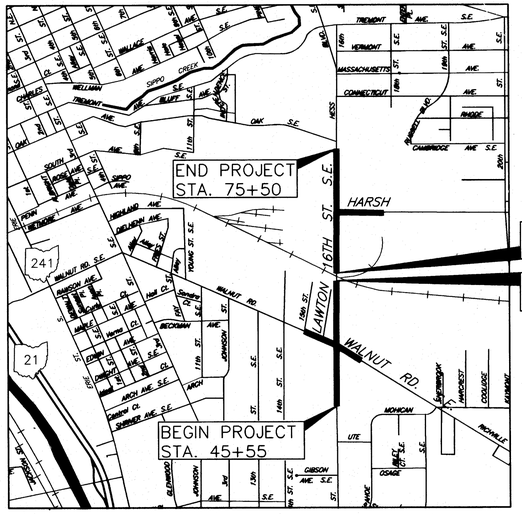
CITY OF MASSILLON
16TH STREET, SE



LOCATION MAP

LATITUDE: 40°47'30" LONGITUDE: 81°37'55"

SCALE IN FEET

0 1000 2000 3000 4000

N

PORTION TO BE IMPROVED
INTERSTATE & DIVIDED HIGHWAY
UNDIVIDED STATE & FEDERAL ROUTES
OTHER ROADS

DESIGN DESIGNATION 16TH STREET

CURRENT ADT (2002)	7,812
DESIGN YEAR ADT (2022)	9,861
DESIGN HOURLY VOLUME (2022)	1,095
DIRECTIONAL DISTRIBUTION	54%
TRUCKS (24 HOUR B&C)	5%
DESIGN SPEED	40 MPH
LEGAL SPEED	35 MPH

DESIGN FUNCTIONAL CLASSIFICATION -
URBAN COLLECTOR

DESIGN EXCEPTIONS
NONE

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

TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-925-0988 (TOLL FREE)
OIL & GAS PRODUCERS UNDERGROUND
PROTECTION SERVICE

PLAN PREPARED BY:
KS ASSOCIATES, INC.
260 BURNS ROAD SUITE 100
ELYRIA, OHIO 44035

CITY OF MASSILLON
STARK COUNTY

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ENGINEERS SEAL:

STATE OF OHIO
MARK SKELLENGER
46461
REGISTERED PROFESSIONAL ENGINEER

SIGNED: Mark Skellenger
DATE: 02-04-03

STANDARD CONSTRUCTION DRAWINGS

								SUPPLEMENTAL SPECIFICATIONS
BP-3.1	7-28-00	CB-1.1M	7-12-95	HW-1.1M	7-12-95			
BP-4.1	7-28-00	CB-1.2M	7-12-95					
BP-5.1	7-28-00	CB-1.3M	7-12-95	MH-1.2M	9-6-95			
BP-7.1	7-28-00	CB-2.1M	7-12-95					
		CB-2.2M	7-12-95	RM-1.1	4-29-99			
F-1.1	7-28-00							
		DM-1.1M	10-21-97					
GR-1.1M	10-21-97	DM-1.2M	10-21-97					
GR-1.2M	1-3-96	DM-2.1M	6-30-95					
GR-1.3M	11-30-94	DM-4.1M	6-30-95					SPECIAL PROVISIONS
GR-2.1M	11-30-94	DM-4.2M	6-30-95					
GR-5.1M	4-21-95	DM-4.3	4-29-99					
GR-5.2M	11-30-94	DM-4.4	4-29-99					
GR-5.3M	11-30-94							

PROJECT DESCRIPTION

UPGRADING 0.57 MILE OF 16TH STREET BY RECONSTRUCTION, INCLUDING NEW STORM SEWER SYSTEM, CURB AND GUTTER, SIDEWALK, TRAFFIC CONTROL SIGNS, PAVEMENT MARKINGS, SIGNALS, LIGHTING, AND UPDATING OF RAILROAD AT GRADE CROSSING.

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 REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY EXCEPT AS NOTED ON SHEETS 15 & 16, AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON THE PLANS.

FEDERAL PROJECT NO.
PID NO. 9527
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NORFOLK SOUTHERN
16TH STREET, SE
1 / 162

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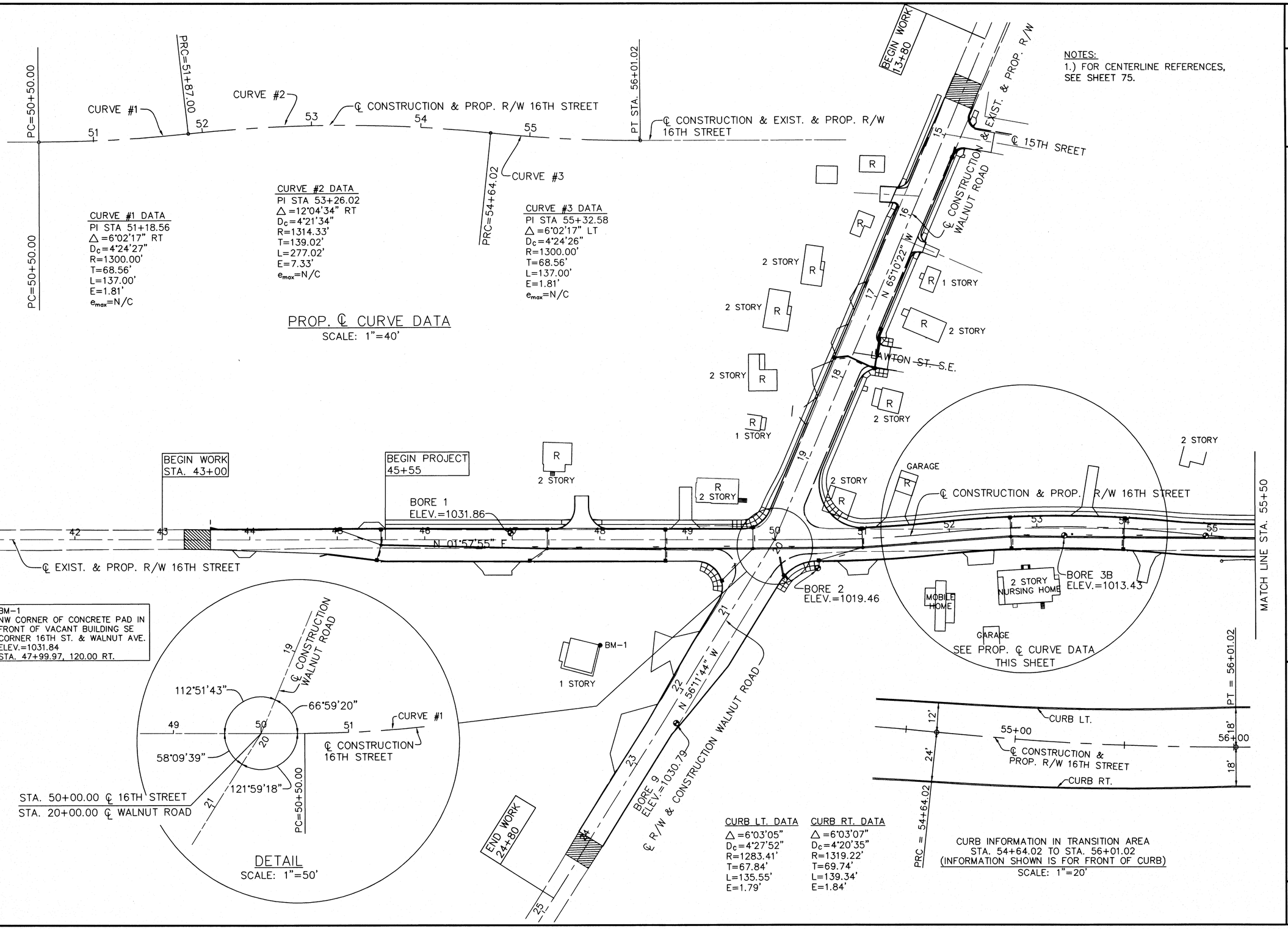

NOTES:
1.) FOR CENTERLINE REFERENCES, SEE SHEET 75.

HORIZONTAL SCALE IN FEET
0 25 50 100

SCHEMATIC PLAN
STA. 41+00 TO STA. 55+50

16TH STREET, SE

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NOTES:
1.) FOR CENTERLINE REFERENCES, SEE SHEET 75.

BM-2
RAILROAD SPIKE SET IN POWER POLE WEST SIDE OF 16TH ST. AND SOUTH SIDE OF RAILROAD
ELEV. = 987.02
STA 58+81.61, 83.42' RT

BM-3
CONCRETE LIGHT POLE BASE WEST SIDE OF HIGH SCHOOL PARKING
ELEV.=1038.44
STA. 70+37.02, 96.99 RT.

SUSPEND PROJECT STA. 58+80.77

RESUME PROJECT STA. 59+27.80

STA. 68+80.76 ℄ 16TH STREET
STA. 10+00.00 ℄ HARSH AVENUE

DETAIL
SCALE: 1" = 50'

MATCH LINE STA. 55+50

MATCH LINE STA. 70+00

STA. 57+37.8 16TH ST.
EXIST. 96" CMP

℄ WETMORE CREEK

BM-2

℄ N&S R.R. R/W

GAS AREA

GAS REGULATOR BUILDING

℄ R/W & CONSTRUCTION 16TH STREET, S.E.

BORE 4
ELEV.=988.63

STA. 57+37.00 16TH ST.
8'x7' BOX CULVERT

BORE 5
ELEV.=994.03

BORE 6
ELEV.=1004.71

N 01°48'58" E

STA. 58+93.89 C 16TH STREET
STA. 5733+74.10 C N-S RR

COMMERCIAL BUILDING

GARAGE

℄ N-S RR

℄ CONSTRUCTION HARSH AVENUE, S.E.

SECTION LINE

℄ CONSTRUCTION 16TH STREET

90°03'27"

89°56'33"

180°29'34"

S 88°14'29" E

GAS BUILDING

END WORK 16+20

END PROJECT STA. 75+50

END WORK STA. 78+65

BORE 7
ELEV.=1038.41

N 02°18'32" E

BORE 8
ELEV.=1055.07

OAK AVE. (60' R/W)

HORIZONTAL SCALE IN FEET
0 25 50 100

SCHEMATIC PLAN
16TH STREET, SE
STA. 55+50 TO STA. 70+00

3
162

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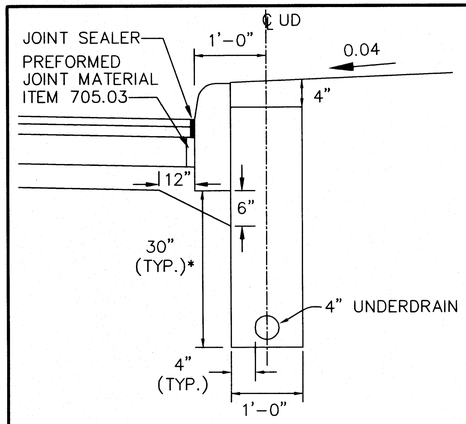


DETAIL A–A
N.T.S.

*EXCEPTIONS:

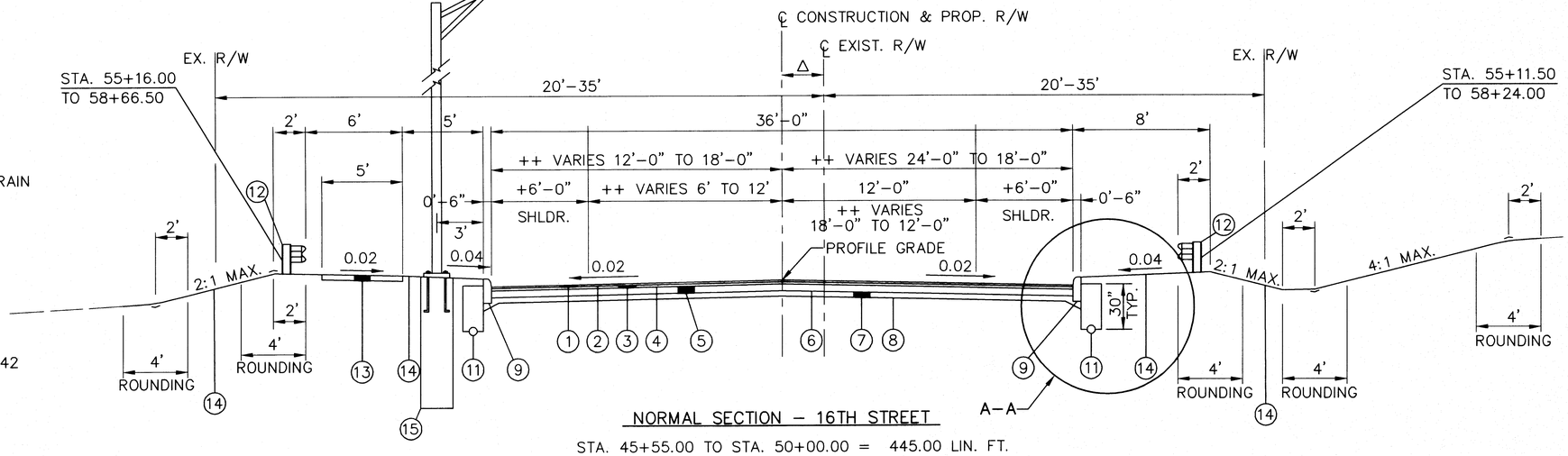
UD11 – 18" DEPTH
UD13 – 20.5" DEPTH
UD14 – 20.5" DEPTH
UD15 – 23" DEPTH
UD17 – 18" DEPTH; 0% SLOPE STA. 59+42 TO STA. 59+52
UD19 – 18" DEPTH
UD22A – 28" DEPTH

SEE UNDERDRAIN SUBSUMMARY SHEET 88 FOR ELEVATIONS.

LEGEND

Ⓐ 7"± EXISTING ASPHALT PAVEMENT
Ⓑ 6"± EXISTING ASPHALT PAVEMENT
Ⓒ 4"± EXISTING ASPHALT PAVEMENT
Ⓓ 4"± EXISTING SUBBASE
Ⓔ 6"± EXISTING SUBBASE
Ⓕ EXISTING SIDEWALK
Ⓖ EXISTING CURB, TYPE 6
Ⓗ EXISTING CURB AND GUTTER, TYPE 2

① ITEM 448 – 1–1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22
② ITEM 407 – TACK COAT FOR INTERMEDIATE COURSE
③ ITEM 448 – 1–3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22
④ ITEM 407 – TACK COAT
⑤ ITEM 301 – 5" BITUMINOUS AGGREGATE BASE, PG64–22
⑥ ITEM 408 – BITUMINOUS PRIME COAT (0.40 GAL./S.Y.)
⑦ ITEM 304 – 4" AGGREGATE BASE
⑧ ITEM 203 – SUBGRADE COMPACTION
⑨ ITEM 830 – CURB, TYPE 6
⑩ ITEM 830 – COMBINATION CURB & GUTTER, TYPE 2 (T=12")
⑪ ITEM 605 – 4" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP
⑫ ITEM 609 – GUARDRAIL, TYPE 5
⑬ ITEM 608 – 4" CONCRETE WALK
⑭ ITEM 870 – SEEDING AND MULCHING
⑮ ITEM 625 – FOUNDATION, LIGHT POLE, BRACKET ARM, AND LUMINAIRE. SEE LIGHTING PLAN

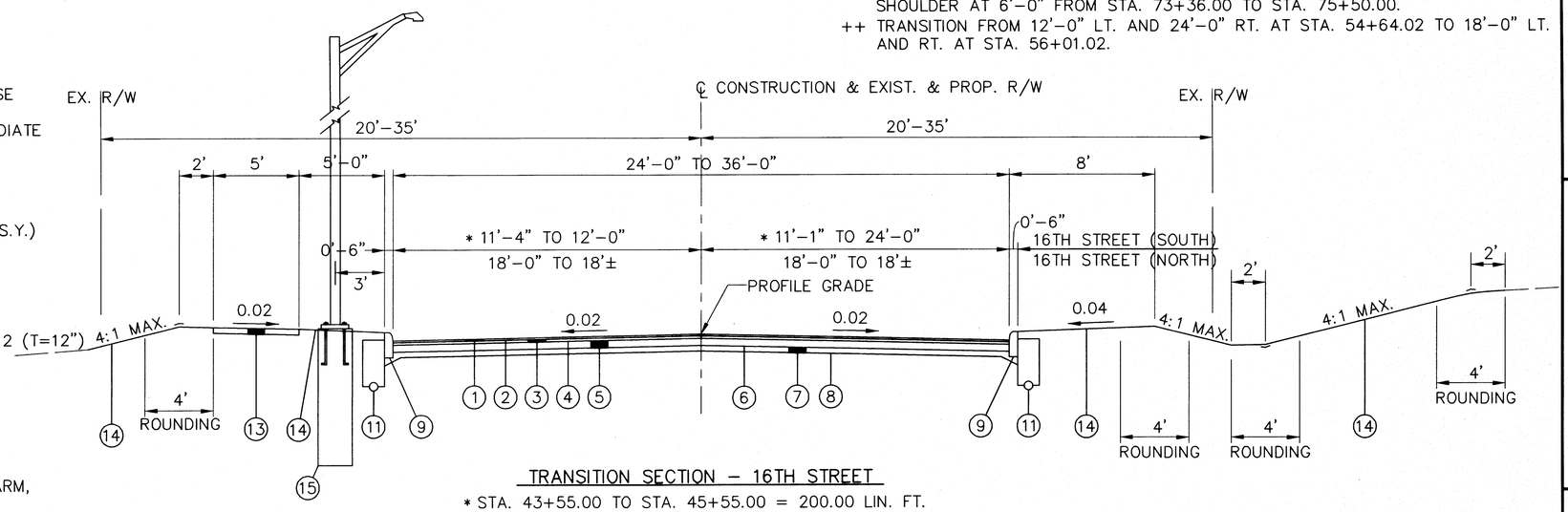


NORMAL SECTION – 16TH STREET

STA. 45+55.00 TO STA. 50+00.00 = 445.00 LIN. FT.
++STA. 50+00.00 TO SUSPEND PROJECT STA. 58+80.77 = 880.77 LIN. FT.
++RESUME PROJECT STA. 59+27.80 TO STA. 75+40.00 = 1612.20 LIN. FT.
2937.97 LIN. FT.

NOTES:

1. SEE SHEETS 127–132 FOR LIGHTING DETAILS
2. SEE UNDERDRAIN DETAIL SHEETS 88–89.
△ VARIES 0.00 FT. TO 6.00 FT.
\+ SHOULDER AT 0'–0" FROM STA. 43+55.00 TO STA. 54+00.00; SHOULDER VARIES FROM 0'–0" AT STA. 54+00.00 TO 6'–0" AT STA. 55+60.00; SHOULDER AT 6'–0" FROM STA. 55+60.00 TO SUSPEND PROJECT STA. 58+80.77 AND FROM RESUME PROJECT STA. 59+27.80 TO STA. 65+97.00; SHOULDER VARIES FROM 6'–0" AT STA. 65+97.00 TO 0'–0" AT STA. 67+36.00; SHOULDER AT 0'–0" FROM AT STA. 67+36.00 TO STA. 71+76.00; SHOULDER VARIES FROM 0'–0" AT STA. 71+76.00 TO 6'–0" AT STA. 73+36.00; SHOULDER AT 6'–0" FROM STA. 73+36.00 TO STA. 75+50.00.
++ TRANSITION FROM 12'–0" LT. AND 24'–0" RT. AT STA. 54+64.02 TO 18'–0" LT. AND RT. AT STA. 56+01.02.



TRANSITION SECTION – 16TH STREET

* STA. 43+55.00 TO STA. 45+55.00 = 200.00 LIN. FT.
STA. 75+40.00 TO STA. 75+50.00 = 10.00 LIN. FT.
210.00 LIN. FT.

* NO SIDEWALK FROM STA. 43+55.00 TO STA. 45+55.00.

CALCULATED
CHECKED

TYPICAL SECTIONS – 16TH STREET

16TH STREET, SE

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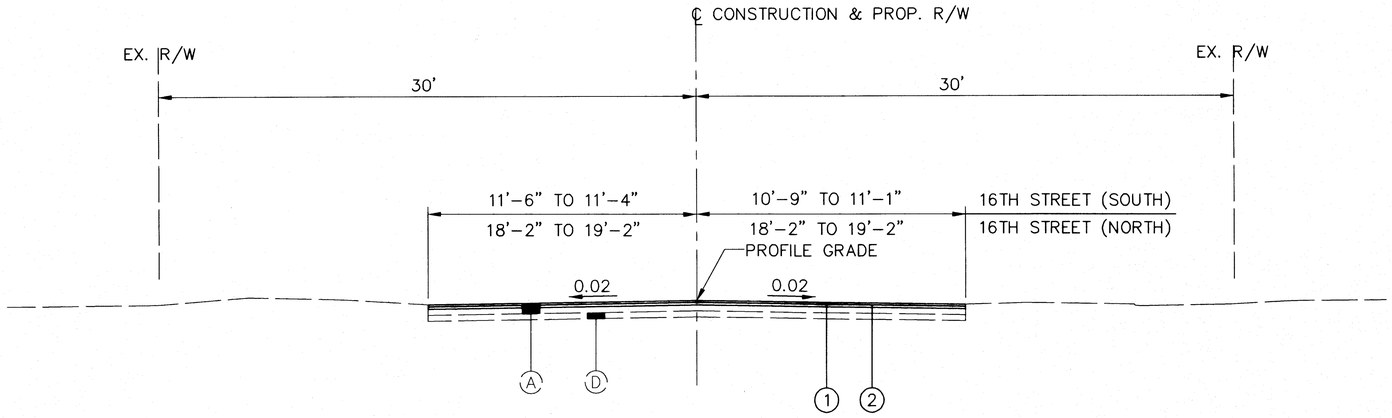
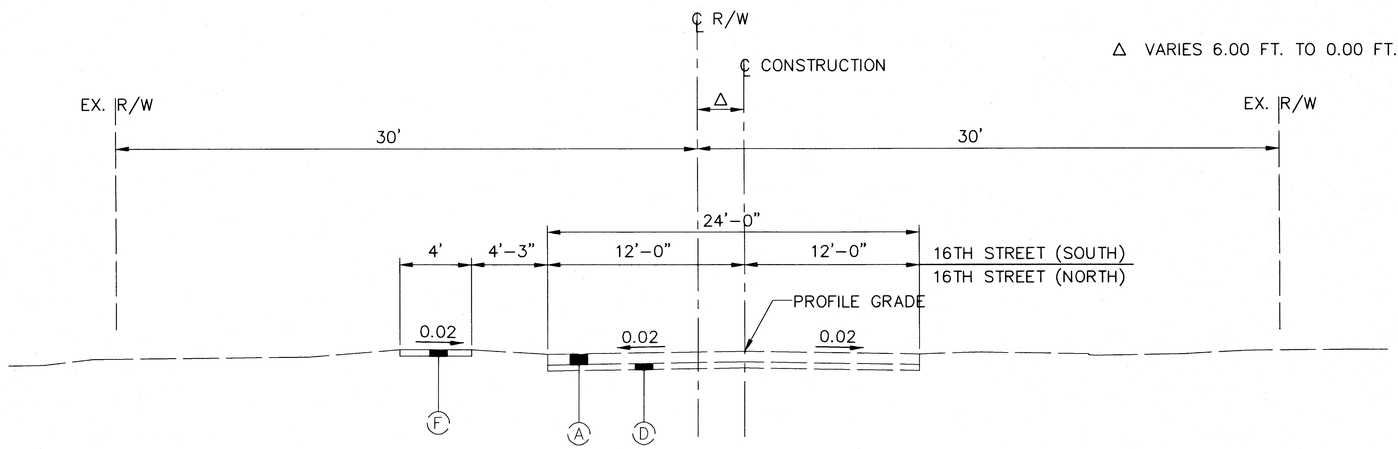


RESURFACING SECTION – 16TH STREET

STA. 43+25.00 TO STA. 43+55.00 = 30.00 LIN. FT.
STA. 75+50.00 TO STA. 75+80.00 = 30.00 LIN. FT.
60.00 LIN. FT.



EXISTING SECTION – 16TH STREET

STA. 46+00.00
STA. 73+60.22

SEE SHEET 4 FOR LEGEND.

CALCULATED
CHECKED

TYPICAL SECTIONS – 16TH STREET

16TH STREET, SE

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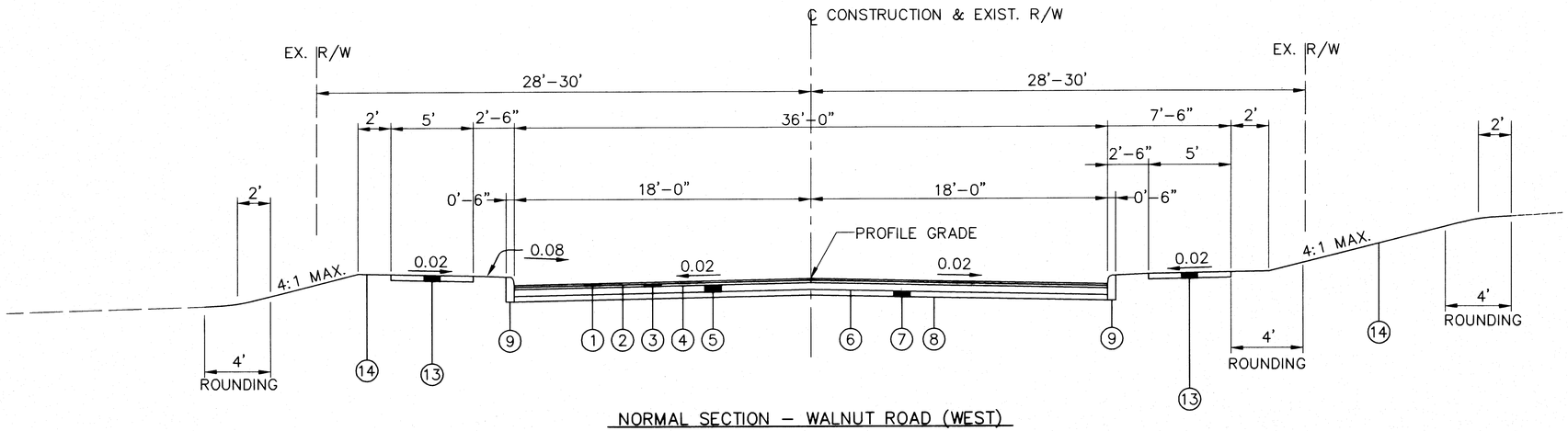
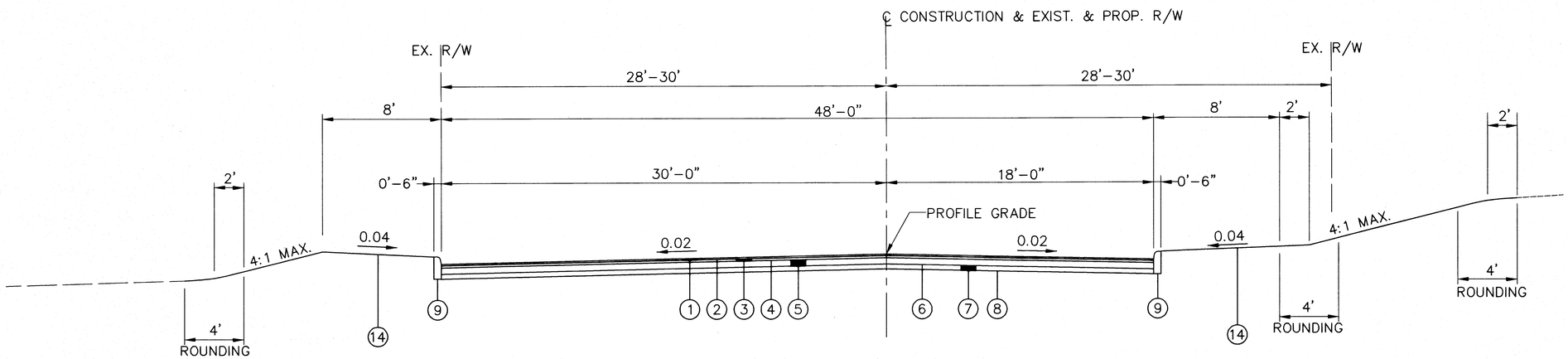


NORMAL SECTION – WALNUT ROAD (WEST)

STA. 15+35.00 TO STA. 19+86.96 = 451.96 LIN. FT.
STA. 19+86.96 TO STA. 20+28.25 – INTERSECTION AREA SEE DETAIL SHEET 76.



NORMAL SECTION – WALNUT ROAD (EAST)

STA. 20+28.25 TO STA. 21+50.00 = 121.75 LIN. FT.

SEE SHEET 4 FOR LEGEND.

CALCULATED | CHECKED

TYPICAL SECTIONS – WALNUT ROAD

16TH STREET, SE

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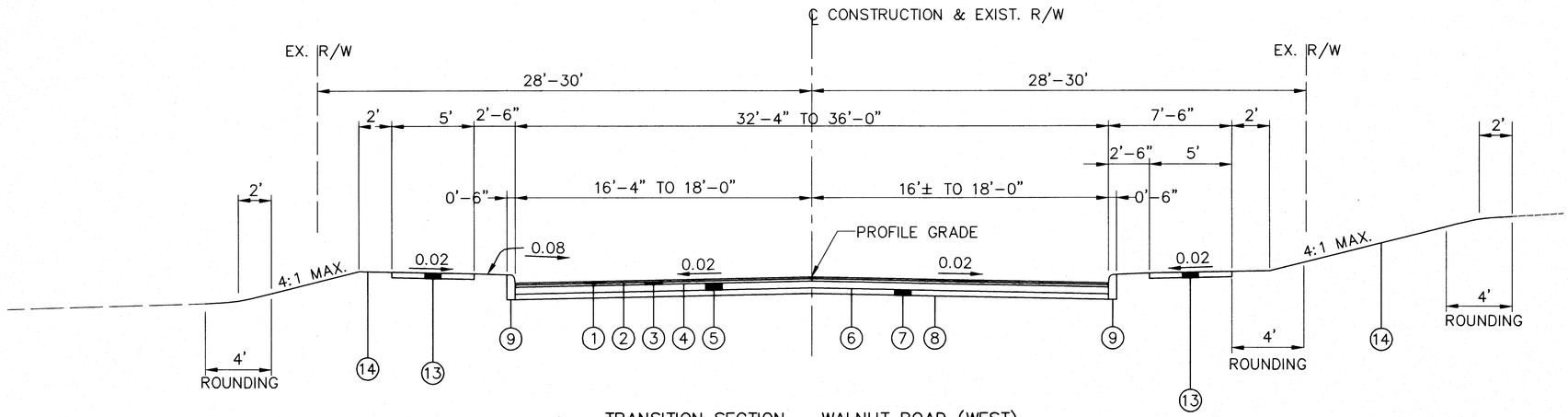
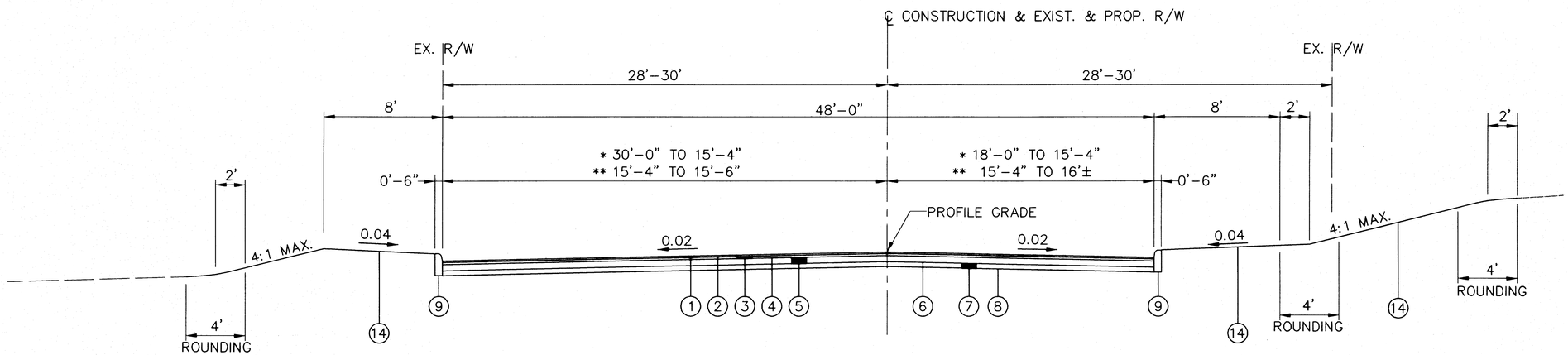


TRANSITION SECTION – WALNUT ROAD (WEST)

STA. 14+60.00 TO STA. 15+35.00 = 75.00 LIN. FT.

NOTES:
1. FOR UNDERDRAIN DETAILS SEE SHEETS 88–89.



TRANSITION SECTION – WALNUT ROAD (EAST)

* STA. 21+50.00 TO STA. 22+50.00 = 100.00 LIN. FT.
** STA. 22+50.00 TO STA. 24+00.00 = 150.00 LIN. FT.
250.00 LIN. FT.

SEE SHEET 4 FOR LEGEND.

CALCULATED | CHECKED

TYPICAL SECTIONS – WALNUT ROAD

16TH STREET, SE

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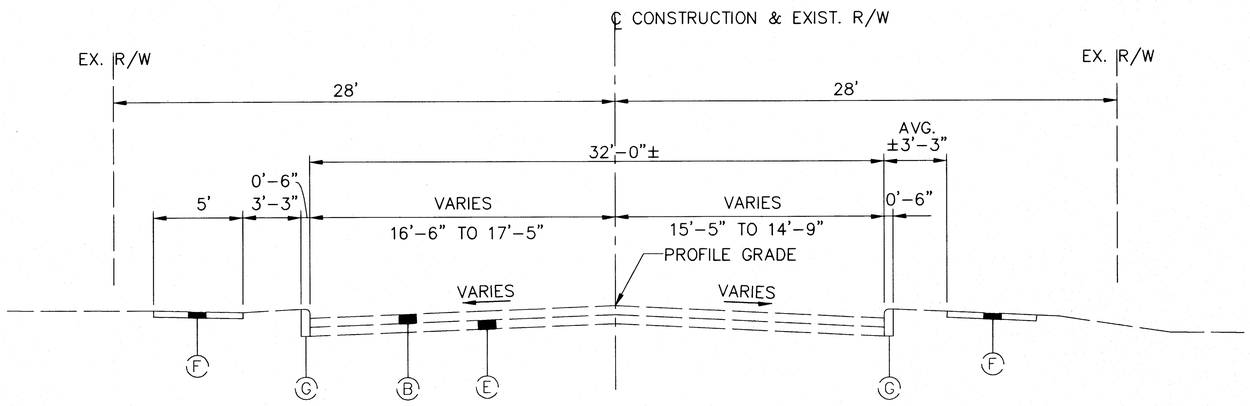
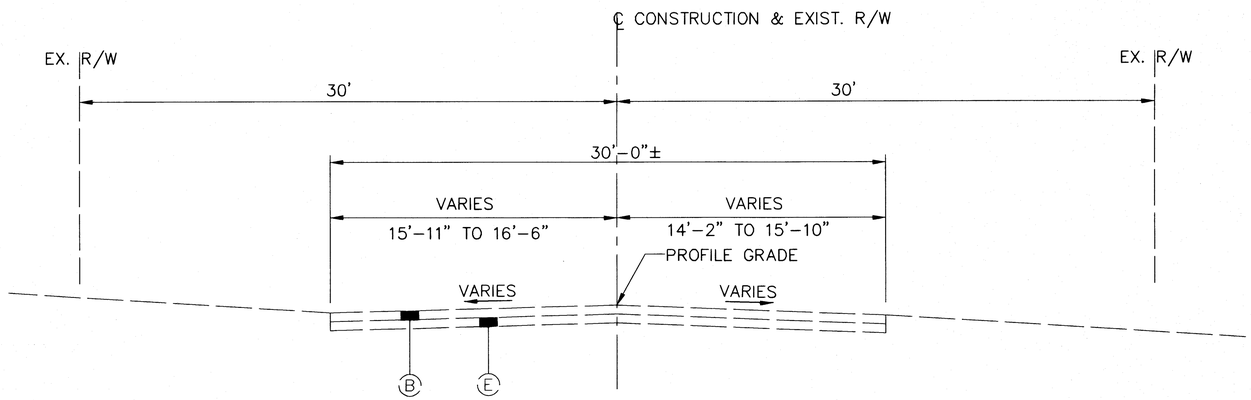


EXISTING SECTION – WALNUT ROAD WEST



EXISTING SECTION – WALNUT ROAD EAST

SEE SHEET 4 FOR LEGEND.

CALCULATED | CHECKED

TYPICAL SECTIONS – WALNUT ROAD

16TH STREET, SE

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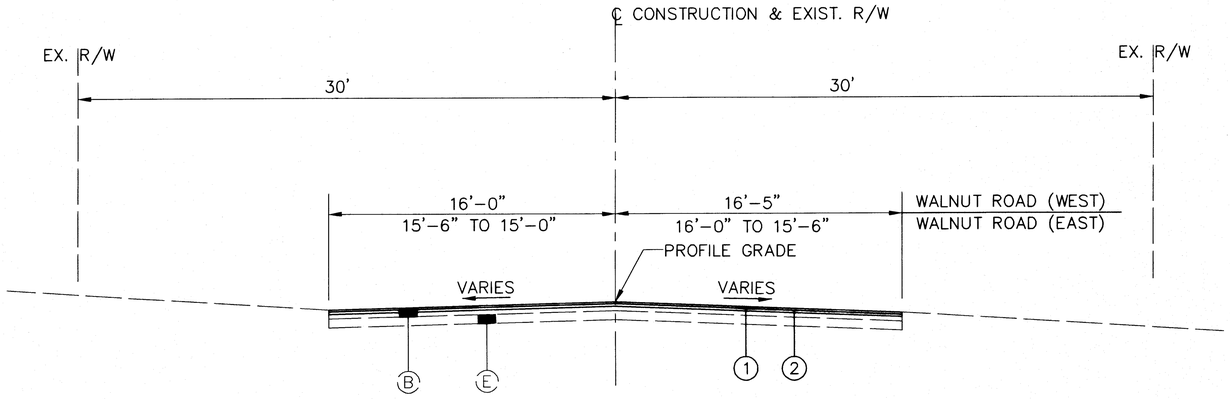

RESURFACING SECTION – WALNUT ROAD

STA. 14+30.00 TO STA. 14+60.00 = 30.00 LIN. FT.
STA. 24+00.00 TO STA. 24+30.00 = 30.00 LIN. FT.
60.00 LIN. FT.

SEE SHEET 4 FOR LEGEND.

CALCULATED | CHECKED

TYPICAL SECTIONS – WALNUT ROAD

16TH STREET, SE

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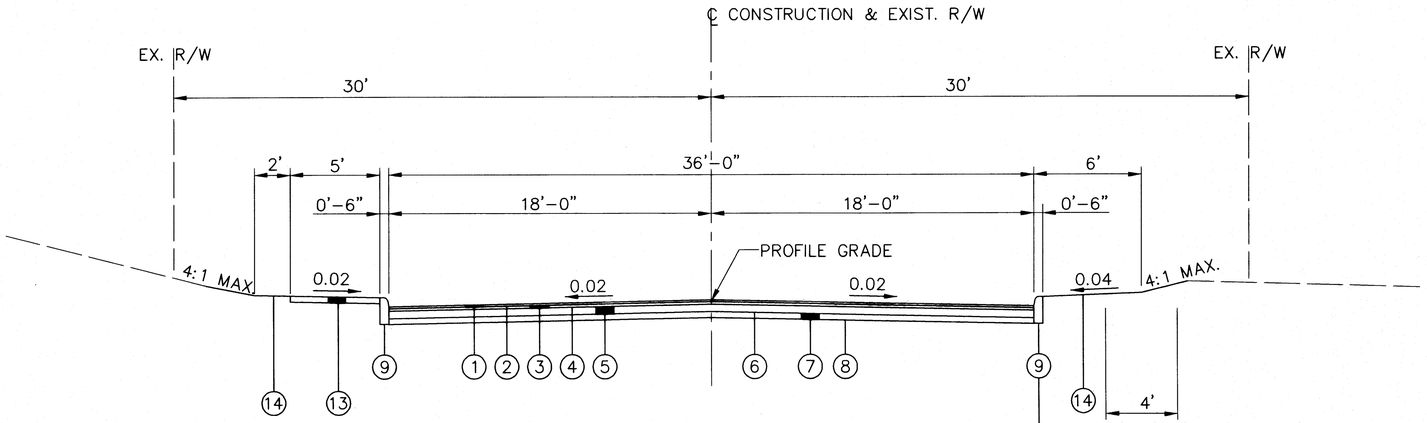
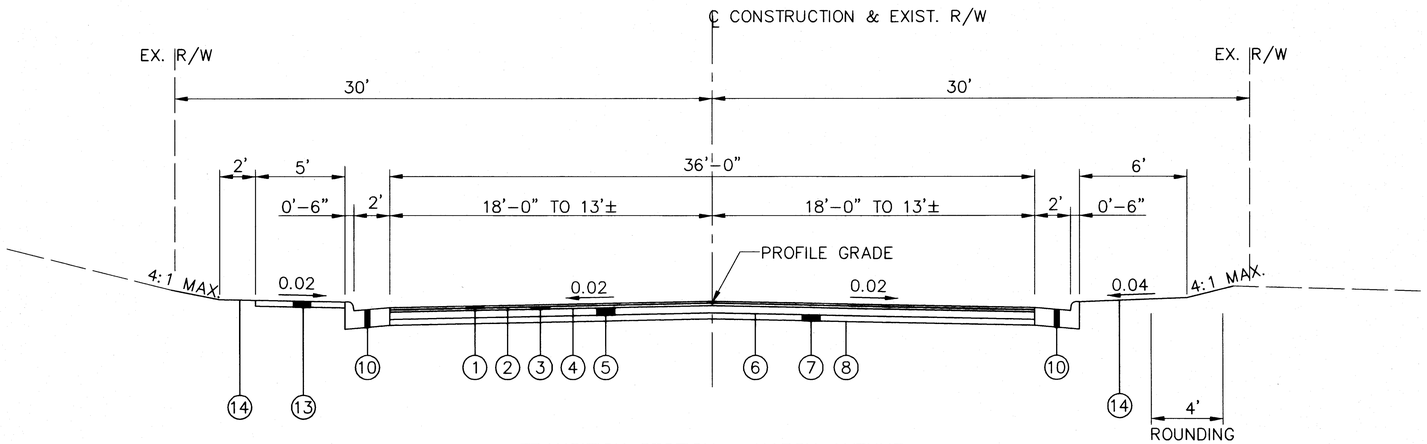


NORMAL SECTION – HARSH AVENUE

STA. 10+18.00 TO STA. 13+20.00 = 302.00 LIN. FT.

ITEM (9) FROM STA. 10+18.00 TO STA 12+78.00;
ITEM (10) FROM STA. 12+98.00 TO STA. 13+20.00

TRANSITION FROM TYPE 6 TO COMBINATION CURB & GUTTER TYPE 2 IN 20' (STA. 12+78.00 TO STA. 12+98.00)



TRANSITION SECTION – HARSH AVENUE

STA. 13+20.00 TO STA. 15+20.00 = 200.00 LIN. FT.

SEE SHEET 4 FOR LEGEND.

CALCULATED | CHECKED

TYPICAL SECTIONS – HARSH AVENUE

16TH STREET, SE

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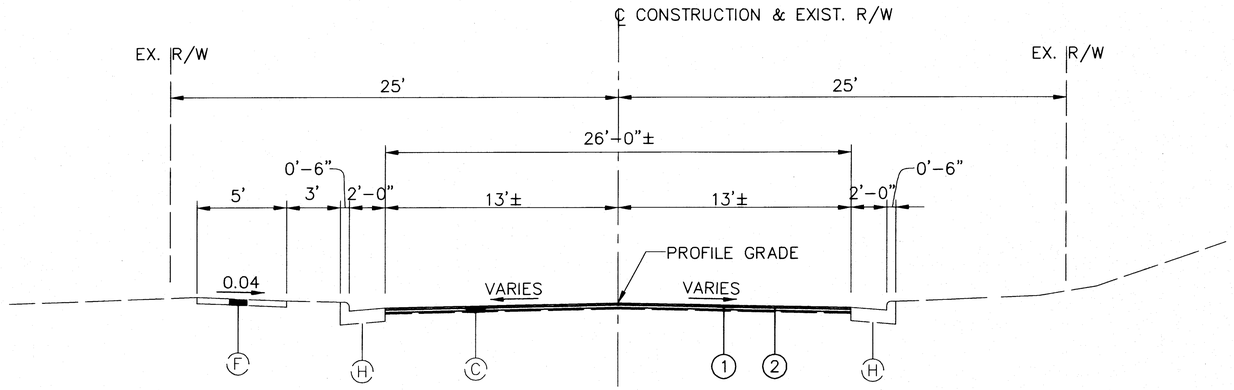
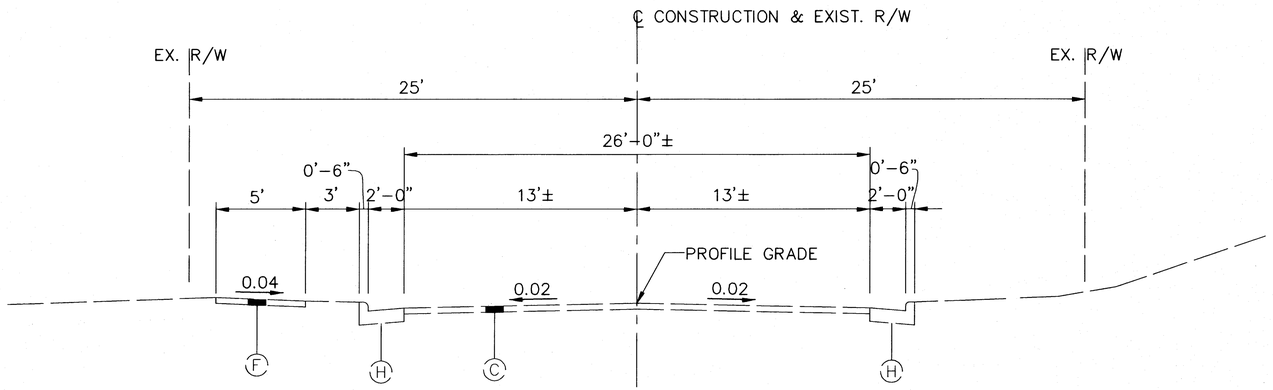


RESURFACING SECTION – HARSH AVENUE

STA. 15+20.00 TO STA. 15+50.00 = 30.00 LIN. FT.



EXISTING SECTION – HARSH AVENUE

SEE SHEET 4 FOR LEGEND.

CALCULATED | CHECKED

TYPICAL SECTONS – HARSH AVENUE

16TH STREET, SE

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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:

AMERITECH
50 W.BOWERY, 4TH FLOOR
AKRON, OH 44308
800-354-8057

CONSUMERS OHIO WATER
P.O. BOX 564
MASSILLON, OH 44648
(330) 833-4156

OHIO EDISON
1900 W. MARKET BLDG. 1
AKRON, OH. 44313
800-354-4538

GREAT LAKES
P.O. BOX 550
HARTVILLE, OH. 44632
(330) 877-6747

AT&T COMMUNICATIONS
2535 E. 40TH AVE.
DENVER, CO 80205-3601
(800) 852-3786

THE EAST OHIO GAS COMPANY
4725 SOUTHWAY ST. S.W.
CANTON, OH 44706
(330) 478-8136

MASSILLON CABLE TV
P.O. BOX 614
MASSILLON, OH 44648
(330) 833-4134

CITY OF MASSILLON
SANITARY SEWER
151 LINCOLN WAY EAST
MASSILLON, OH 44646
(330) 830-1722

NORTHEAST OHIO NATURAL GAS CORP.
1425 N. WOOSTER AVE.
STRASBURG, OH 44680-9766
(330) 878-5589

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTON 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.

CONSTRUCTION NOISE

ACTIVITIES AND LAND USE ADJACENT TO THIS PROJECT MAY BE AFFECTED BY CONSTRUCTION NOISE. IN ORDER TO MINIMIZE ANY ADVERSE CONSTRUCTION NOISE IMPACTS, ANY POWER-OPERATED CONSTRUCTION-TYPE DEVICE SHALL NOT BE OPERATED BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM. IN ADDITION, ANY SUCH DEVICE SHALL NOT BE OPERATED AT ANY TIME IN SUCH A MANNER THAT THE NOISE CREATED SUBSTANTIALLY EXCEEDS THE NOISE CUSTOMARILY AND NECESSARILY ATTENDANT TO THE REASONABLE AND EFFICIENT PERFORMANCE OF SUCH EQUIPMENT.

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.

CONVERSION OF STANDARD CONSTRUCTION DRAWINGS

THE METRIC STANDARD DRAWINGS REFERENCED IN THIS PLAN SHALL BE CONVERTED TO ENGLISH UNITS USING THE SI (METRIC) TO ENGLISH CONVERSION FACTORS PROVIDED IN SECTION 109.011 OF THE 1997 CONSTRUCTION AND MATERIALS 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 ENGLISH VALUES WHERE SUITABLE.

ITEM 201 - CLEARING AND GRUBBING

CLEARING THE SITE OF ALL BRUSH, LARGE ROCKS, TREES & STUMPS FOR THIS PROJECT SHOULD BE INCLUDED AS PART OF THE EXCAVATION REQUIRED OR NECESSARY TO COMPLETE THE WORK AS SPECIFIED OR AS SHOWN. PAYMENT WILL BE MADE UNDER ITEM 201 - CLEARING AND GRUBBING.

ITEM 202 - REMOVAL MISC.: LIGHT POLE

ITEM 202 - REMOVAL MISC.: LIGHT POLE SHALL INCLUDE ALL LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY FOR THE REMOVAL OF THE LIGHT POLE AND THE POLE FOUNDATION TO 1' BELOW THE FINISHED GROUND SURFACE. IT SHALL ALSO INCLUDE TURNING OFF THE POWER SUPPLY TO THE POLE. PAYMENT SHALL BE AT THE PRICE BID FOR EACH ITEM 202 - REMOVAL MISC.: LIGHT POLE.

ITEM 202 - REMOVAL MISC.: CONCRETE WALL

ITEM 202 - REMOVAL MISC.: CONCRETE WALL SHALL INCLUDE ALL LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY FOR THE REMOVAL OF THE CONCRETE WALL TO 1' BELOW THE FINISHED GROUND SURFACE. PAYMENT SHALL BE AT THE PRICE BID FOR SQ. FT. OF ITEM 202 - REMOVAL MISC.: CONCRETE WALL.

ITEM 202 - REMOVAL MISC.: CONCRETE PAD

ITEM 202 - REMOVAL MISC.: CONCRETE PAD SHALL INCLUDE ALL LABOR, EQUIPMENT, AND INCIDENTALS NECESSARY FOR THE REMOVAL OF THE CONCRETE PAD TO 1' BELOW THE FINISHED GROUND SURFACE. PAYMENT SHALL BE AT THE PRICE BID FOR SQ. FT. OF ITEM 202 - REMOVAL MISC.: CONCRETE PAD.

ITEM 203 - PROOF ROLLING

AN ESTIMATED QUANTITY FOR THIS ITEM HAS BEEN PROVIDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

CONNECTION BETWEEN EXISTING AND PROPOSED GUARDRAIL

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

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 UNDERGOUND 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.

RESIDENTIAL AND COMMERCIAL DRAINAGE CONNECTIONS

EXISTING ROOF DRAINS, FOOTER DRAINS, OR YARD DRAINS, DISTURBED BY THE WORK, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING A CONDUIT THROUGH THE CURB OR INTO A DRAINAGE STRUCTURE. THE LOCATION, TYPE, SIZE, AND GRADE OF THE NEW CONDUIT REQUIRED TO REPLACE OR EXTEND THE EXISTING DRAIN WILL BE DETERMINED BY THE ENGINEER.

THE FOLLOWING CONDUIT TYPES MAY BE USED: 707.33, 707.41 NON-PERFORATED, 707.42, 707.43, 707.45, 707.46, 707.47, 707.51, 707.52 PS46 MIN.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER FOR THE WORK NOTED ABOVE:

ITEM 603 - 6" CONDUIT, TYPE B	200 LIN. FT.
ITEM 603 - 8" CONDUIT, TYPE B	200 LIN. FT.
ITEM 603 - 12" CONDUIT, TYPE B	200 LIN. FT.

ITEM 407 - TACK COAT AND 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. FOR ESTIMATING PURPOSES ONLY, THE PLAN QUANTITIES INDICATE AN AVERAGE APPLICATION RATE OF:

407 - TACK COAT	0.075 GAL./S.Y.
407 - TACK COAT FOR INTERMEDIATE COURSE	0.045 GAL./S.Y.

ITEM 604, CATCH BASINS NO. 3A AND 6, AS PER PLAN

CATCH BASINS SHALL BE CONSTRUCTED IN CONFORMANCE WITH ITEM 604 EXCEPT THAT THE GRATES SHALL BE NEENAH NO. R-4859-C, EAST JORDAN NO. 5110 TYPE M2, OR APPROVED EQUAL WITH BICYCLE FRIENDLY PATTERN.

REMOVAL AND REPLACEMENT OF SOFT SUBGRADE

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER TO REMOVE AND REPLACE SOFT SUBGRADE ENCOUNTERED ON THE PROJECT.

203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	200 CU. YD.
203 EMBANKMENT	200 CU. YD.

ITEM 609 - CURB RAMP, AS PER PLAN

THIS ITEM SHALL BE IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP-7.1 WITH THE EXCEPTION OF THE FOLLOWING REGARDING SURFACE TEXTURE:

SURFACE TEXTURE: DETECTABLE WARNING ON WALKING SURFACE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN., A HEIGHT OF NOMINAL 0.2 IN. AND CENTER TO CENTER SPACING OF NOMINAL 2.35 IN. AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST AN INTRAL PART OF THE WALKING SURFACE.

ALL OTHER PROVISIONS OF ITEM 609 AND SCD BP-7.1 SHALL APPLY.

CALCULATED JHE 03/02
CHECKED VLB 05/02

GENERAL NOTES

16TH STREET, SE

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SEEDING AND MULCHING

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE PLACED BY THE CONTRACTOR WITH THE ENGINEER'S CONCURRENCE TO PROMOTE GROWTH AND TO CARE FOR PERMANENT SEEDED AREAS PER 870.18 AND 870.20:

ITEM 870 – PLACING TOPSOIL	1764 CU. YD.
ITEM 870 – AGRICULTURAL LIME	6.58 TON
ITEM 870 – WATER	100 M. GAL.
ITEM 870 – MOWING	36 M. SQ. FT.

SEEDING AND MULCHING SHALL BE APPLIED TO ALL AREAS OF EXPOSED SOIL BETWEEN THE RIGHT–OF–WAY LINES, AND WITHIN THE CONSTRUCTION LIMITS FOR AREAS OUTSIDE THE RIGHT–OF–WAY LINES COVERED BY WORK AGREEMENT OR SLOPE EASEMENT. QUANTITY CALCULATIONS FOR ITEM 870 – SEEDING AND MULCHING, ARE BASED ON THESE LIMITS.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

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

ITEM 870 – COMMERCIAL FERTILIZER	1 TON
ITEM 870 – REPAIR SEEDING AND MULCHING	789 SQ. YD.
ITEM 870 – WATER	50 M. GAL.
ITEM 877 – TEMPORARY SEEDING AND MULCHING	3158 SQ. YD.
ITEM 877 – TEMPORARY PERIMETER FILTER FABRIC FENCE	420 LIN. FT.
ITEM 877 – TEMPORARY INLET PROTECTION FILTER FABRIC FENCE	1410 LIN. FT.

ITEM 601 – ROCK CHANNEL PROTECTION, TYPE C, WITHOUT FILTER SHALL BE PLACED BY THE CONTRACTOR WITH THE ENGINEER'S CONCURRENCE TO REPAIR AND REINFORCE FILTER FABRIC FENCE.

STORM WATER POLLUTION PREVENTION PLAN

THE CONDITIONS OF THE NPDES CONSTRUCTION STORM WATER GENERAL PERMIT (SEE PROPOSAL) SHALL BE MET DURING ALL STAGES OF CONSTRUCTION. THE LOCATION AND TIMING OF ALL EROSION AND SEDIMENT CONTROL ITEMS SHALL BE FIELD ADJUSTED TO PREVENT SIGNIFICANT IMPACTS ON RECEIVING WATERS. IMPLEMENTATION OF THIS STORM WATER POLLUTION PREVENTION PLAN SHALL CONTINUE THROUGHOUT THE DURATION OF THE PROJECT OR UNTIL SUCH TIME THAT THE UPSLOPE DISTURBED AREAS ARE STABILIZED.

INSTALLATION OF SEDIMENT BASINS/DAMS, PERIMETER FILTER FABRIC FENCE, AND DITCH CHECKS SHALL BE CONCURRENT WITH CLEARING AND GRUBBING AND/OR GRADING OPERATIONS.

ALL REASONABLE ATTEMPTS SHALL BE MADE TO MINIMIZE THE TOTAL AREA OF DISTURBED LAND.

AREAS TO REMAIN DORMANT FOR MORE THAN 45 DAYS SHALL BE IMMEDIATELY STABILIZED WITH TEMPORARY SEEDING AND MULCHING, EROSION CONTROL MATTING, OR OTHER APPROPRIATE EROSION CONTROL MEASURES.

SEE SHEETS 28 THRU 30 FOR QUANTITIES AND DETAILS.

EROSION CONTROL

ITEMS 601 AND 670 ARE PROVIDED IN THE PLANS FOR EROSION CONTROL. ROCK OF A STABLE NATURE SHALL NOT BE REMOVED IN ORDER TO PLACE EITHER OF THESE ITEMS AND TURF OF A STABLE NATURE SHALL NOT BE REMOVED IN ORDER TO PLACE 660. THE ENGINEER SHALL CHECK AND NON–PERFORM QUANTITIES OR ADJUST LOCATIONS AND QUANTITIES OF THESE ITEMS WHERE INDICATED BY FIELD CONDITIONS DURING CONSTRUCTION. IN ADDITION, THESE ITEMS SHALL MEET THE REQUIREMENTS OF 108.04.

FIRE HYDRANTS RELOCATED OR ADJUSTED TO GRADE

FIRE HYDRANTS ON THIS PROJECT WILL BE RELOCATED OR ADJUSTED TO GRADE BY OTHERS. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THIS WORK WITH THE UTILITY OWNER.

VALVE BOX ADJUSTED TO GRADE

THIS ITEM SHALL BE IN ACCORDANCE WITH 638; AN ESTIMATED QUANTITY OF 5 EACH HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR USE AS DIRECTED BY THE ENGINEER.

SPECIAL – MANHOLE & CATCH BASIN REHABILITATION, AS PER PLAN

DESCRIPTION:
THIS WORK WILL CONSIST OF REMOVING THE EXISTING CASTING, RECONSTRUCTING PER THE ENGINEER, AND PLACING AT THE PROPER GRADE A NEW CASTING. THE REHABILITATION WORK WILL CONSIST OF TEARING THE EXISTING BRICK STRUCTURE DOWN TO A SUITABLE LEVEL PER THE ENGINEER'S DIRECTION AND REBUILT AND PLASTERED PER THE SPECIFICATIONS FOR SANITARY & STORM MANHOLES & CATCH BASINS. IF THE STRUCTURE IS OF A PRECAST METERIAL ALL CRACKS AND JOINTS SHALL BE CLEANED AND PLASTERED WITH PROPER MATERIAL AS TO ADHERE, INCREASE THE STUCTURAL STABILITY, AND SEAL THE EXISTING STRUCTURE FROM ANY WATER INFILTRATION.

AN ESTIMATED QUANTITY OF 6 EACH HAS BEEN CARRIED TO THE GENERAL SUMMARY FOR THE FOLLOWING LOCATIONS.

16TH. STREET
1. STA. 50+01.76, 13.36' LT.
2. STA. 56+99.36, 10.98' RT.
3. STA. 58+55.61, 2.94' RT.

WALNUT ROAD
1. STA. 14+99.11, 4.90' LT.
2. STA. 17+70.02, 4.29' LT.
3. STA. 17+89.74, 17.40' RT.

NEW CASTINGS: THE NEW CASTINGS SHALL FISH BACK AND BE OF THE FOLLOWING OR EQUAL APPROVED CASTINGS BY THE ENGINEER IN WRITING:

	EAST JORDON	NEENAH
MANHOLE–HIGH	2015	R–1924–1
MANHOLE–SHORT	1850	R–1654
CATCH BASIN TYPE "B" SINGLE	8213–M–1/2	F–6672–K
CATCH BASIN TYPE "A" SINGLE	7030–M–1/2	R–3246
	7350–M–1/2	R–3289–C
MANHOLE CATCH BASIN	1850–M	R–2500–G
CATCH BASIN TYPE "A" DOUBLE	7031	R–3295–2
CATCH BASIN TYPE "A" TRIPLE	7032	R–3295–3

ITEM 202, MANHOLES, CATCH BASINS, INLETS, STORM SEWERS REMOVED OR ABANDONED

ALL EXISTING STORM MANHOLES, CATCH BASINS, INLETS AND STORM SEWERS WITHIN THE PROJECT LIMITS SHALL BE ABANDONED OR CAREFULLY REMOVED UNLESS NOTED OTHERWISE.

ALL CASTINGS SHALL BE CAREFULLY REOMOVED AND STORED WITHIN THE THE RIGHT OF WAY FOR SALVAGE BY THE CITY.

PAYMENT FOR ALL THE ABOVE WORK SHALL BE INCLUDED WITH THE PERTINENT 202 ITEMS.

WORK PERFORMED IN THE VICINITY OF THE RAILROAD

ALL WORK PERFORMED BY THE CITY'S CONTRACTOR ON THE RAILROAD RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE "SPECIAL PROVISIONS FOR PROTECTION OF RAILWAY INTERESTS" AVAILABLE FROM NORFOLK SOUTHERN CORPORATION. NO WORK SHALL BE PERFORMED UNTIL THE RAILWAY'S AGREEMENT WITH THE CITY IS FULLY EXECUTED, THE CONTRACTOR'S INSURANCE IS APPROVED AND ARRANGEMENTS MADE FOR FLAGGING PROTECTION.

THE PROJECT AREA IN THE VICINITY OF THE RAILROAD WHERE FLAGGERS AND ADDITIONAL SAFETY MEASSURES MAY BE REQUIRED BY THE RAILROAD IS DESIGNATED BY THE "SUSPEND PROJECT" AND "RESUME PROJECT" FLAGS. THE NORMAL ROADWAY TYPICAL SECTION HAS BEEN MODIFIED IN THIS AREA TO ELIMINATE THE CONCRETE CURBS AND CONCRETE SIDEWALK. SEE RAILROAD CROSSING DETAIL SHEET 79/162.

ALL THE WORK PERFORMED BY THE CITY'S CONTRACTOR FOR THE INSTALLATION OF THE SANITARY AND STORM SEWERS UNDER THE RAILROAD SHALL BE IN ACCORDANCE WITH THE CITY'S PIPELINE OCCUPANCY PERMIT AND IN ACCORDANCE WITH NSCE–8, "SPECIFICATIONS FOR PIPELINE OCCUPANCY OF NORFOLK SOUTHERN PROPERTY", DATED 5/16/01.

CALCULATED JHE 03/02 | CHECKED VLB 05/02

GENERAL NOTES

16TH STREET, SE

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MAINTENANCE OF TRAFFIC GENERAL NOTES

16TH STREET, SE

GENERAL

THE CONTRACTOR SHALL NOTIFY THE ENGINEER, STREET SUPERINTENDENT, POLICE CHIEF, AND FIRE CHIEF, CITY OF MASSILLON, AT LEAST 48 HOURS IN ADVANCE (EXCLUSIVE OF SATURDAY, SUNDAY, OR HOLIDAYS) OF HIS INTENT TO DIVERT TRAFFIC AND TWO WEEKS IN ADVANCE OF A DETOUR.

NO CHANGE IN TRAFFIC PATTERNS SHALL TAKE PLACE DURING PEAK HOURS, 6:00 A.M. TO 9:00 A.M. AND 3:00 P.M. TO 6:00 P.M. MONDAY THROUGH FRIDAY.

THE CONTRACTOR SHALL NOTIFY NORFOLK SOUTHERN AND THE ENGINEER AT LEAST ONE WEEK IN ADVANCE OF HIS INTENT TO CLOSE NORFOLK SOUTHERN TRACKS TO TRAFFIC FOR THE REMOVAL OF EXISTING ROADWAY OVER AND/OR NEAR THE TRACKS. THE TRACK CLOSURES SHALL BE LIMITED TO SATURDAY, SUNDAY, AND/OR MONDAY AND SHALL BE SUBJECT TO THE APPROVAL OF THE NORFOLK SOUTHERN RAILROAD.

ACCESS TO THE MASSILLON WASHINGTON HIGH SCHOOL SHALL BE MAINTAINED AT ALL TIMES AND OTHER LOCAL TRAFFIC SHALL BE MAINTAINED AS PER CMS 614.02(a).

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUBMIT DETAILED PHASE CLOSURE PLANS TO THE CITY OF MASSILLON FOR THEIR REVIEW AND APPROVAL PRIOR TO CLOSING THE INTERSECTION OF 16TH STREET AND HARSH AVENUE, AND THE INTERSECTION OF 16TH STREET AND WALNUT ROAD.

THE FINAL SURFACE AND INTERMEDIATE PAVEMENT COURSES SHALL BE COMPLETED TO THE EXTENT POSSIBLE DURING THE "FINAL DETOUR" PHASE. THE REMAINING WORK SHALL BE COMPLETED AFTER THE "FINAL DETOUR" PHASE WHILE MAINTAINING TRAFFIC.

SEQUENCE OF CONSTRUCTION

INITIAL DETOUR PHASES

THE CONSTRUCTION DETOUR PHASES ARE SEPARATED INTO TWO DISTINCT AND SEPARATE PHASES, THE 16TH STREET PHASE AND THE HARSH AVENUE PHASE. THE CONTRACTOR SHALL SCHEDULE THE HARSH AVENUE PHASE SO THAT ALL EXCAVATION, UNDERGROUND UTILITIES, AND ITEM 304 AND 301 BASE CONSTRUCTION ACTIVITIES ARE COMPLETED DURING THE WASHINGTON HIGH SCHOOL BREAK DURING THE SUMMER. THE CONTRACTOR SHALL ALSO MAINTAIN A TEMPORARY WALKWAY FOR STUDENTS THROUGH THE LIMITS OF THE PROJECT DURING THE 16TH STREET PHASE THAT OCCURS WHILE WASHINGTON HIGH SCHOOL IS IN SESSION. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES TO MINIMIZE PEDESTRIAN STUDENT EXPOSURE TO SUCH ACTIVITIES.

IT IS THE INTENT OF THE DETOUR PHASES TO PROVIDE A WORK AREA FOR THE CONTRACTOR WHILE ALSO MAINTAINING TRAFFIC IN A MANNER WHICH IS SAFE FOR THE TRAVELING PUBLIC, BOTH VEHICULAR AND PEDESTRIAN; THEREFORE, ALL PHASES SHALL HAVE STRICT ADHERENCE.

ALL TEMPORARY OR PERMANENT PAVEMENT MARKINGS SHALL BE IN PLACE BEFORE ANY PAVEMENT IS OPENED TO TRAFFIC.

16TH STREET PHASE

THE CONTRACTOR SHALL DETOUR ALL THROUGH TRAFFIC IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC PLAN. LOCAL TRAFFIC ACCESS SHALL BE MAINTAINED FROM THE NORTH AND THE SOUTH TO WETMORE CREEK AND THE NORFOLK SOUTHERN RAILROAD GRADE CROSSING. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE NORFOLK SOUTHERN RAILROAD SO THAT THE BOX CULVERT REPLACEMENT AND EMBANKMENT CONSTRUCTION ACTIVITIES OF THE CONTRACTOR OR HIS SUBCONTRACTORS OCCUR DURING THE PERIOD OF THE RAILROAD GRADE CROSSING CONSTRUCTION BY THE RAILROAD .

THE CONTRACTOR SHALL NOTIFY THE BUSINESSES ALONG THE WORK LIMITS OF 16TH STREET IN ADVANCE OF CLOSING 16TH STREET TO THROUGH TRAFFIC.

IN ADDITION TO THOSE ITEMS SHOWN ON THE MAINTENANCE OF TRAFFIC PLANS, THE CONTRACTOR SHALL PROVIDE TRAFFIC CONES, DRUMS, FLAGGERS, TYPE II BARRICADES, FLASHING LIGHTS , AND ANY OTHER SAFETY DEVICES CONTAINED IN PART 7, CONSTRUCTION AND MAINTENANCE OPERATIONS, THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AT THE DIRECTION OF THE ENGINEER OR THE MASSILLON POLICE DEPARTMENT.

THE CONTRACTOR SHALL SCHEDULE HIS CONSTRUCTION ACTIVITIES AT THE INTERSECTION OF WALNUT ROAD SO THAT AT LEAST ONE LANE OF THROUGH TRAFFIC CAN BE MAINTAINED. THE CONTRACTOR SHALL PROVIDE A UNIFORMED OFF-DUTY TRAFFIC ENFORCEMENT OFFICER AT THOSE TIMES WHEN THE INTERSECTION OF WALNUT IS CLOSED TO LESS THAN TWO LANES ON EITHER 16TH STREET OR WALNUT ROAD. 16TH STREET AND WALNUT ROAD SHALL BE MAINTAINED WITH TWO LANES THROUGH THE INTERSECTION AND THE TRAFFIC SIGNAL REMAIN IN OPERATION AT ALL TIMES THAT THE CONSTRUCTION IS NOT IN PROGRESS INCLUDING SATURDAYS, SUNDAYS, HOLIDAYS, AND EVENINGS AND NIGHTS.

THE CONTRACTOR SHALL SCHEDULE INSTALLATION OF THE TRAFFIC SIGNAL AT 16TH STREET AND WALNUT ROAD DURING THIS PHASE. THE NEW POLES, SIGNALS, AND OTHER SIGNAL EQUIPMENT SHALL BE FULLY INSTALLED THEN BAGGED FOR ONE WEEK PRIOR TO PLACING THE NEW SIGNALS INTO OPERATION. THE CONTRACTOR SHALL PROVIDE A UNIFORMED OFF-DUTY LAW ENFORCEMENT OFFICER TO CONTROL TRAFFIC WHILE THE NEW SIGNALS ARE BEING TESTED. THE OLD SIGNALS SHALL BE BAGGED FOR ONE WEEK PRIOR TO REMOVAL. ANY EXISTING POLES THAT ARE A HAZARD TO TEMPORARY TRAFFIC PATTERNS SHALL BE MARKED WITH TYPE II BARRICADES EQUIPPED WITH FLASHING YELLOW LIGHTS. FOLLOWING THE ONE WEEK BAGGING, ALL EXISTING SIGNALS, POLES AND OTHER SIGNAL EQUIPMENT SHALL BE REMOVED.

HARSH AVENUE PHASE

THE CONTRACTOR SHALL DETOUR ALL HARSH AVENUE TRAFFIC IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC PLAN. ANY TEMPORARY SURFACES SHALL BE ADEQUATE TO SUPPORT HEAVY TRUCK TRAFFIC AND THE CONTRACTOR SHALL MAINTAIN TEMPORARY SURFACES AND DETOUR ROUTE PAVEMENTS IN THE EVENT DETOURED TRUCK TRAFFIC RESULTS IN DETERIORATION OF THOSE ROUTES.

THE CONTRACTOR SHALL NOTIFY THE BUSINESSES ALONG HARSH AVENUE 48 HOURS IN ADVANCE OF CLOSING HARSH AVENUE AT 16TH STREET.

THE CONTRACTOR SHALL SCHEDULE INSTALLATION OF THE TRAFFIC SIGNAL AT 16TH STREET AND HARSH AVENUE DURING THIS PHASE. THE NEW POLES, SIGNALS, AND OTHER SIGNAL EQUIPMENT SHALL BE FULLY INSTALLED THEN BAGGED FOR ONE WEEK PRIOR TO PLACING THE NEW SIGNALS INTO OPERATION. ANY EXISTING POLES THAT ARE A HAZARD TO TEMPORARY TRAFFIC PATTERNS SHALL BE MARKED WITH TYPE II BARRICADES EQUIPPED WITH FLASHING YELLOW LIGHTS. FOLLOWING THE ONE WEEK BAGGING, ALL EXISTING SIGNALS, POLES AND OTHER SIGNAL EQUIPMENT SHALL BE REMOVED.

FINAL DETOUR PHASE

AFTER CONSTRUCTION OF THE RAILROAD GRADE CROSSING, THE BOX CULVERT, THE EMBANKMENT, AND BASE CONSTRUCTION OF 16TH STREET, THE CONTRACTOR SHALL REMOVE THE DETOUR SIGNS UPON PROPER NOTIFICATION OF THE ENGINEER, STREET SUPERINTENDENT, POLICE CHIEF, AND FIRE CHIEF. THE CONTRACTOR SHALL MAINTAIN ALL NON-DETOUR RELATED SIGNS WITHIN OR ADJACENT TO THE WORK LIMITS OF THE PROJECT.

DURING PAVING ACTIVITIES AND OTHER CONSTRUCTION REQUIRING LANE CLOSURES OR NARROWING IN THIS PHASE, THE CONTRACTOR SHALL PROVIDE FLAGGERS AND ERECT SIGNS AND OTHER DEVICES IN ACCORDANCE WITH PART 7, CONSTRUCTION AND MAINTENANCE OPERATIONS, OF THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.

PRIOR TO OPENING THE PROJECT TO TRAFFIC, THE SOLID DOUBLE YELLOW CENTERLINE SHALL BE IN PLACE AND MAINTAINED DURING THE INTERMEDIATE AND WEARING SURFACE COURSE PLACEMENT OPERATIONS NOT COMPLETED IN THE FINAL DETOUR PHASE.

AFTER THE FINAL DETOUR PHASE, IT MAY BE NECESSARY TO REDUCE THE WIDTH OF LANES OR TO CLOSE TURN LANES IN ORDER TO COMPLETE THE PROJECT. THIS WILL BE ACCEPTABLE BUT ONLY DURING ACTUAL CONTRACTOR WORKING HOURS WITH TRAFFIC CONTROL PER THE APPROPRIATE STANDARD DRAWINGS. NO REDUCTION SHALL BE PERMITTED DURING PEAK HOURS, THOSE BEING FROM 6:00 AM TO 9:00 AM AND FROM 3:00 PM TO 6:00 PM.

