEN (10) DAY BURN TEST AFTER CORRECTIONS ARE COMPLETED. THE TEN (10) DAY BURN TEST MUST BE SUCCESSFULLY COMPLETED BEFORE THE SYSTEM WILL BE ACCEPTED.

ITEM 632 VEHICULAR SIGNAL HEAD, BY TYPE, AS PER PLAN

BALANCE ADJUSTERS, SHOWN ON TC-85.20M OF THE STANDARD CONSTRUCTION DRAWINGS SHALL NOT BE USED.

ALL WIRE ENTRANCES AND TWO-WAY MOUNTING BRACKETS SHALL UTILIZE TRI-STUD TYPE HARDWARE TO MOUNT THE SIGNAL HEAD TO THE WIRE ENTRANCE OR TWO-WAY MOUNTING BRACKET.

ADJUSTABLE SIGNAL HANGERS SHALL BE USED IN PLACE OF DROP PIPE TO MAINTAIN UNIFORM SIGNAL HEAD CLEARANCES WHEN REQUIRED. THE ADJUSTABLE SIGNAL HANGER SHALL UTILIZE TRI-STUD TYPE MOUNTING HARDWARE TO ATTACH THE SIGNAL HEAD TO THE HANGER.

THIS ITEM SHALL CONFORM TO ITEM 632 EXCEPT THE ENTRANCE FITTING SHALL BE OF THE TRI-STUD DESIGN WITH SERRATED RINGS IN ORDER TO ACHIEVE POSITIVE LOCKING.

ALL SIGNAL HEADS SHALL UTILIZE TUNNEL VISORS WITH AN OPENING AT THE BOTTOM.

ITEM 632 LOOP DETECTOR UNIT, BY TYPE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.07 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES: THE OUTPUT DEVICE SHALL BE AN ELECTRO-MECHANICAL RELAY, AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS. THE UNITS SHALL BE SELF-TUNING. ALL UNITS SHALL BE SINGLE CHANNEL DELAY AND EXTENSION TYPE.

ITEM 632 POWER SERVICE, AS PER PLAN

ELECTRICAL POWER FOR BOTH SIGNAL INSTALLATIONS (US 36 AT RAMPS A&B, US 36 AT RAMPS B&C) SHALL BE OBTAINED FROM THE DAYTON POWER AND LIGHT AT THE LOCATION SHOWN SHEET 29. THE VOLTAGE SUPPLIED SHALL BE 120 VOLT AC. THE POWER SERVICE SHALL BE METERED AND THERE SHALL BE ONE METER FOR BOTH SIGNALS. THE METER SHALL BE LOCATED ON POLE "A" OF THE SIGNAL INSTALLATION AT US 36 AND RAMPS A&B. A BY-PASS SWITCH FOR THE SIGNAL INSTALLATION AT US 36 AND RAMPS A&B SHALL BE LOCATED IN THE METER BASE. A SEPARATE BY-PASS SWITCH SHALL BE PROVIDED FOR THE SIGNAL INSTALLATION AT US 36 & RAMPS B&C. THIS BY-PASS SWITCH SHALL BE LOCATED ON THE SIGNAL CONTROLLER ON THE NORTHWEST CORNER OF THE US 36 AND RAMPS C&D INTERSECTION. ALL NECESSARY WORK TO INSTALL AND COMPLETE AN OPERATING SYSTEM WILL BE INCLUDED IN THE VARIOUS ELECTRICAL BID ITEMS IN THIS CONTRACT. POWER SERVICE FOR BOTH SIGNALS AS DESCRIBED SHALL BE INCLUDED AS PART OF THIS ITEM.

ITEM 633 CONTROLLER ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN

IN ADDITION TO THE OTHER REQUIREMENTS OF THIS SECTION, THE CONTROLLER SHALL MEET THE REQUIREMENTS LISTED BELOW.

THE CONTROLLER AT US 36 AND RAMP "A" SHALL ACT AS MASTER AND PROVIDE SYNC PULSE TO OTHER CONTROLLERS.

THE OVERLAP PROGRAMMING SHALL BE BY USE OF AN INTERCHANGEABLE PLUG-IN CIRCUIT BOARD ASSEMBLY AS DESCRIBED IN PART 14 OF TS-1-1983. IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING (IN ACCORDANCE WITH 733.04 PART 3 B).

TO ACCOMMODATE FUTURE OPERATIONAL UPGRADES, UP TO AND INCLUDING A FOUR (4) PHASE OPERATION, PROVIDE ALL WIRING AND COMPONENTS FOR THE CONFLICT MONITOR, FLASH TRANSFER RELAYS, AND LOAD SWITCHES SUCH THAT WHEN EXPANSION IS IMPLEMENTED, THE ONLY WORK REQUIRED WILL BE TO RE-PROGRAM THE CONFLICT MONITOR, HOOK UP THE SIGNAL HEADS AND DETECTORS, AND TO ACTIVATE THE ADDED PHASES ON THE CONTROLLER. A NEMA PLUS 6 CHANNEL MONITOR IS REQUIRED AS IS AN UNPAINTED TYPE "M" CABINET.

THE DESIGN OF THE MONITOR SHALL USE MICRO-PROCESSOR ARCHITECTURE AND LIQUID CRYSTAL DISPLAYS. THE MONITOR SHALL INDICATE THE EXACT LOAD SWITCH CHANNEL IN WHICH THE FAILURE OCCURRED. THE CONFLICT MONITOR SHALL HAVE AN EVENT LOGGING MEMORY. A MINIMUM OF NINE (9) EVENTS SHALL BE LOGGED. EXAMPLES OF EVENTS INCLUDE: POWER OUTAGES, CONFLICTS, CONTROLLER VOLTAGE MONITOR, ETC. EVENTS SHALL BE DISPLAYED ON THE CONFLICT MONITOR'S LIQUID CRYSTAL DISPLAY WHEN INTERROGATED.

PRINTED CIRCUIT BOARD TYPE BACK PANELS OF THE CONTROLLER CABINET WILL NOT BE ACCEPTED. SOLDERED CONNECTIONS WILL BE PERMITTED FOR WIRING ON THE BACK SIDE OF THE BACK PANEL. ALL CONTROLLER MEMORIES SHALL BE INVOLATILE AND SHALL NOT REQUIRE BATTERIES OR OTHER SOURCES OF ENERGY TO RETAIN DATA WHILE POWER IS REMOVED FROM THE CONTROLLER.

THE CONTROLLER SHALL BE SUPPLIED WITH INTERNAL TIME BASE COORDINATION AND SHALL BE SUPPLIED WITH A FOUNDATION MOUNTED CABINET. THE CONTROLLER AT RAMP "A" SHALL BE CONFIGURED FOR THE HARDWIRE INTERCONNECT SHOWN ON THE INTERCONNECT PLAN.

PAYMENT FOR THE ITEM 633, CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN, WILL BE AT THE CONTRACT BID PRICE COMPLETE AND IN PLACE INCLUDING ALL CONNECTIONS TESTED AND ACCEPTED.

ITEM 633 CONTROLLER ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN, PEEK, ALTERNATE BID

THE CONTROLLER SHALL BE A PEEK 3000 SERIES AND SHALL INCORPORATE OR BE FURNISHED WITH ALL THE DESIGN FEATURES, AUXILIARY EQUIPMENT, ACCESSORIES, AND CABINET FEATURES AS REQUIRED IN THE STANDARD BID ITEM.

PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE FOR EACH, IN PLACE, ALL CONNECTIONS MADE AND WIRING COMPLETED, AND ACCEPTED.

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

metric units

CALCULATED | CHECKED

TRAFFIC CONTROL NOTES

UNI-36-21.194

ITEM 633, PREEMPTION, AS PER PLAN

PREEMPTION EQUIPMENT MEETING THIS SPECIFICATION IS MANUAFACTURED BY THE FOLLOWING COMPANIES:

EMERGENCY PREEMPTION SYSTEMS
15207 N. 75TH ST., SUITE 109
SCOTTSDALE, AZ 85260
(800) 315-0377

SONIC SYSTEMS
200-23 E. MALL
VANCOUVER, BRITISH COLUMBIA V6T 1Z3 CANADA
(800) 337-6642

IN ADDITION TO THE OTHER REQUIREMENTS OF THIS SECTION THE FOLLOWING SPECIFICATIONS SHALL BE MET.

SECTION 1--SYSTEM DESCRIPTION

A) THE SYSTEM EMPLOYS COMMUNICATION TO IDENTIFY THE PRESENCE OF EMERGENCY VEHICLES AND WILL CAUSE THE TRAFFIC SIGNAL CONTROLLER TO ADVANCE TO AND/OR HOLD A DESIRED TRAFFIC SIGNAL DISPLAY SELECTED FROM PHASES NORMALLY AVAILABLE. THE COMPONENTS WHICH MAKE UP THE SYSTEM WILL CAUSE THE EXISTING TRAFFIC CONTROLLER TO BE MANIPULATED UPON RECOGNITION OF THE SIGNAL FROM THE VEHICLE. THE VEHICLE SIGNAL SHALL BE EFFECTIVE TO THE DETECTORS OVER A PATH OF UP TO 366 METERS. THE SYSTEM SHALL OPERATE ON A FIRST-COME, FIRST-SERVED BASIS. THE SYSTEM SHALL INTERFACE WITH EXISTING TRAFFIC SIGNAL CONTROLLERS AND/OR COORDINATION UNITS WITHOUT COMPROMISING NORMAL OPERATION OR EXISTING SAFETY PROVISIONS.

SECTION 2--SYSTEM COMPONENTS

A) TO ASSURE DESIRED PERFORMANCE, THE SYSTEM SHALL OFFER COMPATIBILITY WITH ALL NEMA STANDARD SOLID STATE CONTROLLERS AND PROVIDE THE FOLLOWING:

1) PREEMPTION LOG
THE SYSTEM MUST BE CAPABLE OF STORING IN MEMORY AT LEAST 100 PREEMPTIONS BY:

a) PREEMPTION DATE
b) PREEMPTION TIME
c) PREEMPTION DIRECTION
d) PREEMPTION DURATION

2) DETECTOR
A LIGHT-WEIGHT, WEATHERPROOF, 360 DEGREE ADJUSTABLE, DIRECTIONAL DETECTOR ASSEMBLY. INTERNAL CIRCUITRY TRANSFORMS ENERGY INTO ELECTRICAL SIGNALS FOR DELIVERY (UP TO 305 METERS) VIA DETECTOR CABLE TO THE PHASE SELECTION EQUIPMENT.

3) DETECTION CABLE
SHALL BE INSTALLED IN A CONTINUOUS RUN (NO SPLICES) FROM THE RECEIVER TO THE INTERFACE/DECODER TERMINATION PANEL IN THE CONTROLLER CABINET. THE CABLE SHALL BE OF A STRANDED TYPE THAT IS IMSA APPROVED FOR BOTH OVERHEAD AND DIRECT GROUND BURIAL COMPLETE WITH GROUNDING CAPABILITIES. CONDUCTOR REQUIREMENTS REGARDING GAUGE, TYPE AND NUMBER OF CONDUCTORS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER. THE SAME CABLE SHALL BE CONSISTENT THROUGHOUT ALL INSTALLATIONS.

4) PHASE SELECTOR
THE PHASE SELECTOR UNIT SHALL INTERFACE BETWEEN THE PRE-EMPT DETECTORS AND THE CONTROLLER AND BE SUBJECT TO THE FOLLOWING MINIMUM CONDITIONS:

- MUST FIT INTO EXISTING CABINET WITHOUT CAUSING INTERFERENCE TO ANY PROPOSED OR EXISTING COMPONENTS THEREIN.

- CONNECTION BETWEEN THE PHASE SELECTOR UNIT AND CONTROLLER SHALL BE MADE VIA STANDARD PLUG IN CONNECTORS OR THROUGH AN INTERFACE PANEL.

- CONNECTION TO THE PHASE SELECTOR FROM THE INTERFACE PANEL SHALL BE MADE VIA STANDARD PLUG IN CONNECTION.

- THE PHASE SELECTOR SHALL HAVE A CIRCUIT BREAKER FOR 120 VOLT A.C. OPERATING POWER.

- THE PHASE SELECTOR UNIT SHALL HAVE A 120 VOLT A.C. POWER ON AND OFF SWITCH.

- FRONT PANEL INDICATORS SHALL INCLUDE AS A MINIMUM THE FOLLOWING: ACTIVE PRE-EMPT CHANNEL, UNIT OPERATING (SYSTEM OK), POWER STATUS.

- THE PHASE SELECTOR UNIT SHALL HAVE TEST SWITCHES FOR ALL AVAILABLE CHANNELS AND SHALL ACTIVATE PRE-EMPT CHANNEL INDICATORS, THESE TESTS SHALL RECORD A "MANUAL" IN THE LOG.

5) INTERFACE PANEL
AN INTERFACE PANEL SHALL BE REQUIRED FOR TERMINATIONS OF DETECTOR INPUTS AND POWER BETWEEN THE CABINET AND PHASE SELECTOR SUBJECT TO THE FOLLOWING CONDITIONS:

- POWER AND DETECTOR INPUTS MAY BE TERMINATED ON THE INTERFACE PANEL.

- NO RETROFITTING BETWEEN THE CONTROLLER CABINET AND PANEL SHALL BE ALLOWED OTHER THAN THE ABOVE NOTED.

- THE INTERFACE PANEL SHALL BE CLEARLY MARKED BY SILK SCREENING, INDICATING EACH TERMINAL POSITION AND MUST CORRESPOND TO THE SCHEMATICS PROVIDED AT EACH INSTALLATION LOCATION.

- EACH PANEL SHALL BE STANDARD THROUGHOUT THE INSTALLATIONS PROVIDING FOR INPUTS AND OUTPUTS FOR STANDARD EIGHT, FOUR OR TWO PHASE INTERSECTION CONFIGURATION AT THEIR RESPECTIVE LOCATIONS.

- EACH PANEL SHALL INCLUDE A TERMINATION POINT THAT BECOMES LOGIC LEVEL LOW UPON ACTIVATION OF ANY PRE-EMPT CHANNEL FOR RECOGNITION BY CLOSED LOOP SYSTEM COMPONENTS.

