CUY-90-14.90

PID 77332/85531

APPENDIX EX-66

I-77 Kingsbury Run Detour Route Plans
(Reference Document)

State of Ohio
Department of Transportation
Jolene M. Molitoris, Director

Innerbelt Bridge
Construction Contract Group 1 (CCG1)

Revision Date: February 24, 1998

14949 A

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
CUY-77-23.458
PART 2

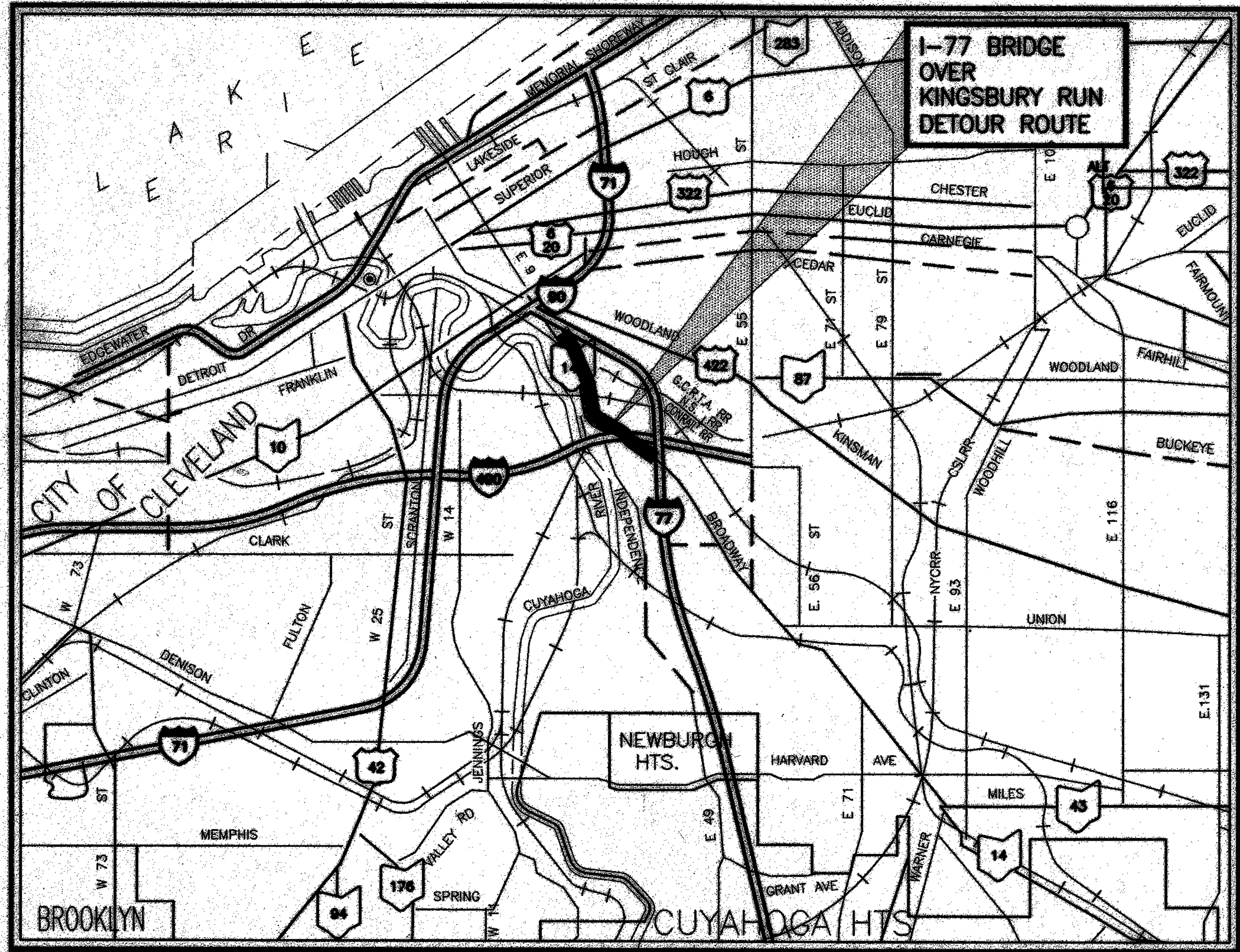
DETOUR ROUTE IMPROVEMENTS
CITY OF CLEVELAND
CUYAHOGA COUNTY

(FOR PART 1, SEE CUY-77-23.458, PART 1)

metric units

PROJECT DESCRIPTION

Construction of detour route improvements for I-77 over Kingsbury Run, including the widening of East 30th Street between Broadway Avenue and Woodland Avenue, the addition of a right turn lane on Broadway Avenue at the intersection of East 30th Street, and the resurfacing and signal improvements along the detour Route.



LOCATION MAP

Latitude: N 41°29'05"
Longitude: W 81°39'50"

SCALE IN KILOMETERS 0.5 0 0.5 1 1.5

Portion to be improved
U.S. Routes (77)
U.S. Routes (422)
State Routes (14)
Other Roads (65)

DESIGN DESIGNATION

	Broadway Ave.	E. 30th St.
Current ADT (1996)	8,700	8,100
Design Year ADT (DETOUR)	16,500	14,700
Design Hourly Volume (DETOUR)	2,900	2,550
Directional Distribution	80%	75%
Trucks (24 Hour B&C)	15%	15%
Design Speed	50 km/h	50 km/h
Legal Speed (MPH)	25	25
Design Functional Classification	URBAN ARTERIAL	URBAN ARTERIAL

Design Exceptions

Design Feature	Approval Dates	Sheet Numbers
NONE		

INDEX OF SHEETS

1997 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

I hereby approve these plans and declare that the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

UNDERGROUND UTILITIES

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

STANDARD CONSTRUCTION DRAWINGS	SUPPLEMENTAL SPECIFICATIONS
SEE PART 1	SEE PART 1

STATE OF OHIO — MICHAEL J. SCHIPPER E-61408 — REGISTERED PROFESSIONAL ENGINEER

MICHAEL J. SCHIPPER PE

Plans Prepared By: HNTB ARCHITECTS ENGINEERS PLANNERS
One Cleveland Center
1375 East Ninth Street
Cleveland, Ohio 44114

APPROVED:
DATE: [redacted] DISTRICT DEPUTY DIRECTOR

APPROVED:
DATE: ________ DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. IM-77-5(46)
PID NO. 14949
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE
CUY-77-23.458 PART 2

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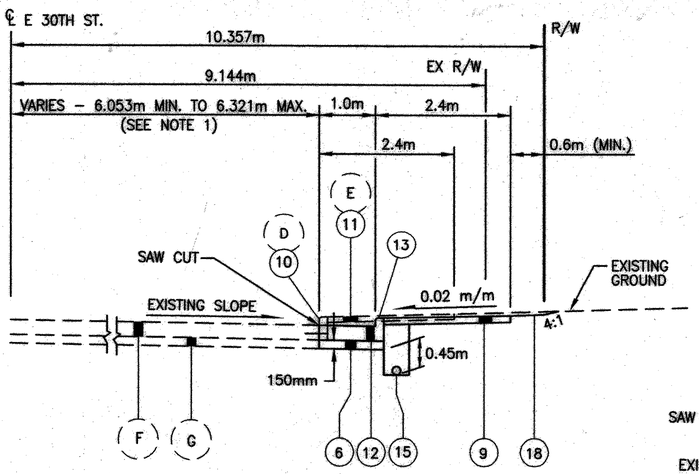
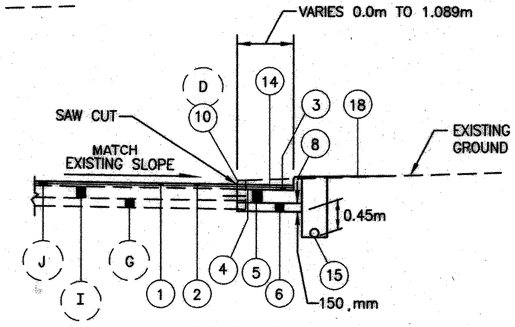
14949A



EAST 30TH ST.

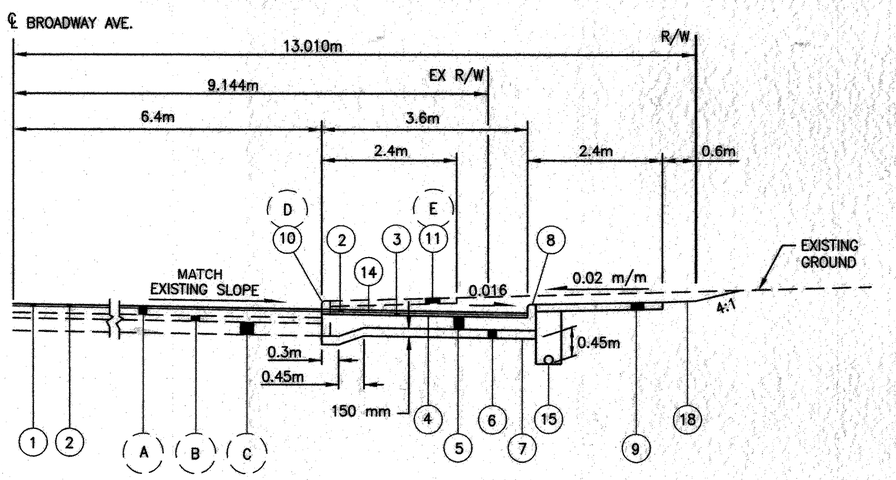
STA. 1+030.897 TO STA. 1+224.761 = 193.864m
INTERSECTION STA 2+091.766 (BROADWAY) TO
STA. 1+030.897 (EAST 30TH) - SEE SHT. I6 FOR
WIDENING DETAILS.

NOTE 1 – EXISTING OVERALL PAVEMENT WIDTH = 12.8m
PROPOSED OVERALL PAVEMENT WIDTH – 13.8m
SEE TRAFFIC CONTROL PLANS, SHEETS 53 & 56
FOR LANE CONFIGURATION.



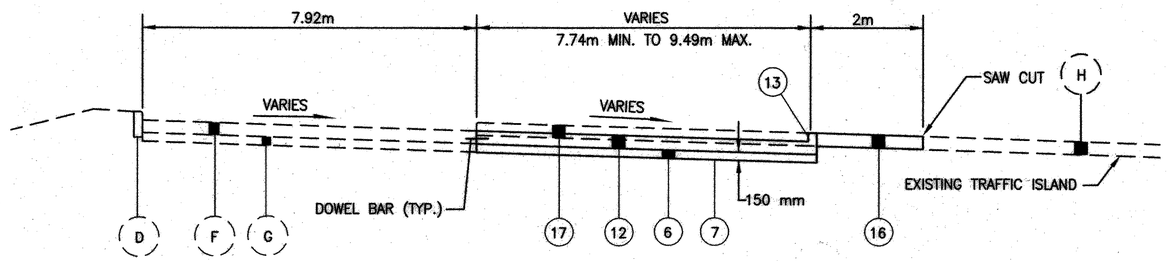
EAST 30TH ST.

STA. 1+224.761 TO STA. 1+231.757 = 11.548m
STA. 1+249.711 TO STA. 1+263.143 = 13.432m
24.980m



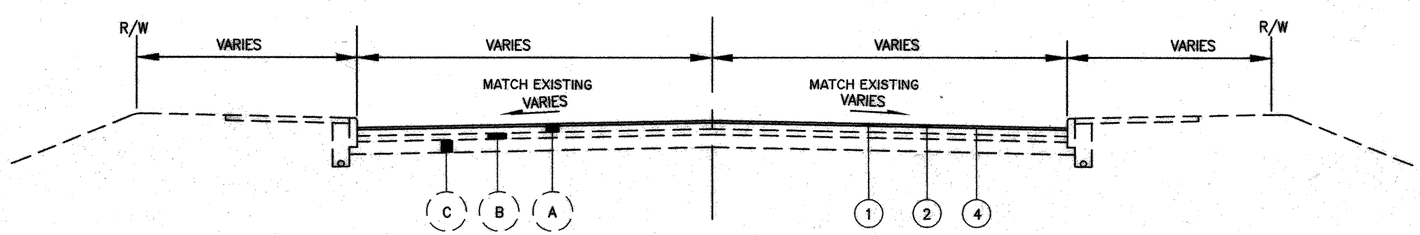
BROADWAY AVE.

STA. 1+965.000 TO STA. 2+091.766 = 126.766m



EB I–490 EXIT RAMP WIDENING DETAIL

NO SCALE



RESURFACING TYPICAL SECTION

NO SCALE

EXISTING LEGEND

- (A) 150 mm ± ASPHALT SURFACE
- (B) DREST MEDINA BLOCK
- (C) 230 mm ± SAND BASE
- (D) CONCRETE CURB
- (E) CONCRETE WALK
- (F) 225 mm ± REINFORCED CONCRETE PAVEMENT
- (G) 150 mm ± SUBBASE
- (H) 225 mm ± CONCRETE ISLAND
- (I) 203 mm ± REINFORCED CONCRETE PAVEMENT

PROPOSED LEGEND

1. ITEM 254 – PAVEMENT PLANING BITUMINOUS, T= 38mm
2. ITEM 446 – ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–28, T=38mm
3. ITEM 446 – ASHPALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–28, T=45mm
4. ITEM 407 – TACK COAT
5. ITEM 305 – 230mm CONCRETE BASE
6. ITEM 304 – AGGREGATE BASE
7. ITEM 203 – SUBGRADE COMPACTION
8. ITEM 609 – CURB, TYPE 2B
9. ITEM 608 – 100mm CONCRETE WALK
10. ITEM 202 – CURB REMOVED
11. ITEM 202 – WALK REMOVED
12. ITEM 451 – 230mm REINFORCED CONCRETE PAVEMENT
13. ITEM 609 – CURB, TYPE 2A
14. ITEM 407 – TACK COAT FOR INTERMEDIATE COURSE
15. ITEM 605 – 100mm SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP
16. ITEM 612 – 225mm CONCRETE TRAFFIC ISLAND
17. ITEM 202 – PORTION OF TRAFFIC ISLAND REMOVED
18. ITEM 660 – SODDING, UNSTAKED

CALCULATED M/S
CHECKED MJW

TYPICAL SECTIONS

CUY–77–23.458 – PART 2

2
58

HNTB ARCHITECTS ENGINEERS PLANNERS

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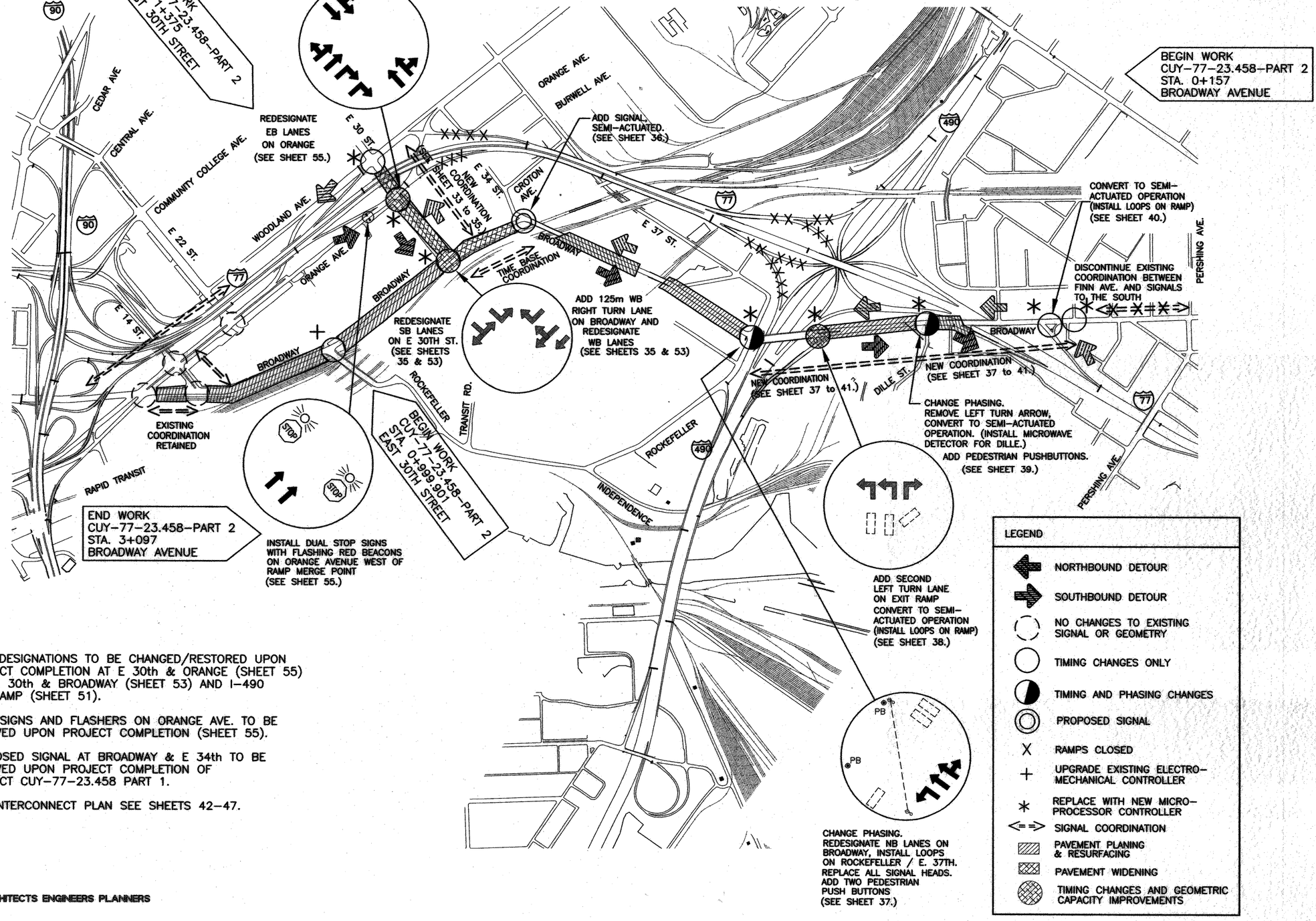


NOTES:

1.) LANE DESIGNATIONS TO BE CHANGED/RESTORED UPON PROJECT COMPLETION AT E 30th & ORANGE (SHEET 55) AND E 30th & BROADWAY (SHEET 53) AND I-490 OFF RAMP (SHEET 51).

2.) STOP SIGNS AND FLASHERS ON ORANGE AVE. TO BE REMOVED UPON PROJECT COMPLETION (SHEET 55).

3.) PROPOSED SIGNAL AT BROADWAY & E 34th TO BE REMOVED UPON PROJECT COMPLETION OF PROJECT CUY-77-23.458 PART 1.

4.) FOR INTERCONNECT PLAN SEE SHEETS 42-47.

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\14949DGD.dwg

NO SCALE

CALCULATED MS CHECKED MH

DETOUR LOCATION MAP

CUY-77-23.458 - PART 2

GENERAL

ROUNDING

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

UTILITIES

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

AT&T
3833 WEYMOUTH ROAD
MEDINA, OH 44256
PHONE: (216) 723-9110

AMERITECH
13630 LORAIN AVE., 4TH FLR.
CLEVELAND, OH 44111
PHONE: (216) 476-6142

CLE. ELECTRIC ILLUMINATING CO.
P.O. BOX 5000
CLEVELAND, OH 44101
PHONE: (216) 634-7232

CLEVELAND PUBLIC POWER
1300 LAKESIDE AVE.
CLEVELAND, OH 44114
PHONE: (216) 664-4245

CITY OF CLEVELAND
DIVISION OF HEAT AND WATER
1201 LAKESIDE AVE.
CLEVELAND, OH 44114
PHONE: (216) 664-2444

CITY OF CLEVELAND
DIVISION OF WATER POLLUTION CONTROL
12302 KIRBY AVE.
CLEVELAND, OH 44108
PHONE: (216) 664-3785

EAST OHIO GAS
1201 EAST 55TH STREET
CLEVELAND, OH 44103
PHONE (216) 736-6675

CITY OF CLEVELAND
DIVISION OF ENGINEERING & PARKING
4150 E. 49TH BUILDING 1
CLEVELAND, OH 44105
PHONE: (216) 664-3194

WORLDCOM
120 RAVINE ST.
AKRON, OH 44303
PHONE: (330) 253-8267

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

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 U.S.G.S. DATUM.

WORK LIMITS

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

COOPERATION BETWEEN CONTRACTORS

THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS OPERATIONS WITH THE CONTRACTOR'S ON OTHER PROJECTS THAT MAY BE IN FORCE DURING THE LIFE OF THIS CONTRACT. NO WAIVER OF ANY PROVISIONS OF 105.07 OF THE CONSTRUCTION AND MATERIAL SPECIFICATION IS INTENDED.

PROJECT PROGRESS MEETINGS

REFER TO SHEET 8/295 OF CUY-77-23.458 PART 1.

ADJUSTMENTS IN CONTRACT TIME

REFER TO SHEET 8/295 OF CUY-77-23.458 PART 1.

PROGRESS SCHEDULE (CRITICAL PATH METHOD)

REFER TO SHEET 9A/295 OF CUY-77-23.458 PART 1.

INTERIM COMPLETION DATES/LIQUIDATED DAMAGES

REFER TO SHEET 9A/295 OF CUY-77-23.458 PART 1.

ROADWAY

ADDITIONAL SOIL INFORMATION

THE SOIL PROFILE AND/OR STRUCTURE FOUNDATION INVESTIGATION SHEETS FROM THE ORIGINAL CONSTRUCTION PLANS FOR I-77 AT EAST 30th STREET (CUY-21-13.77(14.94)) MAY BE OBTAINED IN DISTRICT 12, THE OFFICE OF MATERIALS MANAGEMENT OR THE OFFICE OF STRUCTURAL ENGINEERING.

FIELD OFFICE, TYPE C, AS PER PLAN
COMPUTER EQUIPMENT FOR FIELD OFFICE

THE FIELD OFFICE, TYPE C, AS PER PLAN AND COMPUTER EQUIPMENT FOR FIELD OFFICE SHALL BE PAID FOR IN PART 1. THESE ITEMS SHALL BE USED FOR PART 1 AND PART 2. NO FIELD OFFICE OR COMPUTER EQUIPMENT PAY ITEMS WILL BE INCLUDED IN PART 2.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS DIRECTED BY THE ENGINEER FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

ITEM 207 - STRAW OR HAY BALES	120	EACH
ITEM 207 - FILTER FABRIC FENCE	524	METER

DRAINAGE

CROSSINGS AND CONNECTIONS TO EXISTING PIPES AND UTILITIES

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

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

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

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

REVIEW OF DRAINAGE FACILITIES

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

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

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

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

MANHOLES, CATCH BASINS, AND INLETS REMOVED OR ABANDONED

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

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

CASTINGS ADJUSTED TO GRADE, AS PER PLAN

ALL CASTINGS AS TABULATED IN THESE PLANS SHALL BE ADJUSTED BY THE CONTRACTOR UNLESS DETERMINED OTHERWISE BY THE ENGINEER. THE TIME BETWEEN ADJUSTING THE CASTINGS AND RESURFACING SHALL BE KEPT TO AN ABSOLUTE MINIMUM. ADJUSTING RINGS SHALL NOT BE USED.

THE CONTRACTOR SHALL NOTIFY PRIVATE COMPANIES ONE WEEK IN ADVANCE OF BEGINNING WORK THAT WOULD AFFECT ANY OF THEIR CASTINGS SO THAT THEY MAY PROVIDE INSPECTION PRIOR TO RESURFACING OPERATIONS.

ITEM SPECIAL, MISCELLANEOUS METAL

EXISTING CASTINGS MAY PROVE TO BE UNSUITABLE FOR REUSE, AS DETERMINED BY THE ENGINEER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE THE CASTINGS OF THE REQUIRED TYPE, SIZE AND STRENGTH (HEAVY DUTY) FOR THE PARTICULAR STRUCTURE IN QUESTION. ALL MATERIALS SHALL MEET ITEM 604 OF THE SPECIFICATIONS AND SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.

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

SPECIAL, MISCELLANEOUS METAL 2500 KILOGRAMS

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

PAVEMENT

EXISTING TYPICAL SECTIONS

EXISTING TYPICAL SECTIONS HAVE BEEN TAKEN FROM THE RECORDS AND ARE BELIEVED TO REPRESENT THE EXISTING PAVEMENT, BUT THE STATE OF OHIO DOES NOT GUARANTEE THE ACCURACY OF THE SAME.

FOR FURTHER INFORMATION IN REGARD TO THE EXISTING TYPICAL SECTIONS, THE CONTRACTOR SHALL REFER TO THE PREVIOUS CONSTRUCTION PLANS. THESE PLANS MAY BE REVIEWED AT THE CITY OF CLEVELAND, DIVISION OF ENGINEERING, 601 LAKESIDE AVENUE, CLEVELAND, OHIO, 44114.

PROFILE AND ALIGNMENT

THE PROPOSED PAVEMENT RESURFACING SHALL FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. PREVIOUS CONSTRUCTION PLANS SHOWING THE ORIGINAL ALIGNMENT AND PROFILE, ARE AVAILABLE FOR INSPECTION AT THE CITY OF CLEVELAND, DIVISION OF ENGINEERING, 601 LAKESIDE AVENUE, CLEVELAND, OHIO, 44114. THE PROPOSED ASPHALT CONCRETE OVERLAY SHALL BE SHOWN ON THE TYPICAL SECTION.

CONTRACTION AND/OR EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN CONTRACTION AND EXPANSION JOINTS HAVE BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES AND THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS SHALL, IN ALL CASES, BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2M AND THE SPECIFICATIONS.

CONTRACTION JOINTS IN CONCRETE PAVEMENT OR BASE WIDENING

WHERE NEW CONCRETE IS PLACED ADJACENT TO EXISTING CONCRETE, CONTRACTION JOINTS SHALL BE PROVIDED IN THE NEW CONCRETE SO AS TO FORM CONTINUOUS JOINTS WITH THOSE IN THE EXISTING CONCRETE.

THE MAXIMUM DISTANCE BETWEEN THE JOINTS IN THE NEW CONCRETE SHALL BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-2.2M. IF NECESSARY, ADDITIONAL JOINTS SHALL BE PROVIDED IN THE NEW CONCRETE AT APPROXIMATELY EQUAL INTERVALS BETWEEN EXISTING JOINTS THAT EXCEED THE MAXIMUM SPACING.

ITEM 407, TACK COAT

THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANITITES INDICATE AN AVERAGE APPLICATION RATE OF 0.45 LITERS PER SQUARE METER OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

ITEM 407, TACK COAT FOR INTERMEDIATE COURSE

THE RATE OF APPLICATION OF THE 407 TACK COAT SHALL BE SUBJECT TO ADJUSTMENT AS DIRECTED BY THE ENGINEER. PLAN QUANITITES INDICATE AN AVERAGE APPLICATION RATE OF 0.23 LITERS PER SQUARE METER OF TACK COAT FOR ESTIMATING PURPOSES ONLY.

PROFILE AND ALIGNMENT FOR RESURFACING PROJECTS

THE PROPOSED PAVEMENT RESURFACING SHALL FOLLOW THE ALIGNMENT AND PROFILE OF THE EXISTING PAVEMENT. THE PAVEMENT PLANING AND PROPOSED ASPHALT CONCRETE OVERLAY SHALL BE AS SHOWN ON THE TYPICAL SECTIONS.

IN AREAS WHERE PORTIONS OF THE EXISTING PAVEMENT HAS DETERIORATED IN EXCESS OF THE 38MM PAVEMENT PLANING, ADDITIONAL PLANING SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER, AND THE AREA LEVELED AND RESURFACED. THE FORLLOWING ESTIMATED QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY TO PERFORM THIS WORK:

ITEM	DESCRIPTION	QUANTITY	UNIT
254	PAVEMENT PLANING BITUMINOUS	8200	SQ. METERS
407	TACK COAT FOR INTERMEDIATE COURSE	1886	LITERS
446	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-28	310	CU. METERS

RESURFACING EAST 30th STREET

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER TO RESURFACE EAST 30TH STREET BETWEEN BROADWAY AVENUE AND ORANGE AVENUE(STA. 1+030.897 TO STA. 1+2224.761). THE TYPICAL ON SHEET 2 DOES NOT REFLECT ANY RESURFACING QUANTIITES. IF RESURFACING IS DEEMED NECESSARY BY THE ENGINEER, THEN ITEM 609 CURB, TYPE 2B SHOULD BE USED INSTEAD OF ITEM 609 CURB TYPE 2A SHOWN ON THE TYPICAL SECTION. THE NEW DRAINAGE FACILITIES IN THE WIDENENED SECTION SHALL ACCOMODATE THE ADDITIONAL 38MM OF ITEM 446 ASPHALT CONCRETE.

ITEM 446 - ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-28 (T=38MM) = 107 CU. M.

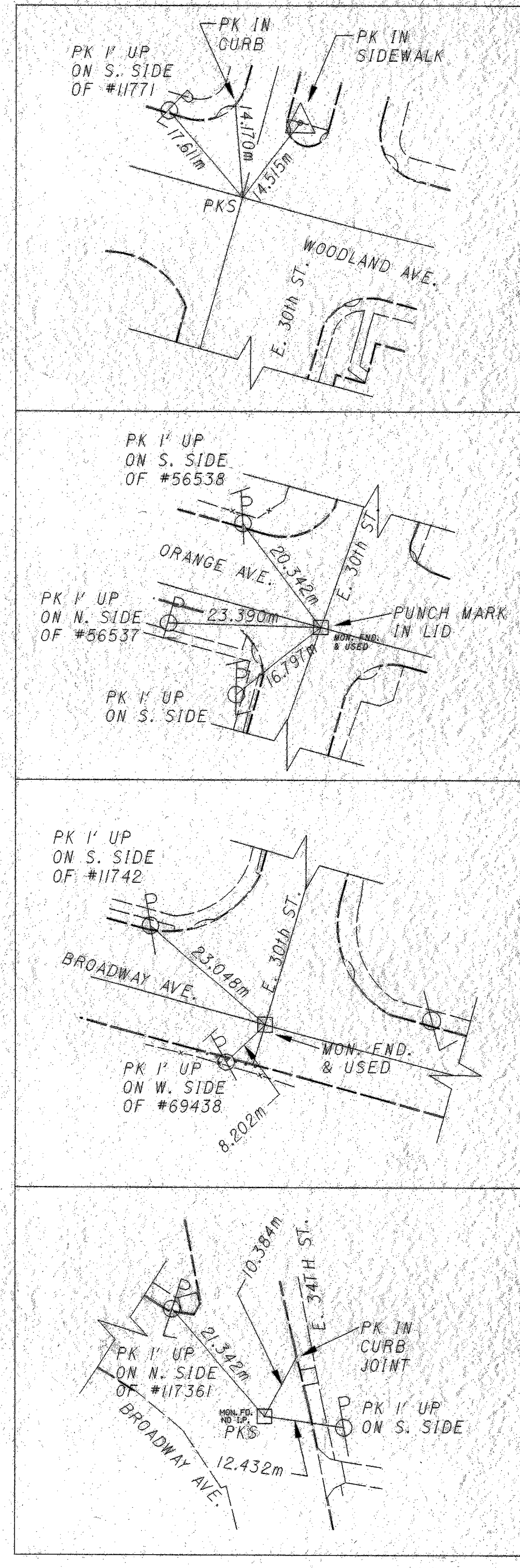
ITEM 407 - TACK COAT = 1262 LITERS

ITEM 638 - VALVE BOX ADJUSTED TO GRADE, AS PER PLAN = 2 EACH

ITEM 604 - MAHOLE ADJUSTED TO GRADE, AS PER PLAN = 6 EACH

ITEM 604 - CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN = 3 EACH

CONTROL DATA



HNTB ARCHITECTS ENGINEERS PLANNERS

GENERAL NOTES

CUY-77-23.458 - PART 2

CALCULATED MS CHECKED

GENERAL

BEFORE WORK BEGINS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE NAMES AND TELEPHONE NUMBERS OF AT LEAST TWO PERSONS WHO CAN BE CONTACTED 24 HOURS PER DAY BY THE OHIO DEPARTMENT OF TRANSPORTATION AND ALL INTERESTED POLICE AGENCIES. THESE PERSONS SHALL BE RESPONSIBLE FOR PLACING OR REPLACING NECESSARY TRAFFIC CONTROL DEVICES TO MAINTAIN THE TRAVELED PAVEMENT SAFELY.

THE CONTRACTOR SHALL DIVERT TRAFFIC FROM NORMAL CHANNELS BY USING PLASTIC DRUMS, PORTABLE CONCRETE BARRIER, FLASHING ARROW PANELS COMPLYING WITH TC-35.10, AND TRAFFIC SIGNS AND PAVEMENT MARKINGS.

ALL CONSTRUCTION TRAFFIC CONTROL DEVICES USED FOR THIS PROJECT SHALL CONFORM TO THE OHIO MANUAL ON TRAFFIC CONTROL DEVICES, ALSO KNOWN AS THE "MANUAL", AND SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR, EXCEPT AS NOTED BELOW.

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

NOTIFICATION

THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF OPERATION, IN WRITING, TO THE PROJECT ENGINEER FOR HIS APPROVAL AT LEAST 14 DAYS PRIOR TO ANY TRAFFIC RESTRICTION. THE CONTRACTOR SHALL ALSO NOTIFY THE FOLLOWING AGENCIES 7 DAYS PRIOR TO ANY PHASE CHANGES:

GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY ________ 566-5100
METRO REGIONAL TRANSIT AUTHORITY ________ (330) 762-0341
CUYAHOGA COUNTY BOARD OF MENTAL RETARDATION ________ 241-8230
CLEVELAND BOARD OF EDUCATION ________ 574-8500
CITY OF CLEVELAND :
-COMMISIONER OF TRAFFIC ENGINEERING ________ 664-3194
-POLICE TRAFFIC COMMISIONER ________ 623-5188
-FIRE DEPARTMENT HEADQUARTERS ________ 664-6800
-COMMISSIONER OF ENGINEERING AND CONSTRUCTION ________ 664-2381

PHASING OF CONSTRUCTION

PHASING OF CONSTRUCTION AS IT APPEARS IN THESE PLANS IS INTENDED TO PROVIDE FOR THE COMPLETION OF ALL WORK REQUIRED TO COMPLETE THE GEOMETRIC IMPROVEMENTS, SIGNAL IMPROVEMENTS AND PAVEMENT RESURFACING NECESSARY FOR THE DETOUR FOR THE REHABILITATION OF I-77 OVER KINGSBURY RUN, AS DETAILED IN THE "CONSTRUCTION SEQUENCE" ON SHEET 7.

ITEMS IA-IE ON PAGE 7 SHALL BE COMPLETED PRIOR TO THE IMPLEMENTATION OF THE DETOUR IN CUY-77-23.458 - PART I, PHASE 2.

THE CONTRACTOR SHALL COMPLETE ALL WORK IN A GIVEN CONSTRUCTION PHASE BEFORE BEGINNING ANY WORK IN A SUBSEQUENT PHASE, UNLESS OTHERWISE APPROVED BY THE ENGINEER. NORMAL VEHICULAR TRAFFIC SHALL BE MAINTAINED AT ALL TIMES BEYOND THE WORK LIMITS OF THE SECTION CURRENTLY UNDER CONSTRUCTION.

ITEM 614 - MAINTAINING TRAFFIC

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.

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

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

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION, AND OPERATION (INCLUDING ERECTION, MAINTENANCE AND REMOVAL) OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS, EXCEPT WHERE OTHERWISE NOTED, SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

FAILURE TO COMPLY

IF THERE IS ANY FAILURE TO COMPLY WITH PROVISIONS FOR TRAFFIC CONTROL SET OUT IN THESE PLANS AND NOTES, OR WITH THE PROVISIONS OF THE "MANUAL", THE HIGHWAY IN THE VICINITY OF THE WORK AREA SHALL NOT BE CONSIDERED IN A CONDITION FOR THE SAFE AND CONVENIENT USE BY THE TRAVELING PUBLIC. ANY FAILURE TO KEEP THE HIGHWAY IN THE VICINITY OF THE WORK AREA IN A CONDITION FOR THE SAFE AND CONVENIENT USE BY THE TRAVELING PUBLIC SHALL BE CONSIDERED A BREACH OF THIS CONTRACT. WORK SHALL BE SUSPENDED UNTIL THE CONTRACTOR COMPLIES WITH THE PROVISIONS OF THE AFOREMENTIONED ITEMS.

UTILITIES

EXISTING UNDERGROUND UTILITIES ARE SHOWN ON ROADWAY PLAN SHEETS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING TYPE AND LOCATION OF OVERHEAD AND UNDERGROUND UTILITIES AND, AS NECESSARY, ADJUST LOCATION OF TEMPORARY TRAFFIC SIGNAL OR SIGN INSTALLATIONS, AS APPROVED BY THE ENGINEER, TO AVOID INTERFERENCE OR DAMAGE THERETO.

ABUTTING PROPERTIES

THE CONTRACTOR SHALL MAINTAIN SAFE AND SATISFACTORY ACCESS TO ALL ABUTTING PROPERTIES. COMMERCIAL DRIVES MAY ONLY BE CLOSED IF OTHER ACCESS DRIVES ARE AVAILABLE. THE CONTRACTOR MUST NOTIFY ALL PROPERTY OWNERS OF ACCESS RESTRICTIONS ONE WEEK IN ADVANCE. ALL RESTRICTIONS AND CLOSURES SHALL BE PROPERLY SIGNED AND/OR BARRICADED.

CONSTRUCTION TRAFFIC

ALL CONSTRUCTION TRAFFIC SHALL USE ACCEPTABLE TRUCK ROUTES TO ACCESS THE CONSTRUCTION AREA. USE OF LOCAL RESIDENTIAL STREETS IS STRICTLY PROHIBITED UNLESS ALLOWED IN WRITING BY THE LOCAL ENFORCEMENT AGENCY.

EQUIPMENT AND MATERIAL STORAGE

IN ORDER TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC THE CONTRACTORS ATTENTION IS DIRECTED TO 614.03. IN ADDITION THE FOLLOWING PROVISIONS SHALL APPLY:

1. CONSTRUCTION EQUIPMENT, MATERIALS AND VEHICLES IN USE DURING THE WORKING DAY SHALL NOT BE PARKED OR STORED ANY CLOSER THAN 9.1 METERS TO THE EDGE OF ROADWAY PAVEMENT, UNLESS BEHIND PERMANENT GUARDRAIL, WHEN THE EQUIPMENT AND/OR VEHICLES ARE NOT IN OPERATION.
2. PRIVATE VEHICLES BELONGING TO CONTRACTOR'S EMPLOYEES SHALL NOT BE PARKED WITHIN THE EXISTING RIGHT OF WAY LIMITS OF THIS PROJECT AT ANY TIME EXCEPT IN SPECIFIED AREAS DESIGNATED BY THE ENGINGEER.
3. ANY REMOVED ITEMS SHALL NOT BE STORED ON THE RIGHT OF WAY FOR MORE THAN 30 DAYS.
4. ALL DISTURBED AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE STATE.

TRAFFIC CONTROL MATERIALS

A. SIGNS

SIGN DIMENSIONS AND SPECIFICATIONS, INCLUDING LETTER SIZES, SHALL BE AS PROVIDED IN THE "MANUAL", OR IN SIGN DESIGN DRAWINGS PROVIDED BY THE DEPARTMENT OF TRANSPORTATION. THE SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER PRIOR TO THE START OF THE PROJECT. ADVANCE WARNING SIGNS ARE TO BE PROVIDED AS SHOWN IN THE PLANS. ORANGE CONSTRUCTION SIGNS SHALL BE REFLECTORIZED WITH FLOURESCENT ORANGE SHEETING.

B. SIGN SUPPORTS

SUPPORTS SHALL BE ADEQUATE IN MASS AND STABILITY TO PREVENT THE SIGNS FROM BEING BLOWN OVER BY WIND OR VEHICULAR GENERATED AIR TURBULENCE. SEE STANDARD CONSTRUCTION DRAWINGS MT-105.10M AND MT-105.11M

C. DRUMS

DRUMS SHALL BE IN ACCORDANCE WITH PERTINENT SECTIONS OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. ALL PERMANENT LANE CLOSURES SHALL BE DELINEATED WITH DRUMS SPACED AS SHOWN IN THE PLANS. ALL COSTS FOR INSTALLING, MAINTAINING AND SUBSEQUENT REMOVAL OF SAID DRUMS SHALL BE INCLUDED IN THE LUMP SUM BID PRICE FOR ITEM 614 - MAINTAINING TRAFFIC.

TRENCH FOR WIDENING

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

ITEM SPECIAL-LAW ENFORCEMENT OFFICER
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 PERIODS, 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 THE CITY OF CLEVELAND POLICE DEPARTMENT, 1300 ONTARIO STREET, 623-5000.

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 CARRIED TO THE GENERAL SUMMARY:

SPECIAL - LAW ENFORCEMENT OFFICER ________ 100 HOURS

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR ________ 40 HOURS

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

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

TEMPORARY PAVEMENT MARKING

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER. THE QUANTIES ARE TO BE USED FOR LANE CLOSURES DURING WIDENING:

614 - TEMPORARY PAVEMENT MARKINGS		TOTAL
TEMPORARY EDGE LINE, CLASS I, 642 PAINT		0.6km
TEMPORARY EDGE LINE, CLASS I, 740.06 TYPE I (WHITE)	155m	0.2km
TEMPORARY EDGE LINE, CLASS I, 740.06 TYPE I (YELLOW)	45m	

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER. THE QUANTITIES, IF REQUIRED, ARE INTENDED TO BE USED AFTER PLANING OPERATIONS AND PRIOR TO RESURFACING OPERATIONS.

614 - TEMPORARY PAVEMENT MARKINGS	TOTAL
TEMPORARY CENTER LINE, CLASS II, 642 PAINT	2.3km
TEMPORARY STOP LINE, CLASS I, 642 PAINT	237m
TEMPORARY CROSSWALK, CLASS I, 642 PAINT	469m

ITEM 614 - BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC

THE FOLLOWING QUANTITY HAVE BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER:

ITEM 614 -BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC = 500 CU METER

HNTB ARCHITECTS ENGINEERS PLANNERS

CALCULATED MS CHECKED ZSS

MAINTENANCE OF TRAFFIC NOTES

CUY-77-23.458 - PART 2

DETOUR CONSTRUCTION SEQUENCE

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE USED TO PERFORM ALL WORK REQUIRED TO CONSTRUCT THE GEOMETRIC IMPROVEMENTS, RESURFACING, AND TRAFFIC SIGNAL IMPROVEMENTS FOR THE I-77 BRIDGE OVER KINGSBURY RUN DETOUR. REHABILITATION OF BRIDGE OVER KINGSBURY RUN WILL BE PERFORMED UNDER A SEPARATE PART OF THIS CONSTRUCTION PROJECT CUY-77-23.458 (PART I).

PHASE I. WORK TO BE PERFORMED PRIOR TO REHABILITATION OF THE I-77 BRIDGE OVER KINGSBURY RUN:

A. GEOMETRIC IMPROVEMENTS

1. CONSTRUCT THE PAVEMENT WIDENING ON BROADWAY EAST OF THE E. 30TH STREET INTERSECTION AS DETAILED. ONE LANE OF TRAFFIC SHALL BE MAINTAINED WESTBOUND ON BROADWAY WITH A SINGLE LANE CLOSURE IN ACCORDANCE WITH MT-95.31M. NO LANE RESTRICTIONS EASTBOUND.
2. CONSTRUCT THE PAVEMENT WIDENING ON E. 30TH STREET BETWEEN BROADWAY AND ORANGE AVENUE AS DETAILED. ONE LANE OF TRAFFIC SHALL BE MAINTAINED NORTHBOUND ON E. 30TH STREET WITH A SINGLE LANE CLOSURE IN ACCORDANCE WITH MT-95.31M. NO LANE RESTRICTION SOUTHBOUND.
3. CONSTRUCT THE PAVEMENT WIDENING IN THE NORTHWEST QUADRANT OF THE E. 30TH STREET AND ORANGE AVENUE INTERSECTION. ONE LANE OF TRAFFIC SHALL BE MAINTAINED SOUTHBOUND ON E. 30TH STREET WITH A SINGLE LANE CLOSURE IN ACCORDANCE WITH MT-95.31M. NO LANE RESTRICTIONS NORTHBOUND ON E. 30TH STREET OR ON ORANGE AVENUE.
4. CONSTRUCT THE PAVEMENT WIDENING ON THE I-490 OFF RAMP TO BROADWAY AS DETAILED. ONE LANE OF TRAFFIC SHALL BE MAINTAINED EASTBOUND ON BROADWAY AVENUE WITH A SINGLE LANE CLOSURE IN ACCORDANCE WITH MT-95.30M. THE LEFT AND RIGHT TURN LANES FROM THE I-490 OFF RAMP TO BROADWAY SHALL BE REDUCED IN WIDTH AS DETAILED BELOW. NO LANE RESTRICTIONS WESTBOUND ON BROADWAY AVENUE.

B. REPAVING

PLANE AND REPAVE BROADWAY AVENUE AND EAST 30TH STREET USING THE LIMITS SHOWN ON THE RESURFACING PLANS, SHEETS 25 - 27. MAINTAIN TRAFFIC IN ACCORDANCE WITH MT-95.31M AND MT-95.32M.

C. TRAFFIC SIGNALS

1. INSTALL NEW MICROPROCESSOR CONTROLLERS AND REWIRE AS SHOWN ON THE SIGNAL PLANS AT THE FOLLOWING INTERSECTIONS:
   - i. EAST 30TH / WOODLAND
   - ii. EAST 30TH / ORANGE
   - iii. EAST 30TH / BROADWAY
   - iv. BROADWAY / EAST 37TH-ROCKEFELLER
   - v. BROADWAY / I-490 OFF RAMP
   - vi. BROADWAY / DILLE
   - vii. BROADWAY / I-77 OFF RAMP
   - viii. BROADWAY / FINN
2. INSTALL TRAFFIC SIGNAL AT BROADWAY AND E. 34TH STREET AS SHOWN ON THE SIGNAL PLANS. THIS SIGNAL SHALL BE REMOVED AT THE END OF THE PROJECT AND THE INTERSECTION RESTORED TO ALL-WAY STOP CONTROL.
3. REPLACE ALL VEHICLE AND PEDESTRIAN SIGNAL HEADS AT BROADWAY AND E. 37TH / ROCKEFELLER AS SHOWN ON THE SIGNAL PLANS. NOTE THAT PHASING IS BEING PERMANENTLY MODIFIED.
4. THE PHASING, AS SHOWN ON THE SIGNAL PLANS, SHALL BE ACTIVATED IMMEDIATELY. ANY FINE TUNING PRIOR TO THE IMPLEMENTATION OF THE DETOUR SHALL BE COORDINATED WITH THE CITY OF CLEVELAND DIVISION OF TRAFFIC ENGINEERING BASED ON ACTUAL TRAFFIC PATTERNS.
5. THE NEW CONTROLLERS SHALL BE WIRED AND PROGRAMMED TO PROVIDE THE DETOUR PHASING AND TIMING. COORDINATE THIS WITH THE CITY OF CLEVELAND DIVISION OF TRAFFIC ENGINEERING. THE PHASING AND TIMING SHOWN ON THE SIGNAL PLANS AND THE SYSTEM TIMING PARAMETERS SHOWN ARE INTENDED FOR OPERATION OF THE SIGNALS DURING THE DETOUR. THESE TIMING PLANS SHALL BE PROVIDED TO THE CITY OF CLEVELAND DIVISION OF TRAFFIC ENGINEERING SO THEY MAY BE PROGRAMMED INTO THE "SMARTWAYS" DOWNTOWN CLOSED LOOP SIGNAL SYSTEM FOR INSTANT IMPLEMENTATION. THE TIMING CAN BE MODIFIED AS NECESSARY PRIOR TO THE ACTIVATION OF THE DETOUR BY COORDINATING WITH THE CITY OF CLEVELAND.
6. UPGRADE EXISTING ELECTROMECHANICAL CONTROLLER AT BROADWAY AND ROCKEFELLER TO A THREE DIAL UNIT SALVAGED FROM I ABOVE.