DRIVEWAY ACCESS

UNLESS SPECIFICALLY NOTED OR SHOWN ON THE PLANS, INGRESS/EGRESS TO ALL PROPERTIES SHALL BE MAINTAINED AT THEIR CURRENT LOCATIONS DURING CONSTRUCTION. THE CONSTRUCTION OF ASPHALT APPROACHES AND DRIVES SHALL BE ACCOMPLISHED IN ONE WORKING DAY FROM THE EXCAVATION THROUGH THE LIMITS OF THE 304 MATERIAL.

INGRESS/EGRESS MAY BE PROVIDED ON 304 MATERIAL UNTIL THE COMPLETION OF THE DRIVE. THE CONSTRUCTION OF CONCRETE APPROACHES AND DRIVES SHALL BE COORDINATED WITH PROPERTY OWNERS. FOR PROPERTIES WITH MULTIPLE DRIVES, THE CONSTRUCTION OF THE DRIVES SHALL BE ACCOMPLISHED SUCH THAT A MINIMUM OF ONE DRIVE IS OPEN AND ACCESSIBLE AT ALL TIMES.

ALL COST ASSOCIATED WITH MAINTAINING DRIVEWAY ACCESS SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 - MAINTAINING TRAFFIC.

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.

THE LAW ENFORCEMENT OFFICER (LEO) WILL BE REQUIRED FOR LANE CLOSURES DURING INITIAL SETUP PERIODS, TEAR DOWN PERIODS, SUBSTANTIAL SHIFTS OF A CLOSURE POINT, WHEN NEW LANE CLOSURE ARRANGEMENTS ARE INITIATED, ADVANCE PREPARATION AND CLOSURE SEQUENCE WHERE COMPLETE BLOCKAGE MAY OCCUR, AND DURING A TRAFFIC SIGNAL INSTALLATION.

LEOS 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.

LEOS WITH PATROL CAR REQUIRED BY THE TRAFFIC MAINTENANCE TASKS LISTED IN THE PLAN SHALL BE PAID FOR ON A UNIT PRICE (HOURLY) BASIS UNDER ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY:

ITEM 614 - LAW ENFORCEMENT OFFICER WITH PATROL CAR 100 HOURS

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

IF THE CONTRACTOR WISHES TO UTILIZE LEOS FOR FLAGGING AND TRAFFIC CONTROL OTHER THAN FOR THAT REQUIRED IN THESE PLANS, HE MAY DO SO AT HIS OWN EXPENSE.

PAYMENT

PAYMENT FOR ALL OF THE ABOVE WORK REQUIRED FOR TRAFFIC CONTROL INCLUDING PROVIDING, ERECTING, MAINTAINING, AND REMOVING ALL LIGHTS, SIGNS, AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614, MAINTAINING TRAFFIC UNLESS SEPERATELY ITEMIZED IN THIS PLAN.

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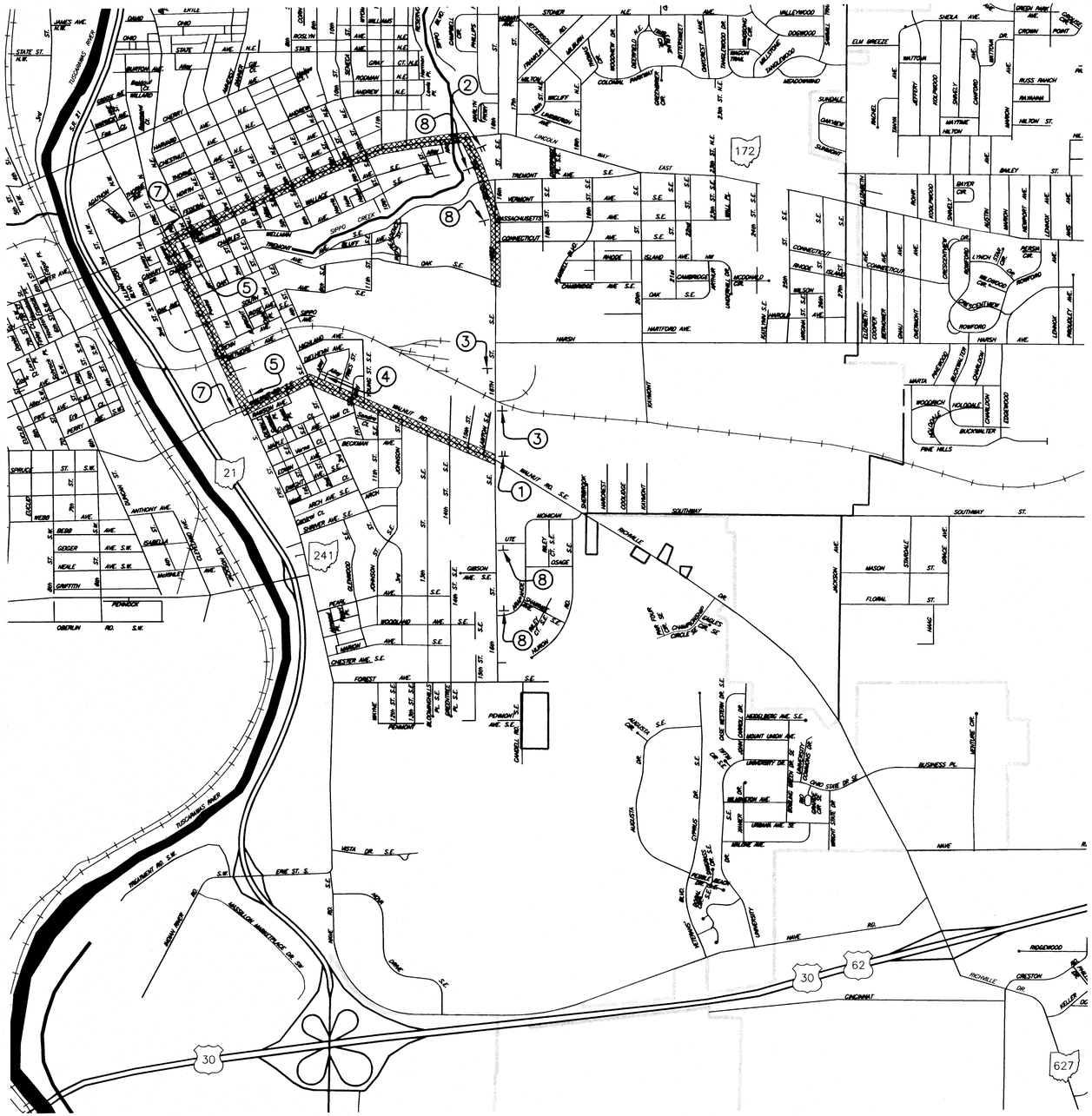
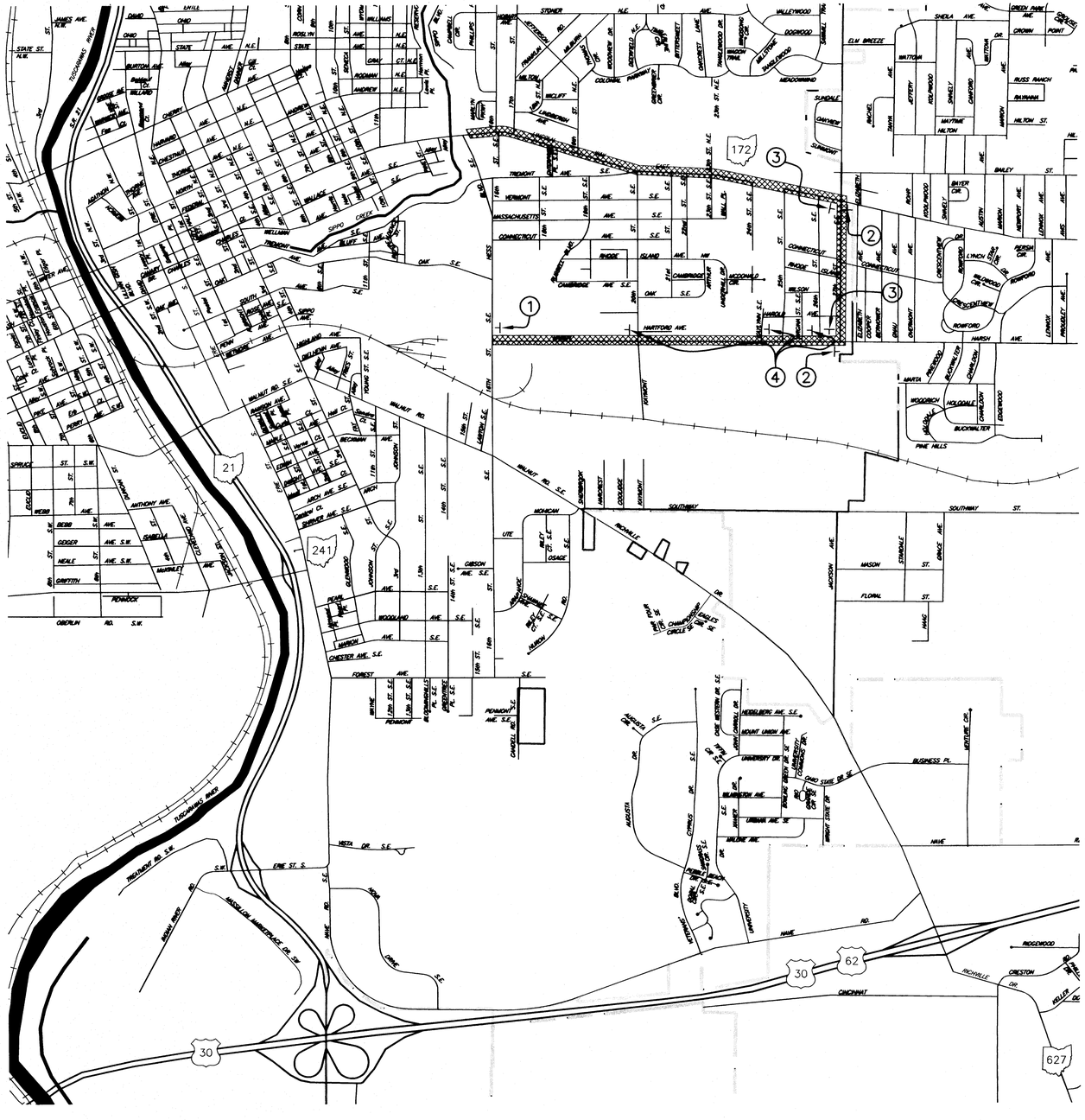

STATE ST.
TUSCARAWAS RIVER
SIPPO CREEK
WELLMAN
WALNUT RD. S.E.
SOUTHWAY ST.
HARSH
KENYON
MONICAN
UTE
ERIE ST. S.
VISTA DR. S.E.
TRUMBULL RD. S.W.
BEAM PKWY
MASSILLON-WAKEFIELD DR. SW
PENNSYLVANIA RR
CHAMBERS
HARTFORD AVE.
MCDONALD
ARTHUR
HARDESTY
ELIZABETH
COOPER
KENSINGER
CHALLEN
DETHERIDGE
MARTA
RICHFIELD
WOODRICH
HOLCOMB
CHARLTON
EDGEWOOD
BUCKWALTER
PINE HILLS
SHEKA
ELM BREEZE
WALTHAM
JEFFERY
KELLWOOD
SHIRLEY
CLIFFORD
WILTON
RUSS RANCH
RAYMAN
HILTON ST.
BAILEY
BAYER
CHRISTOPHER
AUSTIN
MARION
NEWPORT
LYNCH
ROMFORD
CROSSCREEK
WILDWOOD
LEHIGH
PROVIDENCE
DOGWOOD
VALLEYWOOD
MEADOWMIND
SUNDALE
GAYNELL
SUNMONT
WAYNE
HILTON
GREENBRIER
COLONIAL PARKWAY
BITTERSWEET
OAKCREST
WINDSWEPT
WILLOWCREST
TAKELOCHO
WOODVIEW
DEERWOOD
LAUREL
MAGNOLIA
CAMPBELL
PHILLIPS
STONER
KOCHENDERFER
FRANKLIN
MILTON
MOLLIFF
LIBERMAN
LINCOLN
EAST
TREMONT
VERMONT
MASSACHUSETTS
CONNECTICUT
RHODE ISLAND
CAMBRIDGE
OAK
HIGHLAND
DELAWARE
WALNUT
BECKMAN
MAPLE
ELM
PINE
CHERRY
ASH
BIRCH
CHURCH CT.
SUMMER AVE. S.E.
WOODLAND
CHESTER AVE. S.E.
FOREST
WAYNE
PIEDMONT
ACADEMY HILL PL. S.E.
PERSHING PL. S.E.
CHAMBERS RD.
GIBSON AVE. S.E.
JOHNSON
GLENWOOD
HARMON
ANDREW
ROSLYN
WILLIAMS
JAMES AVE. N.W.
DAVID
OHIO
STATE
ALLEY
BURTON AVE.
RAMP TO WELLMAN
SHARON AVE.
CABINET
CHARLES
WILLIAM
ANDREWS
WALLACE
SOUTH
SPRUCE
BEECH
PERRY
ASH
MAPLE
ELM
PINE
CHERRY



① ROAD CLOSED
R–75–48

HARSH AVE.
D–14

② DETOUR
OC–29L–30

HARSH AVE.
D–14

③ DETOUR
OC–29R–30

④ ROAD CLOSED AHEAD
OW–120–36

NOTES:

1) TYPE A YELLOW FLASHING LIGHTS ARE REQUIRED ON ALL SIGNS SHOWN WITH LIGHTS, UNLESS OTHERWISE SHOWN.

2) THE CONTRACTOR SHALL ERECT, MAINTAIN AND REMOVE THE DETOUR. PAYMENT FOR ALL MATERIAL, LABOR AND EQUIPMENT TO PERFORM THIS WORK SHALL BE INCLUDED IN THE LUMP SUM BID FOR ITEM 614 MAINTAINING TRAFFIC.

HORIZONTAL SCALE IN FEET
500 1000 2000
10

CALCULATED | CHECKED

MAINTENANCE OF TRAFFIC DETOUR FOR HARSH AVENUE

16TH STREET, SE

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SHEET NUMBER											ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
12–14	19–20	21–22	23	24	25–27	28	88	91	94	128						
															ROADWAY	
LUMP											201	11000	LUMP		CLEARING AND GRUBBING	
					244						202	23000	244	SQ YD	PAVEMENT REMOVED	
					497						202	23500	497	SQ YD	WEARING COURSE REMOVED	
					15194						202	30000	15194	SQ FT	WALK REMOVED	
					2016						202	32000	2016	LIN FT	CURB REMOVED	
	2457								53		202	35100	2510	LIN FT	PIPE REMOVED, 24" AND UNDER	
								44			202	35200	44	LIN FT	PIPE REMOVED, OVER 24"	
	862										202	38000	862	LIN FT	GUARDRAIL REMOVED	
	LUMP										202	56000	LUMP		BUILDING DEMOLISHED, RESIDENCE, PARCEL 0606717	
	LUMP										202	56000	LUMP		BUILDING DEMOLISHED, RESIDENCE, PARCEL 0600431	
	LUMP										202	56000	LUMP		BUILDING DEMOLISHED, GARAGE, PARCEL 0600431	
	11								4		202	58000	15	EACH	MANHOLE REMOVED	
	34										202	58100	34	EACH	CATCH BASIN REMOVED	
									702		SPECIAL	20270000	702	LIN FT	FILL AND PLUG EXISTING CONDUIT	
										5	202	75506	5	EACH	LUMINAIRE REMOVED	
	3										202	98100	3	EACH	REMOVAL MISC.: HEADWALL	
	177										202	98400	177	SQ FT	REMOVAL MISC.: CONCRETE WALL	
	276										202	98400	276	SQ FT	REMOVAL MISC.: CONCRETE PAD	
200			15366								203	12000	15566	CU YD	EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION	
200			10673								203	20000	10873	CU YD	EMBANKMENT	
					7						203	45000	7	HOUR	PROOF ROLLING	
					19509						203	50000	19509	SQ YD	SUBGRADE COMPACTION	
	522										606	13000	522	LIN FT	GUARDRAIL, TYPE 5	
	450										606	13020	450	LIN FT	GUARDRAIL, TYPE 5 WITH DOUBLE RAILS	
	2										606	25000	2	EACH	ANCHOR ASSEMBLY, TYPE A	
	2										606	26500	2	EACH	ANCHOR ASSEMBLY, TYPE T	
					21912						608	10000	21912	SQ FT	4" CONCRETE WALK	
	20										608	49001	20	EACH	CURB RAMP, AS PER PLAN	12
5											638	10800	5	EACH	VALVE BOX ADJUSTED TO GRADE	
				3							SPECIAL	69050350	3	EACH	MAILBOX REMOVED AND RESET	
															EROSION CONTROL	
								90			601	32100	90	CU YD	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER	
						108					601	32200	108	CU YD	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	
								19			660	25000	19	SQ YD	SODDING STAKED	
1764											870	00200	1764	CU YD	PLACING TOPSOIL	
					15894						870	10000	15894	SQ YD	SEEDING AND MULCHING	
789											870	14000	789	SQ YD	REPAIR SEEDING AND MULCHING	
1.00					2.15						870	20000	3.15	TON	COMMERCIAL FERTILIZER	
6.58											870	30000	6.58	TON	AGRICULTURAL LIME	
150											870	35000	150	M GAL	WATER	
36											870	40000	36	M SQ FT	MOWING	
3158											877	10000	3158	SQ YD	TEMPORARY SEEDING AND MULCHING	
420						837					877	30100	1257	LIN FT	TEMPORARY PERIMETER FILTER FABRIC FENCE	
1410						2820					877	30300	4230	LIN FT	TEMPORARY INLET PROTECTION FILTER FABRIC FENCE	
						540					877	50000	540	CU YD	TEMPORARY SEDIMENT BASINS AND DAMS	
															SANITARY SEWER	
									25		603	00900	25	LIN FT	6" CONDUIT, TYPE B, 707.44 (SANITARY)	
									4		603	03100	4	LIN FT	10" CONDUIT, TYPE B (SANITARY)	
									~~1146~~ 634		603	05900	~~1146~~ 634	LIN FT	15" CONDUIT, TYPE B, 707.44 (SANITARY)	
									4		603	07400	4	LIN FT	18" CONDUIT, TYPE B (SANITARY)	
									4		603	08900	4	LIN FT	21" CONDUIT, TYPE B (SANITARY)	
									80		603	13000	80	LIN FT	15" CONDUIT, TYPE B (SANITARY) WITH 21" STEEL CASING, BORE AND JACK	
									~~412~~		603	13400	12 ~~4~~	LIN FT	30" CONDUIT, TYPE B (SANITARY)	
									4		604	31500	4	EACH	MANHOLE, NO. 3 (SANITARY)	

CALCULATED JHE 04/02
CHECKED VLB 05/02

GENERAL SUMMARY

16TH STREET, SE

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SHEET NUMBER											ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
12–14	19–20	21–22	23	24	25–27	28	88	91	94	128						
															DRAINAGE	
								347			512	33000	347	SQ YD	TYPE 2 WATERPROOFING	
								53			SPECIAL	51267510	53	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY–URETHANE)	
								137.9			602	20000	137.9	CU YD	CONCRETE MASONRY	
							390				603	00406	390	LIN FT	4" CONDUIT, TYPE F	
200											603	00900	200	LIN FT	6" CONDUIT, TYPE B	
		4									603	00900	4	LIN FT	6" CONDUIT, TYPE B, ~~706.02~~	
200											603	01800	200	LIN FT	8" CONDUIT, TYPE B	
		17									603	01800	17	LIN FT	8" CONDUIT, TYPE B, ~~706.02~~	
200											603	04400	200	LIN FT	12" CONDUIT, TYPE B	
		1678									603	04400	1681	LIN FT	12" CONDUIT, TYPE B, 706.02	
		68									603	13000	68	LIN FT	18" CONDUIT, TYPE B, 708.2 WITH STEEL CASING, BORE AND JAKE	
		1437									603	05900	1437	LIN FT	15" CONDUIT, TYPE B, 706.02	
		826									603	07400	826	LIN FT	18" CONDUIT, TYPE B, 706.02	
		165									603	08900	165	LIN FT	21" CONDUIT, TYPE B, 706.02	
								105			603	94921	105	LIN FT	8'x7' CONDUIT, TYPE A, 706.05, AS PER PLAN, ASTM C 1433	90
		45									604	00800	45	EACH	CATCH BASIN, NO. 3A	
		1									604	02000	1	EACH	CATCH BASIN, NO. 6	
		17									604	31500	17	EACH	MANHOLE, NO. 3	
							5239				605	05110	5239	LIN FT	4" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP	
															PAVEMENT	
					2628						301	46000	2628	CU YD	BITUMINOUS AGGREGATE BASE, PG64–22	
					2330						304	20000	2330	CU YD	AGGREGATE BASE	
					1456						407	10000	1456	GAL	TACK COAT	
					852						407	14000	852	GAL	TACK COAT FOR INTERMEDIATE COURSE	
					7808						408	10000	7804	GAL	BITUMINOUS PRIME COAT	
					933						448	46050	933	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22	
					702						448	47020	702	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22	
					774						452	10000	774	SQ YD	6" PLAIN CONCRETE PAVEMENT	
					435						452	12000	435	SQ YD	8" PLAIN CONCRETE PAVEMENT	
					484						830	12000	484	LIN FT	COMBINATION CURB AND GUTTER, TYPE 2	
					8129						830	26000	8129	LIN FT	CURB, TYPE 6	
															FOR TRAFFIC CONTROL GENERAL SUMMARY SEE SHEETS 95–96.	
															FOR TRAFFIC SIGNAL GENERAL SUMMARY SEE SHEETS 95–96.	
															FOR LIGHTING GENERAL SUMMARY SEE SHEETS 95–96.	
															MAINTENANCE OF TRAFFIC	
100											614	11100	100	HOUR	LAW ENFORCEMENT OFFICER WITH PATROL CAR	
											614	11000	LUMP		MAINTAINING TRAFFIC	
											623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
											624	10000	LUMP		MOBILIZATION	
											806	16010	12	MONTH	FIELD OFFICE, TYPE B	

CALCULATED JHE 04/02
CHECKED VLB 05/02

GENERAL SUMMARY

16TH STREET, SE

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	202 PIPE REMOVED, 24" AND UNDER	202 GUARDRAIL REMOVED	202 BUILDING DEMOLISHED, RESIDENCE, PARCEL NO. 0606717	202 BUILDING DEMOLISHED, RESIDENCE, PARCEL NO. 0600431	202 BUILDING DEMOLISHED, GARAGE, PARCEL NO. 0600431	202 MANHOLE REMOVED	202 CATCH BASIN REMOVED	202 REMOVAL MISC.: HEADWALL	202 REMOVAL MISC.: CONCRETE WALL	202 REMOVAL MISC.: CONCRETE PAD		606 GUARDRAIL, TYPE 5	606 GUARDRAIL, TYPE 5, ON RADIUS	606 GUARDRAIL, TYPE 5 WITH DOUBLE RAILS	606 ANCHOR ASSEMBLY, TYPE A	606 ANCHOR ASSEMBLY, TYPE T	608 CURB RAMP, AS PER PLAN	
					LIN. FT.	LIN. FT.	LUMP	LUMP	LUMP	EACH	EACH	EACH	SQ. FT.	SQ. FT.		LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	
		16TH STREET																				
R1A	31	45+83.6		LT.							1											
R1B	31	45+83.1		RT.							1											
R1	32	49+10.0	49+58.0	LT.			LUMP															
R1C	31	45+50.0	49+59.1	RT.	409						1											
R2	32	49+32.5	49+81.1	LT.									48.4									
R3	32	49+44.4	49+59.1	RT.	17						1											
R3A	32	49+59.1	50+01.8	RT./LT.	46						1											
R4	32	49+71.3	50+01.8	LT.	30						1											
R5	32	50+06.4		RT.	47						1											
R6	32	50+54.3	50+83.4	LT.				LUMP														
R6A	32	51+41.5	51+60.9	LT.					LUMP													
R7	33	53+38.2		RT.	25						1											
R8	33	53+41.0		RT.	25						1											
R9	33	53+58		LT.										264.1								
R10	33	54+70.6	55+35.7	LT.									128.6									
R11	33	56+23.8		RT.	25						1											
R12	33	56+24.2		LT.	25						1											
R13	33	57+19.9	57+33.0	LT.		14																
R14	33	57+18.4	57+42.8	RT.								1										
R15	33	57+33.1	57+57.3	LT.								1										
R16	33	57+59.3	57+70.4	LT.		12																
R17	33	57+59.5	58+02.1	LT.	100						1	1										
R18	34	58+12.3		RT.	27						1											
R19	34	59+51.8		LT.	12						1											
R20	34	61+60.8		LT.	25						1											
R21	34	61+68.8		RT.	37						1											
R22	35	64+00.0		LT.	236					1												
R23	35	64+11.1		LT.	13						1											
R24	35	64+15.1		RT.	52						1											
R25	35	64+25.0		RT.	25						1											
R26	35	66+00.0		LT.	200					1												
R27	35	66+12.4		LT.	14						1											
R28	35	66+15.0		RT.	28						1											
R29	35	67+56.2		LT.	157					1												
R30	35	67+63.9		LT.	11						1											
R31	35	67+65.1		RT.	24						1											
R32	36	68+75.0		LT.	119					1												
R33	36	69+13.4		LT.	39						1											
R34	36	68+98.8	69+14.1	RT.		53																
R35	36	69+28.6		RT.	59						1											
R36	36	69+28.6	77+00.0	RT.		783																
R37	36	70+96.5		LT.	222					1												
R38	36	71+11.7		LT.	17						1											
R39	36	71+13.7		RT.	28						1											
R40	36	73+07.3		LT.	6					1												
R41	37	74+23.0		LT.	141					1												
R42	37	74+33.2		RT.	38						1											
SUBTOTAL THIS SHEET					2279	862	LUMP	LUMP	LUMP	9	26	3	177.0	264.1		–	–	–	–	–	–	

CALCULATED JHE 04/02
CHECKED VLB 05/02

ESTIMATED QUANTITIES

16TH STREET, SE

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ESTIMATED QUANTITIES

CALCULATED JHE 04/02
CHECKED VLB 05/02

REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	202 PIPE REMOVED, 24" AND UNDER	202 GUARDRAIL REMOVED	202 BUILDING DEMOLISHED, RESIDENCE, PARCEL NO. 0606717	202 BUILDING DEMOLISHED, RESIDENCE, PARCEL NO. 0600431	202 BUILDING DEMOLISHED, GARAGE, PARCEL NO. 0600431	202 MANHOLE REMOVED	202 CATCH BASIN REMOVED	202 REMOVAL MISC.: HEADWALL	202 REMOVAL MISC.: CONCRETE WALL	202 REMOVAL MISC.: CONCRETE PAD		606 GUARDRAIL, TYPE 5	606 GUARDRAIL, TYPE 5, ON RADIUS	606 GUARDRAIL, TYPE 5 WITH DOUBLE RAILS	606 ANCHOR ASSEMBLY, TYPE A	606 ANCHOR ASSEMBLY, TYPE T	608 CURB RAMP, AS PER PLAN	
					LIN. FT.	LIN. FT.	LUMP	LUMP	LUMP	EACH	EACH	EACH	SQ. FT.	SQ. FT.		LIN. FT.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	
		WALNUT ROAD																				
R43	60	15+20.1		LT.	13						1											
R44	60	17+50.2		LT.	23						1											
R45	60	17+73.2		LT.	33						1											
R46	60	17+75.6		RT.	4					1												
R47	60	17+75.8		RT.	11						1											
R48	60	17+89.6		LT.	24						1											
R49	60	17+89.8		LT.	3					1												
R50	61	21+10.2		LT.										11.8								
R51	61	21+43.2	21+63.4	RT.	25																	
		HARSH AVENUE																				
R52	69	12+94.0		LT.	28						1											
R53	69	12+94.1		RT.							1											
R54	69	12+98.7		LT.	14						1											
		16TH STREET																				
CR1A	31	47+56.39	47+64.84	LT.																	1	
CR1B	31	47+94.37	48+02.36	LT.																	1	
CR1	32	49+51.75	49+93.90	LT.																	1	
CR2	32	50+59.43	50+72.25	LT.																	1	
CR3	32	50+32.59	50+50.52	RT.																	1	
CR4	32	50+01.99	50+11.62	RT.																	1	
CR5	32	49+22.66	49+39.09	RT.																	1	
CR6	36	68+35.97	68+53.03	LT.																	1	
CR7	36	69+08.59	69+25.49	LT.																	1	
CR8	36	69+10.24	69+23.73	RT.																	1	
CR9	36	68+34.17	68+54.12	RT.																	1	
CR10	37	78+40.44	78+52.75	LT.																	1	
		WALNUT ROAD																				
CR11	60	14+60.00	14+76.20	LT.																	1	
CR12	60	15+04.65	15+16.04	LT.																	1	
CR13	60	15+64.03	15+72.56	RT.																	1	
CR14	60	15+93.39	16+01.06	RT.																	1	
CR15	60	16+12.08	16+19.63	LT.																	1	
CR16	60	16+35.22	16+42.92	LT.																	1	
CR17	60	17+38.48	17+48.38	LT.																	1	
CR18	60	17+71.89	17+90.07	RT.																	1	
		16TH STREET																				
GR1	33	55+14.00	58+19.82	RT.												250.00	22.00		1	1		
GR2	33	55+68.50	58+68.50	LT.												250.00			1	1		
GR3	36	72+25.00	77+00.00	LT.														450.00				
SUBTOTAL THIS SHEET					178	–	–	–	–	2	8	–	–	11.8		500.00	22.00	450.00	2	2	20	
SUBTOTAL PREVIOUS SHEET					2279	862	LUMP	LUMP	LUMP	9	26	3	177.0	264.1		–	–	–	–	–	–	
TOTAL					2457	862	LUMP	LUMP	LUMP	11	34	3	177.0	275.9		522.00		450.00	2	2	20	
TOTALS CARRIED TO GENERAL SUMMARY					2457	862	LUMP	LUMP	LUMP	11	34	3	177	276		522.00		450.00	2	2	20	

16TH STREET, SE

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE			603 6" CONDUIT, TYPE B, 706.02 LIN. FT.	603 8" CONDUIT, TYPE B, 706.02 LIN. FT.		603 12" CONDUIT, TYPE B, 706.02 LIN. FT.	603 15" CONDUIT, TYPE B, 706.02 LIN. FT.	603 18" CONDUIT, TYPE B, 706.02 LIN. FT.	603 18" CONDUIT, TYPE B, 706.02 W/ CASING PIPE BORE & JACK LIN. FT.	603 21" CONDUIT, TYPE B, 706.02 LIN. FT.	604 CATCH BASIN, NO. 3A EACH	604 CATCH BASIN, NO. 6 EACH	604 MANHOLE, NO. 3 EACH
		16TH STREET															
D1	38	45+50.00	47+40.00	RT.						190							1
D1A	38	45+00.00	45+50.00	LT./RT.						53					1		
D1B	42	45+45.00	45+50.00	RT.						18					1		
D1C	42	45+50.00		LT./RT.						18					1		
D2	38	47+40.00	48+75.00	RT.							135						1
D2A	43	47+20.00	47+40.00	RT.						25					1		
D2B	43	47+40.00		LT./RT.						22					1		
D3	38	48+75.00	49+75.00	RT.							100						1
D3A	44	48+75.00		LT./RT.						22					1		
D3B	44	48+75.00		RT.						14					1		
D4	38	49+75.00	51+00.00	RT.							125						1
D4A	44	49+39.00	49+75.00	RT.						52					1		
D4B	44	49+75.00		LT.						25					1		
D4C	44	50+10.50		RT.			4				26				1		
D5	38	51+00.00	52+70.00	RT.							170						1
D5A	44	50+50.00	51+00.00	RT.						53					1		
D5B	45	51+00.00		LT./RT.						22					1		
D6	38	52+70.00	54+00.00	RT.							130						1
D6A	45	52+70.00		LT./RT.						22					1		
D6B	45	52+70.00		RT.						14					1		
D7	38	54+00.00	56+50.00	CL./RT.								250					1
D7A	46	54+00.00		LT./RT.						22					1		
D7B	46	54+00.00		RT.						14					1		
D8	39	56+50.00	57+48.40	CL/LT.										113			1
D8A	47	56+50.00		LT.						18					1		
D8B	47	56+50.00		RT.						18					1		
D9	39/48	57+63.10	58+00.00	LT.										52	1		
D10	48	58+00.00		RT./LT.						36					1		
D11	39/49	58+00.00	59+52.00	LT.							4	84	68		1		
D12	49	59+52.00		RT./LT.						36					1		
D13	39	59+52.00	60+60.00	LT.								109					1
D13A	49	60+60.00		LT.						8					1		
D13B	49	60+60.00		RT.						28					1		
D13C	50	60+60.00	61+75.00	RT.				5		115							
D14	39	60+60.00	62+80.00	LT.								220					1
D14A	51	62+80.00		LT.						8					1		
D14B	51	62+80.00		RT./LT.						28					1		
D15	39	62+80.00	63+75.00	LT.								95					1
D15A	51	63+75.00		RT.						28					1		
D15B	51	63+90.00	63+75.00	RT./LT.						17					1		
D15C	51	64+15.00	63+75.00	RT.				12		51						1	
SUBTOTAL THIS SHEET							4	17		977	690	758	68	165	28	1	11

CALCULATED JHE 04/02
CHECKED VLB 05/02

DRAINAGE SUBSUMMARY

16TH STREET, SE

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REF NO.	SHEET NO.	STATION FROM	STATION TO	SIDE	603 6" CONDUIT, TYPE B, 706.02 LIN. FT.	603 8" CONDUIT, TYPE B, 706.02 LIN. FT.	603 12" CONDUIT, TYPE B, 706.02 LIN. FT.	603 15" CONDUIT, TYPE B, 706.02 LIN. FT.	603 18" CONDUIT, TYPE B, 706.02 LIN. FT.	603 18" CONDUIT, TYPE B, 706.02 W/ CASING PIPE BORE & JACK LIN. FT.	603 21" CONDUIT, TYPE B, 706.02 LIN. FT.	604 CATCH BASIN, NO. 3A EACH	604 CATCH BASIN, NO. 6 EACH	604 MANHOLE, NO. 3 EACH
		16TH STREET												
D16	39	63+75.00	66+15.00	LT.				240						1
D16A	52	66+15.00		LT.			8					1		
D16B	52	66+15.00		RT./LT.			28					1		
D17	40	66+15.00	67+65.00	LT.				150						1
D17A	53	67+65.00		LT.			8					1		
D17B	53	67+65.00		RT./LT.			28					1		
D18	40	67+65.00	69+60.00	LT.				195						1
D18A	54	69+60.00		LT.			8					1		
D18B	54	69+60.00		RT./LT.			28					1		
D19	40	69+60.00	71+10.00	LT.				150						1
D19A	55	71+10.00		LT.			8					1		
D19B	55	71+10.00		RT./LT.			28					1		
D20	40	71+10.00	73+04.00	LT.			194	12						1
D20A	56	73+00.00	73+04.00	LT.			13					1		
D21	40	73+04.00	74+75.00	LT.			171							1
D21A	57	74+75.00		LT.			6					1		
D21B	57	74+75.00		RT./LT.			29					1		
		WALNUT ROAD												
D22	63	15+20.00		LT.			12					1		
D23	65	17+32.00		LT.			46					1		
D24	65	17+76.50		LT.			34					1		
D25	65	17+83.00		RT.			16					1		
		HARSH AVENUE												
D26	72	13+00.00		LT.			36					1		
D27	72	13+00.00		RT.								1		
SUBTOTAL THIS SHEET					–	–	701	747	–	–	–	17	–	6
SUBTOTAL PREVIOUS SHEET					4.00	17.00	977	690	758	68	165	28	1	11
TOTAL					4.00	17.00	1678	1437	758	68	165	45	1	17
TOTALS CARRIED TO GENERAL SUMMARY					4	17	1678	1437	758	68	165	45	1	17

CALCULATED JHE 04/02
CHECKED VLB 05/02

DRAINAGE SUBSUMMARY

16TH STREET, SE

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SHEET NO.	STATION TO STATION		203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION CU. YD.	203 EMBANKMENT CU. YD.	
	CROSS SECTIONS – 16TH STREET				
41	43+00 TO 44+50		98	4	
42	45+00 TO 46+50		268	13	
43	47+00 TO 48+50		439	20	
44	49+00 TO 50+50		463	0	
45	51+00 TO 52+50		36	353	
46	53+00 TO 54+50		79	530	
47	55+00 TO 56+50		4	4241	
48	57+00 TO 58+50		17	4444	
49	59+00 TO 60+50		269	20	
50	61+00 TO 62+50		623	1	
51	63+00 TO 64+50		657	3	
52	65+00 TO 66+50		123	197	
53	67+00 TO 68+50		1165	30	
54	69+00 TO 70+50		3624	0	
55	71+00 TO 72+50		1840	3	
56	73+00 TO 74+00		159	156	
57	74+50 TO 75+50		198	114	
58	76+00 TO 77+50		53	15	
59	78+00 TO 79+00		10	0	
	CROSS SECTIONS – WALNUT ROAD				
63	14+00 TO 15+00		65	28	
64	15+50 TO 17+00		244	74	
65	17+50 TO 19+00		159	44	
66	19+50 TO 20+50		239	18	
67	21+00 TO 22+50		826	1	
68	23+00 TO 24+50		738	53	
	CROSS SECTIONS – HARSH AVENUE				
71	10+18 TO 11+50		999	0	
72	12+00 TO 13+50		1056	48	
73	14+00 TO 15+20		279	58	
74	15+50 TO 16+00		12	4	
	SUBTOTAL THIS COLUMN (1)		14742	10472	

SHEET NO.	STATION TO STATION		203 EXCAVATION NOT INCLUDING EMBANKMENT CONSTRUCTION CU. YD.	203 EMBANKMENT CU. YD.	
	DRIVE PROFILES – 16TH STREET				
82	46+82.00 TO 52+32.50		135	31	
83	53+54.00 TO 59+88.00		23	148	
84	61+13.00 TO 74+30.00		190	4	
	DRIVE PROFILES – WALNUT ROAD				
85	14+92.00 TO 17+60.50 & LAWTON		116	7	
86	17+96.00 TO 22+73.50		160	11	
	SUBTOTAL THIS COLUMN (2)		624	201	
	SUBTOTAL PREVIOUS COLUMN (1)		14742	10472	
	TOTALS CARRIED TO GENERAL SUMMARY		15366	10673	

CALCULATED VLB 02/02
CHECKED JHE 05/02

EARTHWORK SUMMARY

16TH STREET, SE

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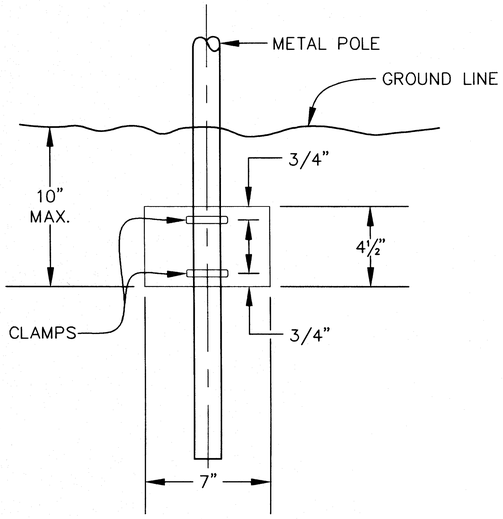
MAILBOX SUBSUMMARY

SHEET NO.	STATION	SIDE	SPECIAL MAILBOX REMOVED AND RESET EACH	
	16TH STREET			
32	51+28.9	RT.	1	
32	52+63.7	RT.	1	
34	58+29.6	RT.	1	
TOTALS CARRIED TO GENERAL SUMMARY			3	



ANTI-TWIST PLATE

ITEM SPECIAL – MAILBOX REMOVED AND RESET

THIS WORK SHALL CONSIST OF FURNISHING AND ERECTING MAILBOX SUPPORTS AND ANY ASSOCIATED MOUNTING HARDWARE IN ACCORDANCE WITH PLAN DETAILS, AND ATTACHING AN OWNER-SUPPLIED MAILBOX AT LOCATIONS SPECIFIED IN THE PLAN, OR OTHERWISE ESTABLISHED BY THE ENGINEER.

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

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

HARDWARE (PLATES, SCREWS, BOLTS, ETC.) SHALL BE COMMERCIAL-GRADE GALVANIZED STEEL.

POSTS SHALL BE SET PER THE FIRST PARAGRAPH OF 606.03, AND SHALL IN NO INSTANCE BE ENCASED IN CONCRETE.

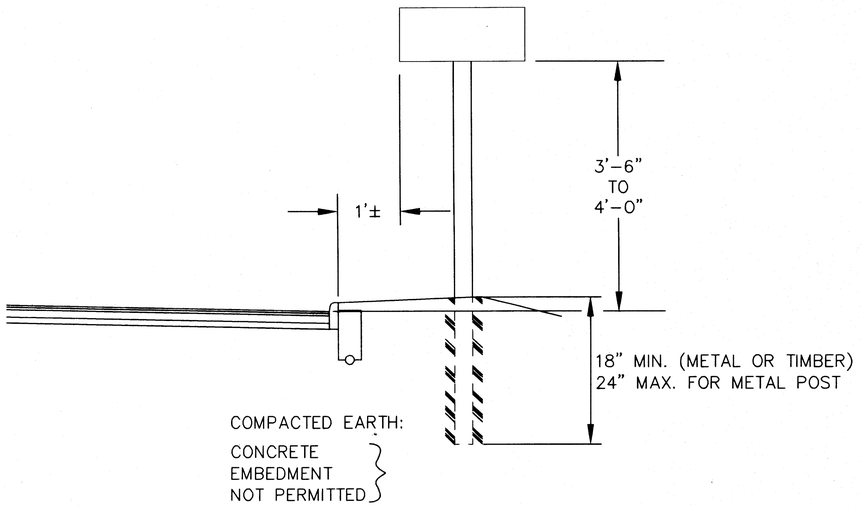
THE MAILBOX SHALL BE SECURELY AND NEATLY ATTACHED BY THE CONTRACTOR TO THE NEW SUPPORT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY ATTACHMENT HARDWARE (NUTS, BOLTS, PLATES, SPACERS, AND WASHERS) AS NECESSARY TO ACCOMMODATE THE COMPLETE INSTALLATION.

IN THE ABSENCE OF A NEW BOX SUPPLIED BY THE OWNER, THE CONTRACTOR SHALL SALVAGE THE EXISTING BOX AND PLACE IT ON THE NEW SUPPORT. DUE CARE SHALL BE EXERCISED IN SUCH AN OPERATION, AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND REPLACING ANY BOX DAMAGED BY IMPROPER HANDLING ON HIS PART, AS JUDGED AND DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH THE LOCAL POST MASTER REGARDING THE TIMING OF THE MOVEMENT OF ANY MAILBOX TO A NEW LOCATION.

PAYMENT UNDER THIS ITEM SHALL BE LIMITED TO FINAL PERMANENT INSTALLATIONS. TEMPORARY INSTALLATIONS SHALL BE IN ACCORDANCE WITH 107.12. HOWEVER, THE SAME MATERIAL AND SIZE LIMITATIONS AS FOR PERMANENT INSTALLATIONS SHALL APPLY.

MAILBOX SUPPORTS, COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH FOR ITEM SPECIAL – MAILBOX REMOVED AND RESET.



CALCULATED VLB 05/02
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MAILBOX DETAILS AND SUBSUMMARY

16TH STREET, SE

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LINE NO.	* – CAD MEASURED AREA	DESCRIPTION		QUANTITY	UNIT
1					
2		ITEM 202 – PAVEMENT REMOVED			
3					
4	16TH STREET				
5	STA. 53+54.00 LT. =	224.87 SQ. FT.*			
6	STA. 64+27.00 RT. =	732.61 SQ. FT.*			
7					
8	WALNUT ROAD				
9	STA. 15+75.50 RT. =	25.60 SQ. FT.*			
10	STA. 16+27.50 LT. =	180.52 SQ. FT.*			
11	STA. 17+09.00 RT. =	203.90 SQ. FT.*			
12	STA. 17+60.50 RT. =	209.68 SQ. FT.*			
13	STA. 17+96.00 RT. =	319.65 SQ. FT.*			
14	STA. 18+47.00 RT. =	297.70 SQ. FT.*			
15					
16	TOTAL OF LINES 5 THRU 14 =	2194.53 SQ. FT.			
17	(2194.53)(1/9) =	243.84 SQ. YD.	USE	244	SQ. YD.
18					
19					
20		ITEM 202 – WEARING COURSE REMOVED			
21					
22	16TH STREET				
23	STA. 43+25.00 TO STA. 43+55.00 =	30.00 LIN. FT.			
24	(30.00')(22.27' + 22.36')(1/2) =	669.45 SQ. FT.			
25	STA. 75+50.00 TO STA. 75+80.00 =	30.00 LIN. FT.			
26	(30.00')(36.34' + 38.31')(1/2) =	1119.75 SQ. FT.			
27					
28	WALNUT ROAD				
29	STA. 14+30.00 TO STA. 14+60.00 =	30.00 LIN. FT.			
30	(30.00')(32.38'+32.35')(1/2) =	970.95 SQ. FT.			
31	STA. 24+00.00 TO STA. 24+30.00 =	30.00 LIN. FT.			
32	(30.00')(31.55'+30.62')(1/2) =	932.55 SQ. FT.			
33					
34	HARSH AVENUE				
35	STA. 15+20.00 TO STA. 15+50.00 =	30.00 LIN. FT.			
36	(30.00')(26.00') =	780.00 SQ. FT.			
37					
38	TOTAL OF LINES 24 THRU 36 =	4472.70 SQ. FT.			
39	(4472.70 S.F.)(1/9) =	496.97 SQ. YD.	USE	497	SQ. YD.
40					
41					
42		ITEM 202 – WALK REMOVED			
43					
44	16TH STREET				
45	STA. 46+25.86 (AVG.) TO STA. 49+76.71 (AVG.) LT. =	350.85 LIN. FT.			
46	NW RADIUS RETURN 16TH STREET/WALNUT ROAD LT. =	21.03 LIN. FT.			
47	STA. 50+49.23 (AVG.) TO STA. 58+66.65 (AVG.) LT. =	817.42 LIN. FT.			
48	STA. 59+60.05 (AVG.) TO STA. 69+19.93 (AVG.) LT. =	959.88 LIN. FT.			
49					
50	TOTAL OF LINES 45 THRU 48 =	2149.18 LIN. FT.			
51	(2149.18')(4'AVG.)=	8596.72 SQ. FT.			
52					
53	WALNUT ROAD				
54	STA. 14+60.00 TO STA. 14+77.40 (AVG.) LT. =	17.40 LIN. FT.			
55	STA. 15+08.40 (AVG.) TO STA. 15+85.32 LT. =	76.92 LIN. FT.			
56	STA. 16+34.90 (AVG.) TO STA. 17+47.80 (AVG.) LT. =	112.90 LIN. FT.			
57	STA. 17+76.70 (AVG.) TO STA. 18+36.72 LT. =	60.02 LIN. FT.			
58	STA. 14+60.00 TO STA. 15+74.65 (AVG.) RT. =	114.65 LIN. FT.			
59	STA. 15+93.70 (AVG.) RT. TO STA. 19+72.63 RT. =	378.93 LIN. FT.			
60					
61	TOTAL OF LINES 54 THRU 59 =	760.82 LIN. FT.			
62	(760.82')(5'AVG.)=	3804.10 SQ. FT.			
63					
64	HARSH AVENUE				
65	STA. 10+44.90 (AVG.) TO STA. 15+20.00 LT. =	475.10 LIN. FT.			
66	NE RADIUS RETURN =	83.55 LIN. FT.			
67					
68	TOTAL OF LINES 65 AND 66 =	558.65 LIN. FT.			
69	(558.65')(5'AVG.)=	2793.25 SQ. FT.			
70					
71	TOTAL OF LINES 51, 62, AND 69 =	15194.07 SQ. FT.	USE	15194	SQ. FT.
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					

LINE NO.	DESCRIPTION			QUANTITY	UNIT
86		ITEM 202 – CURB REMOVED			
87					
88	16TH STREET				
89	SE RADIUS RETURN 16TH STREET/WALNUT ROAD =	53.16 LIN. FT.			
90	NE RADIUS RETURN 16TH STREET/WALNUT ROAD =	57.25 LIN. FT.			
91	NW RADIUS RETURN 16TH STREET/WALNUT ROAD =	37.43 LIN. FT.			
92	STA. 63+70.00 (AVG.) TO STA. 63+88.00 (AVG.) =	18.00 LIN. FT.			
93	STA. 64+63.00 (AVG.) TO STA. 65+62.50 (AVG.) =	99.50 LIN. FT.			
94					
95					
96	SE RADIUS RETURN 16TH STREET/HARSH AVENUE =	20.17 LIN. FT.			
97	NE RADIUS RETURN 16TH STREET/HARSH AVENUE =	45.27 LIN. FT.			
98					
99	WALNUT ROAD				
100	STA. 15+16.97 TO STA. 17+37.29 (AVG.) LT. =	220.32 LIN. FT.			
101	STA. 17+87.98 (AVG.) TO STA. 19+46.79 (AVG.) LT. =	158.81 LIN. FT.			
102	STA. 15+09.65 (AVG.) TO STA. 16+95.86 RT. =	186.21 LIN. FT.			
103	STA. 18+62.33 (AVG.) TO STA. 19+72.63 RT. =	110.30 LIN. FT.			
104					
105	LAWTON STREET INCLUDING RADIUS RETURNS =	62.11 LIN. FT.			
106					
107	HARSH AVENUE				
108	STA. 10+46.11 TO STA. 15+20.00 LT. =	473.89 LIN. FT.			
109	STA. 10+46.28 (AVG.) TO STA. 15+20.00 RT. =	473.72 LIN. FT.			
110					
111	TOTAL OF LINES 89 THRU 109 =	2016.14 LIN. FT.	USE	2016	LIN. FT.
112					
113		ITEM 203 – SUBGRADE COMPACTION			
114					
115	16TH STREET PAVEMENT				
116	STA. 43+55.00 TO STA. 45+55.00 LT. =	200.00 LIN. FT.			
117	(200.00')(11.29' + 12.00')(1/2) =	2329.00 SQ. FT.			
118	STA. 43+55.00 TO STA. 44+90.00 RT. =	135.00 LIN. FT.			
119	(135.00')(11.07' + 16.00')(1/2) =	1827.23 SQ. FT.			
120	STA. 44+90.00 TO STA. 45+55.00 RT. =	65.00 LIN. FT.			
121	(65.00')(16.00'+24.00')(1/2) =	1300.00 SQ. FT.			
122	STA. 45+55.00 TO STA. 75+40.00 =	2985.00 LIN. FT.			
123	(2985.00')(36.00') =	107460.00 SQ. FT.			
124	STA. 75+40.00 TO STA. 75+50.00 =	10.00 LIN. FT.			
125	(10.00')(36.00'+36.36')(1/2') =	361.80 SQ. FT.			
126	ALLEY STA. 47+79.00 LT.	847.75 SQ. FT.*			
127					
128	TOTAL MAINLINE PAVEMENT AREA =	114125.78 SQ. FT.			
129					
130	WALNUT ROAD PAVEMENT				
131	STA. 14+60.00 TO STA. 15+35.00 =	75.00 LIN. FT.			
132	(75.00')(32.35' + 36.00')(1/2) =	2563.13 SQ. FT.			
133	STA. 15+35.00 TO STA. 19+86.96 =	451.96 LIN. FT.			
134	(451.96')(36.00') =	16270.56 SQ. FT.			
135	ADDITIONAL AT SW RADIUS RETURN =	95.18 SQ. FT.*			
136	ADDITIONAL AT NW RADIUS RETURN =	1890.36 SQ. FT.*			
137	ADDITIONAL AT SE RADIUS RETURN =	658.27 SQ. FT.*			
138	ADDITIONAL AT NE RADIUS RETURN =	39.04 SQ. FT.*			
139	STA. 20+28.25 TO STA. 21+50.00 =	121.75 LIN. FT.			
140	(121.75')(48.00') =	5844.00 SQ. FT.			
141	STA. 21+50.00 TO STA. 22+50.00 =	100.00 LIN. FT.			
142	(100.00')(48.00' + 30.67')(1/2) =	3933.50 SQ. FT.			
143	STA. 22+50.00 TO STA. 24+00.00 =	150.00 LIN. FT.			
144	(150.00')(30.67' + 31.55')(1/2) =	4666.50 SQ. FT.			
145	15TH STREET INCLUDING RADIUS RETURNS =	969.10 SQ. FT.*			
146	ALLEY STA. 15+75.50 RT. =	483.45 SQ. FT.*			
147	ALLEY STA. 16+28.00 LT. =	320.22 SQ. FT.*			
148	LAWTON STREET INCLUDING RADIUS RETURNS =	693.56 SQ. FT.*			
149					
150	HARSH AVENUE PAVEMENT				
151	STA. 10+18.00 TO STA. 13+20.00 =	302.00 LIN. FT.			
152	(302.00')(36.00') =	10872.00 SQ. FT.			
153	STA. 13+20.00 TO STA. 15+20.00 =	200.00 LIN. FT.			
154	(200.00')(32.00' + 26.00')(1/2) =	5800.00 SQ. FT.			
155	ADDITIONAL AT SE RADIUS RETURN =	536.50 SQ. FT.*			
156	ADDITIONAL AT NE RADIUS RETURN =	544.37 SQ. FT.*			
157					
158	TOTAL SIDEROAD PAVEMENT AREA =	56179.74 SQ. FT.			
159					
160	CURB				
161	TOTAL FROM LINE 168 SHEET 26 =	8128.75 LIN. FT.			
162	(8128.75')(0.5') =	4064.38 SQ. FT.			
163					
164	CURB AND GUTTER				
165	TOTAL FROM LINE 6 SHEET 27 =	484.00 LIN. FT.			
166	(484.00')(2.5') =	1210.00 SQ. FT.			
167					
168	TOTAL OF LINES 128, 158, 162, AND 166 =	175579.90 SQ. FT.			
169	(175579.90 S.F.)(1/9) =	19508.88 SQ. YD.	USE	19509	SQ. YD.
170					

CALCULATED VLB 04/02
CHECKED JHE 05/02

CALCULATIONS

16TH STREET, SE

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LINE NO.	* – CAD MEASURED AREA DESCRIPTION			QUANTITY	UNIT
1	ITEM 203 – PROOF ROLLING				
2					
3	TOTAL AREA OF SUBGRADE COMPACTION FROM LINE 169 SHEET 25 =	19508.88 SQ. YD.			
4	(19508.88 S.Y.)(1 HOUR/3000 SQ. YD.) =	6.50 HOUR	USE	7	HOUR
5					
6					
7					
8	ITEM 301 – BITUMINOUS AGGREGATE BASE				
9					
10	TOTAL MAINLINE PAVEMENT AREA FROM LINE 128 SHEET 25 =	114125.78 SQ. FT.			
11	TOTAL SIDEROAD PAVEMENT AREA FROM LINE 158 SHEET 25 =	56179.74 SQ. FT.			
12	TOTAL OF LINES 10 AND 11 =	170305.52 SQ. FT.			
13	(170305.52 S.F.)(5"/12)(1/27) =	2628.17 CU. YD.	USE	2628	CU. YD.
14					
15					
16					
17	ITEM 304 – AGGREGATE BASE				
18					
19	TOTAL MAINLINE PAVEMENT AREA FROM LINE 128 SHEET 25 =	114125.78 SQ. FT.			
20	TOTAL SIDEROAD PAVEMENT AREA FROM LINE 158 SHEET 25 =	56179.74 SQ. FT.			
21	TOTAL OF LINES 19 AND 20 =	170305.52 SQ. FT.			
22	(170305.52 S.F.)(4"/12) =	56768.51 CU. FT.			
23					
24	TOTAL TYPE 1 ASPHALT DRIVE AREA FROM SHEET 80 =	2959.15 SQ. FT.			
25	(2959.15 S.F.)(6"/12) =	1479.58 CU. FT.			
26					
27	TOTAL TYPE 2 ASPHALT DRIVE AREA FROM SHEET 80 =	2414.27 SQ. FT.			
28	(2414.27 S.F.)(8"/12) =	1609.51 CU. FT.			
29	ADDITIONAL UNDER TYPE 6 CURB				
30	(8116.63')(1/2)(1.5')(0.5') =	3043.74 CU. FT.			
31					
32	TOTAL OF LINES 22, 25, 28 AND 30 =	62901.34 CU. FT.			
33	(62901.34 C.F.)(1/27) =	2329.68 CU. YD.	USE	2330	CU. YD.
34					
35	ITEM 448 – ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22				
36					
37	TOTAL MAINLINE PAVEMENT AREA FROM LINE 128 SHEET 25 =	114125.78 SQ. FT.			
38	TOTAL SIDEROAD PAVEMENT AREA FROM LINE 158 SHEET 25 =	56179.74 SQ. FT.			
39	TOTAL TYPE 2 ASPHALT DRIVE AREA FROM SHEET 80 =	2414.27 SQ. FT.			
40	TOTAL OF LINES 37 THRU 39 =	172719.79 SQ. FT.			
41	(172719.79 S.F.)(1.75"/12)(1/27) =	932.90 CU. YD.	USE	933	CU. YD.
42					
43					
44					
45	ITEM 448 – ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22				
46					
47	TOTAL WEARING COURSE REMOVED FROM LINE 38 SHEET 25 =	4472.70 SQ. FT.			
48	TOTAL MAINLINE PAVEMENT AREA FROM LINE 128 SHEET 25 =	114125.78 SQ. FT.			
49	TOTAL SIDEROAD PAVEMENT AREA FROM LINE 158 SHEET 25 =	56179.74 SQ. FT.			
50	TOTAL TYPE 2 ASPHALT DRIVE AREA FROM SHEET 80 =	2414.27 SQ. FT.			
51	TOTAL OF LINES 47 THRU 50 =	177192.49 SQ. FT.			
52	(177192.49 S.F.)(1.25"/12)	18457.55 CU. FT.			
53					
54	TOTAL TYPE 1 ASPHALT DRIVE AREA FROM SHEET 80 =	2959.15 SQ. FT.			
55	(2959.15 S.F.)(2"/12)	493.19 CU. FT.			
56					
57	(18457.55 C.F. + 493.19 C.F.)(1/27) =	701.87 CU. YD.	USE	702	CU. YD.
58					
59					
60	ITEM 407 – TACK COAT				
61					
62	TOTAL WEARING COURSE REMOVED FROM LINE 38 SHEET 25 =	4472.70 SQ. FT.			
63	TOTAL MAINLINE PAVEMENT AREA FROM LINE 128 SHEET 25 =	114125.78 SQ. FT.			
64	TOTAL SIDEROAD PAVEMENT AREA FROM LINE 158 SHEET 25 =	56179.74 SQ. FT.			
65	TOTAL OF LINES 62 THRU 64 =	174778.22 SQ. FT.			
66	(174778.22 S.F.)(1/9)(0.075 GAL./S.Y.) =	1456.49 GAL.	USE	1456	GALLON
67					
68					
69	ITEM 407 – TACK COAT FOR INTERMEDIATE COURSE				
70					
71	TOTAL MAINLINE PAVEMENT AREA FROM LINE 128 SHEET 25 =	114125.78 SQ. FT.			
72	TOTAL SIDEROAD PAVEMENT AREA FROM LINE 158 SHEET 25 =	56179.74 SQ. FT.			
73	(114125.78 S.F. + 56179.74 S.F.)(1/9) =	18922.84 SQ. YD.			
74	(18922.84 S.Y.)(0.045 GAL./S.Y.) =	851.53 GAL.	USE	852	GALLON
75					
76					
77					
78	ITEM 408 – BITUMINOUS PRIME COAT				
79					
80	TOTAL MAINLINE PAVEMENT AREA FROM LINE 128 SHEET 25 =	114125.78 SQ. FT.			
81	TOTAL SIDEROAD PAVEMENT AREA FROM LINE 158 SHEET 25 =	56179.74 SQ. FT.			
82	TOTAL TYPE 1 ASPHALT DRIVE AREA FROM SHEET 80 =	2959.15 SQ. FT.			
83	TOTAL TYPE 2 ASPHALT DRIVE AREA FROM SHEET 80 =	2414.27 SQ. FT.			
84	TOTAL OF LINES 80 THRU 83 =	175678.94 SQ. FT.			
85	(175678.94 SQ. FT.)(1/9)(0.40 GAL./S.Y.) =	7807.95 GAL.	USE	7808	GALLON

LINE NO.	DESCRIPTION			QUANTITY	UNIT
86					
87	ITEM 452 – 6" PLAIN CONCRETE PAVEMENT				
88					
89	TOTAL AREA OF TYPE 1 CONCRETE DRIVES FROM SHEET 80 =	6969.81 SQ. FT.			
90	(6969.81 SQ. FT.)(1/9) =	774.42 SQ. YD.	USE	774	SQ. YD.
91					
92					
93	ITEM 452 – 8" PLAIN CONCRETE PAVEMENT				
94					
95	TOTAL AREA OF TYPE 2 CONCRETE DRIVES FROM SHEET 80 =	3915.68 SQ. FT.			
96	(3915.68 SQ. FT.)(1/9) =	435.08 SQ. YD.	USE	435	SQ. YD.
97					
98					
99					
100	ITEM 608 – 4" CONCRETE WALK				
101					
102	16TH STREET				
103	STA. 45+55.00 TO STA. 49+51.75 LT. =	396.75 LIN. FT.			
104	STA. 50+76.62 TO STA. 68+38.97 (AVG.) LT. =	1762.35 LIN. FT.			
105	STA. 68+50.00 TO STA. 69+11.59 LT. =	61.59 LIN. FT.			
106	STA. 69+22.59 TO STA. 78+40.36 LT. =	917.77 LIN. FT.			
107	DEDUCT FOR RR TRACKS	−18.25 LIN. FT.			
108	DEDUCT FOR ALLEY STA. 47+79.00	−45.96 LIN. FT.			
109	TOTAL OF LINES 102 THRU 108 =	3074.25 LIN. FT.			
110					
111	WALNUT ROAD				
112	STA. 14+60.00 TO STA. 19+37.89 LT. =	477.89 LIN. FT.			
113	STA. 14+60.00 TO STA. 19+71.34 RT. =	511.34 LIN. FT.			
114	DEDUCT 15TH STREET =	−47.99 LIN. FT.			
115	DEDUCT ALLEY STA. 15+75.50 RT. =	−37.04 LIN. FT.			
116	DEDUCT ALLEY STA. 16+28.00 LT. =	−30.84 LIN. FT.			
117	DEDUCT LAWTON STREET	−50.00 LIN. FT.			
118	ADDITIONAL @ RESIDENCE STA. 18+00± LT. =	5.50 LIN. FT.			
119	TOTAL OF LINES 112 THRU 118 =	828.86 LIN. FT.			
120					
121	HARSH AVENUE				
122	STA. 10+40.67 TO STA. 15+20.00 LT. =	479.33 LIN. FT.			
123					
124	TOTAL OF LINES 109, 119, AND 122 =	4382.44 LIN. FT.			
125	(4382.44')(5.00') =	21912.20 SQ. FT.	USE	21,912	SQ. FT.
126					
127	ITEM 830 – CURB, TYPE 6				
128					
129	16TH STREET				
130	STA. 44+90.00 TO STA. 49+44.85 (AVG.) =	454.85 LIN. FT.			
131	STA. 50+84.10 (AVG.) TO STA. 75+50.00 =	2465.90 LIN. FT.			
132	TOTAL OF LINES 130 AND 131 =	2920.75 LIN. FT.			
133	(2920.75')(2 SIDES) =	5841.50 LIN. FT.			
134	DEDUCT FOR ALLEY STA. 47+79.00 LT. =	−65.25 LIN. FT.			
135	ALLEY STA. 47+79.00 LT., INCLUDING RADIUS RETURNS =	103.76 LIN. FT.			
136	STA. 43+55.00 TO STA. 44+90.00 LT. ONLY =	135.00 LIN. FT.			
137	DEDUCT FOR RR TRACKS =	−23.64 LIN. FT.			
138	(−23.64')(2 SIDES)	−47.28 LIN. FT.			
139	DEDUCT FOR HARSH AVENUE RT. =	−136.43 LIN. FT.			
140	TOTAL OF LINES 133, 134, 135, 138, AND 139 =	5831.30 LIN. FT.			
141	WALNUT ROAD				
142	STA. 14+60.00 TO STA. 19+36.99 (AVG.) =	476.99 LIN. FT.			
143	(476.99')(2 SIDES) =	953.98 LIN. FT.			
144	DEDUCT FOR 15TH STREET LT. =	−54.13 LIN. FT.			
145	DEDUCT FOR ALLEY STA. 15+75.50 RT. =	−36.20 LIN. FT.			
146	DEDUCT FOR ALLEY STA. 16+28.00 LT. =	−31.50 LIN. FT.			
147	DEDUCT FOR LAWTON STREET LT. =	−59.07 LIN. FT.			
148	SW RADIUS RETURN =	34.75 LIN. FT.			
149	NW RADIUS RETURN =	49.75 LIN. FT.			
150	SE RADIUS RETURN =	29.75 LIN. FT.			
151	NE RADIUS RETURN =	49.75 LIN. FT.			
152	STA. 20+72.34 (AVG.) TO STA. 24+00.00 =	327.66 LIN. FT.			
153	(327.66')(2 SIDES) =	655.32 LIN. FT.			
154	TOTAL OF LINES 143 THRU 151 AND 153 =	1592.40 LIN. FT.			
155					
156	15TH STREET INCLUDING RADIUS RETURNS =	59.82 LIN. FT.			
157	ALLEY STA. 15+75.50 RT. INCLUDING RADIUS RETURNS =	62.03 LIN. FT.			
158	ALLEY STA. 16+28.00 LT. INCLUDING RADIUS RETURNS =	30.64 LIN. FT.			
159	LAWTON STREET INCLUDING RADIUS RETURNS =	63.90 LIN. FT.			
160					
161	HARSH AVENUE				
162	STA. 10+68.10 (AVG.) TO STA. 12+78.00 =	209.90 LIN. FT.			
163	(209.90')(2 SIDES) =	419.80 LIN. FT.			
164	SE RADIUS RETURN =	49.75 LIN. FT.			
165	NE RADIUS RETURN =	49.75 LIN. FT.			
166	TOTAL OF LINES 163 THRU 165 =	519.30 LIN. FT.			
167					
168	TOTAL OF LINES 140, 154, 156 THRU 159 AND 166 =	8128.75 LIN. FT.	USE	8129	LIN. FT.
169					
170					

CALCULATED VLB 04/02
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CALCULATIONS

16TH STREET, SE

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LINE NO.	* – CAD MEASURED AREA DESCRIPTION		QUANTITY	UNIT
1				
2	ITEM 830 – COMBINATION CURB AND GUTTER, TYPE 2			
3				
4	HARSH AVENUE			
5	STA. 12+78.00 TO STA. 15+20.00 =	242.00 LIN. FT.		
6	(242.00')(2 SIDES) =	484.00 LIN. FT. USE	484	LIN. FT.
7				
8				
9				
10				
11				
12	ITEM 870 – SEEDING AND MULCHING			
13				
14	AREA INSIDE CONSTRUCTION LIMITS =	358137 SQ. FT.*		
15	DEDUCT FOR MAINLINE PAVEMENT =	−114126 SQ. FT.		
16	DEDUCT FOR SIDEROAD PAVEMENT =	−56180 SQ. FT.		
17	DEDUCT FOR CURB			
18	(8129')(0.5') =	−4065 SQ. FT.		
19	DEDUCT FOR CURB AND GUTTER			
20	(484')(2.5') =	−1210 SQ. FT.		
21	DEDUCT FOR SIDEWALK (INCLUDES CURB RAMPS)=	−24462 SQ. FT.		
22	DEDUCT FOR DRIVES =	−16259 SQ. FT.		
23				
24	TOTAL OF LINES 14 THRU 22 =	143045 SQ. FT.		
25	(143045 SQ. FT.)(1/9) =	15893.89 SQ. YD. USE	15894	SQ. YD.
26				
27				
28				
29				
30				
31				
32				
33				
34	ITEM 870 – PLACING TOPSOIL			
35				
36	TOTAL AREA OF SEEDING AND MULCHING FROM LINE 25 =	15893.89 SQ. YD.		
37	(15893.89 S.Y.)(111 C.Y./1000 S.Y.) =	1764.22 CU. YD. USE	1764	CU. YD.
38	(QUANTITY CARRIED TO GENERAL NOTES)			
39				
40	ITEM 870 – COMMERCIAL FERTILIZER			
41				
42	TOTAL AREA OF SEEDING AND MULCHING FROM LINE 25 =	15893.89 SQ. YD.		
43	(15893.89 S.Y.)(9)(30 LB./1000 S.F.)/2000 =	2.15 TON USE	2.15	TON
44				
45				
46	ITEM 870 – AGRICULTURAL LIME			
47				
48	TOTAL AREA OF SEEDING AND MULCHING FROM LINE 25 =	15893.89 SQ. YD.		
49	(15893.89 S.Y.)(9)(92 LB./1000 S.F.)/2000 =	6.58 TON USE	6.58	TON
50	(QUANTITY CARRIED TO GENERAL NOTES)			
51				
52	ITEM 870 – WATER			
53				
54	TOTAL AREA OF SEEDING AND MULCHING FROM LINE 25 =	15893.89 SQ. YD.		
55	(15893.89 S.Y.)(9)(300 GAL./1000 S.F.)/1000(2 APPLICATIONS) =	85.83 M. GAL USE	100	M. GAL.
56	(QUANTITY CARRIED TO GENERAL NOTES)			
57				
58	ITEM 870 – MOWING			
59				
60	TOTAL AREA OF SEEDING AND MULCHING FROM LINE 25 =	15893.89 SQ. YD.		
61	(15893.89 S.Y.)(9)(0.25)/1000 =	35.76 M. SQ. FT. USE	36	M.SQ. FT.
62	(QUANTITY CARRIED TO GENERAL NOTES)			
63				
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LINE NO.	DESCRIPTION	QUANTITY	UNIT
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CALCULATED VLB 04/02
CHECKED JHE 05/02

CALCULATIONS

16TH STREET, SE

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			877			601
SHEET NO.	STATION	SIDE	TEMPORARY PERIMETER FILTER FABRIC FENCE	TEMPORARY INLET PROTECTION FILTER FABRIC FENCE	TEMPORARY SEDIMENT BASINS AND DAMS	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
			LIN. FT.	LIN. FT.	CU. YD.	CU. YD.
	16TH STREET					
29	45+00	LT.		60'		
29	45+45	RT.		60'		
29	45+50	LT.		60'		
29	47+20	RT.		60'		
29	47+40	LT.		60'		
29	48+75	LT.		60'		
29	48+75	RT.		60'		
29	49+39	RT.		60'		
29	49+75	LT.		60'		
29	50+10	RT.		60'		
29	50+50	RT.		60'		
29	51+00	LT.		60'		
29	52+70	LT.		60'		
29	52+70	RT.		60'		
29	54+00	LT.		60'		
29	54+00	RT.		60'		
30	56+50	LT.		60'		
30	56+50	RT.		60'		
30	58+00	LT.		60'		
30	58+00	RT.		60'		
30	59+52	LT.		60'		
30	59+52	RT.		60'		
30	60+60	LT.		60'		
30	60+60	RT.		60'		
30	61+75	RT.		60'		
30	62+80	LT.		60'		
30	62+80	RT.		60'		
30	63+75	RT.		60'		
30	63+90	LT.		60'		
30	64+15	RT.		60'		
30	66+15	LT.		60'		
30	66+15	RT.		60'		
30	67+65	LT.		60'		
30	67+65	RT.		60'		
30	69+60	LT.		60'		
30	69+60	RT.		60'		
30	71+10	LT.		60'		
30	71+10	RT.		60'		
30	73+00	LT.		60'		
30	74+75	LT.		60'		
30	74+75	RT.		60'		
30	57+15± (AT CULVERT)	RT.	216			
30	57+65± (AT CULVERT)	LT.	207			
30	57+10±	RT.			150	30
30	57+30±	LT.			120	24
30	57+40±	RT.			105	21
30	57+85±	LT.			165	33
	SUB-TOTAL THIS COLUMN (1)		423	2460	540	108

			877			601
SHEET NO.	STATION	SIDE	TEMPORARY PERIMETER FILTER FABRIC FENCE	TEMPORARY INLET PROTECTION FILTER FABRIC FENCE	TEMPORARY SEDIMENT BASINS AND DAMS	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER
			LIN. FT.	LIN. FT.	CU. YD.	CU. YD.
	WALNUT ROAD					
29	15+20	LT.		60'		
29	17+32	LT.		60'		
29	17+76	LT.		60'		
29	17+83	RT.		60'		
	HARSH AVENUE					
30	13+00	LT.		60'		
30	13+00	RT.		60'		
30	10+30 TO 14+44	RT.	414			
	SUBTOTAL THIS COLUMN (2)		414	360	–	–
	SUBTOTAL PREVIOUS COLUMN (1)		423	2460	540	108
	TOTALS		837	2820	540	108
TOTALS CARRIED TO GENERAL SUMMARY			837	2820	540	108

CALCULATED VLB 02/02
CHECKED JHE 05/02

STORM WATER POLLUTION PREVENTION SUBSUMMARY

16TH STREE, SE

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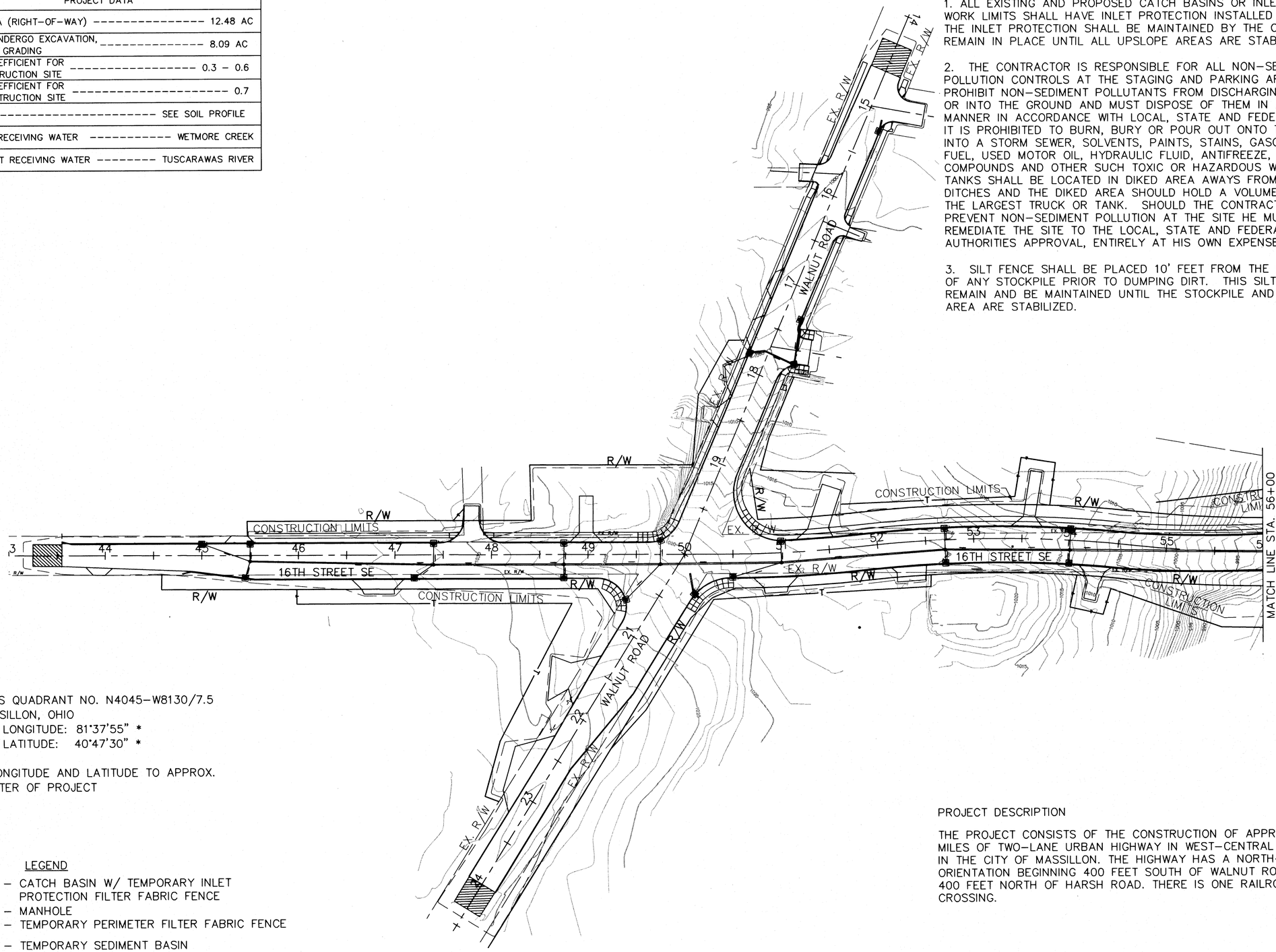
PROJECT DATA	
TOTAL AREA (RIGHT-OF-WAY)	12.48 AC
AREA TO UNDERGO EXCAVATION, FILLING, OR GRADING	8.09 AC
RUNOFF COEFFICIENT FOR PRE-CONSTRUCTION SITE	0.3 - 0.6
RUNOFF COEFFICIENT FOR POST CONSTRUCTION SITE	0.7
SOIL DATA	SEE SOIL PROFILE
IMMEDIATE RECEIVING WATER	WETMORE CREEK
SUBSEQUENT RECEIVING WATER	TUSCARAWAS RIVER

NOTES:

1. ALL EXISTING AND PROPOSED CATCH BASINS OR INLETS WITHIN THE WORK LIMITS SHALL HAVE INLET PROTECTION INSTALLED AROUND THEM. THE INLET PROTECTION SHALL BE MAINTAINED BY THE CONTRACTOR AND REMAIN IN PLACE UNTIL ALL UPSLOPE AREAS ARE STABILIZED.