THE CITY RESERVES THE RIGHT TO MAKE MODIFICATIONS TO THE INTERFACE PANEL, PROPOSED LOCATION AND/OR TERMINATION POINTS DURING THE EVALUATION PROCESS TO INSURE AN INSTALLATION THAT BEST SERVES ITS PURPOSE AND CAUSES AS LITTLE DISRUPTION TO EXISTING CABINET OPERATIONS AS POSSIBLE. ANY COST OF MODIFICATION SHALL BE ACCOMPLISHED AT THE EXPENSE OF THE CONTRACTOR.

6) SYSTEM SOFTWARE
ANY SOFTWARE REQUIRED TO CALIBRATE, TABULATE ACTUATIONS, OR OTHERWISE PROVE TO BE NEEDED FOR SYSTEM SET-UP OF OPERATION SHALL BE INCLUDED AS PART OF THE BID PRICE. THE SOFTWARE SHALL BE ABLE TO RUN ON A IBM COMPATIBLE COMPUTER WITH A DOS 3.0 OR HIGHER OPERATING SYSTEM.

THE CONTRACTOR SHALL AGREE TO PROVIDE TO THE CITY AT NO ADDITIONAL COST ANY UPDATE OR REVISIONS IN SOFTWARE FOR A PERIOD OF FIVE (5) YEARS AFTER ACCEPTANCE OF THE BID.

SECTION 3--SYSTEM OPERATION

A) PHASE SELECTION SHALL BE ACTIVATED BY A TRANSMITTED SIGNAL FROM A SIGNAL SOURCE.

B) THE SYSTEM SHALL CAUSE THE TRAFFIC CONTROLLER TO SELECT FROM NORMALLY AVAILABLE GREEN PHASES BY ACTIVATING ONE OF SEVERAL DISCRETE INPUTS THAT WILL CAUSE THE CONTROLLER TO EXECUTE
ONE OF ITS INTEMAL PROGRAMMABLE PRIORITY PHASE SELECTION PLANS.

C) THE SYSTEM SHALL NOT REQUIRE MODIFICATION OR REPLACEMENT OF THE EXISTING TRAFFIC CONTROLLER UNIT BEYOND ADDING THE NECESSARY SYSTEM HARDWARE.

D) THE SYSTEM SHALL NOT ATTEMPT CONTROLLER MANIPULATION NOR RETAIN PRIORITY VEHICLE CALLS DURING PERIODS OF "INTERSECTION FLASH" OPERATION.

E) EACH INTERSECTION SHALL BE CAPABLE OF BEING PREEMPTED ON EVERY APPROACH. TWO WAY PREEMPTION IS NOT ACCEPTABLE.

SECTION 4--RELIABILITY

A) ALL EQUIPMENT SUPPLIED AS PART OF THE EMERGENCY PRIORITY REMOTE TRAFFIC CONTROL SYSTEM INTENDED FOR USE IN THE CONTROLLER CABINET SHALL MEET THE ELECTRICAL AND ENVIRONMENTAL SPECIFICATIONS IN THE APPLICABLE NEMA STANDARDS (TS-1) AND THE MUTCD.

SECTION 5--RESPONSIBILITIES

A) AFTER AN AWARD, THE MANUFACTURER OR ITS AUTHORIZED REPRESENTATIVE SHALL BE RESPONSIBLE FOR SYSTEM DOCUMENTATION INCLUDING THE FOLLOWING:

1) ACQUIRE AND TABULATE ALL RELEVANT CONTROLLER INFORMATION.

2) DETERMINE THE NUMBER OF VEHICLE PHASES (GREENS).

3) DETERMINE THE DESIRED GREENS FOR PRIORITY APPROACHES.

4) DETERMINE THE RING CONFIGURATION OF CONTROLLER.

5) DATA ANALYSIS AND CALIBRATION.

6) SUPPLY INTERFACE INFORMATION TO THE AGENCY IN THE FORM OF WIRING DIAGRAMS FOR EACH CABINET.

7) ASSIST IN SYSTEM CHECKOUTS PRIOR TO ACCEPTANCE BY:
- VERIFYING PROPER INSTALLATION PER RECOMMENDED INTERFACES
- VERIFYING THAT RANGES ARE PROPERLY SET
- VERIFYING THAT PHASE SELECTOR TIMINGS AND CONTROLLER SOFTWARE TIMINGS ARE PROPERLY SET

8) INSTRUCT EMERGENCY VEHICLE OPERATORS OR THEIR REPRESENTATIVES IN THE OPERATION OF THE SYSTEM. INSTRUCTION SHALL INCLUDE INTRODUCTORY TRAINING.

9) INSTRUCT MAINTENANCE PERSONNEL IN THE OPERATION AND ROUTINE DATA ANALYSIS OF THE SYSTEM.

SECTION 6--GUARANTEED WARRANTY

A) MANUFACTURER SHALL WARRANT, THAT PROVIDED THE PRIORITY CONTROL SYSTEM HAS BEEN PROPERLY OPERATED AND MAINTAINED, COMPONENT PARTS OF A MATCHED COMPONENT SYSTEM THAT PROVE TO BE DEFECTIVE IN WORKMANSHIP AND/OR MATERIAL SHALL BE COVERED IN A DOCUMENTED SYSTEM PROTECTION PLAN.

B) THE PROTECTION PLAN SHALL WARRANT THAT COMPONENT PARTS, OF A MATCHED COMPONENT SYSTEM, THAT PROVE TO BE DEFECTIVE IN WORKMANSHIP AND/OR MATERIAL DURING THE FIRST FIVE (5) YEARS FROM DATE OF PURCHASE WILL BE REPAIRED AT NO CHARGE.

C) A COPY OF THE MANUFACTURER'S WARRANTY OUTLINING THE CONDITIONS STATED ABOVE SHALL BE SUPPLIED WITH THE BID. FAILURE TO SUPPLY A WRITTEN WARRANTY MAY DISQUALIFY A BID.

D) DURING THE INITIAL SIX (6) MONTH SYSTEM EVALUATION PERIOD, IN ORDER TO VALIDATE RESULTS, THE MANUFACTURER, SHALL AT HIS EXPENSE, BE REQUIRED TO REPLACE ANY PRE-EMPTION EQUIPMENT DETERMINED BY THE AGENCY TO THE DEFECTIVE. UPON NOTIFICATION BY THE AGENCY THAT A UNIT IS DEFECTIVE, THE MANUFACTURER SHALL HAVE A REPLACEMENT IN HAND TO THE AGENCY NOT MORE THAN TWENTY-FOUR (24) HOURS FROM THE TIME OF NOTIFICATION.

SECTION 7--CERTIFICATION

THE MANUFACTURER OF THE PRIORITY CONTROL SYSTEM SHALL CERTIFY THAT ALL COMPONENT PRODUCTS ARE DESIGNED, MANUFACTURED, AND TESTED AS A SYSTEM OF COMPONENTS AND WILL MEET OR EXCEED THE REQUIREMENTS OF THIS SPECIFICATION.

SECTION 8--PAYMENT

PAYMENT SHALL BE FOR EACH INTERSECTION WHERE PREEMPTION IS INSATLLED. PAYMENT SHALL INCLUDE ALL MATERIAL AND LABOR AND TRAINING TO PROVIDE A FULLY FUNCTIONING FOUR WAY SYSTEM. ITEMS SUPPLIED SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

PHASE SELECTOR
DETECTORS
DETECTOR CABLE
INTERFACE PANEL
SOFTWARE

PAYMENT FOR ALL THESE ITEMS SHALL BE INCLUDED IN ITEM 633, PREEMPTION, AS PER PLAN.

LEGEND:

- C — CABLE TV LINE
- G — GAS LINE
- E — UNDERGROUND ELECTRIC CABLE
- OHE — OVERHEAD ELECTRIC CABLE
- T — UNDERGROUND TELEPHONE CABLE
- OHT — OVERHEAD TELEPHONE CABLE
- – – – RIGHT OF WAY
- SAN — SANITARY SEWER
- STM — STORM SEWER
- W — WATER LINE
- CATCH BASIN
- 51mmC — CONDUIT
- CONTROLLER
- ELECTRIC PULL BOX
- FIRE HYDRANT
- GAS VALVE
- LIGHT POLE
- POWER POLE
- PULL BOX
- STRAIN POLE
- TELEPHONE POLE
- WATER VALVE
- 3 OR 4 SECTION SIGNAL HEAD
- 3 SECTION LEFT TURN SIGNAL HEAD
- 5 SECTION SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PREEMPTION RECEIVER

SIGN LEGEND

R–121 600mm X 600mm

R–120 600mm X 600mm

SIGNAL HEADS

(R) (Y) (G) (300mm) 1,2,3,4,5,6,7,8

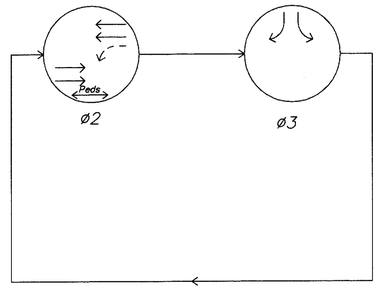
PEDESTRIAN SIGNAL (TYPE D–2)

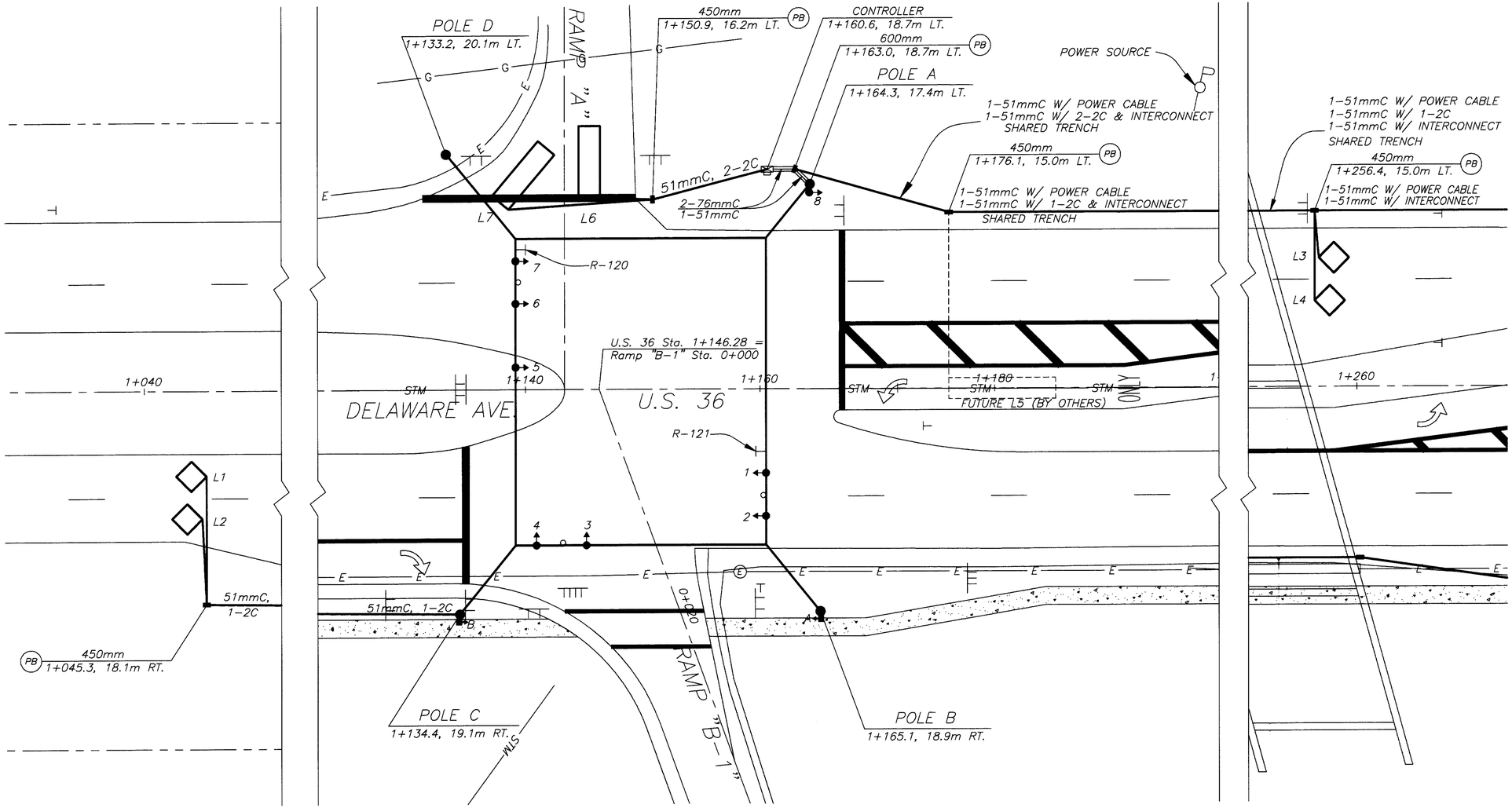
DONT WALK / WALK — A,B

NOTE:
PAVEMENT MARKINGS ARE SHOWN ON THIS PLAN FOR CLARITY ONLY. FOR DETAILS SEE PAVEMENT MARKING PLAN ON SHEETS 35–36.

NOTE:
CONDUIT FOR INTERCONNECT IS SHOWN ON THIS PLAN FOR CLARITY ONLY AND IS NOT REFLECTED IN THE QUANITIES. FOR QUANTITIES SEE INTERCONNECT PLAN ON SHEET 34.