ALL TRAFFIC SIGNAL WORK SHALL BE PERFORMED DURING OFF PEAK HOURS. EXISTING SIGNALS SHALL BE PUT INTO FLASH MODE DURING THE PERFORMANCE OF THIS WORK. TWO (2) LAW ENFORCEMENT OFFICERS SHALL BE PROVIDED AT EACH INTERSECTION WHILE THE CONTROLLER IS BEING REPLACED. PEAK HOURS ARE 6AM TO 9AM AND 3PM TO 6PM WEEKDAYS. LAW ENFORCEMENT OFFICIALS USED FOR THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 - MAINTAINING TRAFFIC.

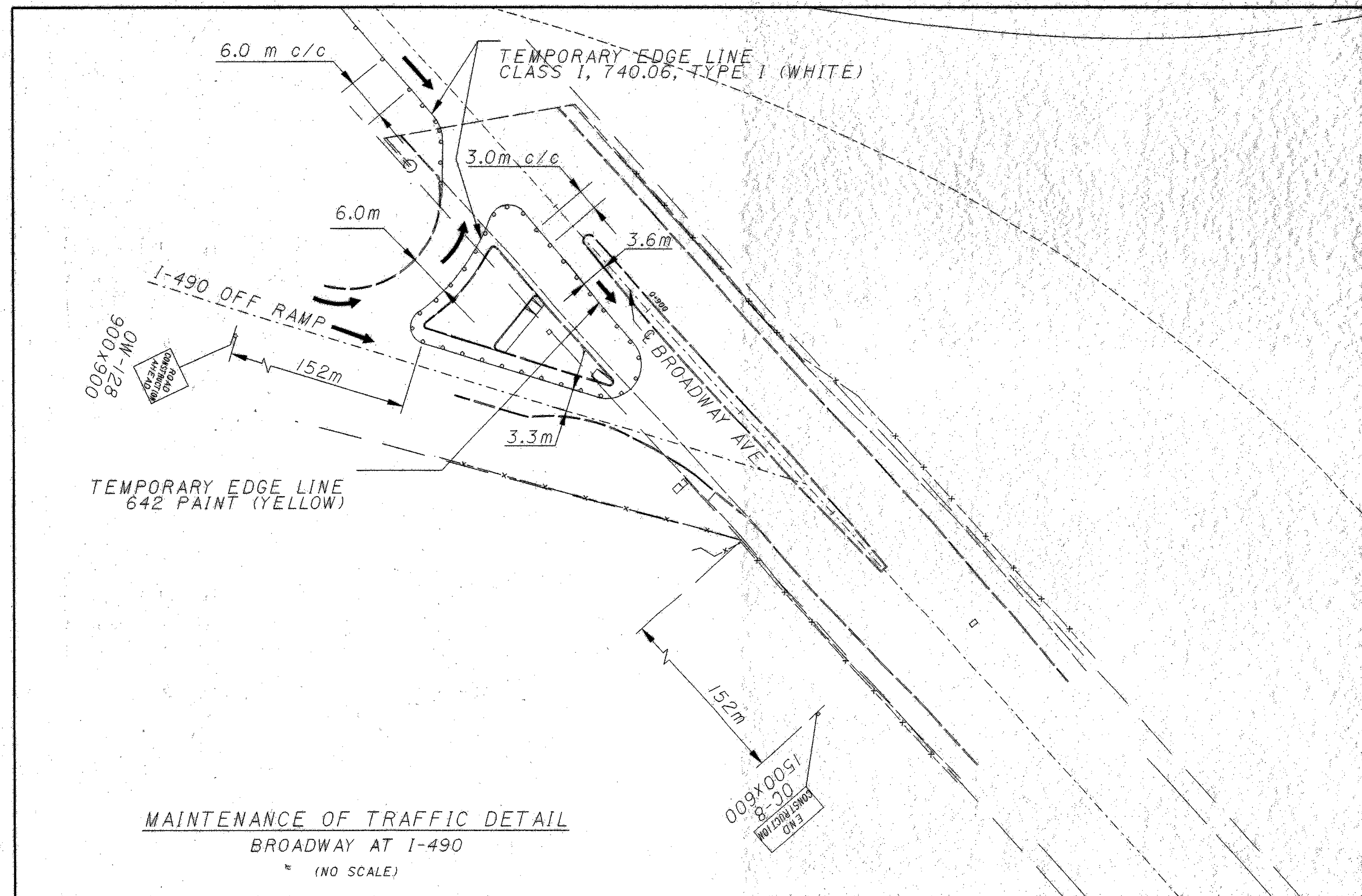
D. PAVEMENT MARKINGS

1. STRIPE BROADWAY ON REPAVED SECTIONS AS SHOWN. (PAVEMENT ARROWS TO BE REPLACED AT THE END OF THE PROJECT AT BROADWAY, EAST 30TH AND THE I-490 OFF RAMP AS SHOWN.)
2. STRIPE EAST 30TH ON REPAVED SECTIONS AS SHOWN.
3. STRIPE I-490 OFF RAMP TO BROADWAY AS SHOWN.

E. INSTALL TEMPORARY STOP SIGNS WITH FLASHING BEACONS ON ORANGE AVENUE WEST OF E. 30TH STREET AS SHOWN ON THE DETAIL IN THE PAVEMENT MARKING PLANS. THE STOP SIGNS AND BEACONS SHALL BE REMOVED AT THE END OF THE PROJECT. (PAVEMENT ARROWS TO BE REPLACED AT END OF PROJECT AS SHOWN ON THE DETAIL.)

PHASE 2. MAINTAIN TRAFFIC SIGNALS ALONG CUY-77-23.458 PART 2 DETOUR ROUTE DURING PART I CONSTRUCTION AS INDICATED IN THE TRAFFIC CONTROL PLANS.

PHASE 3. REVISE TRAFFIC CONTROL FOR POST-CONSTRUCTION CONDITIONS INCLUDING ALL SIGNING, SIGNAL AND PAVEMENT MARKING CHANGES AS CALLED FOR IN THE PLANS AFTER COMPLETION OF CUY-77-23.458 PART I, PHASE 5.



MAINTENANCE OF TRAFFIC DETAIL
BROADWAY AT I-490
(NO SCALE)

HNTB ARCHITECTS ENGINEERS PLANNERS

PLOT SUBMITTED:25-FEB-1998 13:36
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SEQUENCE OF CONSTRUCTION, MAINTENANCE OF TRAFFIC DETAILS

CUY-77-23.458 - PART 2

SHEET NUMBER																		COST PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REFERENCE SHT.#
		4		5			11	12	14		18		21	22	23	25										
																								ROADWAY	
																				201	M11000	LUMP		CLEARING AND GRUBBING	
							49													202	M23000	49	SQ METER	PAVEMENT REMOVED	
							844													202	M30000	844	SQ METER	WALK REMOVED	
											137									202	M30900	137	SQ METER	PORTION OF TRAFFIC ISLAND REMOVED	
							386													202	M32000	386	METER	CURB REMOVED	
								40												202	M35100	40	METER	PIPE REMOVED, 600 mm AND UNDER	
								7												202	M58100	7	EACH	CATCH BASIN REMOVED	
													419	151	42					203	M12000	612	CU METER	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	
													198	35	7					203	M20000	240	CU METER	EMBANKMENT	
							599				117									203	M50000	716	SQ METER	SUBGRADE COMPACTION	
							808													608	M10000	808	SQ METER	100 mm CONCRETE WALK	
							2													608	M50000	2	EACH	CURB RAMP, TYPE 1	
											1									608	M51000	1	EACH	CURB RAMP, TYPE 2	
											18									612	M18000	18	SQ METER	225 mm CONCRETE TRAFFIC ISLAND	
		524																						EROSION CONTROL	
		120																		207	M30000	524	METER	FILTER FABRIC FENCE	
																				207	M70000	120	EACH	STRAW OR HAY BALES	
													341	467	83					660	M30000	891	SQ METER	SODDING, UNSTAKED	
								30												603	M00406	30	METER	DRAINAGE 100 mm CONDUIT, TYPE F, 707.42	
								69												603	M04400	69	METER	300 mm CONDUIT, TYPE B, 706.08	
								2												603	M10400	2	METER	600 mm CONDUIT, TYPE B, 706.08	
								10												604	M00300	10	EACH	CATCH BASIN, CITY OF CLEVELAND NO. 1	
				3					51											604	M09001	54	EACH	CATCH BASIN ADJUSTED TO GRADE, AS PER PLAN	4
								1												604	M10100	1	EACH	INLET, SIDE DITCH	
								1												604	M31500	1	EACH	MANHOLE, NO. 3	
				6					65											604	M34501	71	EACH	MANHOLE ADJUSTED TO GRADE, AS PER PLAN	4
								1												604	M35500	1	EACH	MANHOLE RECONSTRUCTED TO GRADE	
									14											604	M39501	14	EACH	MONUMENT BOX ADJUSTED TO GRADE, AS PER PLAN	4
				2500																SPECIAL	604M50000	2500	KILOGRAM	MISCELLANEOUS METAL	5
								287												605	M05110	287	METER	100 mm SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP	
								56												605	M05210	56	METER	100 mm UNCLASSIFIED PIPE UNDERDRAIN WITH FABRIC WRAP	
																								PAVEMENT	
				8200												33266				254	M01000	41466	SQ METER	PAVEMENT PLANING, BITUMINOUS	
							127				18									304	M20000	145	CU METER	AGGREGATE BASE	
							470													305	M13000	470	SQ METER	230 mm CONCRETE BASE	
				1262			201									14971				407	M10000	16434	LITER	TACK COAT	
				1886			103													407	M14000	1989	LITER	TACK COAT FOR INTERMEDIATE COURSE	
				310			21													446	M46040	331	CU METER	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-28	
				107			17									1264				446	M47010	1388	CU METER	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-28	
							376				117									451	M14000	493	SQ METER	230 mm REINFORCED CONCRETE PAVEMENT	
							32													452	M11500	32	SQ METER	200 mm PLAIN CONCRETE PAVEMENT	
							226				14									609	M14000	240	METER	CURB, TYPE 2-A	
							154													609	M16000	154	METER	CURB, TYPE 2-B	
																								WATER WORK	
				2					43											638	M10801	45	EACH	VALVE BOX ADJUSTED TO GRADE, AS PER PLAN	4

CALCULATED M.JW CHECKED AKL

GENERAL SUMMARY

CUY-77-23.458 - PART 2

HNTB ARCHITECTS ENGINEERS PLANNERS

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SHEET NUMBER		COST PARTICIPATION	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN
48	49							
							TRAFFIC CONTROL	
	61		630	M03100	61	METER	GROUND MOUNTED SUPPORT, NO. 3 POST	
	2		630	M79000	2	EACH	SIGN HANGER ASSEMBLY, SPAN WIRE	
	10		630	M80100	10	SQ METER	SIGN, FLAT SHEET	
	2		630	M80102	2	SQ METER	SIGN, FLAT SHEET, TYPE G	
	1		630	M84900	1	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
	5		630	M85100	5	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
	3		630	M86002	3	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
	1		630	M87400	1	EACH	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	
	1		630	M87520	1	EACH	REMOVAL OF POLE MOUNTED SIGN AND REERECTION	
	5.44		642	M00202	5.44	KILOMETER	LANE LINE, TYPE 2	
	2.72		642	M00302	2.72	KILOMETER	CENTER LINE, TYPE 2	
	560		644	M00400	560	METER	CHANNELIZING LINE	
	237		644	M00500	237	METER	STOP LINE	
	469		644	M00600	469	METER	CROSSWALK LINE	
	100		644	M00700	100	METER	TRANSVERSE LINE	
	5		644	M00900	5	SQ METER	ISLAND MARKING	
	57		644	M01300	57	EACH	LANE ARROW	
	2		644	M01301	2	EACH	LANE ARROW, AS PER PLAN	51
	11		644	M01400	11	EACH	WORD ON PAVEMENT, 1800mm	
	257		644	M01500	257	METER	DOTTED LINE, 100mm	
	14		644	M30020	14	EACH	REMOVAL OF PAVEMENT MARKING	
							TRAFFIC SIGNAL	
22			603	M00400	22	METER	100 MM CONDUIT, TYPE E	
332			625	M25802	332	METER	CONDUIT, CONCRETE ENCASED, 75 MM	
68			625	M25900	68	METER	CONDUIT, JACKED OR DRILLED, 75 MM	
380			625	M25910	380	METER	CONDUIT CLEANED AND CABLES REMOVED	
330			625	M29000	330	METER	TRENCH	
11			625	M31600	11	EACH	PULL BOX, MISC.	29
11			625	M32000	11	EACH	GROUND ROD	
4			632	M00301	4	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 300 MM LENS, 1-WAY, AS PER PLAN	29
3			632	M01101	3	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 300 MM LENS, 2-WAY, AS PER PLAN	29
1			632	M01711	1	EACH	VEHICULAR SIGNAL HEAD, 5 SECTION, 300 MM LENS, 2-WAY, AS PER PLAN	29
1			632	M02201	1	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 300 MM LENS, 3-WAY, AS PER PLAN	29
12			632	M20601	12	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN	29
8			632	M26000	8	EACH	PEDESTRIAN PUSHBUTTON	
10			632	M26500	10	EACH	DETECTOR LOOP	
13			632	M26501	13	EACH	DETECTOR LOOP, AS PER PLAN	29
25			632	M27009	25	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN	29
50			632	M30200	50	METER	MESSENGER WIRE, 7 STRAND, 9mm DIAMETER WITH ACCESSORIES	
97			632	M40200	97	METER	SIGNAL CABLE, 2 CONDUCTOR, NO. 14 AWG	
97			632	M40500	97	METER	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	
71			632	M40700	71	METER	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
707			632	M53202	707	METER	INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	
838			632	M62803	838	METER	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-38), AS PER PLAN	30
2			632	M63000	2	EACH	PHONE DROP	
584			632	M65200	584	METER	LOOP DETECTOR LEAD-IN CABLE	
45			632	M68300	45	METER	POWER CABLE, 3 CONDUCTOR, NO. 6 AWG	
1			632	M70000	1	EACH	POWER SERVICE	
9			632	M70400	9	EACH	CONDUIT RISER, 51 MM DIAMETER	
1			632	M89300	1	EACH	WOOD POLE, CLASS 1, 12 M	
2			632	M89900	2	EACH	PEDESTAL, 2.4 M, TRANSFORMER BASE	
10			632	M90020	10	EACH	REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM; SIGNAL HEAD	29
9			632	M90020	9	EACH	REMOVAL OF MISCELLANEOUS TRAFFIC SIGNAL ITEM; ELECTROMECHANICAL TRAFFIC SIGNAL CONTROLLER AND STORAGE	29

CALCULATED IMH
CHECKED MJW

GENERAL SUMMARY

CUY-77-23.458 - PART 2

HNTB ARCHITECTS ENGINEERS PLANNERS

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14949GGA.dgn
PLOT SUBMITTED: 25-FEB-1998 11:09

SHEET NUMBER 6	SHEET NUMBER 31	SHEET NUMBER 48	COST PARTICIPATION	ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN REFERENCE SHT.#
		1		632	M90100	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	
		1		632	M90104	1	EACH	REUSE OF ELECTROMECHANICAL CONTROLLER, AS PER PLAN	29
		LUMP		632	M90300	LUMP		SIGNALIZATION, MISC.: REWIRE INTERSECTION	29
	LUMP			632	M90300	LUMP		SIGNALIZATION, MISC.: SYSTEMS TIMING AND ANALYSIS	30,31
		2		632	M90400	2	EACH	SIGNALIZATION, MISC.: MICROWAVE VEHICLE DETECTOR	29
		7		633	M34001	7	EACH	CONTROLLER, ACTUATED, 4 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	31
		2		633	M39001	2	EACH	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN	31
		2.3		633	M70500	2.3	SQ METER	CONTROLLER WORK PAD	
								MAINTENANCE OF TRAFFIC	
40				614	M11100	40	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	
100				SPECIAL	614M11200	100	HOUR	LAW ENFORCEMENT OFFICER	6
500				614	M13000	500	CU METER	BITUMINOUS CONCRETE FOR MAINTAINING TRAFFIC	
2.3				614	M21500	2.3	KILOMETER	TEMPORARY CENTER LINE, CLASS II, 642 PAINT	
0.6				614	M22100	0.6	KILOMETER	TEMPORARY EDGE LINE, CLASS I, 642 PAINT	
0.2				614	M22200	0.2	KILOMETER	TEMPORARY EDGE LINE, CLASS I, 740.06, TYPE I	
237				614	M26200	237	METER	TEMPORARY STOP LINE, CLASS I, 642 PAINT	
469				614	M27200	469	METER	TEMPORARY CROSSWALK, CLASS I, 642 PAINT	
				614	M11000	LUMP		MAINTAINING TRAFFIC	
				623	M10000	LUMP		CONSTRUCTION LAYOUT STAKES	
				624	M10000	LUMP		MOBILIZATION	

HNTB ARCHITECTS ENGINEERS PLANNERS

CALCULATED MJW CHECKED AKL

GENERAL SUMMARY

CUY-77-23.458 - PART 2

PAVEMENT

STATION FROM	STATION TO	SIDE	LENGTH METER	AVERAGE WIDTH METER	SURFACE AREA SQ. METER	203 SUBGRADE COMPACTION SQ. METER	304 (150mm) AGGREGATE BASE CU. METER	305 (230mm) CONCRETE BASE SQ. METER	407 TACK COAT (.45L/m²) LITER	407 TACK COAT INTERMEDIATE COURSE (.23L/m²) LITER	446 (38mm) ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-28 CU. METER	446 (45mm) ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-28 CU. METER	451 (230mm) REINFORCED CONCRETE PAVEMENT SQ. METER
BROADWAY													
1+965	1+980	RT	15	1.8	27.000				12.15	6.21	1.03	1.22	
1+965	1+980	RT	15	1.95	29.250	29.25	4.39	29.25					
1+980	2+091.766	RT	111.766	3.6	402.358				181.06	92.54	15.29	18.11	
1+980	2+091.766	RT	111.766	3.75	419.123	419.12	62.87	419.12					
BROADWAY/E. 30TH RETURN		RT	PLANIMETERED		149.148	149.15	22.37						149.15
E. 30TH													
1+030.897	1+224.761	RT	193.864	1.15	222.944		33.44						222.94
E. 30TH/ORANGE RETURN		RT	PLANIMETERED		8.047				3.62	1.85	0.31	0.36	
E. 30TH/ORANGE RETURN		RT	PLANIMETERED		10.562		1.58	10.56					
E. 30TH													
1+249.711	1+263.143	LT	PLANIMETERED		7.538				3.39	1.73	0.29	0.34	
1+249.711	1+263.143	LT	PLANIMETERED		9.786		1.47	9.79					
PAVEMENT REPAIR AT CATCH BASIN REMOVED LOCATIONS		RT	3 @ 1.25 m²		3.75		0.56						3.75
			1 @ 1.25 m²		1.25	1.25	0.19	1.25	0.56	0.29	0.05	0.06	
					TOTAL	599	127	470	201	103	17	21	376

FOR CURB LOCATIONS, SEE TABLE BELOW.

CURB

STATION FROM	STATION TO	SIDE	609 CURB TYPE 2A METER	609 CURB TYPE 2B METER
BROADWAY				
1+965	1+980	RT		15.43
1+980	2+091.766	RT		111.77
BROADWAY/E. 30TH RETURN		RT	32.99	
E. 30TH				
1+030.897	1+224.761	RT	192.86	
E. 30TH/ORANGE RETURN		RT		12.54
E. 30TH				
1+249.711	1+263.143	LT		13.50
		TOTAL	226	154

DRIVE AND WALK, CURB RAMPS

STATION FROM	STATION TO	SIDE	LENGTH METER	AVERAGE WIDTH METER	452 (200mm) PLAIN CONCRETE PAVEMENT SQ. METER	608 (100mm) CONCRETE WALK SQ. METER	608 CURB RAMP TYPE 1 EACH
E. 30TH DRIVE							
1+135.916		RT	2.250	14.221	32.00		
BROADWAY							
1+965	2+091.766	RT	126.766	2.25		285.22	
BROADWAY/E. 30TH RETURN		RT	30.986	2.25		69.719	
E. 30TH							
1+013.175	–	RT	–	–			1
1+030.897	1+128.855	RT	97.958	2.25		220.41	
1+143.076	1+223.769	RT	80.693	2.25		181.56	
1+141.842	1+151.310	RT	PLANIMETERED			27.30	
1+229.433	–	RT	–	–			1
E. 30TH/ORANGE RETURN		RT	10.543	2.25		23.72	
				TOTAL	32	808	2

** INCLUDES INTEGRAL CURB

REMOVAL QUANTITIES

STATION FROM	STATION TO	SIDE	LENGTH METER	AVERAGE WIDTH METER	202 PAVEMENT REMOVED SQ. METER	202 WALK REMOVED SQ. METER	202 CURB REMOVED METER
BROADWAY							
1+965.0	2+101.8	RT	136.8	2.25		307.8	136.8
BROADWAY/E. 30TH RETURN		RT	19.7	PLANIMETERED		48.5	19.7
E. 30TH							
1+021.5	1+128.5	RT	107.0	2.25		240.8	
1+021.5	1+224.7	RT	203.2				203.2
1+141.842	1+151.310	RT	PLANIMETERED			27.3	
1+143.4	1+224.7	RT	81.3	2.25		182.9	
E. 30TH DRIVE							
1+128.0	1+143.9	RT	PLANIMETERED		48.3		
E. 30TH/ORANGE RETURN		RT	12.7	PLANIMETERED		36.0	12.7
E. 30TH							
1+249.7	1+263.1	LT	13.4	PLANIMETERED			13.4
		TOTAL			49	844	386

HNTB ARCHITECTS ENGINEERS PLANNERS

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CALCULATED JMB CHECKED ZSS

PAVEMENT QUANTITIES

CUY-77-23.458 - PART 2

DRAINAGE

SHEET NO.	STRUCTURE NO.	PIPE NO.	STATION FROM	STATION TO	ROADWAY	SIDE	202 PIPE REMOVED 600mm AND UNDER METER	202 CATCH BASIN REMOVED EACH	603 300mm CONDUIT, TYPE B, 706.08 METER	603 600mm CONDUIT, TYPE B, 706.08 METER	604 INLET, SIDE DITCH EACH	604 CATCH BASIN, CITY OF CLEVELAND, No. 1 EACH	604 MANHOLE, NO. 3 EACH	604 MANHOLE RECON–STRUCTED TO GRADE EACH
16	D20	P20	1+969.2	1+980.5	BROADWAY	RT.			11.4		1			
16	R20		1+994.2		BROADWAY	RT.		1						
16	D21	P21	1+980.5	2+000.0	BROADWAY	RT.			19.5			1		
16	D22	P22	2+000.0	2+000.0	BROADWAY	RT.			2.3			1 ø		
16	D23		2+000.0		BROADWAY	RT.				2			1	
16	D24	P23	2+055.2	2+060.8	BROADWAY	RT.			6.2			1 ø		
16	R21		2+055.2	2+060.8	BROADWAY	RT.	6.5	1						
16	D25		2+060.8		BROADWAY	RT.								1
16	R22		2+092.9	2+060.8	BROADWAY	RT.	33.2	1						
16	D26	P24	1+051.6	1+061.1	E. 30TH	RT.			9.5			1		
16	R23		1+056.0		E. 30TH	RT.		1						
16	R24		1+059.8		E. 30TH	RT.		1						
16	R25		1+061.3		E. 30TH	RT.		1						
16	D27	P24A	1+061.1	1+062.9	E. 30TH	RT.			1.8			1 ø		
16	D27A	P25	1+062.9	1+071.1	E. 30TH	RT.			8.2			1		
16	D28	P25A	1+071.1	1+072.9	E. 30TH	RT.			1.8			1		
16	D28A		1+072.9		E. 30TH	RT.						1		
16		P26	1+061.6	1+059.8	E. 30TH	RT.			2.5					
17	R26		1+145.3		E. 30TH	RT.		1						
17	D29	P27	1+148.6	1+145.3	E. 30TH	RT.			3.9			1 ø		
17	D29A	P27A	1+148.6	1+150.4	E. 30TH	RT.			1.8			1		
					TOTAL		40	7	69	2	1	10	1	1

△△ – EXISTING T/C=*, PROPOSED T/C=*
ø – CB–1 WITH TRAP

UNDERDRAIN

SHEET NO.	REF. NO.	STATION FROM	STATION TO	SIDE	ELEVATIONS UPPER	ELEVATIONS LOWER	603 100mm CONDUIT TYPE F 707.42 ** METER	605 100mm UNCLASSIFIED PIPE UNDER–DRAIN WITH FABRIC WRAP METER	605 100mm SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP METER
16	U30	1+965	1+980.5	RT.	201.273	201.225	3	13	
16	U31	1+981.5	2+000	RT.	201.299	201.239	3	16	
16	U32	2+000	2+040	RT.	201.428	201.264	3		37
16	U33	2+040	2+055.2	RT.	201.428	201.380	3	13	
16	U34	2+055.2	2+100	RT.	201.547	201.407	3		44
16	U35	2+100	1+051.6 *	RT.	201.547	200.737	3		42
16	U36	1+052.6 *	1+061.1 *	RT.	200.737	200.703	3		6
16	U37	1+062.9 *	1+070.1 *	RT.	200.829	200.723	3		5
16/17	U38	1+072.9 *	1+147.6 *	RT.	203.030	200.870	3		72
17	U39	1+150.4 *	1+231.8 *	RT.	205.780	203.089	3		81
17	U40	1+249.7 *	1+263.1 *	RT.	***	***		14	
						TOTALS	30	56	287

* ℄ EAST 30TH STREET *** – MATCH EXISTING ELEV.
** – NON–PERFORATED

HNTB ARCHITECTS ENGINEERS PLANNERS

CALCULATED AKE CHECKED MJW

DRAINAGE QUANTITIES

CUY–77–23.458 – PART 2

LOCATION	SIDE	CASTINGS ADJUSTED TO GRADE								LOCATION	SIDE	CASTINGS ADJUSTED TO GRADE							
		638	604									638	604						
		VALVE BOX ADJUSTED TO GRADE AS PER PLAN	MANHOLE ADJUSTED TO GRADE AS PER PLAN	CATCH BASIN ADJUSTED TO GRADE AS PER PLAN	MONUMENT BOX ADJUSTED TO GRADE AS PER PLAN							VALVE BOX ADJUSTED TO GRADE AS PER PLAN	MANHOLE ADJUSTED TO GRADE AS PER PLAN	CATCH BASIN ADJUSTED TO GRADE AS PER PLAN	MONUMENT BOX ADJUSTED TO GRADE AS PER PLAN				
		EACH	EACH	EACH	EACH							EACH	EACH	EACH	EACH				
BROADWAY																			
STA. 0+705.0	RT.	1								STA. 1+376.5	RT.			1					
STA. 0+706.0	RT.		1							STA. 1+380.0	℄				1				
STA. 0+744.0	LT.		1							STA. 1+393.5	LT.			1					
STA. 0+748.0	RT.			1						STA. 1+394.0	℄		1						
STA. 0+749.0	LT.		1							STA. 1+397.0	RT.			1					
STA. 0+749.5	LT.			1						STA. 1+471.5	RT.			1					
STA. 0+752.0	RT.		1							STA. 1+471.5	LT.			1					
STA. 0+757.0	RT.		1							STA. 1+475.0	℄		1						
STA. 0+797.0	RT.		1							STA. 1+525.0	℄		1						
STA. 0+797.0	RT.		1							STA. 1+527.5	RT.			1					
STA. 0+801.0	RT.		1							STA. 1+529.0	LT.			1					
STA. 0+801.0	RT.		1							STA. 1+582.0	℄		1						
STA. 0+805.0	RT.	1								STA. 1+585.5	RT.			1					
STA. 0+806.0	LT.		1							STA. 1+585.5	LT.			1					
STA. 0+809.5	RT.			1						STA. 1+642.5	℄		1						
STA. 0+809.5	LT.			1						STA. 1+645.0	LT.			1					
STA. 0+812.5	RT.		1							STA. 1+645.5	RT.			1					
STA. 0+834.5	RT.		1							STA. 1+670.5	℄		1						
STA. 0+843.0	LT.	1								STA. 1+674.5	RT.			1					
STA. 0+861.5	RT.	1								STA. 1+675.5	LT.			1					
STA. 0+867.0	LT.		1							STA. 1+862.5	℄				1				
STA. 0+894.0	RT.	1								STA. 1+862.5	RT.		1						
STA. 0+909.5	RT.	1								STA. 1+866.0	RT.		1						
STA. 0+910.0	RT.	1								STA. 1+878.0	RT.		1						
STA. 1+124.0	RT.			1						STA. 1+879.0	RT.		1						
STA. 1+124.5	LT.			1						STA. 1+885.0	RT.			1					
STA. 1+125.5	RT.			1						STA. 1+887.0	RT.			1					
STA. 1+128.0	RT.	1								STA. 1+893.5	LT.			1					
STA. 1+137.0	RT.	1								STA. 1+949.0	RT.		1						
STA. 1+140.0	RT.	1								STA. 1+959.0	RT.			1					
STA. 1+141.0	RT.	1								STA. 1+959.0	LT.			1					
STA. 1+160.0	RT.	1								STA. 1+968.0	RT.		1						
STA. 1+187.5	℄		1							STA. 2+053.5	RT.			1					
STA. 1+220.5	RT.	1								STA. 2+053.5	LT.			1					
STA. 1+245.5	RT.	1								STA. 2+057.0	RT.				1				
STA. 1+248.5	RT.	1								STA. 2+058.0	RT.		1						
STA. 1+250.5	RT.			1						STA. 2+058.5	℄				1				
STA. 1+296.5	RT.	1								STA. 2+109.0	LT.			1					
STA. 1+302.0	LT.	1								STA. 2+115.5	RT.		1						
STA. 1+309.0	℄		1							STA. 2+115.5	RT.		1						
STA. 1+316.0	LT.			1						STA. 2+118.0	RT.		1						
STA. 1+339.5	RT.	1								STA. 2+119.5	℄				1				
STA. 1+356.0	RT.			1						STA. 2+119.5	RT.				1				
STA. 1+366.0	RT.	1								STA. 2+121.5	RT.	1							
STA. 1+372.5	RT.		1							STA. 2+126.0	RT.		1						
										SHEET SUB-TOTAL :		20	33	31	6				

NOTE: LOCATIONS OF CASTINGS WERE BASED ON FIELD MEASUREMENTS AND ARE ONLY CONSIDERED APPROXIMATE.

HNTB ARCHITECTS ENGINEERS PLANNERS

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CALCULATED JE CHECKED JMG

SUBSUMMARY

CUY-77-23.458 - PART 2

LOCATION	SIDE	CASTINGS ADJUSTED TO GRADE								LOCATION	SIDE	CASTINGS ADJUSTED TO GRADE							
		638	604									638	604						
		VALVE BOX ADJUSTED TO GRADE AS PER PLAN	MANHOLE ADJUSTED TO GRADE AS PER PLAN	CATCH BASIN ADJUSTED TO GRADE AS PER PLAN	MONUMENT BOX ADJUSTED TO GRADE AS PER PLAN							VALVE BOX ADJUSTED TO GRADE AS PER PLAN	MANHOLE ADJUSTED TO GRADE AS PER PLAN	CATCH BASIN ADJUSTED TO GRADE AS PER PLAN	MONUMENT BOX ADJUSTED TO GRADE AS PER PLAN				
		EACH	EACH	EACH	EACH							EACH	EACH	EACH	EACH				
STA. 2+129.0	RT.			1						STA. 2+567.5	RT.		1						
STA. 2+132.5	RT.		1							STA. 2+571.0	℄		1						
STA. 2+154.0	LT.	1								STA. 2+584.5	LT.			1					
STA. 2+193.0	℄		1							STA. 2+584.5	RT.			1					
STA. 2+195.5	RT.			1						STA. 2+627.0	RT.			1					
STA. 2+195.5	LT.			1						STA. 2+632.0	RT.		1						
STA. 2+221.0	RT.		1							STA. 2+643.0	RT.	1							
STA. 2+235.5	℄			1						STA. 2+643.5	℄			1					
STA. 2+246.5	LT.	1								STA. 2+659.0	LT.			1					
STA. 2+311.5	LT.	1								STA. 2+725.5	RT.	1							
STA. 2+311.5	℄	1								STA. 2+726.0	℄		1						
STA. 2+316.5	RT.		1							STA. 2+738.0	℄				1				
STA. 2+319.5	℄				1					STA. 2+738.5	RT.	1							
STA. 2+327.0	℄		1							STA. 2+742.0	RT.		1						
STA. 2+327.0	RT.		1							STA. 2+745.5	LT.	1							
STA. 2+330.0	RT.			1						STA. 2+747.5	RT.			1					
STA. 2+330.0	LT.			1						STA. 2+751.5	RT.	1							
STA. 2+351.5	LT.	1								STA. 2+753.0	℄		1						
STA. 2+356.0	LT.	1								STA. 2+796.5	℄			1					
STA. 2+431.0	LT.	1								STA. 2+799.0	RT.		1						
STA. 2+432.0	℄				1					STA. 2+812.0	LT.	1							
STA. 2+432.5	RT.		1							STA. 2+840.5	LT.				1				
STA. 2+435.0	℄	1								STA. 2+844.0	LT.		1						
STA. 2+437.0	LT.			1						STA. 2+853.5	RT.			1					
STA. 2+441.5	℄		1							STA. 2+859.0	RT.		1						
STA. 2+443.5	RT.			1						STA. 2+860.5	℄		1						
STA. 2+456.5	LT.	1								STA. 2+861.5	LT.	1							
STA. 2+461.5	℄	1								STA. 2+863.5	LT.		1						
STA. 2+506.0	LT.	1								STA. 2+870.0	LT.	1							
STA. 2+512.0	℄	1								STA. 2+890.0	LT.	1							
STA. 2+512.5	LT.				1					STA. 2+913.0	RT.			1					
STA. 2+515.5	RT.		1							STA. 2+917.0	℄				1				
STA. 2+518.5	RT.		1							STA. 2+917.0	LT.		1						
STA. 2+521.5	RT.			1						STA. 2+919.0	LT.		1						
STA. 2+525.0	RT.	1								STA. 2+933.5	LT.			1					
STA. 2+527.0	LT.			1						STA. 2+938.5	℄		1						
STA. 2+529.0	℄				1					STA. 2+954.5	LT.		1						
STA. 2+529.0	RT.		1							STA. 1+225.5	LT.		1						
STA. 2+543.5	LT.		1							STA. 1+235.0	RT.		1						
STA. 2+546.0	LT.		1							STA. 1+251.0	RT.	1							
STA. 2+548.0	LT.		1																
STA. 2+561.0	RT.		1																
STA. 2+565.5	℄				1														
										SHEET SUB-TOTAL :		23	32	20	8				
										SHEET SUB-TOTAL FROM SHEET 13 :		20	33	31	6				
										TOTAL CARRIED TO GENERAL SUMMARY :		43	65	51	14				

NOTE: LOCATIONS OF CASTINGS WERE BASED ON FIELD MEASUREMENTS AND ARE ONLY CONSIDERED APPROXIMATE.

HNTB ARCHITECTS ENGINEERS PLANNERS

J: \JOBS\24621\TECHPROD\DETOUR\14949DSD.dwg

CALCULATED JE CHECKED JMG

SUBSUMMARY

CUY-77-23.458 - PART 2

CROSS REFERENCE	
ITEM	SHEET NO.
ROADWAY QUANTITIES	11
DRAINAGE QUANTITIES	12
UNDERDRAIN ELEVATIONS	12
CROSS SECTIONS	21–22
SEWER PROFILES	24
CONTROL DATA	5

℄ CURVE DATA
Δ = 15°48'30"
R = 100.584m [330.00']
T = 13.965m [45.82']
L = 27.752m [91.05']
CH = 27.664m [90.76']
CH BRG. = N66°46'37"W

BENCHMARKS

B.M.	222.357	NAILS IN N.W. CORNER OF E. 34th AND BROADWAY
B.M. EST.	203.286	CHISELED SQUARE AT END OF PARAPET AT S.W. CORNER OF E. 34th AND BROADWAY
B.M.	202.652	I.P./MON. AT CENTERLINE OF E. 30th AND BROADWAY
B.M. EST.	207.255	STONE IN MON. AT CENTERLINE OF ROCKEFELLER AND BROADWAY
B.M. EST.	207.977	CHISELED SQUARE ON TOP OF WINGWALL AT S.E. CORNER OF ROCKEFELLER AND BROADWAY

BEGIN WORK
CUY–77–23.458 – PART 2
STA. 0+157.000
BROADWAY AVENUE

BEGIN WIDENING
BEGIN TAPER
STA. 1+965.000
6.400m RT.
℄ BROADWAY AVE.

END TAPER
STA. 1+980.000
10.000m RT.
℄ BROADWAY AVE.

ABANDON
(PLUG END)
EXISTING CHAIN LINK
FENCE (DO NOT DISTURB)

℄ BROADWAY AVE.
EX R/W
ASPHALT
N58°52'22"W
2+000
PC STA. 2+044.442
PT STA. 2+072.194
℄ CURVE
MON. FND. & USED
PC STA. 2+091.766
10.000m RT.
N74°40'52"W
6.401m
12.802m
6.401m
914mm RCP (SAN)
3.600m
610mm VCP (STM)
305mm (STM)
914mm RCP (SAN)
610mm VCP (STM)
PROPOSED SIDEWALK
CONSTRUCTION LIMIT
CURVE 1
ABANDON
(PLUG END)

CURVE 1 DATA
Δ= 90°00'23"
R = 21.000m [68.90']
L = 32.989m [108.23']
CH = 29.700m [97.44']

Legend:
– PROPOSED WIDENING

MATCHLINE STA. 2+100 SEE BELOW.

END WORK
CUY–77–23.458 – PART 2
STA. 3+097
BROADWAY AVENUE

BEGIN WORK
CUY–77–23.458 – PART 2
STA. 0+999.901
EAST 30TH STREET

STA. 2+119.847 ℄ BROADWAY AVE. =
STA. 0+999.901 ℄ E. 30TH ST.

℄ BROADWAY AVE.
N74°34'46"W
152mm
ASPHALT
610mm VCP (STM)
CONCRETE
PT STA. 1+030.897
7.115m RT.
℄ E. 30TH ST.
12.802m
1+000
1+100
89°50'09"
90°03'45"
MON. FND.
MON. FND. & USED
533mm VCP (STM)
914mm RCP (SAN)
914mm RCP (SAN)
610mm VCP (STM)
N74°40'52"W
1.000m
ABANDON
(PLUG END)
152mm
N15°15'23"E
381mm VCP (STM)
1372mm RCP (SAN)
305mm VCP (STM)
381mm VCP (STM)
305mm VCP
21.000m RADIUS
CURVE 1
ABANDON
(PLUG END)
PROPOSED SIDEWALK
EXISTING CHAIN LINK
FENCE (DO NOT DISTURB)
CONSTRUCTION LIMIT
STA. 1+135.9
COMMERCIAL
DRIVE

MATCHLINE STA. 2+100 SEE ABOVE.
MATCHLINE STA. 1+140 SEE SHEET 17.

Legend:
– PROPOSED WIDENING

HNTB ARCHITECTS ENGINEERS PLANNERS

HORIZONTAL SCALE
1:200

CALCULATED MJW
CHECKED ZSS

PLAN – BROADWAY AVE. & E. 30th ST.
STA. 1+965.000 ℄ BROADWAY AVE. TO STA. 1+140 ℄ E.30th ST.

CUY–77–23.458 – PART 2

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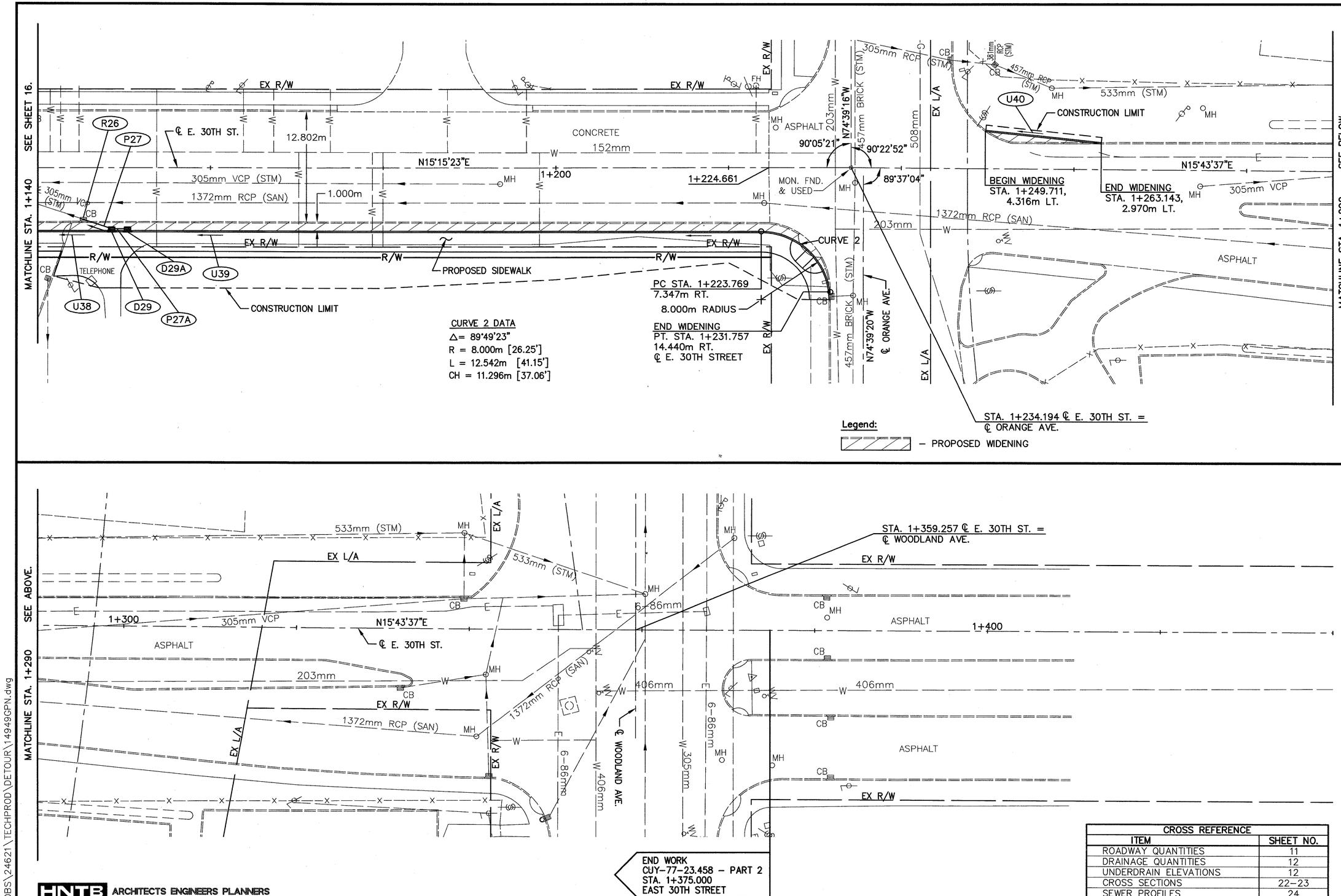

HNTB ARCHITECTS ENGINEERS PLANNERS

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CROSS REFERENCE	
ITEM	SHEET NO.
ROADWAY QUANTITIES	11
DRAINAGE QUANTITIES	12
UNDERDRAIN ELEVATIONS	12
CROSS SECTIONS	22–23
SEWER PROFILES	24
CONTROL DATA	5

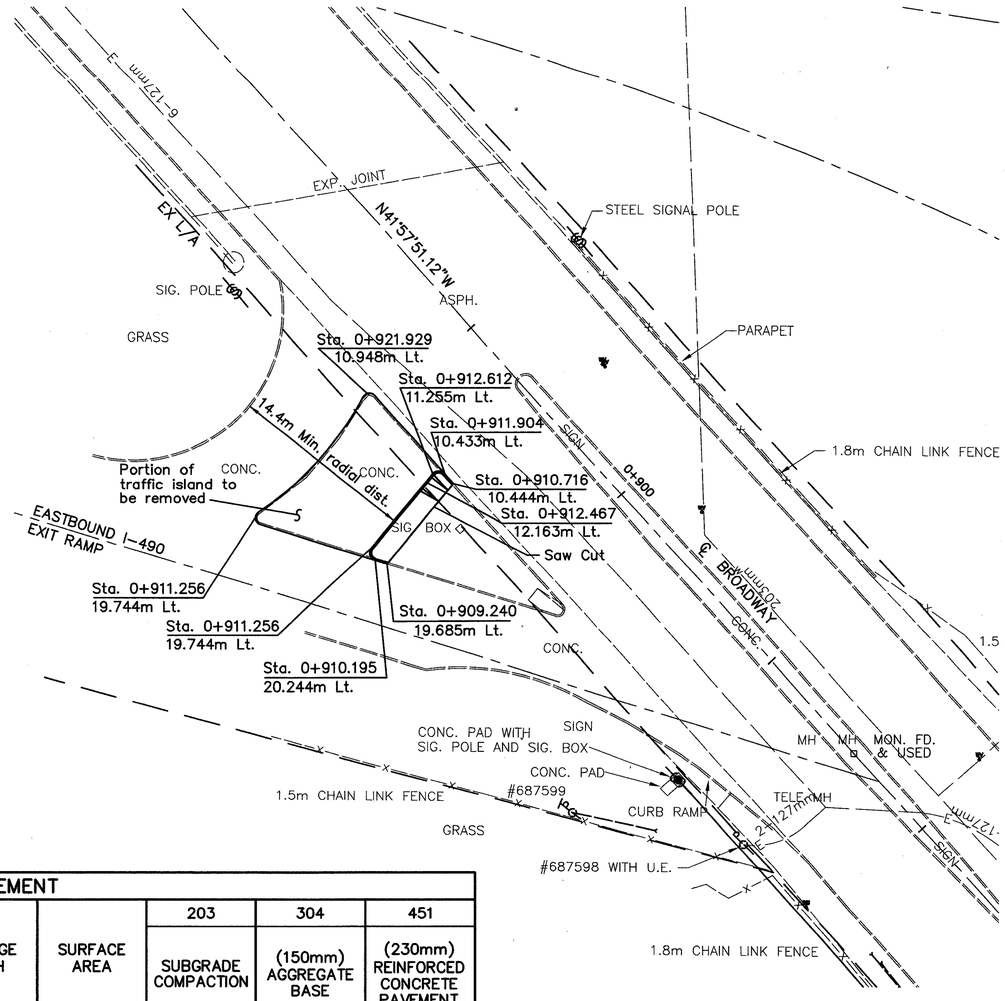
HORIZONTAL SCALE
1:200

CALCULATED MJW
CHECKED ZSS

PLAN – E. 30th ST.
STA. 1+140 TO STA. 1+263.143

CUY-77-23.458 – PART 2

REMOVAL QUANTITIES			
			202
STATION		SIDE	PORTION OF TRAFFIC ISLAND REMOVED
FROM	TO		SQ. METER
0+909.240	0+921.929	LT	137
		TOTAL	137



PAVEMENT								
						203	304	451
STATION		SIDE	LENGTH	AVERAGE WIDTH	SURFACE AREA	SUBGRADE COMPACTION	(150mm) AGGREGATE BASE	(230mm) REINFORCED CONCRETE PAVEMENT
FROM	TO		METER	METER	SQ. METER	SQ. METER	CU. METER	SQ. METER
0+910.195	0+921.929	LT	PLANIMETERED		116.983	116.98	17.55	116.98
					TOTAL	117	18	117

** INCLUDES INTEGRAL CURB

CURB RAMP, CURB AND TRAFFIC ISLAND					
			608	609	612
STATION		SIDE	CURB RAMP, TYPE 2	CURB TYPE 2A	225 mm CONCRETE TRAFFIC ISLAND
FROM	TO		EACH	METER	SQ. METER
0+910.195	0+912.612	LT		14	18
0+912.467		LT	1		
		TOTAL	1	14	18

NOTE: SEE SHEET 2 FOR TYPICAL SECTION.