2. THE CONTRACTOR IS RESPONSIBLE FOR ALL NON-SEDIMENT POLLUTION CONTROLS AT THE STAGING AND PARKING AREAS, SHALL PROHIBIT NON-SEDIMENT POLLUTANTS FROM DISCHARGING INTO RUN-OFF OR INTO THE GROUND AND MUST DISPOSE OF THEM IN A PROPER MANNER IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL AUTHORITIES. IT IS PROHIBITED TO BURN, BURY OR POUR OUT ONTO THE GROUND OR INTO A STORM SEWER, SOLVENTS, PAINTS, STAINS, GASOLINE, DIESEL FUEL, USED MOTOR OIL, HYDRAULIC FLUID, ANTIFREEZE, CEMENT CURING COMPOUNDS AND OTHER SUCH TOXIC OR HAZARDOUS WASTES, STORAGE TANKS SHALL BE LOCATED IN DIKED AREA AWAYS FROM DRAINAGE DITCHES AND THE DIKED AREA SHOULD HOLD A VOLUME OF 110% OF THE LARGEST TRUCK OR TANK. SHOULD THE CONTRACTOR FAIL TO PREVENT NON-SEDIMENT POLLUTION AT THE SITE HE MUST IMMEDIATELY REMEDIATE THE SITE TO THE LOCAL, STATE AND FEDERAL REGULATORY AUTHORITIES APPROVAL, ENTIRELY AT HIS OWN EXPENSE.

3. SILT FENCE SHALL BE PLACED 10' FEET FROM THE BASE DIMENSION OF ANY STOCKPILE PRIOR TO DUMPING DIRT. THIS SILT FENCE SHALL REMAIN AND BE MAINTAINED UNTIL THE STOCKPILE AND SURROUNDING AREA ARE STABILIZED.



USGS QUADRANT NO. N4045-W8130/7.5
MASSILLON, OHIO
LONGITUDE: 81°37'55" *
LATITUDE: 40°47'30" *

* LONGITUDE AND LATITUDE TO APPROX. CENTER OF PROJECT

LEGEND

- ▣ – CATCH BASIN W/ TEMPORARY INLET PROTECTION FILTER FABRIC FENCE
- • – MANHOLE
- —FF— – TEMPORARY PERIMETER FILTER FABRIC FENCE
- ▩ – TEMPORARY SEDIMENT BASIN

PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE CONSTRUCTION OF APPROXIMATELY 0.44 MILES OF TWO-LANE URBAN HIGHWAY IN WEST-CENTRAL STARK COUNTY IN THE CITY OF MASSILLON. THE HIGHWAY HAS A NORTH-SOUTH ORIENTATION BEGINNING 400 FEET SOUTH OF WALNUT ROAD S.E. ENDING 400 FEET NORTH OF HARSH ROAD. THERE IS ONE RAILROAD GRADE CROSSING.

N

0 25 50 100 HORIZONTAL SCALE IN FEET

CALCULATED | CHECKED

STORM WATER POLLUTION PREVENTION PLAN
STA. 43+00 TO STA. 56+00

16TH STREET, SE

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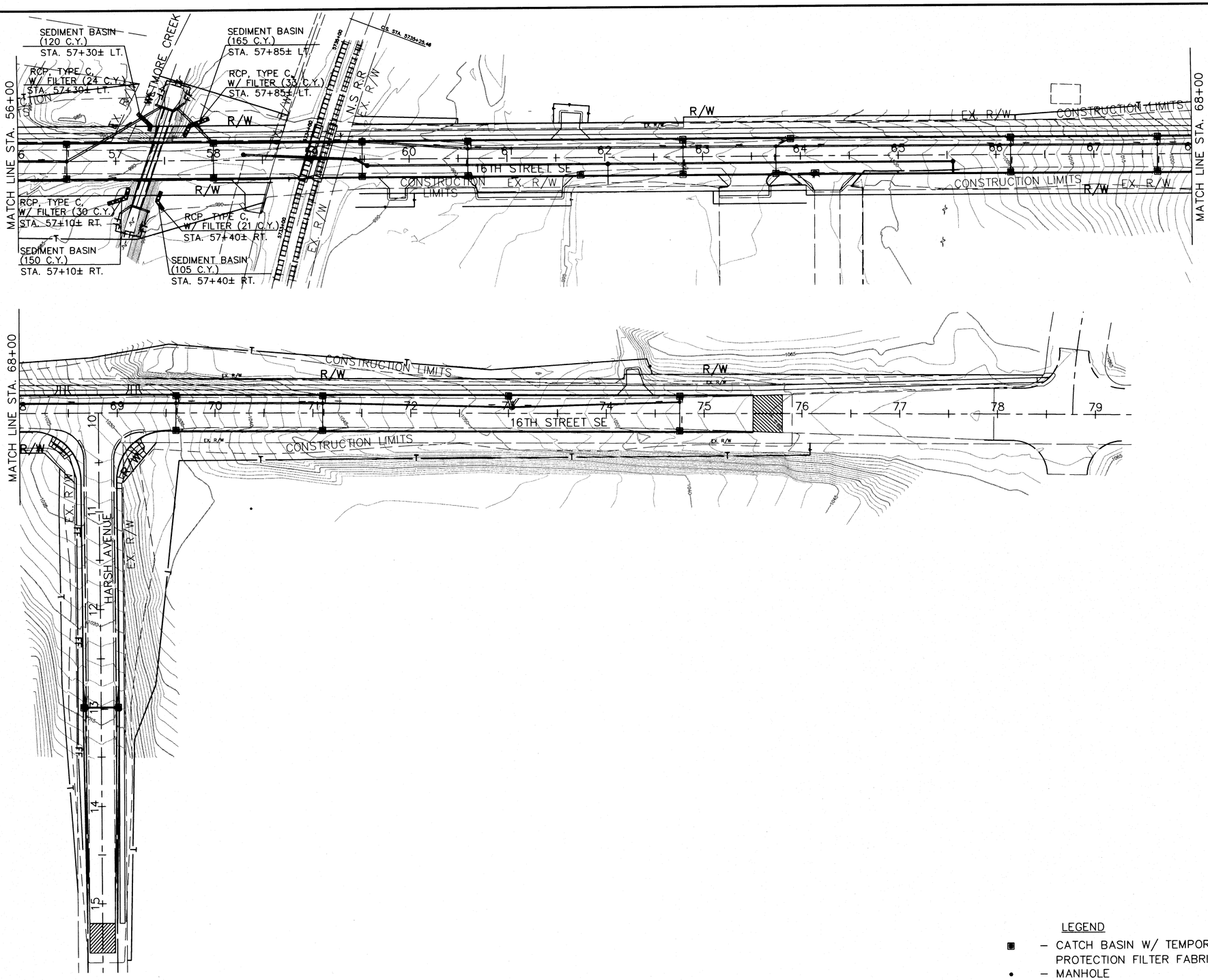

HORIZONTAL SCALE IN FEET
0 25 50 100

CALCULATED

CHECKED

STORM WATER POLLUTION PREVENTION PLAN
STA. 56+00 TO STA. 79+00

16TH STREET, SE

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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
38–40	STORM SEWER PROFILE
80	DRIVE DETAILS
87	DRAINAGE DETAILS
88	UD SUBSUMMARY

GLORIA J. STEEL ET. AL. | HEYWOOD & MAYBELLE McGRIFF | ANTHONY & LISA BENTLEY | MARILYN A. SMITH | KATHRYN ANDERSON

2 STORY #1025 RES.

BEGIN WORK STA. 43+00.00

BEGIN PROJECT STA. 45+55.00

BEGIN PAVEMENT TAPER 11.3'± LT. STA. 43+55
END PAVEMENT TAPER 12' LT. STA. 45+55

+55.00 BEGIN NEW PAVEMENT

EX. R/W

43+00 | 44+00 | 45+00 | 46+00 | 47+00 | 48+00

12" RCP | 12" STM | 12" RCP

CONSTRUCTION & EXIST. & PROP R/W
16TH STREET, S.E.

CONSTRUCTION LIMITS | R/W | CONSTRUCTION LIMITS

EX. CONC. WALK | CONC. | ROCK | ASPHALT | GRAVEL | LANDSCAPE | GRAVEL | LANDSCAPE | CONC. WALK | ASPHALT

6" GAS | SAN. CONC. | SAN.

36" | 30" PINE (SAVE) | 8" PINE (SAVE) | 24" PINE

ALLEY

MATCH LINE STA. 48+00

UD1 D1A UD3A D1 DR1B D1C UD4 D2B UD6 CR1A CR1B R1A R1C

DR1A UD2 UD3 R1B D1B DR1 D2A D2 UD5

BEGIN TYPE 6 CURB
STA 44+88.75, 18' RT

+55.00 | +90.00 | +55.00

BEGIN PAVEMENT TAPER
11.1±' RT. STA. 43+55
END PAVEMENT TAPER
16' RT. STA. 44+90

BEGIN PAVEMENT TAPER
16.00' RT. STA. 44+90
END PAVEMENT TAPER
24' RT. STA. 45+55

METROPOLITAN HOUSING AUTHORITY | HERBERT A. SCHRADER

LEGEND

▨ ITEM 202–1 1/4" WEARING COURSE REMOVED AND RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22 OVER 407 TACK COAT.

* – TAPER CURB HEIGHT FROM 0" TO 6" IN 10'. FLARE CURB @ 4:1 FOR 10'

BM–1
NW CORNER OF CONCRETE PAD IN FRONT OF VACANT BUILDING SE CORNER 16TH ST. & WALNUT ROAD
ELEV.=1031.84
STA. 47+99.97, 120.00' RT.

1036.68 | 1036.22 | 1035.64 | 1035.24 | 1034.94 | 1034.63 | 1034.31 | 1033.98 | 1033.64 | 1033.31 | 1032.99 | 1032.68 | 1032.41 | 1032.14 | 1031.84 | 1031.00 | 1030.23 | 1029.33

30' RESURFACING

GRAPHIC GRADE – PROPOSED PROFILE SAME AS EXISTING PROFILE

1040 | 1030 | 1020 | 1010

+25.00 MATCH EXISTING BUTT JOINT PER BP–3.1

+55.00 MATCH EXISTING PROFILE GRADE

47+00 MATCH EXISTING PROFLE GRADE

EXIST. PROFILE GRADE | PROFILE GRADE

2.5'± | 4.5'±

EXIST. 6" GAS | EXIST. WATER | 12" RCP | 12" RCP

-1.68% | -2.8%

PVC STA = 47+50
PVC ELEV = 1031.00
GRADE BREAK NO CURVE
100.00' VC
PVI STA = 48+00
PVI ELEV = 1029.60
SSD = 352

EXIST. C.B. (TO BE REMOVED)
STA. 45+83.60, 11.8' LT.
TOP 1032.76
F.L. 12" (E) 1029.14

EXIST. C.B. (TO BE REMOVED)
STA. 45+83.10, 11.8' RT.
TOP 1032.85
F.L. 12" (E) 1030.06

EXIST. STORM MH (TO BE REMOVED)
STA. 45+89.10, 6.0' RT.
TOP 1032.31
F.L. 12" (S) 1027.41
F.L. 12" (N) 1027.4
F.L. 12" (W) 1028.95
F.L. 12" (SE) 1029.98

1038.3 | 1036.8 | 1035.6 | 1034.9 | 1034.3 | 1033.6 | 1033.0 | 1032.4 | 1031.8 | 1031.0 | 1029.6

42+50 | 43+00 | 44+00 | 45+00 | 46+00 | 47+00 | 48+00

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED | CHECKED

PLAN AND PROFILE – 16TH STREET STA. 43+00 TO STA. 48+00

16TH STREET, SE

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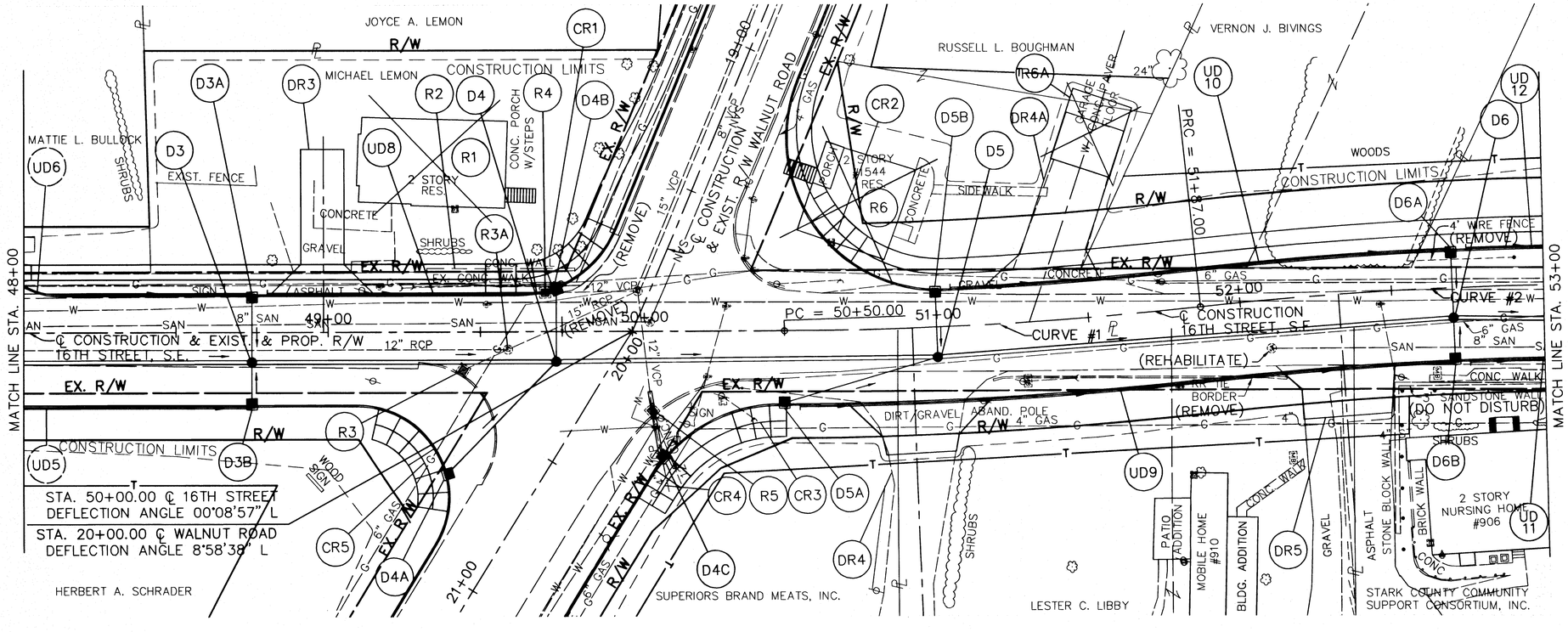

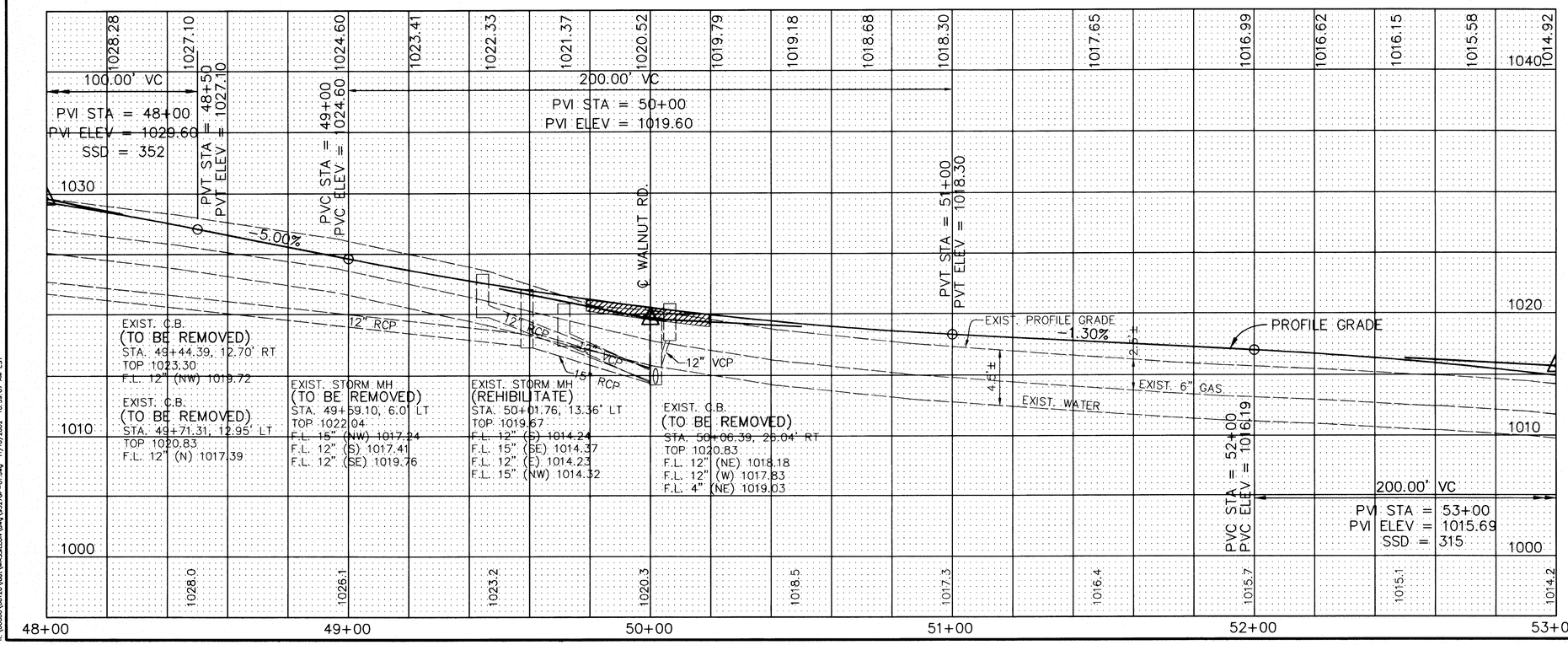

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
38–40	STORM SEWER PROFILE
76	INTERSECTION DETAILS
80	DRIVE DETAILS
87	DRAINAGE DETAILS
113	SIGNAL PLANS

NOTES:
1.) SANITARY MANHOLE STA. 52+09.09, 16.07' RT. LOCATED PER RECORD DATA.

2.) DO NOT DISTURB SANDSTONE WALL STA. 52+50.50 TO STA. 54+18.25 RT.

BM–1
NW CORNER OF CONCRETE PAD IN FRONT OF VACANT BUILDING SE CORNER 16TH ST. & WALNUT ROAD
ELEV.=1031.84
STA. 47+99.97, 120.00' RT.

CURVE #1 DATA
PI STA 51+18.56
△ = 6°02'17" RT
Dc = 4°24'27"
R = 1300.00'
T = 68.56'
L = 137.00'
E = 1.81'
emax = N/C

CURVE #2 DATA
PI STA 53+26.02
△ = 12°04'34" RT
Dc = 4°21'34"
R = 1314.33'
T = 139.02'
L = 277.02'
E = 7.33'
emax = N/C

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

CALCULATED | CHECKED

PLAN AND PROFILE – 16TH STREET
STA. 48+00 TO STA. 53+00

16TH STREET, SE

32
162

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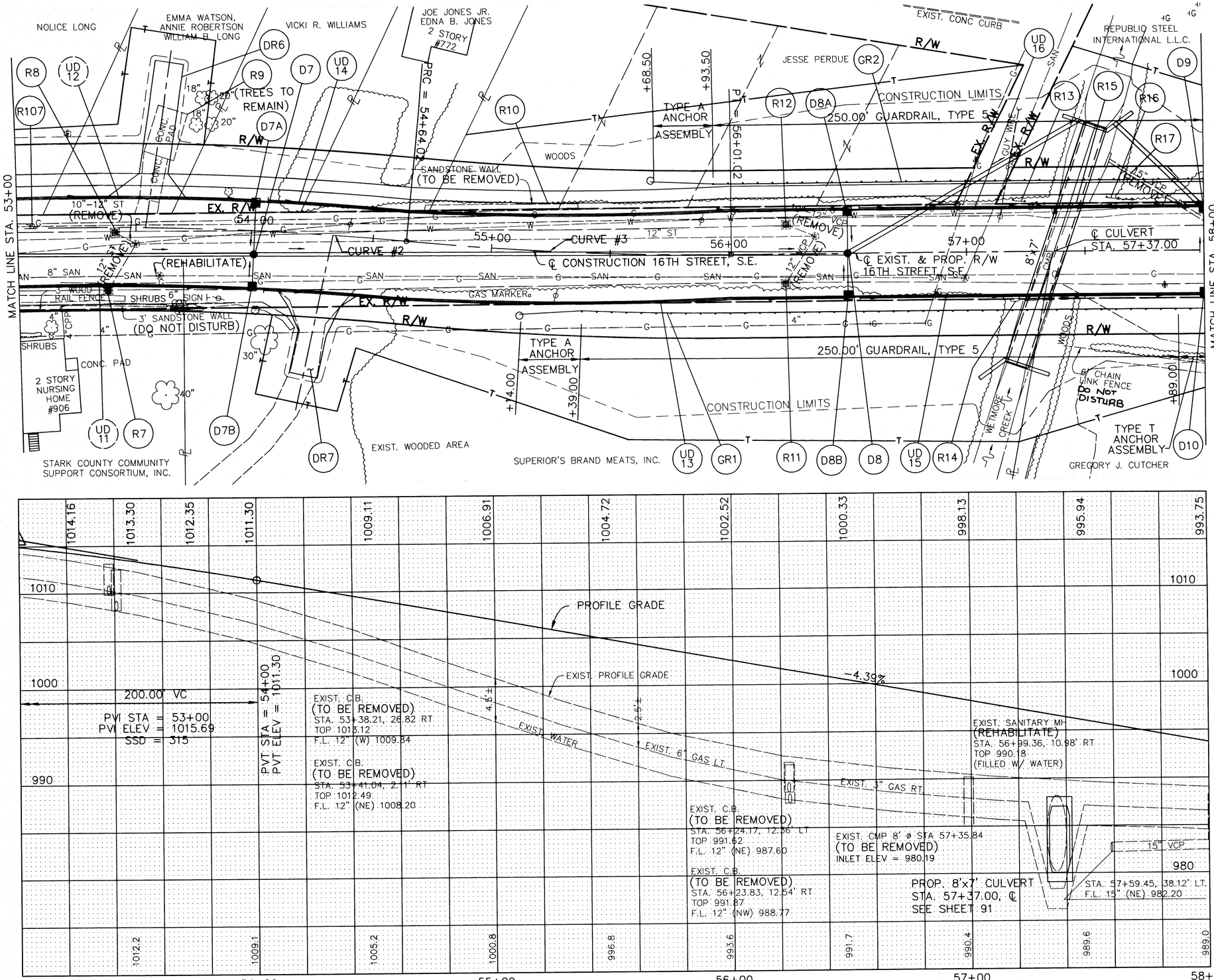

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
38–40	STORM SEWER PROFILE
80	DRIVE DETAILS
88	UD SUBSUMMARY
87	DRAINAGE DETAILS
90–92	CULVERT DETAILS

NOTES:
1.) SANITARY MANHOLE STA. 53+60.22, 20.29' RT. LOCATED PER RECORD DATA.

BM–2
RAILROAD SPIKE SET IN POWER POLE WEST SIDE OF 16TH ST. AND SOUTH SIDE OF RAILROAD
ELEV. = 987.02
STA 58+81.61, 83.42' RT

CURVE #2 DATA
PI STA 53+26.02
△ = 12°04'34" RT
Dc = 4°21'34"
R = 1314.33'
T = 139.02'
L = 277.02'
E = 7.33'
emax = N/C

CURVE #3 DATA
PI STA 55+32.58
△ = 6°02'17" LT
Dc = 4°24'26"
R = 1300.00'
T = 68.56'
L = 137.00'
E = 1.81'
emax = N/C

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED

CHECKED

PLAN AND PROFILE – 16TH STREET
STA. 53+00 TO STA. 58+00

16TH STREET, SE

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CROSS REFERENCES	
SHEET NO.	DESCRIPTION
38–40	STORM SEWER PROFILE
79	RAILROAD DETAILS
80	DRIVE DETAILS
87	DRAINAGE DETAILS
94	SANITARY SEWER PROFILE

NOTES:

1.) SEE SHEETS 93–94 AND 94A FOR SANITARY SEWER INFORMATION.

HORIZONTAL SCALE IN FEET

0 10 20 40

CALCULATED

CHECKED

PLAN AND PROFILE – 16TH STREET STA. 58+00 TO STA. 63+00

16TH STREET, SE

34
162

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REPUBLIC STEEL INTERNATIONAL L.L.C.

MATCH LINE STA. 63+00

MATCH LINE STA. 68+00

UD 24 | D 15 | D 15B | R22 | R23 | UD 26 | R26 | R27 | D 16A | UD 28 | R29 | R69 | R30 | D 17A | UD 30

GAS REGULATOR BUILDING

6' CHAIN LINK FENCE W/ BARBED WIRE

GRAVEL

R/W LANDSCAPE

TREES

SHRUBS

GRASS

CONSTRUCTION LIMITS

EX. R/W

6" GAS

CONC. WALK

SIGN

12" VCP

64+00

65+00

66+00

67+00

(REMOVE)

15" SAN

6" OF 12"

C CONSTRUCTION & EXIST. & PROP. R/W 16TH STREET, S.E.

ASPHALT CURB

PLUG

15" SAN

SEE NOTE 1.

WATER VAULT

ASPHALT CURB

6" VCP

15" VCP

FLOOD LIGHT

SIGN

R/W

CONSTRUCTION LIMITS

EX. R/W

(SAVE)

LANDSCAPE

(REMOVE LANDSCAPING FROM WITHIN THE PROPOSED R/W)

WALK

CONCRETE

ASPHALT

UD 23 | DR 12 | D 15A | UD 23A | R24 | D 15C | R25 | DR 13 | WALK | FLAG POLE W/ LIGHTS | UD 25 | R28 | D 16B | D16 | UD 27 | D 17B | R31 | D17 | UD 29

CROWN CORK & SEAL COMPANY USA, INC.

CROWN CORK & SEAL COMPANY USA, INC.

BM-3
CONCRETE LIGHT POLE BASE
WEST SIDE OF HIGH SCHOOL PARKING
ELEV.=1038.44
STA. 70+37.02, 96.99 RT.

995.68 | 996.21 | 996.84 | 997.58 | 998.42 | 999.37 | 1000.42 | 1001.58 | 1002.85 | 1004.22 | 1005.70 | 1007.28 | 1008.97 | 1012.45 | 1015.94 | 1019.42

300.00' VC

PVI STA = 65+00
PVI ELEV = 998.52

PVT STA = 66+50
PVT ELEV = 1008.97

1020

1010

990

PROFILE GRADE

EXIST. PROFILE GRADE

6.97%

4.5±

EXIST. 8" WATER

EXIST. 6" GAS

1.89%

PVC STA = 63+50
PVC ELEV = 995.68

EXIST. C.B.
(TO BE REMOVED)
STA. 64+11.08, 14.42' LT
TOP 997.56
F.L. 12" (S) 993.79

EXIST. C.B.
(TO BE REMOVED)
STA. 64+15.11, 14.71' RT
TOP 997.43
F.L. 10" (NE) 994.35
F.L. 6" (E) 995.40
F.L. 10" (SE) 994.00
F.L. 10" (SW) 993.81

EXIST. C.B.
(TO BE REMOVED)
STA. 64+25.04, 19.28' RT
TOP 997.37
F.L. 6" (SW) 995.72

EXIST. SANITARY MH
(TO BE REMOVED)
STA. 65+56.05, 18.22' RT
TOP 1001.49
F.L. 15" (S) 989.84
F.L. 15" (E) 989.84

(ABANDON)
15" VCP

EXIST. C.B.
(TO BE REMOVED)
STA. 66+12.37, 14.42' LT
TOP 1004.67
F.L. 12" (S) 999.95

EXIST. C.B.
(TO BE REMOVED)
STA. 66+15.03, 14.60' RT
TOP 1004.78
F.L. 12" (W) 1000.83

EXIST. C.B.
(TO BE REMOVED)
STA. 67+63.88, 14.98' LT
TOP 1018.23
F.L. 12" (S) 1014.18

EXIST. C.B.
(TO BE REMOVED)
STA. 67+65.11, 13.89' RT
TOP 1018.32
F.L. 12" (SW) 1014.24

996.7 | 997.8 | 999.0 | 1000.3 | 1001.9 | 1004.4 | 1008.0 | 1012.3 | 1017.1 | 1022.2

63+00 | 64+00 | 65+00 | 66+00 | 67+00 | 68+00

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
38–40	STORM SEWER PROFILE
80	DRIVE DETAILS
87	DRAINAGE DETAILS
88	UD SUBSUMMARY
93–94	SANITARY SEWER PROFILE

NOTES:

1.) SEE SHEETS 93–94 AND 94A FOR SANITARY SEWER INFORMATION.

2.) FOR CONNECTING EXIST. LATERAL, SEE GENERAL NOTES.

N

0 10 20 40 HORIZONTAL SCALE IN FEET

CALCULATED | CHECKED

PLAN AND PROFILE – 16TH STREET
STA. 63+00 TO STA. 68+00

16TH STREET, SE

35
162

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REPUBLIC STEEL INTERNATIONAL L.L.C.

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
38–40	STORM SEWER PROFILE
77	INTERSECTION DETAILS
87	DRAINAGE DETAILS
88	UD SUBSUMMARY

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

CALCULATED

CHECKED

UD 30, CR6, R32, R33, CR7, D18, D 18A, UD 32, R37, D 19A, R38, D19, UD 34, D20, D 20A, UD 35, R40

MATCH LINE STA. 68+00

MATCH LINE STA. 73+50

EX. R/W

R/W

CONSTRUCTION LIMITS

12" VCP

10" VCP

12" VCP (REMOVE)

69+00

70+00

71+00

72+00

73+00

10+00

(REMOVE)

STA. 69+25.64
Δ = 0°29'34"
NO CURVE

℄ CONSTRUCTION & EXIST. & PROP. R/W
16TH STREET, S.E.

℄ CONSTRUCTION & EXIST. R/W
HARSH AVENUE, S.E.

SIGN

6"

CONC. WALK

4"

6"

450' DOUBLE RAIL TYPE 5
GUARDRAIL (MATCH EXISTING)

TYPE A
ANCHOR
ASSEMBLY

+25.00

+50.00

ASPHALT

UD 29, CROWN CORK & SEAL COMPANY USA, INC., CR9, CR8, R34, R35, D 18B, R36, UD 31, D 19B, R39, UD 33, GR3

STA. 68+80.76 ℄ 16TH STREET, S.E.
STA. 10+00.00 ℄ HARSH AVENUE, S.E.

MASSILLON CITY SCHOOL DISTRICT

BM–3
CONCRETE LIGHT POLE BASE
WEST SIDE OF HIGH SCHOOL
PARKING
ELEV.=1038.44
STA. 70+37.02, 96.99 RT.

1022.90 1026.39 1029.87 1033.35 1036.84 1040.32 1042.02 1043.63 1045.17 1046.61 1047.98 1049.25 1050.45 1051.56 1052.58 1053.63

1050 1040 1030 1020 1010

℄ HARSH AVE +80.76

EXIST. PROFILE GRADE

PROFILE GRADE

6.97%

2.5'±

14.5'±

EXIST. 6" GAS

EXIST. WATER

12" VCP

EXIST. STORM MH
(TO BE REMOVED)
STA. 68+74.95, 8.11' LT
TOP 1029.40
F.L. 10" (SW) 1024.57
F.L. 12" (NW) 1025.21
F.L. 12" (N) 1024.7
F.L. 12" (NE) 1025.31

EXIST. C.B.
(TO BE REMOVED)
STA. 69+13.37, 14.39' LT
TOP 1031.29
12" (SE) 1026.05

EXIST. C.B.
(TO BE REMOVED)
STA. 69+28.55, 16.32' RT
TOP 1032.05
F.L. 12" (W) 1028.69

PVC STA = 71+00
PVC ELEV = 1040.32

EXIST. C.B.
(TO BE REMOVED)
STA. 71+11.72, 15.53' LT
TOP 1044.02
F.L. 10" (SE) 1041.81

EXIST. C.B.
(TO BE REMOVED)
STA. 71+13.68, 12.80' RT
TOP 1044.14
F.L. 10" (SW) 1041.61

300.00' VC
PVI STA = 72+50
PVI ELEV = 1050.77
SSD = 314

EXIST. STORM MH
(TO BE REMOVED)
STA. 73+07.28, 10.81' LT
TOP 1051.07
F.L. 12" (N) 1043.48
F.L. 12" (S) 1043.47
F.L. 12" (NW) 1045.39

EXIST. C.B.
STA. 73+30.79, 40.98' LT
TOP 1049.87
F.L. 12" (SE) 1047.63

1027.2 1031.0 1034.2 1037.8 1040.9 1043.7 1046.1 1048.2 1049.9 1051.4 1053.0

68+00 69+00 70+00 71+00 72+00 73+00 73+50

PLAN AND PROFILE – 16TH STREET
STA. 68+00 TO STA. 73+50

16TH STREET, SE

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LEGEND

ITEM 202–1 1/4" WEARING COURSE REMOVED AND RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22 OVER 407 TACK COAT.

* – TAPER CURB HEIGHT FROM 6" TO 0" IN 10'.

REPUBLIC STEEL INTERNATIONAL L.L.C.

M.F. GERSTENSLAGER

UD 35 | DR 14 | D21 | D 21A | UD 37 | CR10

END PROJECT STA. 75+50.00

END WORK STA. 78+65.00

VALVE CHAMBER (DO NOT DISTURB)

CAPPED PIN NGN 5586

VAULT

6"–8" ST (EXPOSED)

CONSTRUCTION LIMITS

R/W

EX. R/W

GRAVEL

6" GAS

+50.00 END NEW PAVEMENT

75+80

REPLACE S/W AND RESTORE DRIVE APRON TO ORIGINAL CONDITION

END SIDEWALK STA. 78+52.75, 37.82' LT.

ASPHALT

OAK AVE. (60' R/W)

MATCH LINE STA. 73+50

12" VCP (REMOVE)

12" CONC.

18'± | 18'±

12" VCP (REMOVE)

74+00 | 75+00 | 76+00 | 77+00 | 78+00 | 79+

℄ CONSTRUCTION & EXIST. & PROP. R/W 16TH STREET, S.E.

STA. 78+76.71 ℄ 16TH STREET, S.E.

STA. 10+00.00 ℄ OAK AVENUE

SIGN

EX. R/W

450' DOUBLE RAIL TYPE 5 GUARDRAIL (MATCH EXISTING)

SHRUB

±00.00 END GUARDRAIL CONNECT TO EXIST

CONCRETE

WALK

R22 | UD 33 | GR3 | R42 | R41 | D 21B | UD 36

ASPHALT

MASSILLON CITY SCHOOL DISTRICT

BM–3
CONCRETE LIGHT POLE BASE
WEST SIDE OF HIGH SCHOOL PARKING
ELEV.=1038.44
STA. 70+37.02, 96.99 RT.

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
38–40	STORM SEWER PROFILE
80	DRIVE DETAILS
87	DRAINAGE DETAILS
88	UD SUBSUMMARY

1054.38 | 1055.16 | 1056.62 | 1058.08 | 1059.52

30' RESURFACING

GRAPHIC GRADE – PROPOSED PROFILE SAME AS EXISTING PROFILE

MATCH EXISTING PROFILE GRADE +50.00

+80.00 MATCH EXISITNG BUTT JOINT PER BP–3.1

℄ OAK AVE

1060 | 1050 | 1040 | 1030

PROFILE GRADE

EXIST. PROFILE GRADE

2.92% | 2.70%

4.5'± | 2.5'±

EXIST. WATER

EXIST. 6" GAS

EXIST. C.B.
STA. 74+33.15, 25.20' RT
TOP 1054.53
F.L. 12" (SW) 1049.33

EXIST. VALVE CHAMBER
(DO NOT DISTURB)
STA. 73+83.36, 35.82' LT
TOP 1054.19
TOP VALVE 1047.69

EXIST. STORM MH
(TO BE REMOVED)
STA. 74+23.00, 1.33' LT
TOP 1055.39
F.L. 12" (N) 1045.04
F.L. 12" (E) 1047.47
F.L. 12" (S) 1045.20
F.L. 12" (NW) 1047.41

300.00' VC
PVI STA = 72+50
PVI ELEV = 1050.77
SSD = 314

PVT STA = 74+00
PVT ELEV = 1055.16

1054.8 | 1056.6 | 1058.2 | 1059.5 | 1060.8 | 1061.7 | 1062.3 | 1062.8 | 1062.6 | 1062.8 | 1062.7

73+50 | 74+00 | 75+00 | 76+00 | 77+00 | 78+00 | 79+00

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED | CHECKED

PLAN AND PROFILE – 16TH STREET
STA. 73+50 TO STA. 79+00

16TH STREET, SE

37
162

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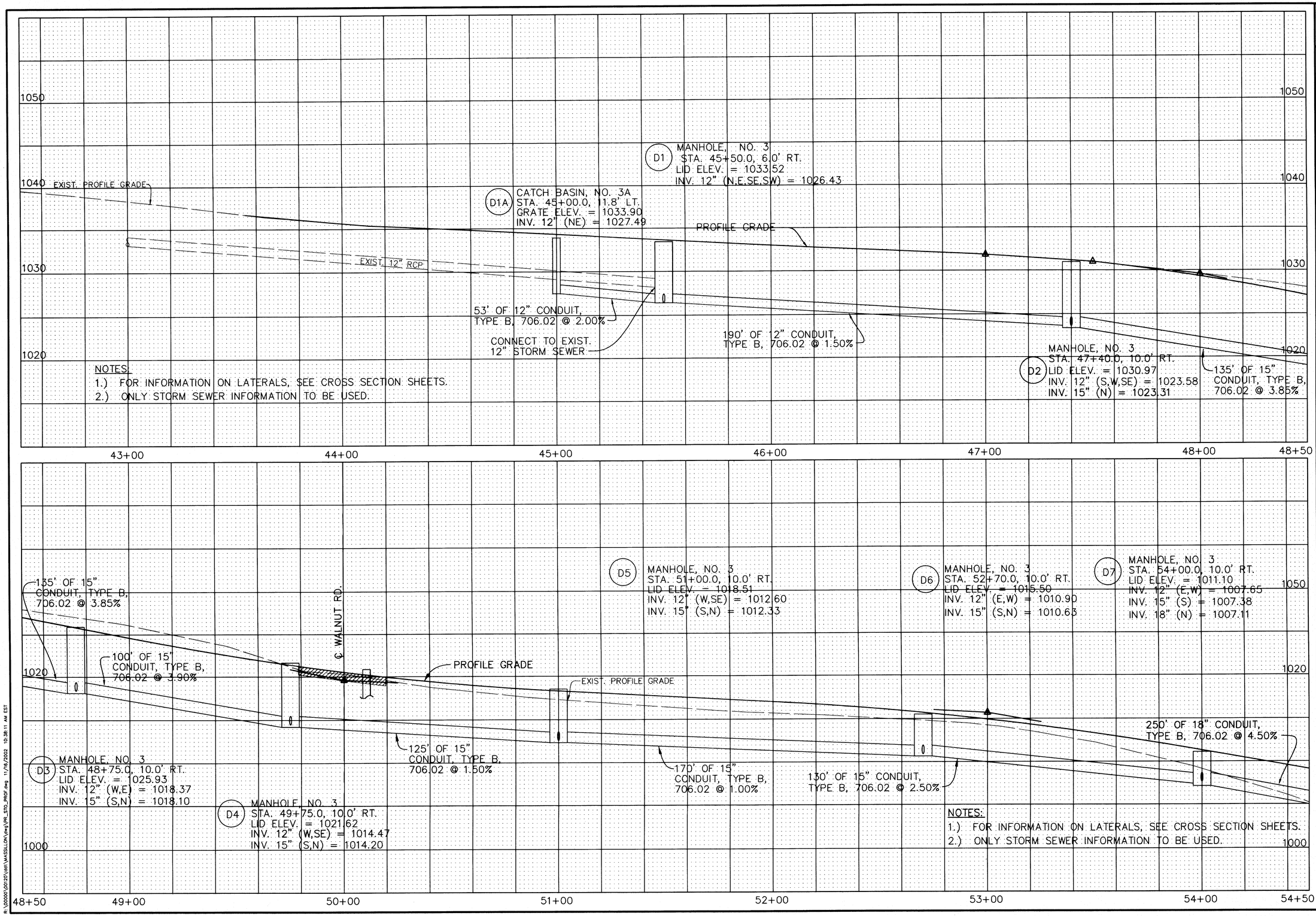

CALCULATED

CHECKED

STORM SEWER PROFILE – 16TH STREET STA. 42+50 TO STA. 54+50

16TH STREET, SE

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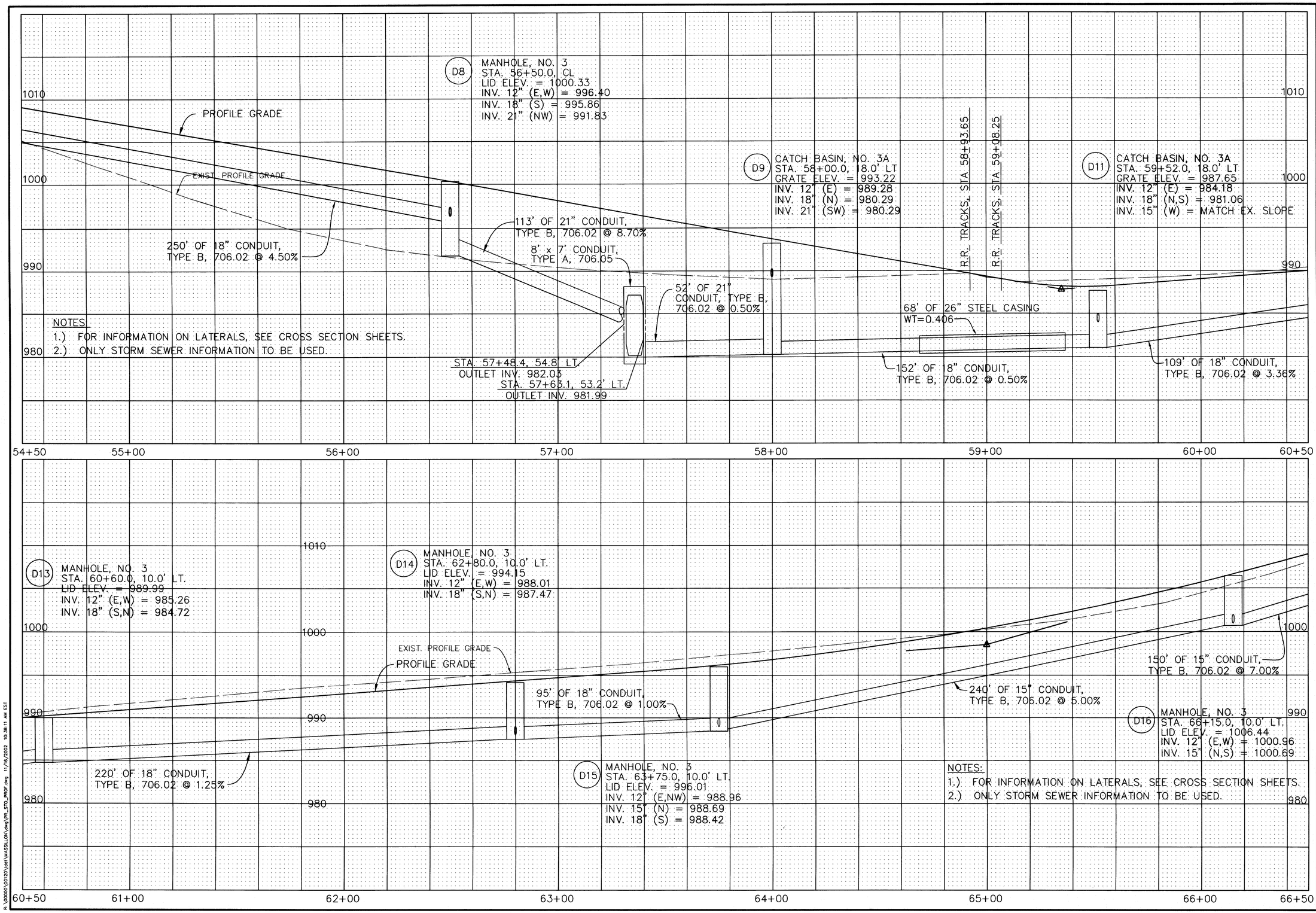

CALCULATED

CHECKED

STORM SEWER PROFILE – 16TH STREET STA. 54+50 TO STA. 66+50

16TH STREET, SE

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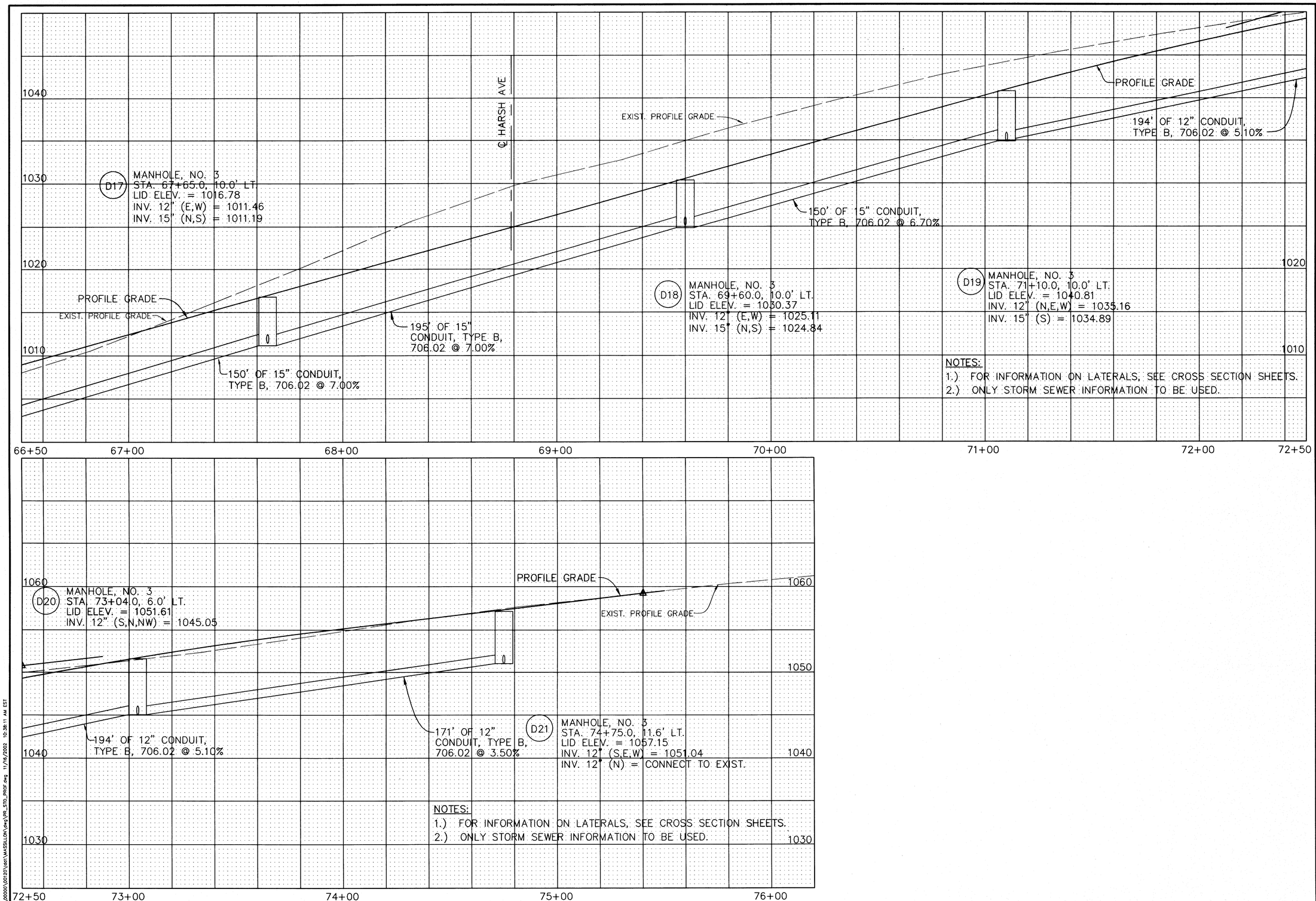

CALCULATED

CHECKED

STORM SEWER PROFILE – 16TH STREET STA. 66+50 TO END

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

EX. R/W

EX. R/W

1040

1035

1030

24:1

12:1

1034.94
44+50
1034.9

1040

1035

1030

6:1

1035.65
44+00
1035.6

1045

1040

1035

1030

24:1

6:1

1036.68
43+55
1036.7

BEGIN NEW PAVEMENT
MEET EXIST. PAVEMENT & SHOULDER
STA. 43+75.00

EX. R/W

EX. R/W

1040

1035

1030

43+00
1038.3

42+75 BEGIN WORK

SEE SHEET 27 FOR SEEDING CALCULATIONS.

−60 −50 −40 −30 −20 −10 0 10 20 30 40 50 60

END AREA		VOLUME	
CUT	FILL	CUT	FILL
32	1		
		55	2
27	1		
		43	2
AHEAD	25	1	
SHEET TOTAL		98	4

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 43+00 TO STA. 44+50

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

R/W EX. R/W EX. R/W R/W TEMP. R/W

1040 1035 1030 1025

4:1 4:1

1032.41
46+50
1032.4

TEMP. R/W

4:1 24:1

1032.99
46+00
1033.0

BEGIN NEW SIDEWALK LT. 45+55 BEGIN PROJECT

R/W

D1

D1C CATCH BASIN, NO. 3A
STA. 45+50.0, 120' LT.
GRATE ELEV. = 1033.23
INV. 12" (E) = 1026.92

D1B CATCH BASIN, NO. 3A
STA. 45+45.0, 23.4' RT.
GRATE ELEV. = 1033.07
INV. 12" (NW) = 1026.65

18' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.70%

1033.64
45+50
1033.6

18' OF 12" CONDUIT,
TYPE B, 706.02 @ 1.20%

EX. R/W EX. R/W R/W

24:1 12:1

D1A

1034.31
45+00
1034.3

SEE SHEET 27 FOR SEEDING CALCULATIONS.

−60 −50 −40 −30 −20 −10 0 10 20 30 40 50 60

END AREA		VOLUME	
CUT	FILL	CUT	FILL
42	7		
		75	7
39	1		
		70	2
37	1		
		64	2
32	1		
		59	2
SHEET TOTAL		268	13

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 45+00 TO STA. 46+50

16TH STREET, SE

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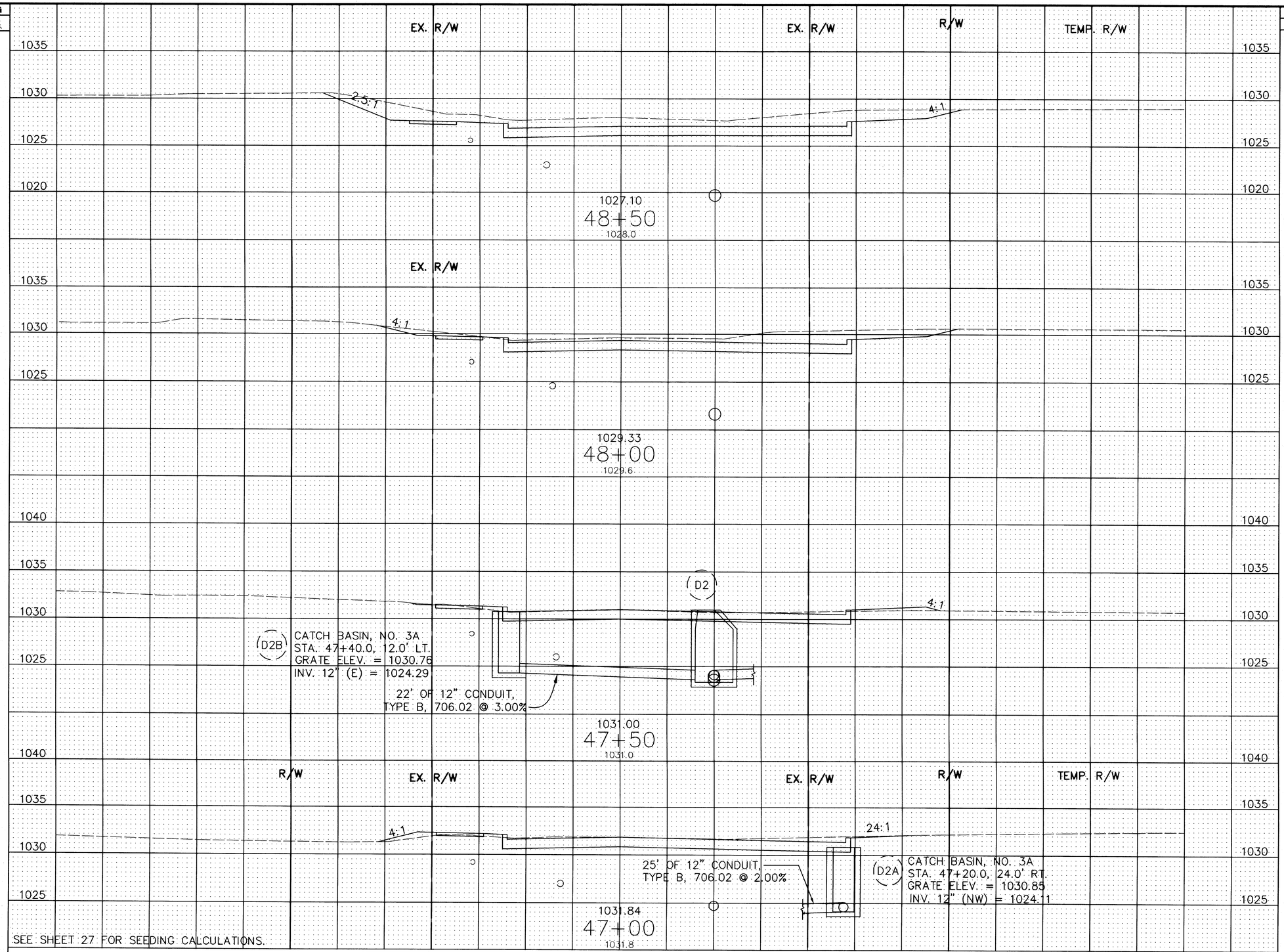
SEEDING		END AREA		VOLUME		
END WIDTH	SQ. YDS.	CUT	FILL	CUT	FILL	
		116	0			
				178	1	
		76	1			
				106	4	
		39	3			
				76	6	
		43	3			
				79	9	
SHEET TOTAL				439	20	



CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 47+00 TO STA. 48+50

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

EX. R/W

R/W

TEMP. R/W

53' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%

4:1

D5A

CATCH BASIN, NO. 3A
STA. 50+50.0, 24.0' RT.
GRATE ELEV. = 1019.61
INV. 12" (NW) = 1013.65

1019.18
50+50
1018.5

AHEAD

D4C

CATCH BASIN, NO. 3A
STA. 50+10.5, 41.1' RT.
GRATE ELEV. = 1020.85
INV. 6" (NE) = 1019.03
INV. 15" (NE) = 1018.18
INV. 15" (W) = 1017.83

EX. R/W

22' OF 15" CONDUIT, TYPE B, 706.02

4' OF 6" CONDUIT, TYPE B

4' OF 15" CONDUIT TYPE B
ADDITIONAL AT INTERSECTION

1020.52
50+00
1020.3

EXISTING BUILDING
(TO BE DEMOLISHED)

4:1

EXISTING RETAINING WALL
(TO BE REMOVED)

D4

25' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%

MATCH LINE WALNUT RD.
STA. 20+50

CATCH BASIN, NO. 3A
STA. 49+39.0, 46.5' RT.
GRATE ELEV. = 1021.83
INV. 12" (NW) = 1015.49

D4A

D4B

CATCH BASIN, NO. 3A
STA. 49+75.0, 14.4' LT.
GRATE ELEV. = 1020.20
INV. 12" (E) = 1014.96

1022.33
49+50
1023.2

52' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%

BACK

EX. R/W

EX. R/W

R/W

D3

12:1

4:1

D3A

CATCH BASIN, NO. 3A
STA. 48+75.0, 12.0' LT.
GRATE ELEV. = 1025.44
INV. 12" (E) = 1018.81

22' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%

1024.60
49+00
1026.1

CATCH BASIN, NO. 3A
STA. 48+75.0, 24.0' RT.
GRATE ELEV. = 1025.88
INV. 12" (W) = 1018.65

D3B

14' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%

SEE SHEET 27 FOR SEEDING CALCULATIONS.

−60 −50 −40 −30 −20 −10 0 10 20 30 40 50 60

END AREA		VOLUME	
CUT	FILL	CUT	FILL
8	12		
		8	0
121	0		
127	0		
		230	0
		225	0
SHEET TOTAL		463	0

CALCULATED VLB 01/02

CHECKED JHE 03/02

CROSS SECTIONS
STA. 49+00 TO STA. 50+50

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

TEMP. R/W R/W EX. R/W EX. R/W R/W TEMP. R/W

EXISTING RETAINING WALL (DO NOT DISTURB)

EXISTING BUILDING (DO NOT DISTURB)

D6

2.5:1 4:1

D6A CATCH BASIN, NO. 3A
STA. 52+70.0, 12.0' LT.
GRATE ELEV. = 1015.29
INV. 12" (E) = 1011.34
22' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%

1016.15
52+50
1015.0

D6B CATCH BASIN, NO. 3A
STA. 52+70.0, 24.0' RT.
GRATE ELEV. = 1015.05
INV. 12" (W) = 1011.18
14' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%

1016.99
52+00
1015.7

1017.65
51+50
1016.4

D5

4:1 4:1

22' OF 12" CONDUIT, TYPE B, 706.02 @ 2.10%

D5B CATCH BASIN, NO. 3A
STA. 51+00.0, 12.1' LT.
GRATE ELEV. = 1017.88
INV. 12" (E) = 1013.06

1018.30
51+00
1017.3

SEE SHEET 27 FOR SEEDING CALCULATIONS.

−60 −50 −40 −30 −20 −10 0 10 20 30 40 50 60

END AREA		VOLUME	
CUT	FILL	CUT	FILL
12	56		
		14	112
3	65		
		5	112
2	56		
		6	85
4	36		
		11	44
SHEET TOTAL		36	353

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 51+00 TO STA. 52+50

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

R/W
EX. R/W
EX. R/W
R/W
TEMP. R/W
1015
1010
1005
1000
4:1
24:1
1009.11
54+50
1005.2
1020
EX. R/W
EX. R/W
EXISTING RETAINING WALL (DO NOT DISTURB)
(D7)
4:1
8:1
(D7A) CATCH BASIN, NO. 3A
STA. 54+00.0, 12.0' LT.
GRATE ELEV. = 1010.89
INV. 12" (E) = 1008.09
22' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%
14' OF 12" CONDUIT, TYPE B, 706.02 @ 1.20%
(D7B) CATCH BASIN, NO. 3A
STA. 54+00.0, 24.0' RT.
GRATE ELEV. = 1010.65
INV. 12" (W) = 1007.82
1011.30
54+00
1009.1
EX. R/W
EX. R/W
3:1
EXISTING RETAINING WALL (DO NOT DISTURB)
1013.30
53+50
1012.2
TEMP. R/W
R/W
EX. R/W
EX. R/W
R/W
EXISTING HOUSE (DO NOT DISTURB)
4:1
24:1
EXISTING RETAINING WALL (DO NOT DISTURB)
1014.92
53+00
1014.3
SEE SHEET 27 FOR SEEDING CALCULATIONS.
−60 −50 −40 −30 −20 −10 0 10 20 30 40 50 60

END AREA		VOLUME	
CUT	FILL	CUT	FILL
4	129		
		4	188
0	74		
13	68		
		12	131
22	52		
		32	111
		31	100
SHEET TOTAL		79	530

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 53+00 TO STA. 54+50
16TH STREET, SE

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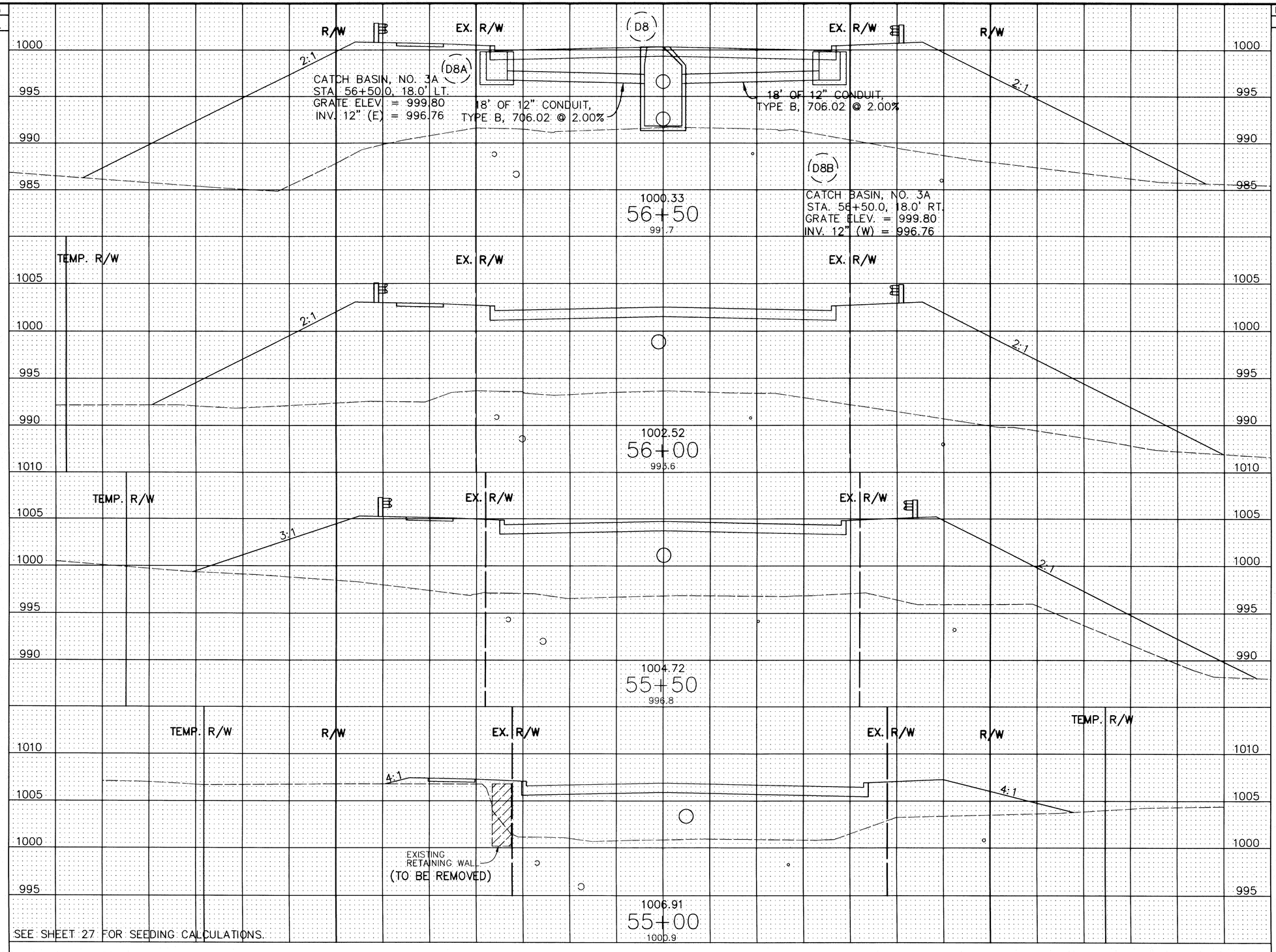
SEEDING	
END WIDTH	SQ. YDS.



SEE SHEET 27 FOR SEEDING CALCULATIONS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	941		
		0	1667
0	859		
		0	1387
0	639		
		0	830
0	257		
		4	357
SHEET TOTAL			
		4	4241

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 55+00 TO STA. 56+50

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

TEMP. R/W R/W EX. R/W

SUSPEND PROJECT STA. 58+80.77
SUSPEND CONC. CURB AND SIDEWALK

EX. R/W R/W TEMP. R/W

SANITARY MANHOLE NO. 3
STA. 58+30.59, 5.59' RT.

BACK
STA. 58+80.77

995 990 985 980

2:1 3:1

991.55
58+50
989.3

TEMP. R/W

995 990 985

2:1 2:1

D9 D10

36' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.00%

CATCH BASIN, NO. 3A
STA. 58+00.0, 18.0' RT.
GRATE ELEV. = 993.22
INV. 12" (W) = 990.00

993.75
58+00
989.0

AHEAD

995 990 985

2:1 2:1

INCLUDES ADDITIONAL 86 C.Y. FILL AT CULVERT

EXIST. GRADE

PROFILE ALONG ℄ OF PROPOSED 8'x7' CULVERT

F.L.=979.76

995.94
57+50
989.6

SEE SHEETS 90-92 FOR DETAILS

F.L.=980.29 BACK

R/W EX. R/W EX. R/W R/W

1000 995 990 985

2:1 2:1

F.L.=984.00

998.13
57+00
990.4

SEE SHEET 27 FOR SEEDING CALCULATIONS.

−60 −50 −40 −30 −20 −10 0 10 20 30 40 50 60

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
	27	78		
			17	151
	0	158		
			0	442
	0	319		
			0	892
	0	551		
			0	1299
	0	852		
			0	1660
SHEET TOTAL			17	4444

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 57+00 TO STA. 58+50

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
56	1		
		106	2
59	1		
		114	8
64	8		
		49	10
55	17		
SHEET TOTAL		269	20

CALCULATED V.LB 01/02
CHECKED JHE 03/02

TEMP. R/W
EX. R/W
R/W
12:1
4:1
(D13) (D13A) (D13B)
CATCH BASIN, NO. 3A
STA. 60+60.0, 18.0' LT.
GRATE ELEV. = 989.66
INV. 12" (E) = 985.42
8' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%
28' OF 12" CONDUIT, TYPE B, 706.02 @ 2.00%
EXIST. 10" SAN.
CATCH BASIN, NO. 3A
STA. 60+60.0, 18.0' RT.
GRATE ELEV. = 989.66
INV. 12" (N,W) = 985.82
990.00
60+50
990.4
989.05
60+00
989.5
SANITARY MANHOLE NO. 3
STA. 59+44.84
SANITARY MANHOLE NO. 3
STA. 59+57.18, 6.68' RT.
36' OF 12" CONDUIT, TYPE B, 706.02 @ 1.75%
(D11) (D12)
4' OF 15" CONDUIT, TYPE B, 706.02
9' OF 15" CONDUIT, TYPE B, 706.02
CATCH BASIN, NO. 3A
STA. 59+52.0, 18.0' RT.
GRATE ELEV. = 987.65
INV. 12" (W) = 984.81
988.17
59+50
989.0
RESUME PROJECT STA. 59+27.80
RESUME CURB AND SIDEWALK
STA. 59+27.80 AHEAD
RUBBER GRADE CROSSING SYSTEM
989.36
59+00
989.2
995
990
985
980
-60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60

SEE SHEET 27 FOR SEEDING CALCULATIONS.

CROSS SECTIONS
STA. 59+00 TO STA. 60+50

16TH STREET, SE

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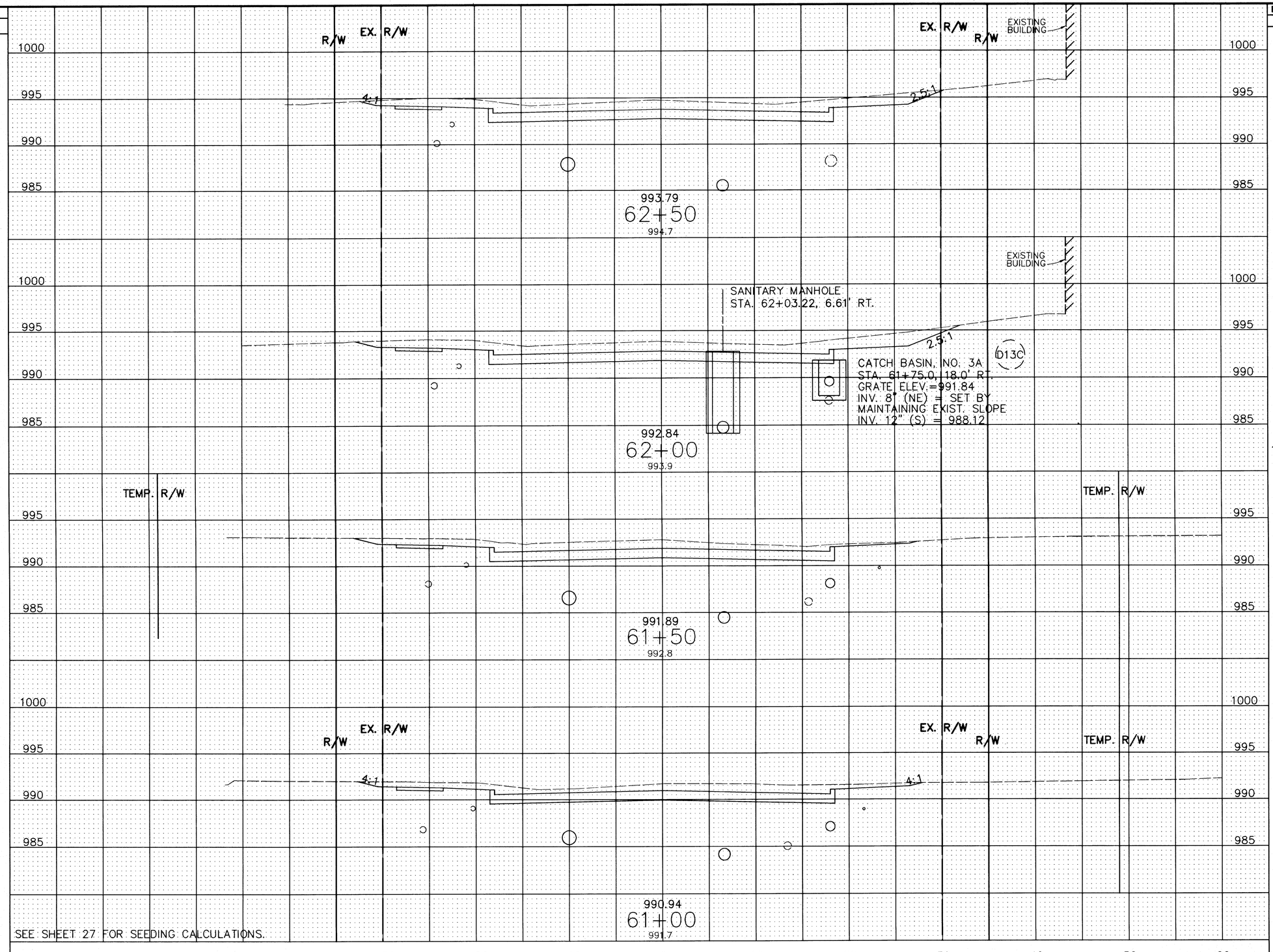
SEEDING	
END WIDTH	SQ. YDS.