PHASING DIAGRAM





SIGNAL TIMING CHART

PHASE (ϕ)	FUTURE–1	2	3
MOVEMENT	WB–LT	EB–WB	SB
MIN. GREEN	7	20	10
ADDED INITIAL	–	–	–
PASSAGE	3.2	5	3.2
T.B. RED.	–	20	–
T.T. RED	–	20	–
MIN. GAP	–	3.5	–
MAX. 1	15	40	20
MAX. 2	15	40	20
YELLOW	3.0	3.6	3.0
ALL RED	2.4	2.0	2.7
WALK	–	7	–
PED. CLEAR	–	8	–
RECALL	OFF	PED	OFF
MEMORY	OFF	ON	OFF

metric units

HORIZONTAL SCALE IN METERS 0 2 4 6 8 10

CALCULATED | CHECKED

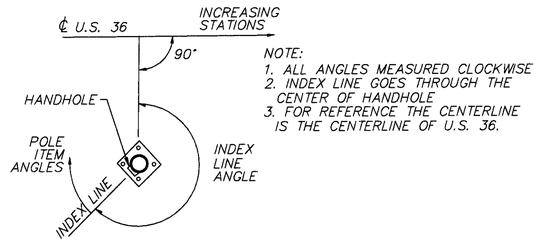
SIGNAL PLAN
33 RAMP "A" AND RAMP "B–1"
US 36 AT US 33

UNI–36–21.194

metric units

POLE ORIENTATION DATA CHART

POLE	DESIGN NO.	STATION & OFFSET	POLE HEIGHT	INDEX ANGLE	AUXILIARY SIGNALS	PED SIGNALS	POWER SERVICE	CABLE ENTRANCE	2" CAPPED CONDUIT ELL (FUTURE USE)
A	TC-81.10M DESIGN 6	1+164.3, 17.4m LT.	9.1m	219°	141°	–	45°	180°	–
B	TC-81.10M DESIGN 6	1+165.1, 18.9m RT.	9.1m	141°	–	39°	–	180°	270°
C	TC-81.10M DESIGN 6	1+134.4, 19.1m RT.	9.1m	219°	–	321°	–	180°	90°
D	TC-81.10M DESIGN 6	1+133.2, 20.1m LT.	9.1m	141°	–	–	–	180°	270°



NOTE:
1. ALL ANGLES MEASURED CLOCKWISE
2. INDEX LINE GOES THROUGH THE CENTER OF HANDHOLE
3. FOR REFERENCE THE CENTERLINE IS THE CENTERLINE OF U.S. 36.

DETECTOR SCHEDULE

DETECTOR NUMBER	SIZE	TURNS	MODE	MEMORY	DELAY (SEC.)	UNIT	CHANNEL	PHASE	PHASE INHIBIT
L1	1.8m X 1.8m	3	PULSE	ON	–	1	1	2	2
L2	1.8m X 1.8m	3	PULSE	ON	–	1	1	2	2
L3	1.8m X 1.8m	3	PULSE	ON	–	2	1	2	2
L4	1.8m X 1.8m	3	PULSE	ON	–	2	1	2	2
L5	FUTURE					3			
L6	1.8m X 6.1m	2	PRESENCE	OFF	3	4	1	3	3
L7	1.8m X 6.1m	2	PRESENCE	OFF	10	5	1	3	3

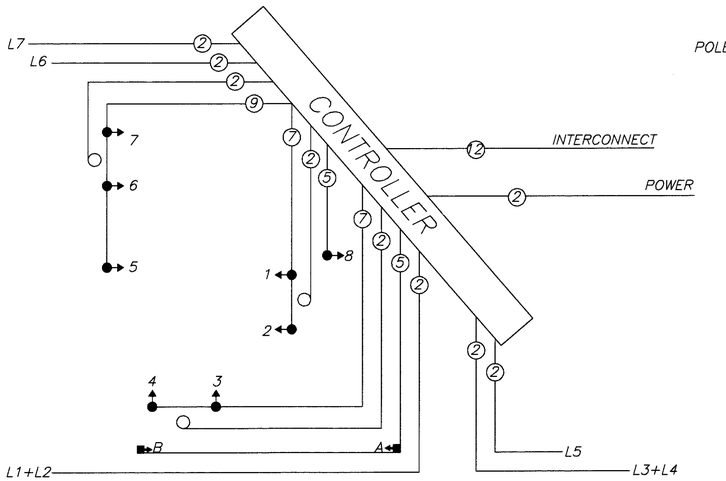
SIGNAL DISPLAY

PHASE	MOVEMENT	INTERVAL	SIGNAL NO. 1	2	3	4	5	6	7	8	PED. SIGNAL A	B
2		RW	G	G	R	R	G	G	G	G	W	W
		C1	G	G	R	R	G	G	G	G	FDW	FDW
		C2	Y	Y	R	R	Y	Y	Y	Y	DW	DW
	Peds	C3	R	R	R	R	R	R	R	R	DW	DW
3		RW	R	R	G	G	R	R	R	R	DW	DW
		C1	R	R	Y	Y	R	R	R	R	DW	DW
		C2	R	R	R	R	R	R	R	R	DW	DW
FLASH			Y	Y	R	R	Y	Y	Y	Y	OFF	OFF

QUANTITIES

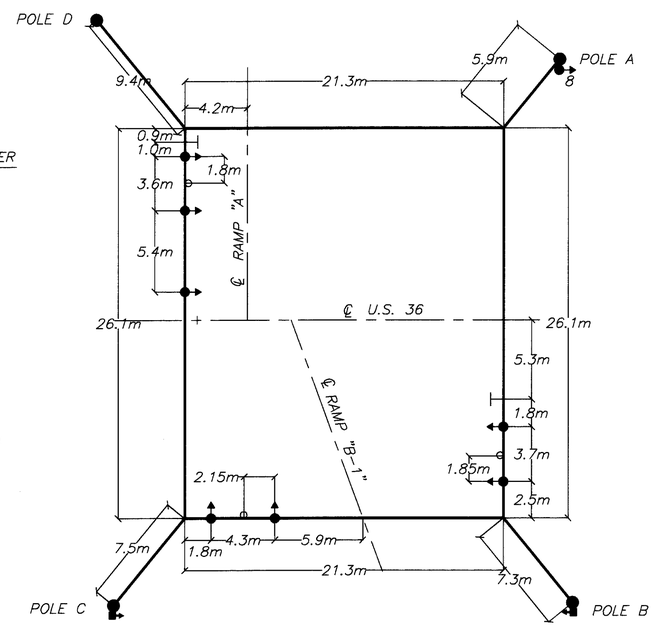
QUAN	ITEM	UNIT	DESCRIPTION
197.2	625M	m	CONDUIT, 51 MM, 713.07
8.4	625M	m	CONDUIT, 76 MM, 713.07
197.2	625M	m	TRENCH
4	625M	EA	PULL BOX, 713.08, 450 MM
1	625M	EA	PULL BOX, 713.08, 600 MM
5	625M	EA	GROUND ROD
8	632M	EA	VEHICULAR SIGNAL HEAD, 3 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN
2	632M	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2
8	632M	EA	COVERING OF VEHICULAR SIGNAL HEAD
2	632M	EA	COVERING OF PEDESTRIAN SIGNAL HEAD
6	632M	EA	DETECTOR LOOP
5	632M	EA	LOOP DETECTOR UNIT, AS PER PLAN
124.9	632M	m	MESSENGER WIRE, 7 STRAND, 9 MM DIAMETER WITH ACCESSORIES
112.3	632M	m	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
120.6	632M	m	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
59.4	632M	m	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG
4	632M	EA	STRAIN POLE FOUNDATION
333.5	632M	m	LOOP DETECTOR LEAD-IN CABLE
8.7	632M	m	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG
43.7	632M	m	SERVICE CABLE, 2 CONDUCTOR, NO. 8 AWG
1	632M	EA	POWER SERVICE, AS PER PLAN
4	632M	EA	STRAIN POLE, TYPE TC-81.10M, DESIGN 6
1	633M	EA	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
1	633M	EA	PREEMPTION, AS PER PLAN
1.4	633M	m^3	CONCRETE FOR CABINET FOUNDATION
1.04	633M	m^2	CONTROLLER WORK PAD

WIRING DIAGRAM



○ – PREEMPTION RECEIVER

SPAN DIAGRAM



CALCULATED | CHECKED

SIGNAL PLAN
33 RAMP "A" AND RAMP "B-1"
US 36 @ US 33

UNI-36-21.194

LEGEND:

- C — CABLE TV LINE
- G — GAS LINE
- E — UNDERGROUND ELECTRIC CABLE
- OHE — OVERHEAD ELECTRIC CABLE
- T — UNDERGROUND TELEPHONE CABLE
- OHT — OVERHEAD TELEPHONE CABLE
- — — — RIGHT OF WAY
- SAN — SANITARY SEWER
- STM — STORM SEWER
- W — WATER LINE
- CATCH BASIN
- 51mmC — CONDUIT
- CONTROLLER
- ELECTRIC PULL BOX
- FIRE HYDRANT
- GAS VALVE
- LIGHT POLE
- POWER POLE
- PULL BOX
- STRAIN POLE
- TELEPHONE POLE
- WATER VALVE
- 3 OR 4 SECTION SIGNAL HEAD
- 3 SECTION LEFT TURN SIGNAL HEAD
- 5 SECTION SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PREEMPTION RECEIVER

SIGN LEGEND

R-121 600mm X 600mm

R-120 600mm X 600mm

SIGNAL HEADS

(300mm) 2,3,4,5,6,7,8

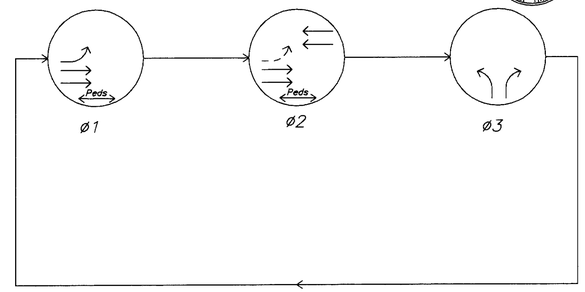
(300mm) 1

PEDESTRIAN SIGNAL (TYPE D-2)

DONT WALK / WALK

A,B

PHASING DIAGRAM

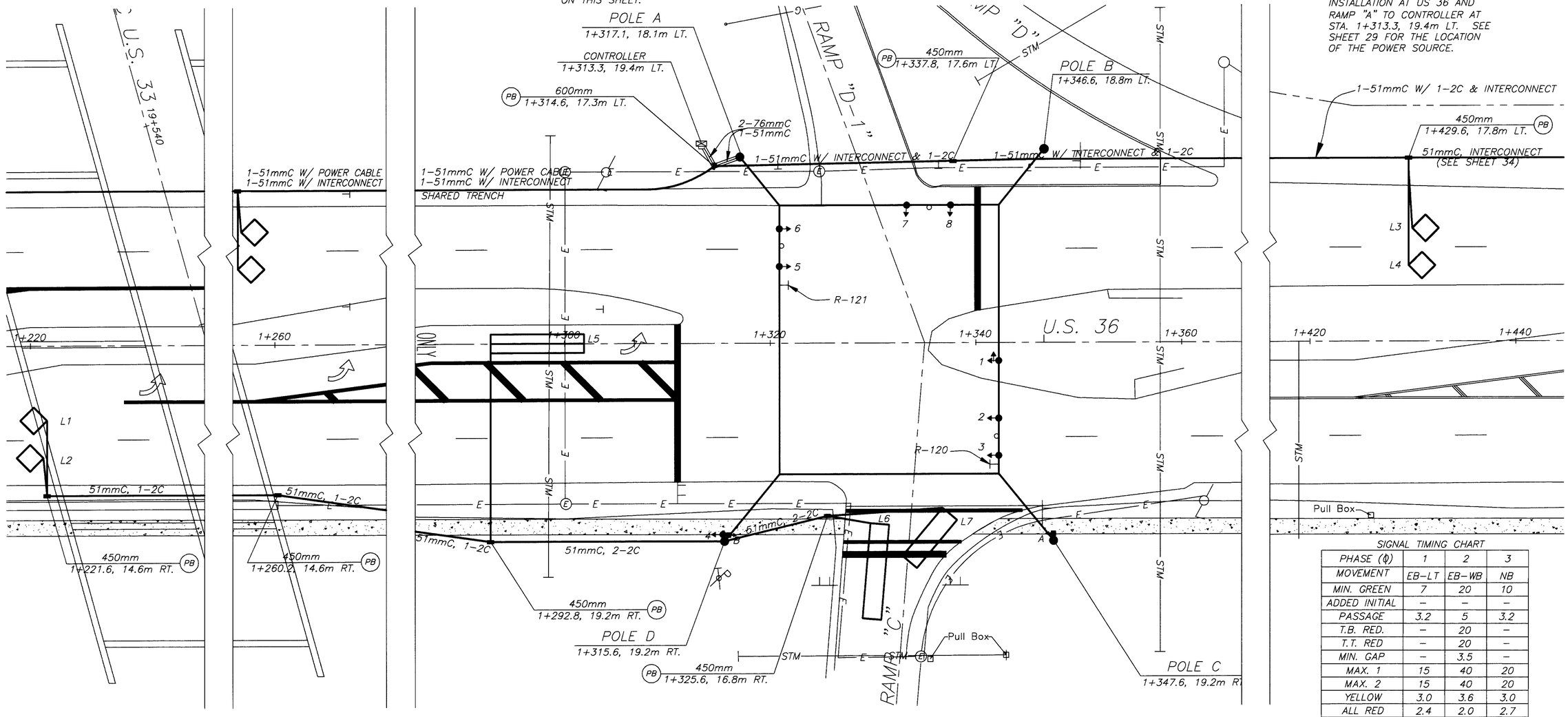


NOTE:
PAVEMENT MARKINGS ARE SHOWN ON THIS PLAN FOR CLARITY ONLY. FOR DETAILS SEE PAVEMENT MARKING PLAN ON SHEETS 35-36.

NOTE:
CONDUIT FOR INTERCONNECT IS SHOWN ON THIS PLAN FOR CLARITY ONLY AND IS NOT REFLECTED IN THE QUANITIES. FOR QUANTITIES SEE INTERCONNECT PLAN ON SHEET 34.

NOTE:
TRENCH FROM PULL BOX AT STA. 1+256.4 LT. TO PULL BOX AT STA. 1+429.6 LT. IS REFLECTED IN THE QUANTITIES ON THIS SHEET.