HNTB ARCHITECTS ENGINEERS PLANNERS

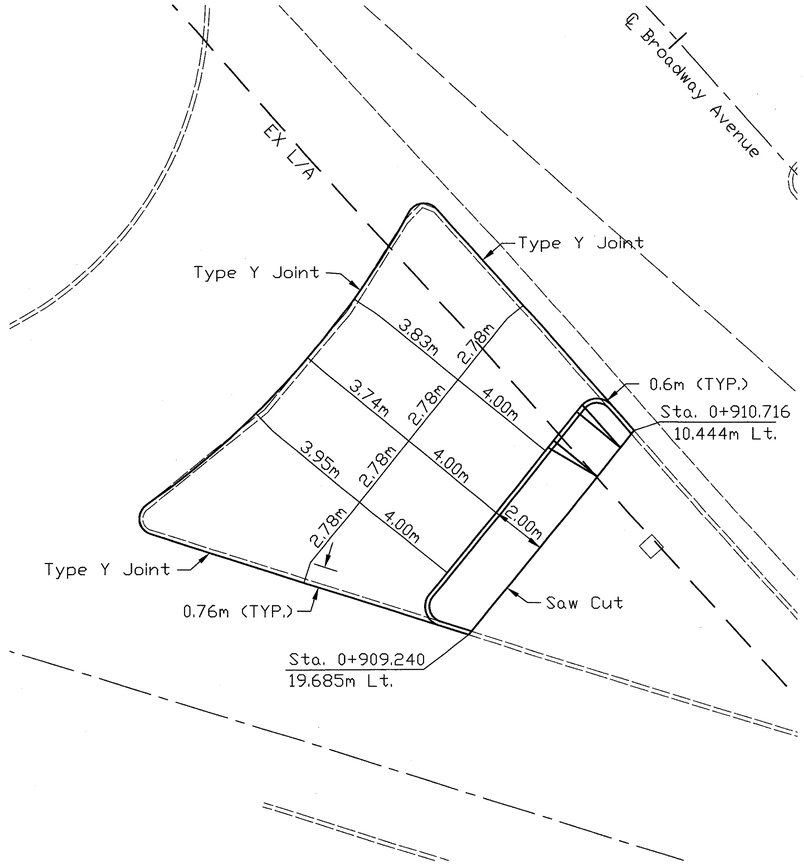
J:\JOBS\24621\TECHPROD\DETOUR\14949GMB.dwg

HORIZONTAL SCALE 1:250

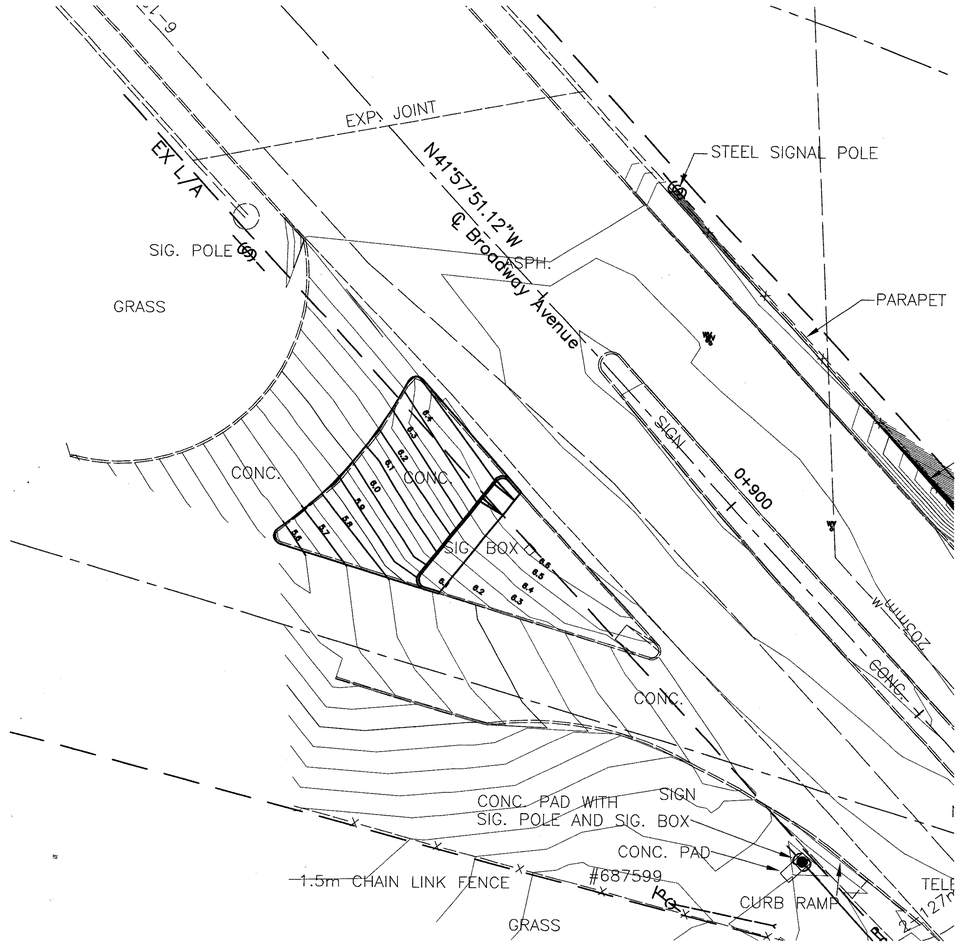
CALCULATED MS CHECKED ZSS

INTERSECTION IMPROVEMENTS - PLAN
BROADWAY & EB I-490 EXIT RAMP

CUY-77-23.458 PART 2



PAVEMENT JOINT DETAIL
1 : 100



PAVEMENT CONTOURS
1 : 200

HNTB ARCHITECTS ENGINEERS PLANNERS

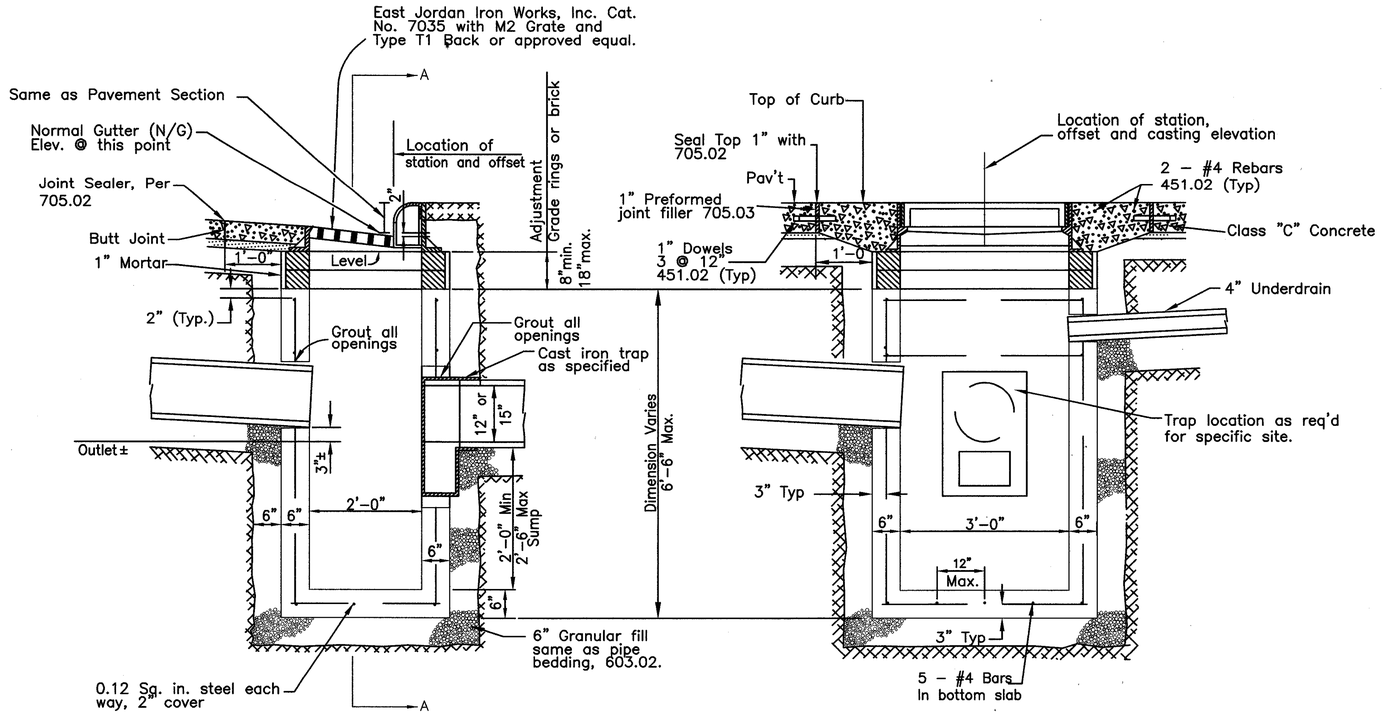
J:\JOBS\24621\TECHPROD\DETOUR\14949QMB.DWG

CALCULATED MS
CHECKED ZSS

HORIZONTAL SCALE
AS SHOWN

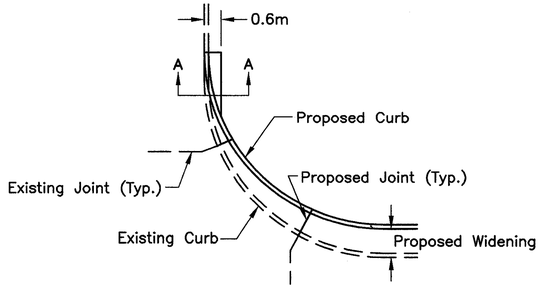
INTERSECTION IMPROVEMENTS - DETAILS
BROADWAY & EB I-490 EXIT RAMP

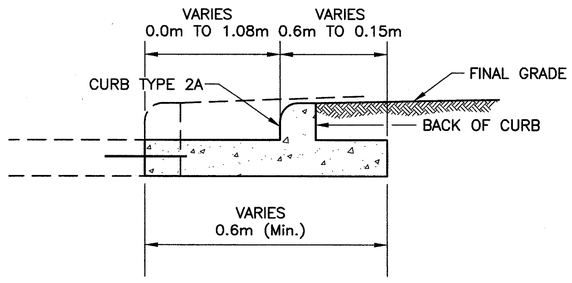
CUY-77-23.458 - PART 2



CATCH BASIN, CITY OF CLEVELAND, NO. 1

Not to Scale





SECTION A-A

Not to Scale

CONVERSION OF ENGLISH UNITS

THE ENGLISH UNITS CONTAINED IN THIS PLAN SHALL BE CONVERTED TO METRIC UNITS USING THE ENGLISH TO SI (METRIC) CONVERSION FACTORS PROVIDED IN SECTION 109.011 OF THE 1997 CONSTRUCTION AND MATERIAL SPECIFICATIONS. THE APPENDIX OF ASTM E 380 SHALL BE UTILIZED FOR ANY ADDITIONAL CONVERSION FACTORS REQUIRED. CONVERSIONS SHALL BE APPROPRIATELY PRECISE AND SHALL REFLECT STANDARD INDUSTRY METRIC VALUES WHERE SUITABLE.

Alternate:
If approved by the engineer 8" thick masonry walls may be used in lieu of precast units.

Trap:
East Jordan Ironworks, Inc. Cat. No. 5964-12 or 15, Neenah Foundry Co. Cat. No. R-3707-12 or 15 or approved equal.

Notes:
1. All reinforcing shall be 709 #4 deformed bars and sufficient to permit snipping and placement without damage for rectangular shape.

2. Concrete shall be ODOT 499 Class "C" 4000 psi in 28 days.

3. Box-out paid for as pav't in Portland Cement Concrete (PCC) pav't and a part of the catch basin in asphaltic concrete pav't (ACP) - no deduction in pav't or curb quantity because of castings.
For full width ACP construct a PCC apron the size of the "box-out" and delete dowels. When used with a PCC curb and gutter maintain gutter width.

HNTB ARCHITECTS ENGINEERS PLANNERS

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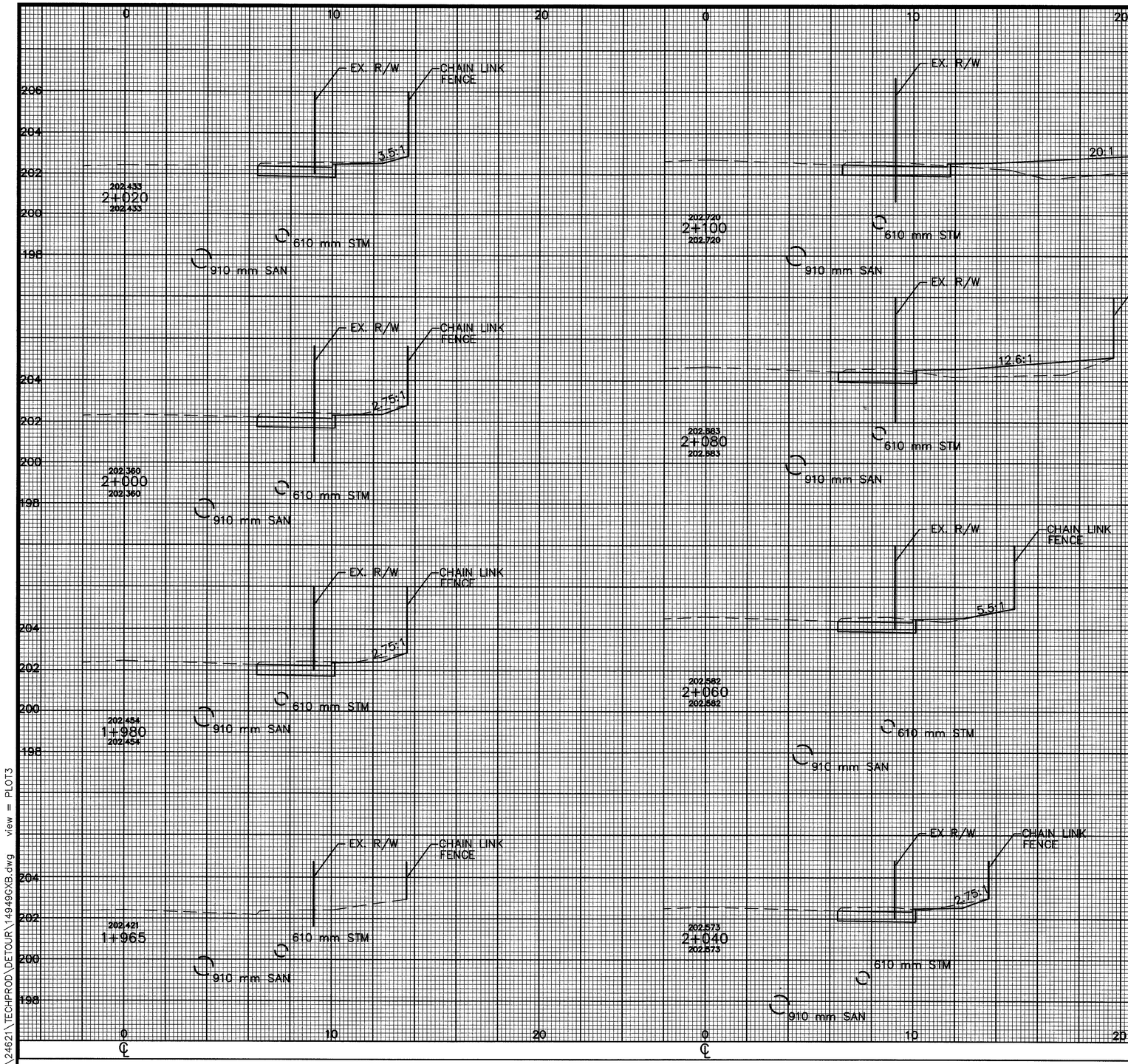
CALCULATED MS CHECKED MJW

MISC. DETAILS

CUY-77-23.458 - PART 2



SODDING		END AREA		VOLUME	
END WIDTH	SQ.METERS	CUT	FILL	CUT	FILL
	35			71	27
12.1		3.3	8.3		
	137			56	123
1.6		2.3	4.0		
	41			48	43
2.5		2.5	0.3		
	39			53	4
1.4		2.8	0.1		
	27			55	1
1.3		2.7	0		
	26			57	0
1.3		3.0	0		
	26			58	0
1.3		2.8	0		
	10			21	0
0		0	0		
SHEET TOTAL	341			419	198

2+100	
2+080	
2+060	
2+040	
2+020	
2+000	
1+980	
1+965	

CALCULATED JMG
CHECKED ZSS

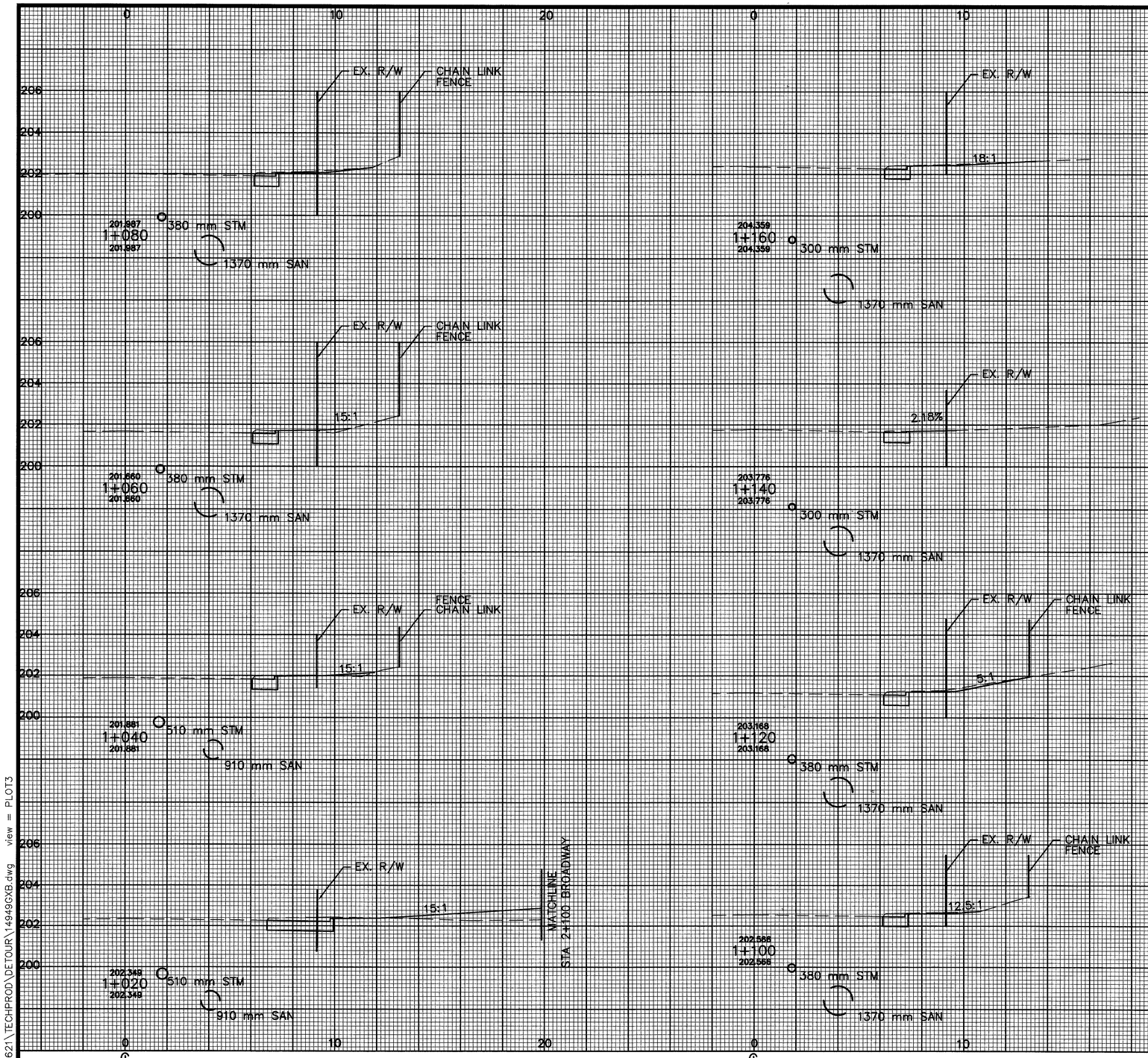
CROSS SECTIONS – BROADWAY AVENUE STA. 1+965 TO 2+100

CUY-77-23.458 – PART 2

21
58

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\14949GXB.dwg view = PLOT3



	SODDING		END AREA		VOLUME	
	END WIDTH	SQ. METERS	CUT	FILL	CUT	FILL
1+160	3.8	66	0.9	0	18	0
1+140	3.7	75	0.7	0	16	0
1+120	3.6	73	1.1	0	18	0
1+100	1.2	48	0.9	0	20	0
1+080	2.2	34	0.7	0.1	16	1
1+060	1.2	34	0.8	0.2	15	3
1+040	2.4	36	0.9	0.2	17	4
1+020	7.7	101	2.2	2.5	31	27
SHEET TOTAL		467			151	35

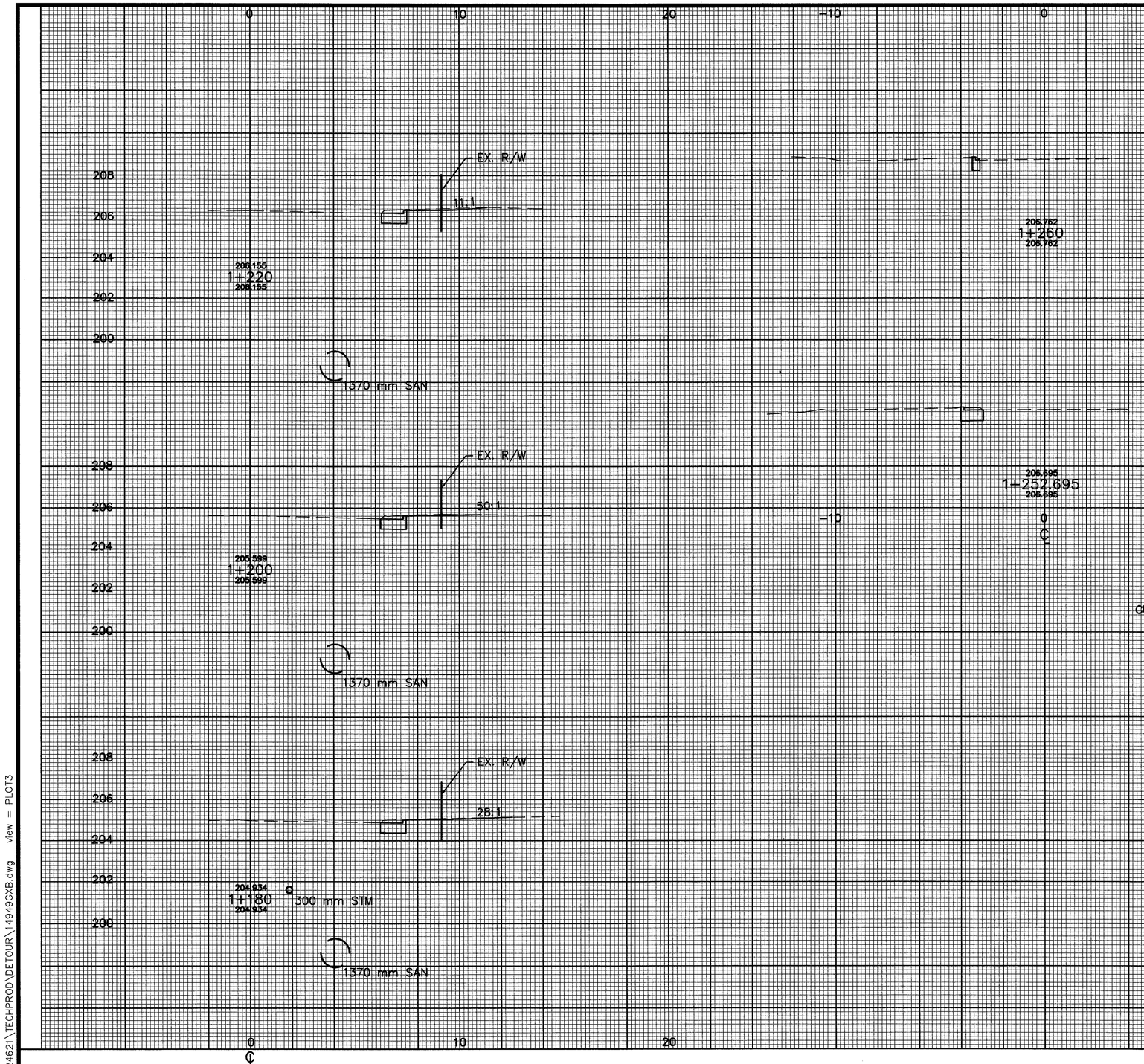
CALCULATED JMG
CHECKED ZSS

CROSS SECTIONS – E. 30TH STREET STA. 1+020 TO STA 1+160

CUY-77-23.458 – PART 2

J:\JOBS\24621\TECHPROD\DETOUR\14949GXB.dwg view = PLOT3

HNTB ARCHITECTS ENGINEERS PLANNERS



	SODDING		END AREA		VOLUME	
	END WIDTH	SQ. METERS	CUT	FILL	CUT	FILL
1+263.143 LT.	0		0	0		
		0			0	0
1+260 LT.	0.1		0.2	0		
		1			3	0
1+252.695 LT.	0.3		0.6	0		
		0			1	0
1+249.711 LT.	0		0	0		
CURB RETURN AREA E. 30TH STREET AND ORANGE AVENUE		12				7
1+220	1.6		1.1	0		
		29			20	0
1+200	1.3		0.9	0		
		41			18	0
1+180	2.8		0.9	0		
		83			42	7

CALCULATED JMG
CHECKED ZSS

CROSS SECTIONS – E. 30TH STREET STA. 1+180 TO STA 1+220, 1+260

CUY-77-23.458 – PART 2

23
58

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\14949GXB.dwg view = PLOT3

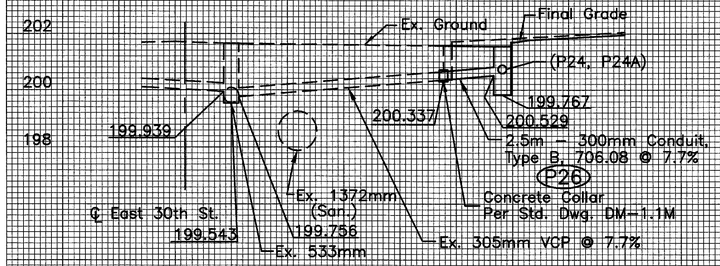
CALCULATED AKL
CHECKED MJW

SEWER PROFILES

D27
Catch Basin,
City of Cleveland, No. 1,
With Trap
Sta. 1+061.6, 7.15m Rt.
N/G = 201.553

Existing Manhole
Sta. 1=053.3, 1.65m Rt.
Existing T/C = 201.646

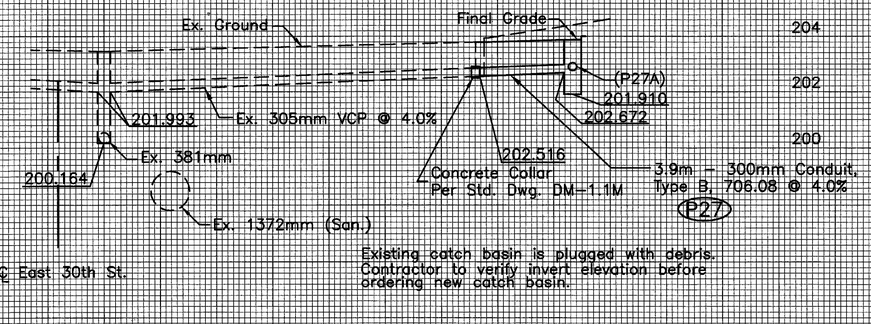
Existing Catch Basin
To Be Removed
Sta. 1+059.8, 5.80m Rt.



D29
Catch Basin,
City of Cleveland, No. 1,
With Trap
Sta. 1+148.6, 7.26m Rt.
N/G = 203.880

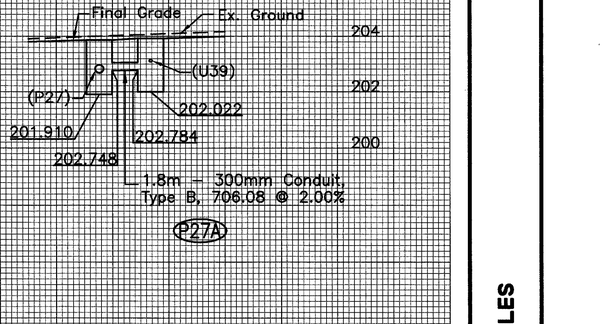
Existing Manhole
Sta. 1+132.6, 1.73m Rt.
Existing T/C = 203.456

Existing Catch Basin
To Be Removed
Sta. 1+145.3, 5.95m Rt.



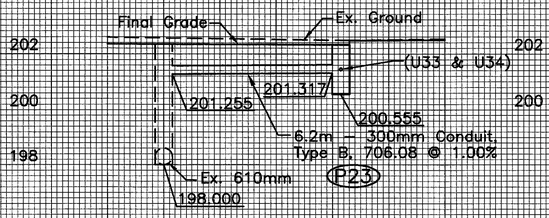
Existing catch basin is plugged with debris.
Contractor to verify invert elevation before ordering new catch basin.

D29A
Catch Basin,
City of Cleveland, No. 1
Sta. 1+150.4, 7.26m Rt.
N/G = 203.939



D25
Manhole Reconstructed to Grade
Sta. 2+060.8, 9.0m Rt.
Existing T/C = 202.557
Proposed T/C = 202.339

D24
Catch Basin,
City of Cleveland, No. 1,
With Trap
Sta. 2+055.2, 10.0m Rt.
N/G = 202.320



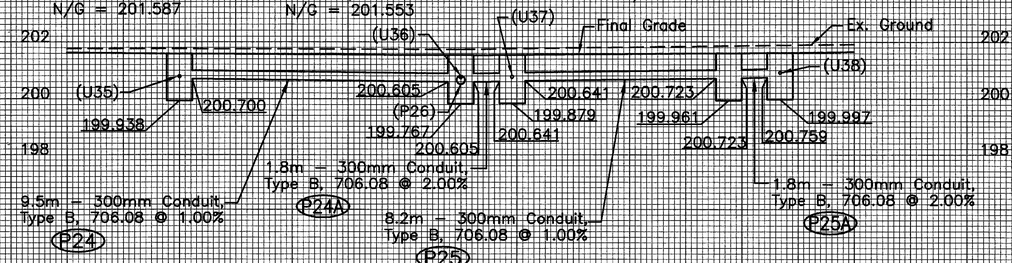
D26
Catch Basin,
City of Cleveland, No. 1
Sta. 1+051.6, 7.14m Rt.
N/G = 201.587

D27
Catch Basin,
City of Cleveland, No. 1,
With Trap
Sta. 1+061.1, 7.15m Rt.
N/G = 201.553

D27A
Catch Basin,
City of Cleveland, No. 1
Sta. 1+062.9, 7.15m Rt.
N/G = 201.573

D28
Catch Basin,
City of Cleveland, No. 1
Sta. 1+071.1, 7.16m Rt.
N/G = 201.679

D28A
Catch Basin,
City of Cleveland, No. 1
Sta. 1+072.9, 7.16m Rt.
N/G = 201.720



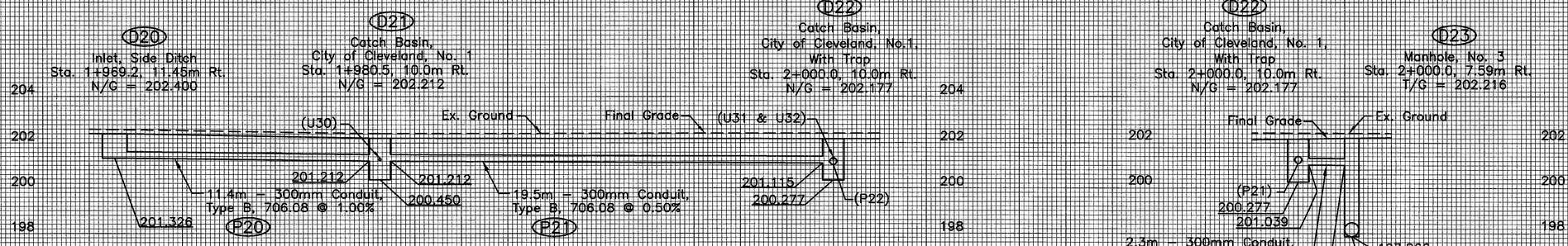
D20
Inlet, Side Ditch
Sta. 1+969.2, 11.45m Rt.
N/G = 202.400

D21
Catch Basin,
City of Cleveland, No. 1
Sta. 1+980.5, 10.0m Rt.
N/G = 202.212

D22
Catch Basin,
City of Cleveland, No.1,
With Trap
Sta. 2+000.0, 10.0m Rt.
N/G = 202.177

D22
Catch Basin,
City of Cleveland, No. 1,
With Trap
Sta. 2+000.0, 10.0m Rt.
N/G = 202.177

D23
Manhole, No. 3
Sta. 2+000.0, 7.59m Rt.
T/G = 202.216



HNTB ARCHITECTS ENGINEERS PLANNERS

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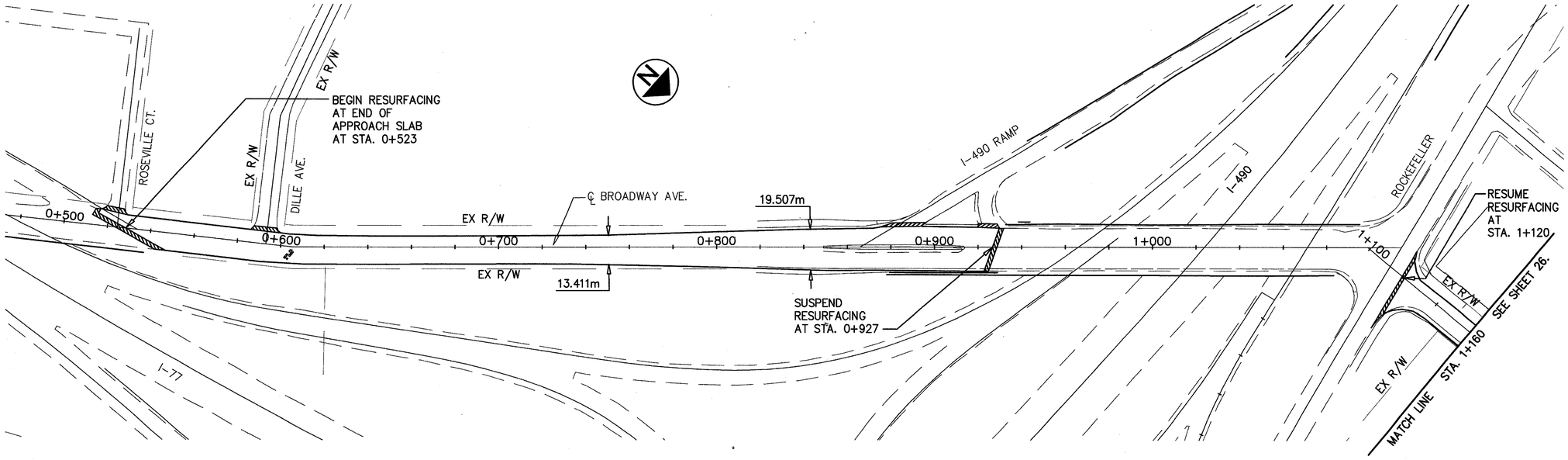
CUY-77-23.458 – PART 2



▨ – BUTT JOINT AND LIMITS OF PAVEMENT PLANING AND RESURFACING

RESURFACING QUANTITIES								
						254	407	446
LOCATION	STATION		LENGTH	WIDTH	AREA	(38 mm) PAVEMENT PLANING BITUMINOUS	TACK COAT	(38 mm) ASPHALT CONCRETE SURFACE COURSE TYPE 1, PG64-28
	FROM	TO	METER	METER	SQ. METER	SQ. METER	LITER	CU. METER
BROADWAY	0+523	0+751	228	13.411	3058	3058	1376	116
BROADWAY	0+751	0+843	92	16.459	1514	1514	681	58
BROADWAY	0+843	0+927	84	19.507	1639	1639	738	62
BROADWAY	1+120	1+398	278	12.802	3559	3559	1602	135
BROADWAY	1+466	1+728	262	12.802	3354	3354	1509	127
BROADWAY	1+861	2+565	704	12.802	9013	9013	4056	342
BROADWAY	2+565	2+731	166	13.716	2277	2277	1025	87
BROADWAY	2+731	3+097	366	17.069	6247	6247	2811	237
E. 30TH ST.	1+225	1+348	123	18.492	2275	2275	1024	87
ORANGE AVE	1+225 6.400 LEFT OF ℄ E 30TH		15	22.000	330	330	149	13
				TOTAL		33,266	14,971	1264

CENTERLINE REFERENCE DATA			
STATION	NORTHING	EASTING	DESCRIPTION
0+187.819 (BROADWAY)	24449.865	29190.354	MONUMENT
0+605.642	24785.641	28941.798	MONUMENT
0+869.084	24981.524	28765.641	MONUMENT
1+098.904	25152.410	28611.968	ANGLE POINT
1+112.314	25165.812	28611.488	MONUMENT
1+379.342	25432.669	28601.937	MONUMENT
1+404.555	25457.866	28601.035	ANGLE POINT
1+862.528	25907.643	28514,782	ANGLE POINT
2+058.406 (BACK)	26008.901	28347.106	MONUMENT AT PI
2+321.882	26078.901	28092.916	MONUMENT
2+529.048	26133.166	27892.983	MONUMENT
2+565.360	26151.905	27861.880	MONUMENT
2+877.152 (BACK)	26312.863	27594.828	MONUMENT AT PI
3+096.853	26491.540	27466.008	MONUMENT
1+000.000 (E. 30TH)	26025.275	28287.704	MONUMENT
1+234.194 (E. 30TH)	26251.215	28349.329	MONUMENT

NOTE: FOR RESURFACING TYPICAL SECTION, SEE SHEET 2.

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\14949GZJ.dwg view = PLOT1

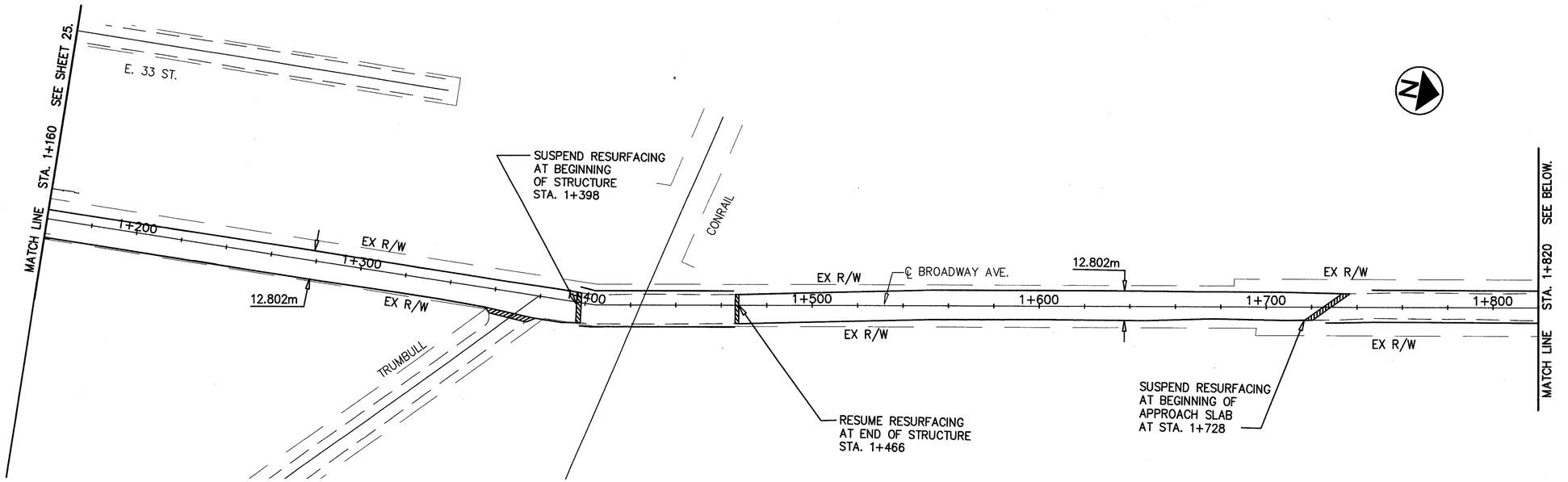
HORIZONTAL SCALAE 1 : 1000

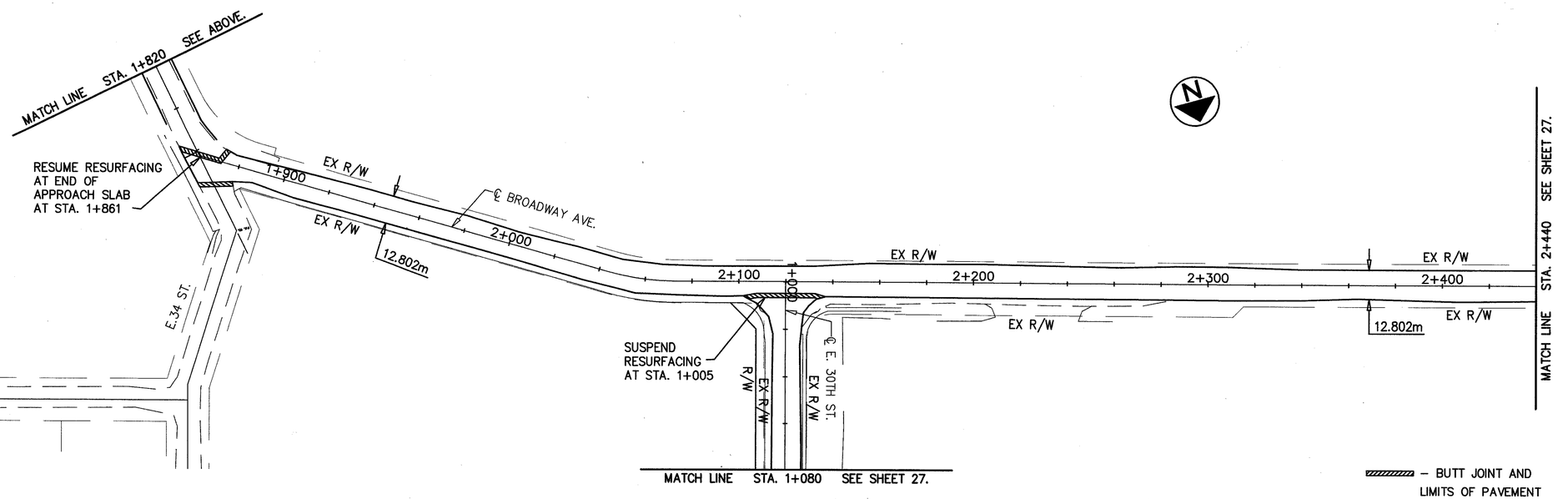
CALCULATED JMG CHECKED JE

DETOUR ROUTE RESURFACING PLAN

CUY-77-23.458 - PART 2

25
58





HNTB ARCHITECTS ENGINEERS PLANNERS

NOTE: FOR RESURFACING TYPICAL SECTION, SEE SHEET 2.