SEE SHEET 27 FOR SEEDING CALCULATIONS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
95	0		
		186	0
106	0		
78	0		
		170	0
77	0		
		144	0
		123	1
SHEET TOTAL		623	1

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 61+00 TO STA. 62+50

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

EX. R/W
R/W
TEMP. R/W
3:1
4:1
998.42
64+50
999.0
2.5:1
D15C
CATCH BASIN, NO. 6
STA. 64+15.0, 18.0' RT.
GRATE ELEV. = 996.87
INV. 8" (NE,E) = *
INV. 12" (SE,SW) = *
INV. 12" (S) = 990.32
* SET BY MAINTAINING EXIST. SLOPE
996.84
64+00
997.8
D15
D15B
CATCH BASIN, NO. 3A
STA. 63+90.0, 18.0' LT
GRATE ELEV. = 996.04
INV. 12" (SE) = 989.30
17' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.10%
28' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.00%
D15A
CATCH BASIN, NO. 3A
STA. 63+75.0, 18.0' RT.
GRATE ELEV. = 995.68
INV. 12" (W,N) = 989.52
995.68
63+50
996.7
D14
D14A
CATCH BASIN, NO. 3A
STA. 62+80.0, 18.0' LT.
GRATE ELEV. = 993.82
INV. 12" (E) = 988.17
8' OF 12" CONDUIT
TYPE B, 706.02 @ 2.00%
28' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.00%
D14B
CATCH BASIN, NO. 3A
STA. 62+80.0, 18.0' RT.
GRATE ELEV. = 993.82
INV. 12" (W) = 988.57
994.73
63+00
995.7

SEE SHEET 27 FOR SEEDING CALCULATIONS.

−60 −50 −40 −30 −20 −10 0 10 20 30 40 50 60

END AREA		VOLUME	
CUT	FILL	CUT	FILL
65	3		
		143	3
89	0		
		170	0
95	0		
		172	0
91	0		
		172	0
SHEET TOTAL		657	3

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 63+00 TO STA. 64+50

16TH STREET, SE

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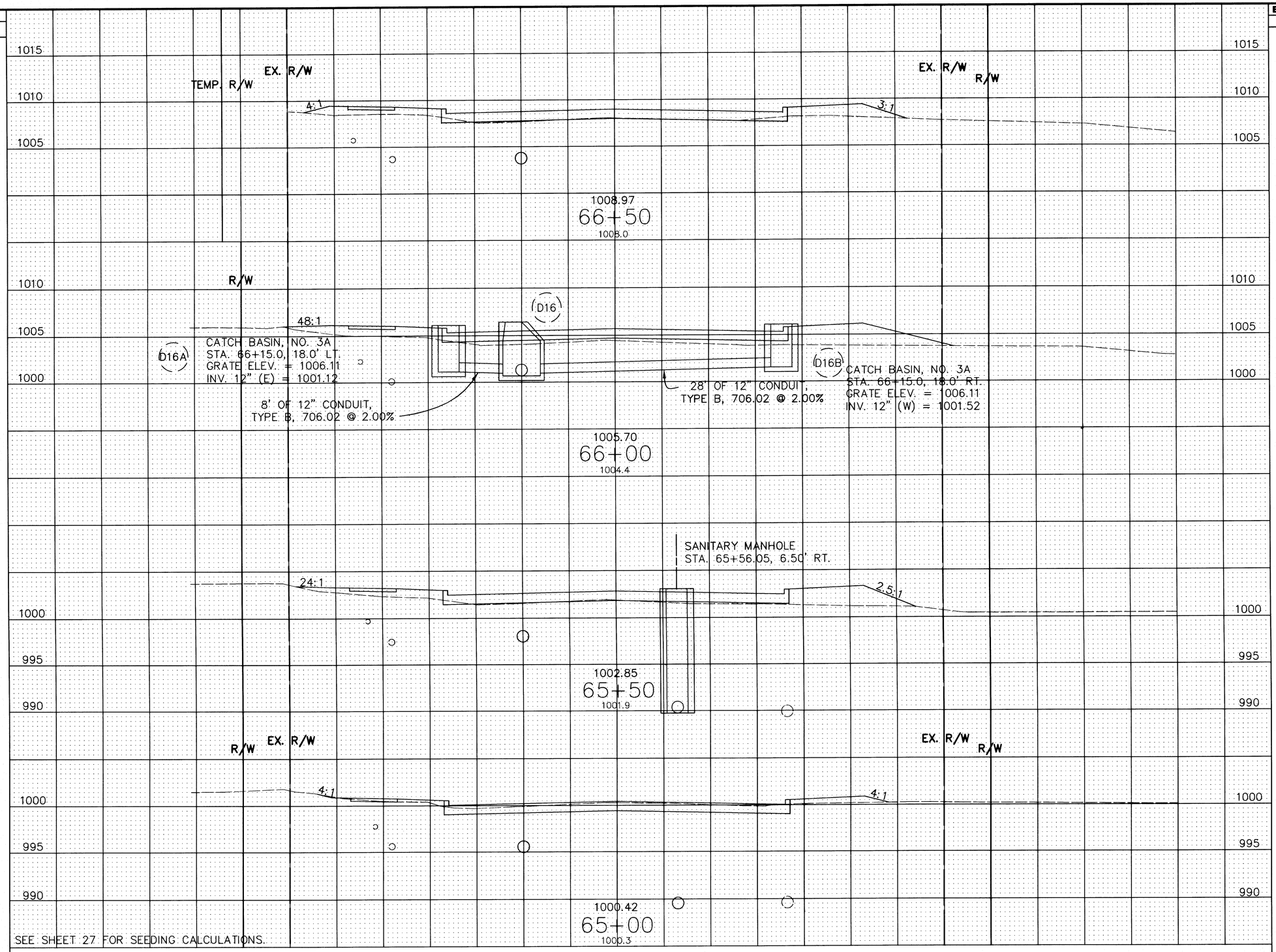
SEEDING	
END WIDTH	SQ. YDS.



SEE SHEET 27 FOR SEEDING CALCULATIONS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
3	24		
		4	72
1	54		
		2	80
1	32		
		29	36
30	7		
		88	9
SHEET TOTAL		123	197

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 65+00 TO STA. 66+50

16TH STREET, SE

52
162

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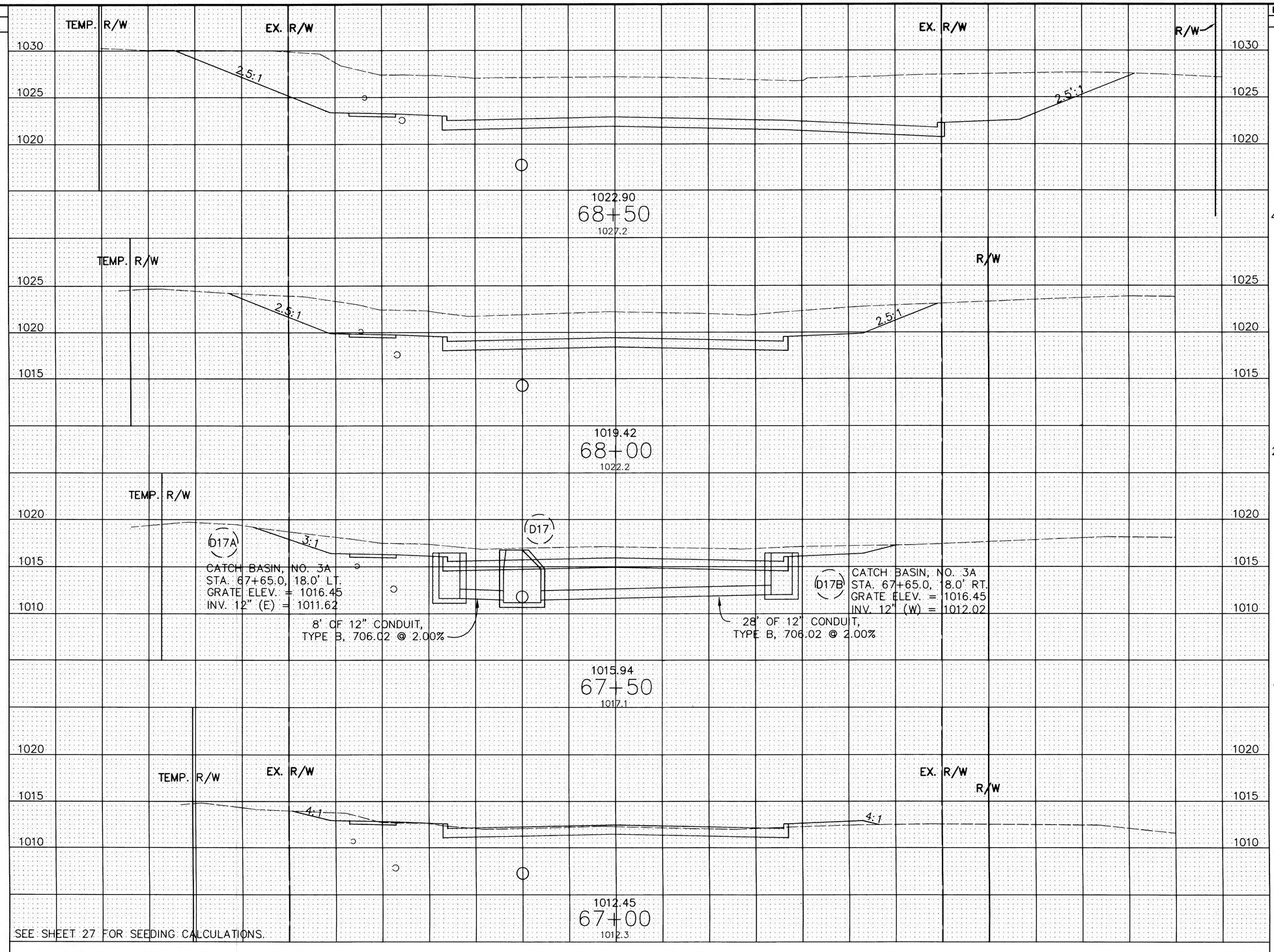
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
480	0		
		659	0
232	0		
		324	0
118	0		
		144	4
38	4		
		38	26
SHEET TOTAL		1165	30

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 67+00 TO STA. 68+50

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
465	0		
		925	0
534	0		
		968	0
511	0		
		880	0
439	0		
		851	0
		3624	0

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 69+00 TO STA. 70+50

16TH STREET, SE

1050 1045 1040 1035 1030 1025 1020

TEMP. R/W
EX. R/W
R/W
2.5:1

1036.84
70+50
1040.9

1033.35
70+00
1037.8

D18A
CATCH BASIN, NO. 3A
STA. 69+60.0, 18.0' LT.
GRATE ELEV. = 1030.04
INV. 12" (E) = 1025.27
8' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.00%

D18

D18B
CATCH BASIN, NO. 3A
STA. 69+60.0, 18.0' RT.
GRATE ELEV. = 1030.04
INV. 12" (W) = 1025.67
28' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.00%

1029.87
69-50
1034.2

AHEAD

RANGING PROFILE HARSH AVENUE (RIGHT SIDE ONLY)

BACK

1025.05
69+00
1031.0

SEE SHEET 27 FOR SEEDING CALCULATIONS.

-70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50

SHEET TOTAL

SHEET TOTAL

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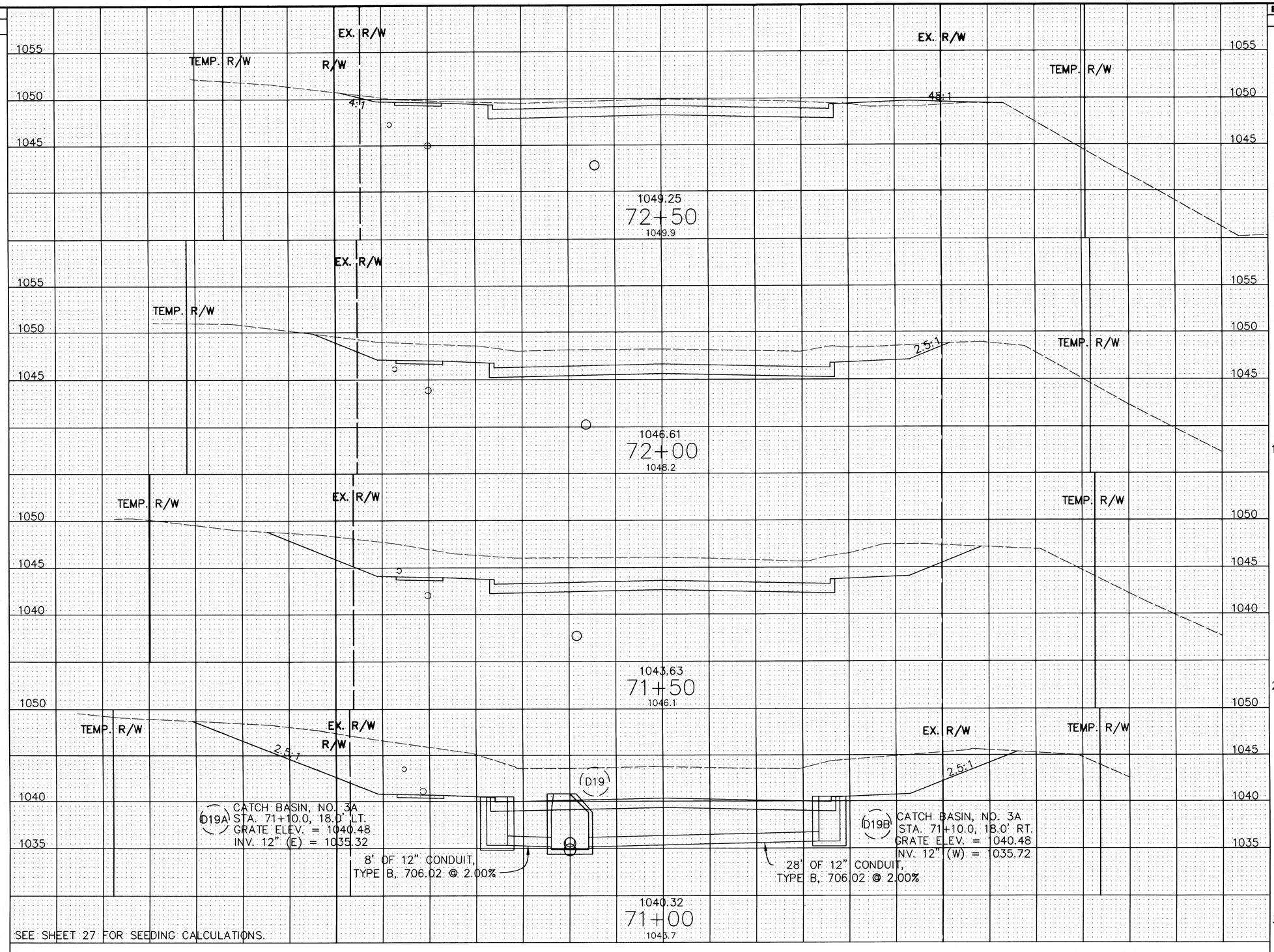
SEEDING	
END WIDTH	SQ. YDS.



SEE SHEET 27 FOR SEEDING CALCULATIONS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
67	3		
144	0	195	3
229	0	345	0
355	0	541	0
		759	0
SHEET TOTAL		1840	3

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 71+00 TO STA. 72+50

16TH STREET, SE

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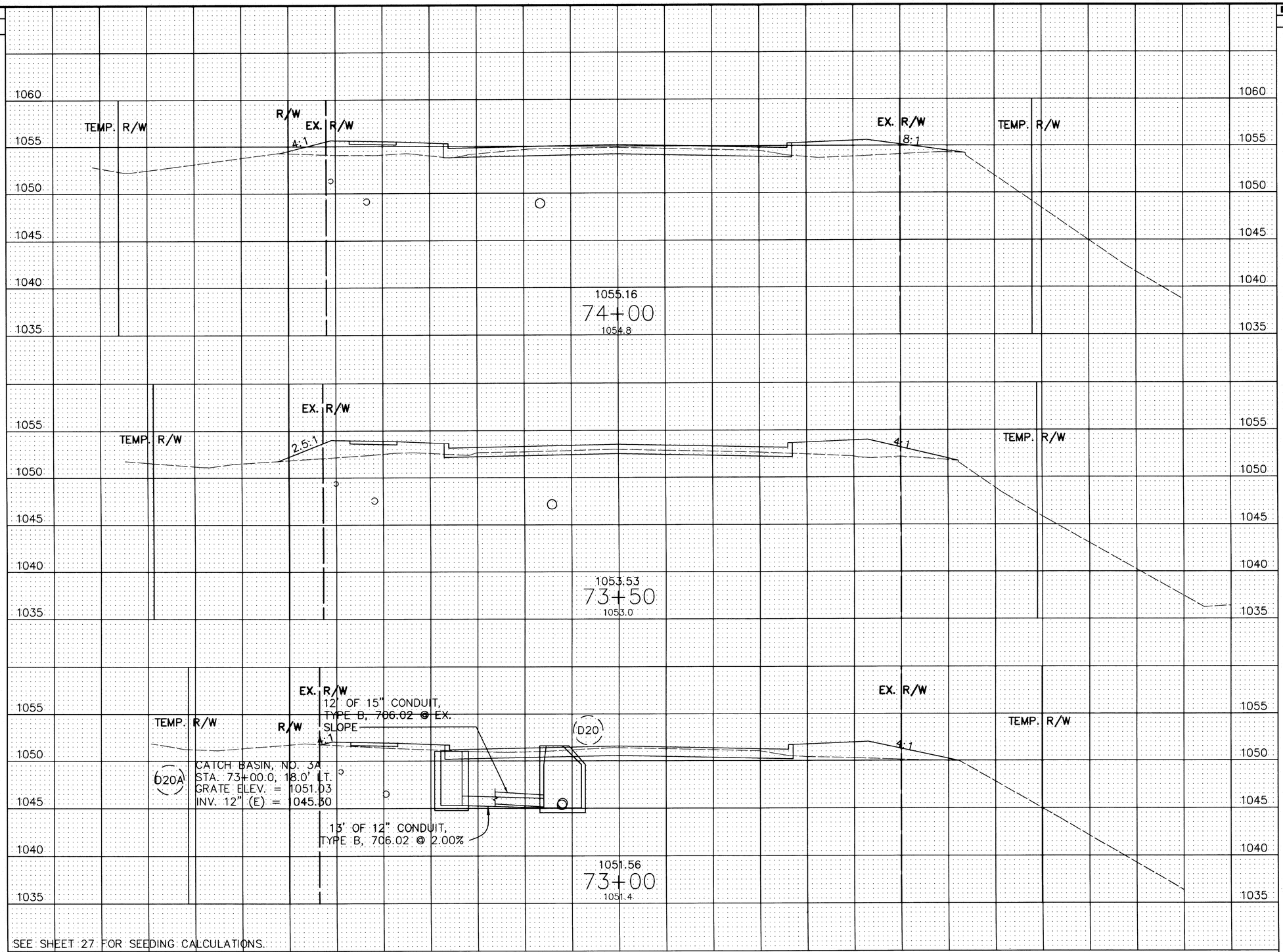
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
21	38		
		33	72
15	40		
		39	59
27	24		
		87	25
SHEET TOTAL		159	156

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 73+00 TO STA. 74+00

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

R/W EX. R/W

75+80 END RESURFACING

EX. R/W TEMP. R/W

12:1

1059.52
75+50 END NEW PAVEMENT
1059.5 END PROJECT

D21

D21A CATCH BASIN, NO. 3A
STA. 74+75.0, 18.0' LT.
GRATE ELEV. = 1056.82
INV. 12" (E) = 1051.20

6' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.00%

29' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.00%

D21B CATCH BASIN, NO. 3A
STA. 74+75.0, 18.0' RT.
GRATE ELEV. = 1056.82
INV. 12" (W) = 1051.60

TEMP. R/W

1058.08
75+00
1058.2

R/W EX. R/W

EX. R/W TEMP. R/W

12:1

1056.62
74+50
1056.6

SEE SHEET 27 FOR SEEDING CALCULATIONS.

−50 −40 −30 −20 −10 0 10 20 30 40 50 60

END AREA		VOLUME	
CUT	FILL	CUT	FILL
37	16		
		74	25
43	11		
		72	32
35	24		
		52	57
SHEET TOTAL		198	114

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 74+50 TO STA. 75+50

16TH STREET, SE

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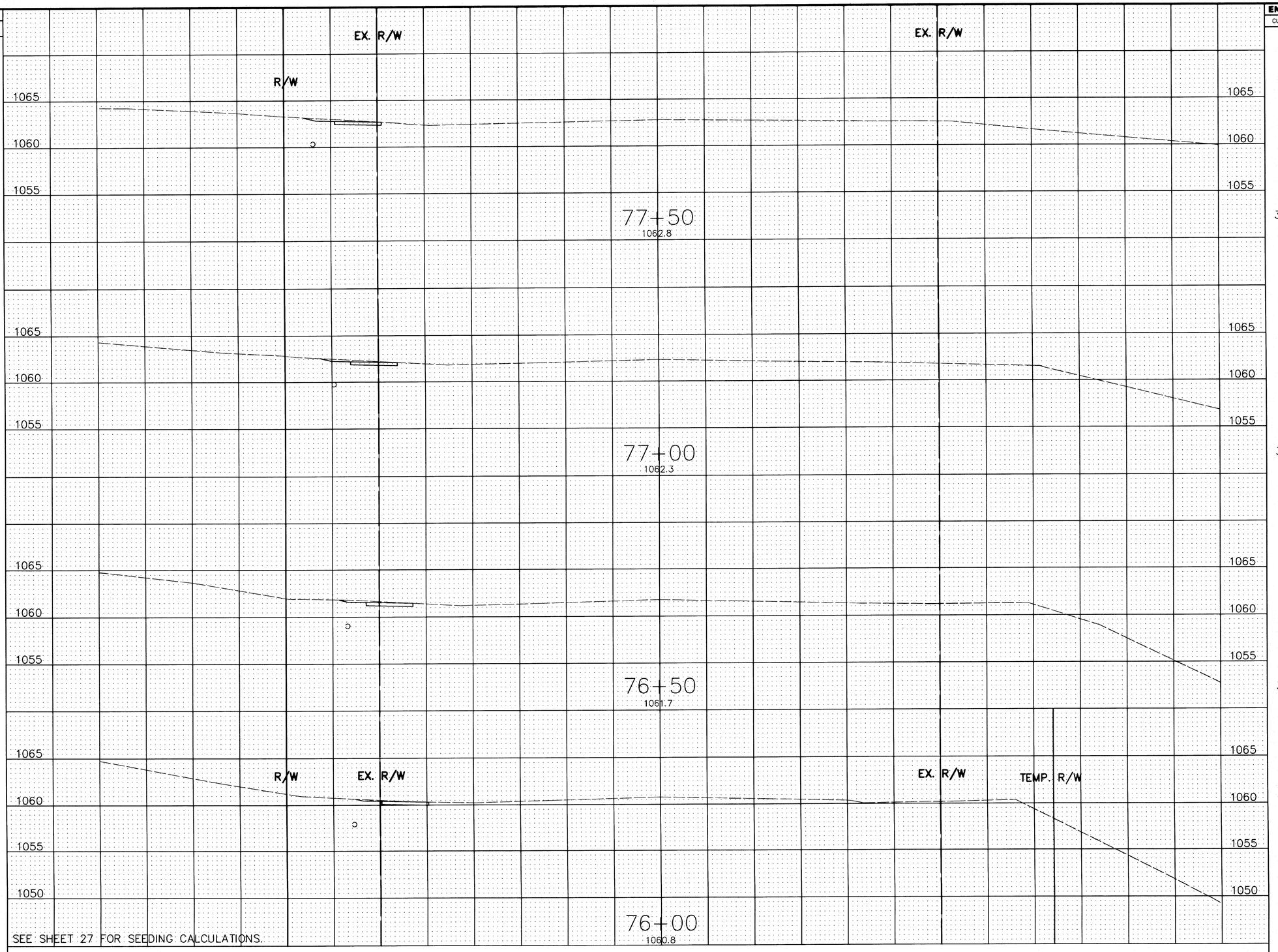
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
3	0		
		6	0
3	0		
		6	0
3	0		
		5	0
2	0		
		36	15
SHEET TOTAL		53	15

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS
STA. 76+00 TO STA. 77+50

16TH STREET, SE

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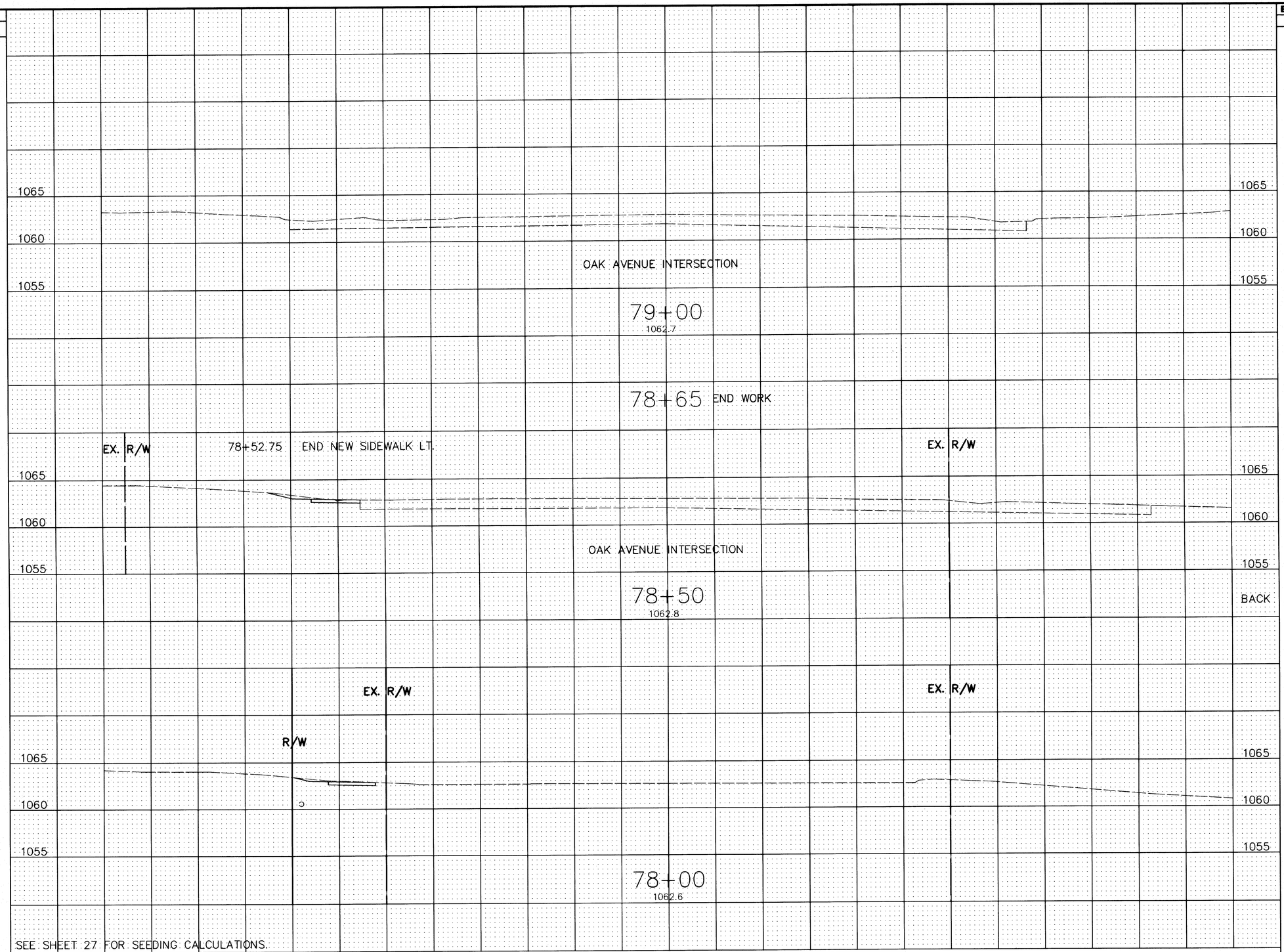
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED VLB 01/02

CHECKED JHE 03/02

CROSS SECTIONS
STA. 78+00 TO STA. 79+00
16TH STREET, SE



BACK	3	0			
	2	0	5	0	
			5	0	
SHEET TOTAL			10	0	

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BM-1
NW CORNER OF CONCRETE PAD IN FRONT OF VACANT BUILDING SE CORNER 16TH ST. & WALNUT ROAD
ELEV.=1031.84
STA. 47+99.97, 120.00' RT.

BEGIN WORK STA. 13+80.00

12'-12" CONDUIT TYPE B 706.02 @ EXIST. SLOPE

CITY OF MASSILLON

CITY OF MASSILLON YOUTH CENTER

CONSTRUCTION OF S.E. 15TH ST.

CITY OF MASSILLON

MARIAN J. LONGSHORE

DAMARIS A. RICHARDSON & SHEVAWN Y. GIBSON

LAWTON ST. S.E.

PROVIDE POSITIVE OUTLET

1 STORY #1508

2 STORY #1522

PORCH

BRICK WALL

CONSTRUCTION LIMITS

EX. R/W

ALLEY

CONC. SIDEWALK

4" GAS

CONC.

4" PVC

24"

18" VCP

12" CMP

(REMOVE) 12" VCP

(REMOVE) 8" VCP

40"

12" VCP

15" VCP

8" VCP

SAN

S65°10'22"E

14+00

15+00

16+00

17+00

+27.50

+30.00

+35.00

+60.00 BEGIN NEW PAVEMENT

28'

16.4'

16'±

16.0

18'

BEGIN PAVEMENT TAPER
16.33'± LT. & 16'± RT.
STA. 14+60

END PAVEMENT TAPER
18' LT. & RT. STA. 15+35

℄ CONSTRUCTION & EXIST. R/W
WALNUT ROAD

BRICK/ASPHALT

CONC.

6" GAS

LANDSCAPE

CONCRETE

OPEN PORCH

2 STORY #1519

2 STORY #1525

SYLVESTER E. & RHONDA L. MORGAN

+60.50

RES. #1439

RES. #1513

NICK & DIANA M. TURNER

CORINE K. & TONY ZIZES

GRAVEL

CONCRETE WALL

+75.50

MATCH LINE STA. 18+00

CR 11 CR 12 CR 13 CR 14 CR 15 CR 16 CR 17 CR 18

D22 D23 D24 D25

R43 R44 R45 R46 R47 R48 R49

DR 18 DR 19

* TAPER CURB HEIGHT FROM 6" TO 0" IN 10'

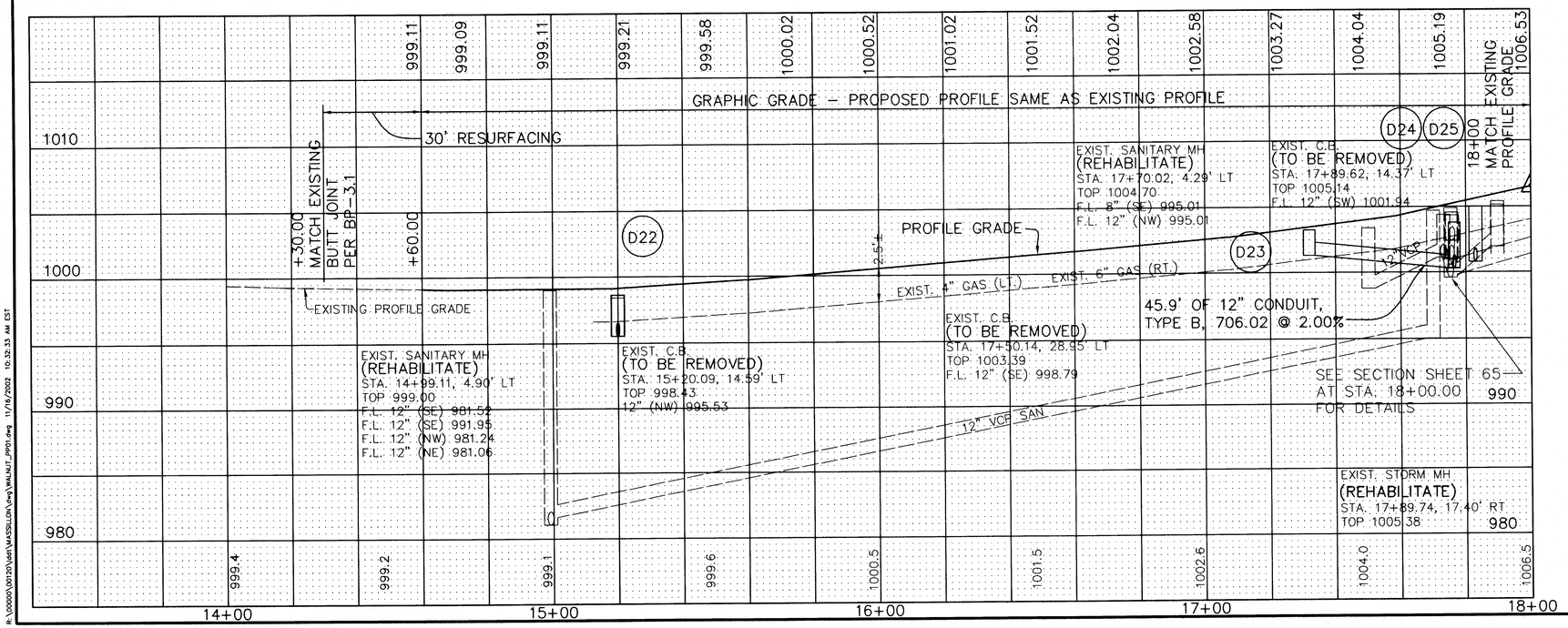
** SHIFT SIDEWALK 1' RT. STARTING AT STA. 16+01.06 AND ENDING AT STA. 16+11.06 TO AVOID CONFLICT WITH CONCRETE WALL.

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
78	INTERSECTION DETAIL
80	DRIVE DETAILS
85	LAWTON ST. PROFILE

LEGEND

▨ ITEM 202-1 1/4" WEARING COURSE REMOVED AND RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 OVER 407 TACK COAT.

NOTES:
1.) FOR INFORMATION ON 15TH STREET, ALLEY AT 15+75.50 LT., AND ALLEY AT 16+27.50 RT. SEE INTERSECTION DETAILS AND DRIVEWAY PROFILES.



PLAN AND PROFILE – WALNUT ROAD
STA. 13+50 TO STA. 18+00

16TH STREET, SE

HORIZONTAL SCALE IN FEET 0 10 20 40

CALCULATED CHECKED

60
162

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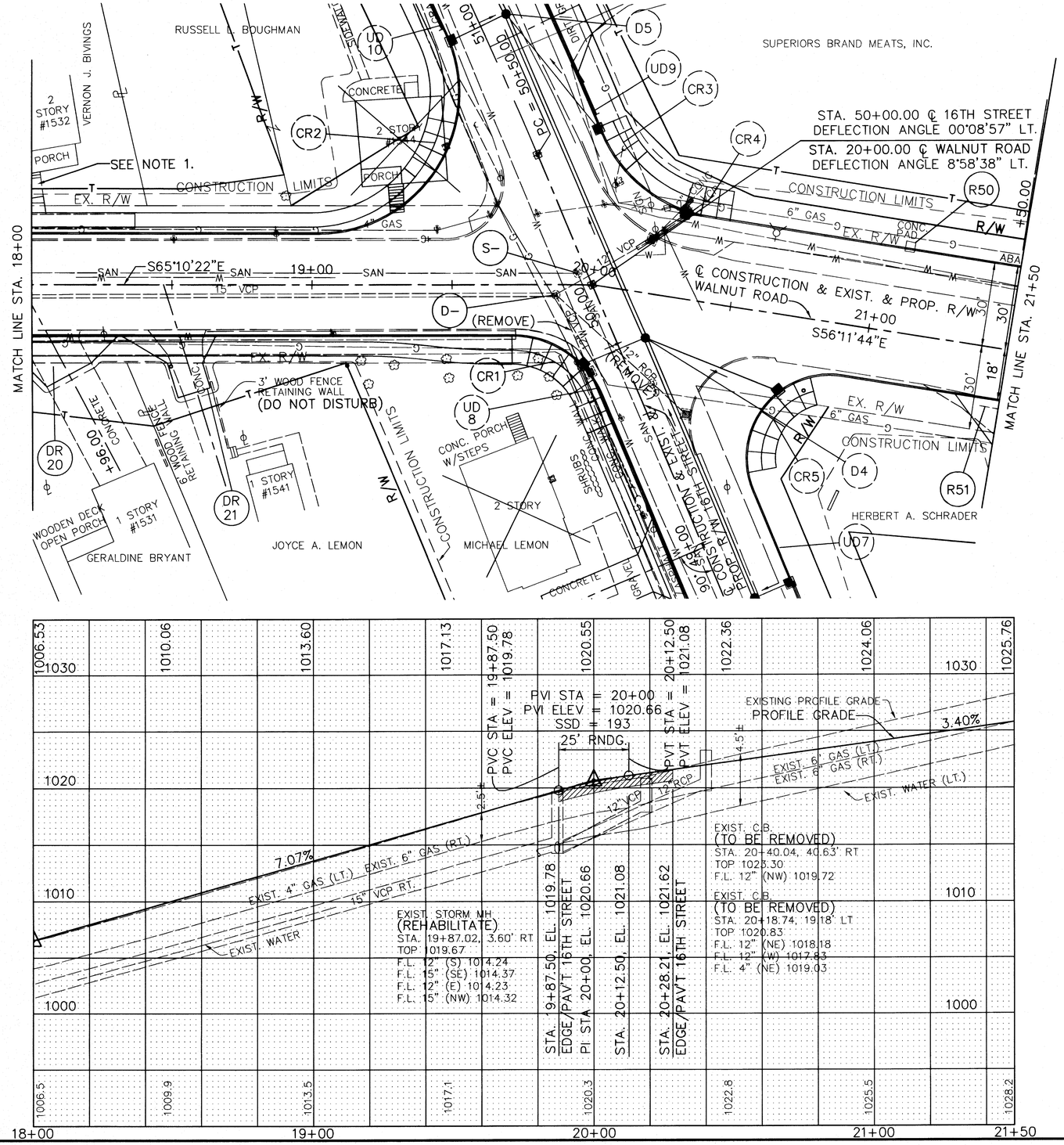
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
76	INTERSECTION DETAIL
80	DRIVE DETAILS

NOTES:
1.) REMOVE EXISTING WALK AND CONSTRUCT 5' NEW SIDEWALK AT EXISTING WIDTH TO MATCH PROPOSED SIDEWALK.



N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED | CHECKED

PLAN AND PROFILE – WALNUT ROAD STA. 18+00 TO STA. 21+50

16TH STREET, SE

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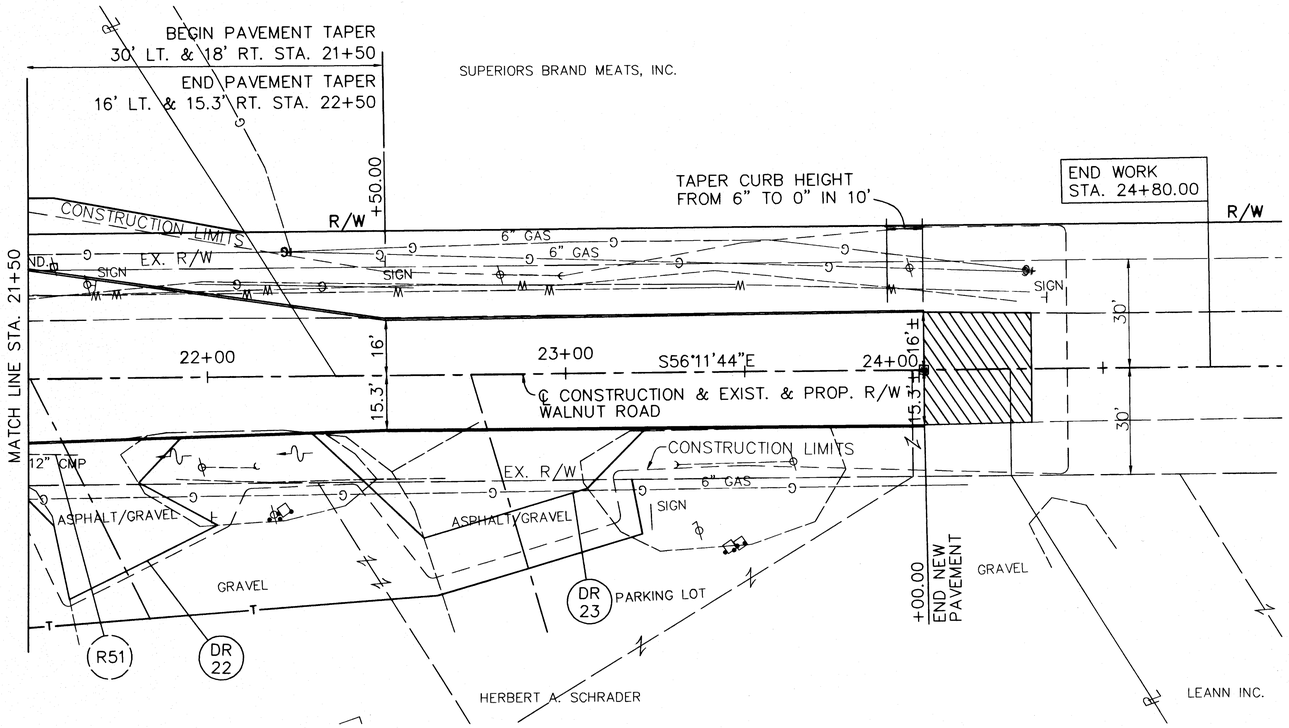

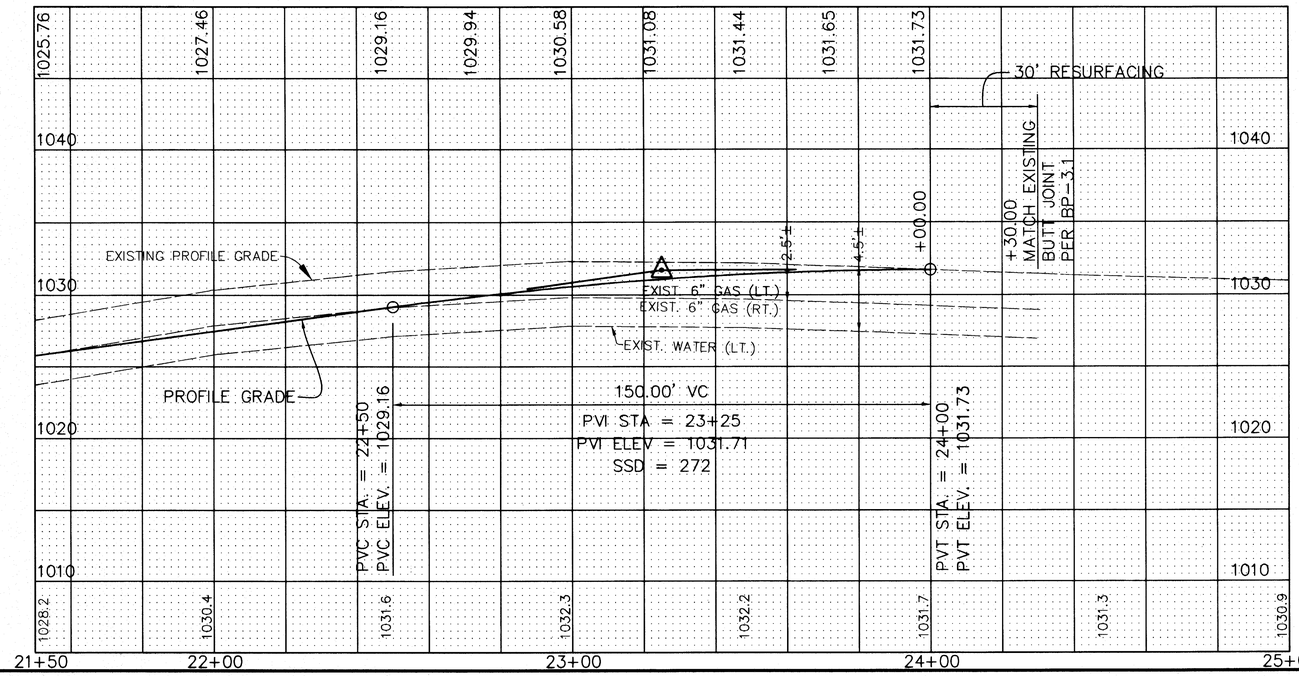

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
80	DRIVE DETAILS

LEGEND

▨ ITEM 202–1 1/4" WEARING COURSE REMOVED AND RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22 OVER 407 TACK COAT.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED | CHECKED

PLAN AND PROFILE – WALNUT ROAD STA. 21+50 TO STA. 25+00

16TH STREET, SE

62
162

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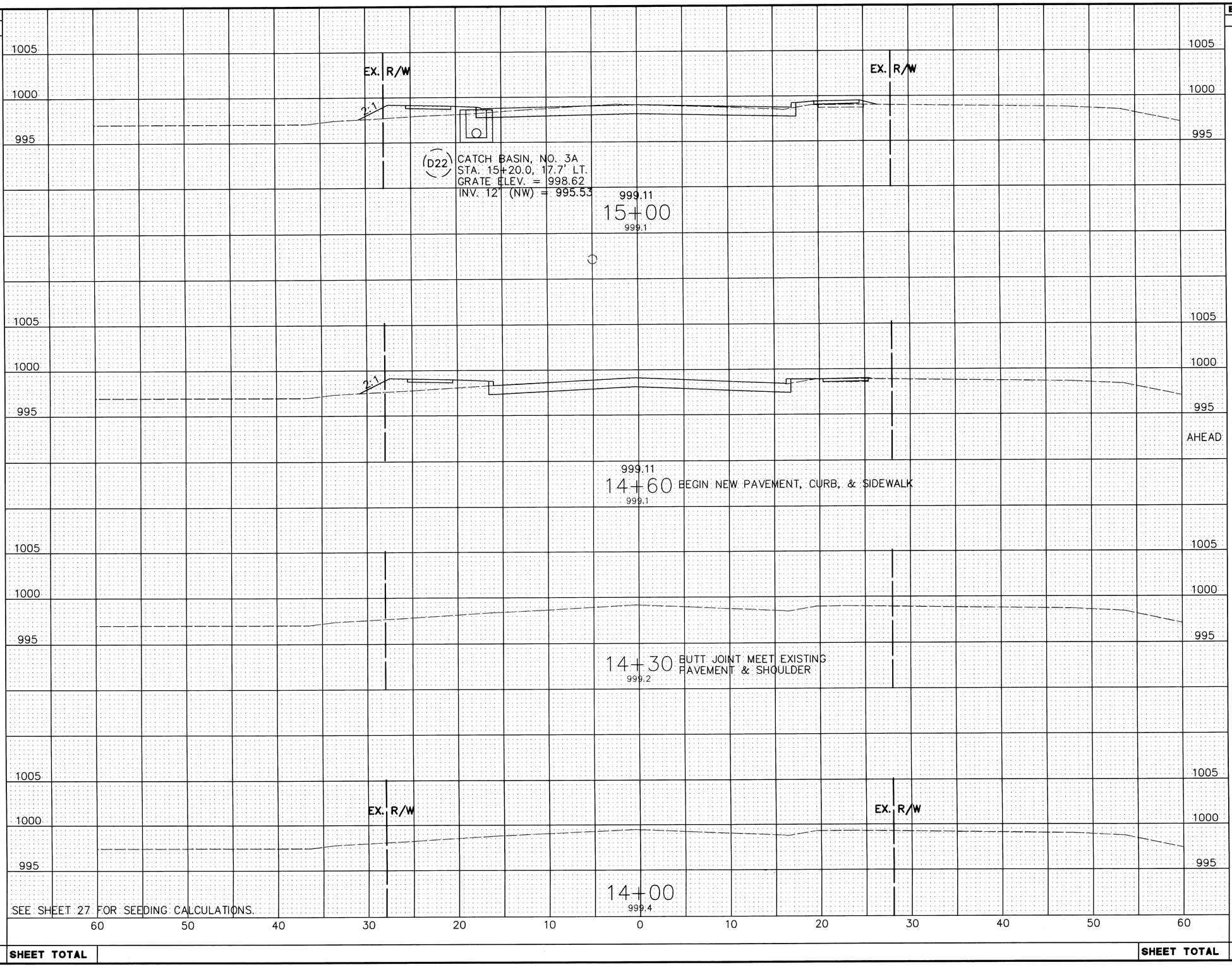
SEEDING	
END WIDTH	SQ. YDS.



SEE SHEET 27 FOR SEEDING CALCULATIONS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
31	15		
		47	21
AHEAD 33	13		
SHEET TOTAL		47	21

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS - WALNUT ROAD STA. 14+00 TO STA. 15+00

16TH STREET, SE

63
162

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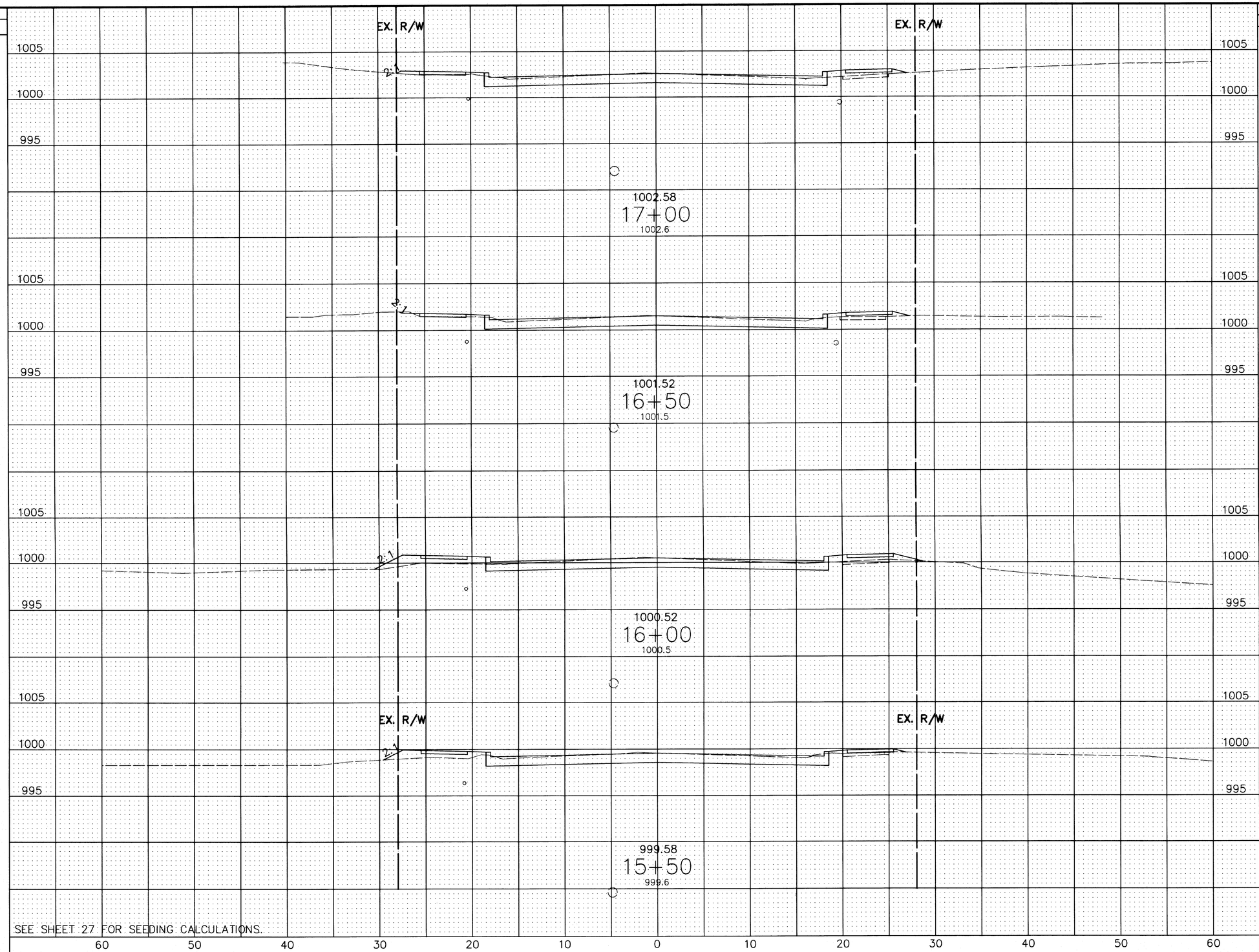
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
33	6		
		62	10
33	5		
		60	19
32	16		
		61	23
35	9		
		61	22
SHEET TOTAL		244	74

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS - WALNUT ROAD
STA. 15+50 TO STA. 17+00

16TH STREET, SE

64
162

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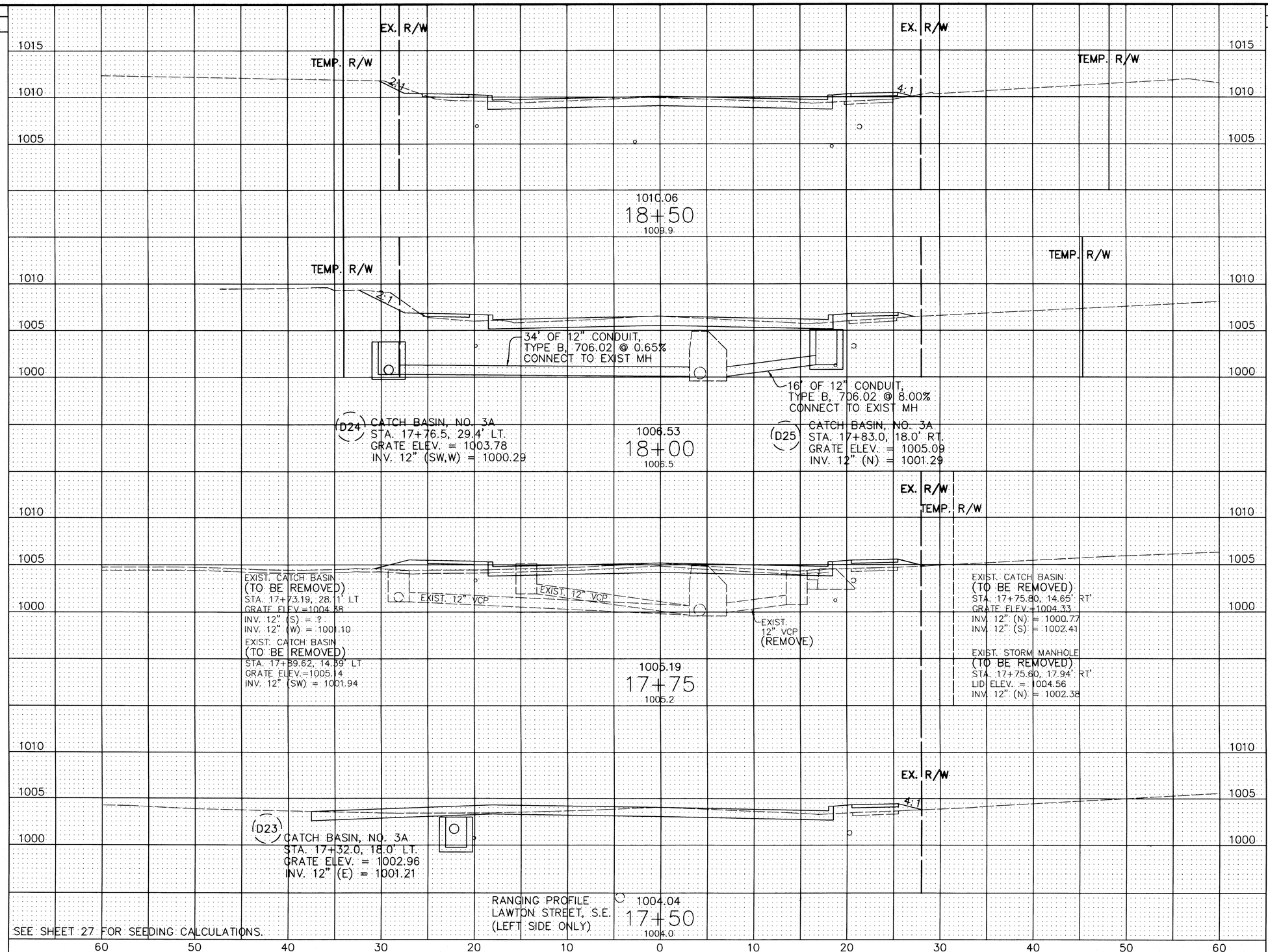
SEEDING	
END WIDTH	SQ. YDS.



SEE SHEET 27 FOR SEEDING CALCULATIONS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
28	9		
31	9	55	17
27	8	27	8
24	7	24	7
24	7	53	12
SHEET TOTAL		159	44

CALCULATED V.L.B 01/02
CHECKED J.H.E 03/02

CROSS SECTIONS - WALNUT ROAD
STA. 17+50 TO STA. 19+00

16TH STREET, SE

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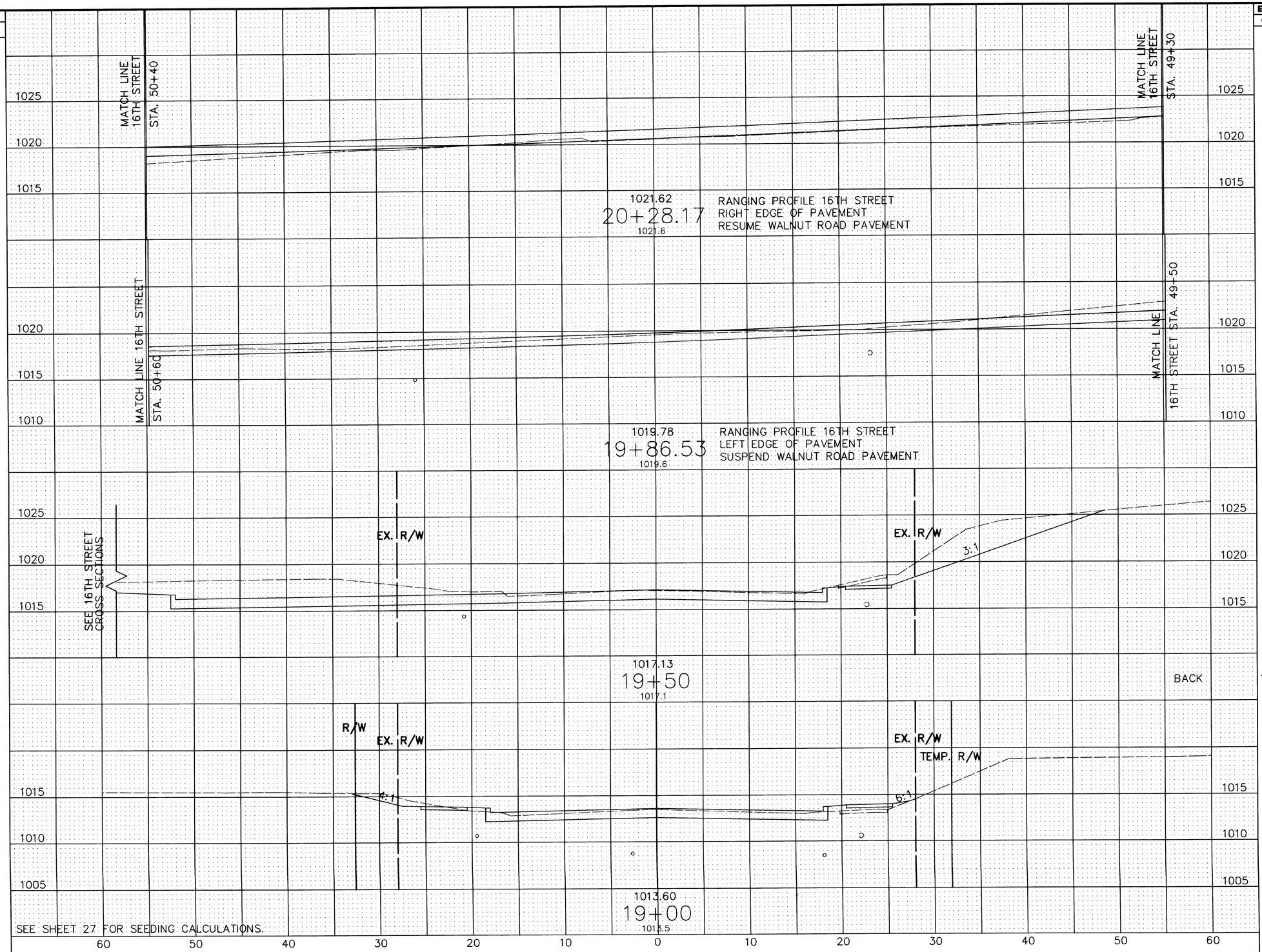
SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
166	0		
		183	5
32	5		
		56	13
SHEET TOTAL		239	18

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS - WALNUT ROAD
STA. 19+50 TO STA. 20+50

16TH STREET, SE



SEE SHEET 27 FOR SEEDING CALCULATIONS.

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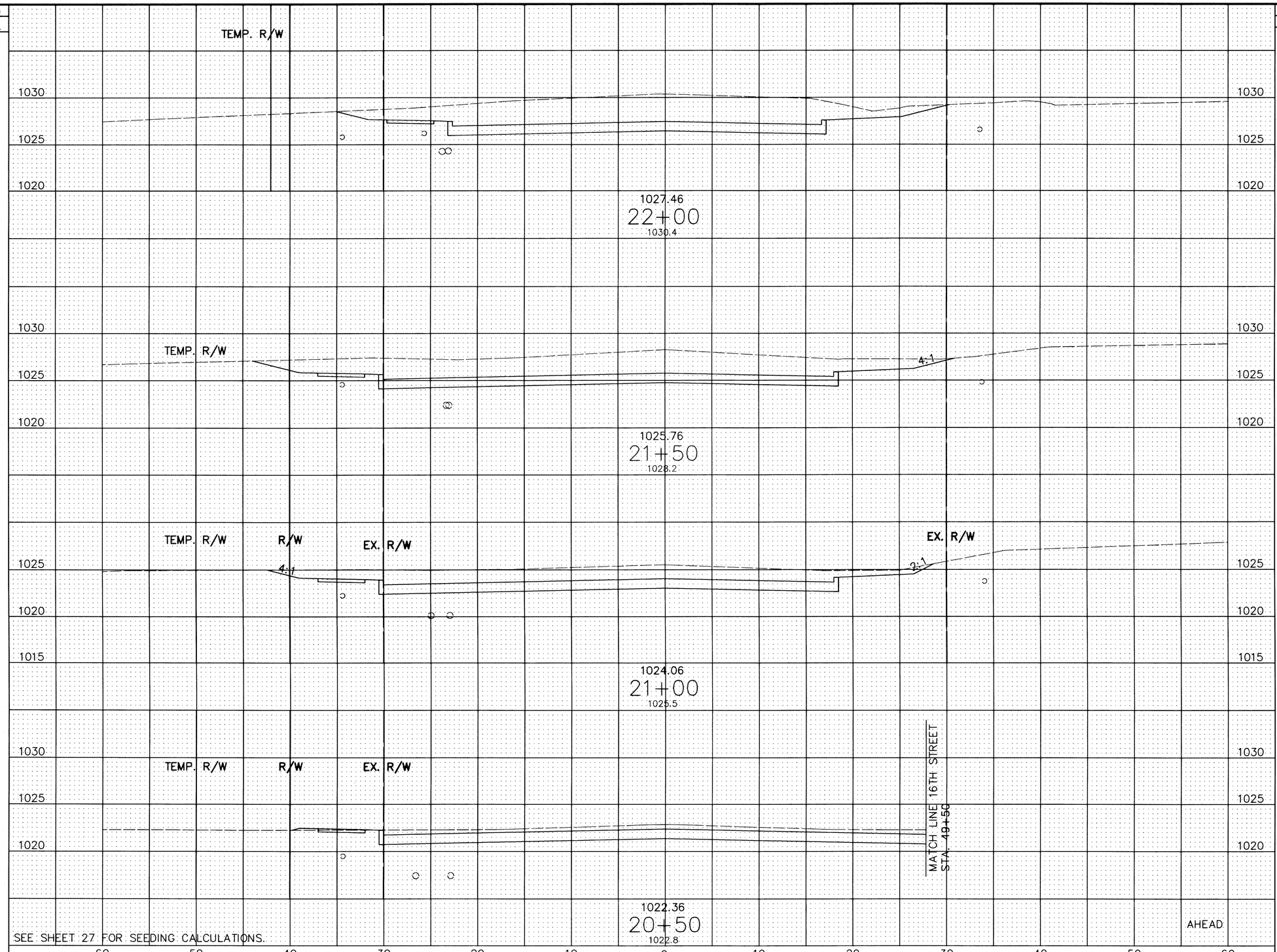
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME		
CUT	FILL	CUT	FILL	
175	0			
		332	0	
184	0			
		294	0	
133	0			
		200	1	
83	1			AHEAD
		826	1	SHEET TOTAL

CALCULATED V.L.B 01/02
CHECKED JHE 03/02

CROSS SECTIONS - WALNUT ROAD
STA. 21+00 TO STA. 22+50

16TH STREET, SE

SHEET TOTAL

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SEEDING	
END WIDTH	SQ. YDS.

MEET EXISTING PAVEMENT SHOULDER @ STA. 24+30.00

1031.73
24+00
103.7
END NEW PAVEMENT

1031.44
23+50
1032.2

1030.58
23+00
1032.3

1029.16
22+50
1031.6

R/W EX. R/W EX. R/W TEMP. R/W

R/W EX. R/W EX. R/W

4:1

SEE SHEET 27 FOR SEEDING CALCULATIONS.

	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
BACK	31	25		
			80	31
	55	9		
			140	8
	96	0		
			214	0
	135	0		
			287	0
SHEET TOTAL			721	39

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS - WALNUT ROAD STA. 23+00 TO STA. 24+50

16TH STREET, SE

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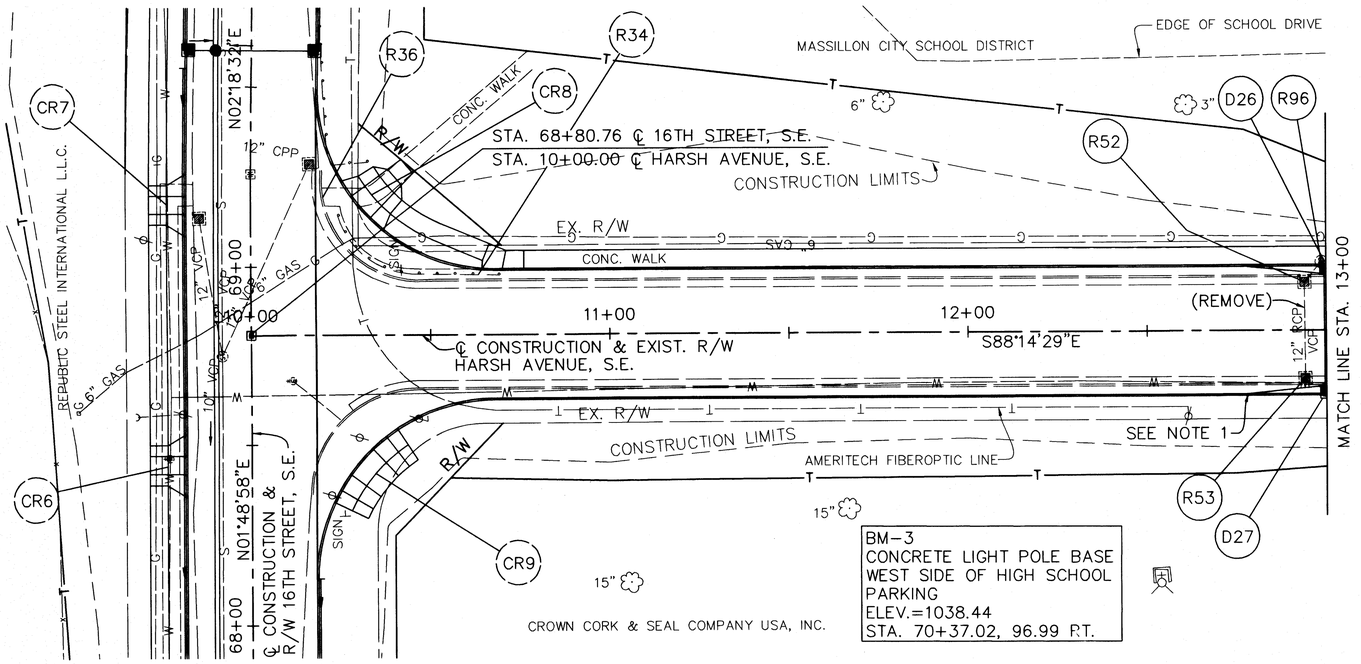
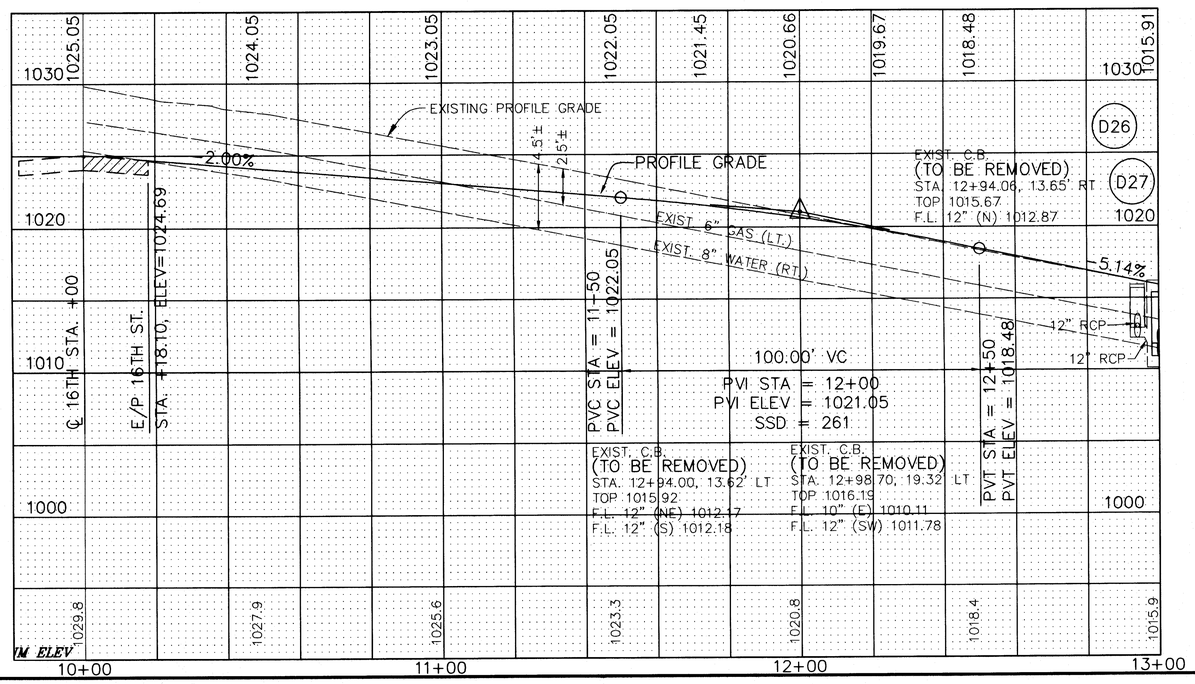


CROSS REFERENCES	
SHEET NO.	DESCRIPTION
77	INTERSECTION DETAIL

NOTE:
1. TRANSITION FROM TYPE 6 CURB AT STA. 12+78.00 TO COMBINATION CURB & GUTTER, TYPE 2 AT STA. 12+98.00.

2. EXISTING 8" WATER MAIN TO BE LOWERED BY OTHERS.



PLAN AND PROFILE - HARSH AVENUE
STA. 10+00 TO STA. 13+00

CALCULATED
CHECKED

HORIZONTAL SCALE IN FEET
0 10 20 40

16TH STREET, SE

69
162

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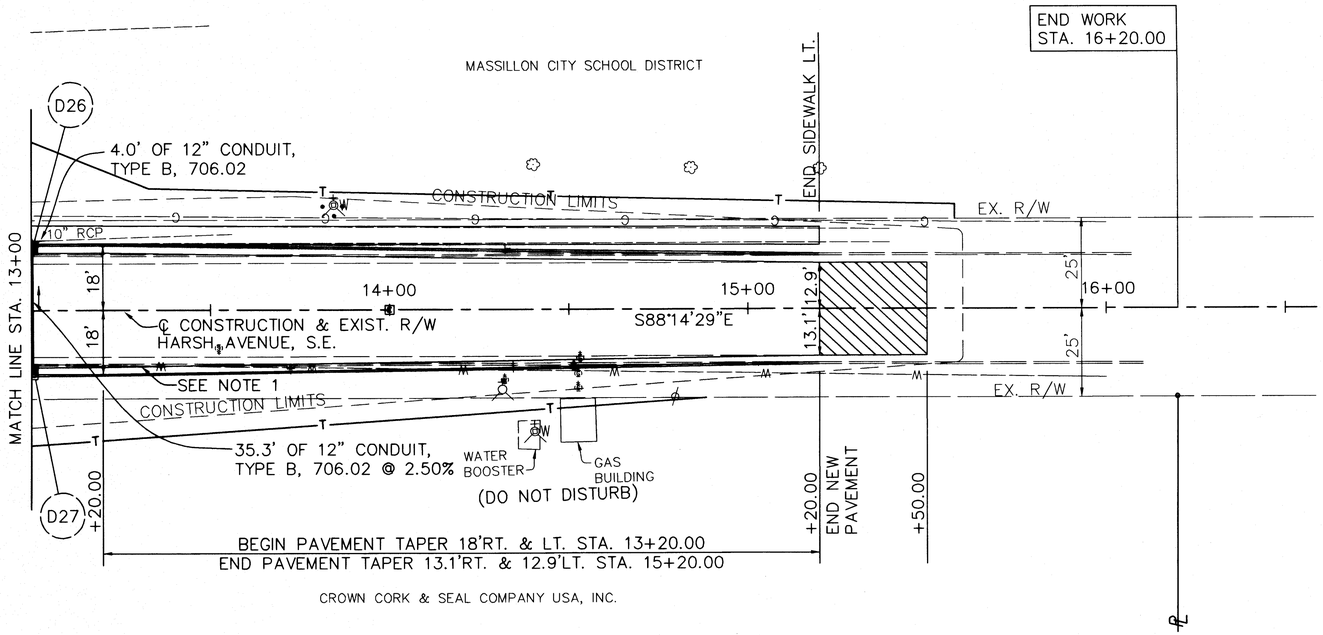
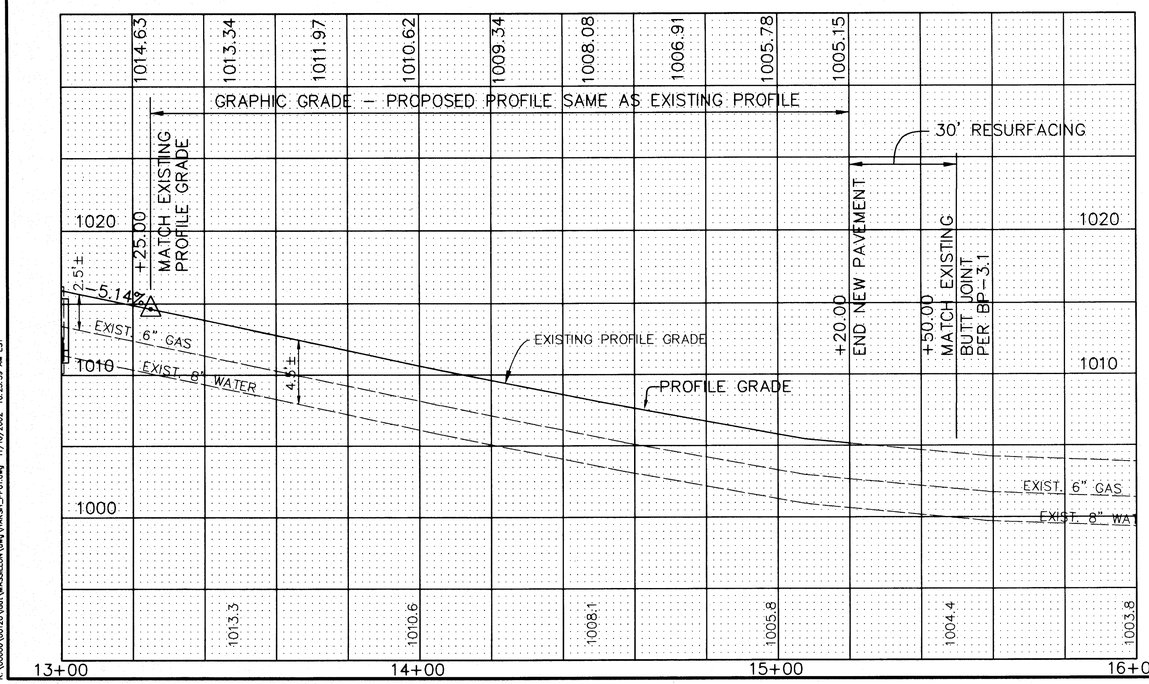


LEGEND

ITEM 202–1 1/4" WEARING COURSE REMOVED AND RESURFACED WITH 448 ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22 OVER 407 TACK COAT.