NOTE:
POWER CABLE SHALL BE RUN IN A SEPARATE CONDUIT FROM POLE "A" OF THE SIGNAL INSTALLATION AT US 36 AND RAMP "A" TO CONTROLLER AT STA. 1+313.3, 19.4m LT. SEE SHEET 29 FOR THE LOCATION OF THE POWER SOURCE.



SIGNAL TIMING CHART

PHASE (ϕ)	1	2	3
MOVEMENT	EB-LT	EB-WB	NB
MIN. GREEN	7	20	10
ADDED INITIAL	–	–	–
PASSAGE	3.2	5	3.2
T.B. RED.	–	20	–
T.T. RED	–	20	–
MIN. GAP	–	3.5	–
MAX. 1	15	40	20
MAX. 2	15	40	20
YELLOW	3.0	3.6	3.0
ALL RED	2.4	2.0	2.7
WALK	–	7	–
PED. CLEAR	–	10	–
RECALL	OFF	PED	OFF
MEMORY	OFF	ON	OFF

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

metric units

HORIZONTAL SCALE IN METERS 0 2 4 6 8 10

CALCULATED | CHECKED

SIGNAL PLAN
US 36 AT US 33 RAMP "C" AND "D-1"

UNI-36-21.194

31
42

metric units

POLE ORIENTATION DATA CHART

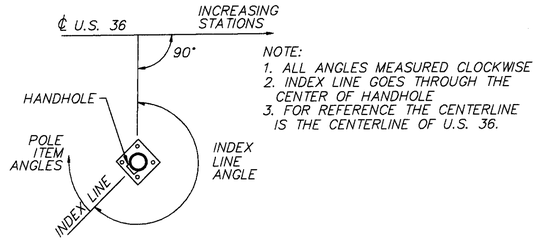
POLE	DESIGN NO.	STATION & OFFSET	POLE HEIGHT	INDEX ANGLE	AUXILIARY SIGNALS	PED SIGNALS	POWER SERVICE	CABLE ENTRANCE	2" CAPPED CONDUIT ELL (FUTURE USE)
A	TC-81.10M DESIGN 6	1+317.1, 18.1m LT.	9.1m	141°	–	–	–	180°	–
B	TC-81.10M DESIGN 6	1+346.6, 18.8m LT.	9.1m	219°	–	–	–	180°	90°
C	TC-81.10M DESIGN 6	1+347.6, 19.2m RT.	9.1m	141°	–	219°	–	180°	310°
D	TC-81.10M DESIGN 6	1+315.6, 19.2m RT.	9.1m	219°	141°	141°	–	180°	270°

DETECTOR SCHEDULE

DETECTOR NUMBER	SIZE	TURNS	MODE	MEMORY	DELAY (SEC.)	UNIT	CHANNEL	PHASE	PHASE INHIBIT
L1	1.8m X 1.8m	3	PULSE	ON	–	1	1	2	2
L2	1.8m X 1.8m	3	PULSE	ON	–	1	1	2	2
L3	1.8m X 1.8m	3	PULSE	ON	–	2	1	2	2
L4	1.8m X 1.8m	3	PULSE	ON	–	2	1	2	2
L5	1.8m X 9.1m	2	PRESENCE	OFF	5	3	1	1	1
L6	1.8m X 9.1m	2	PRESENCE	OFF	3	4	1	3	3
L7	1.8m X 6.1m	2	PRESENCE	OFF	10	5	1	3	3

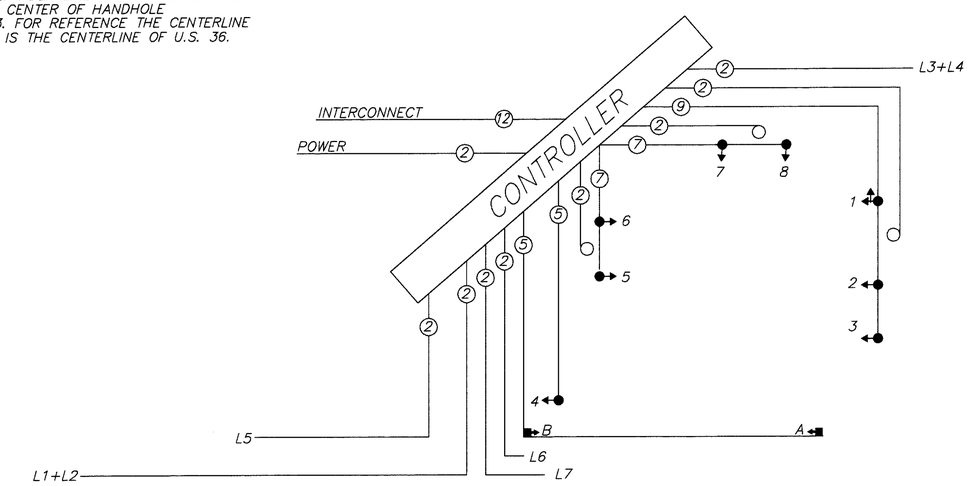
SIGNAL DISPLAY

PHASE	MOVEMENT	INTERVAL	SIGNAL NO. 1	2	3	4	5	6	7	8	PED. SIGNAL A	B
1		RW	~~G~~	G	G	G	G	R	R	R	W	W
		C1	~~Y~~	G	G	G	G	R	R	R	W	W
	Peds	C2	G	G	G	G	R	R	R	R	W	W
2		RW	G	G	G	G	G	G	R	R	W	W
		C1	G	G	G	G	G	G	R	R	FDW	FDW
		C2	Y	Y	Y	Y	Y	Y	R	R	DW	DW
	Peds	C3	R	R	R	R	R	R	R	R	DW	DW
3		RW	R	R	R	R	R	R	G	G	DW	DW
		C1	R	R	R	R	R	R	Y	Y	DW	DW
		C2	R	R	R	R	R	R	R	R	DW	DW
FLASH			Y	Y	Y	Y	Y	Y	R	R	OFF	OFF



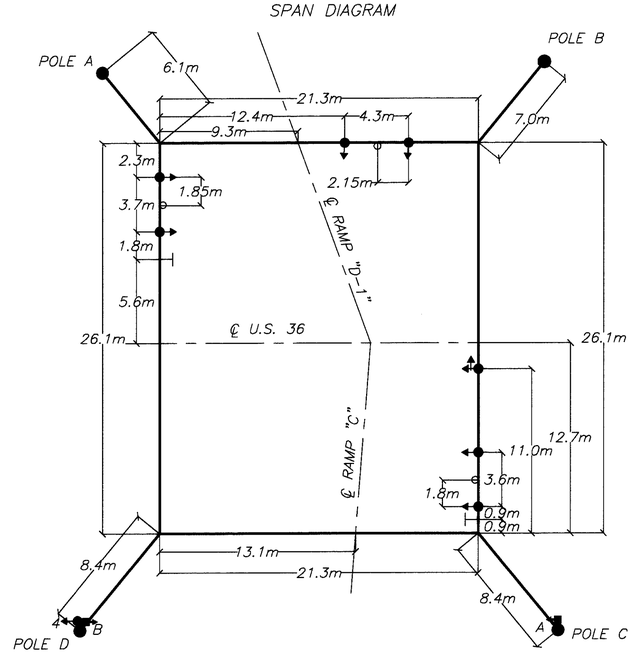
NOTE:
1. ALL ANGLES MEASURED CLOCKWISE
2. INDEX LINE GOES THROUGH THE CENTER OF HANDHOLE
3. FOR REFERENCE THE CENTERLINE IS THE CENTERLINE OF U.S. 36.

WIRING DIAGRAM



○ – PREEMPTION RECEIVER

SPAN DIAGRAM



QUANTITIES

QUAN	ITEM	UNIT	DESCRIPTION
377.4	625M	m	CONDUIT, 51 MM, 713.07
10.2	625M	m	CONDUIT, 76 MM, 713.07
274.4	625M	m	TRENCH
10	625M	m	TRENCH IN PAVED AREA, TYPE B
6	625M	EA	PULL BOX, 713.08, 450 MM
1	625M	EA	PULL BOX, 713.08, 600 MM
5	625M	EA	GROUND ROD
7	632M	EA	VEHICULAR SIGNAL HEAD, 3 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN
1	632M	EA	VEHICULAR SIGNAL HEAD, 5 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN
2	632M	EA	PEDESTRIAN SIGNAL HEAD, TYPE D2
8	632M	EA	COVERING OF VEHICULAR SIGNAL HEAD
2	632M	EA	COVERING OF PEDESTRIAN SIGNAL HEAD
7	632M	EA	DETECTOR LOOP
5	632M	EA	LOOP DETECTOR UNIT, AS PER PLAN
124.7	632M	m	MESSENGER WIRE, 7 STRAND, 9 MM DIAMETER WITH ACCESSORIES
180.2	632M	m	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG
70.2	632M	m	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG
73.9	632M	m	SIGNAL CABLE, 9 CONDUCTOR, NO. 14 AWG
4	632M	EA	STRAIN POLE FOUNDATION
543.4	632M	m	LOOP DETECTOR LEAD-IN CABLE
160.1	632M	m	POWER CABLE, 2 CONDUCTOR, NO. 8 AWG
4	632M	EA	STRAIN POLE, TYPE TC-81.10M, DESIGN 6
1	633M	EA	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN
1	633M	EA	PREEMPTION, AS PER PLAN
1.4	633M	m^3	CONCRETE FOR CABINET FOUNDATION
1.04	633M	m^2	CONTROLLER WORK PAD

CALCULATED | CHECKED

SIGNAL PLAN
US 36 @ US 33 RAMP "C" AND RAMP "D-1"

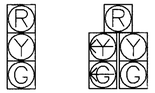
UNI-36-21.194

32
42

LEGEND:

- C — CABLE TV LINE
- G — GAS LINE
- E — UNDERGROUND ELECTRIC CABLE
- OHE — OVERHEAD ELECTRIC CABLE
- T — UNDERGROUND TELEPHONE CABLE
- OHT — OVERHEAD TELEPHONE CABLE
- — — — RIGHT OF WAY
- SAN — SANITARY SEWER
- STM — STORM SEWER
- W — WATER LINE
- CATCH BASIN
- 51mmC — CONDUIT
- CONTROLLER
- E — ELECTRIC PULL BOX
- FIRE HYDRANT
- GAS VALVE
- LIGHT POLE
- POWER POLE
- PULL BOX
- EX. STRAIN POLE
- TELEPHONE POLE
- WATER VALVE
- 3 OR 4 SECTION SIGNAL HEAD
- 5 SECTION SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PREEMPTION RECEIVER

EXISTING SIGNAL HEADS

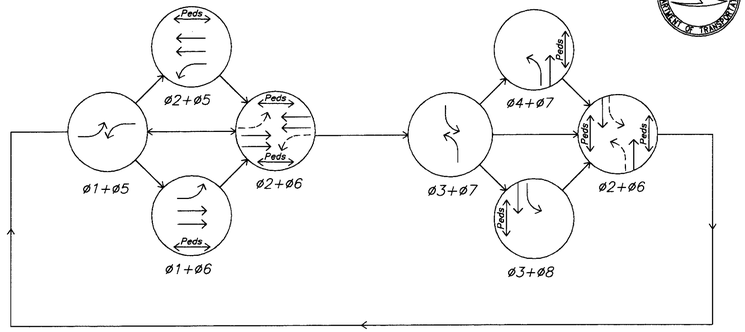


(300mm) 2,3,5,7,8,10,11 (300mm) 1,4,6,9

PEDESTRIAN SIGNAL (TYPE D-2)