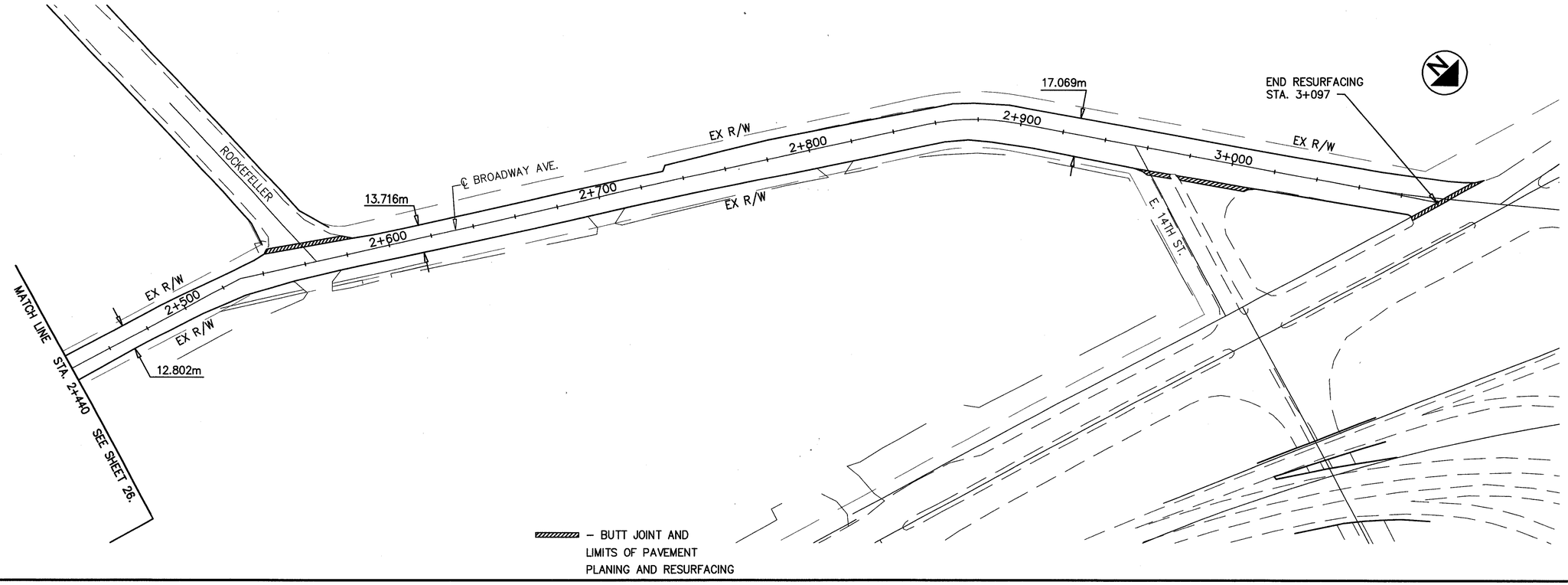
HORIZONTAL SCALAE 1 : 1000

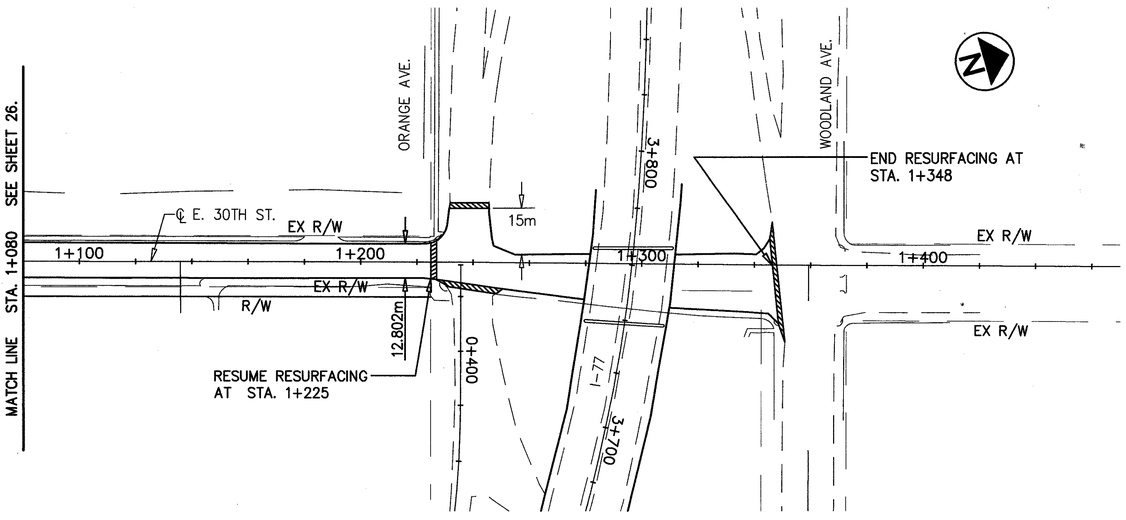
CALCULATED JMG CHECKED JE

DETOUR ROUTE RESURFACING PLAN

CUY-77-23.458 – PART 2

J: \JOBS\24621\TECHPROD\DETOUR\14949GZJ.dwg view = PLOT2





HNTB ARCHITECTS ENGINEERS PLANNERS

NOTE: FOR RESURFACING TYPICAL SECTION, SEE SHEET 2.

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DETOUR ROUTE RESURFACING PLAN

CUY-77-23.458 - PART 2

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GENERAL

THESE PROVISIONS SHALL BE IN EFFECT FROM THE COMMENCEMENT OF THIS PROJECT THROUGH ITS COMPLETION WHICH INCLUDES THE DURATION OF PROJECT CUY-77-23.458 PART 1.

IT IS THE INTENT OF THIS PROJECT TO MAKE THE FOLLOWING IMPROVEMENTS TO THE TRAFFIC SIGNALS AT THE LOCATIONS SHOWN BELOW:

BROADWAY & ROCKEFELLER	REPLACE EXISTING SINGLE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A THREE DIAL ELECTROMECHANICAL CONTROLLER WITH TIME CLOCK & CABINET SALVAGED FROM ONE OF THE OTHER INTERSECTIONS, AS DIRECTED BY THE ENGINEER. THIS SIGNAL WILL NOT BE INTERCONNECTED.
WOODLAND & E 30th	REPLACE EXISTING THREE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A NEW SOLID-STATE DIGITAL MICROPROCESSOR CONTROLLER, INTERCONNECTED AS SHOWN ON THE PLANS.
ORANGE & E 30th	REPLACE EXISTING THREE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A NEW SOLID-STATE DIGITAL MICROPROCESSOR CONTROLLER, INTERCONNECTED AS SHOWN ON THE PLANS.
BROADWAY & E 30th	REPLACE EXISTING THREE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A NEW SOLID-STATE DIGITAL MICROPROCESSOR CONTROLLER, INTERCONNECTED AS SHOWN ON THE PLANS.
BROADWAY & E 34th	SIGNAL TO BE ADDED AS PART OF THIS PLAN AND REMOVED AT THE END OF THE PROJECT. THIS SIGNAL SHALL BE SEMI-ACTUATED AND WILL NOT BE INTERCONNECTED. HOWEVER, INTERNAL TBC SHALL BE ESTABLISHED AND MAINTAINED AS SHOWN IN THE PLANS.
BROADWAY & E 37th/ROCKEFELLER	REPLACE EXISTING SINGLE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A NEW SOLID-STATE DIGITAL MICROPROCESSOR CONTROLLER, INTERCONNECTED AS SHOWN ON THE PLANS. MODIFY PHASING TO PROVIDE A LEADING N.B. LEFT, ADD LOOPS ON ROCKEFELLER & E 37th ST. FOR SEMI-ACTUATED OPERATION. REPLACE SIGNAL HEADS AS SHOWN. ADD PEDESTRIAN PUSHBUTTONS.
BROADWAY & I-490 OFF RAMP	REPLACE EXISTING THREE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A NEW SOLID-STATE DIGITAL MICROPROCESSOR CONTROLLER, INTERCONNECTED AS SHOWN ON THE PLANS. ADD LOOPS ON RAMP FOR SEMI-ACTUATED OPERATION.
BROADWAY & DILLE	REPLACE EXISTING SINGLE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A NEW SOLID-STATE DIGITAL MICROPROCESSOR CONTROLLER, INTERCONNECTED AS SHOWN ON THE PLANS. MODIFY PHASING TO REMOVE LEFT TURN ARROW, ADD MICROWAVE VEHICLE DETECTOR ON DILLE FOR SEMI-ACTUATED OPERATION, REMOVE SIGNAL SECTION AS SHOWN, ADD PEDESTRIAN PUSHBUTTONS AND SIGNS AS SHOWN.
BROADWAY & I-77 OFF RAMP	REPLACE EXISTING SINGLE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A NEW SOLID-STATE DIGITAL MICROPROCESSOR CONTROLLER, INTER-CONNECTED AS SHOWN ON THE PLANS. ADD LOOPS FOR SEMI-ACTUATED OPERATION.
BROADWAY & FINN	REPLACE EXISTING SINGLE DIAL ELECTROMECHANICAL CONTROLLER & CABINET WITH A NEW SOLID-STATE DIGITAL MICROPROCESSOR CONTROLLER, INTER-CONNECTED AS SHOWN ON THE PLANS.

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. HE SHALL INSTALL ALL TRAFFIC SIGNAL EQUIPMENT IN CONFORMANCE TO THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, AND IN CONFORMANCE TO THE OHIO DEPARTMENT OF TRANSPORTATION BUREAU OF DESIGN SERVICES STANDARD CONSTRUCTION DRAWINGS.

BEFORE ANY EQUIPMENT IS ORDERED OR INSTALLATION IS BEGUN, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THREE (3) COMPLETE SETS OF CATALOG CUTS, DIAGRAMS, BROCHURES, OR OTHER DESCRIPTIVE DATA FOR THE ITEMS HE INTENDS TO FURNISH. ONE COPY SHALL BE RETURNED MARKED "APPROVED" IF FOUND SATISFACTORY. WORK MAY BEGIN WHEN THE APPROVED COPY IS RECEIVED BY THE CONTRACTOR.

THE CONTRACTOR SHALL SUBMIT A WRITTEN SCHEDULE OF WORK FOR THE PROJECT TO THE ENGINEER. THIS SCHEDULE SHALL BE SUBMITTED NOT LESS THAN TWO (2) WEEKS BEFORE THE WORK IS TO START.

THE SIGNAL CONTROLLERS, CONFLICT MONITORS, TERMINAL FACILITIES, FLASHERS, AND LOAD SWITCHES SHALL PREFERABLY BE OF THE SAME MANUFACTURER. ALL LOAD SWITCHES AND INTERFACE RELAYS SHALL BE FURNISHED WITH INPUT SIDE LED'S.

WITH EXCEPTION TO CONTROLLER ITEMS, REFERENCE TO A PARTICULAR TRADE NAME, MANUFACTURER, OR MODEL NUMBER ARE TO INDICATE EQUIPMENT REQUIREMENTS. ANY SUBSTITUTIONS SHALL BE APPROVED BY THE ENGINEER.

ITEM 614 – MAINTENANCE OF TRAFFIC SIGNAL INSTALLATIONS

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

A) EXISTING SIGNAL/FLASHER INSTALLATIONS WHICH THE PLANS REQUIRE THE CONTRACTOR TO ACTUALLY ADJUST, MODIFY OR OTHERWISE DISTURB: THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ENTIRE INSTALLATION (AT AN INTERSECTION) FROM THE TIME HIS OPERATION FIRST DISTURBS THE INSTALLATION UNTIL THE INSTALLATION HAS BEEN SUBSEQUENTLY REMOVED OR MODIFIED AND THE WORK IS ACCEPTED.

B) NEW OR REUSED SIGNAL INSTALLATIONS OR DEVICES, INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THESE FROM THE TIME OF INSTALLATION UNTIL THE WORK IS ACCEPTED, INCLUDING THE TEN (10) DAY PERFORMANCE TEST.

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

IN THE EVENT NEW SIGNALS ARE DAMAGED PRIOR TO ACCEPTANCE, ALL DAMAGED EQUIPMENT EXCEPT POLES AND CONTROL EQUIPMENT SHALL BE REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER WITH THE SIGNAL BACK IN SERVICE WITHIN 8 HOURS OF THE CONTRACTOR'S NOTIFICATION OF THE OUTAGE OR MALFUNCTION.

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

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

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

WHERE THE CONTRACTOR HAS FAILED TO OR CANNOT RESPOND TO AN OUTAGE OR MALFUNCTION AT THOSE LOCATIONS WITHIN HIS RESPONSIBILITY, WITHIN PERIODS AS SPECIFIED ABOVE, THE ENGINEER MAY INVOKE THE PROVISIONS OF SECTION 105.15 AND BILL THE CONTRACTOR FOR ANY POLICE SERVICE AND MAINTENANCE SERVICE PROVIDED BY THE CITY OF CLEVELAND.

THE CONTRACTOR SHALL PROVIDE THE MAINTENANCE SERVICE ENTIRELY WITH HIS OWN FORCES DURING THE LIFE OF THIS CONTRACT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ANY TRAFFIC SIGNAL COMPONENTS REQUIRED TO BE HANDLED DURING THE RELOCATION OF POLES AND REVISIONS TO THE SIGNAL SYSTEM.

WHEN A TRAFFIC SIGNAL MUST BE TAKEN OUT OF SERVICE BY THE CONTRACTOR DUE TO CONSTRUCTION PROCEDURES, THIS OUTAGE SHALL NOT EXCEED 4 HOURS AND SHALL NOT INCLUDE THE HOURS OF 6:00 AM TO 9:00 AM AND 3:00 PM TO 6:00 PM. ANY SIGNALIZED INTERSECTION WHERE THE SIGNAL IS OUT OF SERVICE DUE TO CONSTRUCTION PROCEDURES, OR DUE TO AN OUTAGE OR MALFUNCTION OF EQUIPMENT AS DESCRIBED ABOVE, SHALL BE PROTECTED BY TWO OFF-DUTY CITY OF CLEVELAND UNIFORMED POLICE OFFICERS, HIRED BY THE CONTRACTOR.

ANY VEHICULAR TRAFFIC SIGNAL HEAD, EITHER NEW OR EXISTING, WHICH WILL BE OUT OF OPERATION SHALL BE COVERED IN THE MANNER DESCRIBED IN 632.24.

ALL COSTS RESULTING FROM THE ABOVE REQUIREMENTS INCLUDING THE COST OF LAW ENFORCEMENT OFFICERS HIRED BY THE CONTRACTOR FOR THIS ITEM OF WORK, SHALL BE CONSIDERED TO BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

ITEM 614 – MAINTAINING TRAFFIC

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR CONSTRUCTION AND MAINTENANCE OPERATIONS (CURRENT EDITION), COPIES OF WHICH ARE AVAILABLE FROM THE OHIO DEPARTMENT OF TRANSPORTATION, OFFICE OF TRAFFIC ENGINEERING, 1980 WEST BROAD STREET, COLUMBUS, OHIO 43223 (614-466-3601)

THE INTERSECTIONS MAY BE CLOSED FOR A MAXIMUM OF TEN (10) MINUTES FOR THE PURPOSE OF ERECTING THE SIGNAL SPAN. SUCH CLOSURES SHALL BE APPROVED IN ADVANCE BY THE ENGINEER. WHEN THE INTERSECTION IS CLOSED, TRAFFIC SHALL BE CONTROLLED BY TWO (2) UNIFORMED CITY OF CLEVELAND POLICE OFFICERS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE ARRANGEMENTS WITH THE CITY FOR THE OFFICERS. THE COST OF HIRING THE POLICE OFFICERS IS THE RESPONSIBILITY OF THE CONTRACTOR.

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

WIRING DIAGRAMS

THE CONTRACTOR SHALL PROVIDE TWO (2) EACH WIRING DIAGRAMS AND TWO (2) EACH SERVICE/OPERATION MANUALS FOR EACH DIFFERENT PIECE OF EQUIPMENT. A HEAVY CLEAR PLASTIC ENVELOPE ATTACHED TO THE INSIDE OF THE CABINET DOOR SHALL BE PROVIDED FOR STORING WIRING DIAGRAMS (MINIMUM 23 x 30 CM (9 x 12 IN)). AS BUILT DRAWING SHALL BE FURNISHED.

SIGNAL STARTUP AT BROADWAY & E 34th

THE NEW TRAFFIC SIGNAL AT BROADWAY & E 34th SHALL BE PLACED ON FLASH FOR ONE WEEK PRIOR TO STARTUP AND TESTING. START UP DAY SHALL BE A MONDAY, ALL PAVEMENT MARKINGS MUST BE INSTALLED DURING THE "FLASH" PERIOD.

CALCULATED IMH | CHECKED MJW

TRAFFIC CONTROL NOTES

CUY-77-23.458 – PART 2

REMOVAL OF EXISTING ITEMS

REMOVALS COVERED UNDER ITEM 632 AND 633, WHICH ARE NOT SPECIFIED TO BE STORED OR REERECTED, SHALL BECOME PROPERTY OF THE CITY OF CLEVELAND THE CONTRACTOR SHALL NOTIFY THE CITY (MR. DON KELCH, CHIEF OF TRAFFIC SIGNAL UNIT, 430-8273) WHEN ITEMS ARE AVAILABLE FOR PICKUP.

ITEM 625 - PULL BOX, MISC.

THIS ITEM SHALL CONSIST OF A 430mm (W) x 760mm (L) x 610mm (D) BOX, TAPERED OUTWARD FROM TOP TO AN OPEN BOTTOM. ALL BOLTS AND THREADED INSERTS SHALL BE STAINLESS STEEL. LOAD CAPACITY SHALL BE 6,820 kg ON A 250mm x 250mm AREA TESTED IN ACCORDANCE WITH WESTERN UNDERGROUND COMMITTEE GUIDE 3.6. COVER DEFLECTION SHALL BE LESS THAN 13mm AT THE DESIGN LOAD AND SHOW NO SIGNS OF DAMAGE AFTER TEN (!0) CYCLES AT DESIGN LOAD.

THE BODY SHALL BE MADE OF FIBERGLASS REINFORCED POLYMER (FRP) WITH ISOPTHALIT POLYESTER USING THE SPRAY-UP AND ROLL CONSTRUCTION METHOD OR MADE OF HIGH DENSITY POLYETHYLENE (HDPE). THE MATERIAL SHALL HAVE STABILIZERS TO RESIST UV DEGRADATION IN ACCORDANCE WITH ASTM D-790 AND ASTM D-1501-71, SECTION 6, PROCEDURE B. THE TOP RING OF THE BOX SHALL BE MADE OF POLYMER CONCRETE USING A POLYESTER BINDER WITH AGGREGATE FILLERS AND CHOPPED FIBERGLASS WITH A MINIMUM TENSILE STRENGTH OF 13,100,000 PASCALS (1900 PSI) THE RING SHALL HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL.

THE COVER SHALL BE MADE WITH A THICK MOLDING COMPOUND (TMC) USING THE COMPRESSION MOLDING METHOD. THE TMC SHALL CONSIST OF A MINIMUM OF 10% FIBERGLASS IN A CALCIUM CARBONATE AND POLYESTER RESIN MATRIX. THE COVER SHALL BE MARKED "TRAFFIC" EMBOSSED INTO THE TMC, HAVE A NON-SKID SURFACE AND HAVE THE SAME UV RESISTANCE AS THE FRP MATERIAL. TWO (2) RECESSED HEX HEAD STAINLESS STEEL BOLTS AND WASHERS SHALL BE USED TO SECURE THE COVER TO THE BOX.

OPENINGS IN THE SIDE OF THE PULL BOX WHICH ARE REQUIRED IN ORDER TO INSERT CONDUIT(S) SHALL BE DRILLED OR SAWED IN THE FIELD ONCE THEIR LOCATIONS HAVE BEEN DETERMINED. THE OPENINGS SHALL NOT EXCEED THE CONDUIT OUTSIDE DIAMETER BY MORE THAN 5%. ALL OPENINGS SHALL BE THOROUGHLY GROUTED WITH CEMENT MORTAR AFTER PLACEMENT OF THE CONDUIT(S). THE CONTRACTOR SHALL NOT SAW THROUGH THICKENED EDGES OF THE BOTTOM OF THE PULL BOX.

PAYMENT FOR "ITEM 625 - PULL BOX, MISC." SHALL BE MADE AT THE CONTRACT UNIT PRICE BID FOR EACH. PAYMENT SHALL BE FULL COMPEN-SATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT AND OTHER INCI-DENTALS NECESSARY TO INSTALL ONE PULL BOX.

ITEM 632 - VEHICULAR SIGNAL HEAD, (BY TYPE), AS PER PLAN

SECTION 732.01 OF THE SPECIFICATIONS IS MODIFIED FOR THE PROJECT AS FOLLOWS:

A) SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF INJECTION MOLDED, UV STABILIZED, POLYCARBONATE PLASTIC AND MEET I.T.E. SPECIFICATIONS.

B) GLASS LENSES SHALL BE USED.

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

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

ITEM 632 - PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN

SECTION 732.05 OF THE SPECIFICATIONS IS MODIFIED FOR THE PROJECT AS FOLLOWS:

A) PEDESTRIAN SIGNAL HOUSINGS MAY BE CONSTRUCTED OF POLYCARBONATE PLASTIC. IF POLYCARBONATE IS SUPPLIED, THEN IT SHALL BE INJECTION MOLDED, UV STABILIZED, POLYCARBONATE PLASTIC AND MEET I.T.E. SPECIFICATIONS.

B) VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET I.T.E. SPECIFICATIONS.

C) PLASTIC LENSES SHALL BE USED.

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

E) SIGNALS SHALL DISPLAY THE INTERNATIONAL SYMBOLS OF THE UPRAISED PALM AND WALKING PERSON IN LIEU OF WORD MESSAGES.

ITEM 632 - LOOP DETECTOR UNITS, BY TYPE, AS PER PLAN

IN ADDITION TO THE REQUIREMENTS OF 632 AND 732.01 OR 732.08, LOOP DETECTOR UNITS SHALL HAVE THE FOLLOWING REQUIREMENTS OR FEATURES:

THE OUTPUT DEVICE SHALL BE A RELAY, AND ALL CONTACTS SHALL BE INCLUDED IN THE WIRING HARNESS.

THE UNIT SHALL BE SELF TUNING.

THE UNIT'S ELECTRICAL CONNECTION PLUGS OR WIRING HARNESS SHALL ALLOW READY REPLACEMENT WITH A SINGLE CHANNEL AMPLIFIER AS DESCRIBED IN THE FINAL PARAGRAPH OF 732.07.

THE LOOP DETECTOR UNITS FOR NON-SYSTEM LOOPS SHALL HAVE TWO (2) OUTPUTS. ONE OUTPUT TO BE PRESENCE AND THE OTHER TO BE PULSE TO ENABLE ACCURATE COUNTING OF VEHICLES ENTERING THE LOOP EVEN WHEN PRECEDING VEHICLES REMAIN PRESENT OVER THE LOOP. THE COUNT OUTPUT SHALL BE WIRED TO THE SYSTEM INPUT OF THE TRANSCEIVER MODULE. THE PRESENCE OUTPUT SHALL BE WIRED TO THE CONTROLLER'S DETECTOR INPUT AND THE TRANSCEIVER MODULE'S GRAPHICS DETECTOR UNIT.

EACH AMPLIFIER SHALL BE NUMBERED TO CORRESPOND WITH IT'S LOOP NUMBER. THE LOOP NUMBERS ARE SHOWN ON EACH PLAN SHEET.

ITEM 632 - SIGNALIZATION, MISC. REWIRE INTERSECTION

THE CONTRACTOR SHALL REPLACE ALL EXISTING SIGNAL CABLE (AERIAL AND UNDERGROUND) WITH NEW SIGNAL CABLE, AT ALL LOCATIONS WHERE A MICROPROCESSOR CONTROLLER IS INSTALLED AS PER 632.22. THIS ITEM SHALL BE PAID FOR AS A LUMP SUM ITEM. THE CONTRACTOR SHALL REFER TO THE WIRING DIAGRAM AT EACH INTERSECTION FOR LAYOUT AND NUMBER OF CONDUCTORS REQUIRED. ALL SIGNAL CABLE SHALL BE A NO. 14 AWG UNLESS OTHERWISE NOTED. ALL LASHING RODS SHALL BE REPLACED, AS PER 632.21 OF THE C.M.S. AND SHALL BE INCLUDED IN THE LUMP SUM BID FOR THIS ITEM OF WORK, INCLUDING MATERIALS, LABOR AND EQUIPMENT.

ITEM 632 - REUSE OF ELECTROMECHANICAL CONTROLLER, AS PER PLAN

THE CONTRACTOR SHALL RE-USE ONE OF THE EXISTING THREE-DIAL ELECTROMECHANICAL CONTROLLERS BEING REPLACED BY DIGITAL MICROPROCESSOR UNITS. THIS UNIT SHALL BE INSTALLED AT BROADWAY AND ROCKEFELLER AND SHALL INCLUDE A TIME CLOCK TO TO CHANGE DIALS IN ACCORDANCE WITH THE TIMING PLAN ON SHEETS 33-41.

THE CONDITION OF THE REMOVED UNITS SHALL BE EVALUATED BY THE ENGINEER AND ONLY FULLY A FUNCTIONAL ELECTROMECHANICAL CONTROLLER WILL BE APPROVED FOR RE-USE AT THE LOCATION DESCRIBED ABOVE.

ITEM 632 - DETECTOR LOOP, AS PER PLAN

ANY SIDEWALK DISRUPTED BY PULLBOX AND CONDUIT INSTALLATION SHALL BE RESTORED BY MEANS OF FULL SLAB REMOVAL, INCLUDING SAW CUTTING OF EXISTING SIDEWALK, AND REPLACEMENT WITH 100mm THICK CONCRETE SIDEWALK AS PER SECTION 608 OF THE C.M.S.. ALL COSTS ASSOCIATED WITH THE WALK REMOVED AND PROPOSED WALK SHALL BE INCLUDED WITH ITEM 632 - DETECTOR LOOP, AS PER PLAN.

ITEM 632 - SIGNALIZATION, MISC.: MICROWAVE VEHICLE DETECTOR

THE CONTRACTOR SHALL FURNISH AND INSTALL A MICROWAVE VEHICLE DETECTOR THAT CAN DISTINGUISH THE DIRECTION OF TRAVEL OF A VEHICLE. THE DETECTOR SHALL BE PROGRAMMED TO ONLY DETECT VEHICLES AS THEY APPROACH THE INTERSECTION. VEHICLES MOVING AWAY FROM THE INTERSECTION WILL NOT CAUSE AN ACTUATION. THE DETECTOR SHALL BE SELF-TUNING, MODEL TC-20 AS MANUFACTURED BY MICROWAVE SENSORS, 7885 JACKSON RD., ANN ARBOR, MI. 48103 (800-521-0418), OR APPROVED EQUAL.

THE CONTRACT UNIT PRICE BID FOR THIS ITEM SHALL INCLUDE THE COST OF FURNISHING AND INSTALLING THE DETECTOR IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS, UNDER THE SUPERVISION OF THE ENGINEER, INCLUDING ALL MOUNTING AND WIRING FROM THE DETECTOR TO THE DETECTOR UNIT.

ITEM 632 - PHONE DROP

THIS ITEM OF WORK SHALL CONSIST OF SUPPLYING A TELEPHONE DROP TO THE TRAFFIC SIGNAL CONTROLLER AT THE INTERSECTION(S) SHOWN IN THE PLANS, INCLUDING ANY REQUIRED CONDUIT, CONDUIT RISER, TRENCH, SHIELDED 2/C CABLE, LIGHTNING ARRESTOR AND TERMINAL CONNECTIONS IN THE CABINET NECESSARY TO CONNECT TELEPHONE SERVICE TO A MODEM. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ARRANGEMENTS WITH THE LOCAL TELEPHONE COMPANY TO HAVE TELEPHONE SERVICE DROP INSTALLED AT THE LOCATION(S) SHOWN IN THE PLANS. THE CONTRACTOR SHALL ASSUME ALL BILLING RESPONSIBILITIES FOR THE PHONE DROP UNTIL COMPLETION OF THE 10 DAY PERFORMANCE TEST.

PAYMENT FOR "ITEM 632 - PHONE DROP" WILL BE AT THE CONTRACT UNIT PRICE BID FOR EACH, COMPLETE AND IN PLACE.

CALCULATED IMH | CHECKED MJW

TRAFFIC CONTROL NOTES

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ITEM 632 – INTERCONNECT CABLE INTEGRAL MESSENGER WIRE TYPE, 6 PAIR NO. 19 AWG. SOLID, REA (PE–38), AS PER PLAN.

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING INTERCONNECT CABLE, ON EXISTING POLES OWNED BY THE CLEVELAND ELECTRIC ILLUMINATING COMPANY OR CLEVELAND PUBLIC POWER AS FOLLOWS:

1.) INTEGRAL MESSENGER TYPE INTERCONNECT CABLE MEETING THE REQUIREMENTS OF 732.19 AND REA (PE–38). UNDER THIS METHOD ANY SELECTION OF CABLE SHOWN IN THE PLANS TO BE CONTAINED IN CONTROLLERS, POLES, CONDUITS OR SUPPORTED ON MESSENGER WIRE INSTALLED FOR OTHER PURPOSES SHALL HAVE THE SUPPORTING MESSENGER AND JACKET WEB NEATLY REMOVED BY THE USE OF A TOOL SPECIFICALLY DESIGNED AND SIZED FOR THE PURPOSE.
DEVIATIONS FROM THE CABLE ROUTING SHOWN IN THE PLAN, FOR THE SOLE PURPOSE OF REDUCING THE MESSENGER TO BE REMOVED, WILL NOT BE PERMITTED. THE CABLE SHALL BE INSTALLED WITH APPROXIMATELY ONE TWIST FOR EACH 4.5 M OF SPAN LENGTH.

2.) THE NUMBER OF SPLICE LOCATIONS SHALL BE KEPT TO A MINIMUM.

3.) PRUNING OF TREES IN ACCORDANCE WITH STANDARD DRAWING LA–1.1M TO PREVENT CONTACT WITH THE INTERCONNECT CABLE SHALL BE INCIDENTAL TO THE COST OF THE BID ITEM.

4.) THE CONTRACTOR SHALL REMOVE THE EXISTING HARD WIRE INTERCONNECT LOCATED ON THE EXISTING UTILITY POLES. COST OF THE REMOVAL SHALL BE INCIDENTAL TO THE COST OF THE INTERCONNECT CABLE.

ITEM 632 – REMOVAL OF TRAFFIC SIGNAL INSTALLATION

THE TRAFFIC SIGNAL INSTALLATION AT BROADWAY & E 34th ST. INCLUDING SIGNAL HEADS, CABLE MESSENGER WIRE, WOOD POLE, CABINET, CONTROLLER, MICROWAVE DETECTOR, ETC. SHALL BE REMOVED IN ACCORDANCE WITH 632.25 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE PROJECT IN ACCORDANCE WITH ITEM #632. THE SIGNAL SHALL NOT BE REMOVED UNTIL ALL WORK IS COMPLETED ON IR–77 AND ALL LANES RESTORED AND OPEN TO TRAFFIC. THE SIGNAL SHALL BE PLACED ON FLASH FOR SEVEN DAYS, ALL TEMPORARY MARKINGS REMOVED, AND STOP SIGNS RE–INSTALLED PRIOR TO REMOVING THIS SIGNAL.

ITEM 632 – SIGNALIZATION, MISC.: SYSTEMS TIMING AND ANALYSES

A. GENERAL DESCRIPTION

THE PURPOSE OF THIS ITEM OF WORK IS TO FURNISH ALL MATERIALS, LABOR, TOOLS AND EQUIPMENT NECESSARY TO PERFORM TIMING AND OPERATION ANALYSES (AS DESCRIBED IN THIS NOTE) ON EITHER AN ISOLATED SIGNALIZED INTERSECTION OR A TRAFFIC RESPONSIVE, CLOSED LOOP COORDINATED TRAFFIC SIGNAL SYSTEM(S), AND IMPLEMENT THE REQUIRED CHANGES TO THE SIGNAL OPERATION IN ORDER TO OPTIMIZE TRAFFIC FLOW ALONG THE OFFICIAL DETOUR ROUTE. **THIS WORK SHALL BE PERFORMED AS DIRECTED BY THE ENGINEER FOR THE ENTIRE DURATION OF THIS PROJECT.**

THE FOLLOWING SIGNALIZED INTERSECTIONS ARE INCLUDED IN THIS ITEM OF WORK AND ARE IDENTIFIED AS EITHER PART OF A SIGNAL SYSTEM OR AS AN ISOLATED INTERSECTION:

I. SYSTEM 1:

II. BROADWAY & ROCKEFELLER/E. 37TH STREET
III. BROADWAY & IR–490 EASTBOUND EXIT RAMP
IV. BROADWAY & DILLE STREET
V. BROADWAY & IR–77 NORTHBOUND EXIT RAMP
VI. BROADWAY & FINN AVENUE

I. SYSTEM 2:

II. E. 30TH STREET & BROADWAY
III. E. 30TH STREET & ORANGE AVENUE
IV. E. 30TH STREET & WOODLAND AVENUE

I. ISOLATED INTERSECTION:

II. BROADWAY & ROCKEFELLER
III. BROADWAY & E. 34TH STREET

THIS WORK SHALL CONSIST OF PREPARING SIGNAL TIMING AND TRAFFIC PROGRESSION PROGRAMS, LOADING THE PROGRAMS INTO THE LOCAL SIGNAL CONTROLLER OR SIGNAL SYSTEMS (UPLOAD AND DOWNLOAD FROM A MASTER CONTROLLER OR CENTRAL OFFICE MONITOR), EVALUATING THE PERFORMANCE OF THE SYSTEM AND REFINING THE PROGRAMS AS NECESSARY TO OPTIMIZE TRAFFIC FLOW AND OPERATION DURING ALL PHASES OF CONSTRUCTION. THE WORK SHALL INCLUDE TRAFFIC DATA COLLECTION AND EVALUATION, TRAFFIC SIGNAL PROGRESSION AND TIMING ANALYSES, DEVELOPMENT OF TRAFFIC ADJUSTED PATTERN SELECTION PARAMETERS, PERFORMING THE SYSTEM EVALUATION AND REFINEMENT OF THE SYSTEM OPERATION.

IF REQUIRED, SIGNAL "SYSTEMS" SHALL BE ANALYZED TOGETHER AND TRAFFIC PROGRESSION PROGRAMS SHALL BE COORDINATED TO OPTIMIZE THE OVERALL TRAFFIC FLOW BETWEEN THE TWO (2) SYSTEMS.

IT IS THE INTENT OF THIS ITEM OF WORK TO OPTIMIZE ONLY CYCLE LENGTHS, PHASE SPLITS, PERMISSIVES AND OFFSETS AND NOT TO CHANGE THE ACTUAL PHASING THAT IS PROVIDED IN THE PLAN.

AS PART OF THIS ITEM OF WORK, TRAFFIC COUNTS AND TURNING MOVEMENT COUNTS SHALL BE REQUIRED AT EACH INTERSECTION (NOTED ABOVE) FOR THE FOUR (4) TIME PERIODS AND THREE (3) FIELD CONDITIONS LISTED UNDER PART D – "SYSTEM TRAVEL STUDIES".

B. SYSTEMS ENGINEER OR TECHNICIAN:

THE WORK SHALL BE PERFORMED BY A PERSON EXPERIENCED IN TRAFFIC ENGINEERING OR TRAFFIC ENGINEERING TECHNOLOGY. THE SYSTEMS ENGINEER OR TECHNICIAN SHALL HAVE A MINIMUM OF FIVE (5) YEARS EXPERIENCE IN TRAFFIC ENGINEERING OR TRAFFIC ENGINEERING TECHNOLOGY AND SHALL BE KNOWLEDGEABLE WITH THE DESIGN AND OPERATION OF "CLOSED LOOP" TRAFFIC CONTROL AND SURVEILLANCE SYSTEMS. THE SYSTEMS ENGINEER OR TECHNICIAN SHALL BE FAMILIAR WITH THE TYPE OF "CLOSED LOOP" SYSTEM INSTALLED AS PART OF THIS PROJECT AND SHALL HAVE PREVIOUSLY SET–UP AND FINE–TUNED A SYSTEM OF THIS TYPE.

THREE (3) COPIES OF A RESUME DOCUMENTING THE FOLLOWING SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL:

THE SYSTEM ENGINEER OR TECHNICIAN'S EDUCATION INCLUDING TRAINING IN TRAFFIC ENGINEERING TECHNOLOGY AND SIGNAL SYSTEM DESIGN.

THE SYSTEM ENGINEER OR TECHNICIAN'S FAMILIARITY WITH THE "CLOSED LOOP" TYPE SYSTEM TO BE USED ON THIS PROJECT AND EXPERIENCE IN SETTING UP AND FINE TUNING A SYSTEM OF THIS TYPE. A LISTING OF OTHER CLOSED LOOP SYSTEMS THAT THE SYSTEM ENGINEER OR TECHNICIAN HAS PROGRAMMED INTO THE TRAFFIC RESPONSIVE MODE SHALL BE PROVIDED TO THE ENGINEER FOR DOCUMENTATION PURPOSES.

A BRIEF DESCRIPTION OF PROPOSED METHODOLOGY OF DATA COLLECTION AND ANALYSIS, OF SYSTEM PARAMETER USAGE IN SYSTEM EVALUATION, OF FREQUENCY AND MEASUREMENT OF TRAVEL TIME AND DELAY, AND COMPARING ACTUAL VERSES SYSTEM MEASUREMENTS OF DELAYS – LEVEL OF SERVICE.

THE SYSTEMS ENGINEER OR TECHNICIAN UNDER AUTHORITY OF THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE OPERATION OF THE TWO SIGNAL SYSTEMS AND ISOLATED SIGNALIZED INTERSECTIONS (AS NOTED IN PART A), FROM THE START OF THE TEN (10) DAY PERFORMANCE TEST UNTIL COMPLETION AND ACCEPTANCE OF THIS PROJECT. THE SYSTEMS ENGINEER OR TECHNICIAN SHALL PROVIDE A TWENTY FOUR (24) HOUR EMERGENCY PHONE NUMBER AND SHALL RESPOND TO SYSTEM OR SIGNAL OPERATION RELATED PROBLEMS AS DEEMED NECESSARY BY THE ENGINEER TWENTY FOUR (24) HOURS A DAY, SEVEN DAYS A WEEK. THE ENGINEER RESERVES THE RIGHT TO REQUEST A SIGNAL OR SYSTEMS ANALYSIS AT ANY TIME THROUGHOUT THE ENTIRE DURATION OF THE PROJECT, SHOULD NEW OR CONTINUING PROBLEMS OCCUR WITH THE OPERATION OF THE TRAFFIC SIGNAL SYSTEM(S).

THE ENGINEER RESERVES THE RIGHT TO REQUEST THAT THE CONTRACTOR PROVIDE A NEW SYSTEMS ENGINEER OR TECHNICIAN SHOULD THE CURRENT SYSTEMS ENGINEER OR TECHNICIAN FAIL TO PERFORM THE REQUIRED DUTIES IN A TIMELY AND PROFESSIONAL MANNER OR FAIL TO HAVE A FIRM UNDERSTANDING OF THE OPERATION AND PROGRAMMING OF THE CLOSED LOOP SYSTEM CONSTRUCTED UNDER THIS PROJECT.

THE SYSTEMS ENGINEER OR TECHNICIAN MAY DELEGATE NONTECHNICAL TASKS (i.e. TRAVEL TIME RUNS, INTERSECTION TRAFFIC COUNTS, ETC....) TO PERSONNEL UNDER HIS/HER DIRECT SUPERVISION, PROVIDED THAT APPROVAL IS RECEIVED BY THE ENGINEER PRIOR TO COMMENCING THIS WORK. THE SYSTEMS ENGINEER OR TECHNICIAN SHALL SUBMIT TO THE ENGINEER IN WRITING A LIST OF THOSE TASKS WHICH ARE TO BE PERFORMED BY OTHER PERSONNEL. THE ENGINEER RESERVES THE RIGHT TO DENY PART OF ALL OF THE REQUEST FOR WORK TO BE PERFORMED BY PERSONNEL OTHER THAN THE SYSTEMS ENGINEER OR TECHNICIAN.

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TRAFFIC CONTROL NOTES

CUY–77–23.458 – PART 2

C. TRAFFIC PROGRAMS:

SIGNAL PROGRESSION AND TIMING PROGRAMS SHALL BE DEVELOPED BY THE SYSTEMS ENGINEER OR TECHNICIAN FROM COUNT AND OCCUPANCY DATA OBTAINED FROM THE LOCAL INTERSECTION AND SYSTEM LOOP DETECTORS, SUPPLEMENTED BY FIELD COUNTS AND MEASUREMENTS AS REQUIRED OR AS DIRECTED BY THE ENGINEER. THE SIGNAL PROGRESSION PROGRAMS TO BE DEVELOPED SHALL BE AS FOLLOWS:

THREE (3) INBOUND PREFERENTIAL (A.M. PEAK)

THREE (3) OUTBOUND PREFERENTIAL (P.M. PEAK)

THREE (3) AVERAGE (OFF PEAK)

NOTE: THE THREE AVERAGE PROGRAMS SHOULD UTILIZE VARYING CYCLE LENGTHS BASED ON TRAFFIC VOLUME, DENSITY AND OCCUPANCY TO MINIMIZE OVERALL INTERSECTION APPROACH DELAY TIME.

TWO (2) SPECIAL PROGRAMS FOR EITHER HIGH CONGESTION OR QUEUE BACKUP.

TWO (2) SPECIAL "INCIDENT MANAGEMENT" TYPE PROGRAMS TO ADDRESS ADDITIONAL TRAFFIC DEMANDS PLACED ON THE TWO SYSTEMS IN THE EVENT OF AN ACCIDENT OR LANE BLOCKAGE ON IR-77 WITHIN THE CONSTRUCTION ZONE LOCATED ON THIS PROJECT. ONE PROGRAM SHALL BE DEVELOPED FOR INBOUND (A.M.) PEAK TRAFFIC FLOW, THE OTHER PROGRAM SHALL BE DEVELOPED FOR OUTBOUND (P.M.) PEAK TRAFFIC FLOW. IT IS IMPORTANT TO NOTE THAT THESE PROGRAMS SHOULD BE DESIGNED TO OPTIMIZE TRAFFIC FLOWS OFF OF THE IR-77 N.B./BROADWAY RAMP AND/OR IR-77 S.B./E. 30TH STREET RAMPS, THROUGH THE TWO (2) SYSTEMS AND ALONG THE OFFICIAL DETOUR ROUTE. THE ENGINEER SHALL BE ABLE TO CONTACT THE SYSTEMS ENGINEER OR TECHNICIAN ON SHORT NOTICE AND REQUEST THAT ONE OF THESE PROGRAMS BE IMMEDIATELY IMPLEMENTED IN THE EVENT OF AN "INCIDENT" WITHIN THE CONSTRUCTION ZONE ON IR-77. RESPONSE TIME TO IMPLEMENT THE PROGRAM SHALL NOT EXCEED FIFTEEN (15) MINUTES FROM THE TIME THE CALL IS PLACED BY THE ENGINEER.

A MINIMUM OF THREE (3) TIMING PLANS FOR A BACK UP TIME BASE COORDINATED SYSTEM SHALL BE DEVELOPED AND PROGRAMMED INTO THE SYSTEM, TO REPLACE OR SUPPLEMENT THE TIMING PLANS SHOWN IN THE PLANS.

DEFINE SYSTEM PARAMETERS WHICH WILL ENABLE THE SYSTEM TO AUTOMATICALLY TRANSFER INTO A "FREE OPERATION" MODE DURING LIGHT TRAFFIC VOLUME PERIODS AND TO AUTOMATICALLY TRANSFER TO A COMPUTER SELECTED COORDINATED MODE DURING HEAVY TRAFFIC VOLUME PERIODS.

THE FOLLOWING SYSTEM PARAMETERS SHALL BE ESTABLISHED:

VOLUME, OCCUPANCY AND DIRECTIONALITY THRESHOLDS

TRANSITION SMOOTHING FACTORS

SYSTEM DETECTOR ASSIGNMENT

SYSTEM DETECTOR WEIGHING

THE SYSTEMS ENGINEER OR TECHNICIAN MAY USE COMPUTER SOFTWARE (I.E. TRANSYT-7F, PASSER II-90, ETC.) TO HELP ASSIST IN HIS/HER ANALYSIS OF THE OPERATION OF THE CLOSED LOOP SYSTEM. THIS SOFTWARE, ALONG WITH A CENTRAL OFFICE MONITOR, LAP TOP COMPUTER, ETC., SHALL BE PROVIDED BY THE CONTRACTOR AS HIS OWN EXPENSE.

D. SYSTEM TRAVEL TIME STUDIES:

THE SYSTEMS ENGINEER OR TECHNICIAN SHALL CONDUCT A SERIES OF TRAVEL TIME STUDIES FOR EACH SYSTEM, TO MEASURE THE TIME IT TAKES TO TRAVEL FROM THE BEGINNING OF EACH SYSTEM TO THE END OF THAT SYSTEM, IN EACH DIRECTION. THE TRAVEL TIME STUDY PARAMETERS SHOULD BE BASED ON THE POSTED SPEED LIMIT; HOWEVER, DURING PEAK PERIODS IT MAY NOT BE POSSIBLE TO OBTAIN THE POSTED SPEED DUE TO LARGER TRAFFIC VOLUMES.

EACH SET OF TRAVEL TIME STUDIES SHALL INCLUDE A MINIMUM OF THREE (3) RUNS THROUGH THE SYSTEM PER DIRECTION. TRAVEL TIME STUDIES SHALL BE CONDUCTED DURING "IDEAL" WEATHER CONDITIONS (I.E. NO SNOW, RAIN OR FOG, ETC.).

TRAVEL TIME STUDIES SHALL BE CONDUCTED FOR THE FOLLOWING FOUR (4) TIME PERIODS:

1. THE FIRST SET OF TRAVEL TIME STUDIES SHALL BE CONDUCTED BETWEEN THE HOURS OF 7:00 A.M. AND 9:00 A.M. ON WEEKDAYS.
2. THE SECOND SET OF TRAVEL TIME STUDIES SHALL BE CONDUCTED BETWEEN THE HOURS OF 11:30 A.M. AND 1:00 P.M. WEEKDAYS.

3. THE THIRD SET OF TRAVEL TIME STUDIES SHALL BE CONDUCTED BETWEEN THE HOURS OF 4:00 P.M. AND 6:00 P.M. WEEKDAYS.

4. THE FOURTH SET OF TRAVEL TIME STUDIES SHALL BE CONDUCTED DURING ANY OF THE FOLLOWING NON-PEAK HOUR PERIODS:

a. 9:00 A.M. TO 11:00 A.M. MONDAY THROUGH SATURDAY

b. 7:00 P.M. TO 10:00 P.M. MONDAY THROUGH SATURDAY

c. 7:00 A.M. TO 10:00 P.M. SUNDAY

A WRITTEN REPORT SHALL BE PROVIDED TO THE ENGINEER DOCUMENTING, AT A MINIMUM: THE NAME OF THE PERSON PERFORMING THE STUDY, THE DATE OF THE TRAVEL TIME STUDY, DAY OF WEEK, TIME OF DAY, TOTAL TIME OF TRAVEL AND TOTAL TIME THE VEHICLE WAS STOPPED FOR EACH TRIP.

IN ADDITION, THE SYSTEMS ENGINEER OR TECHNICIAN SHALL CONDUCT THESE FOUR (4) SEPARATE SETS OF TRAVEL TIME STUDIES FOR EACH OF THE FOLLOWING FIELD CONDITIONS:

I. PRIOR TO THE BEGINNING OF CONSTRUCTION, WITH THE EXISTING SIGNAL SYSTEM IN OPERATION (NO LANE CLOSURES ON BROADWAY OR IR-77 SHALL BE IN EFFECT DURING THIS ANALYSIS).

II. AFTER ANY SUBSTANTIAL CHANGE IN MAINTENANCE OF TRAFFIC PATTERN IS INITIATED AS PART OF THIS PROJECT, INCLUDING LONG TERM INDIVIDUAL RAMP CLOSURES AND SUBSEQUENT OPENINGS ON IR-77.

III. AFTER THE PROJECT IS COMPLETE WHEN ALL NORMAL LANES OF TRAFFIC AND ALL RAMPS ARE REOPENED ON IR-77. THIS STUDY WILL DETERMINE THE FINAL SIGNAL TIMING PATTERN TO BE IMPLEMENTED PRIOR TO O.D.O.T. ACCEPTING THIS PROJECT AND OFFICIALLY TURNING THE SIGNAL SYSTEMS OVER TO THE CITY OF CLEVELAND.

THE REPORTS PROVIDED FROM EACH OF THE THREE FIELD CONDITIONS FOR WHICH SYSTEM TRAVEL TIME STUDIES ARE PREPARED SHALL BE USED AS ONE MEANS OF MEASURING THE EFFICIENCY OF THE SYSTEMS. THESE REPORTS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AND DOCUMENTATION.