NOTES:

1. END TYPE 6 CURB AT NEW CATCH BASINS STA. 13+00.0, 18.0' RT. AND LT.; BEGIN COMBINATION CURB AND GUTTER, TYPE 2 ON EAST SIDE OF CATCH BASINS.



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED

CHECKED

PLAN AND PROFILE – HARSH AVENUE
STA. 13+00 TO STA. 16+00

16TH STREET, SE

70
162

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SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL
239	0		
284	0	485	0
514	0		
272	0		
		999	0

CALCULATED V.LB 01/02
CHECKED JHE 03/02

CROSS SECTIONS - HARSH AVENUE
STA. 10+18 TO STA. 11+50

TEMP. R/W
EX. R/W
EX. R/W
TEMP. R/W
2.5:1
4:1
1022.05
11+50
1023.3
TEMP. R/W
TEMP. R/W
1023.05
11+00
1025.6
TEMP. R/W
R/W
EX. R/W
EX. R/W
R/W
2:1
4:1
1024.05
10+50
1027.9
AHEAD
MATCH LINE 16TH STREET
STA. 69+45
MATCH LINE 16TH STREET
STA. 68+35
1024.69
10+18
1029.0
RANGING PROFILE 16TH STREET
RIGHT EDGE OF PAVEMENT.
BEGIN HARSH AVENUE PAVEMENT.
SEE SHEET 27 FOR SEEDING CALCULATIONS.

1030 1025 1020 1015 1035
80 70 60 50 40 30 20 10 0 10 20 30 40

SHEET TOTAL
SHEET TOTAL

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

TEMP. R/W EX. R/W

2.5:1

1020 1015 1010

1013.34
13+50
1013.3

3:1

EX. R/W TEMP. R/W

TEMP. R/W

1025 1020 1015

2.5:1

(D26) CATCH BASIN, NO. 3A
STA. 13+00.0, 18.0' LT.
GRATE ELEV. = 1015.38
INV. 12" (S,E) = 1011.75

1015.91
13+00
1015.9

36' OF 12" CONDUIT,
TYPE B, 706.02 @ 2.50%

(D27) CATCH BASIN, NO. 3A
STA. 13+00.0, 18.0' RT.
GRATE ELEV. = 1015.38
INV. 12" (N) = 1012.63

TEMP. R/W

TEMP. R/W

1030 1025 1020

2.5:1

1018.48
12+50
1018.4

TEMP. R/W EX. R/W EX. R/W TEMP. R/W

1030 1025 1020 1015

2.5:1

4:1

1020.66
12+00
1020.8

SEE SHEET 27 FOR SEEDING CALCULATIONS.

80 70 60 50 40 30 20 10 0 10 20 30 40

END AREA		VOLUME	
CUT	FILL	CUT	FILL
98	25		
122	8	203	30
132	5	235	12
148	1	259	5
		359	1
SHEET TOTAL		1056	48

CALCULATED VLB 01/02
CHECKED LHE 03/02

CROSS SECTIONS - HARSH AVENUE
STA. 12+00 TO STA. 13+50

16TH STREET, SE

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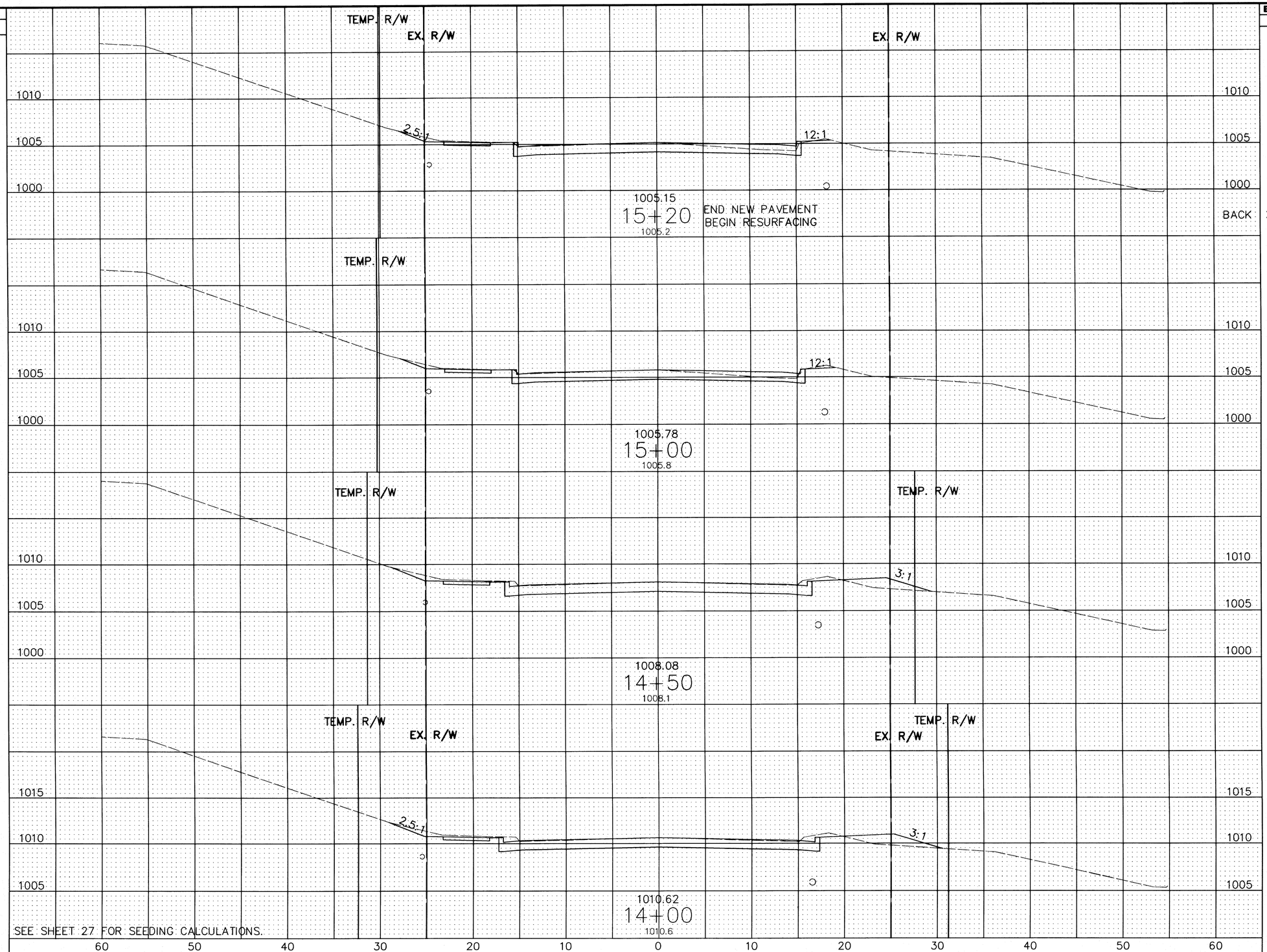
SEEDING	
END WIDTH	SQ. YDS.



END AREA		VOLUME	
CUT	FILL	CUT	FILL
BACK	22	7	
		17	5
	23	6	
		58	11
	40	6	
		75	12
	41	7	
		129	30
SHEET TOTAL		279	58

CALCULATED VLB 01/02
CHECKED JHE 03/02

CROSS SECTIONS - HARSH AVENUE
STA. 14+00 TO STA. 15+20

16TH STREET, SE

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SEEDING	
END WIDTH	SQ. YDS.

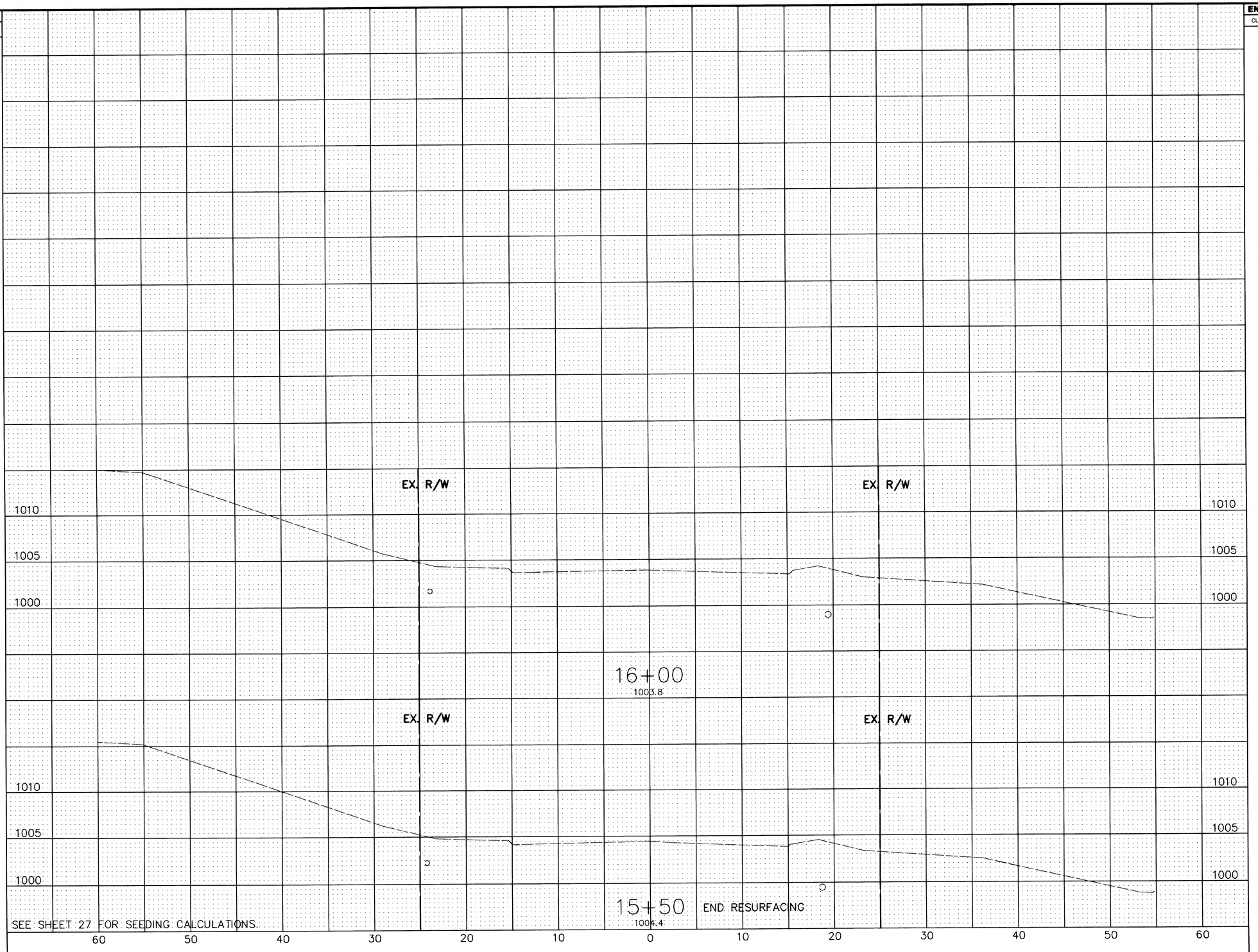
END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED VLB 01/02

CHECKED JHE 03/02

CROSS SECTIONS - HARSH AVENUE
STA. 15+50 TO STA. 16+00

16TH STREET, SE



SEE SHEET 27 FOR SEEDING CALCULATIONS.

SHEET TOTAL

SHEET TOTAL

74
162

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16TH STREET PAVEMENT ELEVATION TABLE

LEFT SIDE					CENTERLINE CONTROL		RIGHT SIDE					REMARKS
EDGE ELEVATION	TRANSITION RATE	ELEVATION CORRECTION	CROSS SLOPE	WIDTH	STATION	PROFILE GRADE	WIDTH	CROSS SLOPE	ELEVATION CORRECTION	TRANSITION RATE	EDGE ELEVATION	
												NORMAL SECTION LT. & RT.
					47+84.00	1029.92	24.00'	−0.02	−0.48		1029.44	BEGIN PVM'T TRANS. RT.
					48+00.00	1029.33	24.00'	−0.015	−0.36		1028.97	
					48+25.00	1028.28	24.00'	−0.007	−0.17		1028.11	
					48+48.00	1027.20	24.00'	0.000	0.00		1027.20	
					48+50.00	1027.10	24.00'	+0.001	+0.02		1027.12	
					48+75.00	1025.85	24.00'	+0.008	+0.19		1026.04	
					49+00.00	1024.60	24.00'	+0.016	+0.38		1024.98	
1023.77		−0.24	−0.02	12.00'	49+12.00	1024.01	24.00'	+0.020	+0.48		1024.49	BEGIN PVM'T TRANS. LT.
1023.12		−0.29	−0.024	12.00'	49+25.00	1023.41	24.00'	+0.024	+0.58		1023.99	
1022.97		−0.30	−0.025	12.00'	49+28.00	1023.27	24.00'	+0.025	+0.60		1023.87	BEGIN 0.025 XSLOPE RT.
1021.95		−0.38	−0.032	12.00'	49+50.00	1022.33	24.00'	+0.025	+0.60		1022.93	
1020.89		−0.48	−0.040	12.00'	49+75.00	1021.37	24.00'	+0.025	+0.60		1021.97	
1019.96		−0.56	−0.047	12.00'	50+00.00	1020.52	24.00'	+0.025	+0.60		1021.12	
1019.78	133.3:1	−0.59	−0.049	12.00'	50+05.00	1020.37	24.00'	+0.025	+0.60	133.3:1	1020.97	BEGIN 0.049 XSLOPE LT.
1019.63		−0.59	−0.049	12.00'	50+10.00	1020.22	24.00'	+0.025	+0.60		1020.82	END 0.049 XSLOPE LT./BEGIN PVM'T TRANS. LT.
1019.26		−0.53	−0.044	12.00'	50+25.00	1019.79	24.00'	+0.025	+0.60		1020.39	
1018.74		−0.44	−0.037	12.00'	50+50.00	1019.18	24.00'	+0.025	+0.60		1019.78	
1018.33		−0.35	−0.029	12.00'	50+75.00	1018.68	24.00'	+0.025	+0.60		1019.28	
1018.18		−0.30	−0.025	12.00'	50+87.00	1018.48	24.00'	+0.025	+0.60		1019.08	END 0.025 XSLOPE RT./BEGIN PVM'T TRANS. RT.
1018.05		−0.25	−0.021	12.00'	51+00.00	1018.30	24.00'	+0.021	+0.50		1018.80	
1018.02		−0.24	−0.02	12.00'	51+03.00	1018.26	24.00'	+0.020	+0.48		1018.74	END PVM'T TRANS. LT.
					51+25.00	1017.97	24.00'	+0.013	+0.31		1018.28	
					51+50.00	1017.65	24.00'	+0.005	+0.12		1017.77	
					51+67.00	1017.42	24.00'	0.000	0.00		1017.42	
					51+75.00	1017.32	24.00'	−0.003	−0.07		1017.25	
					52+00.00	1016.99	24.00'	−0.010	−0.24		1016.75	
					52+25.00	1016.62	24.00'	−0.018	−0.43		1016.19	
					52+31.00	1016.52	24.00'	−0.02	−0.48		1016.04	END PVM'T TRANS. RT.
												NORMAL SECTION

CALCULATED | CHECKED

PAVEMENT ELEVATION TABLE

16TH STREET, SE

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INTERSECTION DETAIL
WALNUT ROAD
16TH STREET, SE

HORIZONTAL SCALE IN FEET
0 5 10 20

112°51'43"
66°59'20"
58°09'39"
12°59'18"
CURVE #1
℄ CONSTRUCTION & R/W WALNUT ROAD
℄ CONSTRUCTION 16TH STREET
STA. 50+00.00 ℄ 16TH STREET
STA. 20+00.00 ℄ WALNUT ROAD
PC=50+50.00
49
50
51
200
19
31

(1) ℄ CONSTRUCTION & EXIST. & PROP. R/W 16TH STREET, S.E.
STA. 49+62.30, 47.00' LT.
℄ CONSTRUCTION & EXIST. & PROP. R/W WALNUT ROAD
STA. 19+71.34, 53.00' RT.

(2) ℄ CONSTRUCTION & R/W 16TH STREET, S.E.
STA. 51+03.20, 62.00' LT.
℄ CONSTRUCTION & R/W WALNUT ROAD
STA. 19+02.64, 68.00' LT.

(3) ℄ CONSTRUCTION & EXIST. & PROP. R/W 16TH STREET, S.E.
STA. 50+48.10, 74.00' RT.
℄ CONSTRUCTION & EXIST. & PROP. R/W WALNUT ROAD
STA. 20+37.28, 80.00' LT.

(4) ℄ CONSTRUCTION & R/W 16TH STREET, S.E.
STA. 49+09.97, 54.00' RT.
℄ CONSTRUCTION & R/W WALNUT ROAD
STA. 20+93.37, 48.00' RT.

℄ CONSTRUCTION & EXIST. & PROP. R/W 16TH STREET, S.E.
℄ CONSTRUCTION & EXIST. & PROP. R/W WALNUT ROAD
5' SIDEWALK
10' (TYP.)
12'
24'
18'
30'
S01°57'55"W
S01°48'58"W
N65°10'22"W
N56°11'44"W
49+00
50+00
51+00
20+00
21+00
STA 20+00.00 (WALNUT ROAD)
△=08° 58'38"
NO CURVE
PC = 50+50.00
CURVE #1
13.24 13.60 13.42 13.24 15.00 15.36 15.00 10.77 14.50 15.48 16.40 17.19 17.75 18.15 18.28 18.25 18.19 16.77 17.13 16.77 18.89 18.53 18.28 18.53 18.78 18.98 19.64 20.70 11.0' 19.25 19.72 17.65 17.93 18.16 18.24 18.01 18.05 17.73 24.36 23.12 21.95 21.43 21.41 21.13 20.89 20.48 19.78 19.96 19.26 19.27 18.74 18.33 24.60 23.41 22.33 21.37 20.52 19.79 19.18 18.68 18.30 17.97 24.98 24.57 23.99 22.93 22.38 21.97 21.51 21.12 21.60 20.52 20.39 20.08 20.21 19.90 19.82 19.78 19.28 18.80 18.28 22.78 22.23 22.06 22.53 22.36 23.75 22.92 22.20 22.00 22.70 22.29 22.85 23.47 23.70 23.21 24.06 23.46 20.91 21.20 21.33 21.46 21.59 21.76 22.61 20.56 20.29 20.07 20.91 10.6 16' (TYP.) 13.8'

℄ CONSTRUCTION 16TH STREET, S.E.
CURVE DATA
CURVE #1
P.I. STA. 50+91.70
△ = 06°02'17" RT.
D_c = 4°24'27"
R = 1300.00'
T = 68.56'
L = 137.00'
E = 1.81'
e_{max} = N/C

NOTES:
ADD 1000 TO THE ELEVATION SHOWN FOR ACTUAL ELEVATION.
ALL ELEVATIONS ALONG THE CURB ARE E.P. ELEVATIONS. ADD 0.5" (6") IN AREAS OF FULL HEIGHT CURB AND 0.16' (2") IN AREAS OF DROP CURB TO OBTAIN TOP OF CURB ELEVATIONS AT FACE OF CURB.

CURVE DATA FOR RADIUS RETURNS

CURVE NO.	RADIUS	INTERIOR ANGLE	TANGENT	EXTERNAL	MIDDLE ORDINATE	LONG CHORD	CURVE LENGTH	DEGREE OF CURVE
(1)	35'	67°08'17"	23.23'	7.01'	20.84'	38.71'	41.01'	163°42'08"
(2)	50'	115°21'19"	79.02'	43.51'	23.27'	84.51'	100.67'	114°35'30"
(3)	50'	58°00'42"	27.72'	7.17'	6.27'	48.49'	50.62'	114°35'30"
(4)	30'	121°50'21"	53.94'	31.72'	15.42'	52.44'	63.79'	190°59'09"

ALL DISTANCES ARE MEASURED TO THE FACE OF CURB

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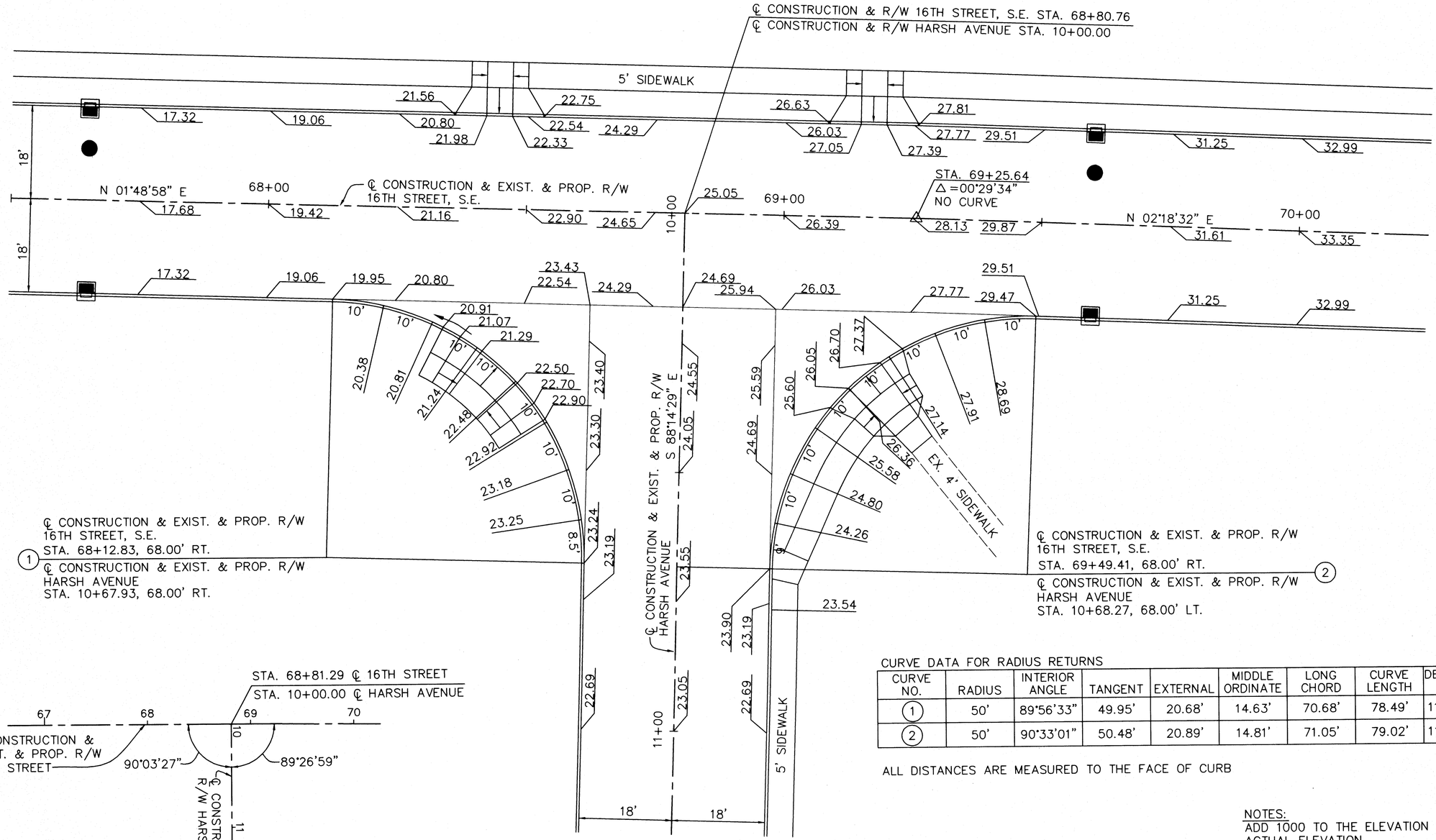

CURVE DATA FOR RADIUS RETURNS

CURVE NO.	RADIUS	INTERIOR ANGLE	TANGENT	EXTERNAL	MIDDLE ORDINATE	LONG CHORD	CURVE LENGTH	DEGREE OF CURVE
1	50'	89°56'33"	49.95'	20.68'	14.63'	70.68'	78.49'	114°35'30"
2	50'	90°33'01"	50.48'	20.89'	14.81'	71.05'	79.02'	114°35'30"

ALL DISTANCES ARE MEASURED TO THE FACE OF CURB

NOTES:
ADD 1000 TO THE ELEVATION SHOWN FOR ACTUAL ELEVATION.
ALL ELEVATIONS ALONG THE CURB ARE E.P. ELEVATIONS. ADD 0.5" (6") IN AREAS OF FULL HEIGHT CURB AND 0.16' (2") IN AREAS OF DROP CURB TO OBTAIN TOP OF CURB ELEVATIONS AT FACE OF CURB.

HORIZONTAL SCALE IN FEET
0 5 10 20

INTERSECTION DETAIL
HARSH AVENUE
16TH STREET, SE

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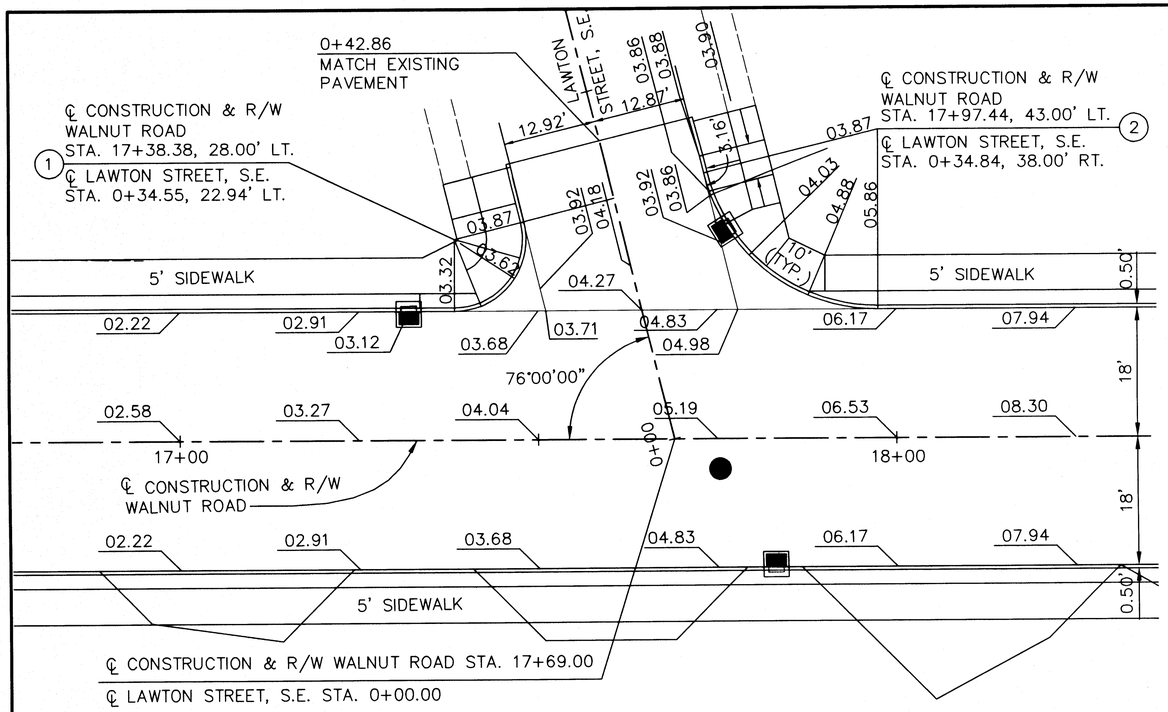
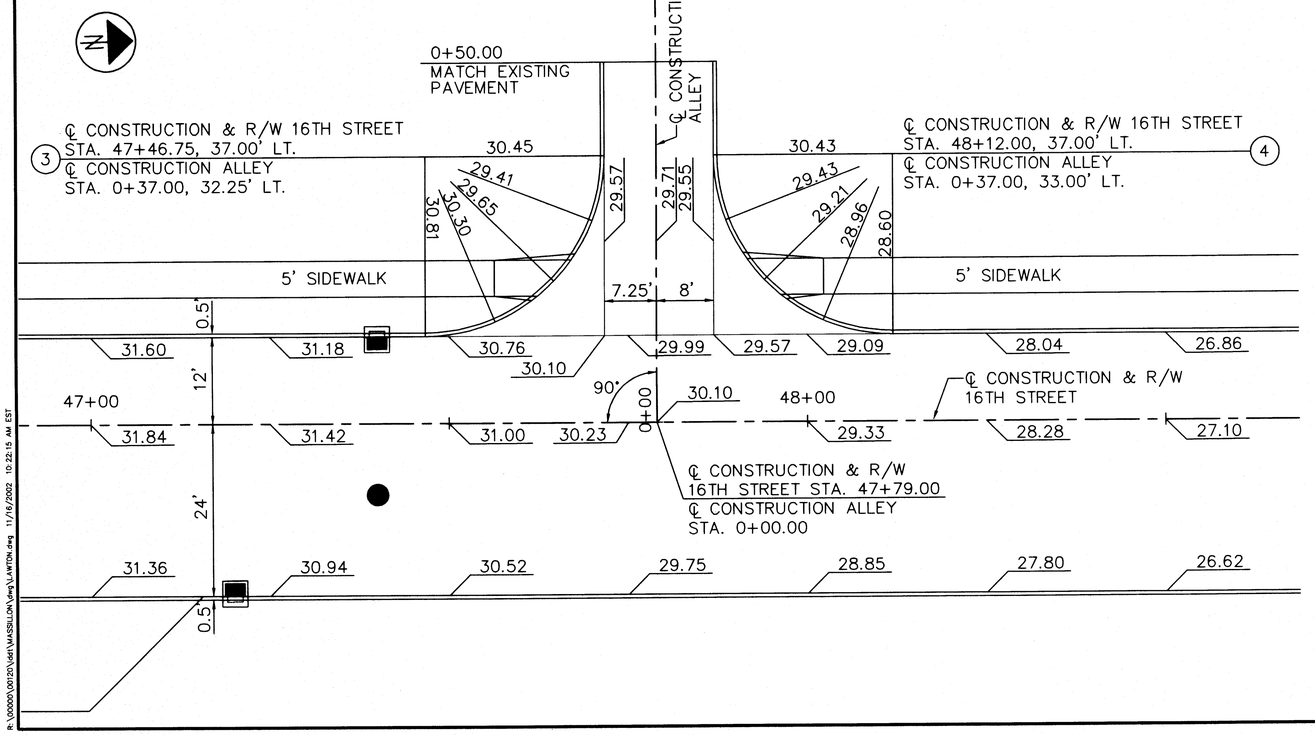


NOTES:
ADD 1000 TO THE ELEVATION SHOWN FOR ACTUAL ELEVATION.
ALL ELEVATIONS ALONG THE CURB ARE E.P. ELEVATIONS. ADD 0.5" (6") IN AREAS OF FULL HEIGHT CURB AND 0.16' (2") IN AREAS OF DROP CURB TO OBTAIN TOP OF CURB ELEVATIONS AT FACE OF CURB.

CURVE DATA FOR RADIUS RETURNS

CURVE NO.	RADIUS	INTERIOR ANGLE	TANGENT	EXTERNAL	MIDDLE ORDINATE	LONG CHORD	CURVE LENGTH
1	10'	103°51'39"	12.77'	6.22'	3.83'	15.75'	18.13'
2	25'	76°00'00"	19.53'	6.73'	5.30'	30.78'	33.16'

ALL DISTANCES ARE MEASURED TO THE FACE OF CURB
SEE SHEET 85 FOR PROFILE



NOTES:
ADD 1000 TO THE ELEVATION SHOWN FOR ACTUAL ELEVATION.
ALL ELEVATIONS ALONG THE CURB ARE E.P. ELEVATIONS. ADD 0.5" (6") IN AREAS OF FULL HEIGHT CURB AND 0.16' (2") IN AREAS OF DROP CURB TO OBTAIN TOP OF CURB ELEVATIONS AT FACE OF CURB.

CURVE DATA FOR RADIUS RETURNS

CURVE NO.	RADIUS	INTERIOR ANGLE	TANGENT	EXTERNAL	MIDDLE ORDINATE	LONG CHORD	CURVE LENGTH
3	25'	90°00'00"	25.00'	10.36'	7.32'	35.36'	39.27'
4	25'	90°00'00"	25.00'	10.36'	7.32'	35.36'	39.27'

ALL DISTANCES ARE MEASURED TO THE FACE OF CURB
SEE SHEET 82 FOR PROFILE

HORIZONTAL SCALE IN FEET
0 5 10 20

INTERSECTION DETAILS
ALLEY OFF 16TH STREET & LAWTON STREET, S.E.
16TH STREET, SE

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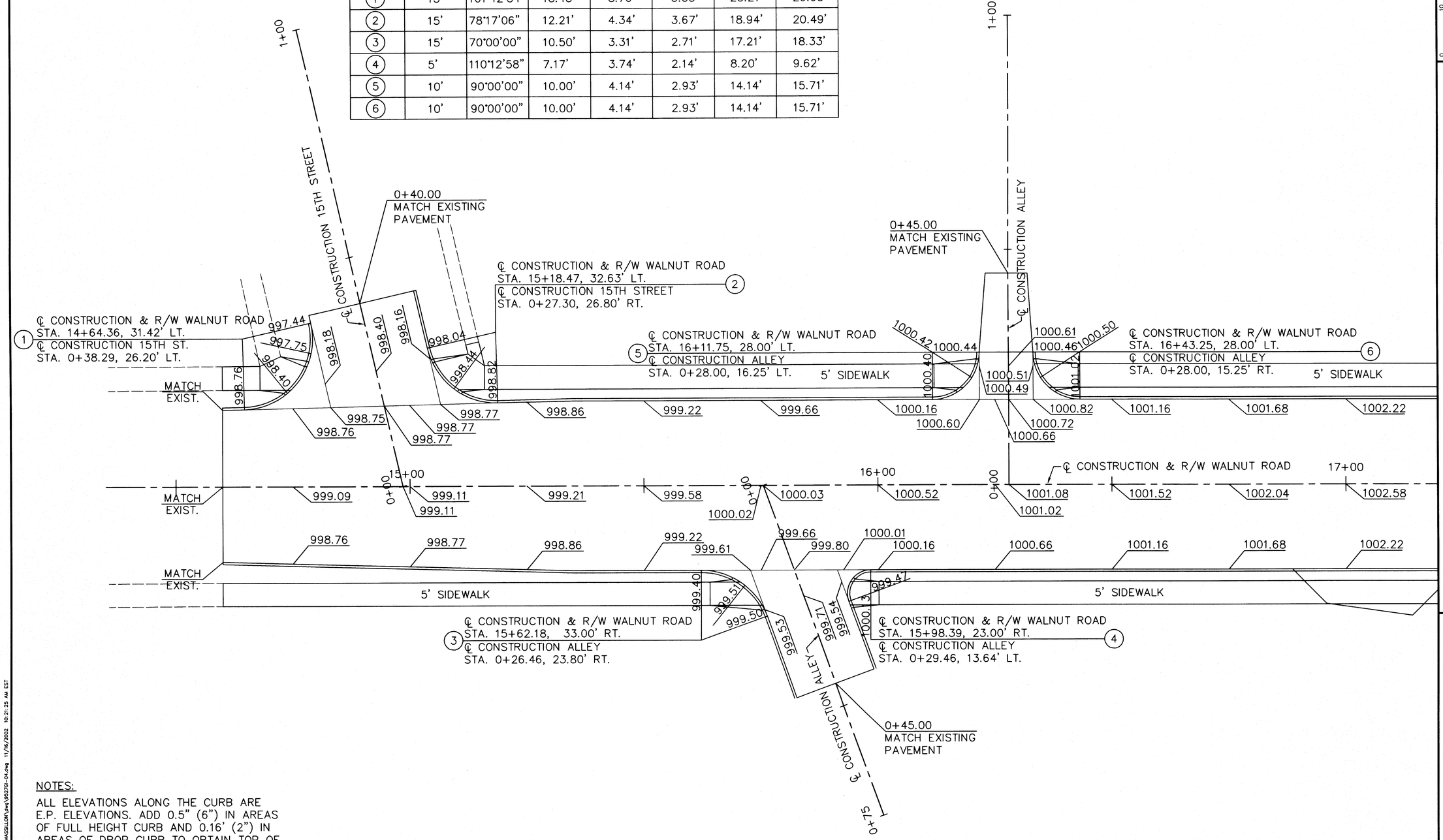
CURVE DATA FOR RADIUS RETURNS

CURVE NO.	RADIUS	INTERIOR ANGLE	TANGENT	EXTERNAL	MIDDLE ORDINATE	LONG CHORD	CURVE LENGTH
(1)	15'	101°42'54"	18.43'	8.76'	5.53'	23.27'	26.63'
(2)	15'	78°17'06"	12.21'	4.34'	3.67'	18.94'	20.49'
(3)	15'	70°00'00"	10.50'	3.31'	2.71'	17.21'	18.33'
(4)	5'	110°12'58"	7.17'	3.74'	2.14'	8.20'	9.62'
(5)	10'	90°00'00"	10.00'	4.14'	2.93'	14.14'	15.71'
(6)	10'	90°00'00"	10.00'	4.14'	2.93'	14.14'	15.71'



NOTES:

ALL ELEVATIONS ALONG THE CURB ARE E.P. ELEVATIONS. ADD 0.5" (6") IN AREAS OF FULL HEIGHT CURB AND 0.16' (2") IN AREAS OF DROP CURB TO OBTAIN TOP OF CURB ELEVATIONS AT FACE OF CURB.

SEE SHEET 85 FOR PROFILES

N

HORIZONTAL SCALE IN FEET
0 5 10 20

INTERSECTION DETAIL
15TH STREET AND ALLEYS OFF WALNUT ROAD
16TH STREET, SE

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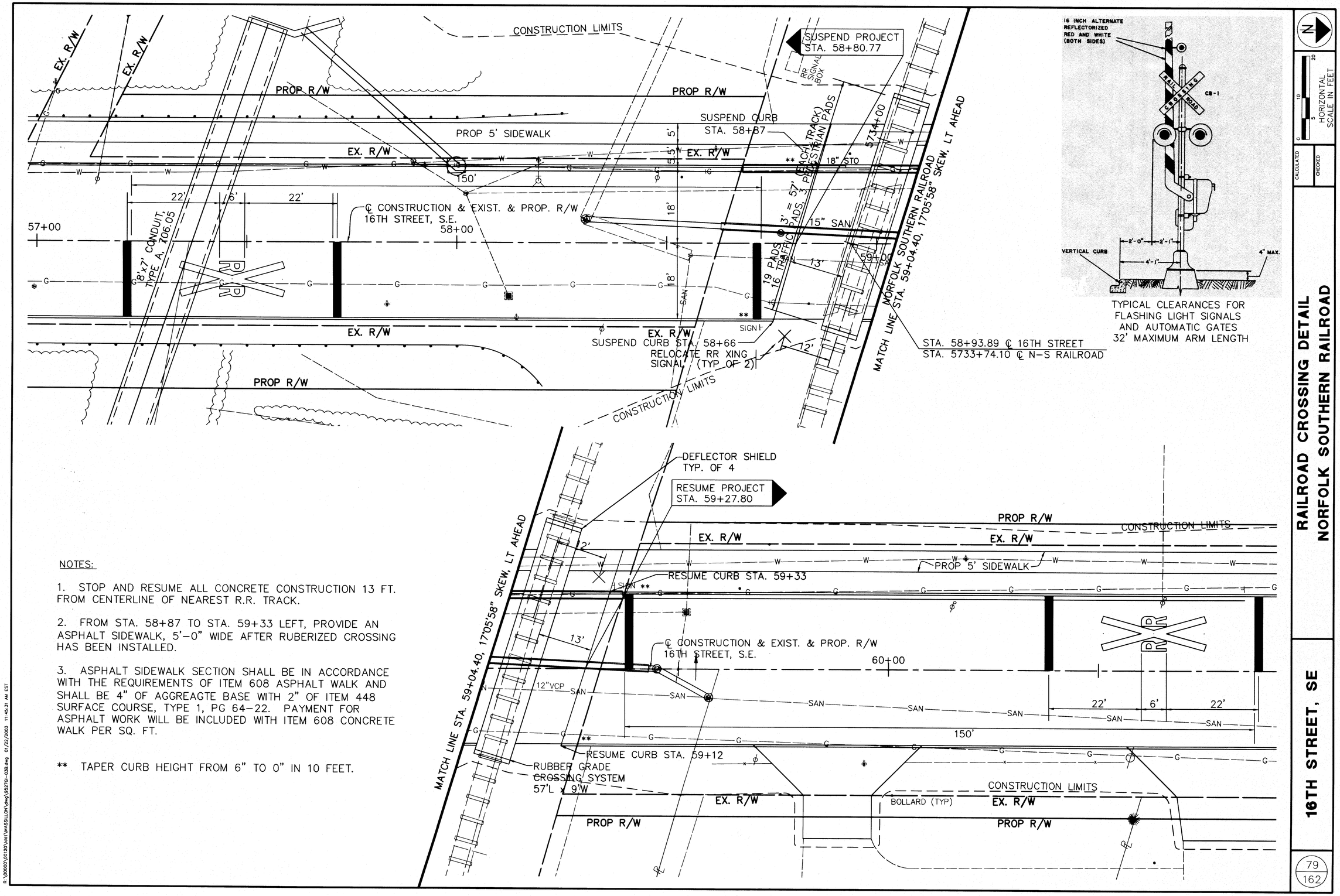

TYPICAL CLEARANCES FOR
FLASHING LIGHT SIGNALS
AND AUTOMATIC GATES
32' MAXIMUM ARM LENGTH

NOTES:

1. STOP AND RESUME ALL CONCRETE CONSTRUCTION 13 FT. FROM CENTERLINE OF NEAREST R.R. TRACK.

2. FROM STA. 58+87 TO STA. 59+33 LEFT, PROVIDE AN ASPHALT SIDEWALK, 5'–0" WIDE AFTER RUBERIZED CROSSING HAS BEEN INSTALLED.

3. ASPHALT SIDEWALK SECTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ITEM 608 ASPHALT WALK AND SHALL BE 4" OF AGGREAGTE BASE WITH 2" OF ITEM 448 SURFACE COURSE, TYPE 1, PG 64–22. PAYMENT FOR ASPHALT WORK WILL BE INCLUDED WITH ITEM 608 CONCRETE WALK PER SQ. FT.

** TAPER CURB HEIGHT FROM 6" TO 0" IN 10 FEET.

N

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED
CHECKED

RAILROAD CROSSING DETAIL
NORFOLK SOUTHERN RAILROAD
16TH STREET, SE

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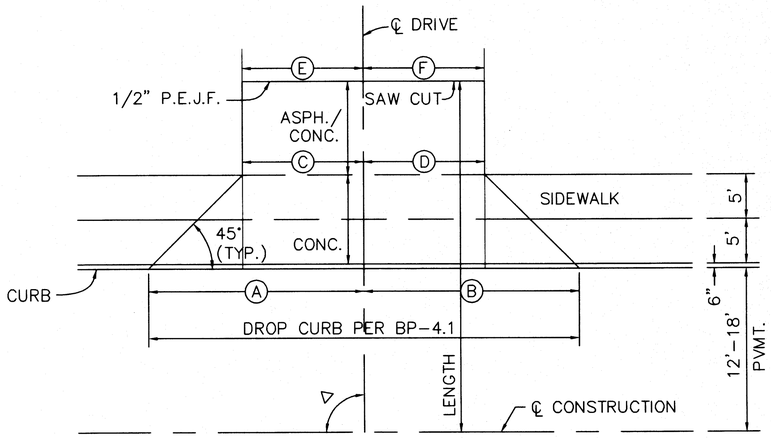
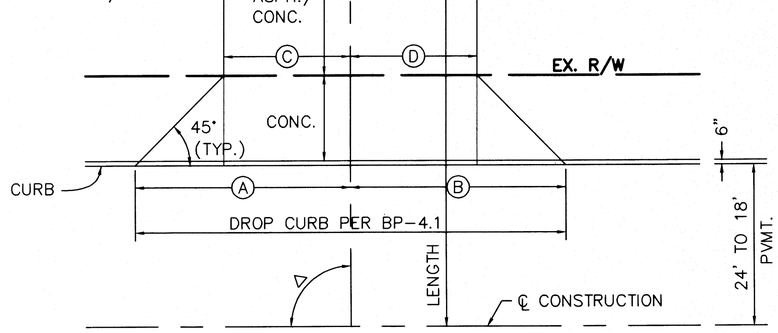
DRIVEWAY TABLE

SHEET NUMBER	REFERENCE NUMBER	STATION	SIDE	EXISTING MATERIAL	SKEW △	WIDTH Ⓐ	WIDTH Ⓑ	WIDTH Ⓒ	WIDTH Ⓓ	WIDTH Ⓔ	WIDTH Ⓕ	LENGTH	AREA TYPE 1 RESIDENTIAL (SQ. FT.) ASPH.	AREA TYPE 1 RESIDENTIAL (SQ. FT.) CONC.	AREA TYPE 2 COMMERCIAL (SQ. FT.) ASPH.	AREA TYPE 2 COMMERCIAL (SQ. FT.) CONC.
	16TH STREET															
31	DR1A	43+94.00	RT.	ASPH.	90°	13.25	14.00	5.75	6.50	–	–	20.00		148.98		
31	DR1B	45+40.50	LT.	ASPH./GRAV.	90°	18.00	15.00	9.80	6.90	–	–	20.00		183.45		
31	DR1	46+82.00	RT.	ASPH.	90°	28.25	27.50	17.25	16.50	17.50	14.00	40.00	163.12	464.63		
	DR2	NOT USED														
32	DR3	48+98.50	LT.	ASPH./GRAV.	90°	18.00	17.25	7.50	6.75	7.50	6.75	60.00	534.37	146.19		
32	DR4	50+92.00	RT.	GRAV.	90°	25.50	22.25	14.25	11.00	11.00	8.00	50.00	331.87	378.90		
32	DR4A	51+30.50	LT.	CONC.	68°	18.50	18.00	10.00	10.00	10.00	10.00	69.00		1175.61		
32	DR5	52+32.50	RT.	ASPH./GRAV.	90°	17.00	21.00	–	14.25	14.75	14.25	40.00	256.13	225.37		
33	DR6	53+54.00	LT.	CONC.	82°	18.50	15.50	6.00	6.00	6.00	6.00	70.00		794.19		
33	DR7	54+33.00	RT.	ASPH.	82°	16.25	18.50	9.25	12.00	6.00	6.00	60.00	399.29	170.64		
34	DR8	58+40.00	RT.	GRAV.	90°	SEE	DETAIL	SHEET	81.			52.89			343.35	514.87
34	DR9	59+88.00	RT.	ASPH.	90°	20.00	20.25	8.00	8.25	8.00	8.25	40.00			162.50	319.12
34	DR10	61+13.00	RT.	GRAV.	90°	55.75	56.25	43.75	44.25	43.00	42.75	40.00			868.75	1144.25
34	DR11	61+63.00	LT.	GRAV.	86°	20.25	22.00	9.25	9.25	10.00	9.75	45.00			287.49	341.42
35	DR12	63+47.00	RT.	ASPH.	90°	32.75	32.50	20.75	20.50	20.75	30.25	40.00			505.07	606.63
35	DR13	64+27.00	RT.	CONC.	90°	30.50	30.00	13.50	13.00	–	–	35.00				709.50
37	DR14	74+30.00	LT.	GRAV.	85°	18.25	20.50	7.00	11.00	5.75	6.25	45.00			247.11	279.89
	WALNUT ROAD															
	DR15	NOT USED														
	DR16	NOT USED														
	DR17	NOT USED														
60	DR18	17+09.00	RT.	CONC.	82°	17.50	17.75	9.00	9.50	–	–	27.00		236.34		
60	DR19	17+60.50	RT.	CONC.	90°	18.50	19.75	8.50	9.75	–	–	28.00		282.50		
61	DR20	17+96.00	RT.	CONC.	62°	22.50	16.75	9.00	9.00	9.00	9.00	40.00		510.50		
61	DR21	18+47.00	RT.	CONC.	73°	12.75	20.50	5.00	7.00	5.00	7.00	40.00		368.90		
62	DR22	21+50.50	RT.	ASPH./GRAV.	64°	30.50	23.25	14.00	12.50	28.50	17.75	60.00	736.59	772.27		
62	DR23	22+73.50	RT.	ASPH./GRAV.	74°	43.00	47.50	22.00	25.50	–	–	50.00	537.78	1111.34		
												TOTAL DRIVEWAY AREAS	2959.15	6969.81	2414.27	3915.68



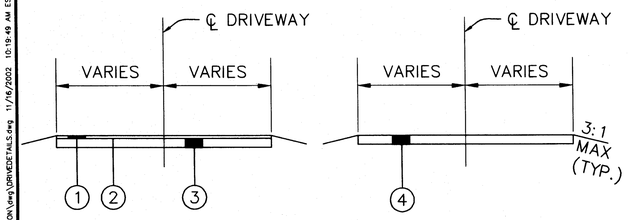
TYPICAL DRIVEWAY DETAIL WITH SIDEWALK
PLAN
N.T.S.

→ – UPSTATION (LT. DRIVES)
← – UPSTATION (RT. DRIVES)
△ = ACUTE ANGLE ON SKEWED DRIVES (DIMENSIONED TO TANGENT IN AREAS WITH CURVES).

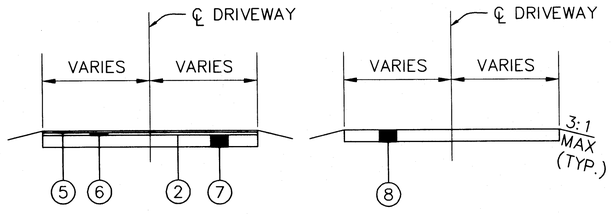


TYPICAL DRIVEWAY DETAIL WITHOUT SIDEWALK
PLAN
N.T.S.

TYPE 1 DRIVEWAYS (RESIDENTIAL)



TYPE 2 DRIVEWAYS (COMMERCIAL)



LEGEND

1. ITEM 448 – 2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS)
2. ITEM 408 – BITUMINOUS PRIME COAT
3. ITEM 304 – 6" AGGREGATE BASE
4. ITEM 452 – 6" PLAIN CONCRETE PAVEMENT
5. ITEM 448 – 1-1/4" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22 (DRIVEWAYS)
6. ITEM 448 – 1-3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22 (DRIVEWAYS)
7. ITEM 304 – 8" AGGREGATE BASE
8. ITEM 452 – 8" PLAIN CONCRETE PAVEMENT

SEE SHEETS 82-86 FOR DRIVEWAY PROFILES.

DRIVEWAY DETAILS

16TH STREET, SE

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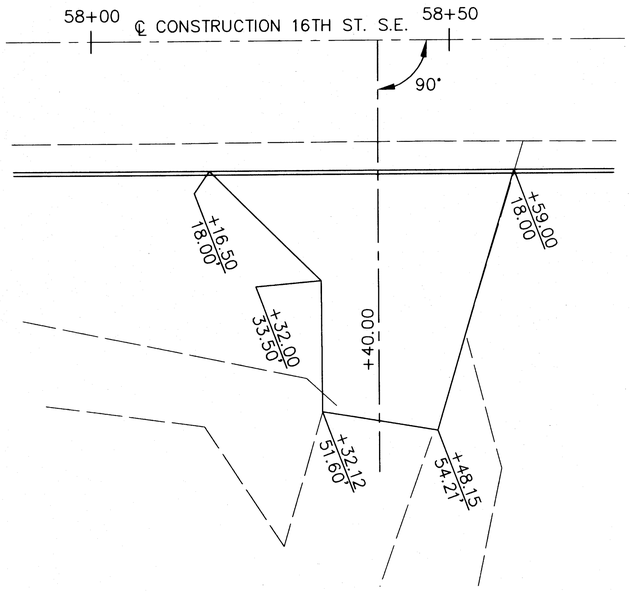

DRIVE DETAIL–16TH STREET, STA. 58+40.00 RT.
FOR PAVEMENT BUILDUP, SEE TYPICAL SECTIONS ON SHEET 80.

FOR DRIVEWAY PROFILES, SEE SHEETS 82–86.
FOR QUANTITIES SEE SHEETS 25–26.

HORIZONTAL SCALE IN FEET
0 5 10 20

DRIVEWAY DETAILS

16TH STREET, SE

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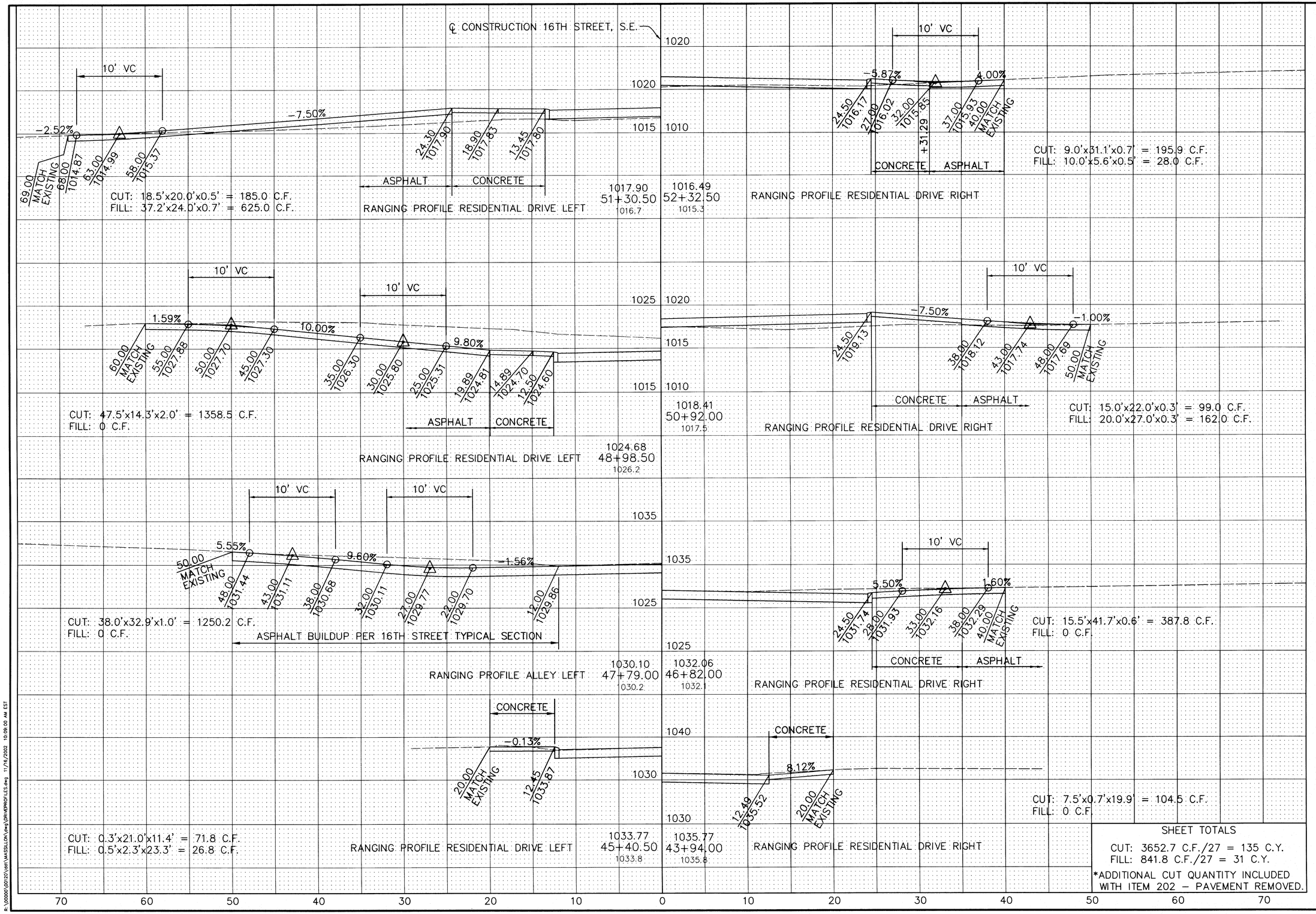
℄ CONSTRUCTION 16TH STREET, S.E.



CUT: 18.5'x20.0'x0.5' = 185.0 C.F.
FILL: 37.2'x24.0'x0.7' = 625.0 C.F.

RANGING PROFILE RESIDENTIAL DRIVE LEFT

1017.90
51+30.50
1016.7

1016.49
52+32.50
1015.3

RANGING PROFILE RESIDENTIAL DRIVE RIGHT

CUT: 9.0'x31.1'x0.7' = 195.9 C.F.
FILL: 10.0'x5.6'x0.5' = 28.0 C.F.

CUT: 47.5'x14.3'x2.0' = 1358.5 C.F.
FILL: 0 C.F.

RANGING PROFILE RESIDENTIAL DRIVE LEFT

1024.68
48+98.50
1026.2

1018.41
50+92.00
1017.5

RANGING PROFILE RESIDENTIAL DRIVE RIGHT

CUT: 15.0'x22.0'x0.3' = 99.0 C.F.
FILL: 20.0'x27.0'x0.3' = 162.0 C.F.

CUT: 38.0'x32.9'x1.0' = 1250.2 C.F.
FILL: 0 C.F.

RANGING PROFILE ALLEY LEFT

1030.10
47+79.00
030.2

1032.06
46+82.00
1032.1

RANGING PROFILE RESIDENTIAL DRIVE RIGHT

CUT: 15.5'x41.7'x0.6' = 387.8 C.F.
FILL: 0 C.F.

CUT: 0.3'x21.0'x11.4' = 71.8 C.F.
FILL: 0.5'x2.3'x23.3' = 26.8 C.F.

RANGING PROFILE RESIDENTIAL DRIVE LEFT

1033.77
45+40.50
1033.8

1035.77
43+94.00
1035.8

RANGING PROFILE RESIDENTIAL DRIVE RIGHT

CUT: 7.5'x0.7'x19.9' = 104.5 C.F.
FILL: 0 C.F.

SHEET TOTALS
CUT: 3652.7 C.F./27 = 135 C.Y.
FILL: 841.8 C.F./27 = 31 C.Y.
*ADDITIONAL CUT QUANTITY INCLUDED WITH ITEM 202 – PAVEMENT REMOVED.

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

CALCULATED JFU 05/02
CHECKED VLB 05/02

DRIVEWAY PROFILES – 16TH STREET
STA. 46+82.00 TO 52+32.50

16TH STREET, SE

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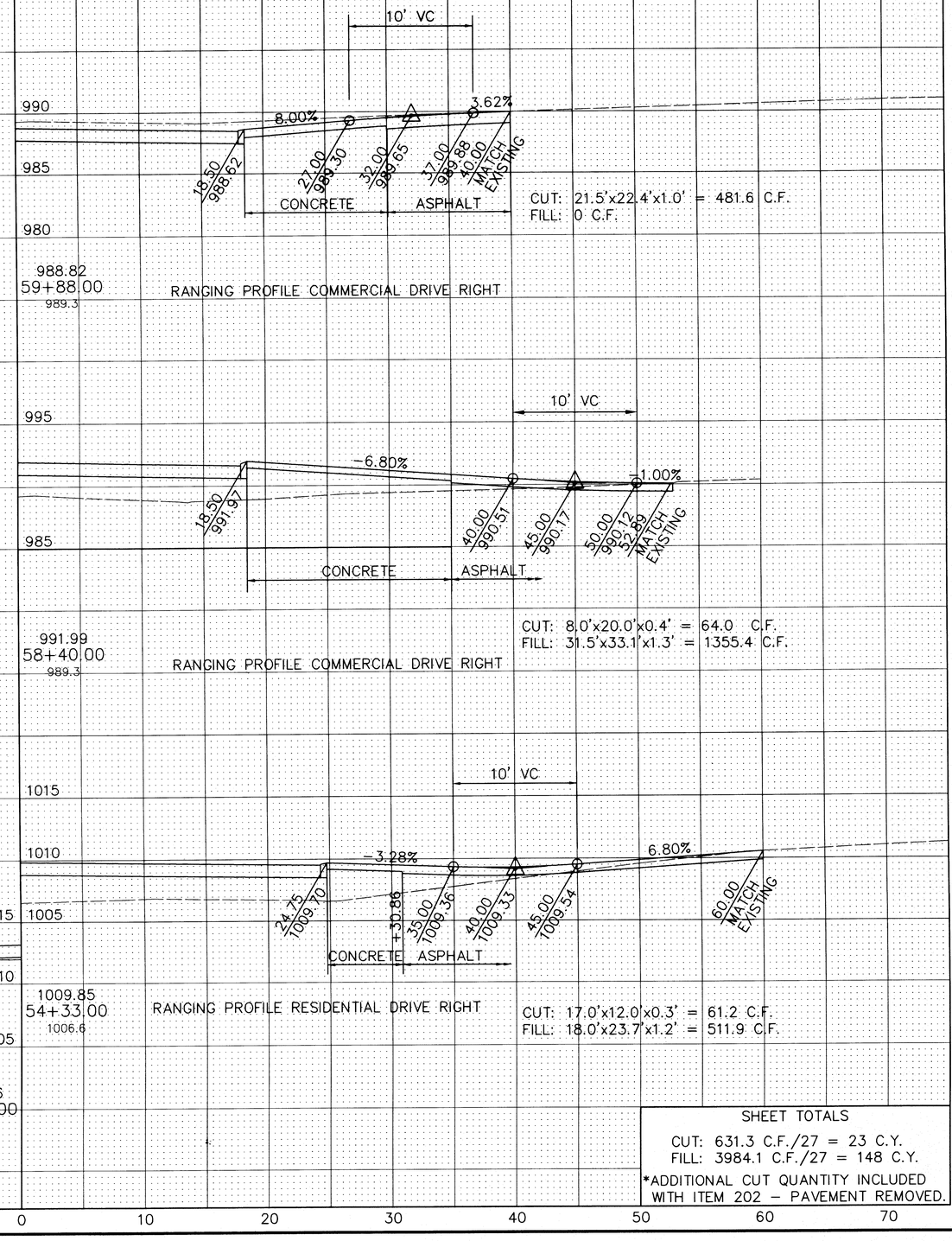
℄ CONSTRUCTION 16TH STREET, S.E.



SHEET TOTALS

CUT: 631.3 C.F./27 = 23 C.Y.
FILL: 3984.1 C.F./27 = 148 C.Y.

*ADDITIONAL CUT QUANTITY INCLUDED WITH ITEM 202 – PAVEMENT REMOVED.

CALCULATED JFU 05/02
CHECKED VLB 05/02

DRIVEWAY PROFILES – 16TH STREET STA. 53+54.00 TO 59+88.00

16TH STREET, SE

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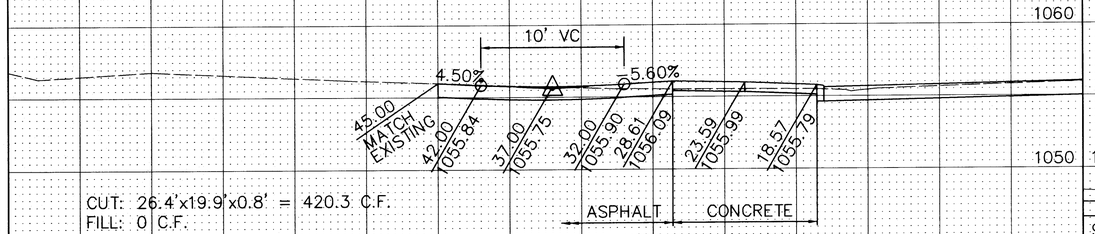
℄ CONSTRUCTION 16TH STREET, S.E.

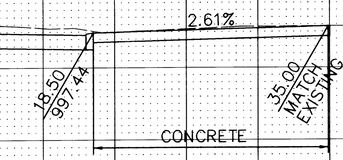


CUT: 26.4'x19.9'x0.8' = 420.3 C.F.
FILL: 0 C.F.

RANGING PROFILE COMMERCIAL DRIVE LEFT

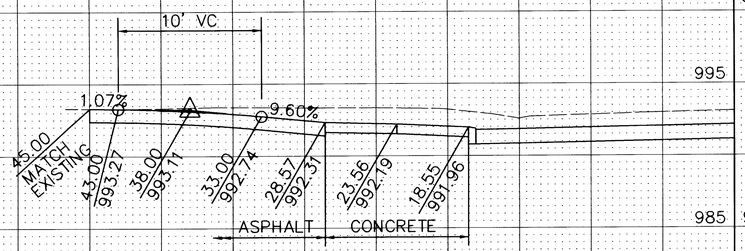
1056.03
74+30.00
1056.0

997.64
64+27.00
998.5



CUT: 9.0'x6.1'x0.5' = 27.5 C.F.*
FILL: 0 C.F.

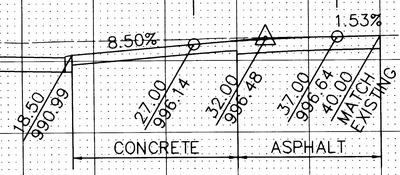
RANGING PROFILE COMMERCIAL DRIVE RIGHT



CUT: 26.5'x23.8'x1.3' = 819.9 C.F.
FILL: 0 C.F.

RANGING PROFILE COMMERCIAL DRIVE LEFT

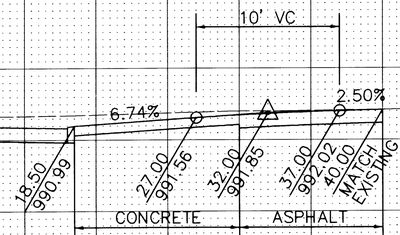
992.14
61+63.00
993.1



CUT: 21.5'x51.7'x1.3' = 1445.0 C.F.
FILL: 0 C.F.

995.62
63+47.00
996.6

RANGING PROFILE COMMERCIAL DRIVE RIGHT



CUT: 21.5'x93.6'x1.2' = 2414.9 C.F.
FILL: 21.5'x8.0'x0.6' = 103.2 C.F.

991.19
61+13.00
992.0

RANGING PROFILE COMMERCIAL DRIVE RIGHT

SHEET TOTALS
CUT: 5127.6 C.F./27 = 190 C.Y.
FILL: 103.2 C.F./27 = 4 C.Y.
*ADDITIONAL CUT QUANTITY INCLUDED WITH ITEM 202 – PAVEMENT REMOVED.

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

CALCULATED JFU 05/02
CHECKED VLB 05/02

DRIVEWAY PROFILES – 16TH STREET
STA. 61+13.00 TO 74+30.00

16TH STREET, SE

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℄ CONSTRUCTION WALNUT ROAD

15.0000' VC
PVI STA = 0+30
PVI ELEV = 1004.10
V.CORR. = +0.02
K = 7.66

0.51%
1.45%
41.00 MATCH EXISTING
35.00 1004.13
30.00
25.00 1004.18
18.55 1004.27
ASPHALT BUILD UP PER WALNUT ROAD TYPICAL SECTION

CUT: 22.5'x32.9'x1.1' = 814.3 C.F.
FILL: 0 C.F.

1004.87
RANGING PROFILE LAWTON STREET LEFT 17+69.00
1004.9

CONCRETE
-3.60%
18.50 1004.21
20.50 1004.25
25.50 1004.35
28.00 MATCH EXISTING

CUT: 0.3'x9.5'12.1' = 34.5 C.F. *
FILL: 0.4'x27.7'x9.5' = 105.3 C.F.

1004.41
17+60.50
1004.4
RANGING PROFILE RESIDENTIAL DRIVE RIGHT

CONCRETE
-8.80%
18.68 1002.52
20.70 1002.56
25.75 1002.66
27.00 MATCH EXISTING

CUT: 0.5'x8.5'4.8' = 20.4 C.F. *
FILL: 0.3'x26.3'8.5' = 67.1 C.F.

1002.78
17+09.00
1002.8
RANGING PROFILE RESIDENTIAL DRIVE RIGHT

10' VC
3.60%
-1.56%
45.00 MATCH EXISTING
38.00 1000.67
33.00 1000.55
28.00 1000.56
18.00 1000.72
ASPHALT BUILDUP PER WALNUT ROAD TYPICAL SECTION

CUT: 28.0'x9.4'x1.0' = 263.2 C.F.*
FILL: 0 C.F.

1001.07
RANGING PROFILE ALLEY LEFT 16+28.00
1001.1

10' VC
-1.60%
-7.25%
19.16 999.80
30.00 999.63
35.00 999.48
40.00 999.18
45.00 MATCH EXISTING
ASPHALT BUILDUP PER WALNUT ROAD TYPICAL SECTION

1000.03
15+75.50
1000.0
RANGING PROFILE ALLEY RIGHT

CUT: 25.9'x30.0'x1.2' = 932.4 C.F. *
FILL: 0 C.F.

10' VC
10' VC
-1.55%
-6.30%
-5.00%
55.00 MATCH EXISTING
53.00 996.97
48.00 997.11
43.00 997.37
38.00 997.68
33.00 997.98
28.00 998.25
17.54 998.77
ASPHALT BUILDUP PER WALNUT ROAD TYPICAL SECTION

CUT: 37.5'x0.8'x35.5' = 1065.0 C.F.
FILL: 30.5'x0.5'x1.0' = 15.3 C.F.

999.10
RANGING PROFILE 15TH STREET LEFT 14+98.50
999.1

SHEET TOTALS
CUT: 3129.8 C.F./27 = 116 C.Y.
FILL: 187.7 C.F./27 = 7 C.Y.
*ADDITIONAL CUT QUANTITY INCLUDED WITH ITEM 202 – PAVEMENT REMOVED.

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

CALCULATED JFU 05/02
CHECKED VLB 05/02

DRIVEWAY PROFILES – WALNUT ROAD STA. 14+92.00 TO 17+60.50 AND LAWTON STREET PROFILE

16TH STREET, SE

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℄ CONSTRUCTION WALNUT ROAD

1035
1030
1025

7.32%
16.50
1029.89
40.00
MATCH
EXISTING
CONCRETE

CUT: 23.5'x70.2'x1.4' = 2309.6 C.F.
FILL: 0 C.F.

1029.90
22+73.50
1032.0

RANGING PROFILE RESIDENTIAL DRIVE RIGHT

10' VC
10' VC
60.00
MATCH
EXISTING
3.20%
9.50%
8.00%
20.30
1025.89
22.00
1026.03
27.00
1026.44
32.00
1026.90
48.00
1028.42
53.00
1028.82
58.00
1029.06
+40.00
CONCRETE
ASPHALT

1030
1020

CUT: 39.7'x38.0'x1.3' = 1961.2 C.F.
FILL: 0 C.F.

1025.78
21+50.50
1028.3

RANGING PROFILE RESIDENTIAL DRIVE RIGHT

CONCRETE
14.85%
19.35
1010.06
21.44
1070.14
26.67
1010.35
40.00
MATCH
EXISTING

1015
1010
995

CUT: 20.7'x0.4'x2.6' = 21.5 C.F. *
FILL: 21.2'x0.3'x23.7' = 150.7 C.F.

1009.85
18+47.00
1009.7

RANGING PROFILE RESIDENTIAL DRIVE RIGHT

CONCRETE
1.18%
5.77%
20.95
1006.75
23.22
1006.87
28.88
1007.16
36.50
MATCH
EXISTING

1010
1000

CUT: 15.5'x0.3'x6.8' = 31.6 C.F. *
FILL: 15.5'x0.3'x32.7' = 152.1 C.F.

1006.32
17+96.00
1006.3

RANGING PROFILE RESIDENTIAL DRIVE RIGHT

SHEET TOTALS
CUT: 4323.9 C.F./27 = 160 C.Y.
FILL: 302.8 C.F./27 = 11 C.Y.
*ADDITIONAL CUT QUANTITY INCLUDED WITH ITEM 202 – PAVEMENT REMOVED.