A,B,C,D,E,F,G,H

PHASING DIAGRAM



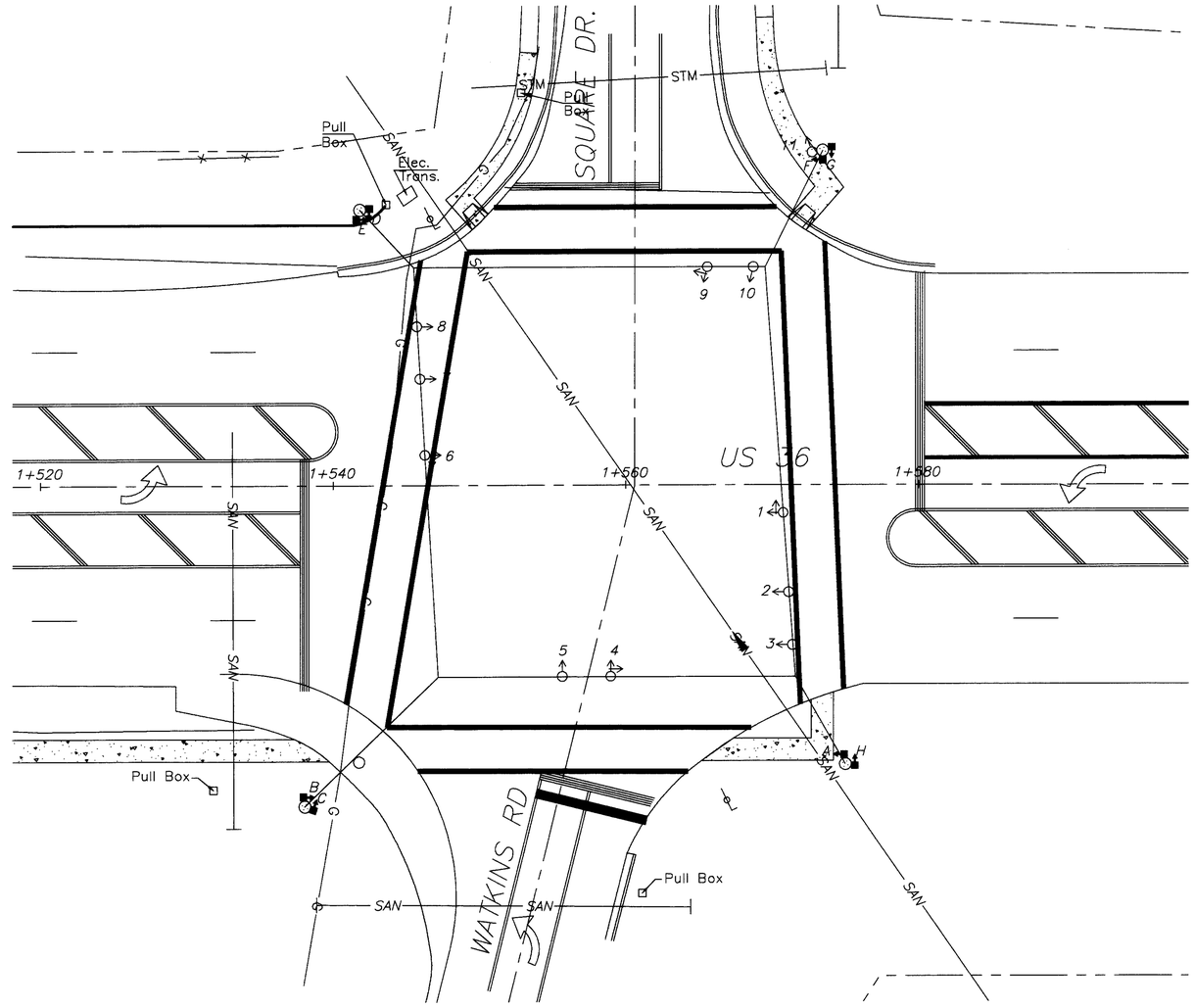
metric units



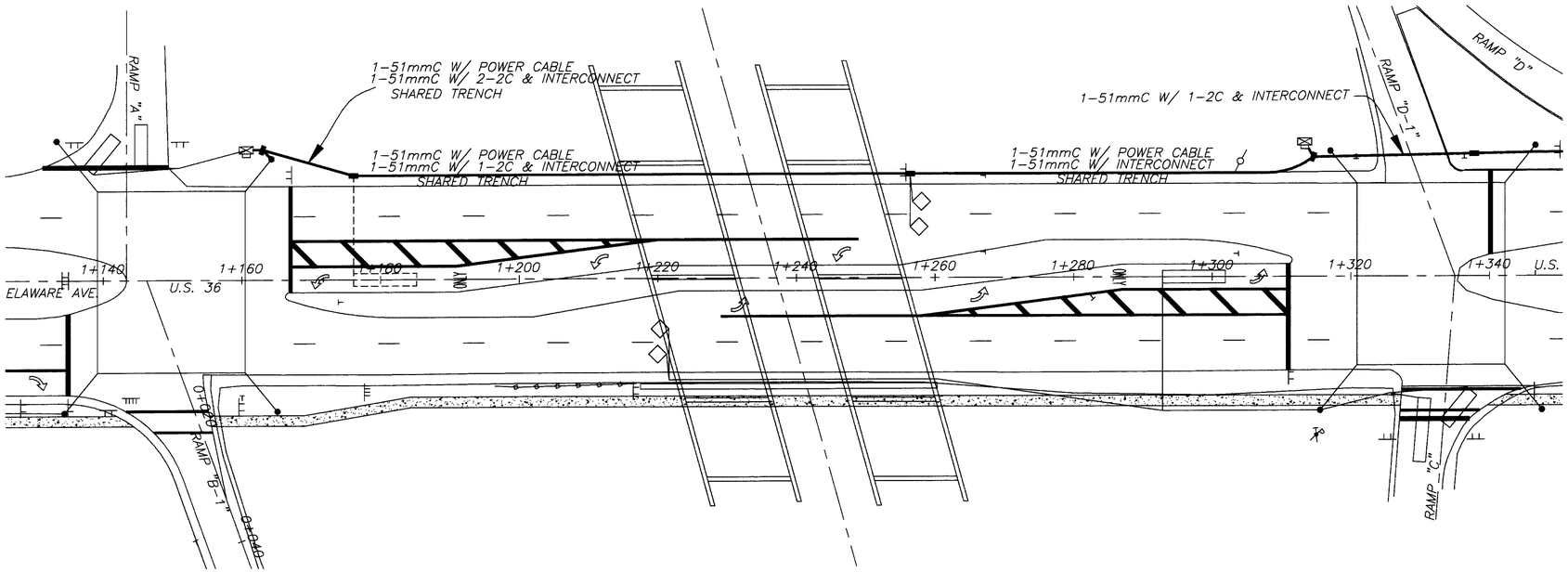


HORIZONTAL SCALE IN METERS
0 2 4 6 8 10

CALCULATED | CHECKED


SQUARE DR.
STM
STM
Pull Box
SAN
Elec. Trans.
SAN
SAN
SAN

metric units

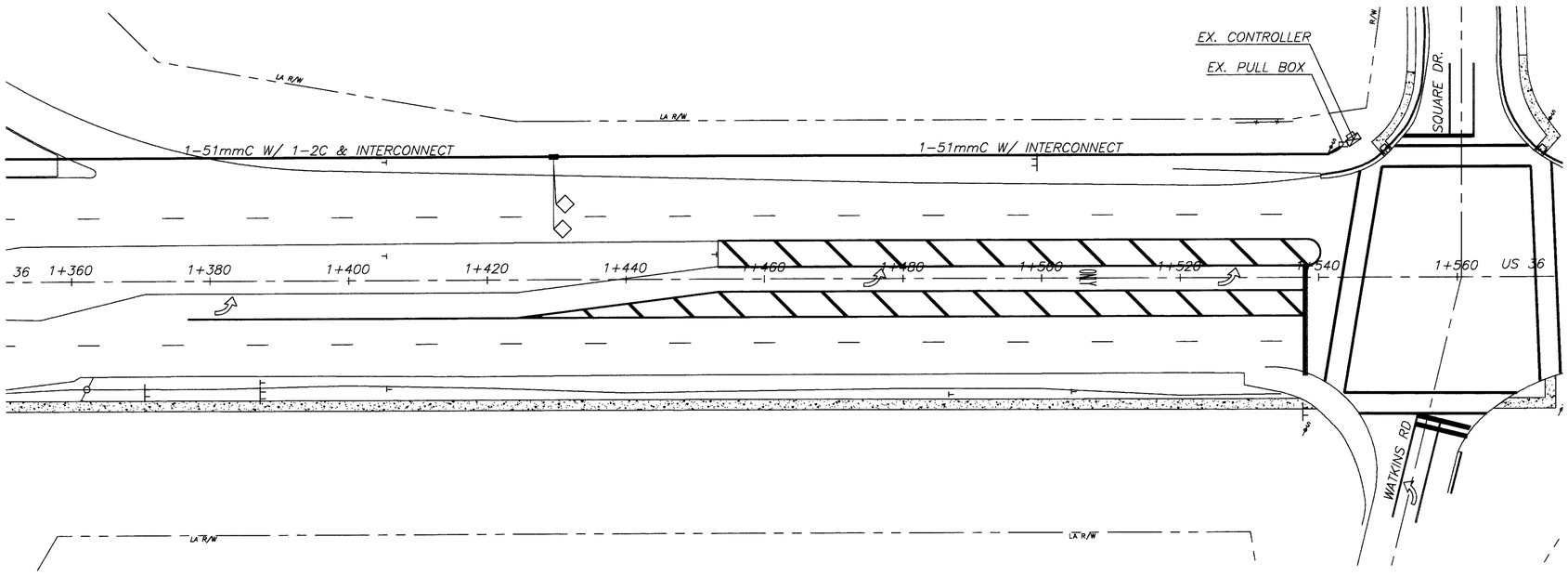


NOTE:
SHARED TRENCH, POWER CABLE, LOOP LEAD-IN, AND CONDUIT FOR THOSE ITEMS ARE SHOWN ON THIS PLAN FOR CLARITY ONLY. QUANTITIES FOR THESE ITEMS ARE SHOWN ON THE APPROPRIATE SIGNAL PLAN SHEETS. (SHEET 28 OR 30)

NOTE:
COORDINATION PLANS AND TIME SPACE DIAGRAMS ARE SHOWN ON SHEET 42.

QUANTITIES

QUAN	ITEM	UNIT	DESCRIPTION
172.2	625M	m	CONDUIT, 51 MM, 713.07
101.6	625M	m	TRENCH
410.2	632M	m	INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG., SOLID, REA (PE-39)



HORIZONTAL SCALE IN METERS
0 4 8 12 16 20

CALCULATED | CHECKED

INTERCONNECT PLAN
US 36 (DELWARE AVE.)

UNI-36-21.194

34
42

PAVEMENT MARKING SUB-SUMMARY

metric units

SHEET NO.	REFERENCE NO.	LOCATION	STATION FROM	STATION TO	SIDE	644 EDGE LINE, YELLOW m	EDGE LINE, WHITE m	CHANNELIZING LINE m	STOP LINE m	CROSSWALK LINE m	TRANSVERSE LINE m	LANE ARROW EACH	WORD ON PAVEMENT, 1800mm EACH	REMOVAL OF PAVEMENT MARKING m
36	ELW-1	US 36	1+043.5	1+151.3	RT.		111.4							
36	CL-1	US 36	1+063.7	1+134.9	RT.			71.2						
36		US 36	1+091.6		RT.							1		
36		US 36	1+111.4		RT.								1	
36		US 36	1+131.9		RT.							1		
36	SL-2	US 36	1+131.3	1+149.5	LT.				18.2					
36	SL-1	US 36	1+134.9		RT.				11.6					
36	CW-1	US 36	1+143.2	1+155.0	RT.					11.8				
36	CW-2	US 36	1+147.1	1+165.6	RT.					8.5				
36	CL-2	US 36	1+167.0	1+220.0	LT.			53.2						
36	TLW-1	US 36	1+167.0	1+220.0	LT.						27.6			
36	CL-3	US 36	1+167.0	1+248.9	LT.			81.9						
36	ELY-1	US 36	1+167.0	1+311.0	RT.	144								
36	ELY-2	US 36	1+167.0	1+311.0	LT.	144								
36	SL-3	US 36	1+167.0		LT.				15.3					
36		US 36	1+170.0		LT.							1		
36		US 36	1+190.5		LT.								1	
36		US 36	1+210.3		LT.							1		
36	CL-4	US 36	1+229.1	1+311.0	RT.			81.9						
36		US 36	1+233.2		RT.							1		
36		US 36	1+245.3		LT.							1		
36	CL-5	US 36	1+258.0	1+311.0	RT.			53.2						
36	TLW-2	US 36	1+258.0	1+311.0	RT.						27.6			
36		US 36	1+267.7		RT.							1		
36		US 36	1+287.5		RT.								1	
36		US 36	1+308.5		RT.							1		
36	SL-4	US 36	1+311.0		RT.				15.3					
36	SL-5	US 36	1+326.9	1+337.0	RT.				10.1					
36	CW-4	US 36	1+327.1	1+338.6	RT.					11.5				
36	CW-3	US 36	1+327.4	1+344.6	RT.					17.2				
36	R-1	US 36	1+327.4	1+346.7	RT.									19.3
36	SL-6	US 36	1+340.2		LT.				12					
36	CW-5	US 36	1+540.9		CL					29.2				
36	CW-7	US 36	1+543.9	1+571.0	RT.					24.6				
36	CW-6	US 36	1+543.9		CL					30.1				
36	CW-8	US 36	1+545.0	1+565.8	RT.					18.4				
36	CW-12	US 36	1+549.2		LT					21.4				
36	CW-11	US 36	1+551.0		LT					19.3				
36	SL-7	US 36	1+553.9		RT				7.8					7.9
36	CW-9	US 36	1+571.3		CL					31				
36	CW-10	US 36	1+574.3		CL					30.6				
		SUBTOTALS				288	111.4	341.4	90.3	253.6	55.2	8	3	27.2
		TOTALS CARRIED TO GENERAL SUMMARY				399.4 m 0.4 km		341.4	90.3	253.6	55.2	8	3	27.2

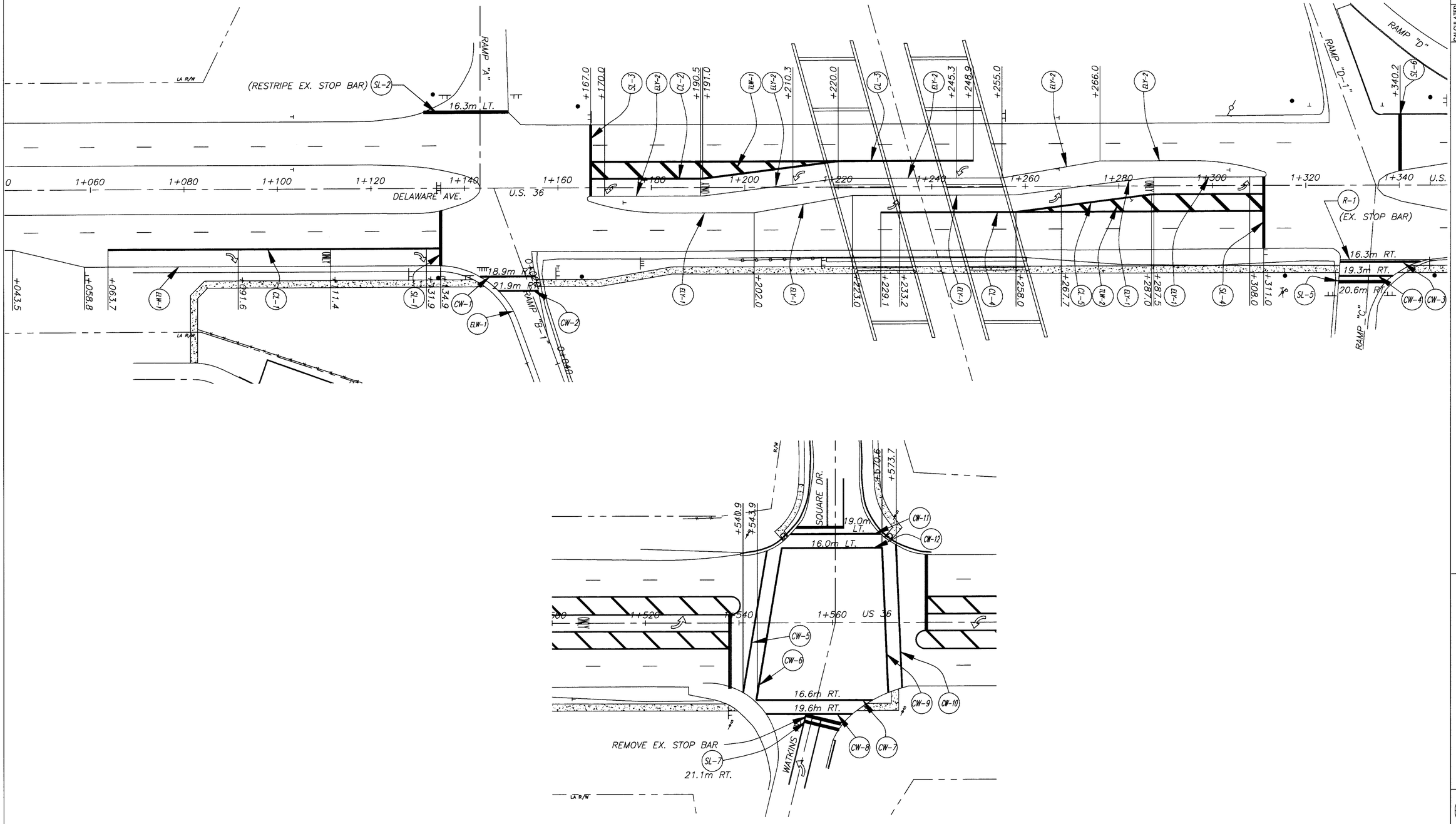
CALCULATED | CHECKED

PAVEMENT MARKING SUB-SUMMARY

UNI-36-21.194

LEGEND:

ELW – EDGE LINE, WHITE (100mm)
ELY – EDGE LINE, YELLOW (100mm)
LL – LANE LINE (100mm)
CL – CHANNELIZING LINE (200mm)
SL – STOP LINE (600mm)
TLW – TRANSVERSE LINE, WHITE (600mm)
TLY – TRANSVERSE LINE, YELLOW (600mm)
DY – CENTERLINE (100mm)
CW – CROSSWALK LINE (300mm)



metric units

HORIZONTAL SCALE IN METERS
0 4 8 12 16 20

CALCULATED
CHECKED

PAVEMENT MARKING PLAN
US 36 (DELAWARE AVE.)

UNI-36-21.194

36
42

SIGNING SUB-SUMMARY

metric units

630

SHEET NO.	ROADWAY	STATION	SIDE	CODE	SIZE	NO. 2 POST	NO. 3 POST	S 100x 11.5 BEAM	BREAKAWAY BEAM CONNECTION	SIGN FLAT SHEET TYPE G	SIGN EXTRUSHEET TYPE G	SIGN BACKING ASSEMBLY	SIGN SUPPORT POLE MOUNTED	GROUND MOUNTED BEAM SUPPORT FOUNDATION	REMOVAL OF GROUND MOUNTED SIGN & STORAGE	REMOVAL OF GROUND MOUNTED SIGN & REERECTION	REMOVAL OF GROUND MOUNTED POST SUPPORT & DISPOSAL	REMOVAL OF GROUND MOUNTED BEAM SUPPORT & DISPOSAL
						METERS	METERS	METERS	EACH	SQ. METERS	SQ. METERS	EACH	EACH	EACH	EACH	EACH	EACH	EACH
39	US 36	0+976.7	RT.	D-1	EXISTING										1		2	
39	US 36	0+976.7	RT.	D-1	EXISTING										1			
39	US 36	0+976.7	RT.	D-1	EXISTING										1			
39	US 36	0+976.7	RT.	D-1	1800mm X 300mm		8.2			0.54								
39	US 36	0+976.7	RT.	D-1	1800mm X 300mm					0.54								
39	US 36	0+976.7	RT.	D-1	1800mm X 300mm					0.54								
39	US 36	1+032.5	LT.	W-60D	EXISTING													
39	US 36	1+058.8	RT.	R-31E	1200mm X 750mm	7.9				0.9								
39	US 36	1+103.3	LT.	R-10	EXISTING													
39	US 36	1+103.3	LT.	R-10	EXISTING													
39	US 36	1+128.1	RT.	M-52A	EXISTING										1			2
39	US 36	1+134.5	CL	D-1	EXISTING													
39	US 36	1+134.5	CL	D-1	EXISTING													
39	US 36	1+134.5	CL	M-39	EXISTING													
39	US 36	1+134.5	CL	M-1	EXISTING													
39	US 36	1+134.5	CL	M-24	EXISTING													
39	US 36	1+134.9	RT.	R-31E	1200mm X 750mm	7.9				0.9								
39	US 36	1+135.8	LT.	R-1	EXISTING										1			
39	US 36	1+135.8	LT.	R-41B	EXISTING													
39	US 36	1+141.0	RT.	N-29	600mm X 600mm		4.7			0.36								
39	US 36	1+141.0	RT.	N-15	600mm X 150mm					0.09								
39	US 36	1+141.0	RT.	N-59	600mm X 600mm					0.36								
39	US 36	1+141.0	RT.	N-15	600mm X 150mm					0.09								
39	US 36	1+144.0	RT.	N-18G	EXISTING										1		1	
39	US 36	1+144.0	RT.	N-15	EXISTING										1			
39	US 36	1+144.0	RT.	N-18F	EXISTING										1			
39	US 36	1+144.0	RT.	N-15	EXISTING										1			
39	US 36	1+144.0	RT.	N-18L	EXISTING										1		1	
39	US 36	1+144.0	RT.	N-15	EXISTING										1			
39	US 36	1+144.0	RT.	N-59	EXISTING										1			
39	US 36	1+144.0	RT.	N-15	EXISTING										1			
39	US 36	1+144.0	RT.	M-39	EXISTING											1		
39	US 36	1+144.0	RT.	M-1	EXISTING		4.5									1	1	
39	US 36	1+144.0	RT.	M-24	EXISTING											1		
39	US 36	1+144.0	RT.	N-18H	EXISTING										1		1	
39	US 36	1+144.0	RT.	N-15	EXISTING										1			
39	US 36	1+151.0	LT.	R-1	EXISTING										1			
39	US 36	1+151.0	LT.	R-41B	EXISTING													
39	US 36	1+159.0	RT.	M-52A	2750mm X 760mm			7.9	2		2.09			2				
39	US 36	1+160.0	RT.	R-43L	EXISTING													
39	US 36	1+167.0	LT.	R-31FF	1200mm X 750mm	7.9				0.9								
39	US 36	1+171.7	CL	R-37R	EXISTING										1		1	
39	US 36	1+174.0	RT.	R-37R	600mm X 750mm	4				0.45								
39	US 36	1+177.6	RT.	M-40	EXISTING											1		
39	US 36	1+177.6	RT.	M-1	EXISTING		2.6									1		
39	US 36	1+177.6	RT.	M-1	EXISTING										1		1	
39	US 36	1+177.6	RT.	M-21	EXISTING											1		
39	US 36	1+177.6	RT.	M-8	EXISTING											1		
39	US 36	1+177.6	RT.	M-2	EXISTING		2.6									1		
39	US 36	1+177.6	RT.	M-2	EXISTING											1	1	
39	US 36	1+177.6	RT.	M-21	EXISTING											1		
39	US 36	1+177.6	RT.	M-39	EXISTING										1			
39	US 36	1+177.6	RT.	M-1	EXISTING										1		1	
39	US 36	1+177.6	RT.	M-26	EXISTING										1			
39	US 36	1+216.3	RT.	R-31FF	1200mm X 750mm	7.9				0.9								
39	US 36	1+255.0	LT.	R-31FF	1200mm X 750mm	7.9				0.9								
39	US 36	1+267.3	LT.	M-39	EXISTING													
39	US 36	1+267.3	LT.	M-1	EXISTING													
39	US 36	1+267.3	LT.	M-21	EXISTING													
39	US 36	1+267.3	LT.	M-39	EXISTING										1			
39	US 36	1+267.3	LT.	M-1	EXISTING										1		1	
39	US 36	1+267.3	LT.	M-21	EXISTING										1			
					SUBTOTALS	43.5	22.6	7.9	2	7.47	2.09	0	0	2	24	10	11	2

CALCULATED | CHECKED

SIGNING SUB SUMMARY

UNI-36-21.194

SIGNING SUB-SUMMARY

metric units

630

SHEET NO.	ROADWAY	STATION	SIDE	CODE	SIZE	NO. 2 POST	NO. 3 POST	S 100x 11.5 BEAM	BREAKAWAY BEAM CONNECTION	SIGN FLAT SHEET TYPE G	SIGN EXTRUSHEET TYPE G	SIGN BACKING ASSEMBLY	SIGN SUPPORT POLE MOUNTED	GROUND MOUNTED BEAM SUPPORT FOUNDATION	REMOVAL OF GROUND MOUNTED SIGN & STORAGE	REMOVAL OF GROUND MOUNTED SIGN & REERECTION	REMOVAL OF GROUND MOUNTED POST SUPPORT & DISPOSAL	REMOVAL OF GROUND MOUNTED BEAM SUPPORT & DISPOSAL
						METERS	METERS	METERS	EACH	SQ. METERS	SQ. METERS	EACH	EACH	EACH	EACH	EACH	EACH	EACH
40	US 36	1+282.8	RT.	R-41B	EXISTING										1		1	
40	US 36	1+303.7	LT.	R-37R	600mm X 750mm	4				0.45								
40	US 36	1+306.8	CL	R-37R	EXISTING										1		1	
40	US 36	1+311.0	RT.	R-31FF	1200mm X 750mm	7.9				0.9								
40	US 36	1+320.8	LT.	N-29	EXISTING													
40	US 36	1+320.8	LT.	N-15	EXISTING													
40	US 36	1+320.8	LT.	N-59	EXISTING													
40	US 36	1+320.8	LT.	N-15	EXISTING													
40	US 36	1+325.5	RT.	R-1	EXISTING										1			
40	US 36	1+325.5	RT.	R-41B	EXISTING													
40	US 36	1+336.0	LT.	R-43L	900mm X 300mm	3.5				0.27								
40	US 36	1+337.9	RT.	R-1	EXISTING										1			
40	US 36	1+337.9	RT.	R-41B	EXISTING													
40	US 36	1+346.5	RT.	M-40	EXISTING											1		
40	US 36	1+346.5	RT.	M-1	EXISTING							1	1			1	1	
40	US 36	1+346.5	RT.	M-1	EXISTING											1		
40	US 36	1+346.5	RT.	M-24	EXISTING											1		
40	US 36	1+346.5	RT.	M-8	EXISTING											1		
40	US 36	1+346.5	RT.	M-2	EXISTING							1				1	1	
40	US 36	1+346.5	RT.	M-2	EXISTING											1		
40	US 36	1+346.5	RT.	M-24	EXISTING											1		
40	US 36	1+346.6	CL	M-39	EXISTING													
40	US 36	1+346.6	CL	M-1	EXISTING													
40	US 36	1+346.6	CL	M-24	EXISTING													
40	US 36	1+350.2	LT.	M-40	EXISTING											1		
40	US 36	1+350.2	LT.	M-1	EXISTING											1		
40	US 36	1+350.2	LT.	M-27	EXISTING											1		
40	US 36	1+350.2	LT.	M-8	EXISTING											1		
40	US 36	1+350.2	LT.	M-2	EXISTING											1		
40	US 36	1+350.2	LT.	M-27	EXISTING											1		
40	US 36	1+350.2	LT.	M-8	EXISTING													
40	US 36	1+350.2	LT.	M-2	EXISTING													
40	US 36	1+350.2	LT.	M-27	EXISTING													
40	US 36	1+350.2	LT.	M-52A	EXISTING													
40	US 36	1+370.5	RT.	R-31C	EXISTING													
40	US 36	1+387.2	RT.	R-10	EXISTING													
40	US 36	1+387.2	RT.	D-11	EXISTING		7.6									1	2	
40	US 36	1+405.5	RT.	M-39	EXISTING													
40	US 36	1+405.5	RT.	M-1	EXISTING													
40	US 36	1+405.5	LT.	R-10	EXISTING													
40	US 36	1+405.5	LT.	R-10	EXISTING													
40	US 36	1+453.2	LT.	R-37R	EXISTING													
40	US 36	1+486.5	RT.	SEE SHT 40	EXISTING													
40	US 36	1+499.4	LT.	M-1	EXISTING							1				1		
40	US 36	1+499.4	LT.	M-27	EXISTING											1		
40	US 36	1+499.4	LT.	D-1	EXISTING										1			
40	US 36	1+499.4	LT.	D-1	EXISTING										1			
40	US 36	1+499.4	LT.	D-1	EXISTING										1			
40	US 36	1+499.4	LT.	D-1	1800mm X 300mm		8.58			0.54								
40	US 36	1+499.4	LT.	D-1	1800mm X 300mm					0.54								
39	RAMP "A"	SEE SHEET 39	RT.	W-45	EXISTING										1		2	
39	RAMP "A"	SEE SHEET 39	RT.	W-47	1200mm x 1200mm		9.8			1.44								
40	RAMP "C"	SEE SHEET 40	RT.	W-47	1200mm x 1200mm		9.8			1.44								
		SUBTOTALS				15.4	35.78	0	0	5.58	0	3	1	0	8	17	8	0
		SUBTOTALS FROM SHEET 37				43.5	22.6	7.9	2	7.47	2.09	0	0	2	24	10	11	2
		TOTALS CARRIED TO GENERAL SUMMARY				58.9	58.38	7.9	2	13.05	2.09	3	1	2	32	27	19	2

CALCULATED | CHECKED

SIGNING SUB SUMMARY

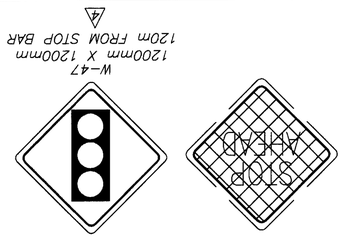
UNI-36-21.194

1. CONTRACTOR SHALL MOVE EXISTING M-39, M-1, AND M-24 ASSEMBLY TO STA. 1+142. THE ASSEMBLY SHALL BE INSTALLED ON A NEW GROUND MOUNTED POST.