F. THE COST OF PERFORMING THIS ITEM OF WORK, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT, TOOLS AND OTHER INCIDENTALS NECESSARY TO PERFORM THE WORK AS OUTLINED ABOVE SHALL BE INCLUDED IN THE LUMP SUM UNIT PRICE BID FOR ITEM 632 - SIGNALIZATION, MISC.: SYSTEMS TIMING AND ANALYSES.

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

THE CONTROLLERS SUPPLIED SHALL BE TRANSYT MODEL 1880 EL WITH INTERNAL COMMUNICATIONS AND INTERNAL TIME BASED COORDINATION (TBC). THE CONTROLLER SHALL BE COMPLETELY COMPATIBLE WITH THE CITY OF CLEVELAND'S DOWNTOWN CLOSED LOOP SIGNAL SYSTEM AND SHALL PROVIDE FULL SYSTEM CAPABILITIES.
ALL LOAD SWITCHES AND INTERFACE RELAYS SHALL BE FURNISHED WITH INDICATOR LIGHTS.

THE CONFLICT MONITOR SHALL BE THE REPORTING TYPE.

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

ITEM 633 - CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF FURNISHING AND INSTALLING A SOLID-STATE DIGITAL MICROPROCESSOR TYPE TRAFFIC RESPONSIVE MASTER CONTROLLER WITH MENU DRIVEN PROMPTS, INTERNAL TBC, TELEMETRY UNIT, IN THE LOCAL CONTROLLER CABINET, AND ALL OTHER ACCESSORIES THAT ARE NECESSARY TO MAKE THE MASTER COMPLETELY FUNCTIONAL AND OPERATIONAL AS SHOWN IN THE PLANS AND AS NOTED ON SHEETS 34 & 37.
THE MASTER CONTROLLER IS TO BE INSTALLED IN THE SAME CABINET AS THE LOCAL CONTROLLER AT THE INTERSECTION(S) IN THE PLANS. THE CABINET SPECIFIED FOR THE LOCAL CONTROLLER SHALL BE REPLACED WITH A LARGER CABINET, AS REQUIRED, TO HOUSE THE MASTER CONTROLLER. THE COST OF THE LARGER CABINET ABOVE AND BEYOND THE COST OF THE STANDARD CABINET SHALL BE INCLUDED IN THE COST OF THE MASTER CONTROLLER.

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TRAFFIC CONTROL NOTES

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THE MASTER CONTROLLER SHALL CONFORM TO O.D.O.T. SPECIFICATION 633 AND SHALL HAVE THE FOLLOWING FEATURES:

1.) IT SHALL GENERATE SYSTEM PATTERN COMMANDS TO LOCAL INTERSECTION CONTROLLERS WITHIN ITS CONTROL AREA IN RESPONSE TO PREVAILING TRAFFIC CONDITIONS AS INDICATED BY THE SAMPLING SENSORS STRATEGICALLY PLACED IN THE CONTROL AREA. THE MASTER SHALL ALSO ALLOW PREPROGRAMMED TIME OF DAY SELECTION OF PATTERNS.

2.) IT SHALL MONITOR THE OPERATION OF THE LOCAL INTERSECTION CONTROLLERS AND SHALL INITIATE FAILURE REPORTS IF MALFUNCTIONS ARE DETECTED. THE MASTER SHALL GENERATE SYSTEM OPERATION STATUS REPORTS FOR PRINTING AT THE CENTRAL OFFICE MONITOR.

3.) IT SHALL BE CAPABLE OF OPERATING IN ANY OF THE FOLLOWING MODES:

A. TRAFFIC RESPONSE WHEREBY PATTERN SELECTION IS BASED ON DYNAMIC TRAFFIC CONDITIONS AS MEASURED BY THE SYSTEM SENSORS LOCATED IN THE CONTROL AREA.

B. TIME OF DAY/DAY OF WEEK WHEREBY PATTERN SELECTION IS BASED ON A PRE–PROGRAMMED BASIS WITH THE AUTOMATIC ADJUSTMENTS FOR SEASONAL CHANGES.

C. MANUAL OVERRIDE WHEREBY PATTERN SELECTION IS BASED ON OPERATOR COMMAND AT THE CENTRAL OFFICE MONITOR OR TRAFFIC RESPONSIVE MASTER CONTROLLER SITE.

4.) IT SHALL BE A PEEK CORP. (TRANSYT) MODEL NO. 3800EL.

MASTER CONTROLLER SHALL HAVE THE FOLLOWING CAPACITIES:

1.) TOTAL LOCAL INTERSECTION CONTROLLERS: 30

2.) SYSTEM DETECTOR UNITS: 48

3.) THERE SHALL BE A MINIMUM OF 30 SELECTABLE PATTERNS INCLUDING AN ADDITIONAL 4 SPECIAL PATTERNS. EACH PATTERN SHALL CONSIST OF A COMBINATION OF CYCLE, OFFSET AND SPLIT NUMBERS FOR EACH INTERSECTION IN THE SYSTEM. THE MASTER SHALL BE CAPABLE OF DIRECTING THE SYSTEM INTO FREE OPERATION. PATTERNS SELECTABLE FROM THE FOLLOWING PARAMETER RANGES:

A. CYCLES: SIX (6)

B. OFFSETS: FIVE (5)

C. SPLITS: SIXTEEN (16)

4.) SYSTEM SENSORS SHALL BE DISTRIBUTED TO A MINIMUM CAPACITY OF EIGHT (8) PER INTERSECTION, BUT NOT TO EXCEED THE TOTAL SENSOR CAPACITY.

THE MASTER CONTROLLER SHALL HAVE THE FOLLOWING FUNCTIONAL REQUIREMENTS:

1.) PATTERN SELECTION DURING NORMAL TRAFFIC RESPONSIVE OPERATION SHALL BE BASED ON THE FOLLOWING QUANTITATIVE TRAFFIC FLOW PARAMETERS:

A. VOLUME LEVEL OF ARTERIAL TRAFFIC FLOW

B. DIRECTIONALITY OF ARTERIAL TRAFFIC FLOW

C. RATIO OF ARTERIAL TRAFFIC FLOW TO NON–ARTERIAL FLOW

2.) PATTERN SELECTION DURING SPECIAL TRAFFIC RESPONSIVE OPERATION SHALL BE BASED ON THE FOLLOWING PARAMETERS:

A. NORMAL RESPONSIVE OPERATION OVERRIDE BY DETECTION OF HIGH OCCUPANCY ON SELECTED SYSTEM SENSORS.

B. NORMAL RESPONSIVE OPERATION OVERRIDE BY DETECTION OF QUEUE LENGTH OR DURATION ON SELECTED SYSTEM SENSORS.

3.) PREFERENTIAL TRANSFER OF PATTERNS SHALL BE ACCOMPLISHED BY PROGRAMMABLE THRESHOLD VALUES. PROGRAMMABLE THRESHOLD VALUES SHALL ALSO BE PROVIDED FOR SPECIAL PATTERNS.

4.) THE FOLLOWING SYSTEM SENSOR DATA SHALL FORM THE BASIS FOR ALL RESPONSIVE PATTERNS INITIATED BY THE MASTER:

A. VOLUME, OCCUPANCY AND QUEUE DATA.

B. EACH SYSTEM SENSOR SHALL BE CAPABLE OF SELECTIVE WEIGHTING.

C. SYSTEM SENSOR DATA SHALL BE AVERAGED ON A MOVING BASIS, UTILIZING A USER PROGRAMMABLE TIME FACTOR.

D. EACH SYSTEM SENSOR SHALL BE MONITORED FOR CONSTANT CALL, ABSENCE OF CALL AND ERRATIC OUTPUT. THERE SHALL BE AN OPTION TO ELIMINATE THE MONITORING OF ABSENCE OF CALLS DURING LIGHT TRAFFIC PERIODS ON A TIME OF DAY BASIS. SENSORS WHICH FAIL ANY MONITORING TEST SHALL BE AUTOMATICALLY DELETED FROM VOLUME AND OCCUPANCY CALCULATIONS. UPON RESUMPTION OF SATISFACTORY OPERATION, SENSORS SHALL RESUME INPUT TO OCCUPANCY AND VOLUME CALCULATIONS. A USER PRESCRIBED MINIMUM NUMBER OF DESIGNATED SENSORS SHALL BE REQUIRED TO MAINTAIN RESPONSIVE OPERATION. THE MINIMUM NUMBER OF OPERATIONAL SENSORS SHALL BE PROGRAMMABLE FOR EACH COMPUTATIONAL CHANNEL. IF FEWER THAN THE PRESCRIBED NUMBER OF SYSTEM SENSORS ARE OPERATIONAL, THEN THE MASTER SHALL REVERT TO TIME OF DAY, DAY OF WEEK MODE.

E. EACH COMPUTATIONAL CHANNEL SHALL BE ASSIGNED FROM UP TO TWELVE (12) DIFFERENT SYSTEM SENSORS FROM THE TOTAL OF 48.

5.) IT SHALL BE POSSIBLE TO SELECT ANY SYSTEM PATTERN FROM THE MASTER ON A PRE–PROGRAMMED TIME OF DAY, DAY OF WEEK BASIS. THERE SHALL BE TIME OF DAY OVERRIDE OF RESPONSIVE OPERATION. TIME OF DAY OPERATION SHALL UTILIZE A 99 YEAR CALENDAR – CLOCK WITH AUTOMATIC DAYLIGHT SAVINGS TIME CHANGE.

6.) MEANS SHALL BE PROVIDED TO ALLOW INTER–MASTER LINKING IN ORDER TO AFFORD COORDINATION BETWEEN CONTIGUOUS SYSTEM CONTROL AREAS. THIS SHALL INCLUDE SYNCHRONIZATION OF MASTER REFERENCE CLOCKS.

7.) PATTERN CHANGES FOR EACH LOCAL CONTROLLER IN THE SYSTEM SHALL BE IMPLEMENTED SMOOTHLY AND IN THE SHORTEST TIME FRAME POSSIBLE WITHOUT VIOLATING MINIMUM INTERVAL VALUES.

8.) THE MASTER CONTROLLER SHALL STORE AND FORMAT MONITORED FUNCTION DATA FOR EITHER IMMEDIATE OUTPUT TO THE CENTRAL OFFICE MONITOR OR SHALL STORE DATA FOR FUTURE OUTPUT FOR A MINIMUM STORAGE PERIOD OF FORTY–EIGHT HOURS. AS A MINIMUM THE FOLLOWING REPORTS SHALL BE INCLUDED.

A. AN ACTIVITY LOG WHICH INCLUDES TIME, INTERSECTION AND ACTIVITY TYPE OF ALL MONITORED LOCAL INTERSECTION FAILURE CONDITIONS.

B. A SYSTEM SENSOR FAILURE LOG WHICH INCLUDES TIME SENSOR LOCATION AND TYPE OF FAILURE.

C. A PATTERN CHANGE LOG WHICH INCLUDES THE OPERATING PATTERN AND TIME OF CHANGE WHILE IN RESPONSIVE MODE.

D. A SYSTEM STATUS REPORT WHICH SHOWS THE CURRENT OPERATING MODE AND PATTERN FOR ALL LOCAL INTERSECTION CONTROLLERS ON LINE.

E. A SYSTEM SENSOR DATA REPORT WHICH INCLUDES VOLUME, OCCUPANCY, AND AVERAGE SPEED FOR ALL SYSTEM SENSORS.

PAYMENT FOR 633 CONTROLLER, MASTER , TRAFFIC RESPONSIVE, AS PER PLAN SHALL BE MADE AT THE CONTRACT PRICE BID. PAYMENT SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TESTING, CERTIFICATIONS AND OTHER INCIDENTALS NECESSARY TO FURNISH THE CONTROLLER, COMPLETE AND IN PLACE, INCLUDING ALL CONNECTIONS MADE AND WIRING COMPLETE, TESTED AND ACCEPTED.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SUCCESSFULLY FOR A PERIOD OF 180 DAYS FOLLOWING COMPLETION OF THE 10–DAY PERFORMANCE TEST. IN THE EVENT OF UNSATISFACTORY OPERATION THE CONTRACTOR SHALL CORRECT FAULTY INSTALLATIONS, MAKE REPAIRS AND REPLACE DEFECTIVE PARTS WITH NEW PARTS OF EQUAL OR BETTER QUALITY. EQUIPMENT, MATERIAL AND LABOR COSTS INCURRED IN CORRECTING AN UNSATISFACTORY OPERATION SHALL BE BORNE BY THE CONTRACTOR.

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

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

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

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TRAFFIC CONTROL NOTES

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TRAFFIC SIGNAL TIMING AND DISPLAY – PRE-TIMED CONTROLLER

EAST 30TH & WOODLAND	START IN: FLASH 8 SEC.		FIRST PHASE: ϕ4 GREEN
MOVEMENT	ϕ2 EAST 30TH	ϕ3 EAST 30TH N.B. LT. + THRU	ϕ4 WOODLAND
INITIAL (MINIMUM)	27	5	23
EXTENSION	2.0	2.0	2.0
WALK	7	–	5
PEDESTRIAN CLEARANCE (FDW)	20	–	18
MAXIMUM I	30	7	26
MAXIMUM II	30	7	26
YELLOW	3.0	3.0	3.6
ALL RED	2.0	2.0	2.0

STREET	DIR-ECTION	SIGNAL	LENS	EMERG-ENCY FLASH	PRE-EMPT	INTERVAL COLORS ϕ2 1	ϕ2 2	ϕ2 3	ϕ3 4	ϕ3 5	ϕ3 6	ϕ4 7	ϕ4 8	ϕ4 9
EAST 30TH	NB	3	R	R							R	R	R	R
			Y							Y				
			G			G	G	G	G					
			◄G						◄G					
		4	R	R							R	R	R	R
			Y							Y				
			G			G	G	G	G					
	SB	5	R	R				R	R	R	R	R	R	R
			Y				Y							
			G			G								
		6	R	R				R	R	R	R	R	R	R
			Y				Y							
			G			G								
EAST CROSSWALK	SB	A	DW	DARK			FDW*	DW	DW	DW	DW	DW	DW	DW
			W	DARK		W*								
	NB	B	DW	DARK			FDW*	DW	DW	DW	DW	DW	DW	DW
			W	DARK		W*								
WOODLAND	WB	1	R			R	R	R	R	R	R			R
			Y	Y									Y	
			G									G		
		2	R			R	R	R	R	R	R			R
			Y	Y									Y	
			G									G		
NORTH CROSSWALK	EB	C	DW	DARK		DW	DW	DW	DW	DW	DW		FDW*	DW
			W	DARK								W*		
	WB	D	DW	DARK		DW	DW	DW	DW	DW	DW		FDW*	DW
			W	DARK								W*		

RECALL	ϕ2	ϕ3	ϕ4
VEH/MEM/OFF	□	□	□
VEH/MEM/ON	■	■	■
VEH/MIN	■	■	■
VEH/MAX	□	□	□
PED/RECALL	■	□	■
NON-ACT	□	□	□

COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	100 SEC.	75 SEC.	90 SEC.
PHASE 2 SPLIT	58%	44%	53%
PHASE 3 SPLIT	12%	16%	14%
PHASE 4 SPLIT	30%	40%	33%
OFFSET	0%	0%	0%
TIME OF DAY	6:30 AM–9:00 AM MON.–SAT.	ALL OTHER TIMES	3:00 PM–6:00 PM MON.–SAT.

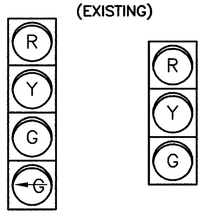
* ONLY UPON PEDESTRIAN PUSHBUTTON ACTUATION

PHASING & TIMING NOTES :
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.

PEDESTRIAN (EXISTING)

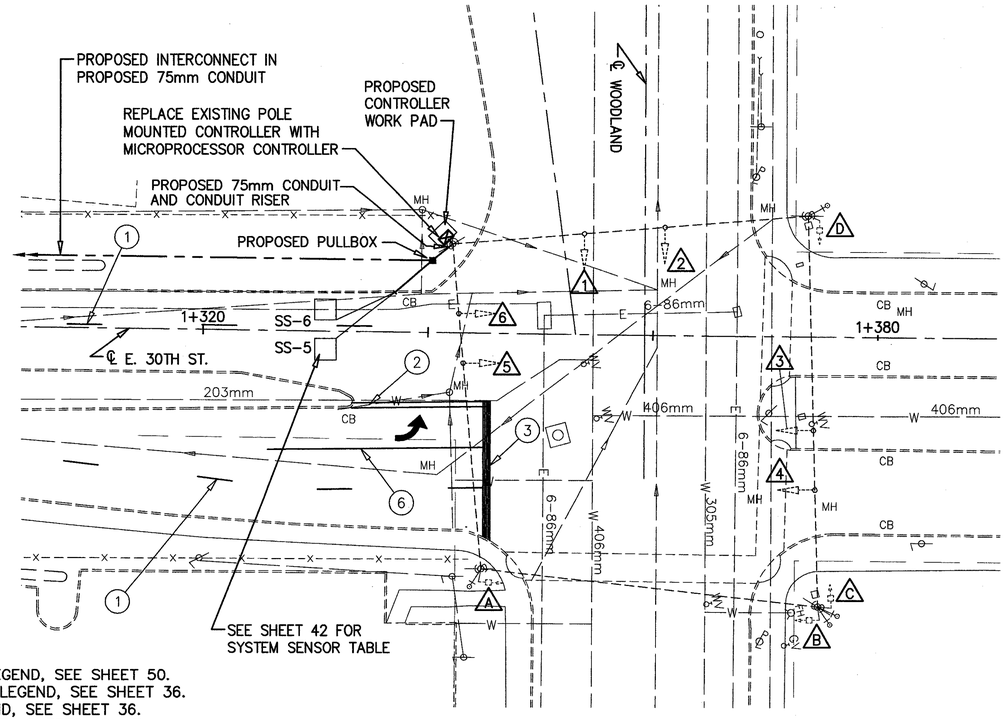
A,B,C,D

VEHICULAR (EXISTING)

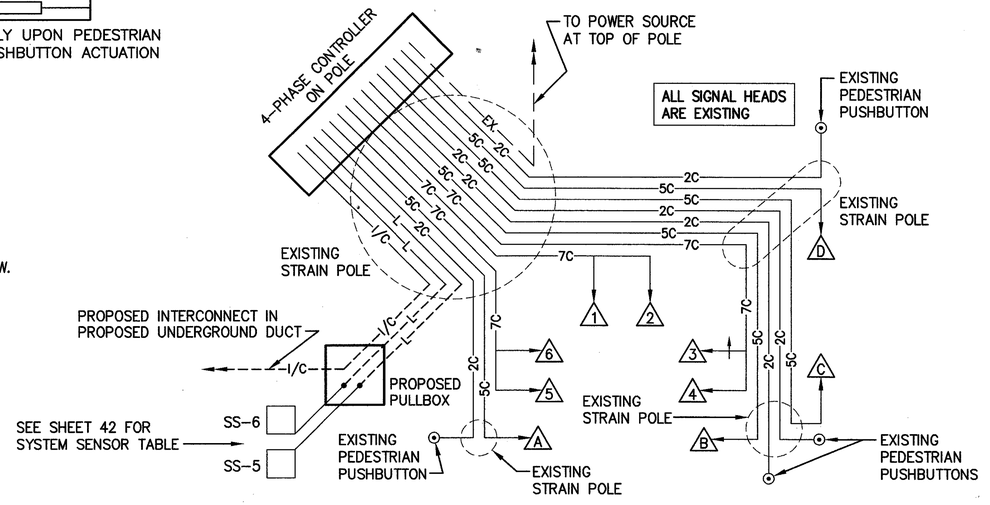


3 1,2,4,5,6

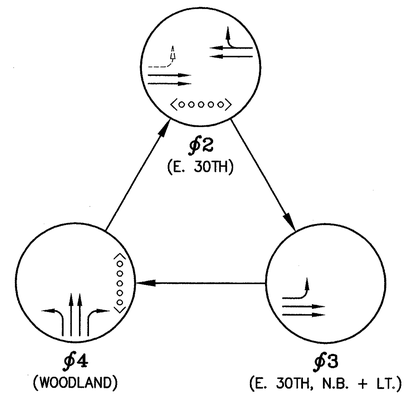
SIGNAL HEAD DETAILS



NOTES:
1.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
2.) FOR TRAFFIC SIGNAL PLAN LEGEND, SEE SHEET 36.
3.) FOR WIRING DIAGRAM LEGEND, SEE SHEET 36.
4.) FOR INTERCONNECT PLAN SEE SHEETS 42–47.



WIRING DIAGRAM



PHASING DIAGRAM
(PRE-TIMED)

HNTB ARCHITECTS ENGINEERS PLANNERS

HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN EAST 30TH ST. & WOODLAND AVE.

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33
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TRAFFIC SIGNAL TIMING AND DISPLAY – PRE-TIMED CONTROLLER

EAST 30TH & ORANGE — START IN: FLASH 8 SEC. — FIRST PHASE: ϕ4 GREEN

MOVEMENT	ϕ2 EAST 30TH	ϕ3 EAST 30TH S.B. LT. + THRU	ϕ4 ORANGE
INITIAL (MINIMUM)	21	5	22
EXTENSION	2.0	2.0	2.0
WALK	5	–	5
PEDESTRIAN CLEARANCE (FDW)	15	–	16
MAXIMUM I	28	7	25
MAXIMUM II	28	7	25
YELLOW	3.0	3.0	3.6
ALL RED	2.0	2.0	2.0

STREET	DIR-ECTION	SIGNAL	LENS	ENERG-IZED	PRE-EMPT	INTERVAL COLORS ϕ2 1	2	3	ϕ3 4	5	6	ϕ4 7	8	9
EAST 30TH	NB	1	R	R				R	R	R	R	R	R	R
			Y				Y							
			G			G								
		2	R	R				R	R	R	R	R	R	R
			Y				Y							
			G			G								
	SB	5	R	R							R	R	R	R
			Y							Y				
			G			G	G	G	G					
			G						G					
		6	R	R							R	R	R	R
			Y							Y				
			G			G	G	G	G					
SOUTH CROSSWALK	EB	B	DW	DARK		DW	DW	DW	DW	DW	DW		FDW*	DW
			W	DARK								W*		
	WB	A	DW	DARK		DW	DW	DW	DW	DW	DW		FDW*	DW
			W	DARK								W*		
ORANGE	EB	3	R			R	R	R	R	R	R			R
			Y	Y									Y	
			G									G		
		4	R			R	R	R	R	R	R			R
			Y	Y									Y	
			G									G		
EAST CROSSWALK	NB	D	DW	DARK			FDW*	DW	DW	DW	DW	DW	DW	DW
			W	DARK		W*								
	SB	C	DW	DARK			FDW*	DW	DW	DW	DW	DW	DW	DW
			W	DARK		W*								

RECALL	ϕ2	ϕ3	ϕ4
VEH/MEM/OFF	□	□	□
VEH/MEM/ON	■	■	■
VEH/MIN	■	■	■
VEH/MAX	□	□	□
PED/RECALL	■	■	■
NON-ACT	□	□	□

COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	100 SEC.	75 SEC.	90 SEC.
PHASE 2 SPLIT	60%	39%	32%
PHASE 3 SPLIT	12%	16%	14%
PHASE 4 SPLIT	28%	45%	54%
OFFSET	94%	3%	88%
TIME OF DAY	6:30 AM–9:00 AM MON.–SAT.	ALL OTHER TIMES	3:00 PM–6:00 PM MON.–SAT.

*ONLY UPON PEDESTRIAN PUSHBUTTON ACTUATION

PHASING & TIMING NOTES:
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.

VIEW = 5

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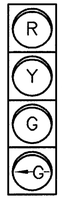
HNTB ARCHITECTS ENGINEERS PLANNERS

VEHICULAR (EXISTING)



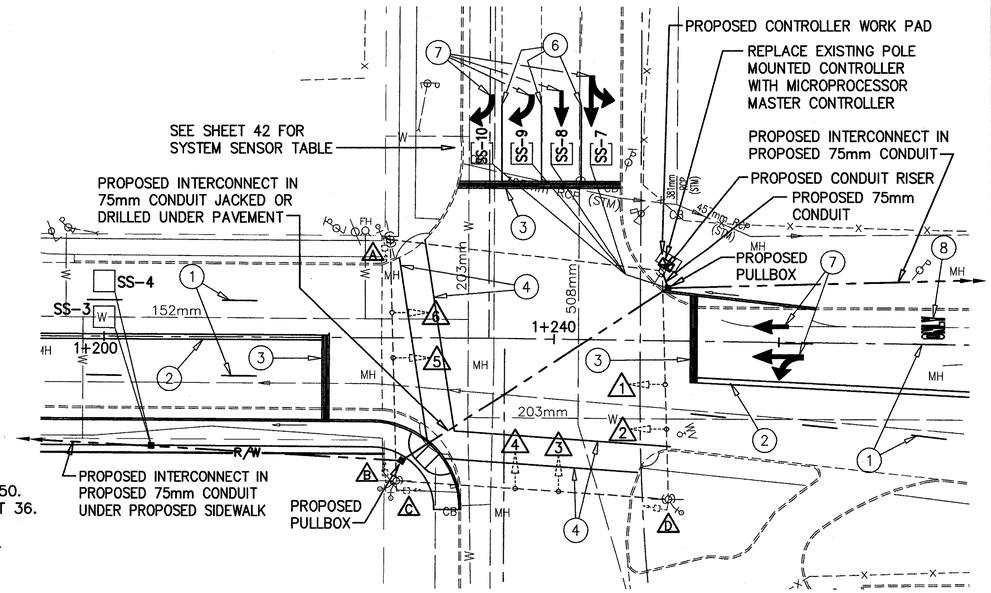
5 1,2,3,4,6

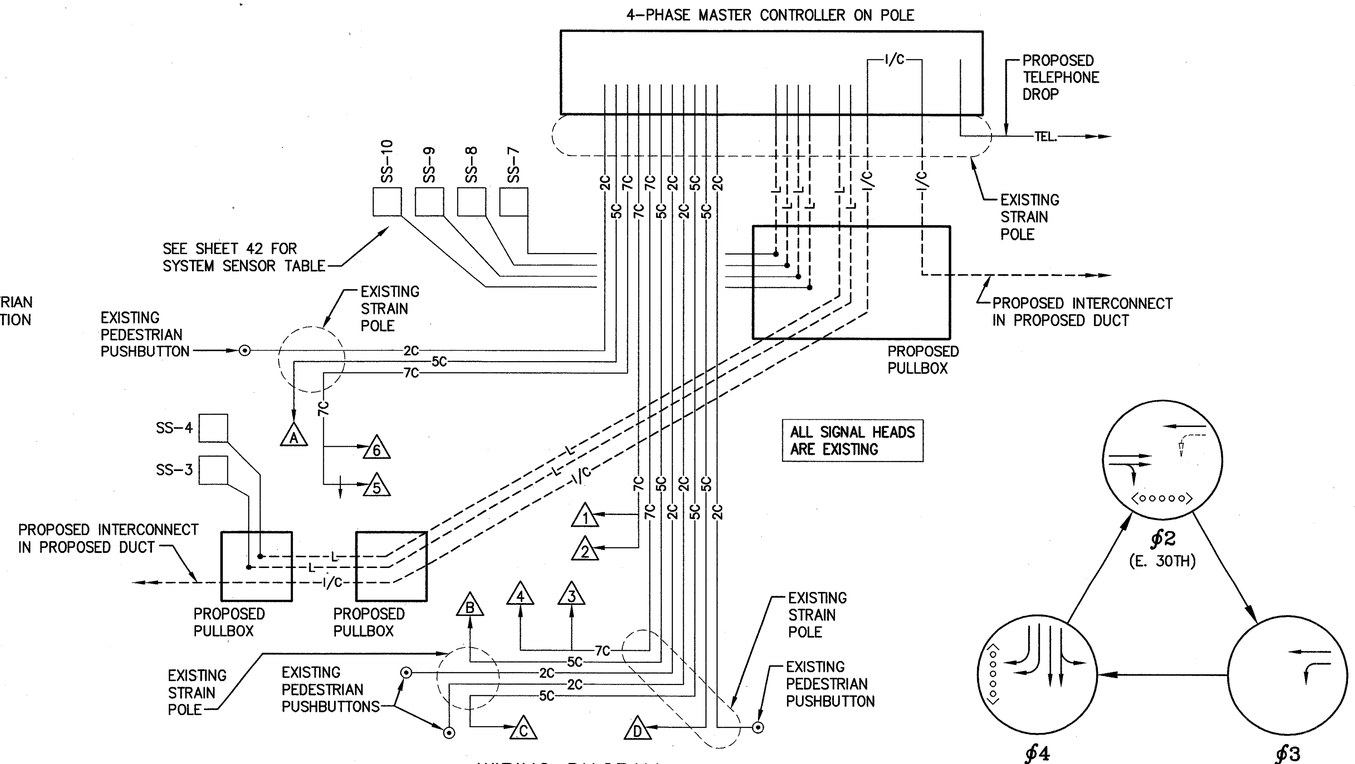
PEDESTRIAN (EXISTING)

A,B,C,D

SIGNAL HEAD DETAILS

NOTES:
1.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
2.) FOR TRAFFIC SIGNAL PLAN LEGEND, SEE SHEET 36.
3.) FOR WIRING DIAGRAM LEGEND, SEE SHEET 36.
4.) FOR INTERCONNECT PLAN, SEE SHEETS 42–47.





WIRING DIAGRAM

PHASING DIAGRAM
(PRE-TIMED)

HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN
EAST 30TH STREET & ORANGE AVE.

CUY-77-23.458 - PART 2

TRAFFIC SIGNAL TIMING AND DISPLAY – SEMI-ACTUATED CONTROLLER

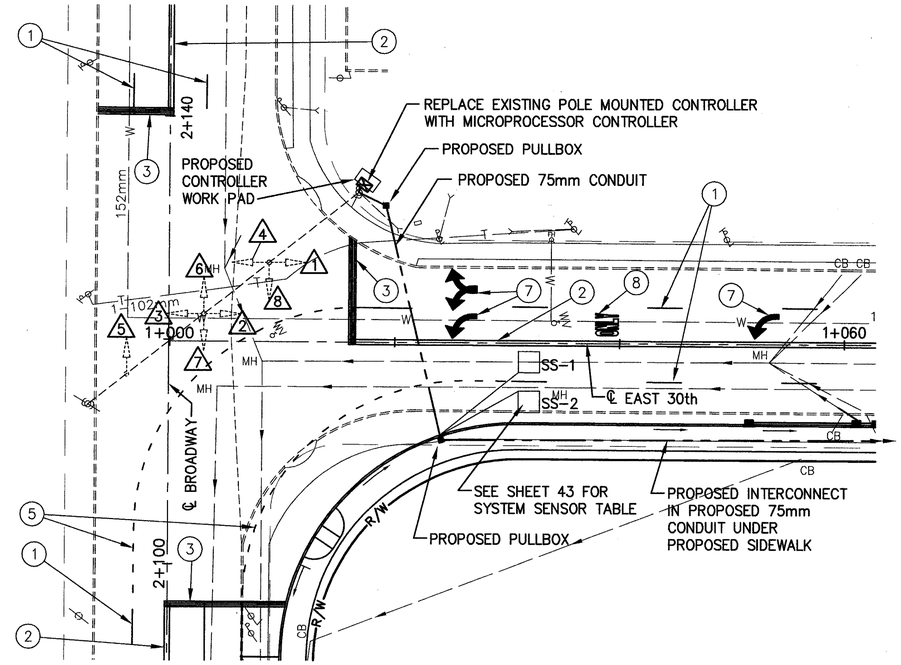
E. 30TH & BROADWAY	START IN: FLASH 8 SEC.	FIRST PHASE: ϕ2 GREEN
MOVEMENT	ϕ2 EAST 30TH	ϕ4 BROADWAY
INITIAL (MINIMUM)	22	29
EXTENSION	2.0	2.0
WALK	5	5
PEDESTRIAN CLEARANCE (FDW)	16	23
MAXIMUM I	25	31
MAXIMUM II	25	31
YELLOW	3.6	3.6
ALL RED	2.0	2.0

STREET	DIR-ECTION	SIGNAL	LENS	EMERG-FLASH PRE-EMPT	INTERVAL COLORS ϕ2 1	ϕ2 2	ϕ2 3	ϕ4 4	ϕ4 5	ϕ4 6
EAST 30TH	SB	1	R	R			R	R	R	R
			Y			Y				
			G		G					
		2	R	R			R	R	R	R
			Y			Y				
			G		G					
	NB	3	R	R			R	R	R	R
			Y			Y				
			G		G					
		4	R	R			R	R	R	R
			Y			Y				
			G		G					
BROADWAY	EB	5	R	R	R	R	R			R
			Y						Y	
			G					G		
		6	R	R	R	R	R			R
			Y						Y	
			G					G		
	WB	7	R	R	R	R	R			R
			Y						Y	
			G					G		
		8	R	R	R	R	R			R
			Y						Y	
			G					G		

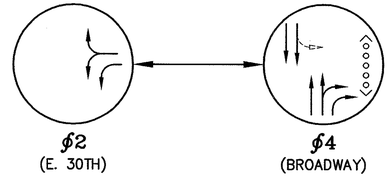
RECALL	ϕ2	ϕ4
VEH/MEM/OFF	☐	☐
VEH/MEM/ON	■	■
VEH/MIN	■	■
VEH/MAX	☐	☐
PED/RECALL	☐	☐
NON-ACT	☐	☐

COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	100 SEC.	75 SEC.	90 SEC.
PHASE 2 SPLIT	37%	37%	61%
PHASE 4 SPLIT	63%	63%	39%
OFFSET	94%	21%	39%
TIME OF DAY	6:30 AM-9:00 AM MON.-SAT.	9:00 AM-3:00 PM 6:00 PM-11:00 PM MON.-SAT. 9:00 AM-11:00 PM SUN.	3:00 PM-6:00 PM MON.-SAT.

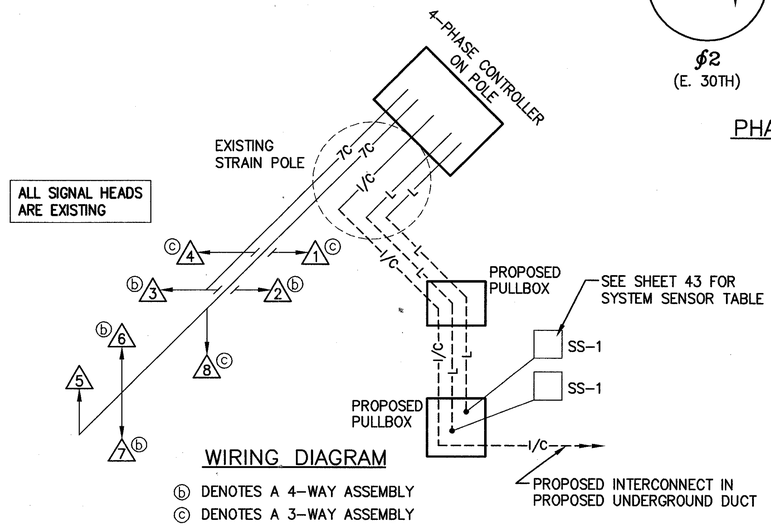
PHASING & TIMING NOTES :
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.
4.) SIGNAL SHALL OPERATE IN "FREE" MODE AT ALL OTHER TIMES.



NOTES:
1.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
2.) FOR TRAFFIC SIGNAL PLAN LEGEND, SEE SHEET 36.
3.) FOR WIRING DIAGRAM LEGEND, SEE SHEET 36.
4.) FOR INTERCONNECT PLAN, SEE SHEETS 42-47.

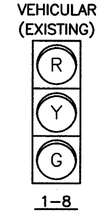


PHASING DIAGRAM
(PRE-TIMED)



WIRING DIAGRAM

ⓑ DENOTES A 4-WAY ASSEMBLY
ⓒ DENOTES A 3-WAY ASSEMBLY



SIGNAL HEAD DETAILS

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\14949TDC.dwg VIEW = 3

HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN
EAST 30TH STREET & BROADWAY

CUY-77-23.458 - PART 2

TRAFFIC SIGNAL TIMING AND DISPLAY – SEMI-ACTUATED CONTROLLER

BROADWAY & E. 34TH ST.	START IN: FLASH 8 SEC.	FIRST PHASE: ϕ2 GREEN

MOVEMENT	ϕ2 BROADWAY	ϕ3 E. 34TH ST.	ϕ4 EXCLUSIVE PEDESTRIAN
INITIAL (MINIMUM)	40	6	8
EXTENSION	2.0	3.0	2.0
WALK	–	–	5
PEDESTRIAN CLEARANCE (FDW)	–	–	13
MAXIMUM I	52	10	19
MAXIMUM II	52	10	19
YELLOW	3.0	3.0	3.0
ALL RED	3.0	2.0	1.0

STREET	DIR-ECTION	SIGNAL	LENS	EMERG-FLASH	PRE-EMPT	INTERVAL COLORS ϕ2 1	2	3	ϕ3 4	5	6	ϕ4 7	8	9
BROADWAY	NB	1	R	R				R	R	R	R	R	R	R
			Y				Y							
			G			G								
		2	R	R				R	R	R	R	R	R	R
			Y				Y							
			G			G								
	EB	3	R	R				R	R	R	R	R	R	R
			Y				Y							
			G			G								
		4	R	R				R	R	R	R	R	R	R
			Y				Y							
			G			G								
WEST CROSSWALK	SB	A	DW	DARK		DW	DW	DW	DW	DW	DW		FDW *	DW
			W	DARK								W *		
	NB	B	DW	DARK		DW	DW	DW	DW	DW	DW		FDW *	DW
			W	DARK								W *		
NORTH CROSSWALK	WB	C	DW	DARK		DW	DW	DW	DW	DW	DW		FDW *	DW
			W	DARK								W *		
	EB	D	DW	DARK		DW	DW	DW	DW	DW	DW		FDW *	DW
			W	DARK								W *		
EAST 34TH STREET	SB	5	R	R		R	R	R			R	R	R	R
			Y							Y				
			G						G					
		6	R	R		R	R	R			R	R	R	R
			Y							Y				
			G						G					

RECALL	ϕ2	ϕ3	ϕ4
VEH/MEM/OFF	□	□	■
VEH/MEM/ON	■	■	□
VEH/MIN	■	□	□
VEH/MAX	□	□	□
PED/RECALL	□	□	□
NON-ACT	□	□	□

* ONLY UPON PEDESTRIAN PUSHBUTTON ACTUATION

COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	100 SEC.	75 SEC.	90 SEC.
PHASE 2 SPLIT	63%	50%	58%
PHASE 3 SPLIT	15%	20%	17%
PHASE 4 SPLIT	22%	30%	25%
OFFSET	18%	54%	50%
TIME OF DAY	6:30 AM–9:00 AM MON.–SAT.	9:00 AM–3:00 PM 6:00 PM–11:00 PM MON.–SAT. 9:00 AM–11:00 PM SUN.	3:00 PM–6:00 PM MON.–SAT.

PHASING & TIMING NOTES :
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.
4.) SIGNAL SHALL OPERATE IN "FREE" MODE AT ALL OTHER TIMES.
5.) INTERNAL TIME BASED COORDINATION SHALL BE ESTABLISHED WITH THE EAST 30TH STREET SYSTEM.

TRAFFIC SIGNAL LEGEND

- MICROWAVE VEHICLE DETECTOR
- TRAFFIC SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PEDESTRIAN PUSHBUTTON AND SIGN
- NEW WOOD OR PEDESTAL POLE
- UNDERGROUND CONDUIT
- TRAFFIC CONTROLLER
- PULL BOX

WIRING DIAGRAM LEGEND

- OVERHEAD OR LOOP WIRE
- SPLICE POINT
- WIRE IN UNDERGROUND CONDUIT
- VEHICLE SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- MICROVAVE VEHICLE DETECTOR
- PEDESTRIAN PUSH BUTTON
- NC — SIGNAL CABLE ("N" DENOTES NUMBER OF CONDUCTORS)

HNTB ARCHITECTS ENGINEERS PLANNERS

VEHICULAR (PROPOSED) — R, Y, G — 1–6

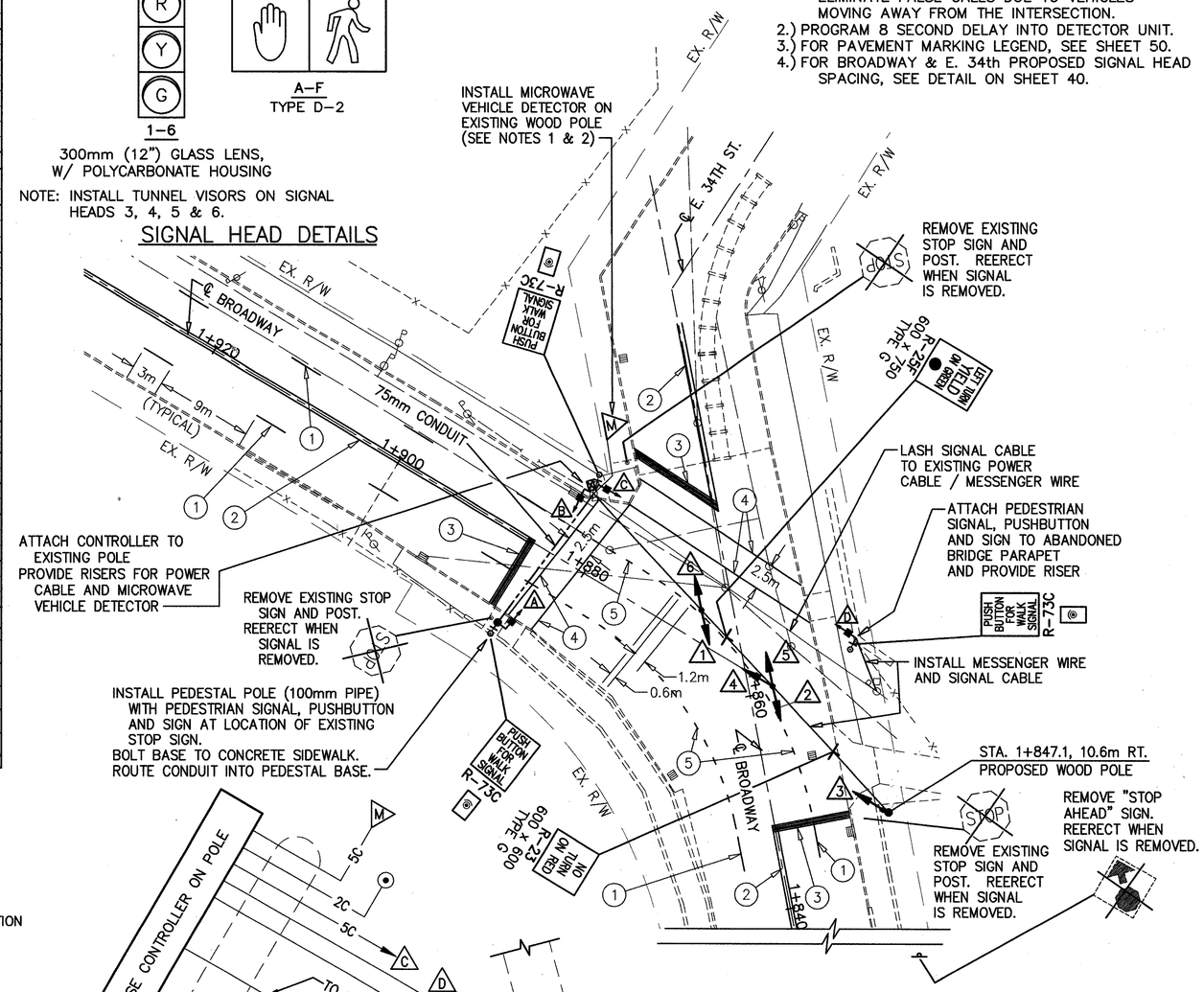
PEDESTRIAN (PROPOSED) — A–F, TYPE D–2

300mm (12") GLASS LENS, W/ POLYCARBONATE HOUSING

NOTE: INSTALL TUNNEL VISORS ON SIGNAL HEADS 3, 4, 5 & 6.

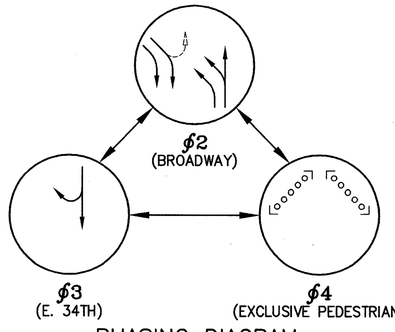
SIGNAL HEAD DETAILS

NOTES:
1.) ADJUST MICROWAVE VEHICLE DETECTOR TO ELIMINATE FALSE CALLS DUE TO VEHICLES MOVING AWAY FROM THE INTERSECTION.
2.) PROGRAM 8 SECOND DELAY INTO DETECTOR UNIT.
3.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
4.) FOR BROADWAY & E. 34th PROPOSED SIGNAL HEAD SPACING, SEE DETAIL ON SHEET 40.



WIRING DIAGRAM

ⓑ DENOTES A 2-WAY ASSEMBLY
ⓒ DENOTES A 3-WAY ASSEMBLY



PHASING DIAGRAM

HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN E. 34TH ST. & BROADWAY

CUY-77-23.458 – PART 2

36
58

J:\JOBS\24821\TECHPROD\DETOUR\14949TDC.dwg view = PLOT1

TRAFFIC SIGNAL TIMING AND DISPLAY – SEMI-ACTUATED CONTROLLER

BROADWAY & E. 37TH ST./ ROCKEFELLER

START IN: FLASH 8 SEC.