70 60 50 40 30 20 10 0 10 20 30 40 50 60 70

CALCULATED JFU 05/02
CHECKED VLB 05/02

DRIVEWAY PROFILES – WALNUT ROAD STA. 17+96.00 TO 22+73.50

16TH STREET, SE

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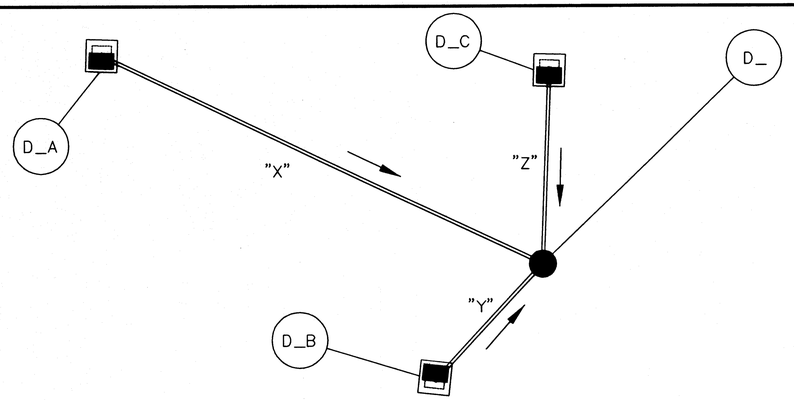
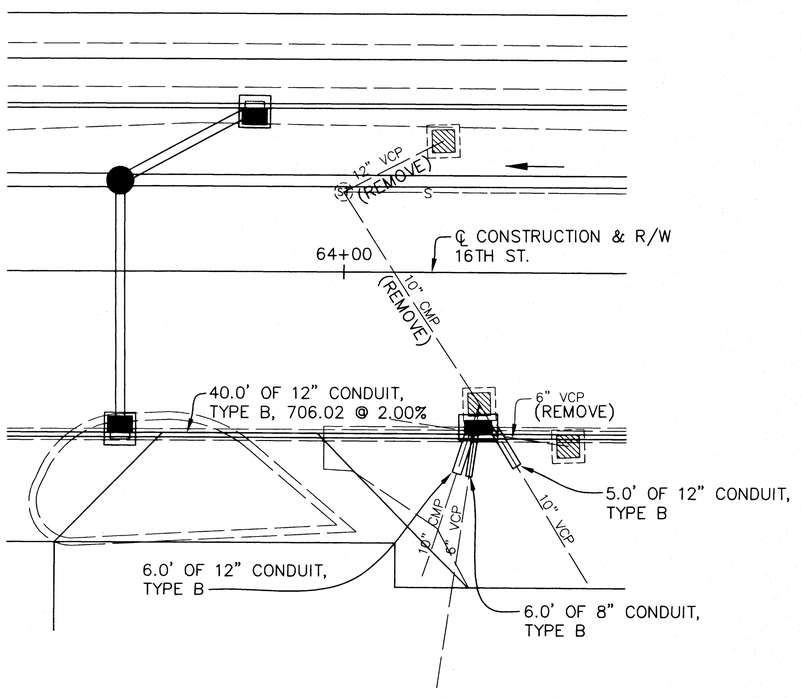
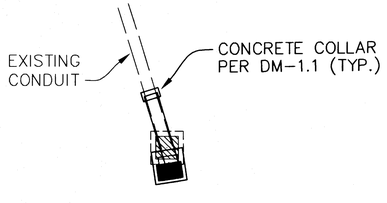


REFERENCE NO.	SHEET NO.	STATION	SIDE	603 – FOR INFORMATION ONLY						604 – FOR INFORMATION ONLY
				12" CONDUIT, TYPE B, 706.02						CATCH BASIN, NO. 3A
				"X"		"Y"		"Z"		EACH
				LENGTH	SLOPE	LENGTH	SLOPE	LENGTH	SLOPE	
D1A	31	45+00.0	LT.	53'	2.00%					1
D1B	31	45+45.0	RT.			18'	1.20%			1
D1C	31	45+50.0	LT.					18'	2.70%	1
D2A	31	47+20.0	RT.	–	–	25'	2.00%			1
D2B	31	47+40.0	LT.	–	–			22'	3.00%	1
D4A	32	49+39.0	RT.	–	–	52'	2.00%			1
D4B	32	49+75.0	LT.	–	–			25'	2.00%	1
D5A	32	50+50.0	RT.	–	–	53'	2.00%			1
D5B	32	51+00.0	LT.	–	–			22'	2.10%	1





A CONCRETE COLLAR PER DM–1.1 SHALL BE PROVIDED WHENEVER A CONNECTION IS MADE TO AN EXISTING CONDUIT.
N.T.S.

SEE DRAINAGE SUBSUMMARY SHEETS 21–22 FOR DRAINAGE QUANTITIES.

CALCULATED VLK 11/01
CHECKED JHE 11/01

DRAINAGE DETAILS

16TH STREET, SE

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SHEET NUMBER	REFERENCE NUMBER	STATION	OFFSET	ELEVATION	REMARKS	603 4" CONDUIT, TYPE F LIN. FT.	605 4" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP LIN. FT.
		16TH STREET					
31	UD1	43+55.00	12.29' LT.	1032.94	PLUG END	10.00'	135.00'
		45+00.00	11.80' LT.	1030.57	OUTLET		
31	UD2	44+90.00	17.00' RT.	1029.35	PLUG END	10.00'	35.00'
		45+45.00	22.77' RT.	1029.75	OUTLET		
31	UD3	45+50.00	24.68' RT.	1029.64	PLUG END	10.00'	160.00'
		47+20.00	24.00' RT.	1027.52	OUTLET		
31	UD3A	45+05.00	11.80' LT.	1030.51	PLUG END	10.00'	35.00'
		45+50.00	13.00' LT.	1029.88	OUTLET		
31	UD4	45+55.00	13.00' LT.	1029.83	PLUG END	10.00'	175.00'
		47+40.00	12.00' LT.	1027.43	OUTLET		
31	UD5	47+25.00	25.00' RT.	1027.42	PLUG END	10.00'	140.00'
		48+75.00	24.00' RT.	1021.87	OUTLET		
31	UD6	47+45.00	13.00' LT.	1027.33	PLUG END	10.00'	120.00'
		48+75.00	12.00' LT.	1022.11	OUTLET		
	UD7	NOT USED					
32	UD8	48+80.00	13.00' LT.	1021.85	PLUG END	10.00'	85.50'
		49+75.50	13.00' LT.	1017.58	OUTLET		
32	UD9	50+55.00	25.00' RT.	1015.09	PLUG END	10.00'	205.00'
		52+70.00	24.00' RT.	1011.72	OUTLET		
32	UD10	51+05.00	13.00' LT.	1014.48	PLUG END	10.00'	155.00'
		52+70.00	12.00' LT	1011.96	OUTLET		
32	UD11	52+75.00	25.00' RT.	1012.58	PLUG END	10.00'	115.00'
		54+00.00	24.00' RT.	1008.32	OUTLET		
32	UD12	52+75.00	13.00' LT.	1011.82	PLUG END	10.00'	115.00'
		54+00.00	12.00' LT.	1007.56	OUTLET		
33	UD13	54+05.00	25.00' RT.	1007.87	PLUG END	10.00'	235.00'
		56+50.00	18.00' RT.	997.26	OUTLET		
33	UD14	54+05.00	13.00' LT.	1008.12	PLUG END	10.00'	235.00'
		56+50.00	18.00' LT.	997.26	OUTLET		
33	UD15	56+55.00	19.00' RT.	996.81	PLUG END	10.00'	135.00'
		58+00.00	18.00' RT.	990.47	OUTLET		
33	UD16	56+55.00	19.00' LT.	996.23	PLUG END	10.00'	135.00'
		58+00.00	18.00' LT.	989.89	OUTLET		
					SUBTOTAL THIS COLUMN (1)	160.00'	2215.50'

SHEET NUMBER	REFERENCE NUMBER	STATION	OFFSET	ELEVATION	REMARKS	603 4" CONDUIT, TYPE F LIN. FT.	605 4" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP LIN. FT.
		16TH STREET					
34	UD17	58+05.00	19.00' RT.	990.65	PLUG END	10.00'	137.00'
		59+52.00	18.00' RT.	985.32	OUTLET		
34	UD18	58+05.00	19.00' LT.	989.65	PLUG END	10.00'	137.00'
		59+52.00	18.00' LT.	984.32	OUTLET		
34	UD19	59+52.00	18.00' RT.	985.32	OUTLET	10.00'	93.00'
		60+55.00	19.00' RT.	987.22	PLUG END		
34	UD20	59+52.00	18.00' LT.	984.32	OUTLET	10.00'	93.00'
		60+55.00	19.00' LT.	986.22	PLUG END		
34	UD21	60+60.00	18.00' RT.	986.33	OUTLET	10.00'	100.00'
		61+70.00	19.00' RT.	988.39	PLUG END		
34	UD22	60+60.00	18.00' LT.	986.33	OUTLET	10.00'	205.00'
		62+75.00	19.00' LT.	990.38	PLUG END		
34	UD22A	61+75.00	18.00' RT.	988.68	OUTLET	10.00'	90.00'
		62+75.00	19.00' RT.	990.55	PLUG END		
34	UD23	62+80.00	18.00' RT.	990.49	OUTLET	10.00'	80.00'
		63+70.00	19.00' RT.	992.21	PLUG END		
35	UD23A	63+75.00	18.00' RT.	992.35	OUTLET	10.00'	25.00'
		64+10.00	19.00' RT.	993.25	PLUG END		
34	UD24	62+80.00	18.00' LT.	990.49	OUTLET	10.00'	95.00'
		63+85.00	19.00' LT.	992.57	PLUG END		
35	UD25	64+15.00	18.00' RT.	993.41	OUTLET	10.00'	185.00'
		66+10.00	19.00' RT.	1002.44	PLUG END		
35	UD26	63+90.00	18.00' LT.	992.71	OUTLET	10.00'	210.00'
		66+10.00	19.00' LT.	1002.44	PLUG END		
35	UD27	66+15.00	18.00' RT.	1002.78	OUTLET	10.00'	135.00'
		67+60.00	19.00' RT.	1012.76	PLUG END		
35	UD28	66+15.00	18.00' LT.	1002.78	OUTLET	10.00'	135.00'
		67+60.00	19.00' LT.	1012.76	PLUG END		
35	UD29	67+65.00	18.00' RT.	1013.12	OUTLET	10.00'	38.00'
		68+13.00	19.00' RT.	1016.44	PLUG END		
35	UD30	67+65.00	18.00' LT.	1013.12	OUTLET	10.00'	180.00'
		69+55.00	19.00' LT.	1026.34	PLUG END		
36	UD31	69+60.00	18.00' RT.	1026.71	OUTLET	10.00'	135.00'
		71+05.00	19.00' RT.	1036.79	PLUG END		
					SUBTOTAL THIS COLUMN (2)	170.00'	2073.00'

SHEET NUMBER	REFERENCE NUMBER	STATION	OFFSET	ELEVATION	REMARKS	603 4" CONDUIT, TYPE F LIN. FT.	605 4" SHALLOW PIPE UNDERDRAIN WITH FABRIC WRAP LIN. FT.
		16TH STREET					
36	UD32	69+60.00	18.00' LT.	1026.71	OUTLET	10.00'	135.00'
		71+05.00	19.00' LT.	1036.79	PLUG END		
36	UD33	71+10.00	18.00' RT.	1037.15	OUTLET	10.00'	350.00'
		74+70.00	19.00' RT.	1053.32	PLUG END		
36	UD34	71+10.00	18.00' LT.	1037.15	OUTLET	10.00'	175.00'
		72+95.00	19.00' LT.	1047.45	PLUG END		
36	UD35	73+00.00	18.00' LT.	1047.70	OUTLET	10.00'	160.00'
		74+70.00	19.00' LT.	1053.32	PLUG END		
37	UD36	74+75.00	18.00' RT.	1053.49	OUTLET	10.00'	65.00'
		75+50.00	19.20' RT.	1055.64	PLUG END		
37	UD37	74+75.00	18.00' LT.	1053.49	OUTLET	10.00'	65.00'
		75+50.00	19.15' LT.	1055.64	PLUG END		
					SUBTOTAL THIS COLUMN	60.00'	950.00'
					SUBTOTAL PREVIOUS COLUMN (1)	160.00'	2215.50'
					SUBTOTAL PREVIOUS COLUMN (2)	170.00'	2073.00'
					TOTAL	390.00'	5238.50'
					TOTAL CARRIED TO GENERAL SUMMARY	390'	5239'

CALCULATED VLK 11/01
CHECKED JFU 05/02

UNDERDRAIN SUBSUMMARY

16TH STREET, SE

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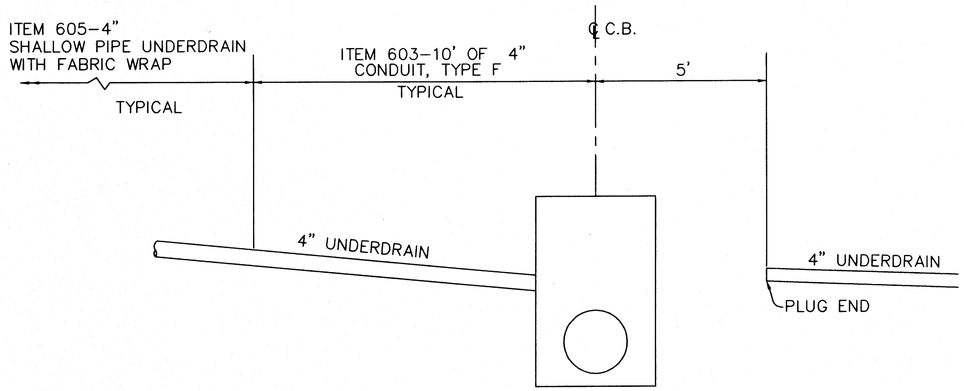
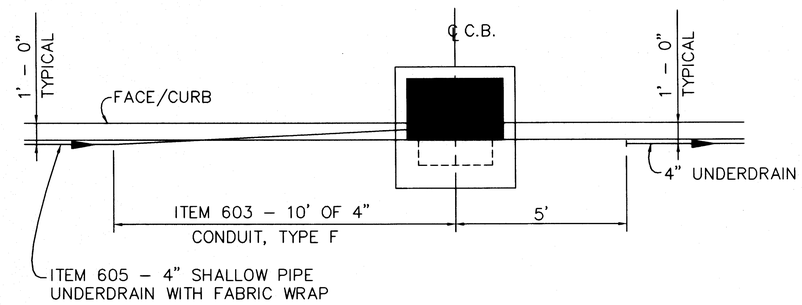


TYPICAL UNDERDRAIN CONNECTION – ELEVATION

N.T.S.



TYPICAL UNDERDRAIN CONNECTION – PLAN

N.T.S.

CALCULATED | CHECKED

UNDERDRAIN DETAILS

16TH STREET, SE

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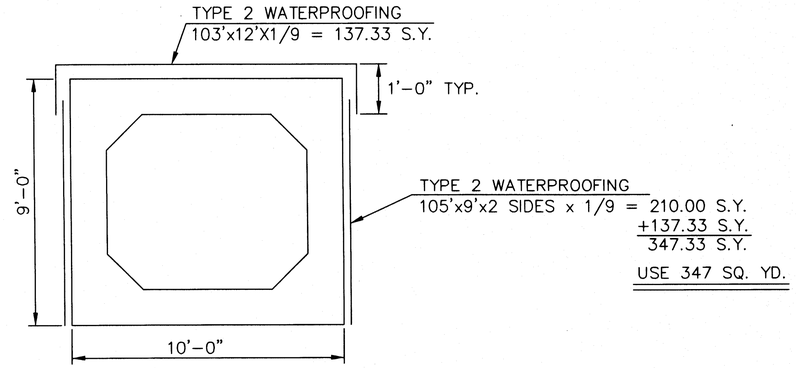
BOX CULVERT GENERAL NOTES

PRECAST CONCRETE BOX CULVERT:
THE WALL, BASE, AND TOP SLAB THICKNESSES SHOWN ON THE PLANS WERE OBTAINED FROM THE MANUFACTURERS AT THE TIME THE PLANS WERE PREPARED. IF THE WALL, BASE, AND/OR SLAB THICKNESSES OF THE PROPOSED CULVERT ARE DIFFERENT FROM WHAT IS SHOWN ON THE PLANS, A MARKED COPY OF THE PROJECT PLANS, INCLUDING ALL PLAN NOTES AND DETAILS SHOWING ALL ITEMS AFFECTED BY THE DIFFERENT CULVERT DIMENSIONS SHALL BE SUBMITTED FOR APPROVAL WITH THE SHOP DRAWINGS. ALL WORK REQUIRED TO ACCOMMODATE ANY REVISED DIMENSIONS SHALL BE AT NO EXTRA COST TO THE CITY.

ITEM 512 – TYPE 2 WATERPROOFING
TYPE 2 WATERPROOFING SHALL BE APPLIED TO THE TOP SURFACE OF THE PRECAST CULVERT SECTIONS AND SHALL EXTEND 1' DOWN EACH VERTICAL SIDE FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL. IT SHALL ALSO BE APPLIED VERTICALLY DOWN THE ENTIRE SIDES FOR ALL PORTIONS OF THE CULVERT WHICH SHALL BE IN CONTACT WITH THE BACKFILL AND SHALL BE EXTENDED 1' ONTO THE WINGWALLS. PAYMENT FOR THE TYPE 2 WATERPROOFING SHALL BE AT THE CONTRACT PRICE BID PER SQ. YD. FOR ITEM 512 – TYPE 2 WATERPROOFING.

ITEM 603 – 8'x7' CONDUIT, TYPE A, 706.05, AS PER PLAN, ASTM C 1433
JOINT WRAP AS SPECIFIED IN 603.06 AND CONCRETE SEALING AS SPECIFIED IN 603.08 ARE NOT REQUIRED UNDER THE LIMITS OF THE TYPE 2 WATERPROOFING. THE EXTERIOR JOINT GAP ON THE TOP AND SIDES BETWEEN THE PRECAST CULVERT SECTIONS SHALL BE FILLED WITH PORTLAND CEMENT MORTAR PRIOR TO INSTALLING THE TYPE 2 WATERPROOFING.



WATERPROOFING DETAIL

CALCULATED JHE 12/01
CHECKED JSK 02/02

CULVERT GENERAL NOTES & DETAILS STA. 57+37

16TH STREET, SE

90
162

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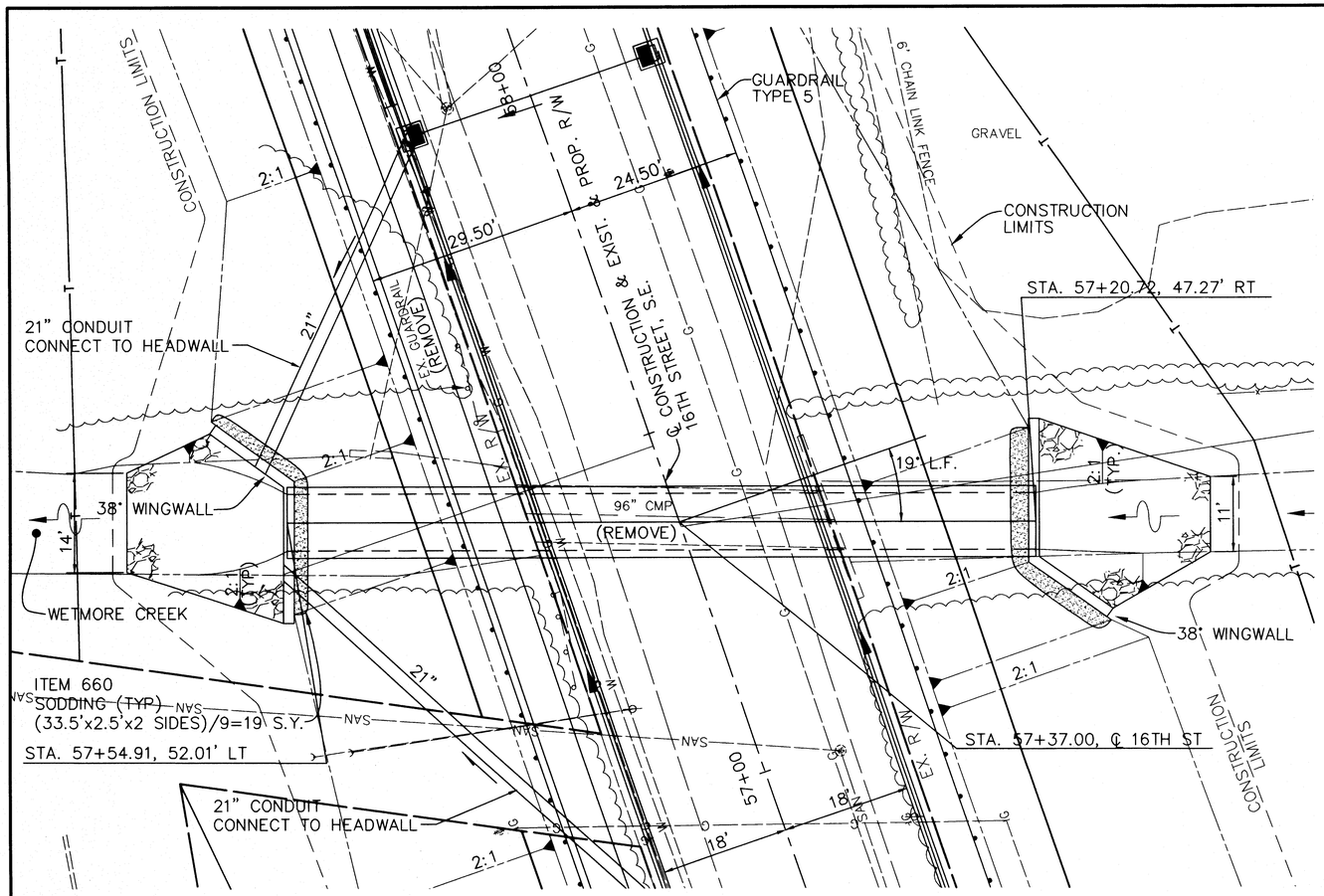

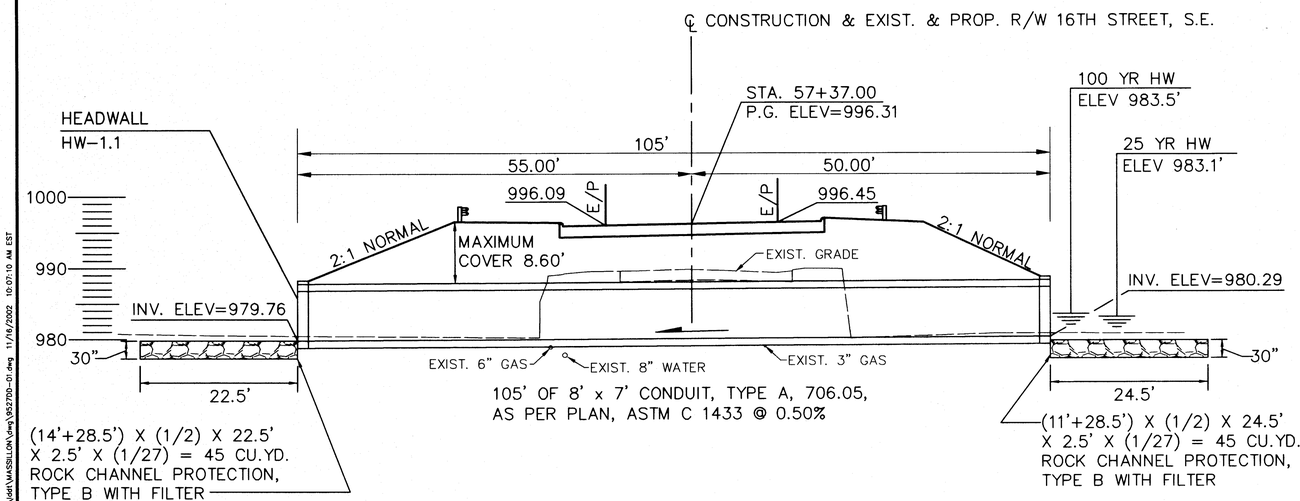

BM-2
RAILROAD SPIKE SET IN POWER POLE WEST SIDE OF 16TH ST. AND SOUTH SIDE OF RAILROAD
ELEV. = 987.02
STA 58+81.61, 83.42' RT

HYDRAULIC DESIGN DATA		
DRAINAGE AREA: 2029 AC.		
FREQ. (YR.)	Q (CFS)	VEL. (FPS)
25	255	11
100	321	12

EXISTING STRUCTURE
TYPE: CMPA
SIZE: 96" ø
SKEW: 20°15' L.F.
ALIGNMENT: TANGENT
CONDITION: POOR
DATE BUILT: UNKNOWN

PROPOSED STRUCTURE
TYPE: PRECAST REINFORCED CONCRETE BOX
SPANxRISE: 8'x7' NORMAL TO C/L CULVERT
LOADING: HS20-44 AND ALT. MILITARY
SKEW: 19° L.F.

ESTIMATED QUANTITIES CARRIED TO GENERAL SUMMARY

ITEM	TOTAL	UNIT	DESCRIPTION
202	44	LIN. FT.	PIPE REMOVED, OVER 24"
512	347	SQ. YD.	TYPE 2 WATERPROOFING
SPECIAL	53	SQ. YD.	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)
601	90	CU. YD.	ROCK CHANNEL PROTECTION, TYPE B WITH FILTER
602	137.9	CU. YD.	CONCRETE MASONRY
603	105	LIN. FT.	8'x7' CONDUIT, TYPE A, 706.05, AS PER PLAN, ASTM C 1433
660	19	SQ. YD.	SODDING STAKED

HORIZONTAL SCALE IN FEET
0 5 10 20

CALCULATED JHE 12/01
CHECKED JSK 02/02

CULVERT DETAILS AND ESTIMATED QUANTITIES STA. 57+37

16TH STREET, SE

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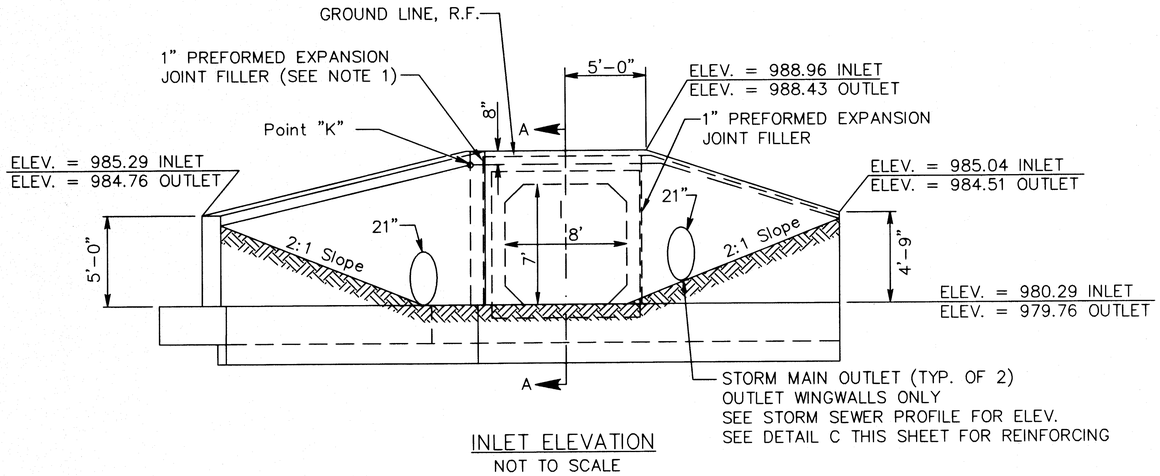
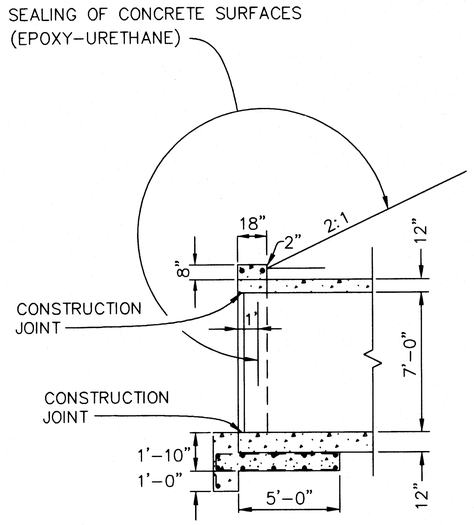
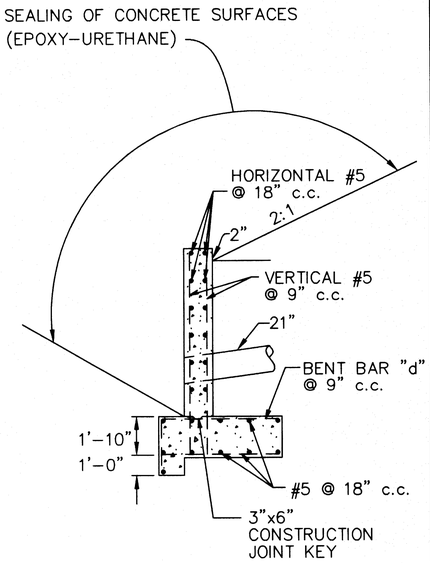


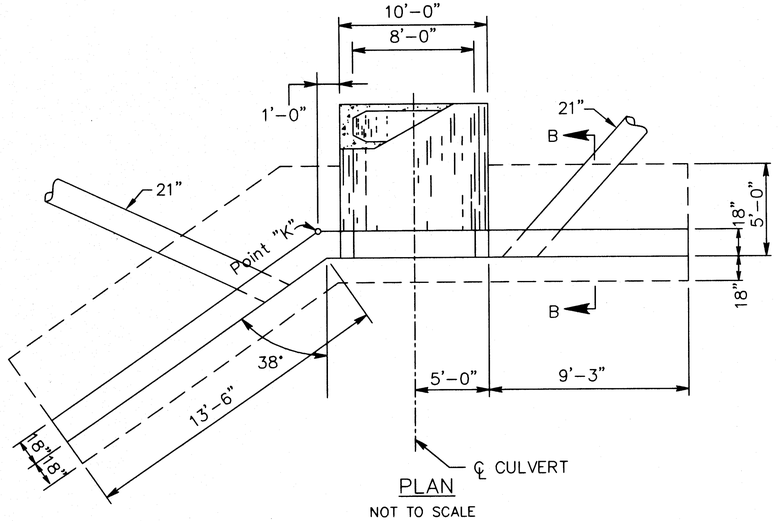
INLET ELEVATION
NOT TO SCALE



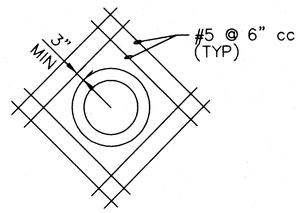
SECTION A-A
NOT TO SCALE



SECTION B-B
NOT TO SCALE



PLAN
NOT TO SCALE



REINFORCING AROUND CONDUIT OPENINGS

DETAIL C
NOT TO SCALE

NOTES:

1.) 1" PREFORMED EXPANSION JOINT FILLER SHALL BE EXTENDED FROM TOP OF FOOTING TO TOP OF WALL.

2.) THE CONTRACTOR SHALL CONSTRUCT HEADWALLS AND WINGWALLS AS DETAILED ON THIS SHEET. THE HEADWALLS AND WINGWALLS SHALL BE BUILT AS PER STANDARD DRAWING HW-3 AND TO THE DIMENSIONS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL BE PAID AT THE UNIT PRICE BID FOR ITEM 602 - CONCRETE MASONRY.

THE FOLLOWING QUANTITIES HAVE BEEN CARRIED TO SHEET 91:

ITEM 602 - CONCRETE MASONRY	137.9	CU. YD.
ITEM SPECIAL - SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	53	SQ. YD.

NOT TO SCALE

CALCULATED JHE 12/01
CHECKED JSK 02/02

CULVERT DETAILS - STA 57+37
INLET/OUTLET ELEVATION & PLAN VIEWS

16TH STREET, SE

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NOTES:

1. THESE PLANS HAVE BEEN PREPARED FROM RECORD DRAWINGS AND ARE NOT WARRANTED TO EXACTLY REPRESENT ALL UNDERGROUND CONDITIONS THAT MAY BE ENCOUNTERED BY THE CONTRACTOR. CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY VARIATION FROM THESE PLANS THAT MAY REQUIRE SPECIAL ATTENTION BY THE ENGINEER OR MAY REQUIRE A CONTRACT MODIFICATION FOR CONTRACT SCHEDULE OR CONTRACT AMOUNT AS THE RESULT OF SUCH DISCOVERY. CONTRACTOR SHALL PURSUE ALL CONSTRUCTION METHODS AND MATERIAL SOURCES IN ORDER TO COMPLETE THIS WORK AS SOON AS POSSIBLE. CONTRACTOR SHALL PROCEED WITH ANY DIRECTED CHANGES IMMEDIATELY AND AS EXPEDITIOUSLY AS POSSIBLE REGARDLESS OF THE STATUS OF NEGOTIATIONS FOR CONTRACT AMOUNT. CONTRACTOR SHALL MAINTAIN COMPLETE RECORDS OF ALL MAN-HOURS, EQUIPMENT HOURS, AND MATERIALS AND SHALL ACCEPT PAYMENT FOR TIME AND MATERIALS PLUS 10% OVERHEAD AND PROFIT IN THE EVENT THAT AN AGREEMENT FOR A FIXED FEE IS NOT ACHIEVED.

2. CONTRACTOR SHALL INSPECT AND IMMEDIATELY REPORT ANY DETERIORATED CONDITIONS OF SEWER MAINS OR MANHOLES TO ENGINEER AND MAKE REPAIRS AS DIRECTED. PURGE INTERIOR OF MH-1 AND MH-2 AFTER COMPLETION OF OTHER CONSTRUCTION IN MANHOLES.

3. CONTRACTOR SHALL COMPLY WITH MAINTENANCE OF TRAFFIC NOTES REGARDING NOTICE OF CONSTRUCTION ADJACENT TO NORFOLK SOUTHERN RAILROAD. CONSTRUCT BULKHEAD IN SANITARY MH-1 AND BYPASS PUMP UNDER RAILROAD INTO SANITARY MH-3. REMOVE 10" VCP SANITARY SEWER FROM SANITARY MH-1 TO SANITARY MH-2 INCLUDING SEWER PIPE WITHIN CASING. CLEAN CASING WITH JETTING OR APPROVED EQUIVALENT.

4. INSTALL NEW 12" PVC SDR 35 FROM SANITARY MH-1 TO MH-3. INSTALL NEW FLOW BENCHES IN MH-1 AND MH-2, WITH SPECIAL ATTENTION TO INVERT OF EAST LATERAL. FILL ANNULAR SPACE IN CASING WITH K-CRETE. SEAL PVC PIPE @ MANHOLE CONNECTIONS WITH HYDRAULIC CEMENT. BULKHEAD MANHOLE END OF 18" VCP PIPE IN MH-2 AND SEAL WITH HYDRAULIC CEMENT. SEAL ANY VISIBLE AND ACCESSIBLE LEAKS IN MANHOLES AND CONNECTING SEWER MAINS.

CITY OF MASSILLON STANDARD SEWER NOTES

SANITARY / STORM WORK

THE FOLLOWING CONDUIT TYPES MAY BE USED FOR SANITARY SEWER: 707.44 SDR35, 706.08, 706.03, 706.02 WITH JOINTS AS PER ASTM-3212. THE FOLLOWING CONDUIT TYPES MAY BE USED FOR STORM SEWER WITH MORE THAN (1) ONE FOOT OF COVER: 707.42, 706.08, 706.02, WITH JOINTS AS PER 706.10 OR 706.11, 707.33

THE FOLLOWING CONDUIT TYPES MAY BE USED FOR STORM SEWER WITH LESS THAN (1) ONE FOOT OF COVER: 706.02 WITH JOINTS AS PER 706.10 OR 706.11.

ALL SANITARY SEWERS AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF MASSILLON ENGINEERING DEPARTMENT SPECIFICATIONS IN EFFECT AT TIME OF CONSTRUCTION.

MINIMUM COVER OVER SANITARY SEWER SHALL BE 3 FEET.

MAINTAIN MINIMUM 10 FEET HORIZONTAL AND 18 INCHES VERTICAL SEPARATION.

MINIMUM VERTICAL CLEARANCE BETWEEN SANITARY SEWER AND STORM SEWER IS 12 INCHES.

SANITARY MANHOLE SPECIFICATIONS SHALL MEET ASTM C-478 AND C-443.

BEDDING SPECIFICATIONS SHALL MEET ASTM D-2321, CLASS II.

CONNECTION TO EXISTING SEWERS

CONSTRUCTION OF NEW SEWER SHALL BE SCHEDULED AND PERFORMED SUCH THAT ALL NEW SEWER IS IN PLACE, TESTED, AND FOUND READY FOR ACCEPTANCE BEFORE THE ACTUAL CUTTING AND TYING INTO THE EXISTING SEWER IS PERFORMED. IF THIS IS IMPRACTICAL, CONTRACTOR SHALL COORDINATE WITH THE CITY OF MASSILLON ENGINEERING DEPARTMENT FOR ON-GOING INSPECTION AND APPROVAL.

LATERALS

ALL NEW LATERAL LOCATIONS SHALL BE DETERMINED IN THE FIELD. TO DETERMINE THE LOCATION, THE CONTRACTOR SHALL SPEAK TO THE LANDOWNER FOR BEST SUITABLE LOCATION. ALL LOCATIONS MUST BE APPROVED BY THE ENGINEER AND ARE TO BE DOCUMENTED AS PART OF THE AS-BUILT DRAWINGS.

ALL NEW LATERAL LOCATIONS TO BE FIELD CHECKED AND LOCATED BY THE CONTRACTOR PRIOR TO BACKFILLING.

LATERALS SHALL BE 6" CONDUIT, TYPE B.

LATERAL PRICE SHALL INCLUDE ALL APPURTENANCES NECESSARY FOR A COMPLETE AND WATERTIGHT SERVICE LATERAL.

EXISTING ROOF DRAINS, YARD DRAINS, AND FOUNDATION DRAINS SHALL BE CONNECTED TO THE 6" STORM SEWER LATERAL.

ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.

THE FOLLOWING WORK SHALL BE PAID FOR UNDER ITEM 603 6" CONDUIT,, TYPE B 707.42.

PAYMENT FOR ALL OF THE ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 603 ITEM.

SEWER INSPECTIONS AND TESTS

ALL SANITARY SEWERS 8" DIAMETER AND LARGER, MUST PASS INTERNAL TELE- VISION INSPECTION. THE CONTRACTOR SHALL PROVIDE COMPLETE, INTERNAL INSPECTION VIDEOTAPE TO THE CITY OF MASSILLON ENGINEERING DEPARTMENT. THE VIDEOTAPING PROCEDURE MUST BE IN ACCORDANCE WITH SPECIFICATION SECTION 02743.

ALL SANITARY MANHOLES SHALL BE AIR/VACUUM TESTED IN ACCORDANCE WITH ASTM C-1244.

PIPE DEFLECTION TESTS SHALL BE PERFORMED ACCORDING TO GLUMRB SECTION 33.85 AND ASTM SPECIFICATION FOR THE PIPE BEING TESTED. THE ALLOWABLE DEFLECTION RATE SHALL NOT EXCEED 5%.

AIR TEST SPECIFICATIONS SHALL MEET ASTM F-1417.

CALCULATED | CHECKED

SANITARY SEWER GENERAL NOTES

16TH STREET, SE

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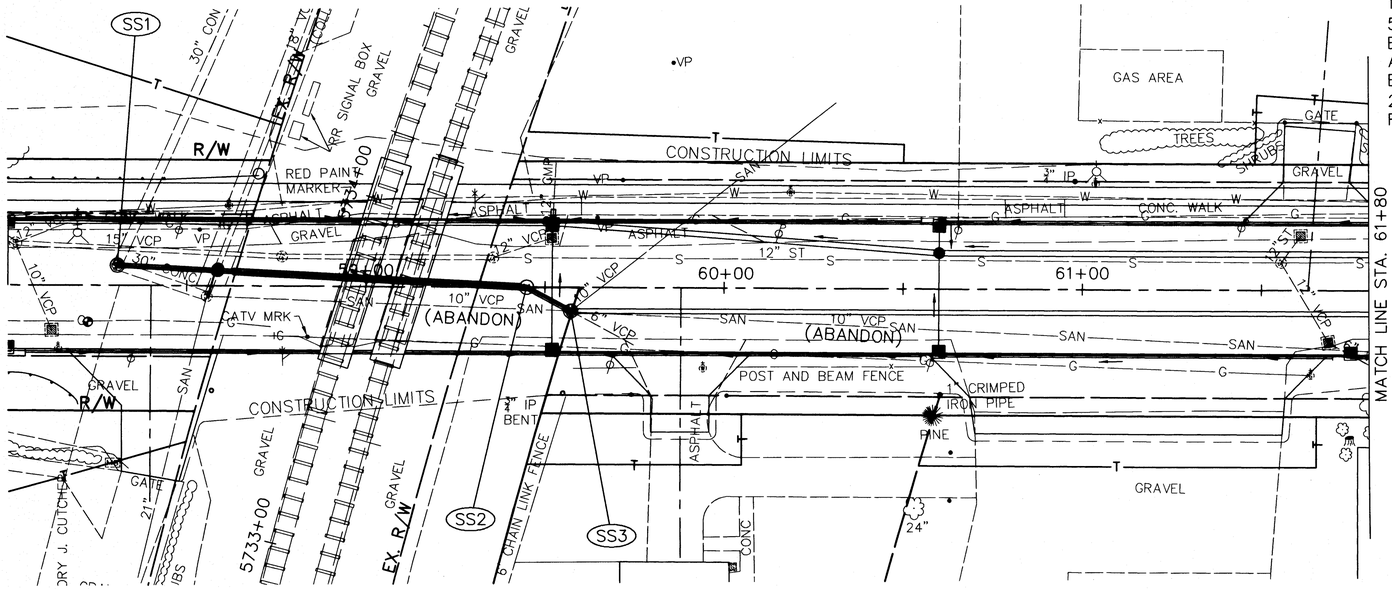
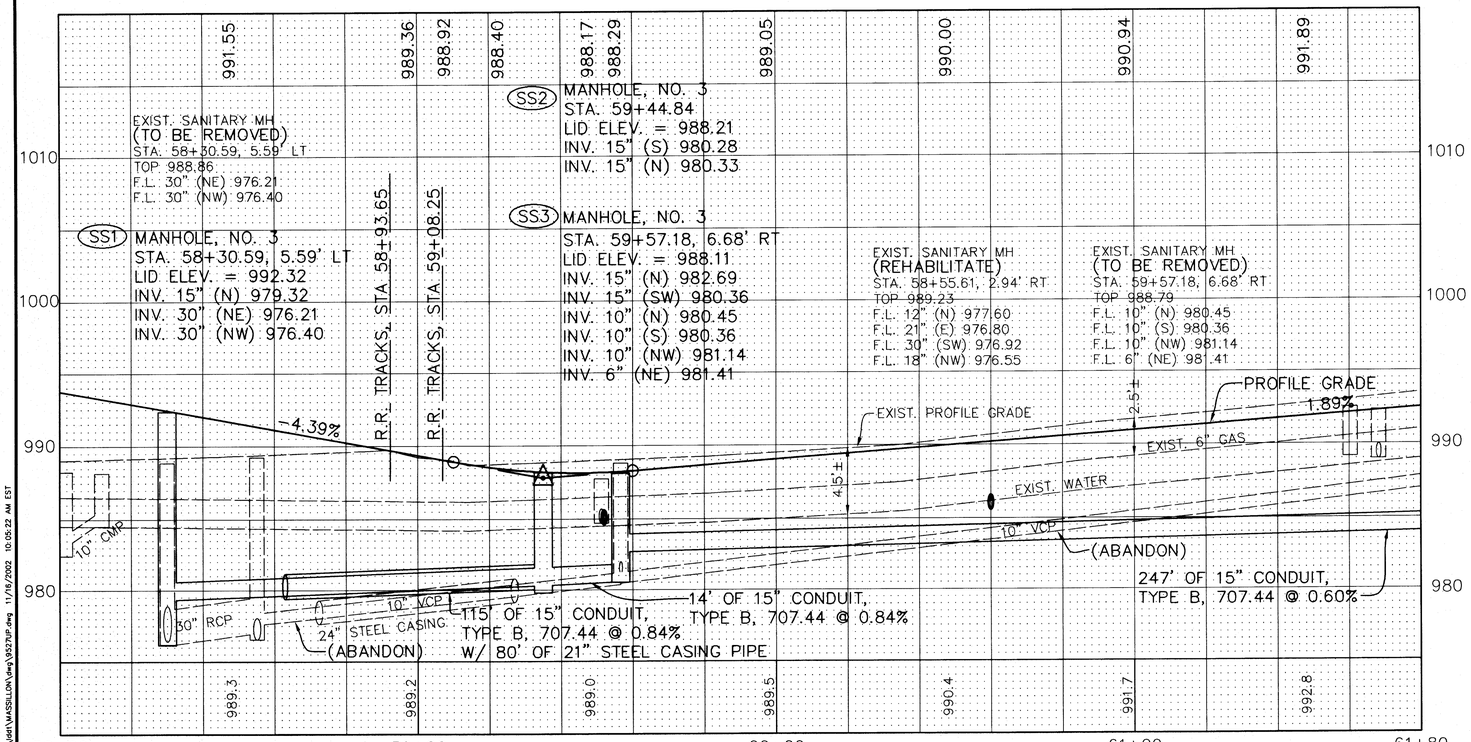


NOTES:

1.) REPLACE FIRST SECTION OF ANY LATERALS TYING INTO NEW MANHOLES AT STA. 58+55.61 AND STA. 59+57.18. AN ESTIMATED LENGTH OF 4' PER LATERAL AT EXISTING SIZE HAS BEEN INCLUDED IN THE QUANTITY TABLE BELOW WITH THE APPROPRIATE (SS) NUMBER. THE PIPE MATERIAL SHALL BE AS DIRECTED BY THE ENGINEER.

2.) PROVIDE STEEL CASING PIPE FOR NEW SANITARY SEWER BORE & JACK UNDER RAILROAD TRACKS. COST TO BE INCLUDED IN THE PERTINENT 603 ITEM.



REF NO.	STATION FROM	STATION TO	SIDE																
604	MANHOLE NO. 3		EACH		1	1	1	1		1	1								46
603	30" CONDUIT, TYPE B		LIN. FT.		12					32									44 12
603	21" CONDUIT, TYPE B		LIN. FT.		4														4
603	18" CONDUIT, TYPE B		LIN. FT.		4														4
603	15" CONDUIT, TYPE B, 707.44 W/ CASING PIPE		LIN. FT.		80														80
603	15" CONDUIT, TYPE B, 707.44		LIN. FT.			35	247 21		353	12									621 634
603	10" CONDUIT, TYPE B		LIN. FT.				4												4
603	6" CONDUIT, TYPE B, 707.44		LIN. FT.				4		21										25
SPECIAL	FILL AND PLUG EXIST. CONDUIT		LIN. FT.		102		247		353										702
202	MANHOLE REMOVED		EACH		1		1												4
202	PIPE REMOVED, 24" AND UNDER		EACH		12		8		21										53
									12										
SS1	58+30.59	58+59 ~~59+44.84~~	LT.																
SS2	59+44.84	59+57.18																	
SS3	59+57.18	62+03.22	RT.																
SS4	62+03.22	65+56.05	RT.																
SS5	65+56.05		RT.																
SS1A	58+59	58+30.59	LT																
		62+06.05	RT.					1											
		65+56.05	RT.					1											
	TOTALS CARRIED TO GENERAL SUMMARY																		

CALCULATED JHE 03/02
CHECKED JSK 04/02

HORIZONTAL SCALE IN FEET
0 20 40 80

SANITARY SEWER PLAN AND PROFILE
STA. 58+00 – 61+80 16TH STREET, SE
16TH STREET, SE

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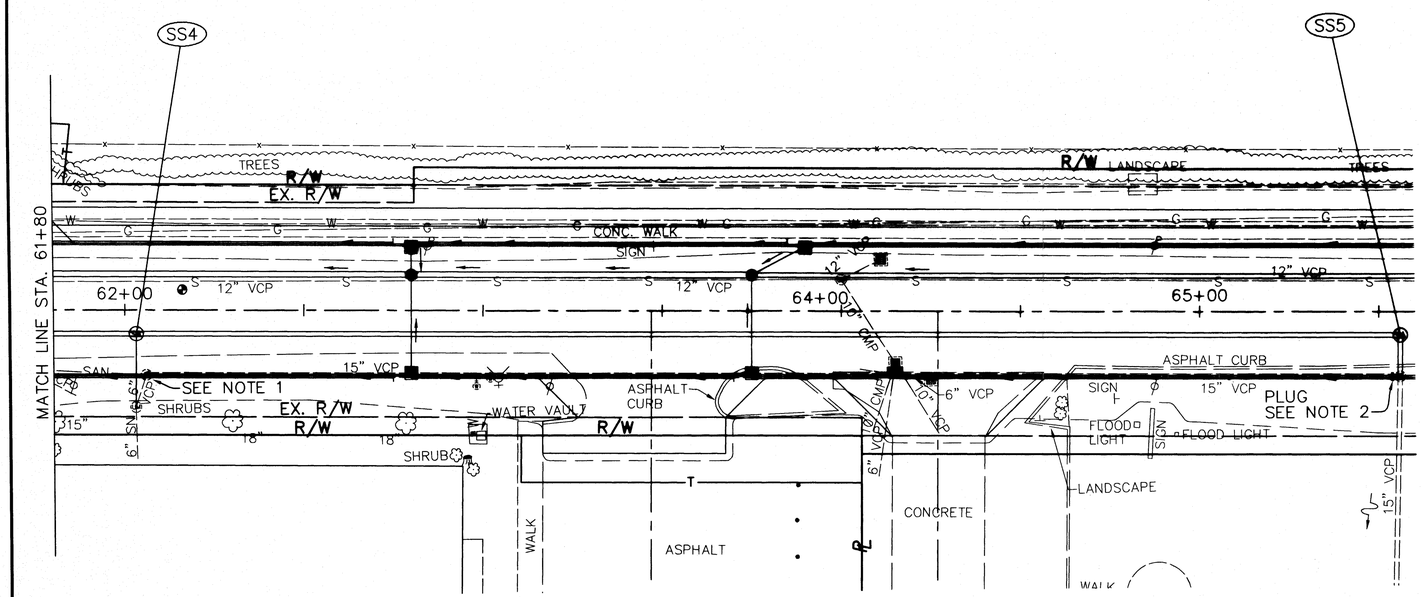
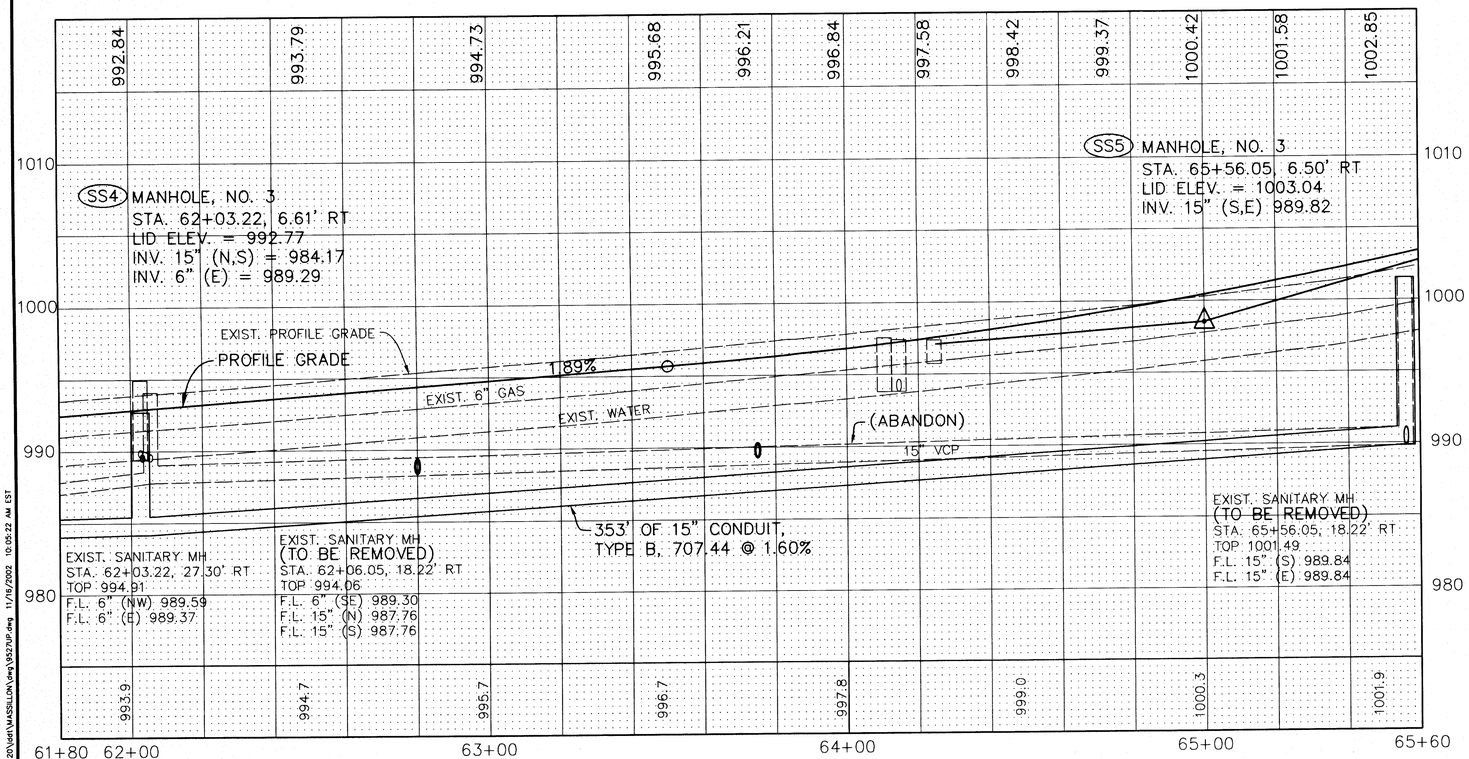


NOTES:

1.) REMOVE EXISTING SANITARY MANHOLE AND 6" VCP AND EXTEND 6" CONDUIT, 707.44 TO THE NEW MANHOLE 6.61' RT. OF STA. 62+03.22
2.) REMOVE EXISTING SANITARY MANHOLE AND EXTEND 15" CONDUIT, 707.44 TO THE NEW MANHOLE 6.5' RT. OF STA. 65+56.00.
3.) SEE SHEET 94 FOR QUANTITIES.



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JHE 03/02
CHECKED JSK 04/02

SANITARY SEWER PLAN AND PROFILE
STA. 61+80 – 65+60 16TH STREET, SE
16TH STREET, SE

94A
162

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SHEET NUMBER										ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
		97–98		99–100		120	124	127	128						
														TRAFFIC CONTROL	
		476.5								630	02100	476.5	LIN FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
		251.5								630	03100	251.5	LIN FT	GROUND MOUNTED SUPPORT, NO. 3 POST	
		3								630	08500	3	EACH	STREET NAME SIGN SUPPORT	
		186.4								630	80102	186.4	SQ FT	SIGN, FLAT SHEET, TYPE G	
		3								630	80506	3	EACH	SIGN, DOUBLE FACED, STREET NAME, TYPE G	
		19								630	84900	19	EACH	REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	
		7								630	85100	7	EACH	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	
		17								630	86002	17	EACH	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL	
				0.04						642	00100	0.04	MILE	EDGE LINE, TYPE 1	
				0.76						642	00300	0.76	MILE	CENTER LINE, TYPE 1	
				144						642	00500	144	LIN FT	STOP LINE, TYPE 1	
				970						642	00700	970	LIN FT	TRANSVERSE LINE, TYPE 1	
				2						642	01000	2	EACH	RAILROAD SYMBOL MARKING, TYPE 1	
				1						642	01110	1	EACH	SCHOOL SYMBOL MARKING, 96", TYPE 1	
				0.02						644	00200	0.02	MILE	LANE LINE	
				0.41						644	00300	0.41	MILE	CENTER LINE	
				1306						644	00400	1306	LIN FT	CHANNELIZING LINE	
				202						644	00500	202	LIN FT	STOP LINE	
				857						644	00600	857	LIN FT	CROSSWALK LINE	
				242						644	00700	242	LIN FT	TRANSVERSE LINE	
				19						644	01300	19	EACH	LANE ARROW	
				8						644	01410	8	EACH	WORD ON PAVEMENT, 96"	
														LIGHTING	
									21	625	00500	21	EACH	CONNECTOR KIT, TYPE II	
									21	625	00600	21	EACH	CONNECTOR KIT, TYPE III	
									2	625	01500	2	EACH	CABLE SPLICING KIT	
									16	625	04900	16	EACH	LIGHT POLE, DESIGN A4B40	
									2	625	05990	2	EACH	LIGHT POLE, DESIGN AT4B41.7	
									18	625	14100	18	EACH	LIGHT POLE FOUNDATION, 24" X 8' DEEP	
									1	625	18600	1	EACH	BRACKET ARM, MISC.: 4' MOUNTED ON SIGNAL POLE	
									2	625	18600	2	EACH	BRACKET ARM, MISC.: 8' MOUNTED ON SIGNAL POLE	
									1638	625	23400	1638	LIN FT	NO. 10 AWG POLE AND BRACKET CABLE	
									3169	625	24100	3169	LIN FT	1–1/2" DUCT CABLE WITH TWO NO. 4 AWG 5000 VOLT CABLES	
									305	625	25400	305	LIN FT	CONDUIT, 2", 713.04	
									18	625	27600	18	EACH	LUMINAIRE, MISC.: STYLE I, TYPE II, 250W H.P.S., 480 VOLTS	
									3474	625	29000	3474	LIN FT	TRENCH	
									21	625	32000	21	EACH	GROUND ROD	
									2	625	34000	2	EACH	POWER SERVICE	
								LUMP		SPECIAL	62540000	LUMP		MAINTAIN EXISTING LIGHTING	

CALCULATED VLB 04/05
CHECKED JHE 05/02

TRAFFIC CONTROL, SIGNAL, AND LIGHTING GENERAL SUMMARY

16TH STREET, SE

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SHEET NUMBER										ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
		97–98		99–100		120	124	127	128						
														TRAFFIC SIGNAL	
						1800	1109			625	25400	2909	LIN FT	CONDUIT, 2", 713.04	
						240	150			625	25500	390	LIN FT	CONDUIT, 3", 713.04	
						84				625	25900	84	LIN FT	CONDUIT, 3", 713.04, JACKED OR DRILLED	
						2114	1259			625	29000	3373	LIN FT	TRENCH	
						10	8			625	30701	18	EACH	PULLBOX, 713.08, 18", AS PER PLAN	114
						3	1			625	30707	4	EACH	PULLBOX, 713.08, 24", AS PER PLAN	114
						6	5			625	32001	11	EACH	GROUND ROD, AS PER PLAN	113
						5	3			630	79100	8	EACH	SIGN HANGER ASSEMBLY, MAST ARM	
						37.5	22.5			630	80102	60	SQ FT	SIGN, FLAT SHEET, TYPE G	
						4	3			630	97700	7	EACH	SIGNING, MISC.: STREET NAME SIGN, MAST ARM MOUNTED	113
						1	1			631	85100	2	EACH	DISCONNECT SWITCH WITH ENCLOSURE, TYPE X	
							1			631	93100	1	EACH	SCHOOL SPEED LIMIT SIGN ASSEMBLY, 36"x48"	
						3	5			632	00303	8	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 1–WAY, POLYCARBONATE, AS PER PLAN	113
						5	1			632	00503	6	EACH	VEHICULAR SIGNAL HEAD, 5 SECTION, 12" LENS, 1–WAY, POLYCARBONATE, AS PER PLAN	113
						8	4			632	20601	12	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN	113
						8	6			632	25000	14	EACH	COVERING OF VEHICULAR SIGNAL HEAD	
						8	4			632	26001	12	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN	113
						1132	930			632	40700	2062	LIN FT	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	
						1850	795			632	53202	2645	LIN FT	INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE–39)	
						4	2			632	64010	6	EACH	SIGNAL SUPPORT FOUNDATION	
						1	2			632	64020	3	EACH	PEDESTAL FOUNDATION	
						200	500			632	68300	700	LIN FT	POWER CABLE, 3 CONDUCTOR, NO. 6 AWG	
						1	1			632	70001	2	EACH	POWER SERVICE, AS PER PLAN	113
							1			632	77050	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC–81.20 DESIGN 4 POLE, WITH MAST ARMS TC–81.20 DESIGN 3 AND DESIGN 3	
							1			632	80200	1	EACH	SIGNAL SUPPORT, TYPE TC–81.20, DESIGN 2	
						1				632	80300	1	EACH	SIGNAL SUPPORT, TYPE TC–81.20, DESIGN 3	
						2				632	80400	2	EACH	SIGNAL SUPPORT, TYPE TC–81.20, DESIGN 4	
						1				632	80600	1	EACH	SIGNAL SUPPORT, TYPE TC–81.20, DESIGN 12	
						1	1			632	89610	2	EACH	PEDESTAL, 9'	
							1			632	89700	1	EACH	PEDESTAL, 11'	
						1	1			632	90101	2	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN	113
						4	4			632	90400	8	EACH	SIGNALIZATION, MISC.: VIDEO DETECTION	
						1	1			633	38001	2	EACH	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL MICROPROCESSOR, AS PER PLAN	114
						11	11			633	70500	22	SQ FT	CONTROLLER WORK PAD	

CALCULATED VLB 04/05
CHECKED JHE 05/02

TRAFFIC CONTROL, SIGNAL, AND LIGHTING GENERAL SUMMARY

16TH STREET, SE

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SHEET No.	REFERENCE NO.	STATION	SIDE	CODE	SIZE (INCHES)	630															
							GROUND MOUNTED SUPPORT, NO. 2 POST	GROUND MOUNTED SUPPORT, NO. 3 POST	STREET NAME SIGN SUPPORT		SIGN, FLAT SHEET, TYPE G	SIGN, DOUBLE FACED, STREET NAME, TYPE G			REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL				
							LIN. FT.	LIN. FT.	EACH		SQ. FT.	EACH			EACH	EACH	EACH				
		16TH STREET, SE																			
101	1S	44+00	RT	R-55-12	12" x 18"		12.5				1.5										
101	2S	44+00	LT	R-55-12	12" x 18"		13.0				1.5										
101	3S	46+25	RT	R-31A-36	36" x 30"			13.5			7.5										
101	4S	47+50	RT	R-55-12	12" x 18"		12.5				1.5										
101	5S	47+50	LT	R-55-12	12" x 18"		12.5				1.5										
102	6S	48+50	RT	R-55-12	12" x 18"		12.5				1.5										
102	7S	48+50	LT	R-10-24	24" x 30"		14.0				5.0										
102	8S	48+66	LT	R-10-24	24" x 30"										1		1				
102	9S	49+15	RT	R-55-12	12" x 18"										1						
102	10S	49+15	RT	R-142-24	24" x 24"										1						
102	11S	49+50	LT	R-55-12	12" x 18"		12.5				1.5										
102	12S	50+19 TO	RT	D-14	30" x 8"											2	1				
		50+30		D-14	30" x 8"				1												
102	13S	51+20	RT	R-55-12	12" x 18"		12.5				1.5										
102	14S	51+50	LT	R-55-12	12" x 18"		12.5				1.5										
102	15S	51+59	RT	R-10-24	24" x 30"		14.0				5.0										
103	16S	53+25	LT	R-55-12	12" x 18"		12.5				1.5										
103	17S	53+81	RT	W-94-36	36" x 36"			14.0			7.1				1		1				
103	18S	54+75	LT	R-31A-36	36" x 30"			14.0			7.5										
103	19S	55+00	RT	R-55-12	12" x 18"		12.5				1.5										
103	20S	56+50	LT	R-55-12	12" x 18"		12.5				1.5										
104	21S	60+25	RT	R-55-12	12" x 18"		12.5				1.5										
104	22S	62+50	RT	R-55-12	12" x 18"		12.5				1.5										
104	23S	62+50	LT	R-55-12	12" x 18"		12.5				1.5										
105	24S	63+48	LT	W-94-36	36" x 36"			14.0			7.1				1		1				
105	25S	64+50	LT	R-55-12	12" x 18"		12.5				1.5										
105	26S	64+97	LT	R-10-24	24" x 30"		14.0				5.0										
105	27S	65+25	RT	R-55-12	12" x 18"		12.5				1.5										
105	28S	65+92 TO	RT													1	1				
		65+92						14.0													
105	29S	65+92	RT	W-78-30	30" x 10"			14.5			2.1										
105	30S	65+92	RT	W-82-30	30" x 30"						4.7										
105	31S	66+00	LT	R-21-24	24" x 30"		14.0				5.0										
105	32S	66+63.5	RT	R-12-24	24" x 42"			14.5			7.0										
105	33S	67+60	RT	R-55-12	12" x 18"		12.5				1.5										
105	34S	67+60	LT	R-55-12	12" x 18"		12.5				1.5										
106	35S	68+30.5	RT					14.0								1	1				
106	36S	68+52	RT	R-12-24	24" x 42"										1						
106	37S	69+19	RT	W-81-30	30" x 30"				1		4.7	2									
				D-14	30" x 8"																
				D-14	30" x 8"																
106	38S	68+99	RT	R-4L-24	24" x 36"										1		1				
				D-14	30" x 8"										1						
				D-14	30" x 8"										1						
106	39S	69+30	LT	W-81-30	30" x 30"		14.0				4.7										
106	40S	71+00	RT	R-55-12	12" x 18"		12.5				1.5										
					SUBTOTAL THIS SHEET		308.0	112.5	2		100.9	2			9	4	7				

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING SUBSUMMARY

16TH STREET, SE

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SHEET No.	REFERENCE NO.	STATION	SIDE	CODE	SIZE (INCHES)	630															
							GROUND MOUNTED SUPPORT, NO. 2 POST	GROUND MOUNTED SUPPORT, NO. 3 POST	STREET NAME SIGN SUPPORT		SIGN, FLAT SHEET, TYPE G	SIGN, DOUBLE FACED, STREET NAME, TYPE G			REMOVAL OF GROUND MOUNTED SIGN AND DISPOSAL	REMOVAL OF GROUND MOUNTED SIGN AND REERECTION	REMOVAL OF GROUND MOUNTED POST SUPPORT AND DISPOSAL				
							LIN. FT.	LIN. FT.	EACH		SQ. FT.	EACH			EACH	EACH	EACH				
106	41S	71+00	LT	R-55-12	12" x 18"		12.5				1.5										
106	42S	72+00	LT	R-31Q-36	36" x 30"			14.0			7.5										
107	43S	73+97/74+00	RT	R-31A-36	36" x 30"			14.0			7.5				1		1				
107	44S	74+00	LT	R-55-12	12" x 18"		12.5				1.5										
107	45S	74+59	RT					14.0								1	1				
107	46S	75+00	RT	R-55-12	12" x 18"		12.5				1.5										
107	47S	78+18	LT	W-60R-36	36" x 36"			15.5			9.0				1		1				
		WALNUT ROAD, SE																			
108	48S	15+00	RT	R-31A-36	36" x 30"			13.5			7.5										
108	49S	16+00	LT	R-55-12	12" x 18"		13.0				1.5										
108	50S	16+60	RT	R-55-12	12" x 18"		12.5				1.5										
108	51S	17+18/17+37	LT	R-10-24	24" x 30"		14.0				5.0				1		1				
108	52S	17+47	LT	D-14	30" x 8"										1		1				
				R-1-30	30" x 30"										1						
108	53S	17+41.5	LT	D-14	30" x 8"				1			1									
				R-1-30	30" x 30"						6.0										
108	54S	17+71 TO	RT													1	2				
		17+82	RT					13.5/13.5													
109	55S	18+87	LT	R-142-24	24" x 24"										1						
				R-55R-12	12" x 18"										1						
109	56S	18+90	LT	R-142-24	24" x 24"		15.0				4.0										
				R-55R-12	12" x 18"						1.5										
109	57S	19+00	RT	R-55-12	12" x 18"		12.5				1.5										
110	58S	21+70	LT					13.5								1	1				
110	59S	22+01	RT	R-10-24	24" x 30"										1		1				
110	60S	22+00	RT.	R-10-24	24" x 30"		13.5				5.0										
110	61S	22+50	LT	R-31M-48	48" x 30"			13.5			10.0										
		HARSH AVENUE, SE																			
111	62S	10+47/11+50	RT	R-55-12	12" x 18"		12.5				1.5				1						
111	63S	12+50	LT	R-55-12	12" x 18"		12.5				1.5										
111	64S	12+61	RT	R-55-12	12" x 18"										1		1				
112	65S	14+00	RT	R-55-12	12" x 18"		12.5				1.5										
112	66S	14+00	LT	R-55-12	12" x 18"		13.0				1.5										
112	67S	15+00	LT	R-31F-36	36" x 30"			14.0			7.5										
					SUBTOTAL THIS SHEET		168.5	139.0	1		85.5	1			10	3	10				
					SUBTOTAL PREVIOUS SHEET		308.0	112.5	2		100.9	2			9	4	7				
					TOTALS CARRIED TO TRAFFIC CONTROL GENERAL SUMMARY		476.5	251.5	3		186.4	3			19	7	17				

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING SUBSUMMARY

16TH STREET, SE

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PAVEMENT MARKING SUBSUMMARY

16TH STREET, SE

CALCULATED JHE 3/02
CHECKED VLB 4/02

SHEET NO.	REFERENCE NO.	STATION FROM	STATION TO	SIDE	642 EDGE LINE, TYPE 1 (WHITE) LIN. FT.	642 CENTER LINE, TYPE 1, SOLID, DOUBLE (YELLOW) LIN. FT.	642 CENTER LINE, TYPE 1, BROKEN, SINGLE (YELLOW) LIN. FT.	642 STOP LINE, TYPE 1 (WHITE) LIN. FT.	642 TRANSVERSE LINE, TYPE 1 (WHITE) LIN. FT.	642 RAILROAD SYMBOL MARKING, TYPE 1 EACH	642 SCHOOL SYMBOL MARKING, 96", TYPE 1 EACH	644 LANE LINE (WHITE) LIN. FT.	644 CENTER LINE, SOLID, DOUBLE (YELLOW) LIN. FT.	644 CHANNELIZING LINE (WHITE) LIN. FT.	644 STOP LINE (WHITE) LIN. FT.	644 CROSSWALK LINE (WHITE) LIN. FT.	644 TRANSVERSE LINE (WHITE) LIN. FT.	644 LANE ARROW (WHITE) EACH	644 WORD ON PAVEMENT, 96" (WHITE) EACH
		16TH STREET																	
101	EL-1	43+19	43+55	RT.	36														
101	EL-2	43+19	43+55	LT.	36														
101	CL-1	43+19	47+05	CL./RT.		386													
101	CL-2	44+19	47+05	RT.		286													
101	T-1	44+19	47+05	RT.					314										
101	CL-3	47+05	53+45	CL.									640						
101	CH-1	47+05	49+28	RT.										225					
102	SL-1	49+28		RT.											30				
102	CW-4	49+32	49+69	RT./LT.												110			
102	CW-3	49+39	50+10	RT.												135			
102	WP-1	48+48		RT.															1
102	LA-1	48+86		RT.														3	
102	CW-1	49+78	50+62	LT.												154			
102	CW-2	50+36	50+68	RT./LT.												99			
102	SL-2	50+62	50+71	CL./LT.											38				
102	LA-2	51+11		RT./LT.														3	
102	WP-2	51+59		RT.															1
102	CH-2	50+62	53+45	CL.										283					
103	CL-4	53+45	60+36	RT./CL.		691													
103	CL-5	53+45	55+60	CL./RT.		215													
103	T-2	53+45	55+60	RT./CL.					181										
103	SL-3	57+51		RT.				18											
103	RR-1	57+76		RT.						1									
104	SL-4	58+01		RT.				18											
104	SL-5	58+76		RT.				18											
104	SL-6	59+36		LT.				18											
104	SL-7	60+33		LT.				18											
104	CL-6	60+36	64+97	CL.		461													
104	RR-2	60+58		LT.						1									
104	SL-8	60+83		LT.				18											
105	CL-7	64+97	65+97	CL./LT./RT.		100													
105	SL-9	65+68		RT.				18											
105	SS-1	65+80		RT.							1								
105	SL-10	65+91		RT.				18											
105	CL-8	65+97	71+25	RT.									528						
105	CL-9	65+97	68+32	RT.									235						
105	T-3	65+97	68+32	LT./RT./CL.													242		
105	LA-3	67+81		RT.														2	
106	SL-11	68+26		RT.											14				
106	CW-7	68+41	68+47	RT./LT.												88			
106	CW-5	69+14	69+20	LT./RT./CL.												85			
106	SL-12	69+25		LT./CL.											24				
106	CH-3	69+25	71+25	LT.										200					
106	CW-6	68+47	69+14	RT.												131			
106	LA-4	69+81		LT.														2	
106	WP-3	70+47		LT.															2
106	CL-10	71+25	74+36	CL.		311													
106	CL-11	71+25	73+36	LT.		213													
106	T-4	71+25	73+36	LT.					177										
107	CL-12	74+36	75+81	CL.		145													
107	EL-3	75+50	75+81	RT.	31														
107	EL-4	75+50	75+81	LT.	31														
				SUBTOTAL THIS SHEET	134	2808	–	144	672	2	1	–	1403	708	106	802	242		10	4

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SHEET NO.	REFERENCE NO.	STATION FROM	STATION TO	SIDE	642 EDGE LINE, TYPE 1 (WHITE) LIN. FT.	642 CENTER LINE, TYPE 1, SOLID, DOUBLE (YELLOW) LIN. FT.	642 CENTER LINE, TYPE 1, BROKEN, SINGLE (YELLOW) LIN. FT.	642 STOP LINE, TYPE 1 (WHITE) LIN. FT.	642 TRANSVERSE LINE, TYPE 1 (WHITE) LIN. FT.	642 RAILROAD SYMBOL MARKING, TYPE 1 EACH	642 SCHOOL SYMBOL MARKING, 96", TYPE 1 EACH	644 LANE LINE (WHITE) LIN. FT.	644 CENTER LINE, SOLID, DOUBLE (YELLOW) LIN. FT.	644 CHANNELIZING LINE (WHITE) LIN. FT.	644 STOP LINE (WHITE) LIN. FT.	644 CROSSWALK LINE (WHITE) LIN. FT.	644 TRANSVERSE LINE (WHITE) LIN. FT.	644 LANE ARROW (WHITE) EACH	644 WORD ON PAVEMENT, 96" (WHITE) EACH
		WALNUT ROAD																	
108	CL-13	13+84	16+94	CL./LT.		310													
108	EL-5	14+30	14+60	RT.	30														
108	EL-6	14+30	14+60	LT.	30														
108	CL-14	15+27	16+94	RT.		167													
108	T-5	15+27	16+94	LT./CL./RT.					139										
108	CL-15	16+94	22+12	LT./RT.									518						
108	CH-4	16+94	17+38	RT.										44					
108	CW-8	17+46	17+74	LT.												55			
108	LA-5	17+21		CL.														1	
109	CH-5	17+97	19+75	RT.										178					
109	WP-4	18+79		CL.															1
109	LA-6	19+34		CL./RT.														3	
109	SL-13	19+68		CL.											12				
109	SL-14	19+75		RT.											13				
109	SL-15	20+49		LT.											12				
109	L-1	20+49	21+50	LT.								101							
109	SL-16	20+57		LT.											12				
109	CH-6	20+57	21+60	LT.										103					
109	SL-17	20+64		CL.											12				
109	LA-7	20+77		CL./LT.														3	
109	WP-5	21+00		LT.															1
110	CL-16	22+12	23+12	CL.		100													
110	CL-17	23+12	24+12	CL.			100												
		HARSH AVENUE																	
111	SL-18	10+35		LT.											23				
111	CH-7	10+35	13+08	LT.										273					
111	SL-19	10+57		LT./CL./RT.											12				
111	CL-18	10+57	13+08	CL.									251						
111	LA-8	10+67		CL./LT.														2	
111	WP-6	10+89		CL./LT.															2
112	CL-19	13+08	15+19	LT./CL./RT.		211													
112	T-6	13+08	15+19	CL.					159										
112	CL-20	13+08	15+19	CL./LT.		211													
112	CL-21	15+19	16+19	CL.			100												
				SUBTOTAL THIS SHEET	60	999	200	–	298	–	–	101	769	598	96	55	–		9	4
				SUBTOTAL PREVIOUS SHEET	134	2808	–	144	672	2	1	–	1403	708	106	802	242		10	4
				SUBTOTAL	194	3807	200	144	970	2	1	101	2172	1306	202	857	242		19	8
				TOTAL	194	4007		144	970	2	1	101	2172	1306	202	857	242		19	8
				TOTALS CARRIED TO TRAFFIC CONTROL GENERAL SUMMARY	0.04 MI.	0.76 MI.		144	970	2	1	0.02 MI.	0.41 MI.	1306	202	857	242		19	8

CALCULATED JHE 3/02
CHECKED VLB 4/02

PAVEMENT MARKING SUBSUMMARY

16TH STREET, SE

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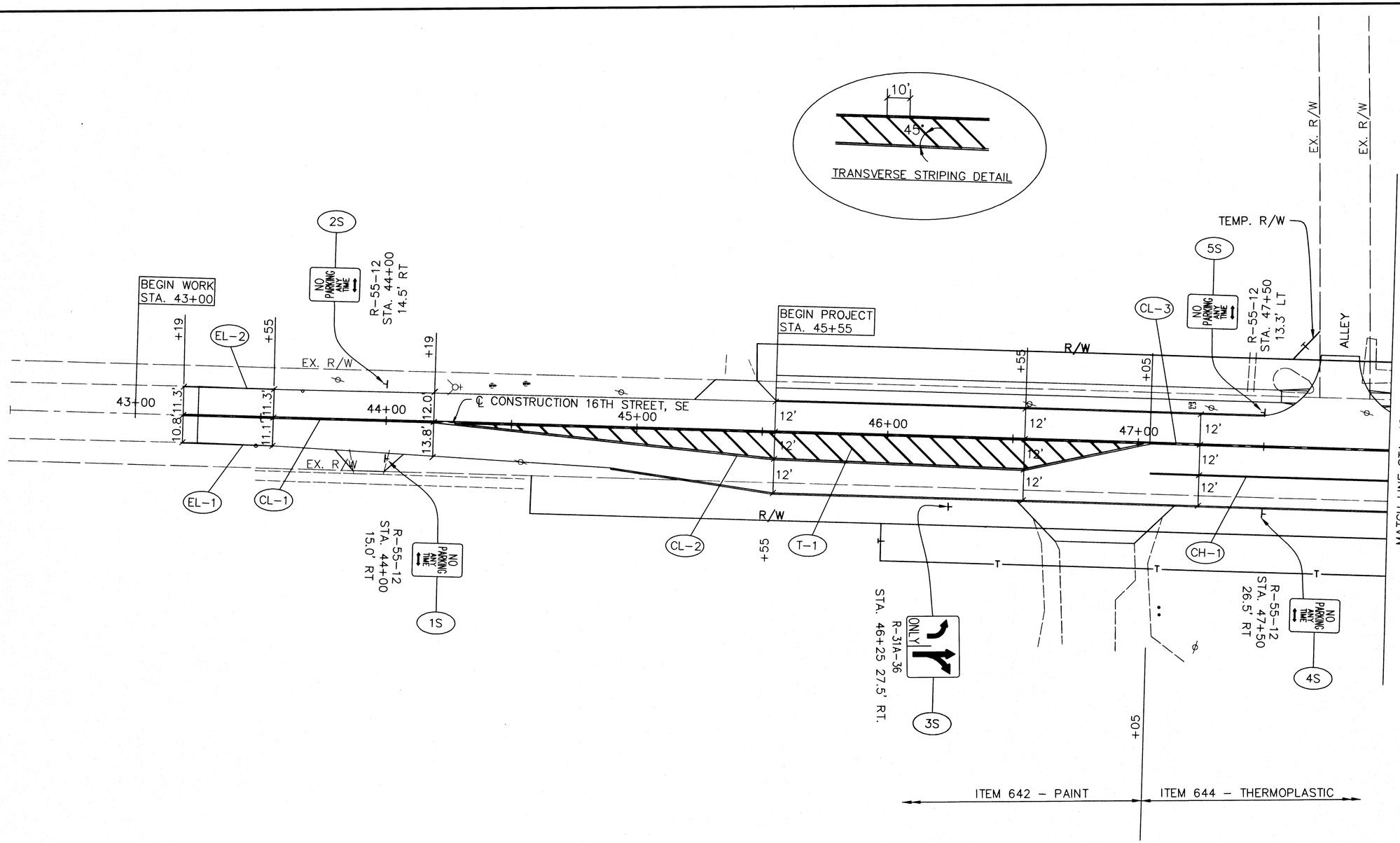

NOTES:

1.) FOR TRANSVERSE STRIPING DETAIL, SEE THIS SHEET.
2.) FOR SIGNING QUANTITIES, SEE SHEETS 97–98.
3.) FOR PAVEMENT MARKING QUANTITIES, SEE SHEETS 99–100.