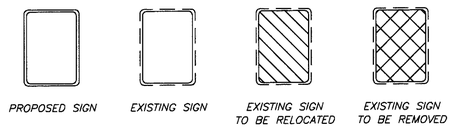
2. CONTRACTOR SHALL ATTACH EXISTING M-40, M-1, AND M-21 ASSEMBLY TO THE NEW M-52A SIGN AT STA. 1+159 AS SHOWN ON THIS DRAWING.

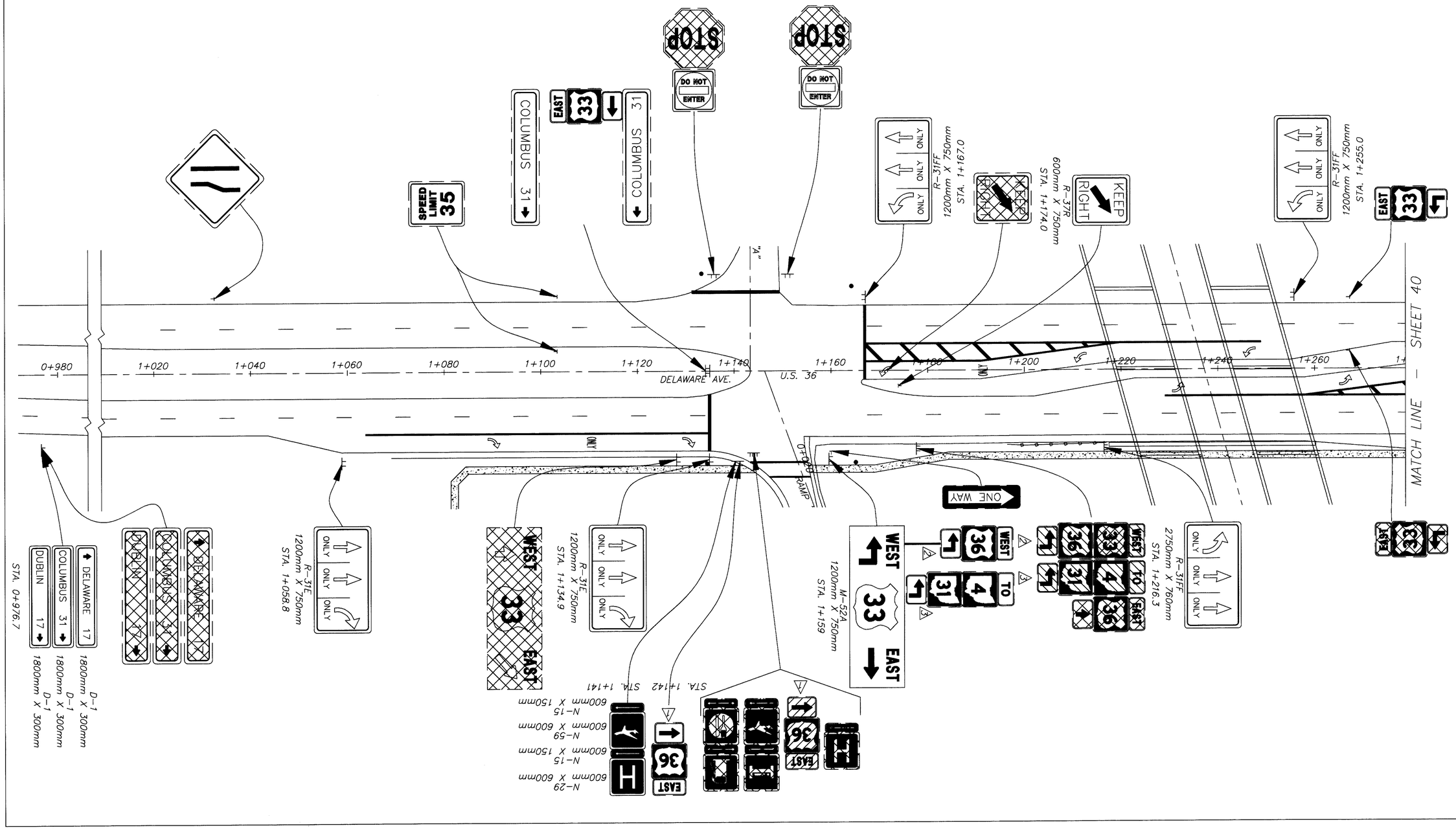
3. CONTRACTOR SHALL ATTACH EXISTING M-8, M-2, M-2, AND M-21 ASSEMBLY TO THE NEW M-52A SIGN AT STA. 1+159 AS SHOWN ON THIS DRAWING.

4. CONTRACTOR SHALL FOLLOW "BEST PRACTICE" FOR NEW SIGNAL ACTIVATION AS SHOWN ON SHEET 41. A W-47-48 SIGN SHALL BE INSTALLED IN PLACE OF THE OW-47-36 WHICH IS SPECIFIED ON THE STOP APPROACH. AS PER NOTE #13 ON SHEET 41, PAYMENT FOR THIS PERMANENT SIGN INSTALLATION IS REFLECTED IN THE QUANTITES SHOWN ON THIS SHEET. THE OWP2 PLAQUE SHALL BE INSTALLED ON LEFT POST OF PERMANENT W-47 INSTALLATION. PAYMENT FOR THIS PLAQUE IS REFLECTED IN THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC AS PER NOTE #13 ON SHEET 41.



LEGEND





metric units

HORIZONTAL SCALE IN METERS 0 4 8 12 16 20

CALCULATED

CHECKED

SIGNING PLAN
US 36 (DELWARE AVE.)

UNI-36-21.194

5 CONTRACTOR SHALL RELOCATE EXISTING SIGN ASSEMBLIES (M-40, M-1, M-1, M-24; M-8, M-2, M-2, M-24) TO SIGNAL POLE "C" OF THE NEW SIGNAL INSTALLATION AT US 36 AND "C". THEY SHALL BE PLACED AT THE DIRECTION OF THE ENGINEER SO THAT THE SIGN ASSEMBLIES DO NOT INHIBIT THE VISIBILITY OF THE PEDESTRIAN SIGNAL HEAD ON THAT SAME POLE.

6 CONTRACTOR SHALL FOLLOW "BEST PRACTICE" FOR NEW SIGNAL ACTIVATION AS SHOWN ON SHEET 41. A W-47-48 SIGN SHALL BE INSTALLED IN PLACE OF THE OW-47-36 WHICH IS SPECIFIED ON THE STOP APPROACH. AS PER NOTE #13 ON SHEET 41, PAYMENT FOR THIS PERMANENT SIGN INSTALLATION IS REFLECTED IN THE QUANTITES SHOWN ON THIS SHEET. THE OWP2 PLAQUE SHALL BE INSTALLED ON LEFT POST OF PERMANENT W-47 INSTALLATION. PAYMENT FOR THIS PLAQUE IS REFLECTED IN THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC AS PER NOTE #13 ON SHEET 41.

7 CONTRACTOR SHALL MOVE EXISTING SIGN ASSEMBLIES THAT ARE ATTACHED TO THE EXISTING M-52A SIGN AS SHOWN ON THIS PLAN.

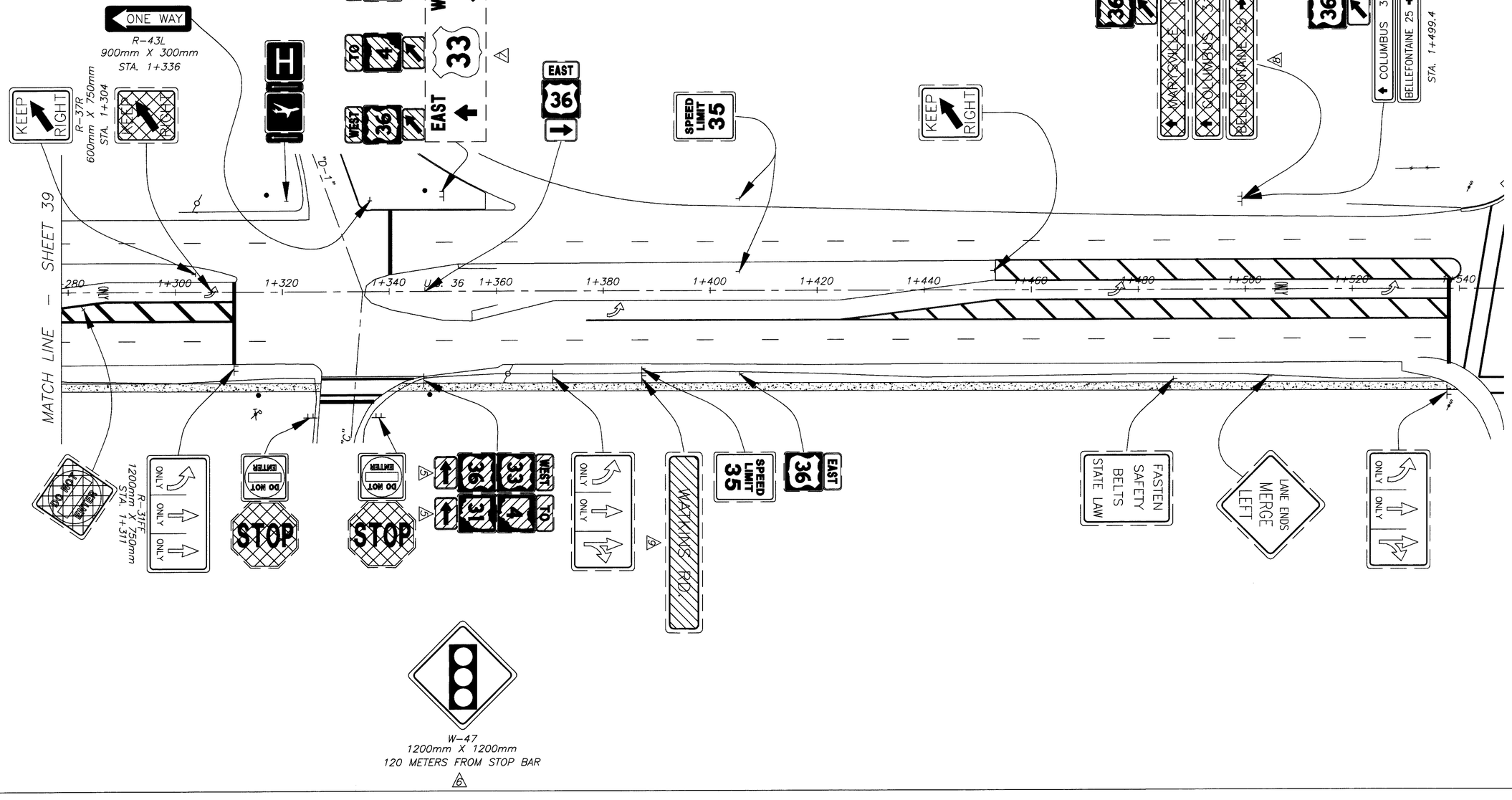
8 CONTRACTOR SHALL ATTACH THE EXISTING M-1 & M-27 ASSEMBLY TO THE TOP OF THE NEW D-1 SIGNS AS SHOWN.

9 CONTRACTOR SHALL MOVE EXISTING D-11 SIGN TO SOUTH SIDE OF PROPOSED SIDEWALK.

LEGEND

PROPOSED SIGN | EXISTING SIGN | EXISTING SIGN TO BE RELOCATED | EXISTING SIGN TO BE REMOVED

metric units



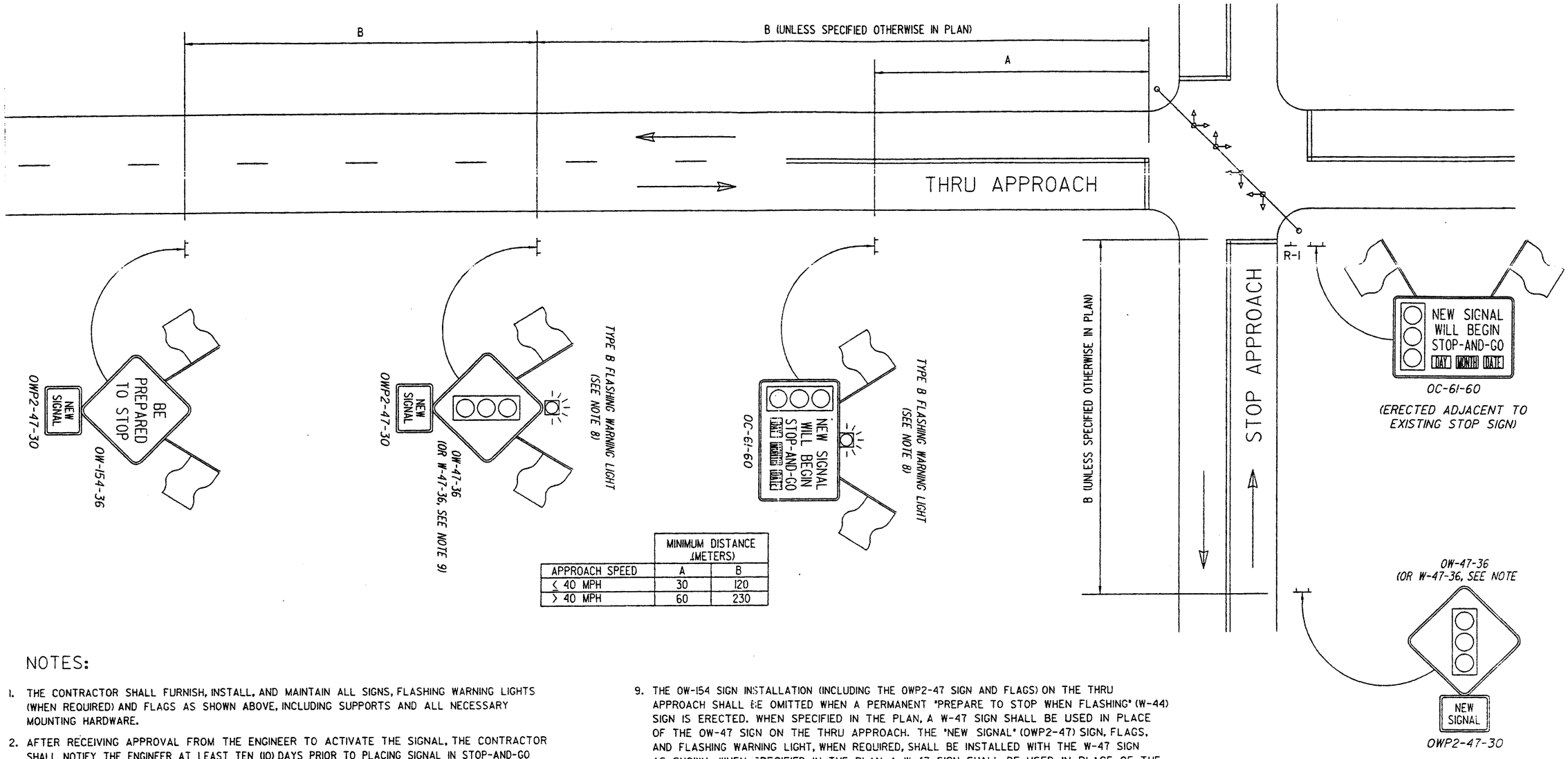
HORIZONTAL SCALE IN METERS
0 4 8 12 16 20

CALCULATED | CHECKED

SIGNING PLAN
US 36 (DELAWARE AVE.)