FIRST PHASE: ϕ2 GREEN

MOVEMENT	ϕ1 BROADWAY NBLT	ϕ2 BROADWAY	ϕ4 E 37th/ROCKEFELLER
INITIAL (MINIMUM)	6	30	8
EXTENSION	3.5	3.0	3.0
WALK	–	7	5
PEDESTRIAN CLEARANCE (FDW)	–	16	14
MAXIMUM I	20	70	22
MAXIMUM II	20	70	22
YELLOW	3.5	3.5	3.5
ALL RED	2.0	2.0	2.0

STREET	DIR-ECTION	SIGNAL	LENS	EMERG-FLASH PRE-EMPT	INTERVAL COLORS ϕ1 1	2	3	4	ϕ2 5	6	7	8	ϕ4 9	10	11	12
BROADWAY	NB	1	R	R								R	R	R	R	R
			Y								Y					
			G		G	G	G	G	G	G						
		2	R	R								R	R	R	R	R
			Y								Y					
			G		G	G	G	G	G	G						
		3	R	R								R	R	R	R	R
			Y								Y					
			G		G	G	G	G	G	G						
			✱				✱									
			✱		✱	✱										
	SB	4	R	R	R	R	R	R				R	R	R	R	R
			Y								Y					
			G						G	G						
		5	R	R	R	R	R	R				R	R	R	R	R
			Y								Y					
			G						G	G						
EAST CROSSWALK	NB	A	DW	DARK	DW	DW	DW	DW		FDW	DW	DW	DW	DW	DW	DW
			W	DARK					W							
	SB	B	DW	DARK	DW	DW	DW	DW		FDW	DW	DW	DW	DW	DW	DW
			W	DARK					W							
WEST CROSSWALK	SB	C	DW	DARK	DW	DW	DW	DW		FDW	DW	DW	DW	DW	DW	DW
			W	DARK					W							
	NB	D	DW	DARK	DW	DW	DW	DW		FDW	DW	DW	DW	DW	DW	DW
			W	DARK					W							
NORTH CROSSWALK	WB	E	DW	DARK	DW	DW	DW	DW	DW	DW	DW	DW		FDW ✱	DW	DW
			W	DARK									W ✱			
	SB	F	DW	DARK	DW	DW	DW	DW	DW	DW	DW	DW		FDW ✱	DW	DW
			W	DARK									W ✱			
EAST 37th ST.	WB	6	R	R	R	R	R	R	R	R	R	R				R
			Y												Y	
			G										G	G		
		7	R	R	R	R	R	R	R	R	R	R				R
			Y												Y	
			G										G	G		
ROCKEFELLER	EB	8	R	R	R	R	R	R	R	R	R	R				R
			Y												Y	
			G										G	G		
			✱				✱									
			✱		✱	✱										
		9	R	R	R	R	R	R	R	R	R	R				R
			Y												Y	
			G										G	G		

RECALL	ϕ1	ϕ2	ϕ4
VEH/MEM/OFF	▭	▭	▭
VEH/MEM/ON	▭	■	■
VEH/MIN	■	■	▭
VEH/MAX	▭	▭	▭
PED/RECALL	▭	■	▭
NON-ACT	▭	▭	▭

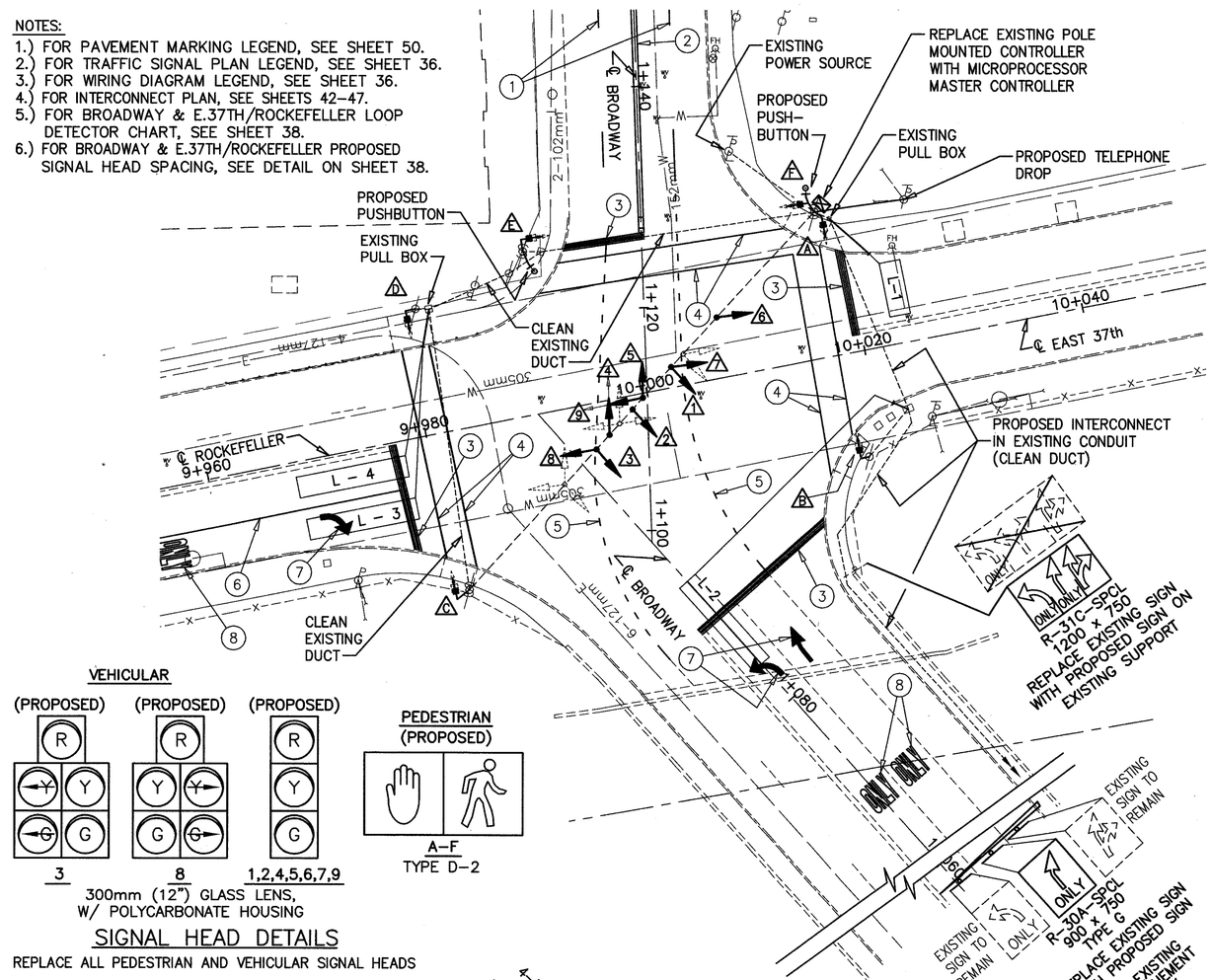
* ONLY UPON PEDESTRIAN PUSHBUTTON ACTUATION

COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	115 SEC.	75 SEC.	90 SEC.
PHASE 1 SPLIT	20%	15%	15%
PHASE 2 SPLIT	63%	60%	64%
PHASE 4 SPLIT	17%	25%	21%
OFFSET	0%	0%	0%
TIME OF DAY	6:30 AM–9:00 AM MON.–SAT.	9:00 AM–3:00 PM 6:00 PM–11:00 PM MON.–SAT. 9:00 AM–11:00 PM SUN.	3:00 PM–6:00 PM MON.–SAT.

PHASING & TIMING NOTES :
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.
4.) SIGNAL SHALL OPERATE IN "FREE" MODE AT ALL OTHER TIMES.
5.) FOR SIGN R-31C-SPCL. AND LANE ARROW DETAILS SEE SHEET 51.

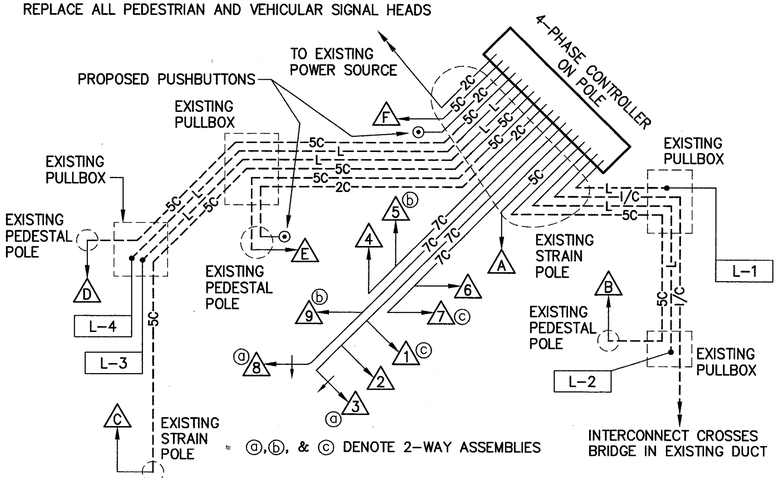
HNTB ARCHITECTS ENGINEERS PLANNERS

NOTES:
1.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
2.) FOR TRAFFIC SIGNAL PLAN LEGEND, SEE SHEET 36.
3.) FOR WIRING DIAGRAM LEGEND, SEE SHEET 36.
4.) FOR INTERCONNECT PLAN, SEE SHEETS 42–47.
5.) FOR BROADWAY & E.37TH/ROCKEFELLER LOOP DETECTOR CHART, SEE SHEET 38.
6.) FOR BROADWAY & E.37TH/ROCKEFELLER PROPOSED SIGNAL HEAD SPACING, SEE DETAIL ON SHEET 38.



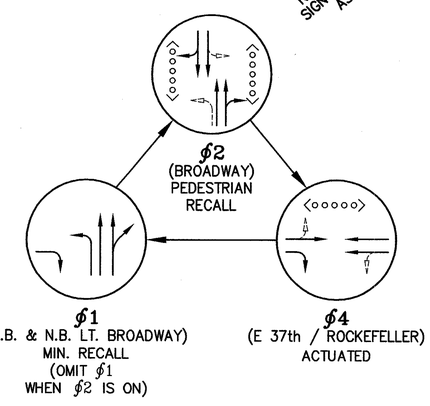
SIGNAL HEAD DETAILS

REPLACE ALL PEDESTRIAN AND VEHICULAR SIGNAL HEADS



WIRING DIAGRAM

PHASING DIAGRAM



HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN
BROADWAY & EAST 37TH / ROCKEFELLER

CUY-77-23.458 – PART 2

37
58

J: \JOBS\24621\TECHPROD\DETOUR\14949TDC.dwg view = PLOT2

TRAFFIC SIGNAL TIMING AND DISPLAY – SEMI-ACTUATED CONTROLLER

BROADWAY & I-490 OFF RAMP	START IN: FLASH 8 SEC.	FIRST PHASE: ϕ2 GREEN

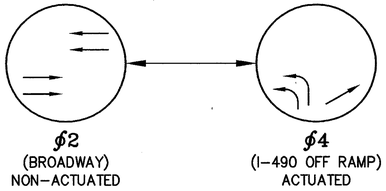
MOVEMENT	ϕ2 BROADWAY	ϕ4 I-490 OFF RAMP
INITIAL (MINIMUM)	25	10
EXTENSION	2.0	4.0
WALK	7	7
PEDESTRIAN CLEARANCE (FDW)	14	14
MAXIMUM I	40	40
MAXIMUM II	40	40
YELLOW	3.6	4.5
ALL RED	3.0	2.5

STREET	DIR-ECTION	SIGNAL	LENS	EMERG-FLASH	PRE-EMPT	INTERVAL COLORS ϕ1 1	ϕ1 2	ϕ1 3	ϕ1 4	ϕ2 5	ϕ2 6	ϕ2 7
BROADWAY	SB	1	R	R				R	R	R	R	R
			Y				Y					
			G			G						
		2	R	R				R	R	R	R	R
			Y				Y					
			G			G						
	NB	5	R	R					R	R	R	R
			Y					Y				
			G			G	G					
		6	R	R					R	R	R	R
			Y					Y				
			G			G	G					
I-490 OFF RAMP	EB (SPAN)	3	R	R		R	R	R	R			R
			Y								Y	
			G							G		
		4	R	R		R	R	R	R			R
			Y								Y	
			G							G		
	EB (ARM)	7	R	R		R	R	R	R			R
			Y								Y	
			G							G		
		8	R	R		R	R	R	R			R
			Y								Y	
			G							G		

RECALL	ϕ2	ϕ4
VEH/MEM/OFF	☐	☐
VEH/MEM/ON	■	■
VEH/MIN	■	☐
VEH/MAX	☐	☐
PED/RECALL	☐	☐
NON-ACT	■	☐

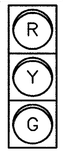
COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	115 SEC.	75 SEC.	90 SEC.
PHASE 2 SPLIT	59%	60%	70%
PHASE 4 SPLIT	41%	40%	30%
OFFSET	10%	7%	94%
TIME OF DAY	6:30 AM-9:00 AM MON.-SAT.	9:00 AM-3:00 PM 6:00 PM-11:00 PM MON.-SAT. 9:00 AM-11:00 PM SUN.	3:00 PM-6:00 PM MON.-SAT.

PHASING & TIMING NOTES :
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.
4.) SIGNAL SHALL OPERATE IN "FREE" MODE AT ALL OTHER TIMES.



PHASING DIAGRAM

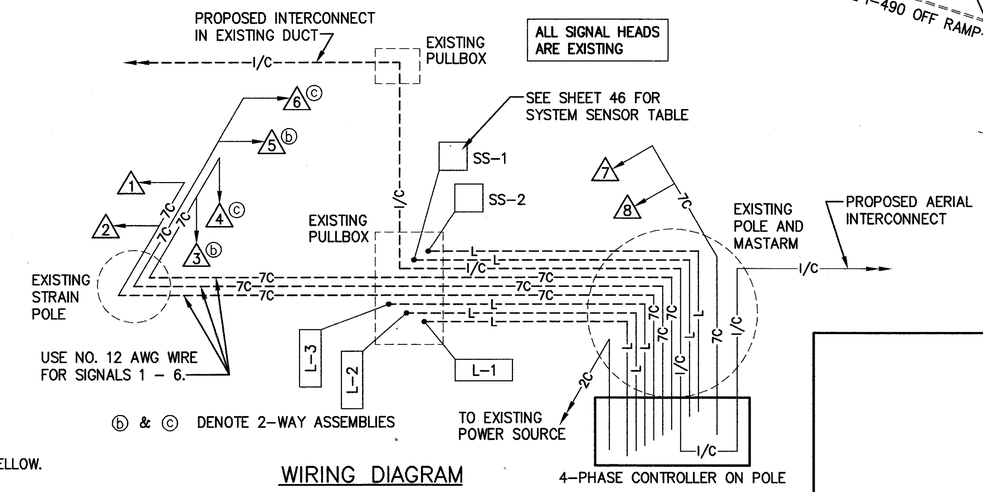
VEHICULAR (EXISTING)



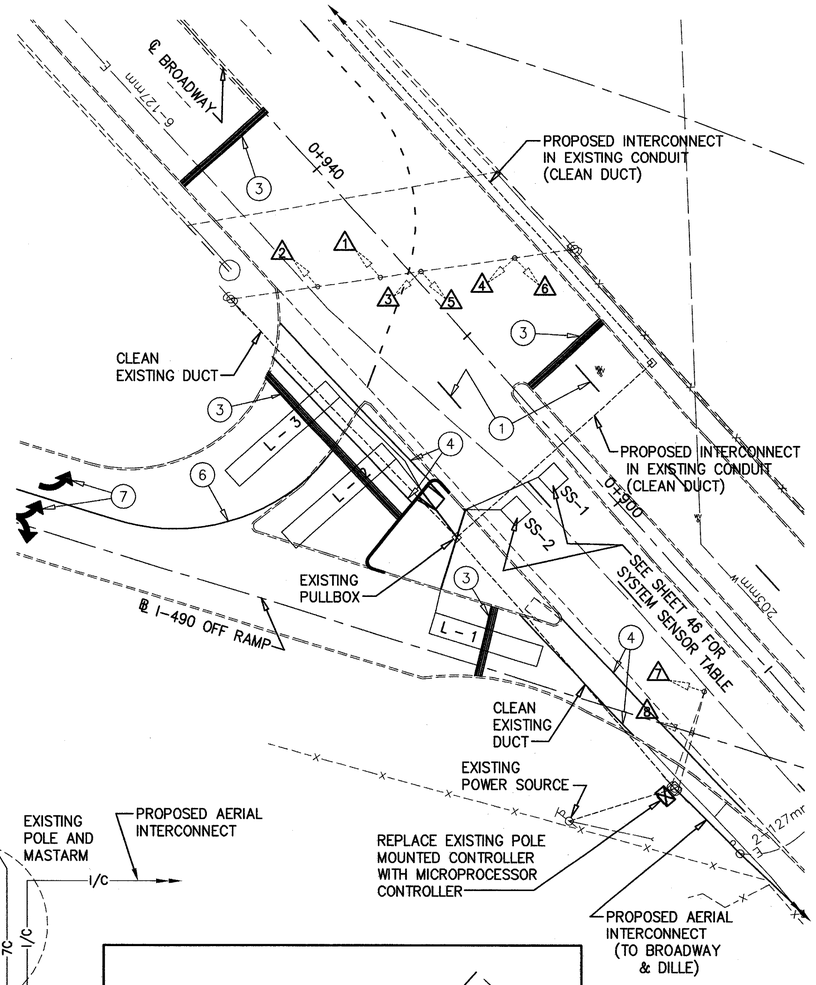
1-8

SIGNAL HEAD DETAILS

NOTES:
1.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
2.) FOR TRAFFIC SIGNAL PLAN LEGEND, SEE SHEET 36.
3.) FOR WIRING DIAGRAM LEGEND, SEE SHEET 36.
4.) INSTALL NEW INTERCONNECT CABLE IN EXISTING DUCT. SEE SHEETS 42-47.



WIRING DIAGRAM

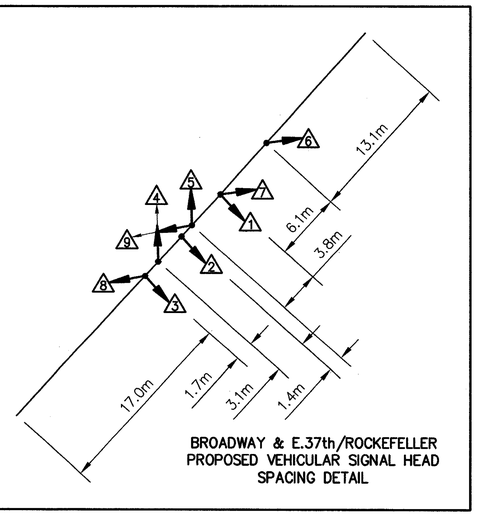


LOOP DETECTOR CHART								
LOOP	SIZE (M)	# TURNS	STATION **	OFFSET **	REFERENCE	HOOK-UP	CALL/DELAY/EXTEND	TYPE
L-1	2.5 x 10	2	0+894.9	13.5m LT.	℄ BRDWAY.	ϕ4	8 sec.	PRESENCE
L-2	2.5 x 12	2	0+918.0	12.0m LT.	℄ BRDWAY.	ϕ4	2 sec.	PRESENCE
L-3	2.5 x 12	2	0+925.5	12.0m LT.	℄ BRDWAY.	ϕ4	–	PRESENCE

** – LOCATION SUBJECT TO FINAL APPROVAL IN THE FIELD BY THE ENGINEER.

LOOP DETECTOR CHART – BROADWAY & E. 37TH/ROCKEFELLER SEE SHEET 37.								
LOOP	SIZE (M)	# TURNS	STATION **	OFFSET **	REFERENCE	HOOK-UP	DELAY	TYPE
L-1	1.9 x 5	2	10+022.8	2.5m Lt.	℄ E 37th ST.	ϕ4	–	PRESENCE
L-2	1.9 x 10	2-4-2	1+094.2	0.9m Lt.	℄ BRDWAY.	ϕ1	3 sec.	PRESENCE
L-3	1.9 x 10	2	9+977.8	5.2m Rt.	℄ ROCKEF.	ϕ4	8 sec.	PRESENCE
L-4	1.9 x 10	2	9+977.8	1.3m Rt.	℄ ROCKEF.	ϕ4	3 sec.	PRESENCE

** – LOCATION SUBJECT TO FINAL APPROVAL IN THE FIELD BY THE ENGINEER.



BROADWAY & E.37th/ROCKEFELLER PROPOSED VEHICULAR SIGNAL HEAD SPACING DETAIL

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\14949TDC.dwg view = 1

HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN
BROADWAY & EB I-490 OFF RAMP

CUY-77-23.458 - PART 2

38
58

TRAFFIC SIGNAL TIMING AND DISPLAY – SEMI-ACTUATED CONTROLLER

BROADWAY & DILLE — START IN: FLASH 8 SEC. — FIRST PHASE: ϕ2 GREEN

MOVEMENT	ϕ2 BROADWAY	ϕ4 DILLE
INITIAL (MINIMUM)	40	6
EXTENSION	–	3.0
WALK	7	5
PEDESTRIAN CLEARANCE (FDW)	8	12
MAXIMUM I	52	18
MAXIMUM II	52	18
YELLOW	3.6	3.0
ALL RED	2.0	2.0

STREET	DIR-ECTION	SIGNAL	LENS	ENERG-IZED	PRE-EMPT	INTERVAL COLORS ϕ2 1	2	3	4	ϕ4 5	6	7	8
BROADWAY	SB	1	R						R	R	R	R	R
			Y	Y				Y					
			G			G	G						
		2	R						R	R	R	R	R
			Y	Y				Y					
			G			G	G						
	NB	3	R						R	R	R	R	R
			Y	Y				Y					
			G			G	G						
		4	R						R	R	R	R	R
			Y	Y				Y					
			G			G	G						
DILLE	EB	5	R	R		R	R	R	R				R
			Y									Y	
			G							G	G		
		6	R	R		R	R	R	R				R
			Y									Y	
			G							G	G		
	WB	7	R	R		R	R	R	R				R
			Y									Y	
			G							G	G		
SOUTH CROSSWALK	WB	A	DW	DARK		DW	DW	DW	DW		FDW	DW	DW
			W	DARK						W*			
	EB	B	DW	DARK		DW	DW	DW	DW		FDW	DW	DW
			W	DARK						W*			

RECALL — ϕ2 — ϕ4

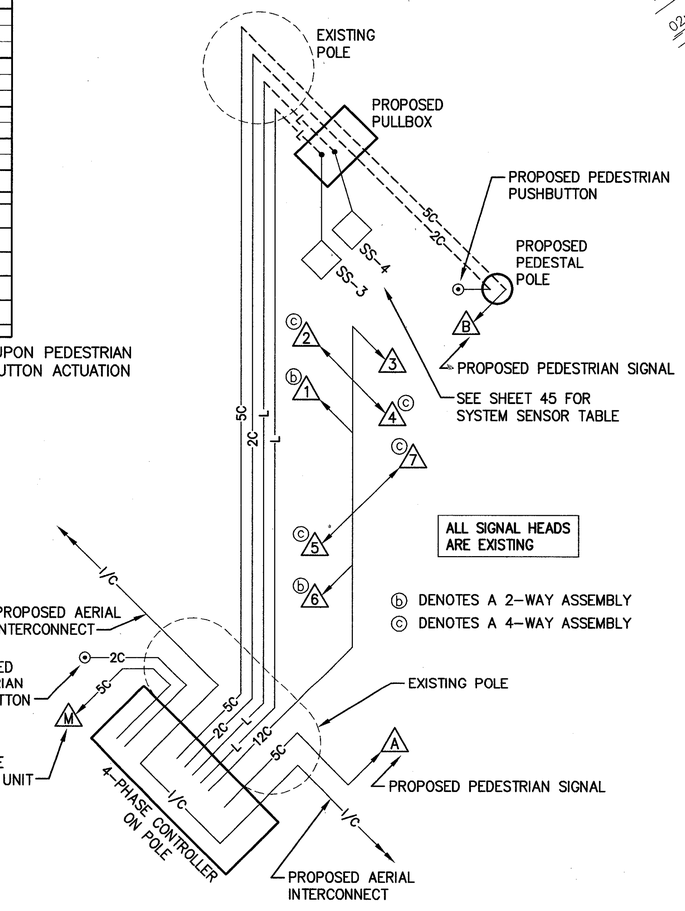
- VEH/MEM/OFF
- VEH/MEM/ON
- VEH/MIN
- VEH/MAX
- PED/RECALL
- NON-ACT

COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	115 SEC.	75 SEC.	90 SEC.
PHASE 2 SPLIT	79%	68%	73%
PHASE 4 SPLIT	21%	32%	27%
OFFSET	2%	44%	54%
TIME OF DAY	6:30 AM–9:00 AM MON.–SAT.	9:00 AM–3:00 PM 6:00 PM–11:00 PM MON.–SAT. 9:00 AM–11:00 PM SUN.	3:00 PM–6:00 PM MON.–SAT.

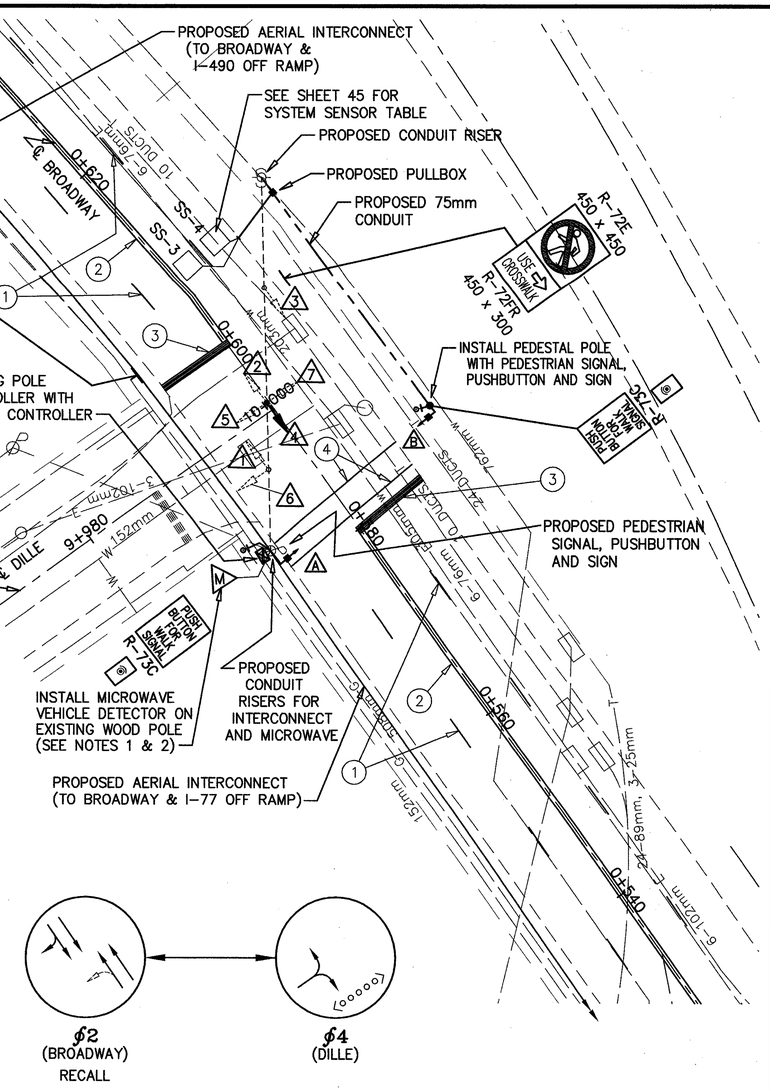
*ONLY UPON PEDESTRIAN PUSHBUTTON ACTUATION

PHASING & TIMING NOTES :
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.
4.) SIGNAL SHALL OPERATE IN "FREE" MODE AT ALL OTHER TIMES.

NOTES:
1.) ADJUST MICROWAVE VEHICLE DETECTOR TO ELIMINATE FALSE CALLS DUE TO VEHICLES MOVING AWAY FROM THE INTERSECTION.
2.) PROGRAM 8 SECOND DELAY INTO DETECTOR UNIT.
3.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
4.) FOR TRAFFIC SIGNAL PLAN LEGEND, SEE SHEET 36.
5.) FOR WIRING DIAGRAM LEGEND, SEE SHEET 36.

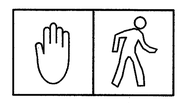


WIRING DIAGRAM



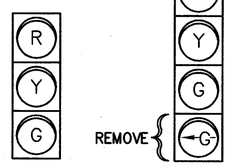
PHASING DIAGRAM

PEDESTRIAN (PROPOSED)



A,B TYPE D-2

VEHICULAR (EXISTING)



1,2,3,5,6,7 — 4

SIGNAL HEAD DETAILS

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\1-49497DC.dwg VIEW = 6

HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN BROADWAY & DILLE

CUY-77-23.458 – PART 2

39
58

TRAFFIC SIGNAL TIMING AND DISPLAY - SEMI-ACTUATED CONTROLLER

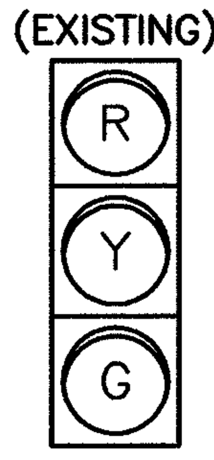
BROADWAY & I-77 OFF RAMP	START IN: FLASH 8 SEC.	FIRST PHASE: ∅2 GREEN
MOVEMENT	∅2 BROADWAY	∅4 I-77 OFF RAMP
INITIAL (MINIMUM)	25	15
EXTENSION	3.0	4.0
WALK	7	7
PEDESTRIAN CLEARANCE (FDW)	7	12
MAXIMUM I	40	40
MAXIMUM II	40	40
YELLOW	3.6	4.5
ALL RED	2.0	2.0

STREET	DIR-ECTION	SIGNAL	LENS	EMERG-FLASH	PRE-EMPT	∅2 1	∅2 2	∅2 3	∅4 4	∅4 5	∅4 6
BROADWAY	WB	4	R					R	R	R	R
			Y	Y			Y				
			G			G					
		5	R					R	R	R	R
			Y	Y			Y				
			G			G					
	EB	6	R					R	R	R	R
			Y	Y			Y				
			G			G					
		7	R					R	R	R	R
			Y	Y			Y				
			G			G					
I-77 OFF RAMP	NB	1	R	R		R	R	R			R
			Y							Y	
			G						G		
		2	R	R		R	R	R			R
			Y							Y	
			G						G		
	SB	3	R	R		R	R	R			R
			Y							Y	
			G						G		

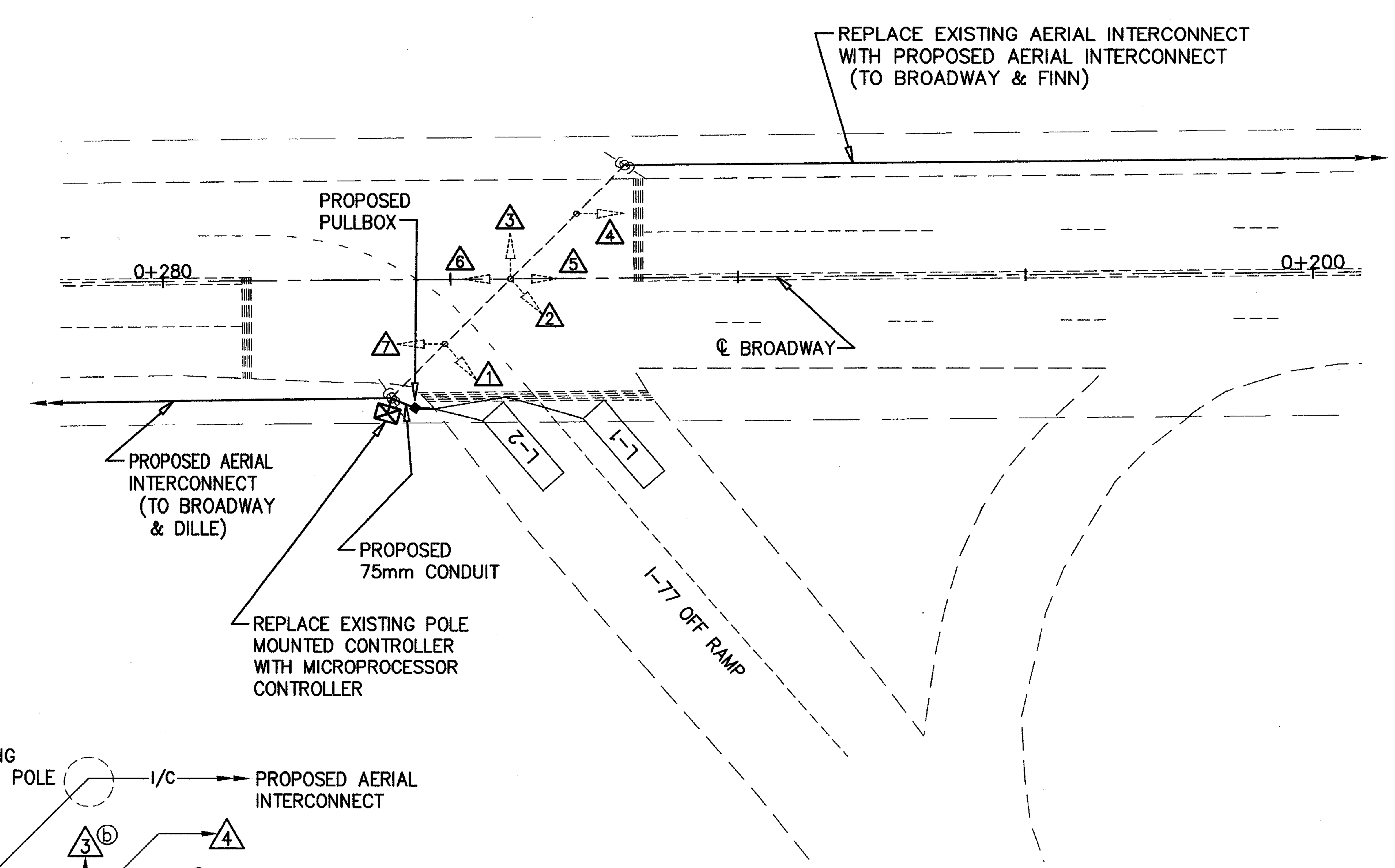
RECALL	∅2	∅4
VEH/MEM/OFF	□	□
VEH/MEM/ON	■	■
VEH/MIN	■	□
VEH/MAX	□	□
PED/RECALL	□	□
NON-ACT	□	□

COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	115 SEC.	75 SEC.	90 SEC.
PHASE 2 SPLIT	45%	50%	61%
PHASE 4 SPLIT	55%	50%	39%
OFFSET	38%	9%	94%
TIME OF DAY	6:30 AM-9:00 AM MON.-SAT.	9:00 AM-3:00 PM 6:00 PM-11:00 PM MON.-SAT. 9:00 AM-11:00 PM SUN.	3:00 PM-6:00 PM MON.-SAT.

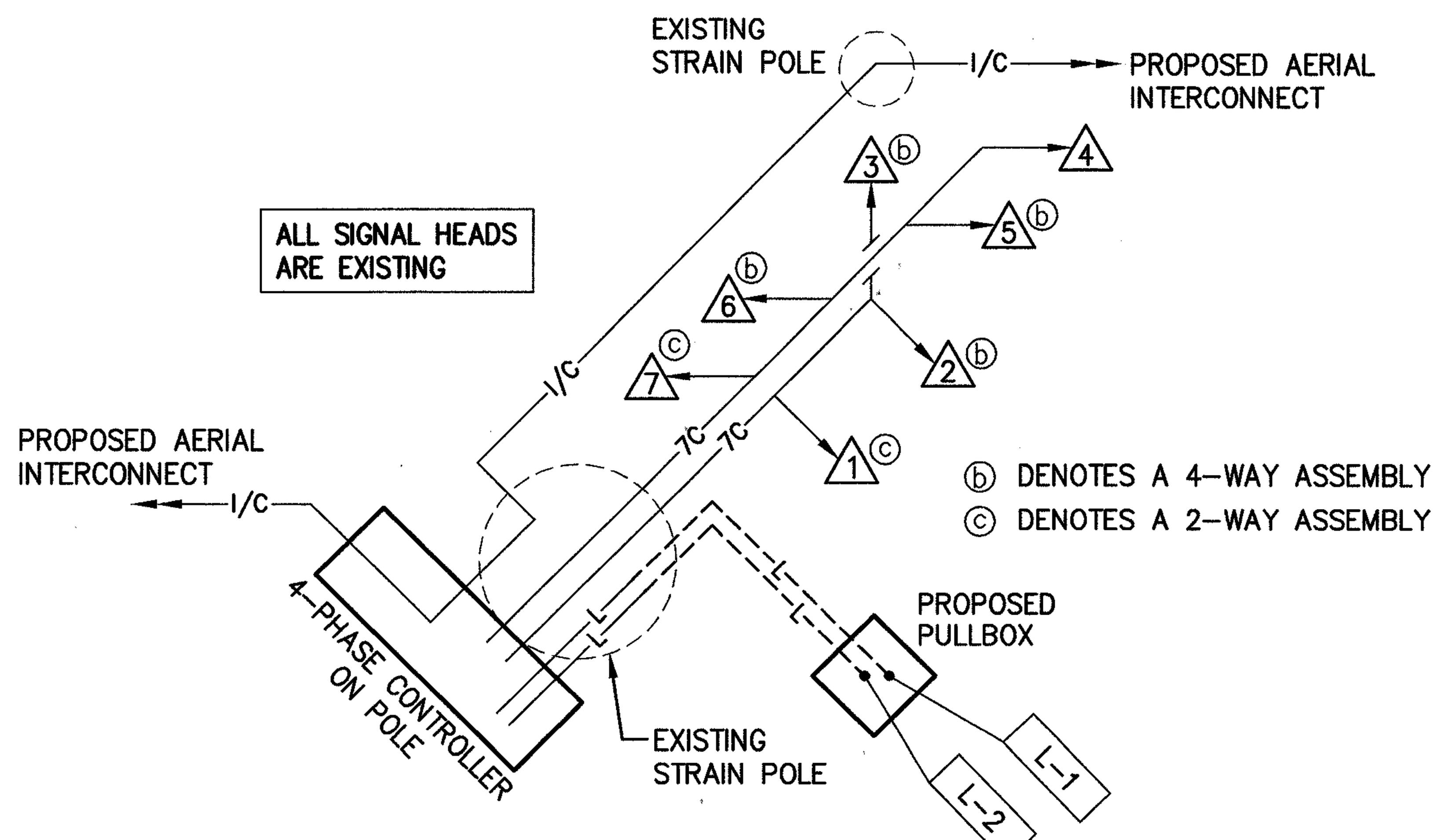
PHASING & TIMING NOTES :
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.
4.) SIGNAL SHALL OPERATE IN "FREE" MODE AT ALL OTHER TIMES.



SIGNAL HEAD DETAILS



ALL SIGNAL HEADS ARE EXISTING

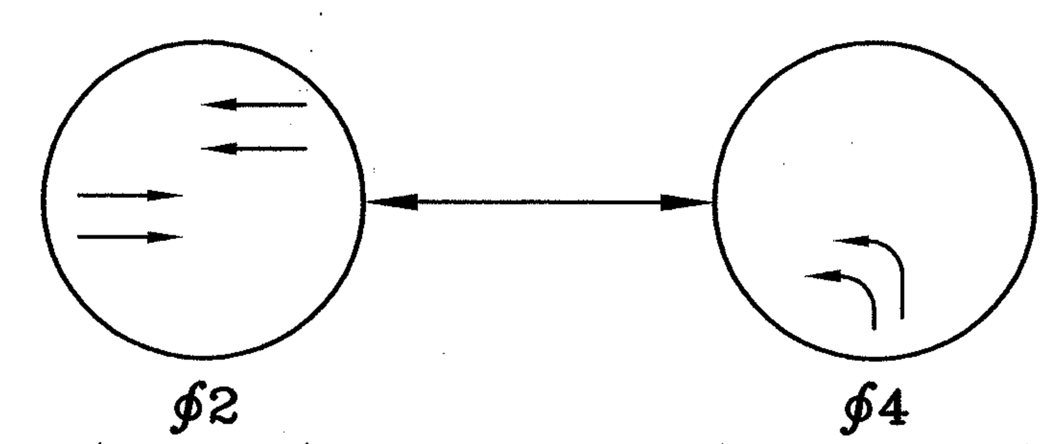


WIRING DIAGRAM

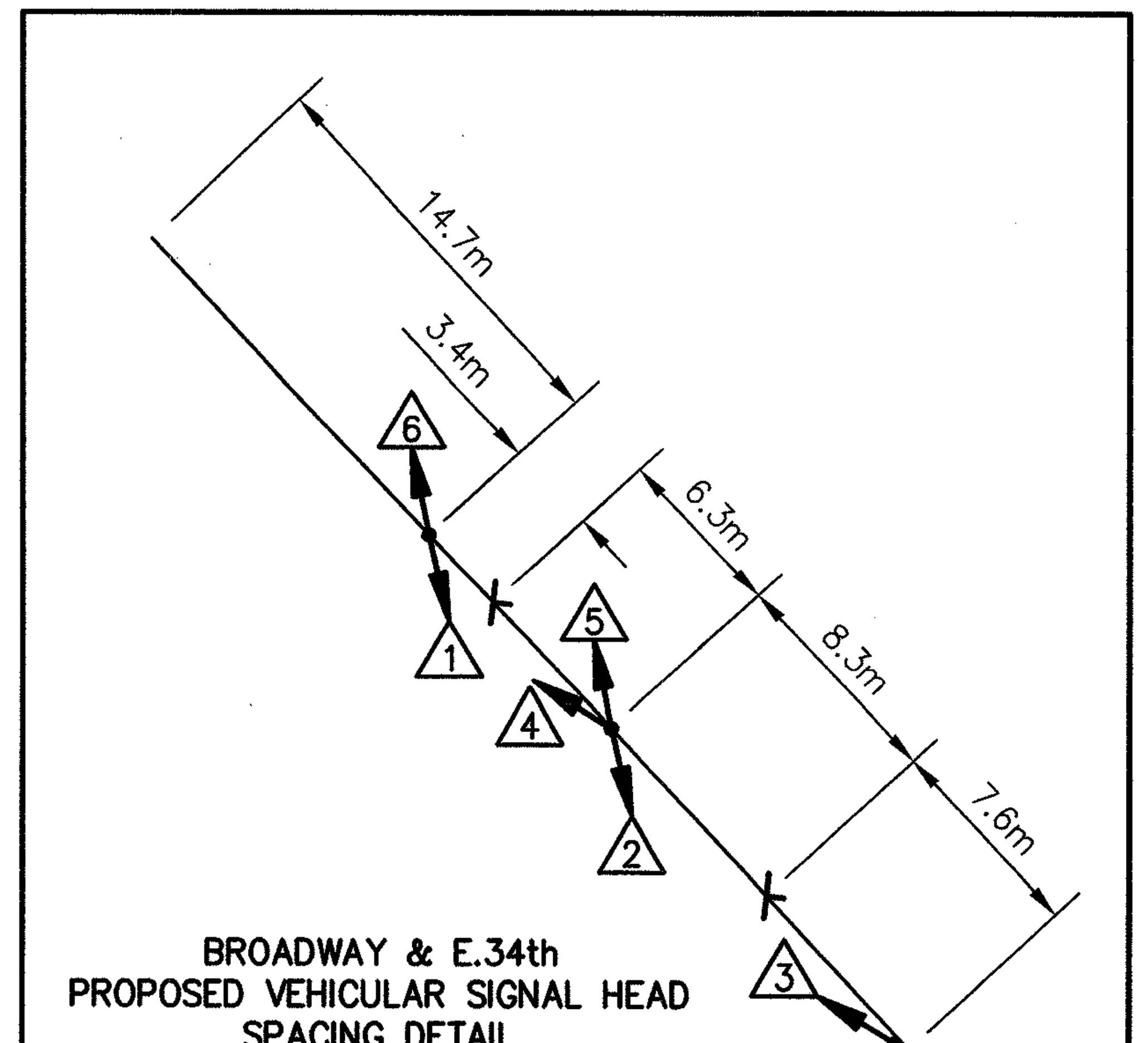
NOTES:
1.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
2.) FOR TRAFFIC SIGNAL PLAN LEGEND, SEE SHEET 36.
3.) FOR WIRING DIAGRAM LEGEND, SEE SHEET 36.
4.) FOR INTERCONNECT PLAN, SEE SHEETS 42-47.

LOOP DETECTOR CHART								
LOOP	SIZE (M)	# TURNS	STATION **	OFFSET **	REFERENCE	HOOK-UP	CALL/DELAY/EXTEND	TYPE
L-1	1.9 x 9.2	3	0+249.4	8.6m LT.	℄ BRDWAY.	∅4	-	PRESENCE
L-2	1.9 x 9.2	3	0+256.4	8.6m LT.	℄ BRDWAY.	∅4	-	PRESENCE

** - LOCATION SUBJECT TO FINAL APPROVAL IN THE FIELD BY THE ENGINEER. (MEASURED FROM TOP RIGHT CORNER OF LOOP)



PHASING DIAGRAM



BROADWAY & E.34th
PROPOSED VEHICULAR SIGNAL HEAD SPACING DETAIL

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\14949TDC.dwg view = 2

HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN
BROADWAY & I-77 N.B. EXIT RAMP

CUY-77-23.458 - PART 2

TRAFFIC SIGNAL TIMING AND DISPLAY – PRE-TIMED CONTROLLER

BROADWAY & FINN	START IN: FLASH 8 SEC.	FIRST PHASE: ϕ2 GREEN

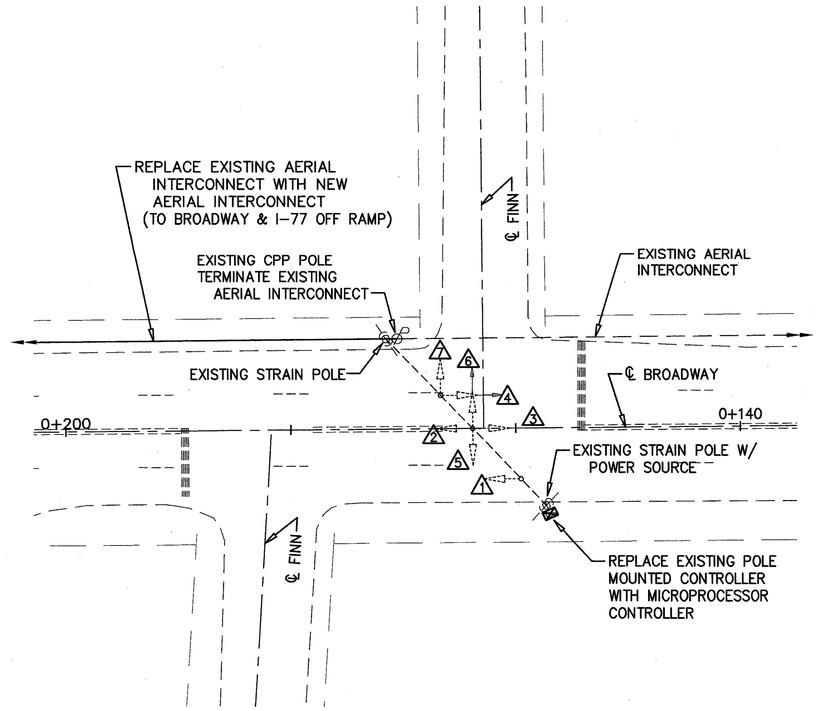
MOVEMENT	ϕ2 BROADWAY	ϕ4 FINN
INITIAL (MINIMUM)	35	20
EXTENSION	2.0	2.0
WALK	7	7
PEDESTRIAN CLEARANCE (FDW)	9	12
MAXIMUM I	88	25
MAXIMUM II	88	25
YELLOW	3.0	3.0
ALL RED	1.5	2.0

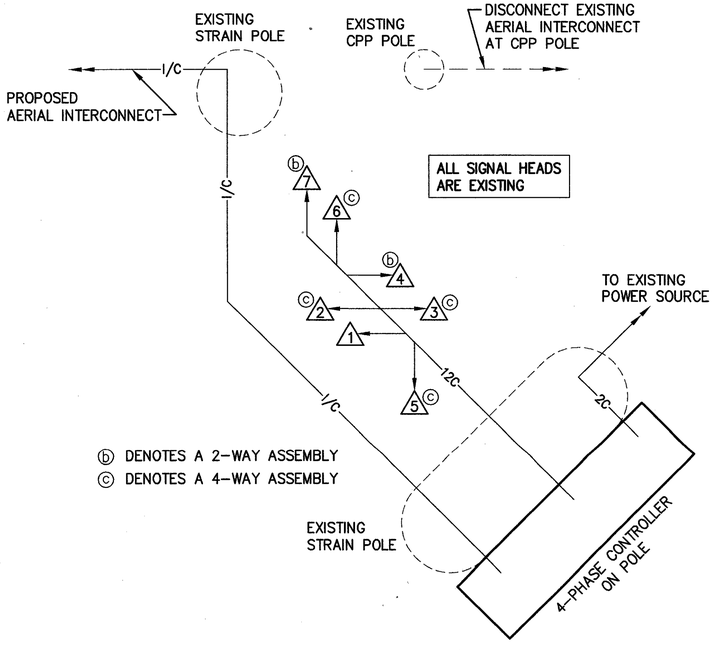
STREET	DIR-ECTION	SIGNAL	LENS	EMERG-FLASH	PRE-EMPT	INTERVAL COLORS ϕ2 1	2	3	ϕ4 4	5	6
BROADWAY	SB	1	R					R	R	R	R
			Y	Y			Y				
			G			G					
		2	R					R	R	R	R
			Y	Y			Y				
			G			G					
	NB	3	R					R	R	R	R
			Y	Y			Y				
			G			G					
		4	R					R	R	R	R
			Y	Y			Y				
			G			G					
I-77 OFF RAMP	EB	5	R	R		R	R	R			R
			Y							Y	
			G						G		
	WB	6	R	R		R	R	R			R
			Y							Y	
			G						G		
		7	R	R		R	R	R			R
			Y							Y	
			G						G		

RECALL	ϕ2	ϕ4
VEH/MEM/OFF	▭	▭
VEH/MEM/ON	▬	▬
VEH/MIN	▬	▬
VEH/MAX	▭	▭
PED/RECALL	▭	▭
NON-ACT	▭	▭

COORDINATION TIMING	DIAL 1	DIAL 2	DIAL 3
CYCLE LENGTH	115 SEC.	75 SEC.	90 SEC.
PHASE 2 SPLIT	78%	66%	72%
PHASE 4 SPLIT	22%	34%	28%
OFFSET	44%	9%	2%
TIME OF DAY	6:30 AM-9:00 AM MON.-SAT.	9:00 AM-3:00 PM 6:00 PM-11:00 PM MON.-SAT. 9:00 AM-11:00 PM SUN.	3:00 PM-6:00 PM MON.-SAT.