LEGEND – SIGNING

- EXISTING, TO REMAIN
- EXISTING, TO BE REMOVED
- EXISTING, TO BE RELOCATED
- PROPOSED

LEGEND – PAVEMENT MARKING

- (EL) 4" EDGE LINE (WHITE)
- (L) 4" LANE LINE
- (CL) 4" CENTER LINE
- (CH) 8" CHANNELIZING LINE
- (SL) 18" STOP LINE
- (CW) 12" CROSSWALK LINE
- (T) 8" TRANSVERSE LINE
- (RR) RAILROAD SYMBOL MARKING
- (SS) 96" SCHOOL SYMBOL MARKING
- (LA) 96" LANE ARROW
- (WP) 96" WORD ON PAVEMENT

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 42+50 TO STA. 48+00, 16TH STREET

16TH STREET, SE

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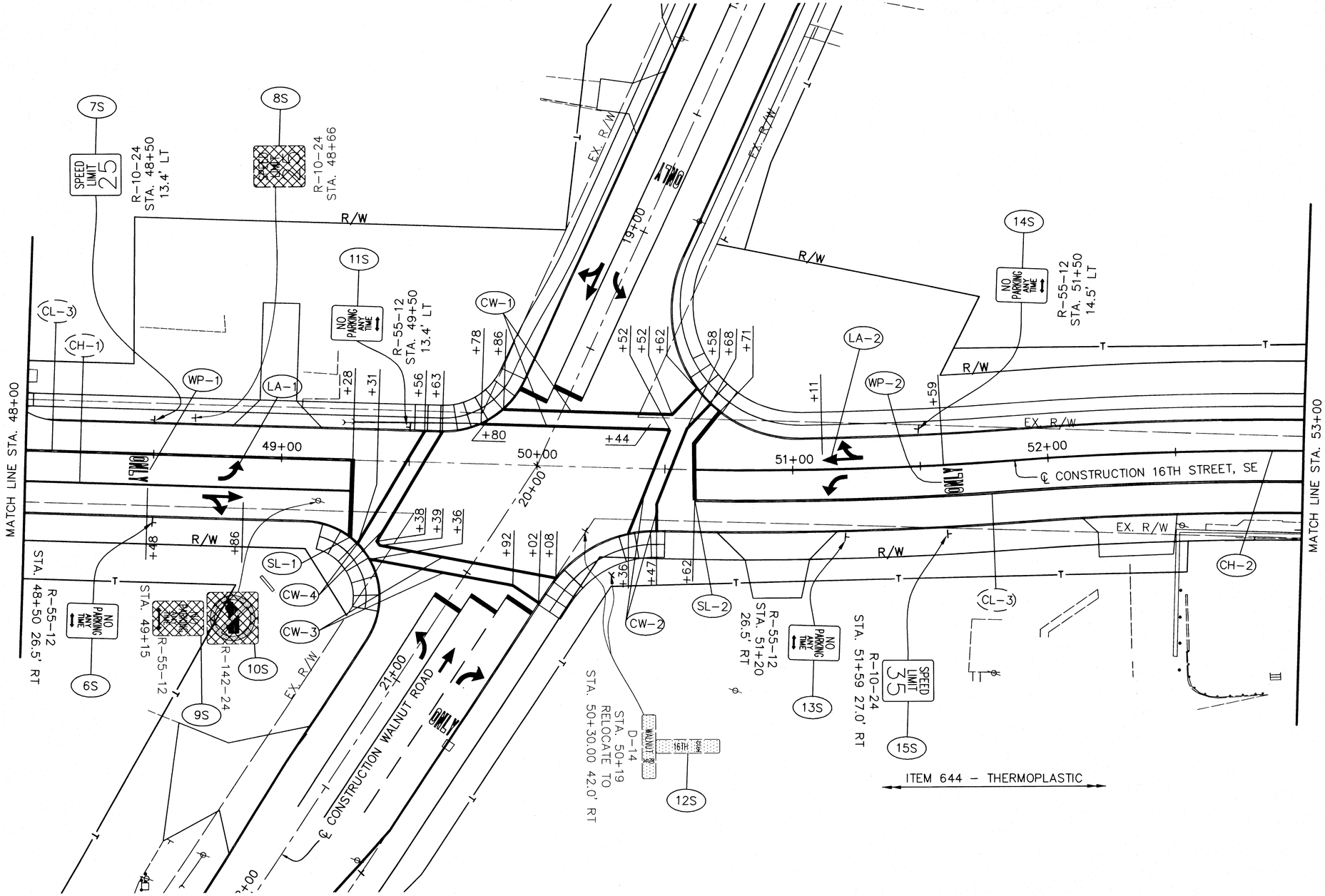

NOTES:

1.) FOR SIGNING QUANTITIES, SEE SHEETS 97–98.
2.) FOR PAVEMENT MARKING QUANTITIES, SEE SHEETS 99–100.

LEGEND – SIGNING

- EXISTING, TO REMAIN
- EXISTING, TO BE REMOVED
- EXISTING, TO BE RELOCATED
- PROPOSED

LEGEND – PAVEMENT MARKING

- (EL) 4" EDGE LINE (WHITE)
- (L) 4" LANE LINE
- (CL) 4" CENTER LINE
- (CH) 8" CHANNELIZING LINE
- (SL) 18" STOP LINE
- (CW) 12" CROSSWALK LINE
- (T) 8" TRANSVERSE LINE
- (RR) RAILROAD SYMBOL MARKING
- (SS) 96" SCHOOL SYMBOL MARKING
- (LA) 96" LANE ARROW
- (WP) 96" WORD ON PAVEMENT

N

0 10 20 40
HORIZONTAL SCALE IN FEET

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 48+00 TO STA. 53+00, 16TH STREET

16TH STREET, SE

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NOTES:

1.) FOR TRANSVERSE STRIPING DETAIL, SEE SHEET 101.
2.) FOR SIGNING QUANTITIES, SEE SHEETS 97–98.
3.) FOR PAVEMENT MARKING QUANTITIES, SEE SHEETS 99–100.

LEGEND – SIGNING

- EXISTING, TO REMAIN
- EXISTING, TO BE REMOVED
- EXISTING, TO BE RELOCATED
- PROPOSED

LEGEND – PAVEMENT MARKING

- (EL) 4" EDGE LINE (WHITE)
- (L) 4" LANE LINE
- (CL) 4" CENTER LINE
- (CH) 8" CHANNELIZING LINE
- (SL) 18" STOP LINE
- (CW) 12" CROSSWALK LINE
- (T) 8" TRANSVERSE LINE
- (RR) RAILROAD SYMBOL MARKING
- (SS) 96" SCHOOL SYMBOL MARKING
- (LA) 96" LANE ARROW
- (WP) 96" WORD ON PAVEMENT

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 53+00 TO STA. 58+00, 16TH STREET

16TH STREET, SE

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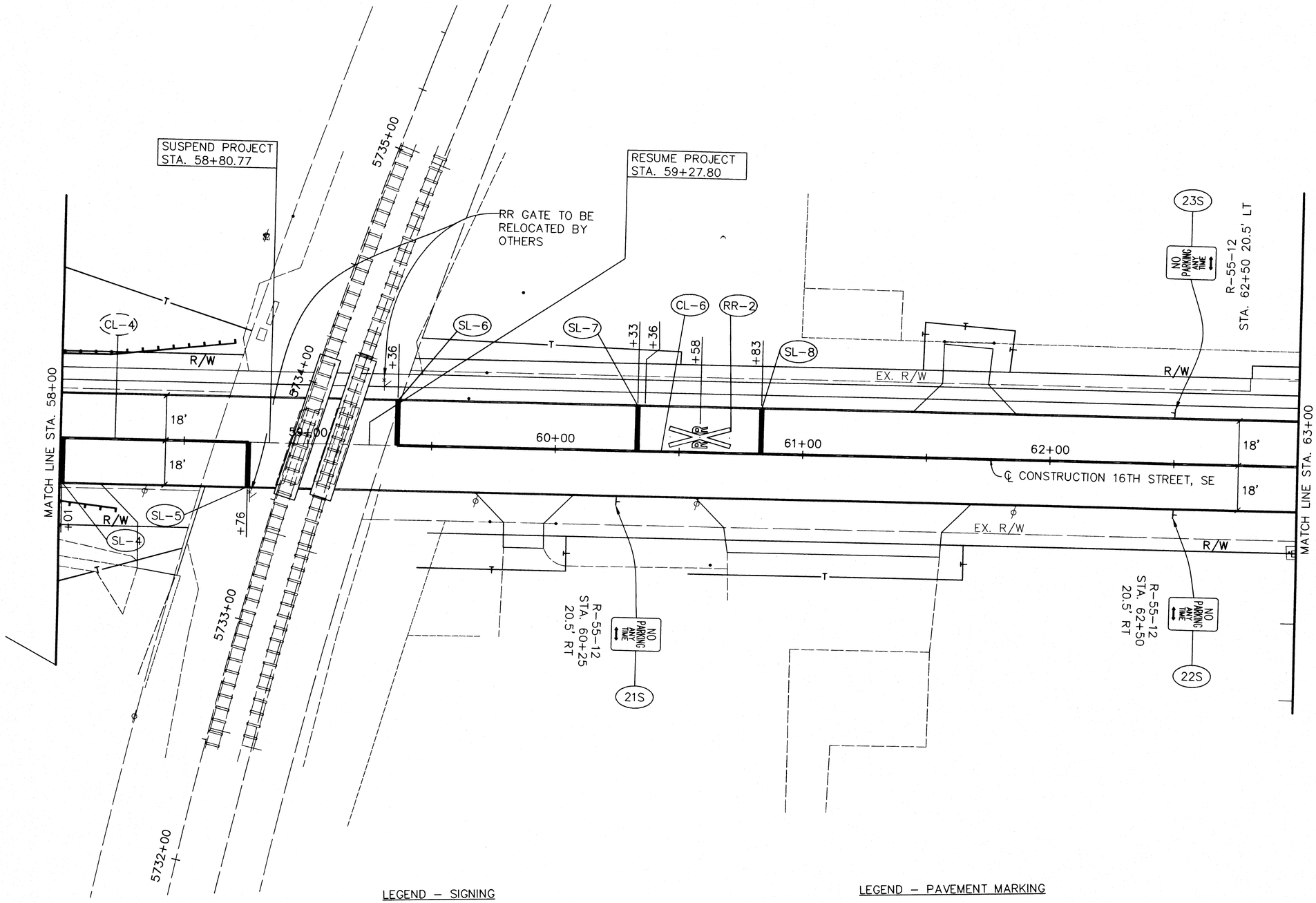

NOTES:

1.) FOR SIGNING QUANTITIES, SEE SHEETS 97–98.
2.) FOR PAVEMENT MARKING QUANTITIES, SEE SHEETS 99–100.

LEGEND – SIGNING

- EXISTING, TO REMAIN
- EXISTING, TO BE REMOVED
- EXISTING, TO BE RELOCATED
- PROPOSED

LEGEND – PAVEMENT MARKING

- (EL) 4" EDGE LINE (WHITE)
- (L) 4" LANE LINE
- (CL) 4" CENTER LINE
- (CH) 8" CHANNELIZING LINE
- (SL) 18" STOP LINE
- (CW) 12" CROSSWALK LINE
- (T) 8" TRANSVERSE LINE
- (RR) RAILROAD SYMBOL MARKING
- (SS) 96" SCHOOL SYMBOL MARKING
- (LA) 96" LANE ARROW
- (WP) 96" WORD ON PAVEMENT

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JHE 3/02
CHECKED MLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 58+00 TO STA. 63+00, 16TH STREET

16TH STREET, SE

104
162

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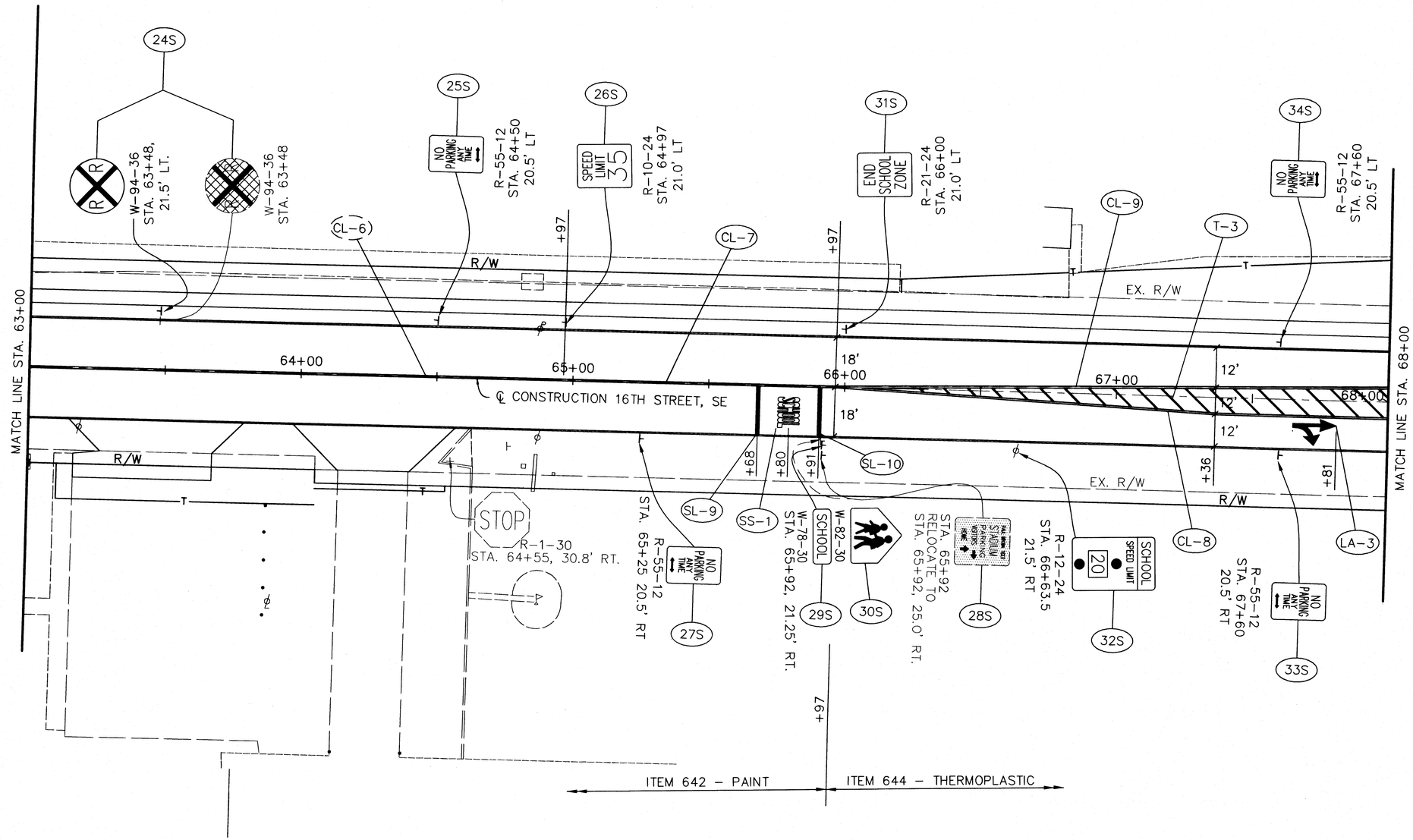

NOTES:

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2.) FOR SIGNING QUANTITIES, SEE SHEETS 97–98.
3.) FOR PAVEMENT MARKING QUANTITIES, SEE SHEETS 99–100.

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N

0 10 20 40
HORIZONTAL SCALE IN FEET

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 63+00 TO STA. 68+00, 16TH STREET
16TH STREET, SE

105
162

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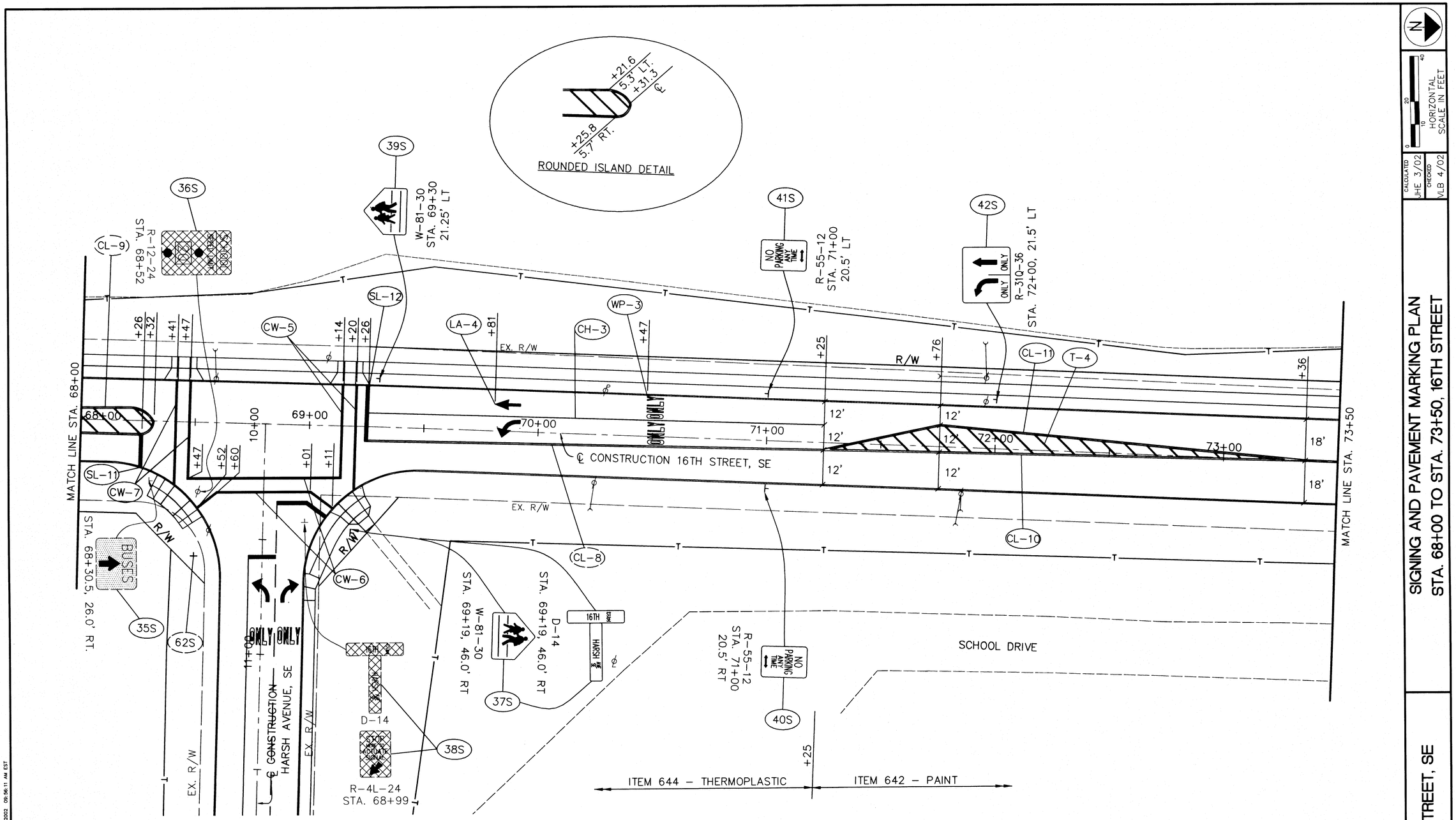

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N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED UHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 68+00 TO STA. 73+50, 16TH STREET

16TH STREET, SE

106
162

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NOTES:

1.) FOR SIGNING QUANTITIES, SEE SHEETS 97–98.
2.) FOR PAVEMENT MARKING QUANTITIES, SEE SHEETS 99–100.

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- (WP) 96" WORD ON PAVEMENT

N

0 10 20 40
HORIZONTAL SCALE IN FEET

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 73+50 TO STA. 79+00, 16TH STREET

16TH STREET, SE

107
162

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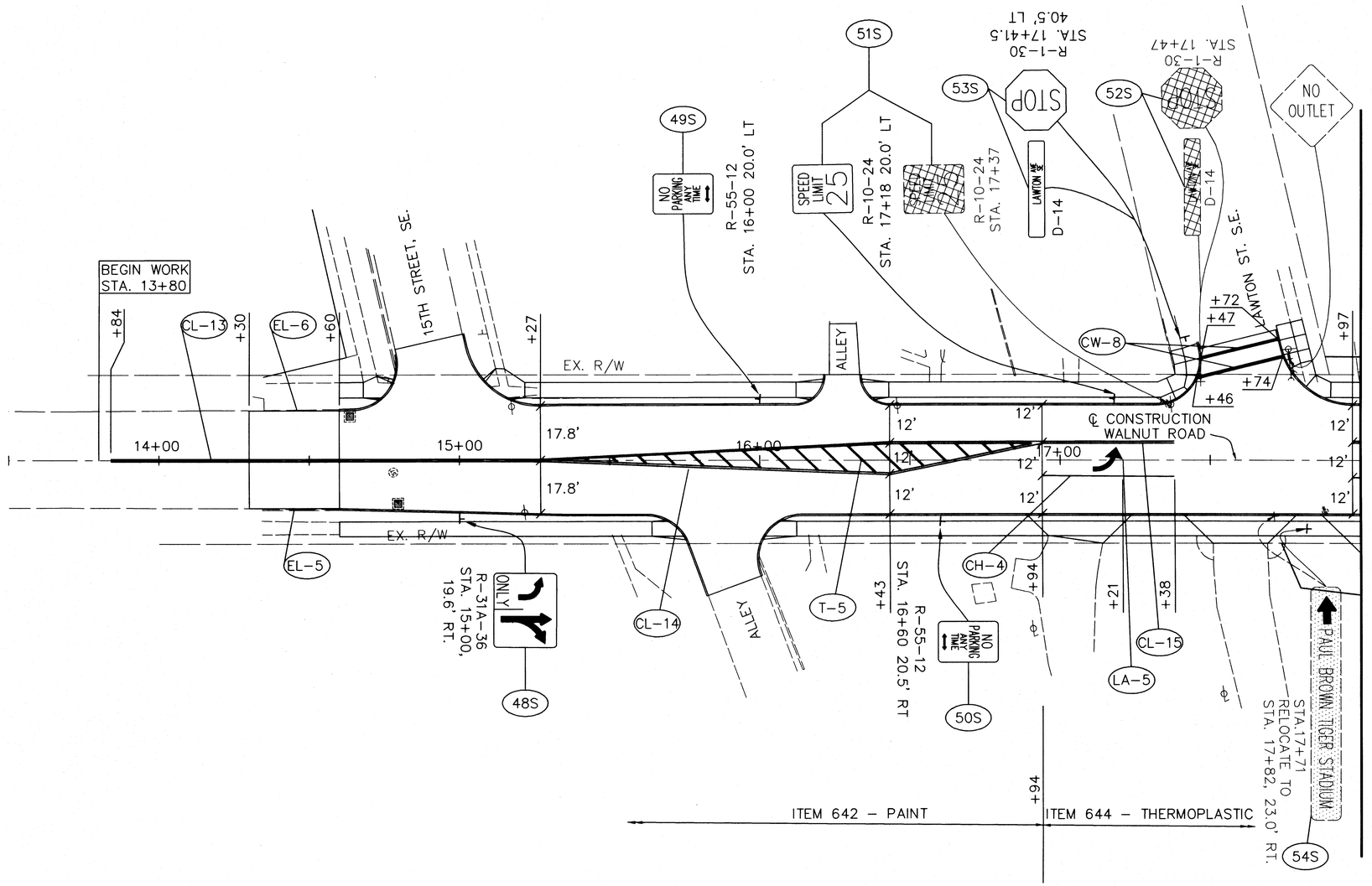

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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 13+80 TO STA. 18+00, WALNUT ROAD
16TH STREET, SE

108
162

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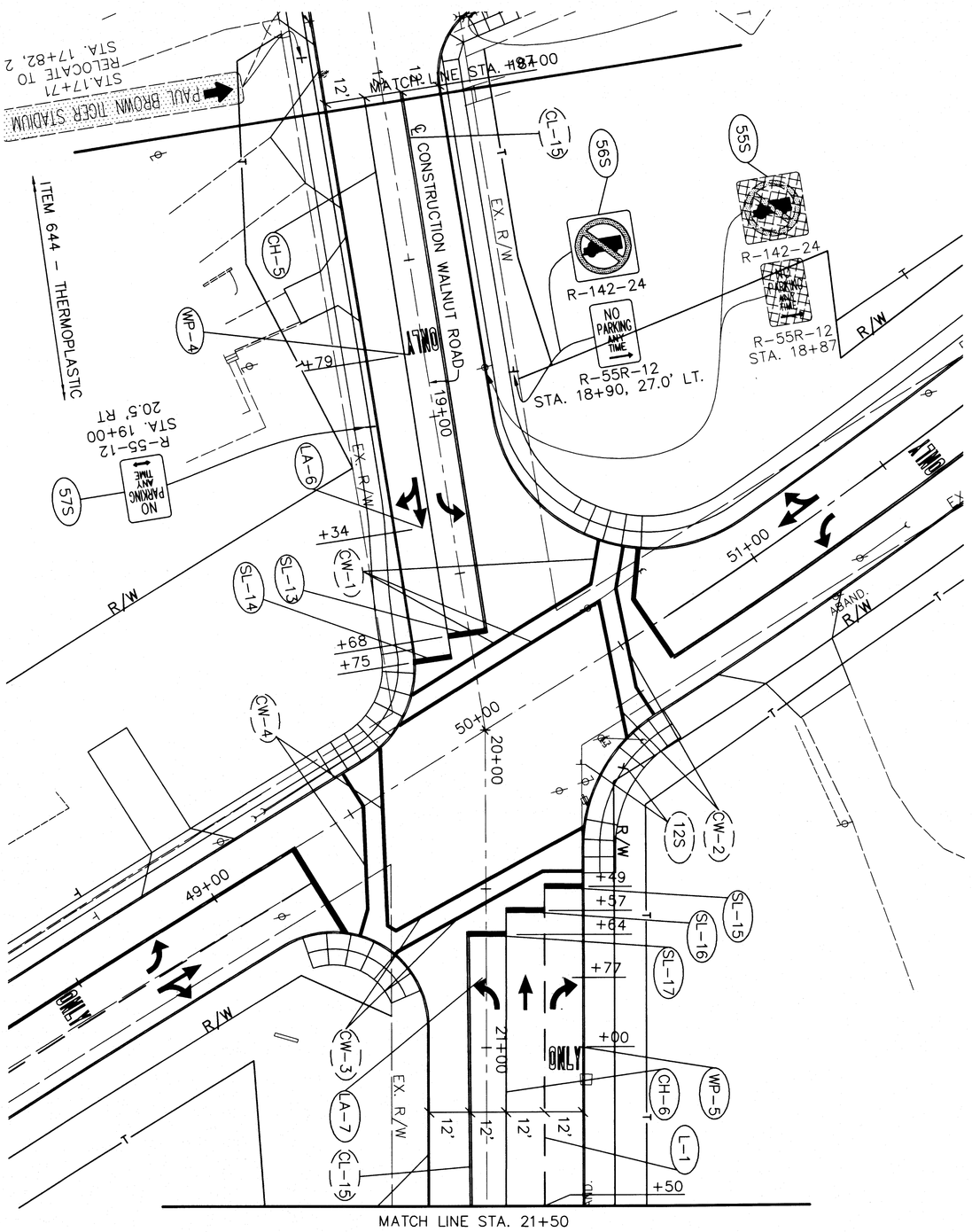

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109/162	16TH STREET, SE	SIGNING AND PAVEMENT MARKING PLAN STA. 18+00 TO STA. 21+50, WALNUT ROAD	CALCULATED JHE 3/02 CHECKED VLB 4/02	0 10 20 40 HORIZONTAL SCALE IN FEET

LEGEND – SIGNING

- EXISTING, TO REMAIN
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HORIZONTAL SCALE IN FEET

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 21+50 TO STA. 25+00, WALNUT ROAD

16TH STREET, SE

110
162

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LEGEND – SIGNING

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(CL) 4" CENTER LINE	(T) 8" TRANSVERSE LINE	(WP) 96" WORD ON PAVEMENT
(CH) 8" CHANNELIZING LINE	(RR) RAILROAD SYMBOL MARKING	

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JHE 3/02
CHECKED VLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 10+00 TO STA. 13+00, HARSH AVENUE

16TH STREET, SE

111
162

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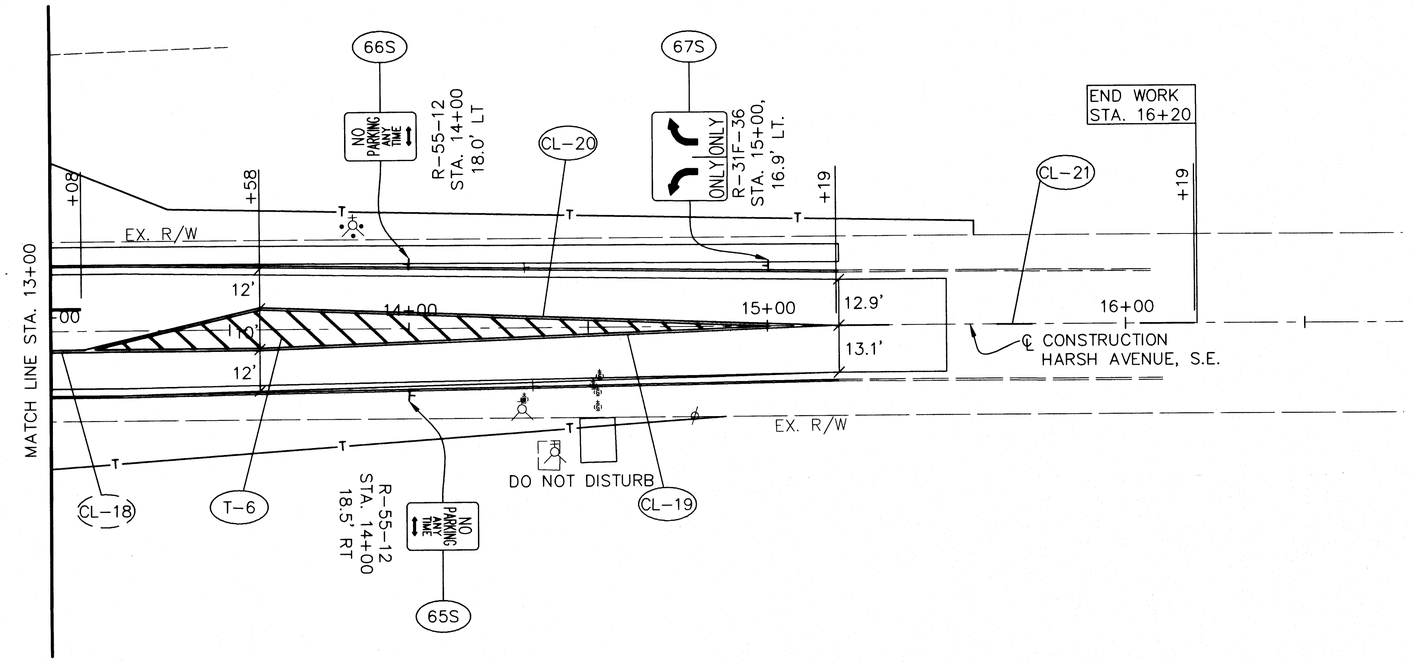

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HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED JHE 3/02
CHECKED MLB 4/02

SIGNING AND PAVEMENT MARKING PLAN
STA. 13+00 TO STA. 16+20, HARSH AVENUE
16TH STREET, SE

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POWER SUPPLY FOR TRAFFIC SIGNALS

ELECTRIC POWER SHALL BE OBTAINED FROM THE:

OHIO EDISON
1910 W. MARKET ST., BLDG#1
AKRON, OH 44313
ATTN: KEN DOWNS

AT THE LOCATION INDICATED ON THE PLANS. POWER SUPPLIED SHALL BE 120 VOLTS.

SIGNAL MAINTENANCE PERSONNEL REQUIREMENTS

THE CONTRACTOR SHALL ASSIGN A SUPERVISOR FOR THIS PROJECT. THE SUPERVISOR SHALL BE A FULL TIME EMPLOYEE OF THE CONTRACTOR. THE CONTRACTOR SHALL NOT CHANGE A SUPERVISOR ASSIGNED TO A PROJECT WITH OUT PRIOR WRITTEN NOTICE.

ALL CONTROLLER WORK AS DEFINED BELOW IN ITEMS 1 THRU 4 SHALL BE PERFORMED BY A INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION (IMSA) LEVEL TWO CERTIFIED TECHNICIAN.

1. BACK PANEL WIRING TERMINATIONS
2. PROGRAMMING
3. TURN ON
4. TROUBLE SHOOTING

THE CONTRACTOR SHALL ALSO HAVE A FOREMAN ASSIGNED TO EACH CREW PERFORMING WORK FOR THIS PROJECT. A FOREMAN SHALL BE PRESENT AT ALL TIMES WHEN WORK IS PERFORMED BY THE CREW. EACH FOREMAN SHALL BE AN IMSA LEVEL ONE CERTIFIED TECHNICIAN. PRIOR VERBAL NOTICE SHALL BE PROVIDED TO THE ENGINEER BY THE CONTRACTOR IN ORDER TO REPLACE A CREW FOREMAN.

IN ADDITION, CRAFTS PEOPLE PERFORMING WORK AS DEFINED BELOW IN ITEMS 1 THRU 7 SHALL BE PERFORMED BY AN IMSA LEVEL TWO CERTIFIED TECHNICIAN.

1. CABLE SPLICES
2. SIGNAL HEAD INSTALLATION
3. CABLE AND WIRE INSTALLATION
4. POWER SERVICE INSTALLATION
5. GROUND ROD TESTING
6. CABLE INSULATION TESTING
7. FIELD WIRING TERMINATIONS

THE CONTRACTOR SHALL PROVIDE A MINIMUM OF TWO (2), FULLY EQUIPPED FOUR (4) PERSON CREWS. HOWEVER, THIS DOES NOT PRECLUDE THE USE OF A SMALLER CREW ON ITEMS REQUIRING FEWER PEOPLE WITH THE PRIOR WRITTEN APPROVAL OF THE ENGINEER. THIS REQUIREMENT IS IN ADDITION TO SATISFYING THE REQUIREMENTS OF SECTION 108.5 OF THE CMS MANUAL.

625 GROUND ROD, AS PER PLAN

IN ADDITION TO CMS ITEM 625.10, THIS ITEM SHALL CONSIST OF FURNISHING AND RUNNING OF A SEVEN STRAND #4 COPPER WIRE FROM THE TOP OF THE GROUND ROD AND ATTACHING IT TO THE NEUTRAL BAR IN THE CABINET.

PAYMENT SHALL BE MADE AT THE CONTRACT UNIT PRICE PER EACH.

630 SIGNING, MISC.: STREET NAME SIGN, MAST ARM MOUNTED

STREET NAME SIGNS SHALL BE SINGLE SIDED ON AN ALUMINUM SIGN BLANK. 3M SERIES 3990 VIP DIAMOND GRADE (OR APPROVED EQUAL) REFLECTIVE WHITE SHEETING WITH 3M ELECTROCUTE FILM SERIES 1170 (OR APPROVED EQUAL) SHALL BE USED (EC FILM COLOR: 1175–FHWA BLUE). A WHITE BORDER SHALL BE USED. WHERE LARGE QUANTITIES OF A SINGLE SIGN ARE TO BE MANUFACTURED, THE SIGN FABRICATOR MAY USE A SILK SCREENING PROCESS USING 3M 8831 BLUE INK IN LIEU OF EC FILM, SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.

STREET NAME LEGENDS, PREFIXES, AND SUFFIXES SHALL BE PRINTED IN UPPER/LOWER CASE SERIES "C" LETTERING, GOTHIC FONT STYLE. LEGENDS, PREFIXES, AND SUFFIXES SHALL BE CENTERED HORIZONTALLY AND VERTICALLY. THE STREET NAME SIGNS SHALL HAVE A STANDARD HEIGHT FONT HEIGHT OF 12" WITH A SIGN HEIGHT OF 20". THE NUMBER OF LETTERS IN THE STREET NAME, INCLUDING PREFIXES AND SUFFIXES, SHALL DETERMINE THE SIGN LENGTH. THE NAMEPLATE SHALL HAVE A MINIMUM LENGTH OF 72", WITH A MAXIMUM LENGTH OF 108"

IF LETTERING WILL NOT FIT ON MAXIMUM BLADE LENGTH, SERIES "B" LETTERING AND/OR SMALLER LETTERING SHALL BE USED, SUBJECT TO THE APPROVAL OF THE CITY ENGINEER.

TWO CANTILEVERED BRACKETS AND DOUBLE TEE STIFFENERS (SIGN–FIX, ACCESSORIES SQUARED, OR APPROVED EQUAL) SHALL BE USED FOR EACH STREET NAME SIGN. STANDARD SQUARE BRACKETS SHALL BE USED FOR ALL UNSIGNALIZED INSTALLATIONS, AND ROUND BRACKETS SHALL BE USED FOR ALL SIGNALIZED INSTALLATIONS.

THE STREET NAME SIGN INSTALLATION FOR A SIGNALIZED INTERSECTION SHALL BE A 15–FOOT VERTICAL CLEARANCE BETWEEN ADJACENT TOP OF CURB OR PAVEMENT LEVEL AND BOTTOM OF LOWEST SIGN. THERE SHALL BE TWO PAIRS OF SIGNS PER EACH INTERSECTION.

PAYMENT FOR THE STREET NAME SIGNS SHALL BE PER EACH AND SHALL INCLUDE BRACKETS, STIFFENERS, AND ALL INCIDENTAL HARDWARE NEEDED TO MOUNT THE SIGN ON A SUPPORT.

THE SIGN FABRICATOR MUST SUBMIT THE PRELIMINARY LAYOUT OF THE STREET NAME SIGN(S) TO THE CITY OF MASSILLON, (PHONE: (330) 832–1176) BEFORE MANUFACTURING SIGNS.

632 REMOVAL OF TRAFFIC SIGNAL INSTALLATION, AS PER PLAN

TRAFFIC SIGNAL INSTALLATIONS, INCLUDING SIGNAL HEADS, CABLE, MESSENGER WIRE, STRAIN POLES, CABINET, CONTROLLER, ETC., SHALL BE REMOVED IN ACCORDANCE WITH CMS ITEM 632.25 AND AS INDICATED ON THE PLANS. REMOVED ITEMS SHALL BE STORED ON THE PROJECT FOR SALVAGE BY:

CITY OF MASSILLON
ATTN: JOHN HAUSER
PHONE: 330–832–1176

IN THE EVENT THE ITEMS STORED ON THE PROJECT FOR SALVAGE BY THE LOCAL AGENCY ARE NOT REMOVED, THE CONTRACTOR SHALL, WHEN DIRECTED BY THE ENGINEER IN WRITING, REMOVE AND DISPOSE OF THE ITEMS AT NO ADDITIONAL COST TO THE PROJECT.

632 VEHICULAR SIGNAL HEAD, 3 SECTION, (5 SECTION), 12" LENS, 1–WAY, POLYCARBONATE, AS PER PLAN

CMS ITEM 732.01 IS MODIFIED FOR THIS PROJECT AS FOLLOWS:

1. SIGNAL HEADS AND VISORS SHALL BE CONSTRUCTED OF POLYCARBONATE PLASTIC AND MEET ITE SPECIFICATIONS
2. GLASS LENSES SHALL BE USED.
3. PIPE, SPACERS AND FITTINGS CONSTRUCTED OF POLYCARBONATE PLASTIC MAY BE USED IN LIEU OF GALVANIZED STEEL OR ALUMINUM.
4. PROPER EXTERIOR COLORS SHALL BE OBTAINED BY USE OF COLORED PLASTIC MATERIAL RATHER THAN PAINTING.

632 PEDESTRIAN PUSHBUTTON, AS PER PLAN

IN ORDER TO CONFORM TO THE AMERICAN WITH DISABILITIES ACT (ADA). THE REQUIREMENTS OF CMS ITEMS 632.08 AND 732.06 ARE MODIFIED AS FOLLOWS:

1. THE MAXIMUM FORCE REQUIRED TO OPERATE THE PUSH BUTTON SHALL BE 5 POUNDS PER FOOT.
2. THE PUSH BUTTON SHALL BE RAISED OR FLUSH AND SHALL BE A MINIMUM OF 2 INCHES (50 MILLIMETERS) AT ITS SMALLEST DIMENSION.

632 POWER SERVICE, AS PER PLAN

POWER SERVICE SHALL BE AS PER CMS ITEMS 632 AND SCD TC–83.10 WITH THE FOLLOWING EXCEPTIONS:

1. THE METER BASE MOUNTING HEIGHT SHALL BE NO MORE THAN 5 FEET (1.5 METERS) HIGH TO THE CENTER OF THE METER BASE FROM THE GROUND.
2. THE CONTRACTOR SHALL SUPPLY THE NECESSARY METER BASES.
3. ALL POWER SERVICES SHALL BE METERED. THE METER SHALL HAVE A LEVER OPERATED BYPASS.

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

THE CONTRACTOR SHALL CONTACT THE METER SECTION OF THE POWER COMPANY FOR INFORMATION REGARDING THE METER BASE INSTALLATION PRIOR TO ORDERING POLES. THE CONTRACTOR WILL BE RESPONSIBLE FOR REQUESTING AND SCHEDULING ANY INSPECTIONS THE POWER COMPANY MAY REQUIRE FOR THE POWER SERVICE HOOK UP. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY FOR THE ELECTRICAL SERVICE CONNECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR SPLICE POWER CABLE INTO THE POWER COMPANY'S CIRCUITS. THE VOLTAGE SUPPLIED SHALL BE NOMINALLY 120 VOLTS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND THE PAYING OF ALL FEES. THE CONTRACTOR SHALL PAY ALL POWER CHARGES UNTIL THE SIGNAL IS ACCEPTED BY MAINTAINING AGENCY.

GUARANTEE

THE CONTRACTOR SHALL GUARANTEE THAT THE TRAFFIC CONTROL SYSTEM INSTALLED AS PART OF THIS CONTRACT SHALL OPERATE SATISFACTORILY FOR A PERIOD OF 180 DAYS FOLLOWING COMPLETION OF ODOT'S CMS 632.27 TESTS. 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 SYSTEM: CONTROLLERS AND ASSOCIATED EQUIPMENT, DETECTOR UNITS, INTERCONNECTION ITEMS AND MASTER CONTROL EQUIPMENT.

CUSTOMARY MANUFACTURE'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.

632 PEDESTRIAN SIGNAL HEADS, TYPE D2, AS PER PLAN

PEDESTRIAN SIGNAL HEADS SHALL BE LED SYMBOLIC UNITS, FULLY FILLED HAND/MAN DISPLAY, MODEL #2225 WHICH IS MADE BY PRECISION SOLAR CONTROLS, OR SIMILAR. HEADS SHALL BE DARK BRONZE AND SHALL BE MOUNTED ON DARK BRONZE, TWO–HANDED TYPE BRACKETS WHICH ARE BOLTED OR BANDED (2 BANDS PER BRACKET) TO THE STRAIN POLE OR CENTER MOUNTED WITH A SLIP FITTER TO THE TOP OF THE PEDESTAL POLE. THE HOUSING SHALL BE FIELD DRILLED AND REINFORCED (MANUFACTURER TO SUPPLY REINFORCEMENT) SO IT FITS TO THE HINGED BRACKET.

WHEN TWO PEDESTRIAN HEADS ARE ATTACHED TO A SINGLE POLE, THE BOTTOM OF THE MAINLINE HEAD SHALL BE MOUNTED AT 8 FEET ABOVE FOUNDATION LEVEL AND THE SECOND SIDE STREET HEAD MOUNTED ONE–HALF ITS HOUSING HEIGHT ABOVE THE FIRST. THE BRACKETS SHALL BE HINGED TO ALLOW THE PEDESTRIAN HEADS TO SWING AWAY FROM EACH OTHER.

THE DISPLAY, CONTAINED IN A SINGLE FACE, SHALL BE CHANGEABLE BETWEEN THAT OF A HAND AND A WALKING MAN. EACH DISPLAY SHALL BE COMPLETELY FILLED TO FORM A SOLID IMAGE. THE DISPLAYS SHALL GENERALLY CONFORM TO THE REQUIREMENTS OF THE ITE SPECIFICATION "VEHICLE TRAFFIC CONTROL SIGNAL HEADS–PART:2 LIGHT EMITTING DIODE (LED) VEHICLE SIGNAL MODULES" IN TERMS OF CONSTRUCTION, ENVIRONMENTAL REQUIREMENTS, ELECTRICAL OPERATING REQUIREMENTS AND QUALITY ASSURANCE.

632 PEDESTRIAN SIGNAL HEADS, TYPE 2D, AS PER PLAN CONTINUED

CHROMACITY REQUIREMENTS SHALL BE AS FOLLOWS:

HAND DISPLAY:	605nm
WALKING MAN DISPLAY:	XY .33

LOAD SWITCH COMPATIBILITY
AT LEAST TWO OF THE FURNISHED PEDESTRIAN HEADS SHALL BE TESTED FOR COMPATIBILITY WITH THE LOAD SWITCHES FURNISHED WITH THE CONTROLLER CABINET. EACH SIGNAL MODULE SHALL BE CONNECTED TO AN AC VOLTAGE SUPPLY BETWEEN THE VALUES OF 80 VAC AND 135 VAC, AND THE LINE CURRENT SHALL BE MEASURED UNDER CONDITIONS WHERE THE LED SIGNAL MODULE HAS THE MINIMUM POWER CONSUMPTION. WITHIN EACH HALF LINE CYCLE, THE LOAD CURRENT SHALL TEMPORARILY EXCEED 150mA, TO ENSURE PROPER TRIGGERING OF THE LOAD SWITCH THE LOAD CURRENT SHALL, AFTER REACHING 150mA REMAIN CONTINUOUSLY ABOVE 100 mA FOR A TIME SPAN LONG ENOUGH TO ENSURE THAT THE RMS LOAD CURRENT DURING THIS TIME SPAN IS AT LEAST 50% OF THE TOTAL RMS LOAD CURRENT.

WARRANTY
ALL WARRANTIES SHALL BE ASSIGNED TO THE CITY OF MASSILLON. ALL WARRANTY INFORMATION SHALL BE TURNED OVER THE THE CITY ENGINEER PRIOR TO ACCEPTANCE OF THE PROJECT.

LED SIGNAL MODULES SHALL BE REPLACED OR REPAIRED IF AN LED SIGNAL MODULE FAILS TO FUNCTON AS INTENDED DUE TO WORKMANSHIP OF MATERIAL DEFECTS WITHIN THE FIRST 60 MONTHS FROM THE DATE OF ACCEPTANCE.

LED SIGNAL MODULES WHICH EXHIBIT A LOSS IN LUMINOUS INTENSITIES NOTICEABLE TO THE CITY ENGINEER, WHEN OPERATED WITHIN THE RANGE OF VOLTAGES SPECIFIED BY ITE, WITHIN THE FIRST 36 MONTHS FROM THE DATE OF ACCEPTANCE SHALL BE REPLACED OR REPAIRED.

633 CONTROLLER, ACTUATED, 8 PHASE SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN

THE OVERLAP PROGRAMMING SHALL BE BY USE OF AN INTERCHANGEABLE PLUG IN PRINTED CIRCUIT BOARD ASSEMBLY DESCRIBED IN NEMA TS-1 SECTION 14. ALL CONTROLLER MEMORIES SHALL BE NON-VOLATILE AND SHALL NOT REQUIRE BATTERIES OR OTHER SOURCES OF ENERGY TO RETAIN DATA WHILE POWER IS REMOVED FROM THE CONTROLLER.

IN ADDITION TO NEMA REQUIREMENTS, THE CONFLICT MONITOR SHALL ALSO HAVE EXTENDED MONITORING OPERATIONAL FOR EACH LOAD SWITCH SEPARATELY, AS SHOWN IN THE LOAD SWITCH HOOK-UP DIAGRAM. THE DESIGN OF THE MONITOR SHALL USE MICROPROCESSOR ARCHITECTURE AND LIQUID CRYSTAL DISPLAYS. THE CONFLICT MONITOR SHALL HAVE AN EVENT LOGGING MEMORY. A MINIMUM OF NINE EVENTS SHALL BE LOGGED. EXAMPLES OF EVENTS INCLUDE: POWER OUTAGES, CONFLICTS, ETC. EVENTS SHALL BE DISPLAYED ON THE CONFLICT MONITOR'S LIQUID CRYSTAL DISPLAY, WHEN INTERROGATED.

THE MINIMUM NUMBER OF LOAD SWITCH SOCKETS IN THE CABINET FOR 5, 6, 7 AND 8-PHASE CONTROLLERS SHALL BE 16.

ALL SIGNAL CABLE AND LOOP DETECTOR LEAD-IN CABLE TERMINATION'S IN THE CABINET SHALL HAVE NO MORE THAN 4 INCHES OF THE OUTER INSULATION JACKET REMOVED.

THE CONTROLLER CABINET SHALL BE KEYED TO THE STATE MASTER. THE CONTROLLER CABINET SHALL NOT BE PAINTED. CONTROLLER CABINET SIZE SHALL COMPLY TO THE REQUIREMENTS OF NEMA TS-1 SECTION 14. PRINTED BOARD TYPE BACK PANELS OF THE CONTROLLER CABINET WILL NOT BE ACCEPTABLE. SOLDERED CONNECTIONS WILL BE PERMITTED FOR WIRING ON THE BACK SIDE OF THE BACK PANEL.

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

THE FOUNDATION SHALL BE ORIENTED WITH RESPECT TO THE INTERSECTION IN A MANNER THAT WILL PROVIDE MAINTENANCE PERSONNEL WITH A VIEW OF THE INTERSECTION WHILE WORKING ON THE CONTROLLER THE CONTROLLER FOUNDATION SHALL EXTEND 0.25 FEET ABOVE GROUND LEVEL RATHER THAN THE 1 FOOT AS STATED ON THE SCD TC-83.20. THE CONTROLLER SHALL INCLUDE A RISER CONSTRUCTED FROM 5052-H32 SHEET ALUMINUM ALLOY WHICH HAS THICKNESS OF 0.125 INCHES. THE OUTSIDE SURFACES OF THE RISER AND CONTROLLER CABINET SHALL MATCH.

PLAN AND SPECIFICATION COMPLIANCE

THE CONTRACTOR SHALL FURNISH AND INSTALL TRAFFIC SIGNAL DEVICES IN COMPLIANCE WITH THESE PLANS AND SPECIFICATIONS, THE 1997 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS AND ITS SUPPLEMENTAL SPECIFICATIONS, OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, AND THE "TC" STANDARD CONSTRUCTION DRAWINGS ISSUED BY THE ODOT BUREAU OF DESIGN SERVICES (SUPPLEMENTS THE PLAN SPECIFICATIONS). THE CITY OF MASSILLON, SHALL DETERMINE WHETHER THE SUPPLIED ITEMS MEET OR EXCEED THESE SPECIFICATIONS.

TRAFFIC SIGNAL CONTROL EQUIPMENT SHALL MEET OR EXCEED THE STANDARDS SPECIFIED IN THE FOLLOWING DOCUMENTS.

(A) SPECIFICATIONS LISTED IN THIS PLAN

(B) NEMA STANDARDS PUBLICATION NO. TS2-1992 (OR CURRENT NEMA ISSUE) AND/OR TS1-1989 : SECTIONS 1, 2, 5, 6, 8, 11, 13 AND 14

(C) 1997 ODOT CONSTRUCTION AND MATERIAL SPECIFICATIONS 625, 632, 633, 732 & 733; SUPPLEMENT 1063 "SIGNAL CONSTRUCTION PERSONNEL REQUIREMENTS"

IN CASE OF A CONFLICTING SPECIFICATION STATEMENT, THE SPECIFICATION DOCUMENT HIERARCHY SHALL BE IN THE ORDER LISTED FROM (A), HIGHEST, TO (C), LOWEST.

MATERIAL INFORMATION SUBMITTAL

THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE ENGINEER, ONE (1) COMPLETE SET OF CATALOG CUTS, DIAGRAMS, SHOP DRAWINGS, BROCHURES OR OTHER DESCRIPTIVE MATERIAL FOR THE SIGNAL ITEMS THAT THE CONTRACTOR INTENDS TO FURNISH THAT HAVE NOT BEEN SPECIFICALLY NAMED IN THESE PLANS BY PRODUCT MODEL NUMBER. THE CONTRACTOR SHALL ALSO PROVIDE A DETAILED LIST OF ALL VARIANCES FROM ODOT SPECIFICATIONS AND FROM THE SPECIFICATIONS CONTAINED HEREIN FOR EACH NON SPECIFIED ITEM THAT DOES NOT COMPLY 100% WITH THESE SPECIFICATIONS. UNLESS OTHERWISE STATED BY THE CONTRACTOR THE SUPPLIED ITEMS WILL BE CONSIDERED AS BEING IN STRICT ACCORDANCE WITH ALL SPECIFICATIONS.

PROPOSED TRAFFIC SIGNAL INSTALLATION

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL PROPOSED TRAFFIC SIGNAL DEVICES UNDER THE FOLLOWING CONDITIONS FROM THE TIME OF INSTALLATION UNTIL THE DEVICE HAS BEEN ACCEPTED BY THE SIGNAL MANAGEMENT SECTION.

THE CONTRACTOR SHALL PROVIDE ONE OR MORE CONTACT PERSONS WHO CAN RECEIVE ALL DEVICE OUT-OF-SERVICE CALLS THAT FALL UNDER THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL DISPATCH MAINTENANCE PERSONNEL TO CORRECT THE PROBLEM. THE CONTRACTOR SHALL PROVIDE THE CITY OF MASSILLON AND PROJECT ENGINEER WITH ADDRESSES AND PHONE NUMBERS OF THESE CONTACT PERSONS. MAINTENANCE PERSONNEL MAY BE USED TO PERFORM OTHER DUTIES AS LONG AS PROMPT ATTENTION IS GIVEN TO THESE CALLS AND A PERSON IS CONTINUOUSLY AVAILABLE TWENTY-FOUR (24) HOURS A DAY AND SEVEN (7) DAYS A WEEK. THE CONTRACTOR SHALL PROVIDE MAINTENANCE SERVICE ENTIRELY WITH HIS PERSONNEL.

THE CONTRACTOR SHALL CORRECT ALL BULB OUTAGES, DEVICE MALFUNCTIONS OF ANY TYPE, INTERNAL CABINET POWER LOSES, SPAN OR CABLE PROBLEMS AND MISALIGNED OR DAMAGED VEHICULAR OR PEDESTRIAN SIGNAL HEADS WITHIN TWO (2) HOURS AFTER THE CONTRACTOR'S CONTACT PERSON HAS BEEN NOTIFIED OF ANY ONE OF THE ABOVE. IN THE EVENT A NEW SIGNAL DEVICE IS DAMAGED PRIOR TO ACCEPTANCE, THE DAMAGED DEVICE EXCEPT POLES SHALL BE REPLACED OR REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE CITY OF MASSILLON. ANY DAMAGED CABINET ASSEMBLY DEVICE IF REPAIRED SHALL BE TESTED ONCE AGAIN BY THE ENGINEER BEFORE THE DEVICE CAN BE INSTALLED.

IN THE EVENT OF A LOSS OF POWER TO THE SIGNAL INDICATIONS OTHER THAN AN ELECTRIC COMPANY GENERAL POWER OUTAGE, THE CONTRACTOR AT HIS EXPENSE SHALL IMMEDIATELY TAKE ACTION [WITHIN 30 MINUTES] TO PROPERLY ERECT TEMPORARY STOP SIGN(S) AND PROVIDE POLICE OFFICER(S) TO DIRECT TRAFFIC UNTIL THE SIGNAL IS BACK ON "FLASH" OR OPERATING PROPERLY.

IF A TRAFFIC POLE IS DAMAGED AND THAT DAMAGE CAUSED POLE INSTABILITY, THEN THE CONTRACTOR SHALL TAKE IMMEDIATE ACTION (WITHIN 2 HOURS) TO STABILIZE THE POLE. THE CONTRACTOR SHALL STILL BE RESPONSIBLE FOR PROVIDING THE PROJECT WITH A NEW UNDAMAGED POLE.

WHERE OUT-OF-SERVICE CALLS ARE THE DIRECT RESULT OF A VEHICULAR ACCIDENT THE RESPONSE OF THE CONTRACTOR SHALL BE AS OUTLINED ABOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COLLECTION OF ANY COMPENSATION FROM THOSE PARTIES RESPONSIBLE FOR THE DAMAGE TO THE CONTRACTOR'S MATERIALS.

WHERE THE CONTRACTOR HAS FAILED TO RESPOND OR CANNOT RESPOND TO AN OUT-OF-SERVICE CALL WITHIN THE TIME PERIOD SPECIFIED ABOVE AT LOCATIONS UNDER HIS RESPONSIBILITY, THEN THE CITY OF MASSILLON MAY TAKE ACTION AS IT DEEMS NECESSARY TO CORRECT THE SITUATION. THIS ACTION MAY INCLUDE CONTROLLING THE INTERSECTION USING MASSILLON POLICE OFFICERS, COMPLETELY REMOVING OR REPLACING ANY MALFUNCTIONING TRAFFIC CONTROL DEVICE, AND/OR INSTALLING ANY DEVICE(S) REQUIRED TO RETURN THE INTERSECTION TO REGULAR SIGNAL OPERATION. ALL COSTS ASSOCIATED WITH THESE ACTIONS SHALL BE BILLED DIRECTLY TO THE CONTRACTOR AND ARE NOT INCLUDED IN ITEM 614 MAINTAINING TRAFFIC.

ANY NON-OPERATING VEHICULAR OR PEDESTRIAN SIGNAL HEAD OR PUSHBUTTON SHALL BE COVERED PER ODOT 632.24. ALL SIGNAL HEADS WHILE COVERED SHALL BE DARK EITHER BY REMOVING, UNSCREWING OR DISCONNECTING THE POWER TO THE BULBS. NO COVERED HEAD SHALL BLOCK THE VIEW OF AN OPERATING HEAD. A MINIMUM OF TWO (2) VEHICULAR SIGNAL HEADS PER TRAVELED DIRECTION (SPACED 8' APART MINIMUM AND 12' MAXIMUM) SHALL BE OPERATING AT ALL TIMES. NO EXCEPTIONS!

625 PULL BOX, AS PER PLAN

THE PULL BOX ASSEMBLY SHALL BE RATED AS MEDIUM TO HEAVY DUTY, SHALL BE RATED TO BE INSTALLED IN CONCRETE WALKS AND SHALL HAVE ALL STAINLESS STEEL HARDWARE. THE PULL BOX COVER SHALL HAVE THE WORD "TRAFFIC" ON IT. THE COVER SHALL BE BOLTED TO THE BOX AND SHALL BE EITHER POLYMER CONCRETE OR STEEL PLATE. THE BOX DEPTH SHALL BE 15 INCHES MINIMUM TO 30" MAXIMUM. THE SUPPLIED ASSEMBLY SHALL BE A MODIFIED ODOT STANDARD 713.08 AS PER PLAN, A CARSON-BROOKS HIGH PERFORMANCE SERIES MODEL 1419-15 OR A CDR SYSTEMS MODEL SA32-1015-18. CONDUIT ELLS MAY BE USED TO BRING THE CONDUIT UP INTO THE HOUSING. EXTENSIONS, IF AVAILABLE, CAN BE USED TO ELIMINATE THE NEED FOR CONDUIT ELLS.

SIGNAL NOTES

16TH STREET

SPECIFICATION FOR A MODULAR (MULTI OR SINGLE CAMERA) VIDEO DETECTION SYSTEM WITH WIRED CAMERA(S)

1. GENERAL

THIS SPECIFICATION SETS FORTH THE MINIMUM REQUIREMENTS FOR A SYSTEM THAT DETECTS VEHICLES ON A ROADWAY USING ONLY VIDEO IMAGES OF VEHICLE TRAFFIC.

1.1 SYSTEM HARDWARE

THE VIDEO DETECTION SYSTEM (VDS) SHALL CONSIST OF UP TO SIX VIDEO CAMERAS, A VIDEO DETECTION PROCESSOR (VDP) CAPABLE OF PROCESSING FROM ONE TO SIX VIDEO SOURCES, EITHER WIRED OR WIRELESS, WIRELESS VIDEO TRANSMISSION RECEIVER, RECEIVER ANTENNA AND A POINTING DEVICE.

1.2 SYSTEM SOFTWARE

THE SYSTEM SHALL INCLUDE SOFTWARE THAT DETECTS VEHICLES IN MULTIPLE LANES USING ONLY THE VIDEO IMAGE. DETECTION ZONES SHALL BE DEFINED USING ONLY AN ON BOARD VIDEO MENU AND A POINTING DEVICE TO PLACE THE ZONES ON A VIDEO IMAGE. UP TO 24 DETECTION ZONES PER CAMERA VIEW SHALL BE AVAILABLE. A SEPARATE COMPUTER SHALL NOT BE REQUIRED TO PROGRAM THE DETECTION ZONES.

2. FUNCTIONAL CAPABILITIES

2.1 AVAILABLE SYSTEM CONFIGURATION

A. THE VDS WILL BE DEPLOYED AT LOCATIONS WHERE SITE CONDITIONS AND ROADWAY GEOMETRY VARY. THE VDS SYSTEM MAY ALSO BE DEPLOYED AT LOCATIONS WHERE EXISTING CABINETS OR EQUIPMENT EXIST. EXISTING SITE CONFIGURATIONS WILL DICTATE THE AVAILABILITY OF CABINET SPACE AND VDS USAGE.

B. THE PROPOSED VDS SHALL BE AVAILABLE IN VARIOUS CONFIGURATIONS TO ALLOW MAXIMUM DEPLOYMENT

TABLE 1. VDS CONFIGURATION

CONFIGURATION	NO. VIDEO INPUTS	NO. VIDEO OUTPUTS	MOUNTING CONFIGURATION	POWER SUPPLY REQUIREMENTS
MULTI-CHANNEL SHELF MOUNT	6	1	SHELF MOUNT	INTEGRATED
SINGLE CHANNEL SHELF MOUNT	1	1	SHELF MOUNT	EXTERNAL POWER SUPPLY REQUIRED
SINGLE CHANNEL RACK MOUNT	1	1	RACK MOUNT (TYPE 170 OR NEMA TS1 RACKS)	24 VDC POWER FROM RACK

C. AN OPTION TO HAVE WIRELESS VIDEO TRANSMISSION BETWEEN THE CAMERA SENSOR AND VDP SHALL ALSO BE AVAILABLE FROM THE VDS MANUFACTURER.

D. WIRED CAMERA SYSTEMS SHALL BE ABLE TO TRANSMIT NTSC OR PAL VIDEO SIGNALS, WITH MINIMAL DEGRADATION, UP TO 1000 FEET UNDER IDEAL CONDITIONS.

E. WIRELESS CAMERA SYSTEMS SHALL BE ABLE TO TRANSMIT AN NTSC OR PAL VIDEO SIGNAL, WITH MINIMAL SIGNAL DEGRADATION, UP TO 500 FEET UNDER NORMAL CONDITIONS AND UP TO 900 FEET UNDER IDEAL ELECTROMAGNETIC INTERFERENCE CONDITIONS. ADJACENT SOURCES OF ELECTROMAGNETIC RADIATION, OR THE ABSENCE OF A DIRECT LINE OF SIGHT BETWEEN TRANSMITTER AND RECEIVER ANTENNAS, MAY RESULT IN VIDEO SIGNAL DEGRADATION.

F. THE MULTI-CHANNEL SHELF MOUNT CONFIGURATION SHALL USE MODULAR COMPONENTS AND SHALL BE CAPABLE OF BEING SERVICED (REMOVE AND REPLACED) WITHOUT THE NEED TO OPEN OR REMOVE THE EQUIPMENT ENCLOSURE. EACH MODULE SHALL HAVE RETENTION SCREWS TO FIRMLY AFFIX THE MODULE INTO THE EQUIPMENT ENCLOSURE. PULL-TABS OR PULL-BARS SHALL BE PROVIDED FOR EACH REMOVABLE MODULE TO FACILITATE THE EASE OF MAINTENANCE. UNUSED MODULAR SLOTS IN THE ENCLOSURE SHALL BE COVERED WITH BLANK SPACERS.

2.2 SYSTEM INTERFACES

THE FOLLOWING INTERFACES SHALL BE PROVIDED FOR EACH OF THE CONFIGURATIONS IDENTIFIED IN TABLE 1.

A. VIDEO INPUT: EACH VIDEO INPUT SHALL ACCEPT RS170 (NTSC) OR CCIR (PAL) SIGNALS FROM AN EXTERNAL VIDEO SOURCE (CAMERA SENSOR OR VCR). THE INTERFACE CONNECTOR SHALL BE BNC TYPE AND SHALL BE LOCATED ON THE VIDEO PROCESSING UNIT. THE VIDEO INPUT SHALL HAVE THE CAPABILITY TO SELECT 75-OHM OR HIGH IMPEDANCE (HI-Z) TERMINATION. THE SELECTION OF THE VIDEO INPUT IMPEDANCE SHALL BE EXTERNALLY ACCESSIBLE AND LOCATED ADJACENT TO THE VIDEO INPUT BNC CONNECTOR.

B. VIDEO LOCK LED: A LED INDICATOR SHALL BE PROVIDED TO INDICATE THE PRESENCE OF THE VIDEO SIGNAL. THE LED SHALL ILLUMINATE UPON VALID VIDEO SYNCHRONIZATION AND TURN OFF WHEN THE PRESENCE OF A VALID VIDEO SIGNAL IS REMOVED.

C. VIDEO OUTPUT: ONE VIDEO OUTPUT SHALL BE PROVIDED. THE VIDEO OUTPUT SHALL BE RS170 OR CCIR COMPLIANT AND SHALL PASS THROUGH THE INPUT VIDEO SIGNAL. FOR MULTI-CHANNEL VIDEO INPUT CONFIGURATIONS, A MOMENTARY PUSH-BUTTON SHALL BE PROVIDED ON THE FRONT PANEL TO TOGGLE THROUGH EACH INPUT VIDEO CHANNEL. IN THE ABSENCE OF A VALID VIDEO SIGNAL, THE CHANNEL SHALL BE SKIPPED AND THE NEXT VALID VIDEO SIGNAL SHALL BE SWITCHED. THE VIDEO OUTPUT SHALL HAVE THE CAPABILITY TO SHOW TEXT AND GRAPHICAL OVERLAYS TO AID IN SYSTEM SETUP. THE OVERLAYS SHALL DISPLAY REAL-TIME ACTUATION OF DETECTION ZONES UPON VEHICLE DETECTION OR PRESENCE. OVERLAYS SHALL BE ABLE TO BE TURNED OFF BY THE USER. CONTROL OF THE OVERLAYS AND VIDEO SWITCHING SHALL ALSO BE PROVIDED THROUGH THE SERIAL COMMUNICATIONS PORT. THE VIDEO OUTPUT INTERFACE CONNECTOR SHALL BE BNC TYPE.

D. SERIAL COMMUNICATIONS: A SERIAL COMMUNICATIONS PORT SHALL BE PROVIDED ON THE FRONT PANEL. THE SERIAL PORT SHALL COMPLIANT WITH RS232 OR RS422 ELECTRICAL INTERFACES AND SHALL USE A DB9 TYPE CONNECTOR. THE SERIAL COMMUNICATIONS INTERFACE SHALL ALLOW THE USER TO REMOTELY CONFIGURE THE SYSTEM AND/OR TO EXTRACT CALCULATED VEHICLE/ROADWAY INFORMATION. THE INTERFACE PROTOCOL SHALL BE DOCUMENTED OR INTERFACE SOFTWARE SHALL BE PROVIDED. THE INTERFACE PROTOCOL SHALL SUPPORT MULTI-DROP OR POINT-TO-MULTIPOINT COMMUNICATIONS. EACH VDS SHALL HAVE THE CAPABILITY TO BE ADDRESSABLE.

E. CONTACT CLOSURE OUTPUT : OPEN COLLECTOR CONTACT CLOSURE OUTPUTS SHALL BE PROVIDED. EIGHT (8) OPEN COLLECTOR OUTPUTS SHALL BE PROVIDED FOR THE SINGLE CHANNEL SHELF-MOUNT CONFIGURATION. THIRTY-TWO (32) OPEN COLLECTOR OUTPUTS SHALL BE PROVIDED FOR THE MULTI-CHANNEL SHELF-MOUNT CONFIGURATION. FOUR (4) OPEN COLLECTOR OUTPUTS SHALL BE PROVIDED FOR THE SINGLE CHANNEL RACK-MOUNT CONFIGURATION. ADDITIONALLY, THE SINGLE CHANNEL RACK-MOUNT CONFIGURATION SHALL ALLOW THE USE OF EXTENSION MODULES TO PROVIDE TWO (2) ADDITIONAL OPEN COLLECTOR CONTACT CLOSURES. EACH OPEN COLLECTOR OUTPUT SHALL BE CAPABLE OF SINKING 30 MA AT 24 VDC. THE OPEN COLLECTOR OUTPUT WILL BE USED FOR VEHICLE DETECTION INDICATORS AS WELL AS DISCRETE OUTPUTS FOR ALARM CONDITIONS.