UNI-36-21.194

40
42



APPROACH SPEED	MINIMUM DISTANCE (METERS) A	B
≤ 40 MPH	30	120
> 40 MPH	60	230

NOTES:

1. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN ALL SIGNS, FLASHING WARNING LIGHTS (WHEN REQUIRED) AND FLAGS AS SHOWN ABOVE, INCLUDING SUPPORTS AND ALL NECESSARY MOUNTING HARDWARE.
2. AFTER RECEIVING APPROVAL FROM THE ENGINEER TO ACTIVATE THE SIGNAL, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST TEN (10) DAYS PRIOR TO PLACING SIGNAL IN STOP-AND-GO MODE TO ALLOW THE ENGINEER TIME TO NOTIFY LOCAL MEDIA AND LAW ENFORCEMENT OF THE SCHEDULED SIGNAL ACTIVATION.
3. A PERMANENT NEW SIGNAL OR SIGNAL UPGRADE FROM A FLASHER, SHALL OPERATE IN FLASH MODE FOR THREE (3) TO TEN (10) CONSECUTIVE DAYS BEFORE BEING PLACED IN A STOP-AND-GO MODE FOR THE TEN (10) DAY BURN TEST, AS DIRECTED BY THE ENGINEER.
4. THE CONTRACTOR SHALL ERECT THE OC-61-60 (WITH ACTIVATION DAY, MONTH, AND DATE; E.G. MON AUG 12) SIGNS EQUIPPED WITH ORANGE FLAGS AND FLASHING WARNING LIGHTS (WHEN REQUIRED) AS SHOWN ABOVE ON EACH APPROACH OF THE INTERSECTION AT THE TIME THE SIGNAL IS PLACED IN FLASH MODE.
5. IMMEDIATELY BEFORE PLACING THE NEW SIGNAL INSTALLATION IN STOP-AND-GO MODE, THE CONTRACTOR SHALL REMOVE THE OC-61-60 SIGNS AND INSTALL OR UNCOVER THE (O)W-47 AND OW-154 SIGN ASSEMBLIES AS SHOWN ABOVE.
6. IMMEDIATELY AFTER CHANGING THE SIGNAL TO STOP-AND-GO OPERATION, THE CONTRACTOR SHALL REMOVE THE EXISTING STOP SIGNS AND POST SUPPORTS.
7. THE CONTRACTOR SHALL REMOVE THE FLASHING WARNING LIGHTS, FLAGS, BRACKETS, OWP2-47, OW-47, AND OW-154 SIGNS 21-30 DAYS AFTER THE SIGNAL IS PLACED IN STOP-AND-GO MODE.
8. FLAGS SHALL BE ERECTED AS SHOWN ABOVE. THE FLAGS SHALL BE 450 mm X 450 mm IN SIZE, MADE OF ORANGE VINYL MATERIAL, AND SECURELY FASTENED TO THE SIGN OR SIGN SUPPORT. WHEN REQUIRED BY PLAN NOTE, TYPE B FLASHING WARNING LIGHTS SHALL BE INSTALLED AS SHOWN ABOVE.
9. THE OW-154 SIGN INSTALLATION (INCLUDING THE OWP2-47 SIGN AND FLAGS) ON THE THRU APPROACH SHALL BE OMITTED WHEN A PERMANENT "PREPARE TO STOP WHEN FLASHING" (W-44) SIGN IS ERECTED. WHEN SPECIFIED IN THE PLAN, A W-47 SIGN SHALL BE USED IN PLACE OF THE OW-47 SIGN ON THE THRU APPROACH. THE "NEW SIGNAL" (OWP2-47) SIGN, FLAGS, AND FLASHING WARNING LIGHT, WHEN REQUIRED, SHALL BE INSTALLED WITH THE W-47 SIGN AS SHOWN. WHEN SPECIFIED IN THE PLAN, A W-47 SIGN SHALL BE USED IN PLACE OF THE OW-47 SIGN ON THE STOP APPROACH. THE "NEW SIGNAL" (OWP2-47) SHALL BE INSTALLED WITH THE (O)W-47 SIGN AS SHOWN.
10. ON MULTILANE THRU APPROACHES, REPLACE THE OW-154-36 SIGN WITH AN OW-154-48 SIGN, AND REPLACE THE OW-47-36 SIGN WITH AN OW-47-48 SIGN. ON MULTILANE DIVIDED THRU APPROACHES, ERECT SIGNS IN MEDIAN IDENTICAL TO THOSE ON RIGHT TO CREATE DUAL INSTALLATIONS, INCLUDING SUPPLEMENTAL SIGNS AND FLAGS, AND, WHEN REQUIRED BY PLAN NOTE, FLASHING WARNING LIGHTS.
11. FOR MULTI-WAY STOP APPROACHES, EACH APPROACH CONTROLLED BY A STOP SIGN SHALL BE TREATED AS SHOWN ABOVE FOR THE STOP APPROACH.
12. THE SIGNAL SHALL NOT BE ACTIVATED TO STOP-AND-GO OPERATION ON A FRIDAY, SATURDAY OR SUNDAY, OR THE DAY PRECEDING OR DURING A NATIONAL HOLIDAY, (NEW YEARS, MEMORIAL DAY, INDEPENDENCE DAY, LABOR DAY, THANKSGIVING, OR CHRISTMAS).
13. PERMANENT SUPPORTS, PERMANENT SIGNS (W-44 AND W-47), AND TYPE B FLASHING WARNING LIGHTS SHALL BE PAID FOR UNDER SEPARATE PAY ITEM IN THE PLAN. PAYMENT FOR ALL OTHER LABOR, EQUIPMENT AND MATERIALS NECESSARY TO COMPLETE THIS WORK SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR 614 MAINTAINING TRAFFIC, AS PER PLAN

CALCULATED | CHECKED
DATE 5/01/98

MAINTENANCE OF TRAFFIC
NEW SIGNAL ACTIVATION

NOTE:

PROGRAM 1 SHALL BE IN EFFECT FROM 6 AM TO 9 AM WEEKDAYS.

PROGRAM 2 SHALL BE IN EFFECT FROM 9 AM TO 3 PM AND FROM 6 PM TO 10 PM WEEKDAYS AND ON SATURDAY AND SUNDAY FROM 7 AM TO 10 PM.

PROGRAM 3 SHALL BE IN EFFECT FROM 3 PM TO 6 PM ON WEEKDAYS.

AT ALL OTHER TIMES THE SYSTEM SHALL RUN FREE.

NOTE:

CONTROLLER FOR SIGNAL AT US 36 AND RAMP "A" IS THE SYSTEM MASTER.

US 36 – AM

PROGRAM (1) 120 SEC. CYCLE									
INTERSECTION LOCATION	*OFFSETS (sec.)	MAX. PERCENTAGE (%) INTERVAL PER PHASE							
		1	2	3	4	5	6	7	8
US 33 RAMP "A"	0	X	72	28	X	X	X	X	X
US 33 RAMP "C"	110	12	59	29	X	X	X	X	X
WATKINS RD.	18	23	47	10	20	23	47	10	20

X – PHASE NOT BEING USED WITHIN THAT INTERSECTION.

* = OFFSET REFERENCES ARE TO THE BEGINNING OF EASTBOUND THROUGH PHASE.

US 36 – OFF PEAK

PROGRAM (2) 120 SEC. CYCLE									
INTERSECTION LOCATION	*OFFSETS (sec.)	MAX. PERCENTAGE (%) INTERVAL PER PHASE							
		1	2	3	4	5	6	7	8
US 33 RAMP "A"	0	X	71	29	X	X	X	X	X
US 33 RAMP "C"	109	15	60	25	X	X	X	X	X
WATKINS RD.	16	18	49	11	22	18	49	11	22

X – PHASE NOT BEING USED WITHIN THAT INTERSECTION.

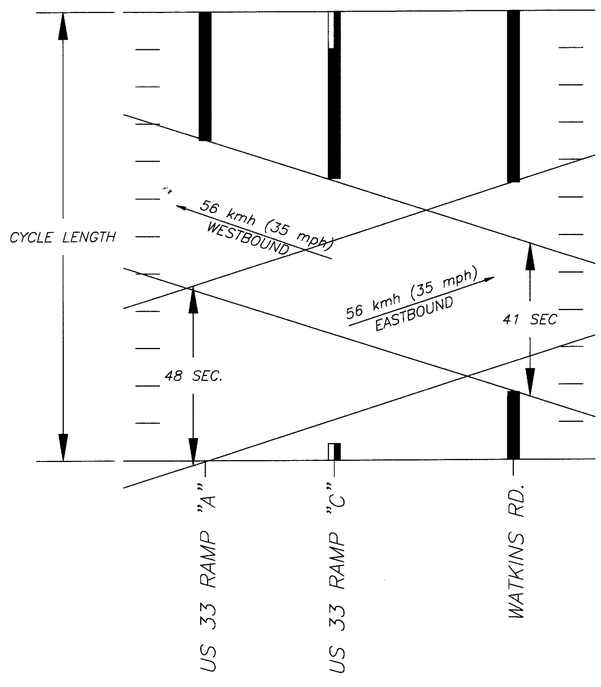
* = OFFSET REFERENCES ARE TO THE BEGINNING OF EASTBOUND THROUGH PHASE.

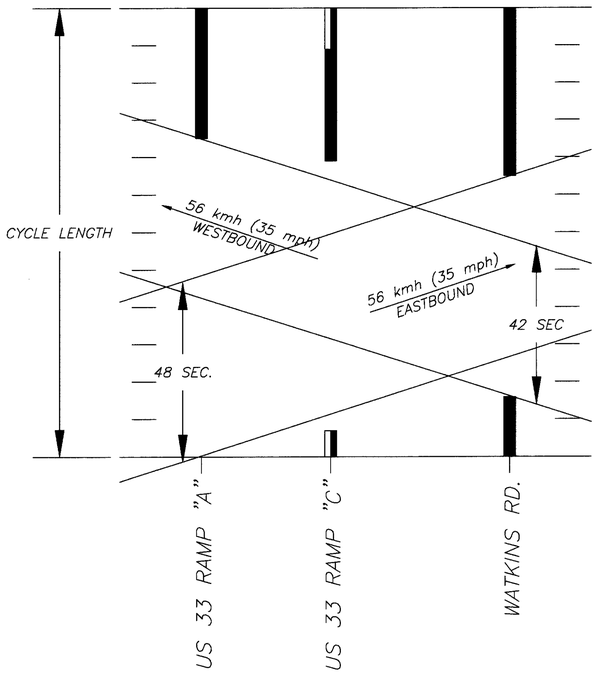
US 36 – PM

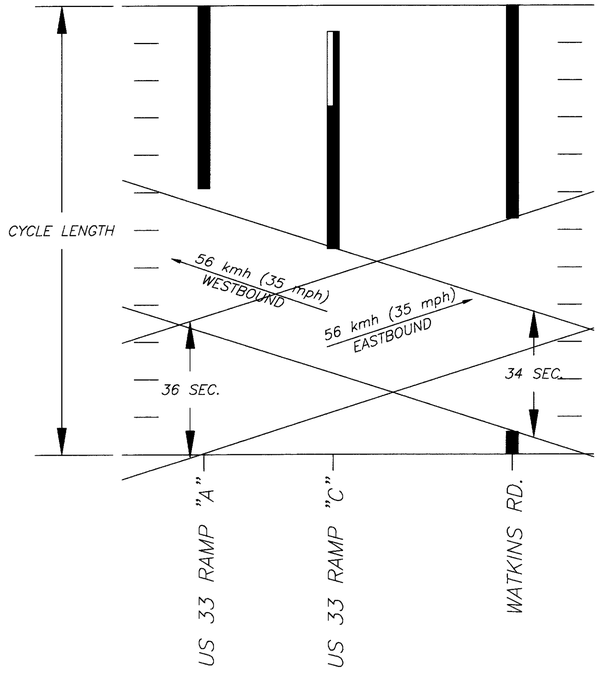
PROGRAM (3) 120 SEC. CYCLE									
INTERSECTION LOCATION	*OFFSETS (sec.)	MAX. PERCENTAGE (%) INTERVAL PER PHASE							
		1	2	3	4	5	6	7	8
US 33 RAMP "A"	0	X	59	41	X	X	X	X	X
US 33 RAMP "C"	93	17	52	31	X	X	X	X	X
WATKINS RD.	6	18	48	11	23	18	48	11	23

X – PHASE NOT BEING USED WITHIN THAT INTERSECTION.

* = OFFSET REFERENCES ARE TO THE BEGINNING OF EASTBOUND THROUGH PHASE.







metric units

HORIZONTAL SCALE IN METERS
0 40 80 120 160 200

CALCULATED | CHECKED

COORDINATION PLANS

UNI-36-21.194

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