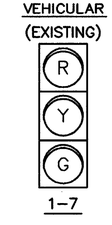
PHASING & TIMING NOTES :
1.) PHASE SPLITS INCLUDE GREEN PLUS YELLOW AND ALL RED.
2.) PERMISSIVES START AT THE ZERO POINT OF THE CYCLE.
3.) OFFSETS SHALL BE REFERENCED TO THE BEGINNING OF PHASE 2 YELLOW.
4.) SIGNAL SHALL OPERATE IN "FREE" MODE AT ALL OTHER TIMES.



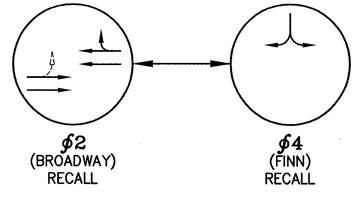


WIRING DIAGRAM

NOTES:
1.) FOR PAVEMENT MARKING LEGEND, SEE SHEET 50.
2.) FOR TRAFFIC SIGNAL PLAN LEGEND, SEE SHEET 36.
3.) FOR WIRING DIAGRAM LEGEND, SEE SHEET 36.
4.) FOR INTERCONNECT PLAN, SEE SHEETS 42–47.



SIGNAL HEAD DETAILS



PHASING DIAGRAM

HNTB ARCHITECTS ENGINEERS PLANNERS

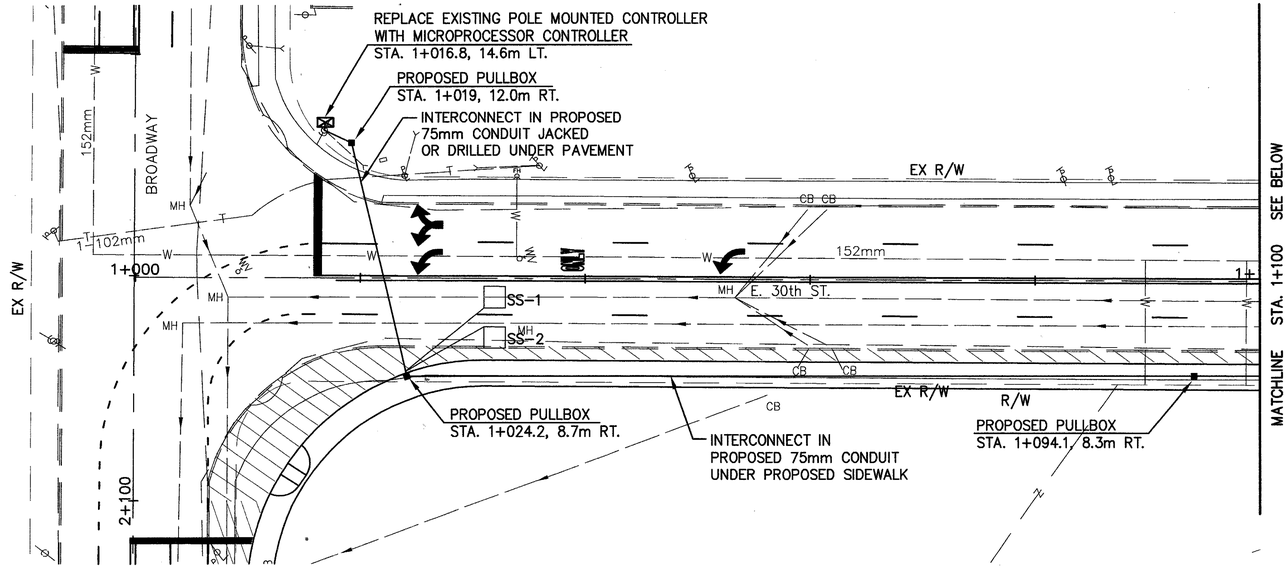
J:\JOBS\24621\TECHPROD\DETOUR\14949TDC.dwg view = 7

HORIZONTAL SCALE 1 : 250

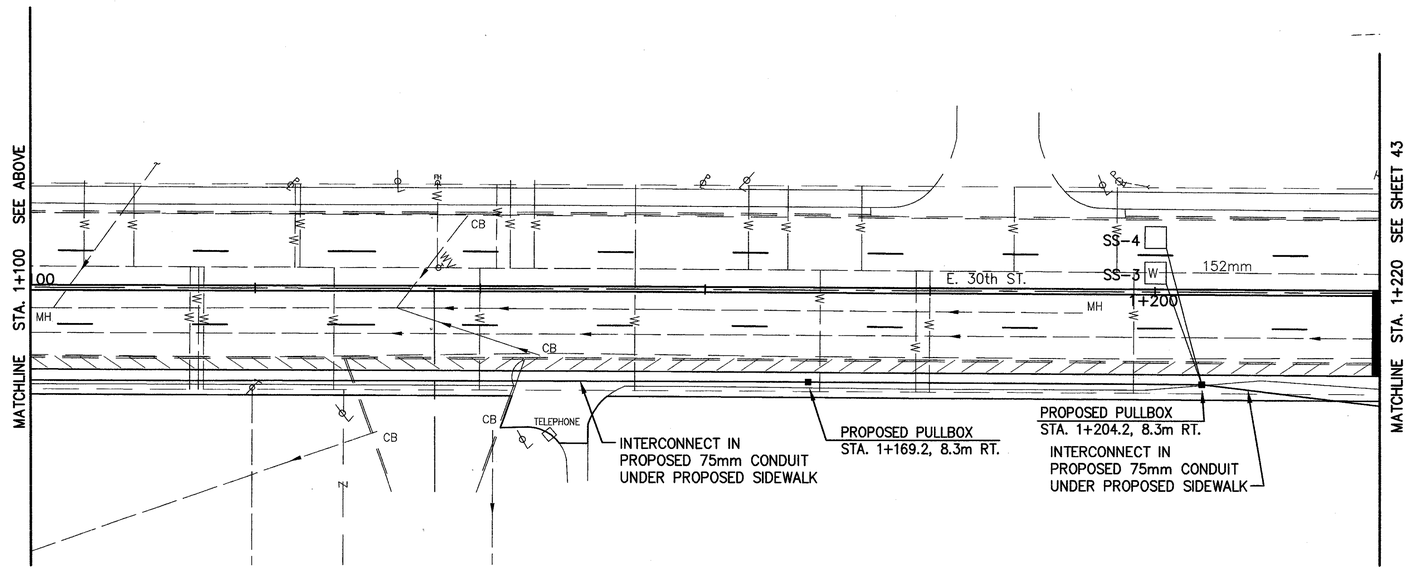
CALCULATED IMH CHECKED MJW

TRAFFIC SIGNAL PLAN BROADWAY & FINN

CUY-77-23.458 - PART 2



LOOP DETECTOR CHART								
LOOP	SIZE (M)	# TURNS	STATION	OFFSET	REFERENCE	HOOK–UP	CALL/DELAY/EXTEND	TYPE
SS–1	1.9 x 1.9	3	1+032.9	2.6 Rt.	℄ E 30th	INTO CABINET E 30th & BROADWAY	–	SYSTEM DETECTOR
SS–2	1.9 x 1.9	3	1+032.9	6.2 Rt.	℄ E 30th		–	SYSTEM DETECTOR
SS–3	1.9 x 1.9	3	1+199.1	2.6 Lt.	℄ E 30th	INTO CABINET E 30th & ORANGE	–	SYSTEM DETECTOR
SS–4	1.9 x 1.9	3	1+199.1	5.7 Lt.	℄ E 30th		–	SYSTEM DETECTOR



HNTB ARCHITECTS ENGINEERS PLANNERS

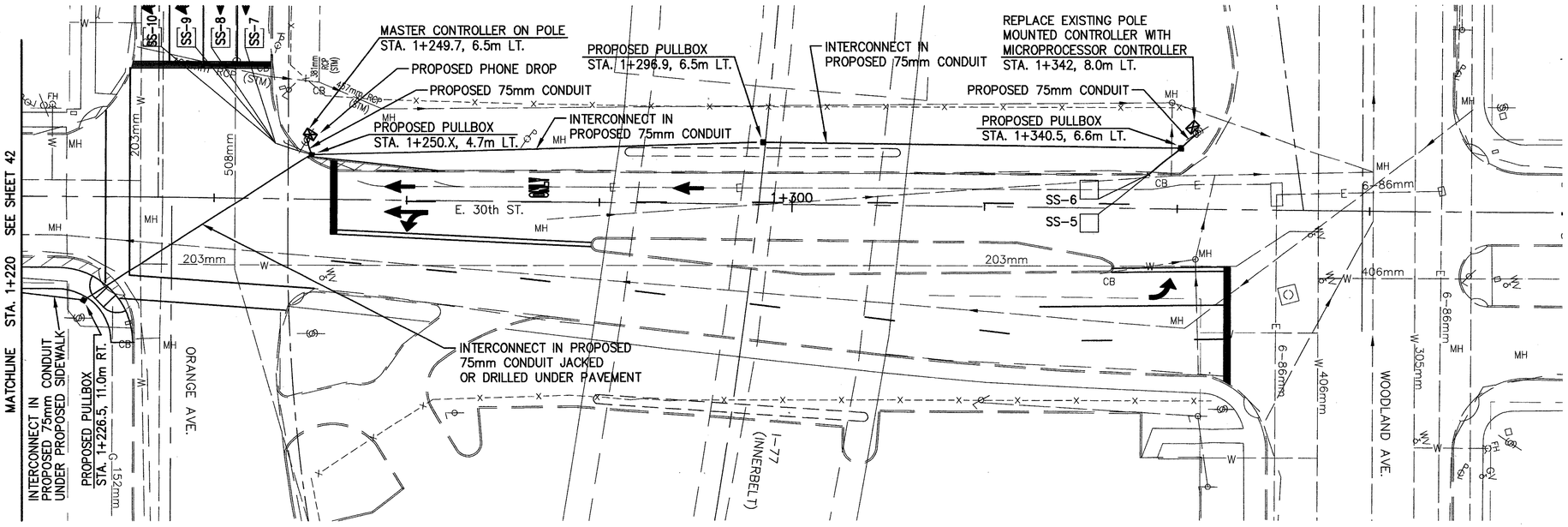
J:\JOBS\24621\TECHPROD\DETOUR\14949TD0.dwg view = PLOT1

HORIZONTAL SCALE
1 : : 250

CALCULATED IMH
CHECKED MJW

INTERCONNECT PLAN
EAST 30TH STREET STA. 1+000 TO STA 1+220

CUY-77-23.458 – PART 2



LOOP DETECTOR CHART								
LOOP	SIZE (M)	# TURNS	STATION	OFFSET	REFERENCE	HOOK-UP	CALL/DELAY/EXTEND	TYPE
SS-5	1.9 x 1.9	3	1+329.8	0.6 Rt.	℄ E 30th	INTO CABINET E 30th & WOODLAND	-	SYSTEM DETECTOR
SS-6	1.9 x 1.9	3	1+329.8	2.8 Rt.	℄ E 30th		-	SYSTEM DETECTOR
SS-7	1.9 x 1.9	3	1+243.0	15.5m Rt.	℄ E 30th	INTO CABINET E 30th & ORANGE	-	SYSTEM DETECTOR
SS-8	1.9 x 1.9	3	1+239.5	15.5m Rt.	℄ E 30th		-	SYSTEM DETECTOR
SS-9	1.9 x 1.9	3	1+236.0	15.5m Rt.	℄ E 30th		-	SYSTEM DETECTOR
SS-10	1.9 x 1.9	3	1+232.6	15.5m Rt.	℄ E 30th		-	SYSTEM DETECTOR

HNTB ARCHITECTS ENGINEERS PLANNERS

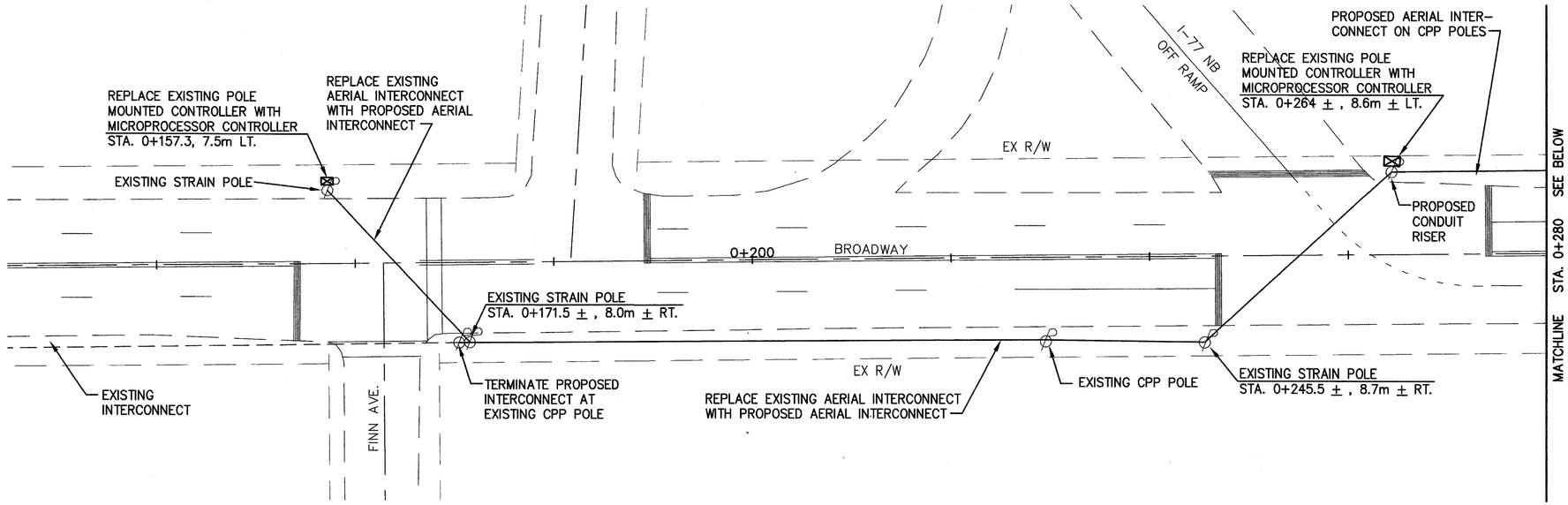
J:\JOBS\24621\TECHPROD\DETOUR\14949TDD.dwg view = PLOT2

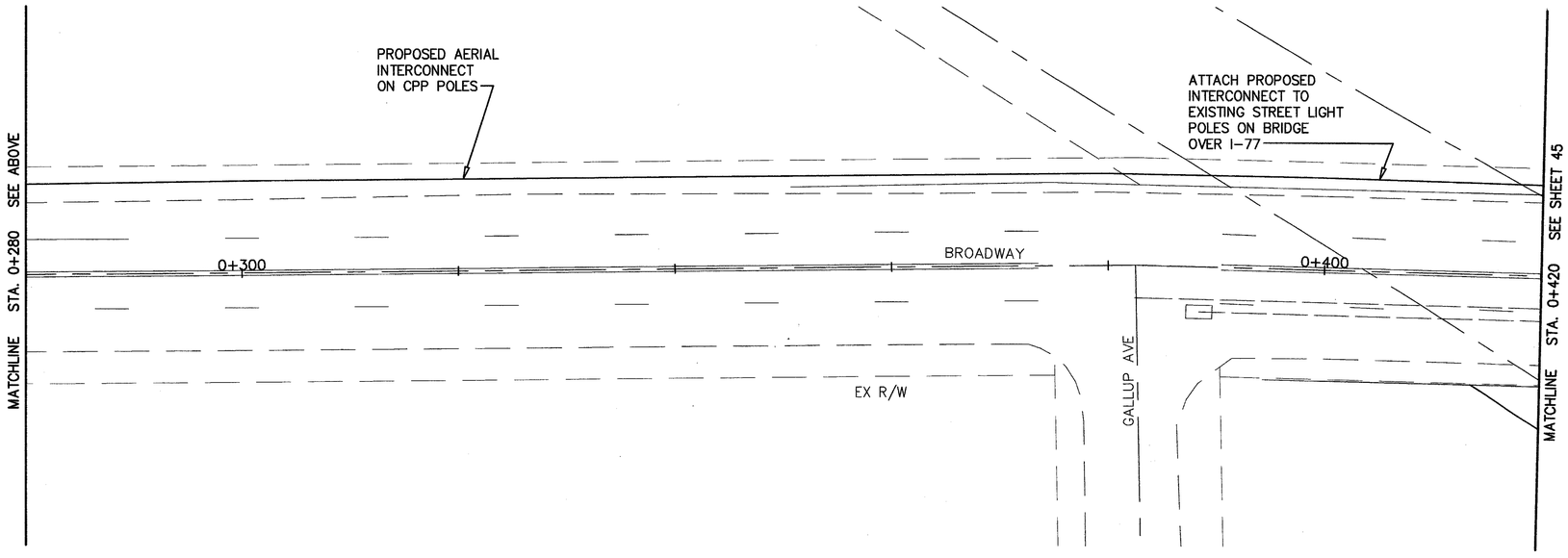
HORIZONTAL SCALE
1 : 250

CALCULATED IMH
CHECKED MJW

INTERCONNECT PLAN
EAST 30TH STREET STA. 1+220 TO STA. 1+400

CUY-77-23.458 - PART 2





HNTB ARCHITECTS ENGINEERS PLANNERS

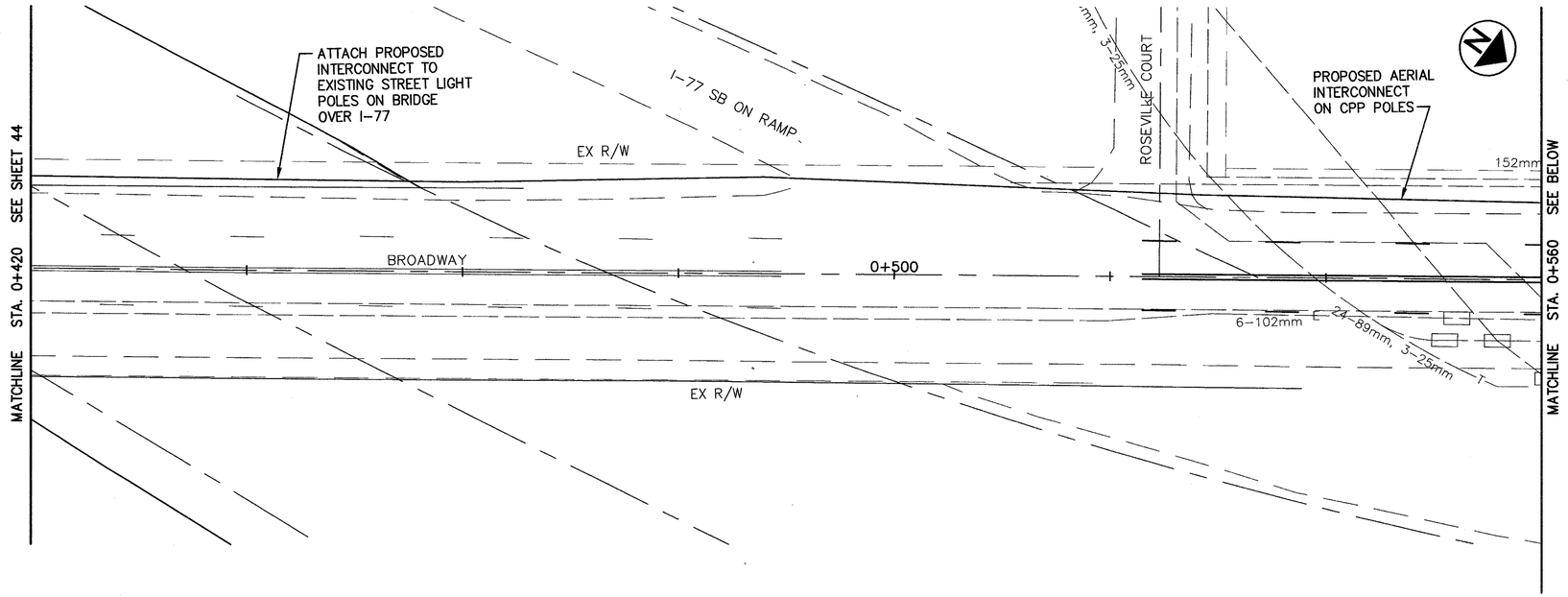
J:\JOBS\24621\TECHPROD\DETOUR\14949TDD.dwg view = PLOT3

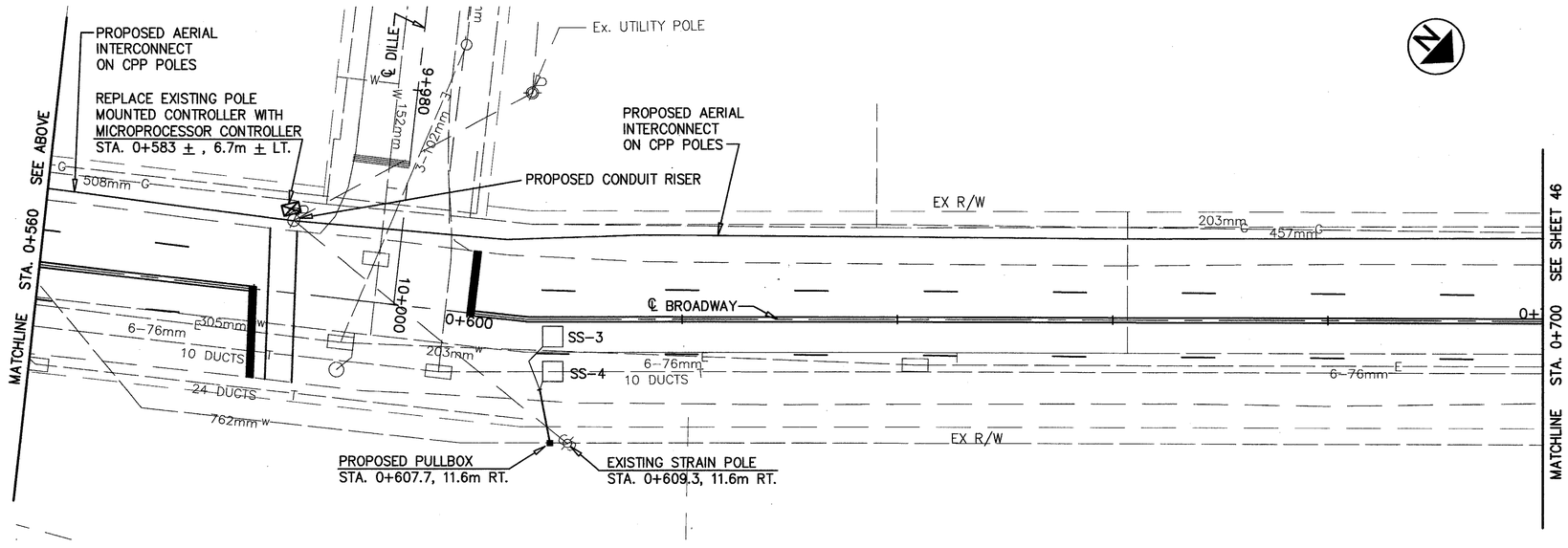
HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

INTERCONNECT PLAN
BROADWAY AVENUE STA. 0+120 TO STA 0+420

CUY-77-23.458 - PART 2





LOOP DETECTOR CHART								
LOOP	SIZE (M)	# TURNS	STATION	OFFSET	REFERENCE	HOOK-UP	CALL/DELAY/EXTEND	TYPE
SS-3	1.9 x 1.9	3	0+608.9	2.5m Rt.	℄ E 30th	INTO CABINET	–	SYSTEM DETECTOR
SS-4	1.9 x 1.9	3	0+608.9	4.9m Rt.	℄ E 30th	BROADWAY & DILLE	–	SYSTEM DETECTOR

HNTB ARCHITECTS ENGINEERS PLANNERS

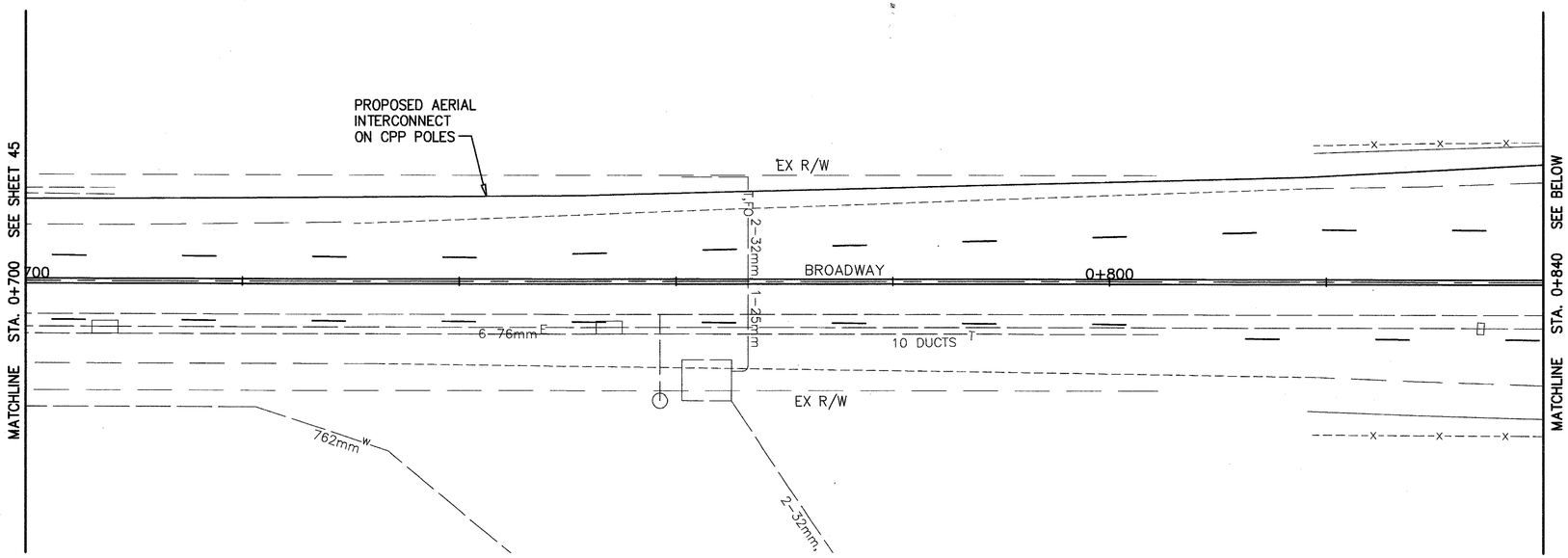
J:\JOBS\24621\TECHPROD\DETOUR\14949TD0.dwg view = PLOT4

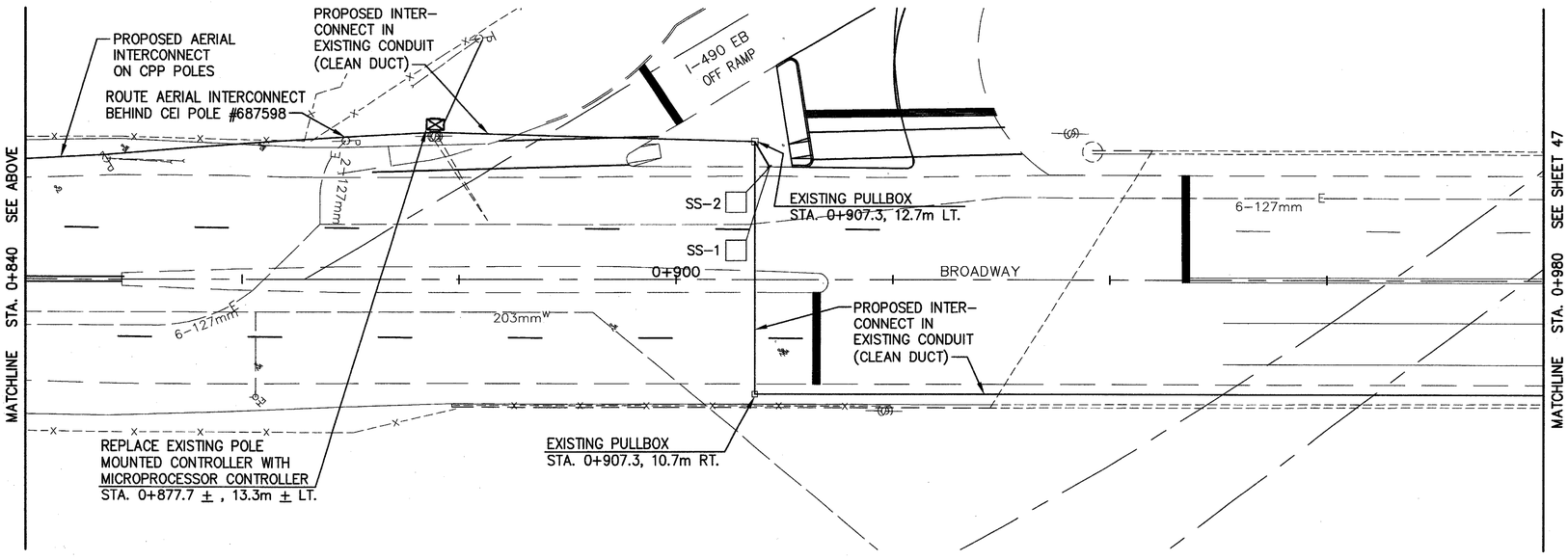
HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

INTERCONNECT PLAN
BROADWAY AVENUE STA. 0+420 TO STA. 0+700

CUY-77-23.458 - PART 2





LOOP DETECTOR CHART								
LOOP	SIZE (M)	# TURNS	STATION	OFFSET	REFERENCE	HOOK-UP	CALL/DELAY/EXTEND	TYPE
SS-1	1.9 x 1.9	3	0+904.5	3.7 Lt.	℄ E 30th	INTO CABINET	–	SYSTEM DETECTOR
SS-2	1.9 x 1.9	3	0+904.5	8.2 Lt	℄ E 30th	BROADWAY & I-490	–	SYSTEM DETECTOR

NOTE:
ROUTE INTERCONNECT CABLE FROM CONTROLLER TO TOP OF MASTARM POLE, BEGIN AERIAL INTERCONNECT TO DILLE AT THIS POINT.

HNTB ARCHITECTS ENGINEERS PLANNERS

HORIZONTAL SCALE 1 : 250

CALCULATED IMH CHECKED MJW

INTERCONNECT PLAN
BROADWAY AVENUE STA. 0+700 TO STA. 0+980

CUY-77-23.458 - PART 2

46
58

J:\JOBS\24621\TECHPROD\DETOUR\14949TDD.dwg view = PLOT5

MATCHLINE STA. 0+980 SEE SHEET 46

1+000

I-490

PROPOSED INTER-CONNECT IN EXISTING CONDUIT (CLEAN DUCT)

EXISTING PULLBOX
STA. 10+022.9, 5.9m RT.

PROPOSED INTER-CONNECT IN EXISTING CONDUIT (CLEAN DUCT)

6-127mm E

℄ BROADWAY

1+100

305mm W

℄ ROCKEFELLER

305mm

10+000

2-102mm E

℄ BROADWAY

152mm W

℄ EAST 37th

10+040

PROPOSED PHONE DROP

EXISTING PULLBOX
STA. 10+019.2, 12.5m LT.

REPLACE EXISTING POLE MOUNTED CONTROLLER WITH MICROPROCESSOR MASTER CONTROLLER
STA. 10+018, 13.3m LT.

HNTB ARCHITECTS ENGINEERS PLANNERS

J:_JOBS_24621\TECHPROD\DETOUR\149497D0.dwg view = PLOT6

HORIZONTAL SCALE
1 : 250

CALCULATED IMH
CHECKED MJW

INTERCONNECT PLAN
BROADWAY AVENUE STA. 0+980 TO STA. 1+140

CUY-77-23.458 - PART 2

47
58

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

SHEET NO.	LOCATION	603	625	625	625	625	625	625	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	632	633	633	633
		100mm CONDUIT, TYPE E	CONDUIT, CONCRETE ENCASED, 75mm	CONDUIT CLEANED AND CABLE REMOVED	TRENCH	CONDUIT, JACKED OR DRILLED, 75mm	PULL BOX, MISC.	GROUND ROD	REMOVAL MISC.: ELECTRO-MECHANICAL TRAFFIC SIGNAL CONTROLLER AND STORAGE	VEHICULAR SIGNAL HEAD, 3 SECTION, 300mm LENS, 1-WAY, AS PER PLAN	VEHICULAR SIGNAL HEAD, 3 SECTION, 300mm LENS, 2-WAY, AS PER PLAN	VEHICULAR SIGNAL HEAD, 5 SECTION, 300mm LENS, 2-WAY, AS PER PLAN	VEHICULAR SIGNAL HEAD, 3 SECTION, 300mm LENS, 3-WAY, AS PER PLAN	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN	PEDESTRIAN PUSHBUTTON	DETECTOR LOOP	DETECTOR LOOP, AS PER PLAN	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE, AS PER PLAN	MESSENGER WIRE, 7 STRAND, 9mm DIA. WITH ACCESSORIES	SIGNAL CABLE, 2 CONDUCTOR, NO. 14 AWG	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)	INTERCONNECT CABLE, INTEGRAL MESSENGER WIRE TYPE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-38), AS PER PLAN	LOOP DETECTOR LEAD-IN CABLE	POWER CABLE, 3 CONDUCTOR, NO. 6 AWG	POWER SERVICE	CONDUIT RISER, 51mm DIA.	PEDESTAL, 2.4 M, TRANSFORMER BASE	REMOVAL MISC.: SIGNAL HEAD	REMOVAL OF TRAFFIC SIGNAL INSTALLATION	REUSE OF ELECTROMECHANICAL CONTROLLER, AS PER PLAN	SIGNALIZATION, MISC.: MICROWAVE VEHICLE DETECTOR	PHONE DROP	WOOD POLE, CLASS 1, 12M	SIGNALIZATION, MISC.: REWIRE INTERSECTION	CONTROLLER, ACTUATED, 4 PHASE SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	CONTROLLER, MASTER, TRAFFIC RESPONSIVE, AS PER PLAN	CONTROLLER WORK PAD
		M	M	M	M	M	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	M	M	M	M	M	M	M	M	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	LUMP	EA.	EA.	SQ. M
28	BROADWAY & ROCKEFELLER								1																						1							
33	WOODLAND & E. 30TH		2		2			1	1																		5		1						LUMP	1		0.76
34	ORANGE & E. 30TH		2		2			1	1																		5		1				1		LUMP		1	0.76
35	BROADWAY & E. 30TH		2					1	1																		5								LUMP	1		0.76
36	BROADWAY & E. 34TH					15		2		1	1		1	4	4			1	50	97	97	71				5	1	4	1		1		1		1		1		
37	BRDWY. & E. 37TH/ROCKEFELLER			65				1	1	3	2	1		6	2		4	4								116	5				9			1	LUMP		1	
38	BROADWAY & I-490 OFF RAMP			30				1	1								3	3								99	5								LUMP	1		
39	BROADWAY & DILLE	2	26		26		1	2	1					2	2			1									5		3	1	1		1		LUMP	1		
40	BROADWAY & I-77 OFF RAMP	2	2		2		1	1	1								2	2								7	5								LUMP	1		
41	BROADWAY & FINN							1	1																		5								LUMP	1		
43	E. 30TH, WOODLAND TO ORANGE	6	96		96		3										6#		6#					112		46#												
42,43	E. 30TH, ORANGE TO BROADWAY	12	202		202	53	6										4#		4#					289		110#												
46,47	BRDWY., E. 37TH TO I-490 OFF			285														2#	2#					306		86#												
45,46	BROADWAY, I-490 TO DILLE																	2#	2#						332	120#												
44,45	BROADWAY, DILLE TO I-77 OFF																								360													
44	BROADWAY, I-77 OFF TO FINN																								146*													
	TOTAL	22	332	380	330	68	11	11	9	4	3	1	1	12	8	10	13	25	50	97	97	71	707	838	584	45	1	9	2	10	1	1	2	2	1	LUMP	7	2	2.3

\# CLOSED LOOP SYSTEM SENSORS. SEE SHEETS 42-47

* CONTRACTOR SHALL REMOVE EXISTING HIGH VOLTAGE INTERCONNECT CABLE AND PLACE PROPOSED INTERCONNECT CABLE ON EXISTING POLES AT SAME ATTACHMENT POINTS. COST OF REMOVING AND DISPOSING EXISTING CABLE IS CONSIDERED INCIDENTAL TO THIS ITEM OF WORK.

HNTB ARCHITECTS ENGINEERS PLANNERS

CALCULATED IMH CHECKED MJW

SUMMARY OF TRAFFIC SIGNAL QUANTITIES

CUY-77-23.458 - PART 2

SUMMARY OF PAVEMENT MARKING QUANTITIES

SHEET NO.	LOCATION	642		644									
		LANE LINE, TYPE 2	CENTER LINE, TYPE 2	STOP LINE	CROSSWALK LINE	CHANNELIZING LINE	TRANSVERSE LINE	ISLAND MARKING	LANE ARROW	LANE ARROW, AS PER PLAN	WORD ON PAVEMENT, 1800mm	DOTTED LINE, 100mm	REMOVAL OF PAVEMENT MARKING
		Km	Km	M	M	M	M	SQ. M	EA.	EA.	EA.	M	EA.
54	BROADWAY & ORANGE			10		85			7		1		
54	BROADWAY & E. 14TH			16	37								
54	BROADWAY & ROCKEFELLER			16									
55	WOODLAND & E. 30TH			12		20			1				
55	ORANGE & E. 30TH			31	78	42			11		1		5
53	BROADWAY & E. 30TH			25	60	230			23		5	68	6
52	BROADWAY & E. 34TH			24	66							69	
51	BROADWAY & E. 37TH/ROCKEFELLER			40	120	43			4	2	3	80	
51	BROADWAY & I-490 OFF RAMP			43	78	140	76		11		1	40	3
50	BROADWAY & DILLE			20	30								
50, 51	BROADWAY, 0+530 TO 0+947	0.834	0.417										
51-54	BROADWAY, 1+126 TO 3+085	3.918	1.959										
54	BROADWAY, 2+902 TO 2+951						24	5					
53, 55	E. 30TH, 1+000 TO 1+345	0.690	0.345										
TOTAL CARRIED TO GENERAL SUMMARY :		5.44	2.72	237	469	560	100	5	57	2	11	257	14

SUMMARY OF SIGNING QUANTITIES

SHEET NO.	LOCATION	630								
		GROUND MOUNTED SUPPORT, NO. 3 POST	SIGN, FLAT SHEET	SIGN, FLAT SHEET, TYPE G	SIGN HANGER ASSEMBLY, SPAN WIRE	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	REMOVAL OF OVERHEAD MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	REMOVAL OF POLE MOUNTED SIGN AND REERECTION
		M	SQ. M	SQ. M	EA.	EA.	EA.	EA.	EA.	EA.
55	ORANGE & E. 30TH						2			
53	BROADWAY & E. 30TH	40	8.00							
36	BROADWAY & E. 34TH	12		0.81	2		3		3	1
37	BROADWAY & E. 37TH/ROCKEFELLER		0.9	0.68		1		1		
39	BROADWAY & DILLE	9	0.68							
TOTAL CARRIED TO GENERAL SUMMARY :		61	10	2	2	1	5	1	3	1

CALCULATED IMH CHECKED MJW

SUMMARY OF PAVEMENT MARKING AND SIGNING QUANTITIES

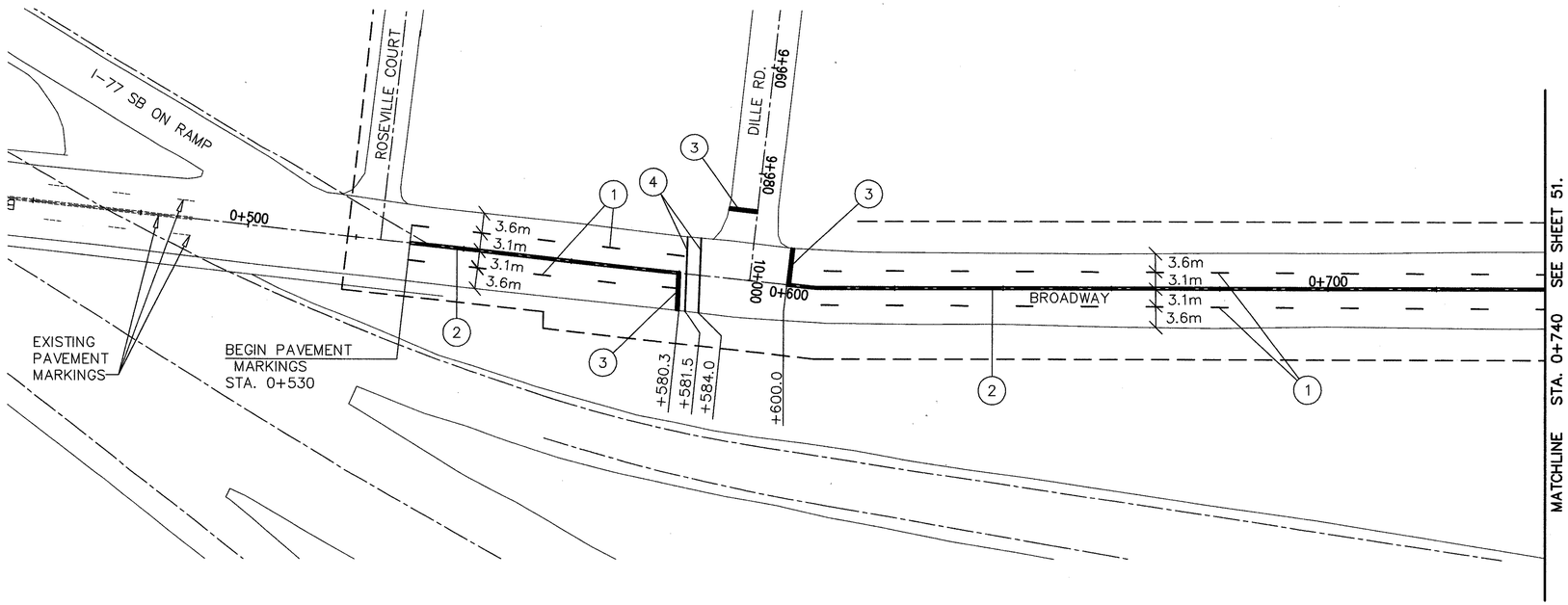
CUY 77-23.458 - PART 2

SUMMARY OF PAVEMENT

49
58

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\1494975E.dwg View = PLOT2



NOTES :

1.) FOR TYPICAL SECTION, SEE SHEET 2.
2.) FOR DILLE SIGNAL PLAN SEE SHEET 39.

PAVEMENT MARKING LEGEND	
(1)	ITEM 642 – LANE LINE – (100mm) , TYPE 2
(2)	ITEM 642 – CENTER LIINE – DOUBLE SOLID, TYPE 2
(3)	ITEM 644 – STOP LINE – (600mm)
(4)	ITEM 644 – CROSSWALK LINE – (300mm)
(5)	ITEM 644 – DOTTED LINE – WHITE (100mm)
(6)	ITEM 644 – CHANNELIZING LINE – (150mm)
(7)	ITEM 644 – LANE ARROW
(7A)	ITEM 644 – LANE ARROWS, AS PER PLAN
(8)	ITEM 644 – WORD ON PAVEMENT – (1800mm)
(9)	ITEM 644 – TRANSVERSE LINE (YELLOW) – (600mm)
(10)	ITEM 644 – ISLAND MARKING (YELLOW)

HNTB ARCHITECTS ENGINEERS PLANNERS

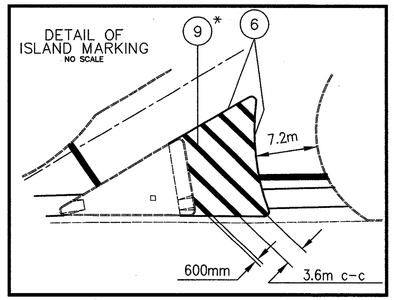
J:\JOBS\24621\TECHPROD\DETOUR\V14949TPD.dwg View = P6

HORIZONTAL SCALE
1 : 500

CALCULATED IMH
CHECKED MJS

TRAFFIC CONTROL PLAN
BROADWAY AVE. STA. 0+500 TO STA 0+740

CUY-77-23.458 – PART 2

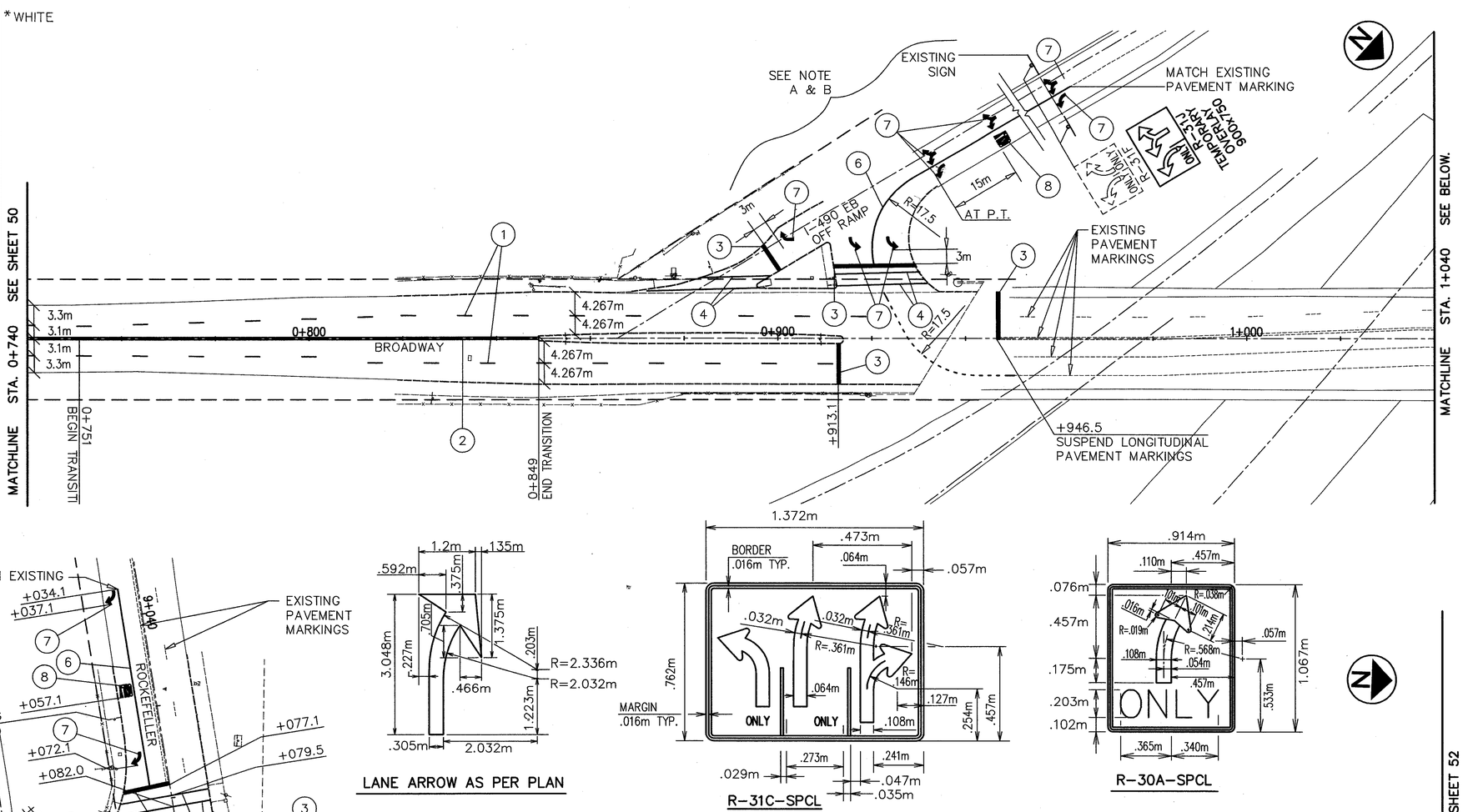


*WHITE

NOTES:

A) RIGHT AND LEFT ARROWS TO BE REPLACED BY RIGHT TURN ARROWS AT END OF CUY-77-23.458 PART 1 PROJECT

B) REMOVE ARROW AND STRIPE OUT WIDENING NEXT TO ISLAND AT THE END OF CUY-77-23.458 PART 1 PROJECT. PER DETAIL.



NOTES :

1.) FOR LEGEND, SEE SHEET 50.
2.) FOR TYPICAL SECTION, SEE SHEET 2.
3.) FOR ROCKEFELLER/E. 37th SIGNAL PLAN SEE SHEET 37.
4.) FOR I-490 SIGNAL PLAN SEE SHEET 38.
5.) SEE SHEET 37 FOR SIGN R-30A-SPCL AND R-31C-SPCL LOCATIONS

HNTB ARCHITECTS ENGINEERS PLANNERS

J:_JOBS\2462\1\TECH\PROD\DETOUR\14949TPD.dwg view = P5

NORTH VARIES

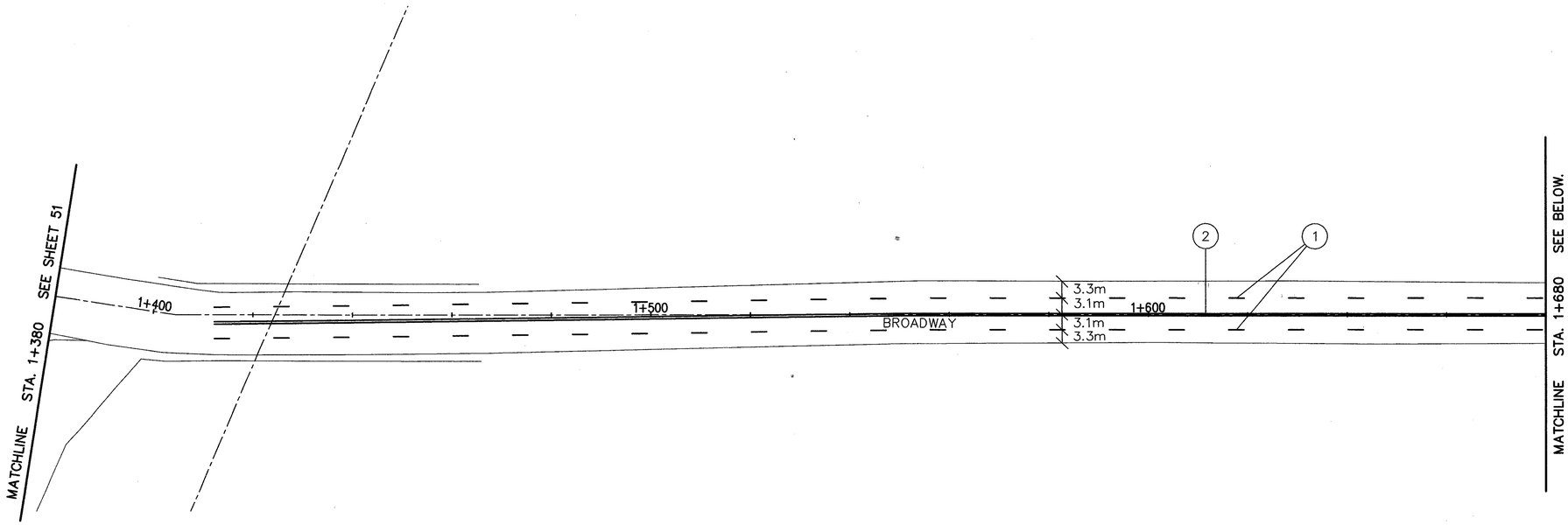
HORIZONTAL SCALE 1 : 500

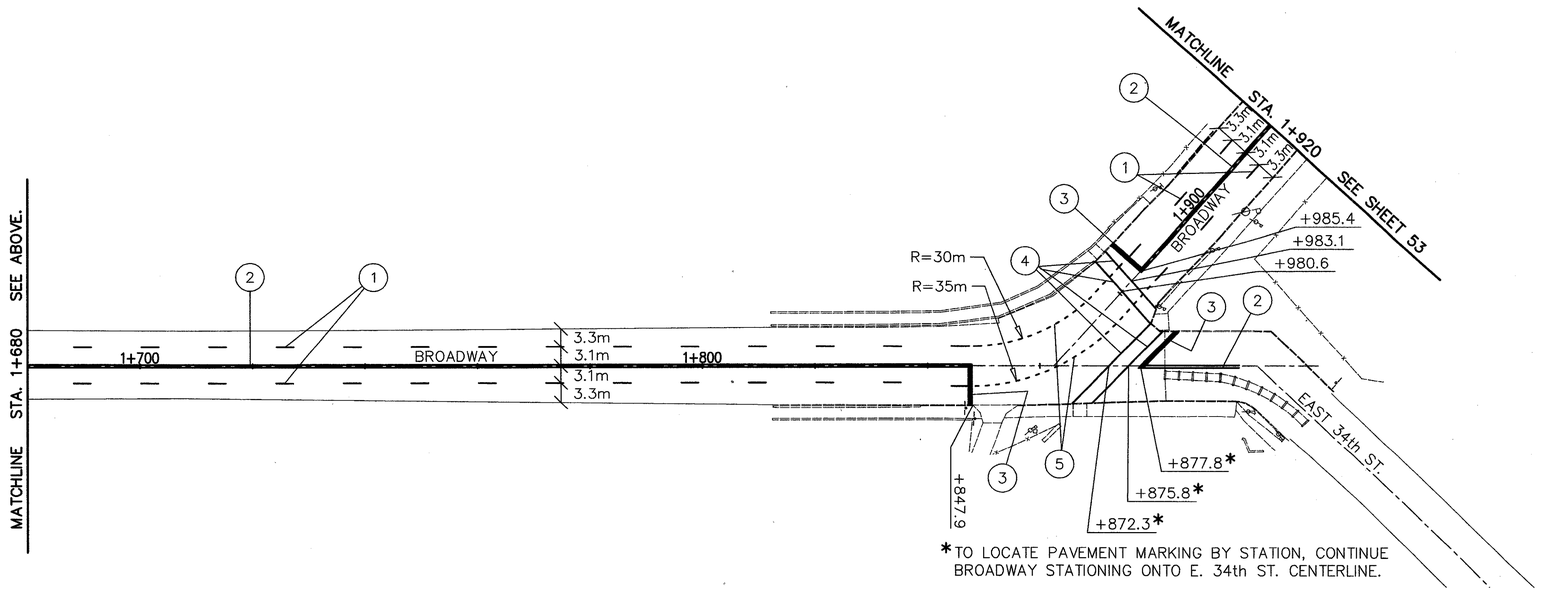
CALCULATED IMH CHECKED MJS

TRAFFIC CONTROL PLAN
BROADWAY AVE. STA. 1+380 TO STA. 1+040

CUY-77-23.458 - PART 2

51
58





*TO LOCATE PAVEMENT MARKING BY STATION, CONTINUE BROADWAY STATIONING ONTO E. 34th ST. CENTERLINE.

NOTES :

1.) FOR LEGEND, SEE SHEET 50.
2.) FOR TYPICAL SECTION, SEE SHEET 2.
3.) FOR E. 34th ST. SIGNAL PLAN SEE SHEET 36.

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24621\TECHPROD\DETOUR\149497PD.dwg view = P4

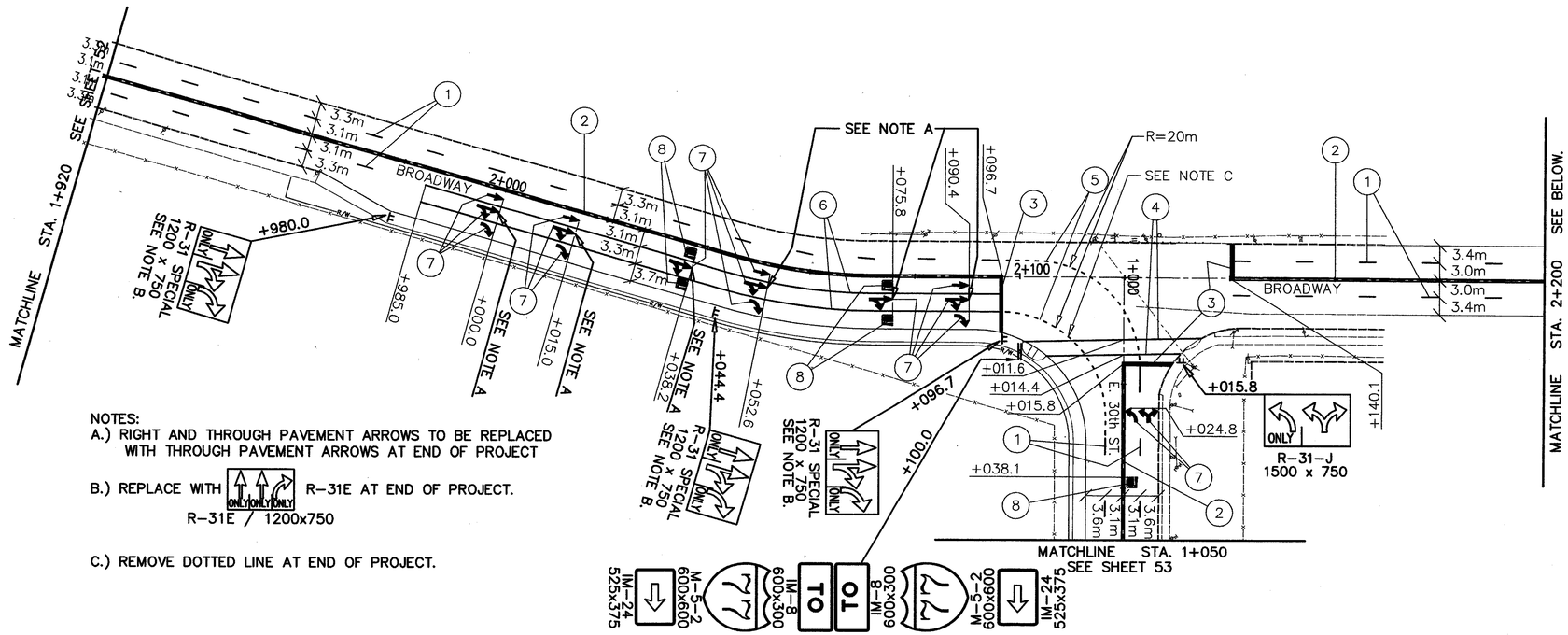
HORIZONTAL SCALE 1 : 500

CALCULATED IMH CHECKED MJS

TRAFFIC CONTROL PLAN
BROADWAY AVE. STA 1+940 TO STA. 1+380

CUY-77-23.458 - PART 2

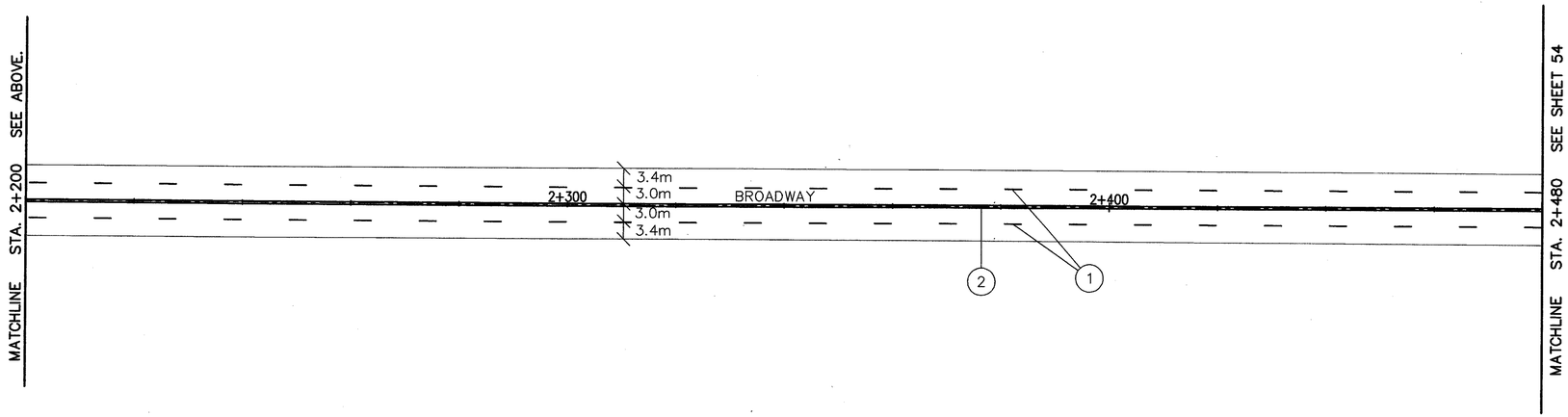
52
58



NOTES:
A.) RIGHT AND THROUGH PAVEMENT ARROWS TO BE REPLACED WITH THROUGH PAVEMENT ARROWS AT END OF PROJECT

B.) REPLACE WITH ONLY ONLY ONLY R-31E AT END OF PROJECT.
R-31E / 1200x750

C.) REMOVE DOTTED LINE AT END OF PROJECT.



NOTES :
1.) FOR LEGEND, SEE SHEET 50.
2.) FOR TYPICAL SECTION, SEE SHEET 2.
3.) FOR BROADWAY & E 30th SIGNAL PLAN, SEE SHEET 35.

HNTB ARCHITECTS ENGINEERS PLANNERS

J:\JOBS\24521\TECHPROD\DETOUR\149487P0.dwg View = P2

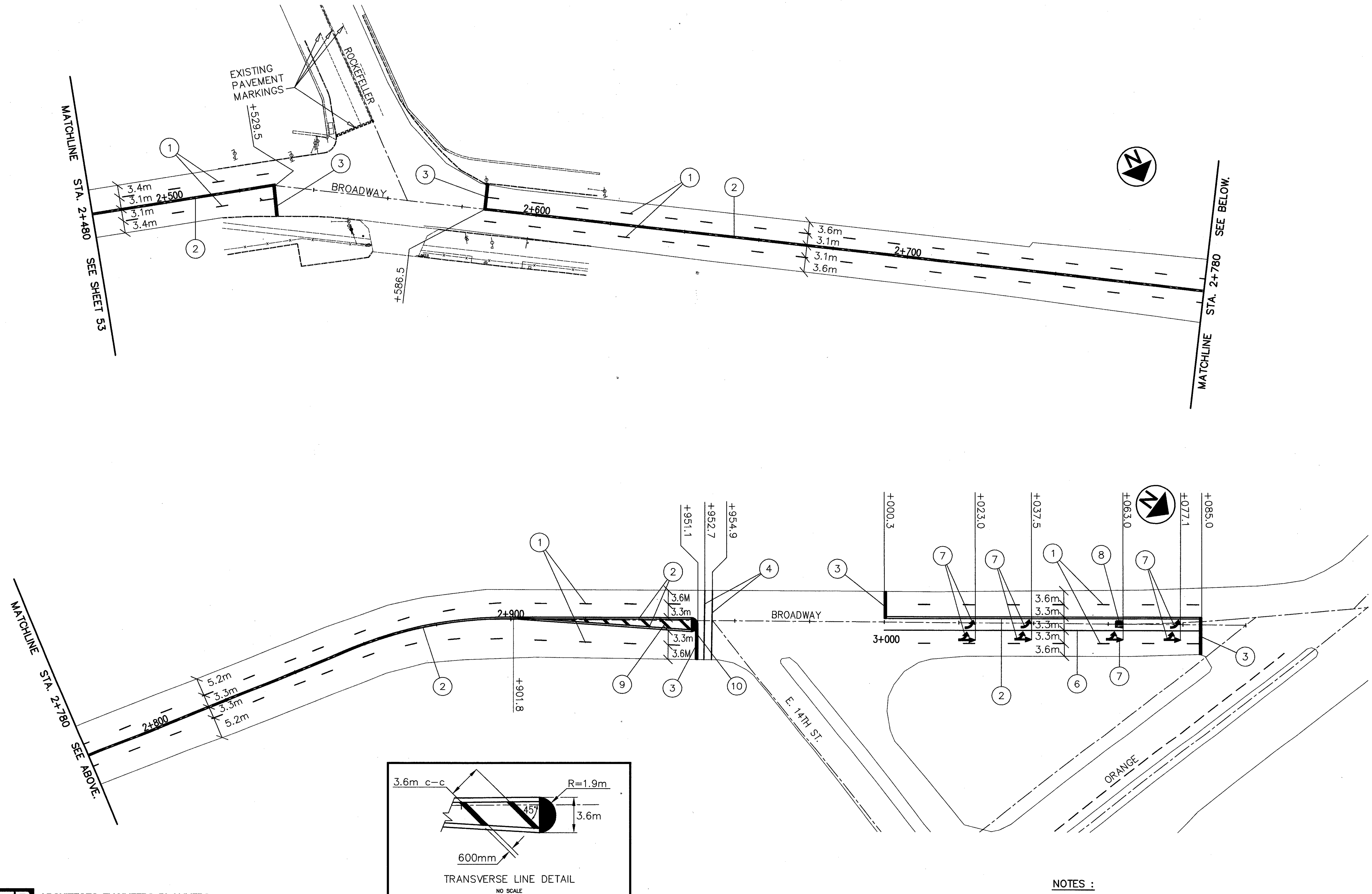
HORIZONTAL SCALE 1 : 500

CALCULATED IMH CHECKED MJS

TRAFFIC CONTROL PLAN
BROADWAY AVE. STA 2+480 TO STA. 1+940

CUY-77-23.458 - PART 2

53
58



HNTB ARCHITECTS ENGINEERS PLANNERS

NOTES :

1.) FOR LEGEND, SEE SHEET 50.
2.) FOR TYPICAL SECTION, SEE SHEET 2.

NORTH VARIES

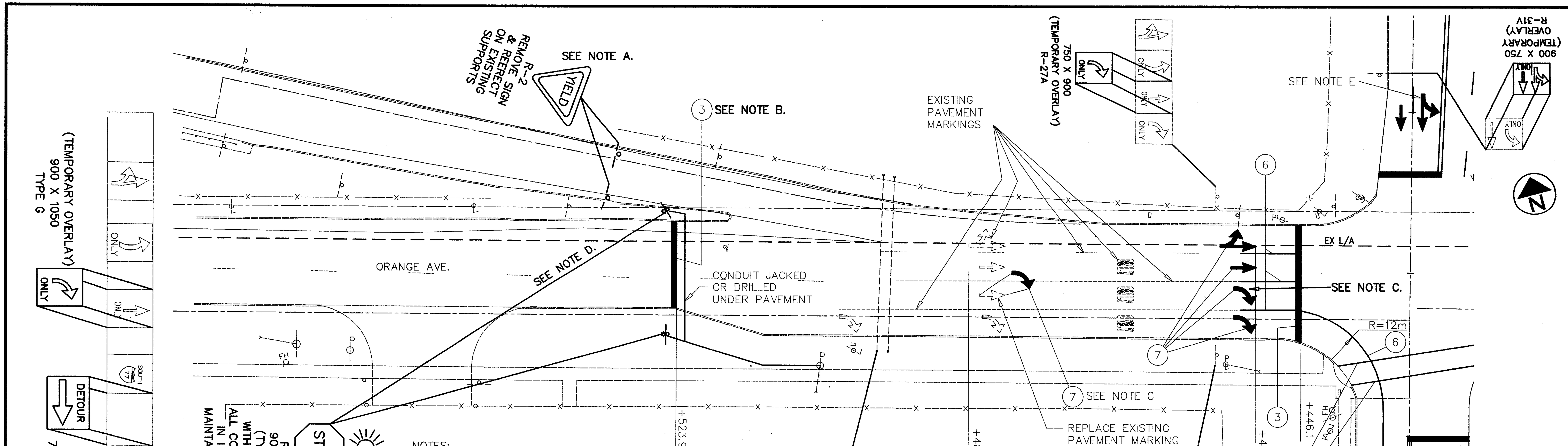
HORIZONTAL SCALE 1 : 500

CALCULATED IMH
CHECKED MJS

TRAFFIC CONTROL PLAN
BROADWAY AVE. STA. 2+480 TO STA. 4+000

CUY-77-23.458 – PART 2

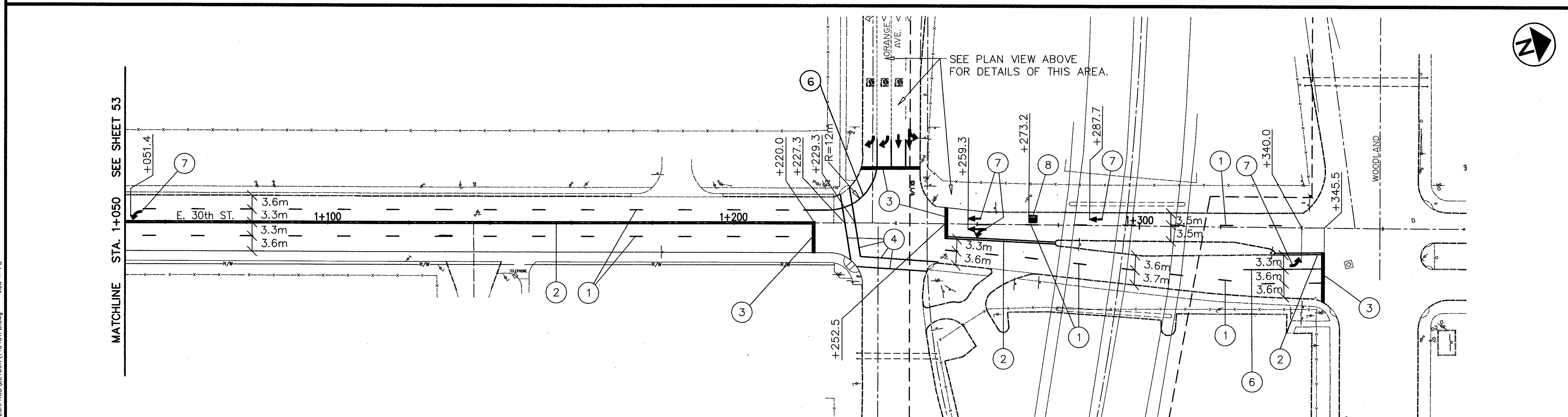
c:\JOBS\24621\TECHPROD\DETOUR\14949TPD.dwg view = P1



NOTES:

A.) TO BE REERECTED AT THE END OF CUY -77-23.458 PART 1 PROJECT.
B.) TO BE REMOVED AT THE END OF CUY-77-23.458 PART 1 PROJECT.
C.) RIGHT TURN PAVEMENT ARROWS TO BE REPLACED WITH STRAIGHT PAVEMENT ARROWS AT THE END OF CUY-77-23.458 PART 1 PROJECT.
D.) POSITION SIGN AND BEACON AT AN ANGLE SO THAT THEY ARE NOT VISIBLE TO RAMP TRAFFIC. PROVIDE HOOD TO SHIELD BEACON.
E.) THRU AND LEFT PAVEMENT ARROW TO BE REPLACED WITH LEFT PAVEMENT ARROW AT THE END OF CUY-77-23.458 PART 1 PROJECT

HORIZONTAL SCALE 1 : 250



HORIZONTAL SCALE 1 : 500

NOTES:
1.) FOR LEGEND, SEE SHEET 50.
2.) FOR TYPICAL SECTION, SEE SHEET 2.
3.) FOR E 30th & WOODLAND SIGNAL PLAN, SEE SHEET 33.
4.) FOR E 30th & ORANGE SIGNAL PLAN, SEE SHEET 34.

HNTB ARCHITECTS ENGINEERS PLANNERS

NORTH VARIES
HORIZONTAL SCALE AS SHOWN
CALCULATED IMH
CHECKED MJS

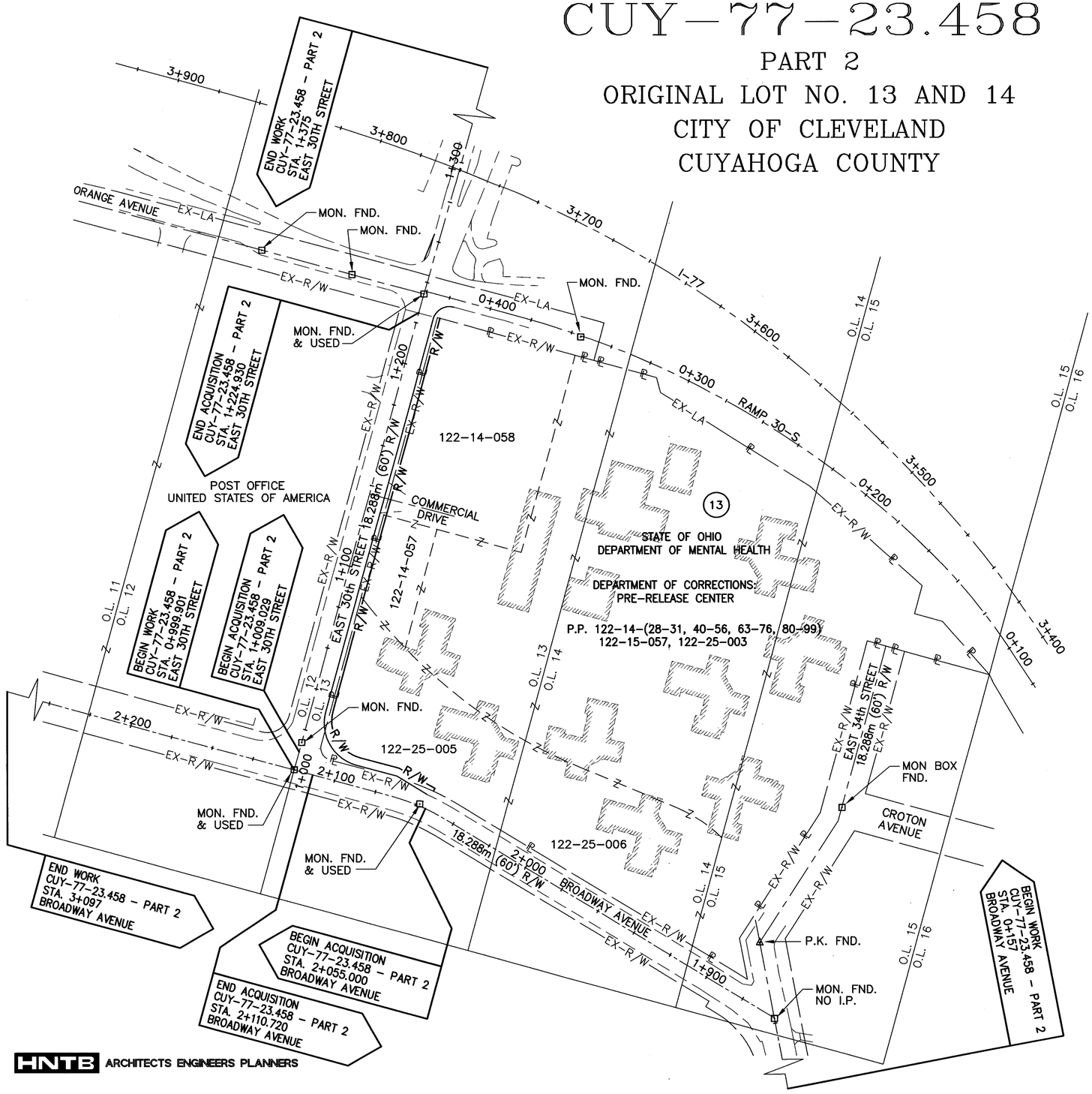
TRAFFIC CONTROL PLAN
E. 30th ST. \ ORANGE AVE. DETAILS

CUY-77-23.458 - PART 2

CUY-77-23.458

PART 2
ORIGINAL LOT NO. 13 AND 14
CITY OF CLEVELAND
CUYAHOGA COUNTY

metric units



HNTB ARCHITECTS ENGINEERS PLANNERS

UTILITIES

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

AT&T
3833 WEYMOUTH ROAD
MEDINA, OH 44256
PHONE: (216) 723-9110

AMERITECH
13630 LORAIN AVE., 4TH FLR.
CLEVELAND, OH 44111
PHONE: (216) 476-6142

CLE. ELECTRIC ILLUMINATING CO.
P.O. BOX 5000
CLEVELAND, OH 44101
PHONE: (216) 634-7232

CITY OF CLEVELAND
WATER DEPARTMENT
1201 LAKESIDE AVE.
CLEVELAND, OH 44114
PHONE: (216) 664-2444

CITY OF CLEVELAND
DIVISION OF TRAFFIC
2001 PAYNE AVE.,
3rd FLOOR
CLEVELAND, OH 44111
PHONE: (216) 664-3194

CLEVELAND PUBLIC POWER
1300 LAKESIDE AVE.
CLEVELAND, OH 44114
PHONE: (216) 664-4245

WORLD COM
120 RAVINE ST.
AKRON, OH 44303
PHONE: (330) 253-8267

EAST OHIO GAS
1201 EAST 55TH STREET
CLEVELAND, OH 44103
PHONE (216) 736-6675

CITY OF CLEVELAND
DIV. OF WATER POLLUTION CONTROL
12302 KIRBY AVE.
CLEVELAND, OH 44108
PHONE: (216) 664-3785

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

NOTE:

1.) ALL STRUCTURES ARE COMMERCIAL

1	8/5/98	REVISED PARCELS 13 AND 13T
REV.	DATE	DESCRIPTION
DATE OF COMPLETION		

HORIZONTAL SCALE 1 : 1000

CALCULATED ZSS CHECKED MJW

P.I.D. NO. 14949

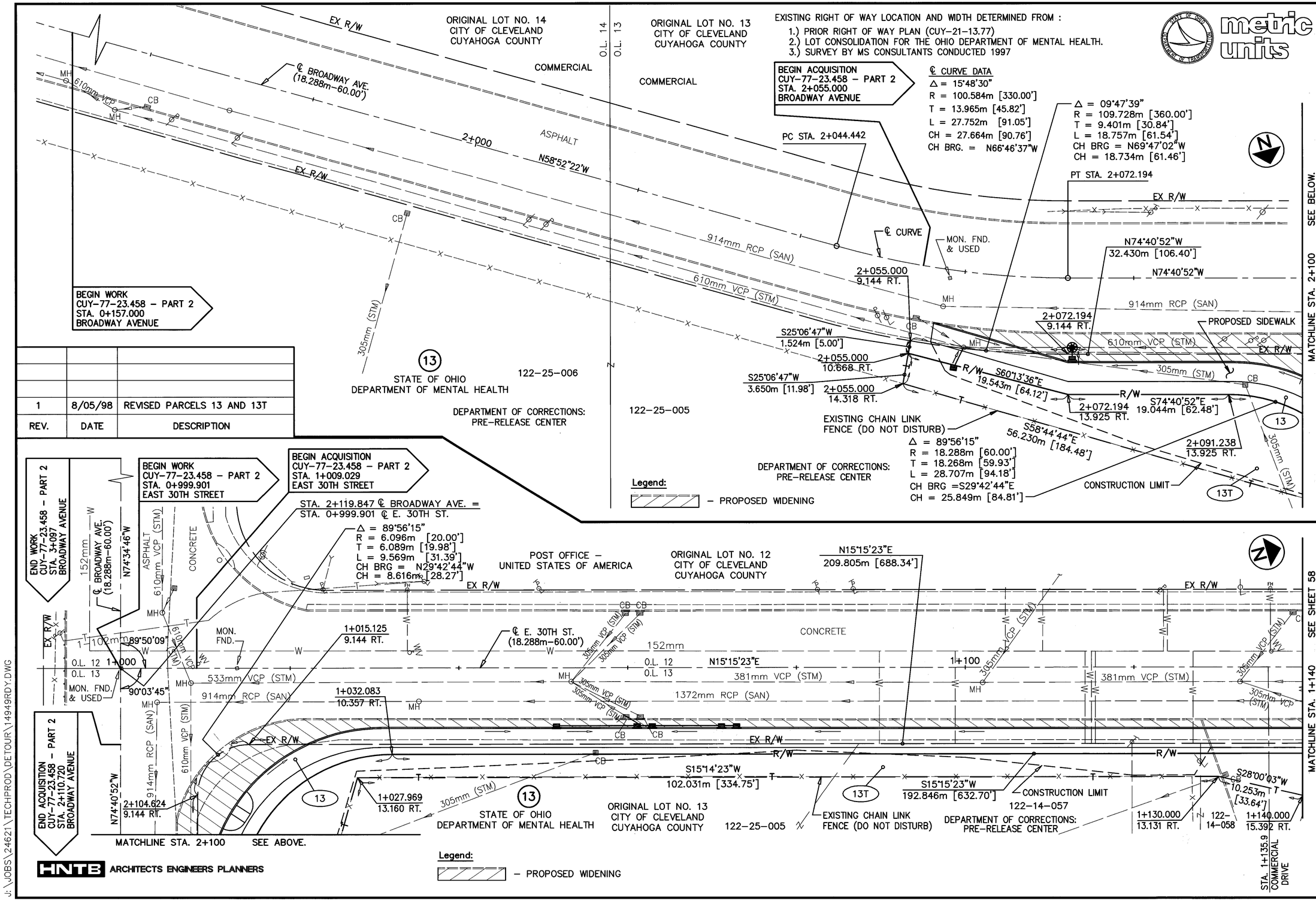
PROPERTY MAP

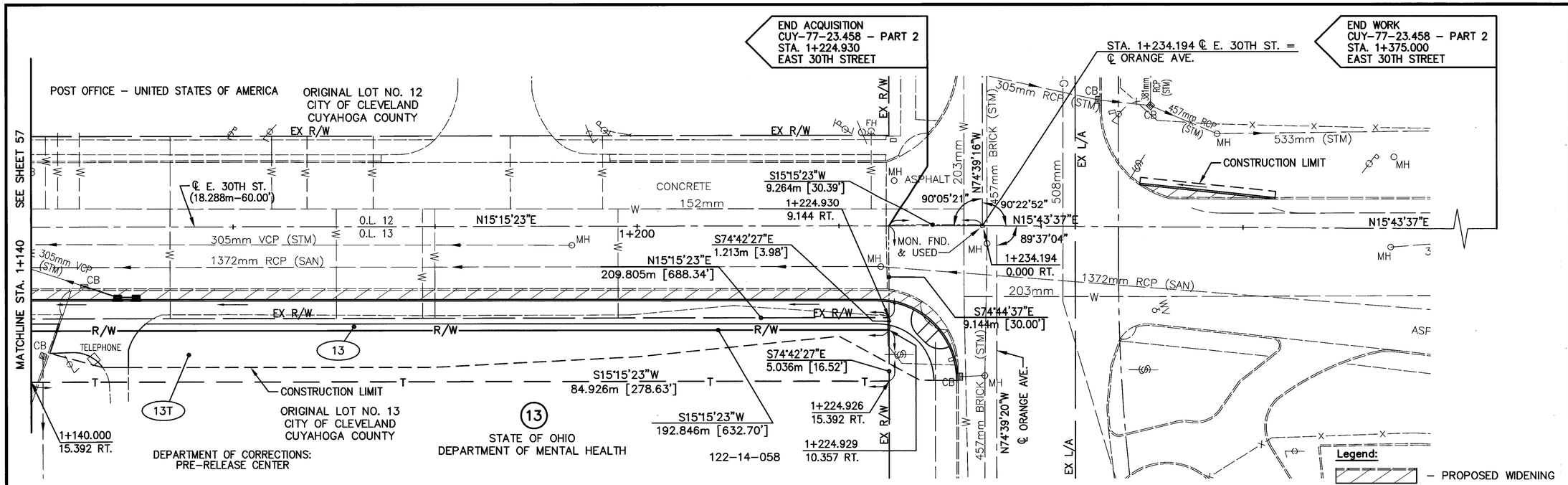
CUY-77-23.458 - PART 2

1 / 3

56 58

J:\JOBS\24621\TECHPROD\DRAWINGS\14949RM2.dwg


ORIGINAL LOT NO. 14
CITY OF CLEVELAND
CUYAHOGA COUNTY
ORIGINAL LOT NO. 13
CITY OF CLEVELAND
CUYAHOGA COUNTY
EXISTING RIGHT OF WAY LOCATION AND WIDTH DETERMINED FROM :
1.) PRIOR RIGHT OF WAY PLAN (CUY-21-13.77)
2.) LOT CONSOLIDATION FOR THE OHIO DEPARTMENT OF MENTAL HEALTH.
3.) SURVEY BY MS CONSULTANTS CONDUCTED 1997
metric units
EX R/W
℄ BROADWAY AVE. (18.288m-60.00')
COMMERCIAL
ASPHALT
N58°52"22"W
2+000
610mm VCP
914mm RCP (SAN)
610mm VCP (STM)
305mm (STM)
BEGIN WORK
CUY-77-23.458 - PART 2
STA. 0+157.000
BROADWAY AVENUE
BEGIN ACQUISITION
CUY-77-23.458 - PART 2
STA. 2+055.000
BROADWAY AVENUE
℄ CURVE DATA
Δ = 15°48'30"
R = 100.584m [330.00']
T = 13.965m [45.82']
L = 27.752m [91.05']
CH = 27.664m [90.76']
CH BRG. = N66°46'37"W
Δ = 09°47'39"
R = 109.728m [360.00']
T = 9.401m [30.84']
L = 18.757m [61.54']
CH BRG = N69°47'02"W
CH = 18.734m [61.46']
PC STA. 2+044.442
PT STA. 2+072.194
℄ CURVE
MON. FND. & USED
2+055.000
9.144 RT.
N74°40'52"W
32.430m [106.40']
2+072.194
9.144 RT.
PROPOSED SIDEWALK
S25°06'47"W
1.524m [5.00']
2+055.000
10.668 RT.
S25°06'47"W
3.650m [11.98']
2+055.000
14.318 RT.
R/W
S60°13'36"E
19.543m [64.12']
S74°40'52"E
19.044m [62.48']
2+072.194
13.925 RT.
EXISTING CHAIN LINK
FENCE (DO NOT DISTURB)
S58°44'44"E
56.230m [184.48']
Δ = 89°56'15"
R = 18.288m [60.00']
T = 18.268m [59.93']
L = 28.707m [94.18']
CH BRG =S29°42'44"E
CH = 25.849m [84.81']
2+091.238
13.925 RT.
CONSTRUCTION LIMIT
SEE BELOW.
MATCHLINE STA. 2+100
13
13T
122-25-006
STATE OF OHIO
DEPARTMENT OF MENTAL HEALTH
DEPARTMENT OF CORRECTIONS:
PRE-RELEASE CENTER
122-25-005
Legend:
– PROPOSED WIDENING
1 | 8/05/98 | REVISED PARCELS 13 AND 13T
REV. | DATE | DESCRIPTION
END WORK
CUY-77-23.458 - PART 2
STA. 3+097
BROADWAY AVENUE
BEGIN WORK
CUY-77-23.458 - PART 2
STA. 0+999.901
EAST 30TH STREET
BEGIN ACQUISITION
CUY-77-23.458 - PART 2
STA. 1+009.029
EAST 30TH STREET
STA. 2+119.847 ℄ BROADWAY AVE. =
STA. 0+999.901 ℄ E. 30TH ST.
Δ = 89°56'15"
R = 6.096m [20.00']
T = 6.089m [19.98']
L = 9.569m [31.39']
CH BRG = N29°42'44"W
CH = 8.616m [28.27']
POST OFFICE -
UNITED STATES OF AMERICA
ORIGINAL LOT NO. 12
CITY OF CLEVELAND
CUYAHOGA COUNTY
N15°15'23"E
209.805m [688.34']
℄ BROADWAY AVE. (18.288m-60.00')
N74°34'46"W
152mm
ASPHALT
610mm VCP (STM)
CONCRETE
MON. FND.
1+015.125
9.144 RT.
℄ E. 30TH ST. (18.288m-60.00')
CONCRETE
152mm
N15°15'23"E
381mm VCP (STM)
1372mm RCP (SAN)
533mm VCP (STM)
914mm RCP (SAN)
1+032.083
10.357 RT.
1+100
1+000
89°50'09"
90°03'45"
MON. FND. & USED
0.L. 12
0.L. 13
END ACQUISITION
CUY-77-23.458 - PART 2
STA. 2+110.720
BROADWAY AVENUE
N74°40'52"W
2+104.624
9.144 RT.
1+027.969
13.160 RT.
S15°14'23"W
102.031m [334.75']
S15°15'23"W
192.846m [632.70']
CONSTRUCTION LIMIT
122-14-057
S28°00'03"W
10.253m [33.64']
1+130.000
13.131 RT.
122-14-058
1+140.000
15.392 RT.
STA. 1+135.9
COMMERCIAL DRIVE
MATCHLINE STA. 2+100
SEE ABOVE.
MATCHLINE STA. 1+140
SEE SHEET 58
EXISTING CHAIN LINK
FENCE (DO NOT DISTURB)
DEPARTMENT OF CORRECTIONS:
PRE-RELEASE CENTER
ORIGINAL LOT NO. 13
CITY OF CLEVELAND
CUYAHOGA COUNTY
122-25-005
Legend:
– PROPOSED WIDENING
HNTB ARCHITECTS ENGINEERS PLANNERS
HORIZONTAL SCALE
1:200
CALCULATED M.J.W
CHECKED J.M.G
PID NO. 14949
RIGHT OF WAY PLAN - BROADWAY AVE. & E. 30th ST.
STA. 1+965.000 TO STA. 1+140
CUY-77-23.458 - PART 2
2 / 3
57
58
J:\JOBS\24621\TECHPROD\DETOUR\14949RDY.DWG



TOTAL NUMBER OF :

1 - OWNERSHIPS
0 - TOTAL TAKES
0 - OWNERSHIPS WITH STRUCTURES INVOLVED
0 - OWNERSHIPS WITH "P" ITEMS

NET RESIDUE = RECORD AREA - TOTAL PRO - NET TAKE

ALL RIGHT OF WAY ACQUIRED IN THE NAME OF STATE OF OHIO UNLESS OTHERWISE SHOWN.

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA(AC.)	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND FED/STATE	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
13	STATE OF OHIO DEPARTMENT OF	57, 58	238	93-94	12214057	0.1305	0.0	0.0050	0.0	0.0050			0.1255	80/20	FOR WIDENING OF EAST 30TH STREET AND		
	MENTAL HEALTH					(0.323)		(0.012)		(0.012)			(0.311)		BROADWAY AVENUE		
					12214058	0.6556	0.0	0.0118	0.0	0.0118			0.6438	80/20			
						(1.620)		(0.029)		(0.029)			(1.591)				
					12225005	0.5037	0.0	0.0390	0.0	0.0390			0.4647	80/20			
						(1.245)		(0.096)		(0.096)			(1.149)				
					12214028-031	3.9679	0.0	0.0	0.0	0.0			3.9679	80/20			
					12214040-056	(9.804)							(9.804)				
					12214063-076												
					12214080-099												
					12215057												
					12225003												
					12225006												
			GRAND TOTAL			5.2577	0.0	0.0558	0.0	0.0558			5.2019	80/20			
						(12.992)		(0.138)		(0.138)			(12.854)				
13T		57, 58					0.0	0.1115	0.0	0.1115				80/20			
								(0.276)		(0.276)							

NOTES :

1.) UNLESS SPECIFIED OTHERWISE, AREAS ARE STATED IN HECTARES WITH ENGLISH EQUIVALENTS IN (ACRES). 1 HECTARE = 2.471 ACRES.

2.) ALL TEMPORARY PARCELS ARE TO BE OF 6 MONTHS DURATION.

3.) UNDER NO CIRCUMSTANCES ARE TEMPORARY EASEMENTS ACQUIRED FOR THE PURPOSE OF STRUCTURE REMOVAL TO BE USED FOR STORAGE OF MATERIAL OR EQUIPMENT BY THE CONTRACTOR. UPON COMPLETION OF THE WORK REQUIRED FOR SUCH REMOVAL AND SUBSEQUENT RECLAMATION, THE EASEMENT SHALL BE VACATED IMMEDIATELY.

HNTB ARCHITECTS ENGINEERS PLANNERS

REV.	DATE	DESCRIPTION
1	8/5/98	REVISED PARCELS 13 AND 13T

HORIZONTAL SCALE 1:200

CALCULATED M.J.W. CHECKED J.M.G.

PID NO. 14949

RIGHT OF WAY PLAN, SUMMARY, & PROPERTY MAP
- E. 30th ST. STA. 1+140 TO STA. 1+234.194

CUY-77-23.458 - PART 2

3 / 3

58
58

J:\JOBS\24621\TECHPROD\DETOUR\14949RDZ.DWG