F. DETECTION LEDS: LEDS SHALL BE PROVIDED ON THE FRONT PANEL. THE LEDS SHALL ILLUMINATE WHEN A CONTACT CLOSURE OUTPUT OCCURS. A MINIMUM OF EIGHT (8) LEDS SHALL BE PROVIDED FOR EACH SHELF-MOUNTED VIDEO PROCESSORS. RACK-MOUNTED VIDEO PROCESSORS SHALL HAVE A MINIMUM OF FOUR (4) LEDS. RACK-MOUNTED EXTENSION MODULES SHALL HAVE TWO (2) LEDS TO INDICATE DETECTION.

G. MOUSE PORT: A PS/2 MOUSE PORT SHALL BE PROVIDED ON THE FRONT PANEL OF THE VIDEO PROCESSING UNIT. THE MOUSE PORT SHALL NOT REQUIRE SPECIAL MOUSE SOFTWARE DRIVERS. THE MOUSE PORT SHALL BE USED AS PART OF SYSTEM SETUP AND CONFIGURATION. A PS/2 MOUSE SHALL BE PROVIDED WITH EACH VIDEO PROCESSOR.

2.3 GENERAL SYSTEM FUNCTIONS

A. DETECTION ZONES SHALL BE PROGRAMMED VIA AN ON BOARD MENU DISPLAYED ON A VIDEO MONITOR AND A POINTING DEVICE CONNECTED TO THE VDP. THE MENU SHALL FACILITATE PLACEMENT OF DETECTION ZONES AND SETTING OF ZONE PARAMETERS OR TO VIEW SYSTEM PARAMETERS. A SEPARATE COMPUTER SHALL NOT BE REQUIRED FOR PROGRAMMING DETECTION ZONES OR TO VIEW SYSTEM OPERATION. A MINIMUM OF ONE(1) VIDEO MONITOR AND MOUSE SHALL BE PROVIDED WITH THE SYSTEM.

B. THE VDP SHALL STORE UP TO THREE DIFFERENT DETECTION ZONE PATTERNS. THE VDP CAN SWITCH TO ANY ONE OF THE THREE DIFFERENT DETECTION PATTERNS WITHIN 1 SECOND OF USER REQUEST VIA MENU SELECTION WITH THE POINTING DEVICE.

C. THE VDP SHALL DETECT VEHICLES IN REAL TIME AS THEY TRAVEL ACROSS EACH DETECTION ZONE.

D. THE VDP SHALL HAVE AN RS232 PORT FOR COMMUNICATIONS WITH AN EXTERNAL COMPUTER. THE VDP RS232 PORT SHALL BE MULTI-DROP CAPABLE.

E. THE VDP SHALL ACCEPT NEW DETECTION PATTERNS FROM AN EXTERNAL COMPUTER THROUGH THE RS-232 PORT WHEN THE EXTERNAL COMPUTER USES THE CORRECT COMMUNICATIONS PROTOCOL FOR DOWNLOADING DETECTION PATTERNS. A WINDOWS-BASED SOFTWARE DESIGNED FOR LOCAL OR REMOTE CONNECTION AND PROVIDING VIDEO CAPTURE, REAL-TIME DETECTION INDICATION AND DETECTION ZONE MODIFICATION CAPABILITY SHALL BE PROVIDED WITH THE SYSTEM.

F. THE VDP SHALL SEND ITS DETECTION PATTERNS TO AN EXTERNAL COMPUTER THROUGH THE RS-232 PORT WHEN REQUESTED WHEN THE EXTERNAL COMPUTER USES THE CORRECT COMMUNICATIONS PROTOCOL FOR UPLOADING DETECTION PATTERNS.

G. THE VDP SHALL DEFAULT TO A SAFE CONDITION, SUCH AS A CONSTANT CALL ON EACH ACTIVE DETECTION CHANNEL, IN THE EVENT OF UNACCEPTABLE INTERFERENCE WITH THE VIDEO SIGNAL.

H. THE SYSTEM SHALL BE CAPABLE OF AUTOMATICALLY DETECTING A LOW-VISIBILITY CONDITION SUCH AS FOG AND RESPOND BY PLACING ALL DEFINED DETECTION ZONES IN A CONSTANT CALL MODE. A USER-SELECTED OUTPUT SHALL BE ACTIVE DURING THE LOW-VISIBILITY CONDITION THAT CAN BE USED TO MODIFY THE CONTROLLER OPERATION IF CONNECTED TO THE APPROPRIATE CONTROLLER INPUT MODIFIER(S). THE SYSTEM SHALL AUTOMATICALLY REVERT TO NORMAL DETECTION MODE WHEN THE LOW-VISIBILITY CONDITION NO LONGER EXISTS.

3. VEHICLE DETECTION

3.1 DETECTION ZONES

A. MULTI-CHANNEL SHELF MOUNT – UP TO 144 DETECTION ZONES SHALL BE SUPPORTED AND EACH DETECTION ZONE CAN BE SIZED TO SUIT THE SITE AND THE DESIRED VEHICLE DETECTION REGION.

B. SINGLE-CHANNEL (RACK MOUNT AND SHELF MOUNT) – UP TO 24 DETECTION ZONES SHALL BE SUPPORTED AND EACH DETECTION ZONE CAN BE SIZED TO SUIT THE SITE AND THE DESIRED VEHICLE DETECTION REGION.

3.2 DETECTION OUTPUTS

A. MULTI-CHANNEL SHELF MOUNT – THE VDP SHALL PROVIDE 32 CHANNELS OF DETECTION OUTPUTS THROUGH EITHER A NEMA TS1 CONTACT CLOSURE PORT OR A NEMA TS2 PORT.

B. SINGLE-CHANNEL (RACK MOUNT AND SHELF MOUNT) – THE VDP SHALL PROVIDE UP TO 8 CHANNELS OF VEHICLE PRESENCE DETECTION THROUGH A NEMA TS1 CONTACT CLOSURE PORT OR THROUGH A STANDARD DETECTOR RACK EDGE CONNECTOR AND ONE OR MORE EXTENSION MODULES.

3.3 A SINGLE DETECTION ZONE SHALL BE ABLE TO REPLACE MULTIPLE INDUCTIVE LOOPS AND THE DETECTION ZONES SHALL BE OR'ed AS THE DEFAULT OR MAY BE AND'ed TOGETHER TO INDICATE VEHICLE PRESENCE ON A SINGLE PHASE OF TRAFFIC MOVEMENT.

3.4 PLACEMENT OF DETECTION ZONES SHALL BE DONE BY USING ONLY A POINTING DEVICE, AND A GRAPHICAL INTERFACE BUILT INTO THE VDP AND DISPLAYED ON A VIDEO MONITOR, TO DRAW THE DETECTION ZONES ON THE VIDEO IMAGE FROM EACH VIDEO CAMERA. NO SEPARATE COMPUTER SHALL BE REQUIRED TO PROGRAM THE DETECTION ZONES.

3.5 UP TO 3 DETECTION ZONE PATTERNS SHALL BE SAVED FOR EACH CAMERA WITHIN THE VDP MEMORY. THE VDP'S MEMORY SHALL BE NON-VOLATILE TO PREVENT DATA LOSS DURING POWER OUTAGES.

3.6 THE SELECTION OF THE DETECTION ZONE PATTERN FOR CURRENT USE SHALL BE DONE THROUGH A MENU. IT SHALL BE POSSIBLE TO ACTIVATE A DETECTION ZONE PATTERN FROM VDP MEMORY AND HAVE THAT DETECTION ZONE PATTERN DISPLAYED WITHIN 1 SECOND OF ACTIVATION.

3.7 WHEN A VEHICLE IS DETECTED CROSSING A DETECTION ZONE, THE CORNERS OF THE DETECTION ZONE WILL FLASH ON THE VIDEO OVERLAY DISPLAY TO CONFIRM THE DETECTION OF THE VEHICLE.

3.8 DETECTION SHALL BE AT LEAST 98% ACCURATE IN GOOD WEATHER CONDITIONS, WITH SLIGHT DEGRADATION POSSIBLE UNDER ADVERSE WEATHER CONDITIONS (E.G. RAIN, SNOW, OR FOG) WHICH REDUCE VISIBILITY. DETECTION ACCURACY IS DEPENDENT UPON SITE GEOMETRY, CAMERA PLACEMENT, CAMERA QUALITY AND DETECTION ZONE LOCATION, AND THESE ACCURACY LEVELS DO NOT INCLUDE ALLOWANCES FOR OCCLUSION OR POOR VIDEO DUE TO CAMERA LOCATION OR QUALITY.

3.9 THE VDP SHALL PROVIDE DYNAMIC ZONE RECONFIGURATION (DZR). DZR ENABLES NORMAL OPERATION OF EXISTING DETECTION ZONES WHEN ONE ZONE IS BEING ADDED OR MODIFIED DURING THE SETUP PROCESS. THE VDP SHALL OUTPUT A CONSTANT CALL ON ANY DETECTOR CHANNEL CORRESPONDING TO A ZONE BEING MODIFIED.

3.10 DETECTION ZONES SHALL BE DIRECTIONAL TO REDUCE FALSE DETECTIONS FROM OBJECTS TRAVELING IN DIRECTIONS OTHER THAN THE DESIRED DIRECTION OF TRAVEL IN THE DETECTION AREA.

3.11 DETECTION ZONE SETUP SHALL NOT REQUIRE SITE SPECIFIC INFORMATION SUCH AS LATITUDE AND LONGITUDE TO BE ENTERED INTO THE SYSTEM. IT SHALL ALSO NOT REQUIRE TEMPORAL INFORMATION SUCH AS DATE AND TIME.

3.12 THE VDP SHALL PROCESS THE VIDEO INPUT FROM EACH CAMERA USING A SEPARATE MICROPROCESSOR AT 30 FRAMES PER SECOND.

3.13 THE VDP SHALL OUTPUT A CONSTANT CALL FOR EACH ENABLED DETECTOR OUTPUT CHANNEL IF A LOSS OF VIDEO SIGNAL OCCURS. THE VDP SHALL OUTPUT A CONSTANT CALL DURING THE BACKGROUND LEARNING PERIOD.

3.14 DETECTION ZONE OUTPUTS SHALL BE CONFIGURABLE TO ALLOW THE SELECTION OF PRESENCE, PULSE, EXTEND, AND DELAY OUTPUTS. TIMING PARAMETERS OF PULSE, EXTEND, AND DELAY OUTPUTS SHALL BE USER DEFINABLE BETWEEN 0.1 TO 25.0 SECONDS.

3.15 UP TO SIX DETECTION ZONES PER CAMERA VIEW SHALL HAVE THE CAPABILITY TO COUNT THE NUMBER OF VEHICLES DETECTED. THE COUNT VALUE SHALL BE INTERNALLY STORED FOR LATER RETRIEVAL THROUGH THE RS-232 PORT. THE DATA COLLECTION INTERVAL SHALL BE USER DEFINABLE IN PERIODS OF 5, 15, 30 OR 60 MINUTES.

4. VDP HARDWARE

4.1 SINGLE CHANNEL RACK MOUNT – THE VDP AND EXTENSION MODULE (EM) SHALL BE SPECIFICALLY DESIGNED TO MOUNT IN A STANDARD DETECTOR RACK, USING THE EDGE CONNECTOR TO OBTAIN POWER AND PROVIDE CONTACT CLOSURE OUTPUTS. NO ADAPTERS SHALL BE REQUIRED TO MOUNT THE VDP OR EM IN A STANDARD DETECTOR RACK. DETECTOR RACK REWIRING SHALL NOT BE REQUIRED OR SHALL BE MINIMIZED.

THE EM SHALL BE AVAILABLE TO AVOID THE NEED OF REWIRING THE DETECTOR RACK, BY ENABLING THE USER TO PLUG AN EXTENSION MODULE INTO THE APPROPRIATE SLOT IN THE DETECTOR RACK. THE EXTENSION MODULE SHALL BE CONNECTED TO THE VDP BY A 10 WIRE CABLE WITH MODULAR CONNECTORS, AND SHALL OUTPUT CONTACT CLOSURES IN ACCORDANCE WITH USER SELECTABLE CHANNEL ASSIGNMENTS.

4.2 MULTI-CHANNEL SHELF MOUNT – THE VDP SHALL BE HOUSED IN A DURABLE METAL ENCLOSURE SUITABLE FOR SHELF MOUNTING OR 19" RACK MOUNTING IN A ROADSIDE TRAFFIC EQUIPMENT CABINET. THE VDP ENCLOSURE SHALL NOT EXCEED 7" HEIGHT, 17.75" WIDTH, AND 10.5" DEPTH. THE VDP SHALL BE MODULAR IN CONSTRUCTION WITH PLUG-IN FIELD REPLACEABLE UNITS (FRU'S) TO MINIMIZE TROUBLE-SHOOTING AND REPAIR TIME.

4.3 SINGLE CHANNEL SHELF MOUNT – THE VDP SHALL BE HOUSED IN A DURABLE METAL ENCLOSURE SUITABLE FOR SHELF MOUNTING IN A NEMA TYPE TRAFFIC EQUIPMENT CABINET, OR ATTACHING TO THE SIDE RAILS OF A TYPE 170 TRAFFIC EQUIPMENT CABINET. THE VDP ENCLOSURE SHALL NOT EXCEED 7.1" HEIGHT, 2" WIDTH, AND 6.2" DEPTH.

4.4 INPUT POWER

A. MULTI-CHANNEL SHELF MOUNT – THE VDP SHALL BE POWERED BY 120 VAC 60 HZ SINGLE-PHASE POWER. SURGE RATINGS SHALL BE AS SET FORTH IN NEMA SPECIFICATIONS. POWER CONSUMPTION SHALL NOT EXCEED 135 WATTS.

B. SINGLE CHANNEL SHELF MOUNT – THE VDP SHALL BE POWERED BY 24 VOLTS DC. POWER CONSUMPTION SHALL NOT EXCEED 10 WATTS.

C. SINGLE CHANNEL RACK MOUNT – THE VDP AND EM SHALL BE POWERED BY 24 VOLTS DC. VDP POWER CONSUMPTION SHALL NOT EXCEED 450 MILLIAMPS. THE EM POWER CONSUMPTION SHALL NOT EXCEED 100 MILLIAMPS.

4.5 DETECTION OUTPUTS

A. MULTI-CHANNEL SHELF MOUNT – THE VDP SHALL INCLUDE PORTS FOR TRANSMITTING TS1 AND TS2 DETECTIONS TO A TRAFFIC CONTROLLER. THE TS1 CONTACT CLOSURE PORT SHALL BE A 37-PIN "D" CONNECTOR ON THE FRONT OF THE VDP. THE TS2 PORT SHALL BE A 15-PIN "D" CONNECTOR ON THE FRONT OF THE VDP.

B. SINGLE CHANNEL SHELF MOUNT – THE VDP SHALL INCLUDE A PORT FOR TRANSMITTING UP TO 8 CHANNELS OF DETECTION TO A TRAFFIC CONTROLLER. THIS PORT SHALL BE A 9-PIN "D" SUBMINIATURE CONNECTOR ON THE FRONT OF THE VDP.

C. SINGLE CHANNEL RACK MOUNT – THE VDP AND EM SHALL INCLUDE DETECTOR OUTPUT PIN OUT COMPATIBILITY WITH INDUSTRY STANDARD DETECTOR RACKS.

4.6 VIDEO INPUTS

A. MULTI-CHANNEL SHELF MOUNT – THE FRONT OF THE VDP SHALL INCLUDE UP TO SIX BNC VIDEO INPUT CONNECTIONS SUITABLE FOR RS170 VIDEO INPUTS. EACH VIDEO INPUT SHALL INCLUDE A SWITCH SELECTABLE 75-OHM OR HIGH IMPEDANCE TERMINATION TO ALLOW CAMERA VIDEO TO BE ROUTED TO OTHER DEVICES, AS WELL AS INPUT TO THE VDP FOR VEHICLE DETECTION. THE VIDEO INPUTS TO THE VDP SHALL INCLUDE TRANSIENT VOLTAGE SUPPRESSION AND ISOLATION. AMPLIFICATION THAT SHALL ASSURE THE 1-VOLT PEAK TO PEAK VIDEO SIGNAL INTEGRITY IS MAINTAINED DESPITE VIDEO CABLING LOSSES AND EXTERNALLY INDUCED TRANSIENTS. THE AMPLIFIER SHALL HAVE A MINIMUM COMMON MODE REJECTION AT 60 HZ OF 90 DB.

B. SINGLE CHANNEL (RACK MOUNT AND SHELF MOUNT) – THE FRONT OF THE VDP SHALL INCLUDE ONE BNC VIDEO INPUT CONNECTION SUITABLE FOR RS170 VIDEO INPUTS. THE VIDEO INPUT SHALL INCLUDE A SWITCH SELECTABLE 75-OHM OR HIGH IMPEDANCE TERMINATION TO ALLOW CAMERA VIDEO TO BE ROUTED TO OTHER DEVICES, AS WELL AS INPUT TO THE VDP FOR VEHICLE DETECTION. ROUTING OF VIDEO SIGNALS THROUGH THE BACK PLANE ON THE RACK MOUNTED CONFIGURATIONS IS NOT PERMISSIBLE.

4.7 VIDEO OUTPUTS

A. MULTI-CHANNEL SHELF MOUNT – THE FRONT OF THE VDP SHALL INCLUDE ONE BNC VIDEO OUTPUT. ANY ONE OF THE SIX VIDEO INPUTS SHALL BE SWITCH SELECTABLE FOR OUTPUT ON THIS BNC CONNECTION VIA THE POINTING DEVICE AT THE VDP, MOMENTARY PUSH-BUTTON SWITCH, OR THROUGH SOFTWARE AND A PERSONAL COMPUTER CONNECTED THROUGH THE RS-232 MULTI-DROP PORT VIA A FULL DUPLEX MODEM LINK.

B. SINGLE CHANNEL (RACK MOUNT AND SHELF MOUNT) – THE FRONT OF THE VDP SHALL INCLUDE ONE BNC VIDEO OUTPUT PROVIDING REAL TIME VIDEO OUTPUT THAT CAN BE ROUTED TO OTHER DEVICES.

4.8 MECHANICAL

A. THE VDP SHALL OPERATE SATISFACTORILY IN A TEMPERATURE RANGE FROM -34 °C TO +74 °C AND A HUMIDITY RANGE FROM 0%RH TO 95%RH, NON-CONDENSING AS SET FORTH IN NEMA SPECIFICATIONS.

B. MULTI-CHANNEL SHELF MOUNT – THE VDP ENCLOSURE SHALL INCLUDE PROVISIONS TO BE BONDED TO A GOOD EARTH GROUND. THE VDP SHALL CONSIST OF FUNCTIONAL MODULAR FIELD REPLACEABLE UNITS (FRU'S) TO FACILITATE MAINTENANCE AND EXPANDABILITY. EACH CAMERA VIDEO INPUT SHALL BE PROCESSED OF A SEPARATE HIGHER PERFORMANCE RISC PROCESSOR.

C. SINGLE CHANNEL RACK MOUNT – THE FRONT PANEL OF THE VDP SHALL HAVE A DETECTOR TEST SWITCH TO ALLOW THE USER TO PLACE CALLS ON EACH CHANNEL. THE TEST SWITCH SHALL BE ABLE TO PLACE EITHER A CONSTANT CALL OR A MOMENTARY CALL DEPENDING ON THE POSITION OF THE SWITCH.

D. THE FRONT FACE OF THE VDP SHALL CONTAIN INDICATIONS, SUCH AS LED DISPLAYS, TO ENABLE THE USER TO VIEW REAL TIME DETECTIONS FOR EACH CHANNEL OF DETECTION (UP TO 8 CHANNELS AT A TIME) WHEN THE SYSTEM IS OPERATIONAL.

E. THE VDP SHALL INCLUDE AN RS232 PORT FOR SERIAL COMMUNICATIONS WITH A REMOTE COMPUTER. THIS PORT SHALL BE A 9-PIN "D" SUBMINIATURE CONNECTOR ON THE FRONT OF THE VDP.

F. THE VDP SHALL UTILIZE FLASH MEMORY TECHNOLOGY TO ENABLE THE LOADING OF MODIFIED OR ENHANCED SOFTWARE THROUGH THE RS232 PORT AND WITHOUT MODIFYING THE VDP HARDWARE.

5. SECTION NOT APPLICABLE

6. WIRED CAMERA

6.1 THE VIDEO CAMERAS USED FOR TRAFFIC DETECTION SHALL BE FURNISHED BY THE VDP SUPPLIER AND SHALL BE QUALIFIED BY THE SUPPLIER TO ENSURE PROPER SYSTEM OPERATION.

6.2 THE CAMERA SHALL PRODUCE A USEABLE VIDEO IMAGE OF THE BODIES OF VEHICLES UNDER ALL ROADWAY LIGHTING CONDITIONS, REGARDLESS OF TIME OF DAY. THE MINIMUM RANGE OF SCENE LUMINANCE OVER WHICH THE CAMERA SHALL PRODUCE A USEABLE VIDEO IMAGE SHALL BE THE MINIMUM RANGE FROM NIGHTTIME TO DAYTIME, BUT NOT LESS THAN THE RANGE 0.1 LUX TO 10,000 LUX.

6.3 THE CAMERA SHALL USE A CCD SENSING ELEMENT AND SHALL OUTPUT MONOCHROME VIDEO WITH RESOLUTION OF NOT LESS THAN 380 LINES HORIZONTAL.

6.4 THE CAMERA SHALL INCLUDE AN ELECTRONIC SHUTTER CONTROL BASED UPON AVERAGE SCENE LUMINANCE AND SHALL BE EQUIPPED WITH A FACTORY ADJUSTED MANUAL IRIS.

6.5 THE CAMERA SHALL INCLUDE A VARIABLE FOCAL LENGTH LENS WITH VARIABLE FOCUS THAT CAN BE ADJUSTED, WITHOUT OPENING UP THE CAMERA HOUSING, TO SUIT THE SITE GEOMETRY BY MEANS OF A PORTABLE INTERFACE DEVICE DESIGNED FOR THAT PURPOSE AND MANUFACTURED BY THE DETECTION SYSTEM SUPPLIER. THE HORIZONTAL FIELD OF VIEW SHALL BE ADJUSTABLE FROM 8.1 TO 45.9 DEGREES. A SINGLE CAMERA CONFIGURATION SHALL BE USED FOR ALL APPROACHES IN ORDER TO MINIMIZE THE SETUP TIME AND SPARES REQUIRED BY THE USER. A MINIMUM OF ONE(1) PORTABLE INTERFACE DEVICE SHALL BE FURNISHED WITH THE SYSTEM.

6.6 THE CAMERA ELECTRONICS SHALL INCLUDE AGC TO PRODUCE A SATISFACTORY IMAGE AT NIGHT.

6.7 THE CAMERA SHALL BE HOUSED IN A WEATHER-TIGHT SEALED ENCLOSURE. THE HOUSING SHALL BE FIELD ROTATABLE TO ALLOW PROPER ALIGNMENT BETWEEN THE CAMERA AND THE TRAVELED ROAD SURFACE.

6.8 THE CAMERA ENCLOSURE SHALL BE EQUIPPED WITH A SUNSHIELD. THE SUNSHIELD SHALL INCLUDE A PROVISION FOR WATER DIVERSION TO PREVENT WATER FROM FLOWING IN THE CAMERA'S FIELD OF VIEW. THE CAMERA ENCLOSURE WITH SUNSHIELD SHALL BE LESS THAN 6" DIAMETER, LESS THAN 15" LONG, AND SHALL WEIGH LESS THAN 6 POUNDS WHEN THE CAMERA AND LENS ARE MOUNTED INSIDE THE ENCLOSURE.

6. WIRED CAMERA CONTINUED

6.9 THE CAMERA ENCLOSURE SHALL INCLUDE A THERMOSTATICALLY CONTROLLED HEATER TO ASSURE PROPER OPERATION OF THE LENS SHUTTER AT LOW TEMPERATURES AND PREVENT MOISTURE CONDENSATION ON THE OPTICAL FACEPLATE OF THE ENCLOSURE.

9.10 WHEN MOUNTED OUTDOORS IN THE ENCLOSURE, THE CAMERA SHALL OPERATE SATISFACTORILY IN A TEMPERATURE RANGE FROM −34 °C TO +60 °C AND A HUMIDITY RANGE FROM 0% RH TO 100% RH.

6.11 THE CAMERA SHALL BE POWERED BY 120−240 VAC 50/60 HZ. POWER CONSUMPTION SHALL BE 15 WATTS OR LESS UNDER ALL CONDITIONS.

6.12 RECOMMENDED CAMERA PLACEMENT HEIGHT SHALL BE 33 FEET (OR 10 METERS) ABOVE THE ROADWAY, AND OVER THE TRAVELED WAY ON WHICH VEHICLES ARE TO BE DETECTED. FOR OPTIMUM DETECTION THE CAMERA SHOULD BE CENTERED ABOVE THE TRAVELED ROADWAY. THE CAMERA SHALL VIEW APPROACHING VEHICLES AT A DISTANCE NOT TO EXCEED 350 FEET FOR RELIABLE DETECTION (HEIGHT TO DISTANCE RATIO OF 10:100). CAMERA PLACEMENT AND FIELD OF VIEW (FOV) SHALL BE UNOBSTRUCTED AND AS NOTED IN THE INSTALLATION DOCUMENTATION PROVIDED BY THE SUPPLIER.

6.13 THE CAMERA ENCLOSURE SHALL BE EQUIPPED WITH SEPARATE, WEATHER−TIGHT CONNECTIONS FOR POWER AND SETUP VIDEO CABLES AT THE REAR OF THE ENCLOSURE. THESE CONNECTIONS MAY ALSO ALLOW DIAGNOSTIC TESTING AND VIEWING OF VIDEO AT THE CAMERA WHILE THE CAMERA IS INSTALLED ON A MAST ARM OR POLE USING A LENS ADJUSTMENT MODULE (LAM) SUPPLIED BY THE VDP SUPPLIER. VIDEO AND POWER SHALL NOT BE CONNECTED WITHIN THE SAME CONNECTOR. A MINIMUM OF ONE LAM SHALL BE SUPPLIED WITH THE SYSTEM.

6.14 THE VIDEO SIGNAL OUTPUT BY THE CAMERA SHALL BE BLACK AND WHITE IN RS170 OR CCIR FORMAT.

6.15 THE VIDEO SIGNAL SHALL BE FULLY ISOLATED FROM THE CAMERA ENCLOSURE AND POWER CABLING.

7. INSTALLATION

7.1 WIRED CAMERAS ONLY − THE COAXIAL CABLE TO BE USED BETWEEN THE CAMERA AND THE VDP IN THE TRAFFIC CABINET SHALL BE BELDEN 8281 OR A 75 OHM, PRECISION VIDEO CABLE WITH 20 GAUGE SOLID BARE COPPER CONDUCTOR (9.9 OHMS/M), SOLID POLYETHYLENE INSULATING DIELECTRIC, 98% (MIN) TINNED COPPER DOUBLE−BRAIDED SHIELD AND BLACK POLYETHYLENE OUTER COVERING. THE SIGNAL ATTENUATION SHALL NOT EXCEED 0.78 DB PER 100 FEET AT 10 MHZ. NOMINAL OUTSIDE DIAMETER IS 0.304 INCHES. THE COAX CABLE SHALL BE A CONTINUOUS UNBROKEN RUN FROM THE CAMERA TO THE VDP. THIS CABLE SHALL BE SUITABLE FOR INSTALLATION IN CONDUIT OR OVERHEAD WITH APPROPRIATE SPAN WIRE. 75−OHM BNC PLUG CONNECTORS SHOULD BE USED AT BOTH THE CAMERA AND CABINET ENDS. THE COAXIAL CABLE, BNC CONNECTOR, AND CRIMPING TOOL SHALL BE APPROVED BY THE SUPPLIER OF THE VIDEO DETECTION SYSTEM, AND THE MANUFACTURER'S INSTRUCTIONS MUST BE FOLLOWED TO ENSURE PROPER CONNECTION. A MINIMUM OF ONE CRIMPING TOOL AND TWELVE(12) BNC CONNECTORS SHALL BE FURNISHED WITH THE SYSTEM

7.2 THE POWER CABLING SHALL BE 16 AWG THREE CONDUCTOR CABLE. THE CABLING SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE, AS WELL AS LOCAL ELECTRICAL CODES. CAMERAS MAY ACQUIRE POWER FROM THE LUMINAIRE IF NECESSARY.

7.3 THE VIDEO DETECTION SYSTEM SHALL BE INSTALLED BY SUPPLIER FACTORY CERTIFIED INSTALLERS AND AS RECOMMENDED BY THE SUPPLIER AND DOCUMENTED IN INSTALLATION MATERIALS PROVIDED BY THE SUPPLIER. PROOF OF FACTORY CERTIFICATION SHALL BE PROVIDED.

8. LIMITED WARRANTY

8.1 THE SUPPLIER SHALL PROVIDE A LIMITED TWO−YEAR WARRANTY ON THE VIDEO DETECTION SYSTEM.

8.2 DURING THE WARRANTY PERIOD, TECHNICAL SUPPORT SHALL BE AVAILABLE FROM THE SUPPLIER VIA TELEPHONE WITHIN 4 HOURS OF THE TIME A CALL IS MADE BY A USER, AND THIS SUPPORT SHALL BE AVAILABLE FROM FACTORY−CERTIFIED PERSONNEL OR FACTORY−CERTIFIED INSTALLERS.

8.3 DURING THE WARRANTY PERIOD, UPDATES TO VDP SOFTWARE SHALL BE AVAILABLE FROM THE SUPPLIER WITHOUT CHARGE.

9. MAINTENANCE AND SUPPORT

9.1 THE SUPPLIER SHALL MAINTAIN AN ADEQUATE INVENTORY OF PARTS TO SUPPORT MAINTENANCE AND REPAIR OF THE VIDEO DETECTION SYSTEM. THESE PARTS SHALL BE AVAILABLE FOR DELIVERY WITHIN 30 DAYS OF PLACEMENT OF AN ACCEPTABLE ORDER AT THE SUPPLIER'S THEN CURRENT PRICING AND TERMS OF SALE FOR SAID PARTS.

9.2 THE SUPPLIER SHALL MAINTAIN AN ONGOING PROGRAM OF TECHNICAL SUPPORT FOR THE VIDEO DETECTION SYSTEM. THIS TECHNICAL SUPPORT SHALL BE AVAILABLE VIA TELEPHONE, OR VIA PERSONNEL SENT TO THE INSTALLATION SITE UPON PLACEMENT OF AN ACCEPTABLE ORDER AT THE SUPPLIER'S THEN CURRENT PRICING AND TERMS OF SALE FOR ON SITE TECHNICAL SUPPORT SERVICES.

9.3 INSTALLATION OR TRAINING SUPPORT SHALL BE PROVIDED BY A FACTORY−AUTHORIZED REPRESENTATIVE AND SHALL BE A MINIMUM ISA−LEVEL II SIGNAL TECHNICIAN CERTIFIED.

9.4 ALL PRODUCT DOCUMENTATION SHALL BE WRITTEN IN THE ENGLISH LANGUAGE.

10. TRAINING

THE SUPPLIER SHALL SUPPLY A MINIMUM OF FOUR(4) HOURS OF "HANDS ON" OPERATIONAL TRAINING, USING THE SYSTEM TO BE INSTALLED, IN A CLASSROOM SETTING AT A LOCATION TO BE DETERMINED BY THE CITY OF MASSILLON.

THE SUPPLIER SHALL SUPPLY A MINIMUM OF FOUR(4) HOURS OF "HANDS ON" TECHNICAN TRAINING COVERING INSTALLATION, SETUP, TROUBLE SHOOTING AND REPAIR TO THE COMPONENT LEVEL OF ALL PARTS OF THE SYSTEM. THIS TRAINING SHALL TAKE PLACE IN A CLASSROOM SETTING AT A LOCATION TO BE DETERMINED BY THE CITY, USING THE SYSTEM TO BE INSTALLED. ALL TRAINING SHALL BE COMPLETED BEFORE THE SYSTEM BECOMES OPERATIONAL

PAYMENT

PAYMENT FOR THE VIDEO DETECTORS SHALL BE PER EACH AND SHALL INCLUDE THE NECESSARY MOUNTING HARDWARE, CABLE CONNECTIONS AND VDP HARDWARE ADDITIONAL MATERIALS AND TRAINING AS DESCRIBED IN THE NOTES ABOVE. THE VIDEO DETECTORS SHALL BE PAID UNDER ITEM 632 SIGNAL, MISC.: VIDEO DETECTION PER EACH.

SIGNAL NOTES

16TH STREET

P1–4, TC–81.20 DES #4, STA. 49+69, 26' LT.
ARM MOUNTED, VI–3 VIDEO DETECTOR,
AND POLE MOUNTED, V1–4 VIDEO DETECTOR.

CONDUIT, 2", 713.04
6', 2/1C, 3/7C

PB1–6, 18", 713.08
STA. 49+63, 24' LT.

CONDUIT, 3", 713.04
78', 2/1C, 3/7C

POWER SOURCE
STA. 49+11, 14' LT.
(TO BE RELOCATED
BY OTHERS)

R/W

℄ CONSTRUCTION
& R/W WALNUT ROAD

ONLY

S1–1 S1–2 S1–3

L1–1 L1–2 L1–3 L1–4 L1–5 L1–6 L1–7 L1–8 L1–9 L1–10

S1–4 S1–5 S1–6 S1–7 S1–8 S1–9

49+00 50+00 51+00 52+00 54+00

℄ CONSTRUCTION
16TH STREET, S.E.

MATCH LINE STA. 54+00

P1–1, TC–81.20 DES #3
STA. 50+63, 53' LT.

CONDUIT, 2", 713.04
5', 1/7C

PB1–1, 18", 713.08
STA. 50+65, 48' LT.

CONDUIT, 2", 713.04
5', 1/7C

PED 1–1, TC–85.10, 11'
STA. 50+67, 43 LT.

CONDUIT, 3", 713.04
78', 2/7C

R/W

PB1–5, 18", 713.08
STA. 49+27, 45' RT.

CONDUIT, 2", 713.04
5', 3/7C

P1–3, TC–81.20 DES #12
STA. 49+27, 50' RT.

CONDUIT, 3", 713.04
84', 2/1C, 6/7C

ONLY ONLY ONLY

PB1–2, 18", 713.08
STA. 50+52, 28' RT.

CONDUIT, 2", 713.04
30', 2/7C, 1/INTERCONNECT

PB1–4, 24", 713.08, STA. 50+24, 39' RT.
CONDUIT (FROM PULLBOX TO POLE),
2", 713.04 5', 2/1C, 3/7C

PI–2, TC–81.20 DES #4, STA. 50+27, 43' RT
ARM MOUNTED, V1–1 VIDEO DETECTOR,
AND POLE MOUNTED, V1–2 VIDEO DETECTOR,

CONDUIT, (2)–3", 713.04 10',
4/1C, 1/3C, 8/7C, 1/INTERCONNECT

CONTROLLER W/WORK PAD
STA. 50+02, 62' RT.

CONDUIT, 2", 713.04
17', 2/1C, 6/7C

PB1–3, 18", 713.08
STA. 50+09, 61' RT.

PB1–7, 18", 713.08
STA. 52+60, 32' RT.

CONDUIT, 2", 713.04
209', 1/INTERCONNECT

UTILITIES DETAIL

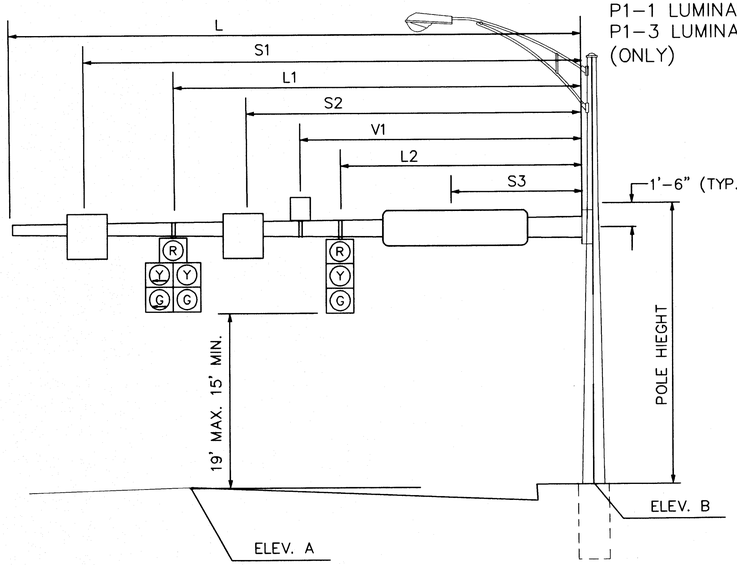
NOTE: REFER TO WIRING DIAGRAM FOR THE LOCATION OF THE VIDEO DETECTORS, PEDESTRIAN PUSHBUTTON AND PEDESTRIAN SIGNAL HEADS.

L1–X DETECTOR AREAS ARE ILLUSTRATIVE FOR PROGRAMMING VIDEO DETECTOR.

HORIZONTAL SCALE IN FEET
0 10 20 40

SIGNAL PLAN - 16 TH. STREET AND WALNUT ROAD

16TH STREET



P1-1 LUMINAIRE ATTACHMENT
P1-3 LUMINAIRE ATTACHMENT
(ONLY)

POLE NO. P1-1 – LOOKING WEST POLE NO. P1-3 LOOKING EAST

POLE NO. P1-2 – LOOKING NORTH POLE NO. PI-4 LOOKING SOUTH

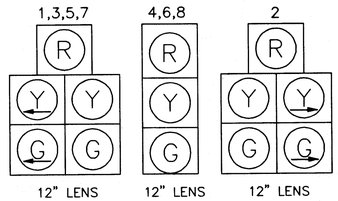
SIGNAL SUPPORT TC-81.20										ELEVATION	
SUPORT NO.	DESIGN NO.	POLE HEIGHT ft. (m)	L	L1	L2	S1	S2	S3	V1	A	B
P1-1	3	23'	38'	23'	10'	30'	15'	5'		1017.40	1015.72
P1-2	4	23'	38'	35'	25'		31'	19'	28'	1021.50	1019.78
P1-3	12	23'	48'	42'	30'	46'		22'		1022.90	1022.70
P1-4	4	23'	38'	31'	18'		27'	13'	23'	1021.80	1021.85

POLE NUMBER	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLES (DEG.) FROM MAST ARM A						
		MAST ARM B	PEDESTRIAN SIGNAL	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE	CABLE ENTRANCE 12" (0.3m) FROM TOP
P1-1	102°	---	---	---	---	31°	180°	0°
P1-2	357°	---	10°/250°	---	---	---	180°	0°
P1-3	91°	---	8°/290°	---	---	55°	180°	0°
P1-4	2°	---	10°/220°	---	---	---	180°	0°

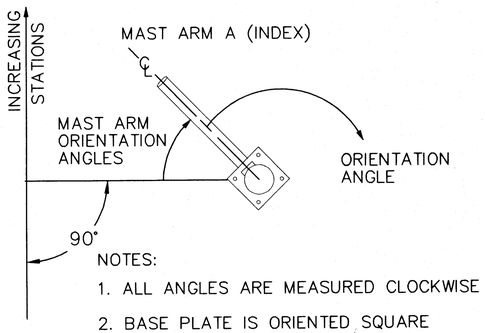
LOOP SIGNAL DETECTOR CHART

LOOP DESIGNATION	SIZE FT. (m)	RECORDED ON VIDEO CAMERA NO.	PULSE OR PRESENCE	DELAY (sec.)	EXTENSION (sec.)	OVERIDE PHASE	CONNECT TO DETECTOR UNIT (unit-channel)	ASSOCIATED CONTROLLER PHASE
L1-1	6x35	VI-4	PRES.				1	Φ4
L1-2	6x35	VI-4	PRES.				2	Φ7
L1-3	6x35	VI-3	PRES.	5			3	Φ6
L1-4	6x35	VI-3	PRES.				4	Φ6
L1-5	6x35	VI-3	PRES.				5	Φ5
L1-6	6x35	VI-2	PRES.	5			6	Φ1,Φ8
L1-7	6x35	VI-2	PRES.				7	Φ8
L1-8	6x35	VI-2	PRES.				8	Φ3
L1-9	6x35	VI-1	PRES.				9	Φ2
L1-10	6x35	VI-1	PRES.				10	Φ1
L1-11	6x6	V2-4	PULSE				11	Φ6

FOR THE PROPOSED VIDEO DETECTION REFER TO THE TRAFFIC CONTROL GENERAL NOTES FOR MORE DETAILS.



SIGNAL INDICATIONS



NOTES:

1. ALL ANGLES ARE MEASURED CLOCKWISE
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF THE SUPPORT HAS TWO ARMS.

SIGNS

REF. NO.	LOCATION	STATION	NUMBER	SIGN CODE	SIGN SIZE	SIGN FLAT SHEET TYPE G	SIGNING MISC.; STREET NAME SIGN MAST ARM MTD.
						SQ. FT	EACH
S1-1	P1-1	50+63	1	R-26A-30	30 X 36	7.50	
S1-2	P1-1	50+63	1	R-27A-30	30 X 36	7.50	
S1-3	P1-1	50+63	1	STREET	–	–	1
S1-4	P1-2	50+27	1	R-26A-30	30 X 36	7.50	
S1-5	P1-2	50+27	1	STREET	–	–	1
S1-6	P1-3	49+27	1	R-26A-30	30 X 36	7.50	
S1-7	P1-3	49+27	1	STREET	–	–	1
S1-8	P1-4	49+69	1	R-26A-30	30 X 36	7.50	
S1-9	P1-4	49+69	1	STREET	–	–	1
TOTAL QUANTITIES						37.5	4

SIGNS

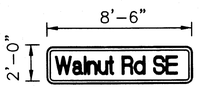
S1-1, S1-4, S1-6, S1-8

R-26A-30

S1-2

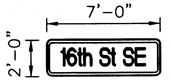
R-27A-30

S1-5, S1-9



BORDER
R=4"
TH=1.75"

S1-3, S1-7



BORDER
R=4"
TH=1.75"

PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN A,B,C,D,E,F,G,H

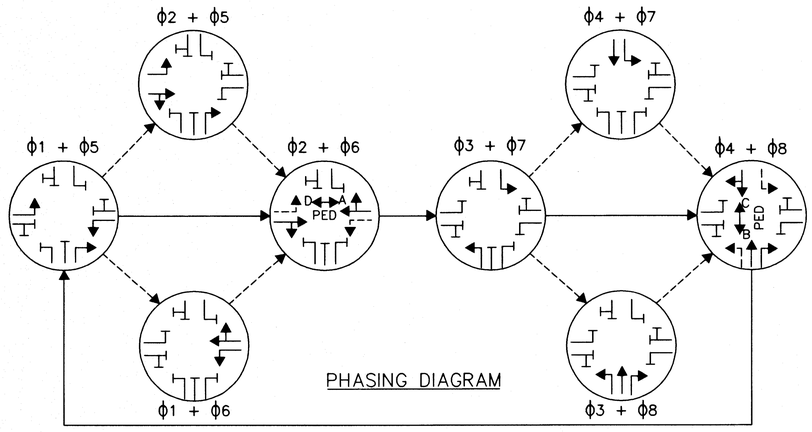
SIGNAL DETAILS - 16TH STREET AND WALNUT ROAD

16TH STREET

PHASE	MOVEMENT	INTERVAL	SIGNAL NUMBER								PEDESTRIAN HEAD			
			1	2	3	4	5	6	7	8	A	B	C	D
φ1 +φ5		RW	R	R	G/R	R	R	R	G/R	R	DW	DW	DW	DW
		RW	R	R	G/R	R	R	R	G/R	R	DW	DW	DW	DW
		C1	R	R	Y/R	R	R	R	Y/R	R	DW	DW	DW	DW
		C2	R	R/G	R	R	R	R	R	R	DW	DW	DW	DW
φ2 +φ6	D A PED	RW	R	R	G	G	R	R	G	G	W	DW	DW	W
		RW	R	R	G	G	R	R	G	G	FDW	DW	DW	FDW
		C1	R	R	Y	Y	R	R	Y	Y	DW	DW	DW	DW
		C2	R	R	R	R	R	R	R	R	DW	DW	DW	DW
φ3 +φ7		RW	G/R	R	R	R	G/R	R	R	R	DW	DW	DW	DW
		RW	G/R	R	R	R	G/R	R	R	R	DW	DW	DW	DW
		C1	Y/R	R	R	R	Y/R	R	R	R	DW	DW	DW	DW
		C2	R	R	R	R	R	R	R	R	DW	DW	DW	DW
φ4 +φ8	C B PED	RW	G	G	R	R	G	G	R	R	DW	W	W	DW
		RW	G	G	R	R	G	G	R	R	DW	FDW	FDW	DW
		C1	Y	Y	R	R	Y	Y	R	R	DW	DW	DW	DW
		C2	R	R	R	R	R	R	R	R	DW	DW	DW	DW
φ2 +φ5		RW	R	R/G	G	G	R	R	R	R	DW	DW	DW	DW
		RW	R	R/G	G	G	R	R	R	R	DW	DW	DW	DW
		C1	R	R/Y	Y	Y	R	R	R	R	DW	DW	DW	DW
		C2	R	R	R	R	R	R	R	R	DW	DW	DW	DW
φ1 +φ6		RW	R	R	R	R	R	R	G	G	DW	DW	DW	DW
		RW	R	R	R	R	R	R	G	G	DW	DW	DW	DW
		C1	R	R	R	R	R	R	Y	Y	DW	DW	DW	DW
		C2	R	R/G	R	R	R	R	R	R	DW	DW	DW	DW
φ4 +φ7		RW	R	R	R	R	G	G	R	R	DW	DW	DW	DW
		RW	R	R	R	R	G	G	R	R	DW	DW	DW	DW
		C1	R	R	R	R	Y	Y	R	R	DW	DW	DW	DW
		C2	R	R	R	R	R	R	R	R	DW	DW	DW	DW
φ3 +φ8		RW	G	G	R	R	R	R	R	R	DW	DW	DW	DW
		RW	G	G	R	R	R	R	R	R	DW	DW	DW	DW
		C1	Y	Y	R	R	R	R	R	R	DW	DW	DW	DW
		C2	R	R	R	R	R	R	R	R	DW	DW	DW	DW
FLASH			Y	Y	R	R	Y	Y	R	R	DARK	DARK	DARK	DARK

QUANTITES

ITEM	QUANTITY	UNIT	DESCRIPTION
625	1800	LIN. FT.	CONDUIT, 2" 713.04
625	240	LIN. FT.	CONDUIT, 3" 713.04
625	84	LIN. FT.	CONDUIT, 3" 713.04, JACKED OR DRILLED
625	2114	LIN. FT.	TRENCH
625	10	EACH	PULLBOX, 713.08, 18", AS PER PLAN
625	3	EACH	PULLBOX, 713.08, 24", AS PER PLAN
625	6	EACH	GROUND ROD, AS PER PLAN
630	5	EACH	SIGN HANGER ASSEMBLY, MAST ARM
630	37.5	SQ. FT.	SIGN FLAT SHEET, TYPE G
630	4	EACH	SIGNING, MISC.: STREET NAME SIGN, MAST ARM MOUNTED
631	1	EACH	DISCONNECT SWITCH W/ENCLOSURE, TYPE X
632	8	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	8	EACH	COVERING OF VEHICULAR SIGNAL HEAD
632	8	EACH	PEDESTRIAN PUSHBUTTON, AS PER PLAN
632	1132	LIN. FT.	SIGNAL CABLE , 7 CONDUCTOR, NO. 14 AWG
632	1850	LIN. FT.	INTERCONNECT CABLE, 6 PAIR, NO. 19AWG, SOLID, REA (PE-39)
632	4	EACH	SIGNAL SUPPORT FOUNDATION
632	1	EACH	PEDESTAL FOUNDATION
632	200	LIN. FT.	POWER CABLE. 3 CONDUCTOR # 6 AWG
632	1	EACH	POWER SERVICE, AS PER PLAN
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 3 POLE
632	2	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4 POLE
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 12 POLE
632	1	EACH	PEDESTAL, 9'
632	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLTION
632	4	EACH	SIGNALIZATION MISC.: VIDEO DETECTION
632	3	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN
632	5	EACH	VEHICULAR SIGNAL HEAD, 5 SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN
632	200	LIN. FT.	SERVICE CABLE
633	1	EACH	CONTROLLER, ACTUATED, 8-PHASE SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN
633	11	SQ. FT.	CONTROLLER WORK PAD



PHASING DIAGRAM

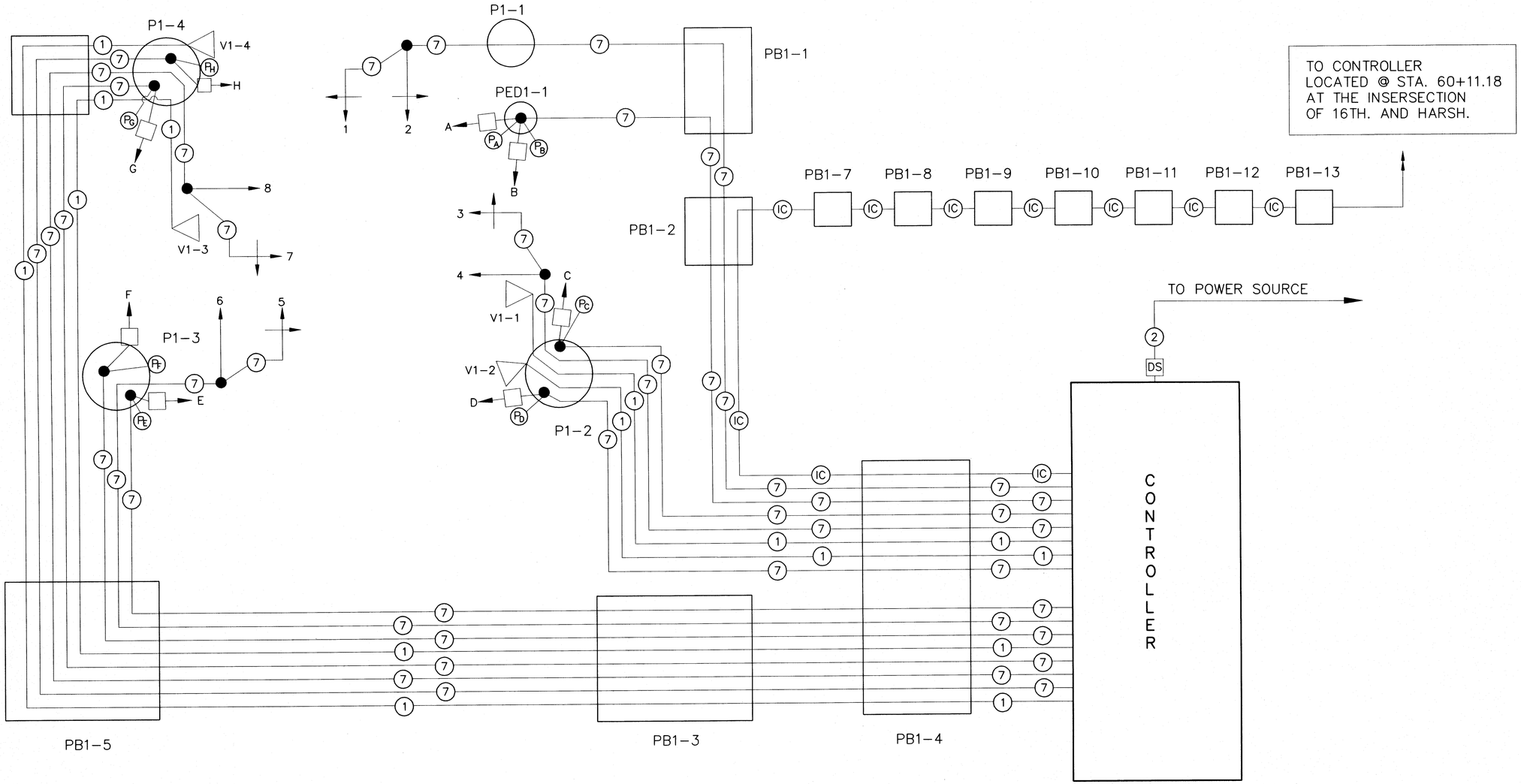
TIMING CHART

Start Up		Dual Entry _____							
Start In: _____ y/r flash or _____ all red		Rest In Red: Ring 1 _____ Ring 2 _____							
Time for Flash or All Red: _____		Overlap				A	B	C	D
First Phases(s): *_____ & *_____		Phases							
Color Displayed _____ Green; ___Yellow									
Interval or Feature		Controller Movement No.							
Intersection Movement		1	2	3	4	5	6	7	8
Minimum Green (Initial) (Sec.)		8.0	20.0	8.0	20.0	8.0	20.0	8.0	20.0
Added Initial *(Sec./Actuation)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Passage Time (Preset Gap) (Sec.)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduction *(Sec.)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum Gap *(Sec.)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time to Reduce *(Sec.)		0.0	10.0	0.0	0.0	0.0	10.0	0.0	0.0
Maximum Green I (Sec.)		4.0	17.0	4.0	19.0	4.0	17.0	4.0	19.0
Maximum Green II (Sec.)									
Yellow Change (Sec.)		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All Red Clearance (Sec.)		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Walk (Sec.)			5.0		5.0		5.0		5.0
Pedestrian Clearance (Sec.)			11.0		11.0		11.0		11.0
Recall	Maximum (On/Off)	Off	OFF	Off	Off	Off	OFF	Off	Off
	Minimum (On/Off)	Off	On	Off	Off	Off	On	Off	Off
	Pedestrian (On/Off)	Off	On	Off	Off	Off	On	Off	Off
Memory (On/Off)			OFF						
Call to Non Actuated	No. 1								
	No. 2								

* Volume Density Controls

SIGNAL DETAILS - 16TH STREET AND WALNUT ROAD

16TH STREET



16TH STREET AND WALNUT ROAD – WIRING DIAGRAM

(1) BELDEN 82/81 COAXLE CABLE (REFER TO VIDEO DETECTION NOTE)
(2) POWER CABLE, 3 CONDUTOR # 6 AWG
(IC) INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)
(7) 7 CONDUCTOR, #14 AWG. SIGNAL CABLE
(Px) PEDESTRIAN PUSHBUTTON
□→ PEDESTRIAN SIGNAL HEAD
DS DISCONNECT SWITCH
● SPLICE LOCATION

WIRING DIAGRAM - 16TH STREET AND WALNUT ROAD

16TH STREET

121
162

R:\00000\00120\ldot\MASSILLON\dwg\SIGNAL PLANS FROM ME\01248DE.dwg 11/16/2002 08:33:58 AM EST

L1–X

DETECTOR AREAS ARE ILLUSTRATIVE FOR PROGRAMMING VIDEO DETECTOR.

NOTE: REFER TO WIRING DIAGRAM FOR THE LOCATION OF THE VIDEO DETECTORS, PEDESTRIAN PUSHBUTTON AND PEDESTRIAN SIGNAL HEADS.

UTILITIES DETAIL: SHEET 124

P2–1, TC–81.20 DES #4 POLE
MAST ARMS (2) TC–81.20 DES #3
STA. 68+67, 31' LT.
POLE MOUNTED, V2–1, V2–2
AND V2–4 VIDEO DETECTOR

CONDUIT, 2" 713.04
7', 3/1C 2/7C

PB2–1, 18", 713.08
STA. 68+72, 20.00' LT.

CONDUIT, 2" 713.04
35', 3/1C, 2/7C

PB2–2, 18", STA. 69+07,
34' LT.

CONDUIT, 2" 713.04
5', 1/7C

PED 2–1, TC–85.10, 11'
STA. 69+10, 30 LT.

CONDUIT, 3" 713.04
81', 3/1C, 3/7C

MATCH LINE STA. 65+50

66+00

67+00

℄ CONSTRUCTION
16TH STREET, S.E.

69+00

70+00

71+00

L2–1

L2–2

L2–3

L2–4

L2–5

S2–1

S2–2

S2–3

S2–4

S2–5

S2–6

S2–7

R/W

ONLY ONLY

CONDUIT, 2" 713.04, 5' 2/7C

CONDUIT, 2" 713.04
326', 1/INTERCONNECT

PB2–5, 18", 713.08
STA. 68+28, 35' RT.

PED 2–2, TC–85.10, 11'
STA. 68+31, 25 RT.

PB2–6, 18", 713.08
STA. 69+42, 26.00' RT.

CONDUIT, 713.04
300', 1/INTERCONNECT

CONDUIT, 2" 713.04
10', 1/INTERCONNECT

PB2–3, 18", 713.08
STA. 69+36, 33' RT.

CONDUIT, 2" 713.04
5', 1/1C, 3/7C

P2–2, TC–81.20 DES #2, STA. 69+31, 33' RT.
POLE MOUNTED, V2–3 VIDEO DETECTOR,

CONDUIT, 2" 713.04
20', 1/1C, 2/7C, 1/INTERCONNECT

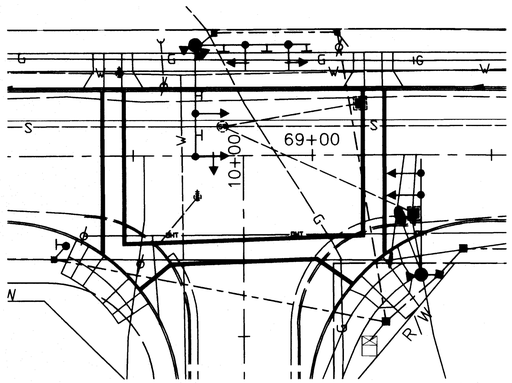
PB2–4, 24", 713.08
STA. 69+21, 46' RT.

CONDUIT (2) 3" 713.04
7', 4/1C, 8/7C, 1/3C, 2/INTERCONNECT

MASTER CONTROLLER W/WORK PAD
STA. 69+16, 52' RT.

CONDUIT, 3" 713.04
94', 1/INTERCONNECT, 2/7C

HARSH AVE.



UTILITIES DETAIL

POWER SOURCE
STA. 74+14, 31' LT.

73+00

74+00

76+00

78+00

℄ CONSTRUCTION
16TH STREET, S.E.

16TH STREET, S.E.

RAIL

OAK AVE.

PB2–7, 18", 713.08
STA. 72+53,
26.00' RT.

CONDUIT, 2" 713.04
280', 1/INTERCONNECT

PB2–8, 18", 713.08
STA. 75+33, 26.00' RT.

CONDUIT, 2" 713.04
290', 1/INTERCONNEC

PB2–9, 18", 713.08
STA. 78+23, 30.00' RT.

CONDUIT, 2" 713.04
19', 1/INTERCONNECT

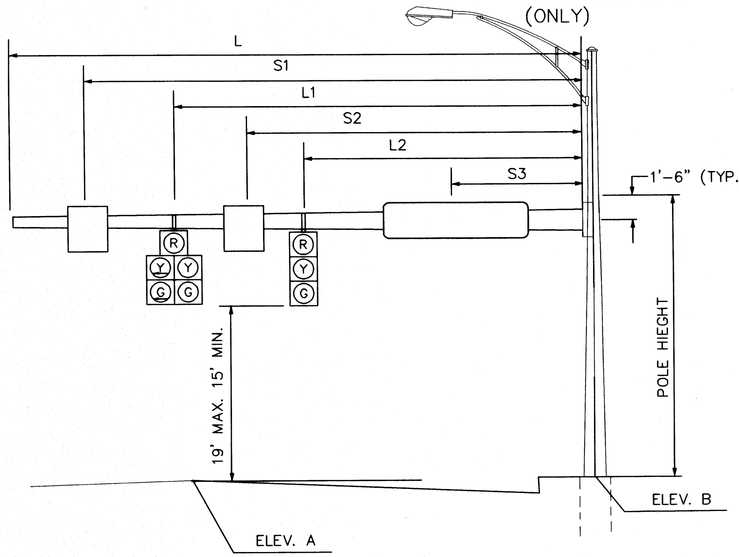
N

HORIZONTAL SCALE IN FEET
0 10 20 40

SIGNAL PLAN – 16TH STREET AND HARSH AVENUE

16TH STREET

P2-2 LUMINAIRE ATTACHMENT (ONLY)

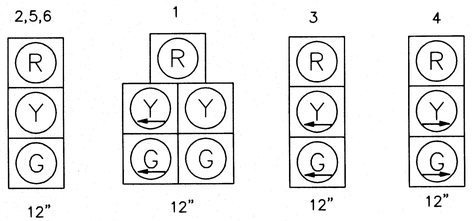


SIGNS							
REF. NO.	LOCATION	STATION	NUMBER	SIGN CODE	SIGN SIZE	SIGN FLAT SHEET TYPE G	SIGNING MISC.; STREET NAME SIGN MAST ARM MTD.
						SQ. FT	EACH
S2-1	P2-1	68+67	1	R-26A-30	30 X 36	7.50	
S2-2	P2-1	68+67	1	STREET	–	–	1
S2-3	P2-1	68+67	1	STREET	–	–	1
S2-4	P2-1	68+67	1	R-26A-30	30 X 36	7.50	
S2-5	P2-1	68+67	1	R-27A-30	30 X 36	7.50	
S2-6	P2-2	69+31	1	STREET	–	–	1
S2-7	PED2-2	68+31	1	R-12-36	–	–	
TOTAL QUANTITIES						22.5	3

SIGNAL SUPPORT TC-81.20									ELEVATION	
SUPORT NO.	DESIGN NO.	POLE HEIGHT ft. (m)	L	L1	L2	S1	S2	S3	A	B
P2-1	4	23'							1024.30	1025.00
	3		38'	26'	14'	31'	20'	8'		
*	3		38'	31'	19'	25'		14'		
P2-2	3		38'	34'	22'			15'	1027.78	1028.30

*THIS REFERENCES THE SIGNAL ARM LOOKING SOUTH.

POLE NO. P2-1 LOOKING SOUTH
POLE NO. P2-1 LOOKING WEST (OPP HAND)
POLE NO. P2-2 LOOKING NORTH



SIGNAL INDICATIONS

SIGNS

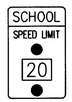
S2-1, S2-4

R-26A-30

S2-5

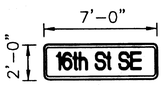
R-27A-30

S2-7



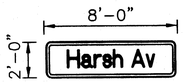
R-12-36
36" X 48"

S2-3



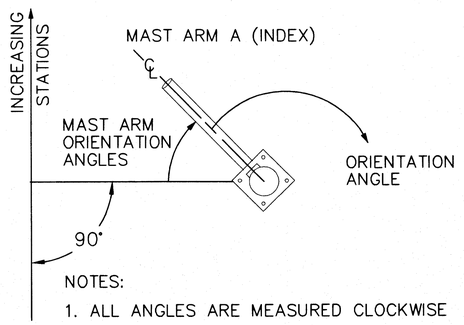
BORDER
R=4"
TH=1.75"

S2-2, S2-6



BORDER
R=4"
TH=1.75"

PEDESTRIAN
SIGNAL HEAD,
TYPE D2, AS PER PLAN
A,B,C,D



NOTES:

1. ALL ANGLES ARE MEASURED CLOCKWISE
2. BASE PLATE IS ORIENTED SQUARE TO MAST ARM A (LARGEST ARM) EVEN IF THE SUPPORT HAS TWO ARMS.

LOOP SIGNAL DETECTOR CHART								
LOOP DESIGNATION	SIZE FT. (m)	RECORDED ON VIDEO CAMERA NO.	PULSE OR PRESENCE	DELAY (sec.)	EXTENSION (sec.)	OVERIDE PHASE	CONNECT TO DETECTOR UNIT (unit-channel)	ASSOCIATED CONTROLLER PHASE
L2-1	6x35	V2-1	PRES.				1	Φ6
L2-2	6x35	V2-1	PRES.	5			2	Φ1
L2-3	6x35	V2-2	PRES.	5			3	Φ1,Φ6
L2-4	6x35	V2-2	PRES.	5			4	Φ3
L2-5	6x35	V2-3	PRES.				5	Φ2
L2-1	6x6	V2-4	PULSE				7	Φ2

FOR PROPOSED VEDEO DETECTORS REFER TO THE TRAFFIC CONTROL GENERAL NOTES FOR MORE DETAILS.

POLE NUMBER	MAST ARM A ANGLE (DEG.)	ORIENTATION ANGLES (DEG.) FROM MAST ARM A						
		MAST ARM B	PEDESTRIAN SIGNAL	POWER SERVICE	CONTROLLER	LUMINAIRE BRACKET	HANDHOLE	CABLE ENTRANCE 12" (0.3m) FROM TOP
P2-1	0°	270°	---	---	---	---	180°	0°
P2-2	0°	---	280°/350°	---	---	340°	180°	270°/0°

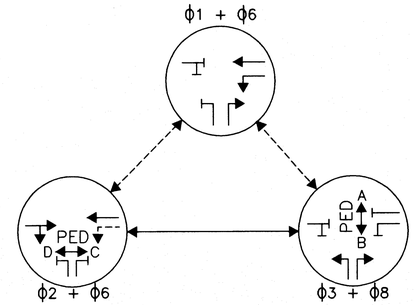
SIGNAL DETAILS - 16TH STREET AND HARSH AVENUE

16TH STREET

QUANTITES

ITEM	QUANTITY	UNIT	DESCRIPTION
625	1109	LIN. FT.	2" CONDUIT, 713.04
625	150	LIN. FT.	3" CONDUIT, 713.04
625	1259	LIN. FT.	TRENCH
625	8	EACH	PULLBOX, 713.08, 18", AS PER PLAN
625	1	EACH	PULLBOX, 713.08, 24", AS PER PLAN
625	5	EACH	GROUND ROD, AS PER PLAN
630	3	EACH	SIGN HANGER ASSEMBLY, MAST ARM
630	22.5	SQ. FT.	SIGN FLAT SHEET, TYPE G
630	3	EACH	SIGNING, MISC.: STREET NAME SIGN, MAST ARM MOUNTED
631	1	EACH	DISCOUNT SWITCH W/ENCLOSURE, TYPE X
631	1	EACH	SCHOOL SPEED LIMIT SIGN ASSEMBLY, 36"x48"
632	4	EACH	PEDESTRIAN SIGNAL HEAD, TYPE D2, AS PER PLAN
632	6	EACH	COVERING OF VEHICULAR SIGNAL HEAD
632	4	EACH	PEDISTRIAN PUSHBUTTON, AS PER PLAN
632	930	LIN. FT.	SIGNAL CABLE , 7 CONDUCTOR, NO. 14 AWG
632	795	LIN. FT.	INTERCONNECT CABLE, 6 PAIR, NO. 19AWG, SOLID, REA (PE-39)
632	2	EACH	SIGNAL SUPPORT FOUNDATION
632	2	EACH	PEDESTAL FOUNDATION
632	500	LIN. FT.	POWER CABLE. 3 CONDUCTOR # 6 AWG
632	1	EACH	POWER SERVICE, AS PER PLAN
632	1	EACH	SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 2 POLE
632	1	EACH	COMBINATION SIGNAL SUPPORT, TYPE TC-81.20, DESIGN 4 POLE,
			WITH MAST ARMS TC-81.20 DESIGN 3 AND DESIGN 3
632	1	EACH	PEDESTAL, 9'
632	1	EACH	PEDESTAL, 11'
632	1	EACH	REMOVAL OF TRAFFIC SIGNAL INSTALLTION
632	4	EACH	SIGNALIZATION MISC.: VIDEO DETECTION
632	5	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN
632	1	EACH	VEHICULAR SIGNAL HEAD, 5 SECTION, 12" LENS, 1-WAY, POLYCARBONATE, AS PER PLAN
632	500	LIN. FT.	SERVICE CABLE
633	1	EACH	CONTROLLER, ACTUATED, 8-PHASE SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN
633	11	SQ. FT.	CONTROLLER WORK PAD

PHASE	MOVEMENT	INTERVAL	SIGNAL NUMBER 1	2	3	4	5	6	PEDESTRIAN HEAD A	B
Φ1+Φ6	← ↱	RW	G/G	G	R	G	R	R	DW	DW
		RW	G/G	G	R	G	R	R	DW	DW
		C1	Y/Y	Y	R	Y	R	R	DW	DW
		C2	R	R	R	R	R	R	DW	DW
Φ2+Φ6	← ⇢	RW	G	G	R	R	G	G	DW	DW
		RW	G	G	R	R	G	G	DW	DW
		C1	Y	Y	R	R	Y	Y	DW	DW
		C2	R	R	R	R	R	R	DW	DW
Φ1+Φ8	B ↕ A ↰ ↱	RW	R	R	G	G	R	R	W	W
		RW	R	R	G	G	R	R	FDW	FDW
		C1	R	R	Y	Y	R	R	DW	DW
		C2	R	R	R	R	R	R	DW	DW
FLASH			Y	Y	R	R	Y	Y	DARK	DARK



PHASING DIAGRAM

Start Up
Start In: ___ y/r flash or ___all red
Time for Flash or All Red: ___
First Phases(s): *___& *___
Color Displayed ___ Green; ___Yellow

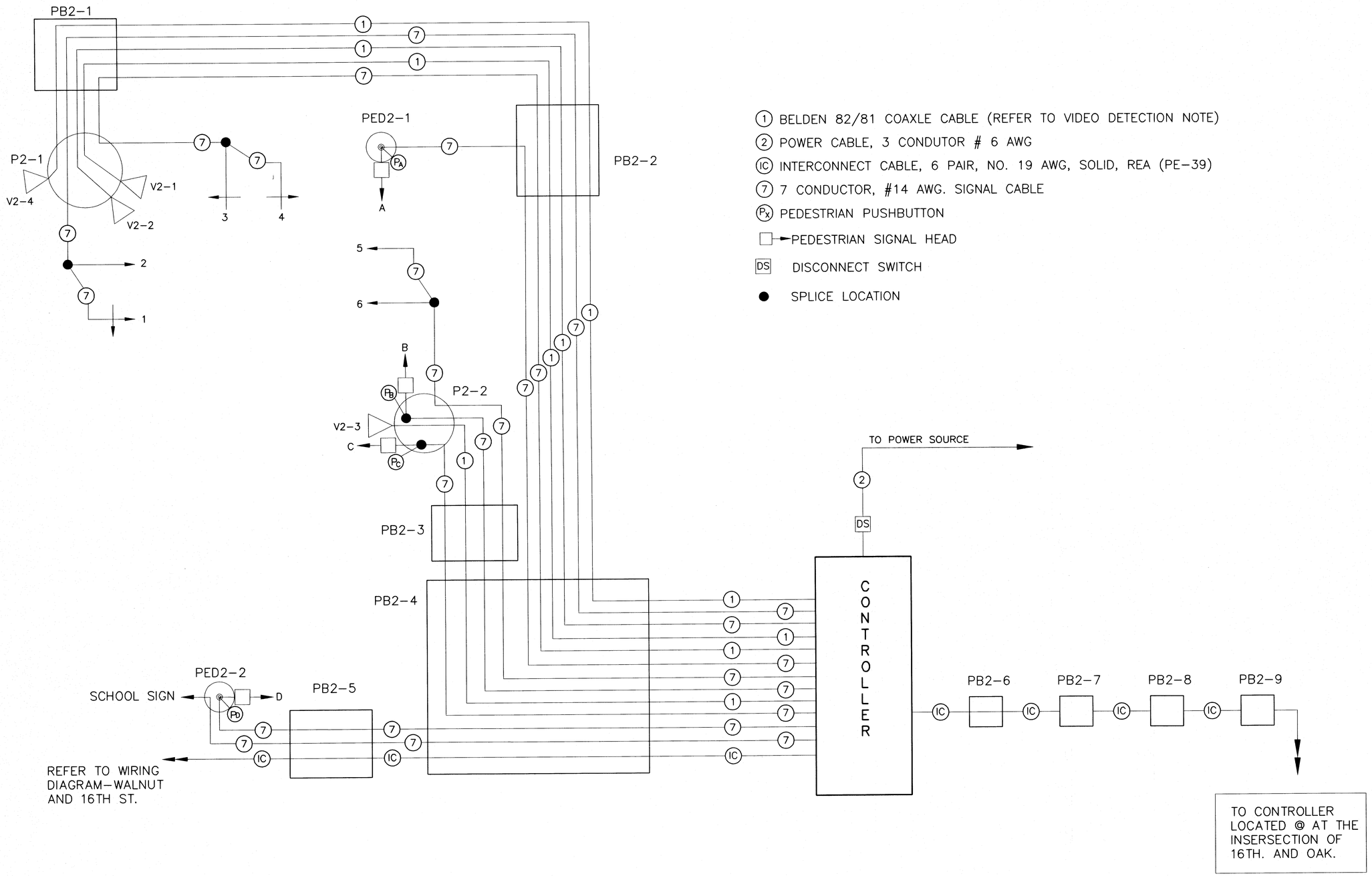
Dual Entry _____
Rest In Red: Ring 1 _____ Ring 2 _____

Interval or Feature		Overlap / Phases: A	B	C	D	Controller Movement No. 1	2	3	4	5	6	7	8
Intersection Movement						1	2	3	4	5	6	7	8
Minimum Green (Initial)	(Sec.)					8.0	20.0	20.0			20.0		20.0
Added Initial	*(Sec./Actuation)					4.0	4.0	4.0			4.0		4.0
Passage Time (Preset Gap)	(Sec.)					3.0	3.0	3.0			3.0		3.0
Time Before Reduction	*(Sec.)												
Minimum Gap	*(Sec.)					3.0	3.0	3.0			3.0		3.0
Time to Reduce	*(Sec.)						10.0				10.0		
Maximum Green I	(Sec.)					7.0	22.0	19.0			33.0		19.0
Maximum Green II	(Sec.)												
Yellow Change	(Sec.)					3.5	3.5	3.5			3.5		3.5
All Red Clearance	(Sec.)					0.5	0.5	0.5			0.5		0.5
Walk	(Sec.)						5.0	5.0			5.0		5.0
Pedestrian Clearance	(Sec.)						11.0	11.0			11.0		11.0
Recall	Maximum (On/Off)					Off	On	Off			On		Off
	Minimum (On/Off)					Off	On	Off			On		Off
	Pedestrian (On/Off)					Off	On	Off			On		Off
Memory	(On/Off)												
Call to Non Actuated	No. 1												
	No. 2												

* Volume Density Controls

SIGNAL DETAILS - 16TH STREET AND HARSH AVENUE

16TH STREET

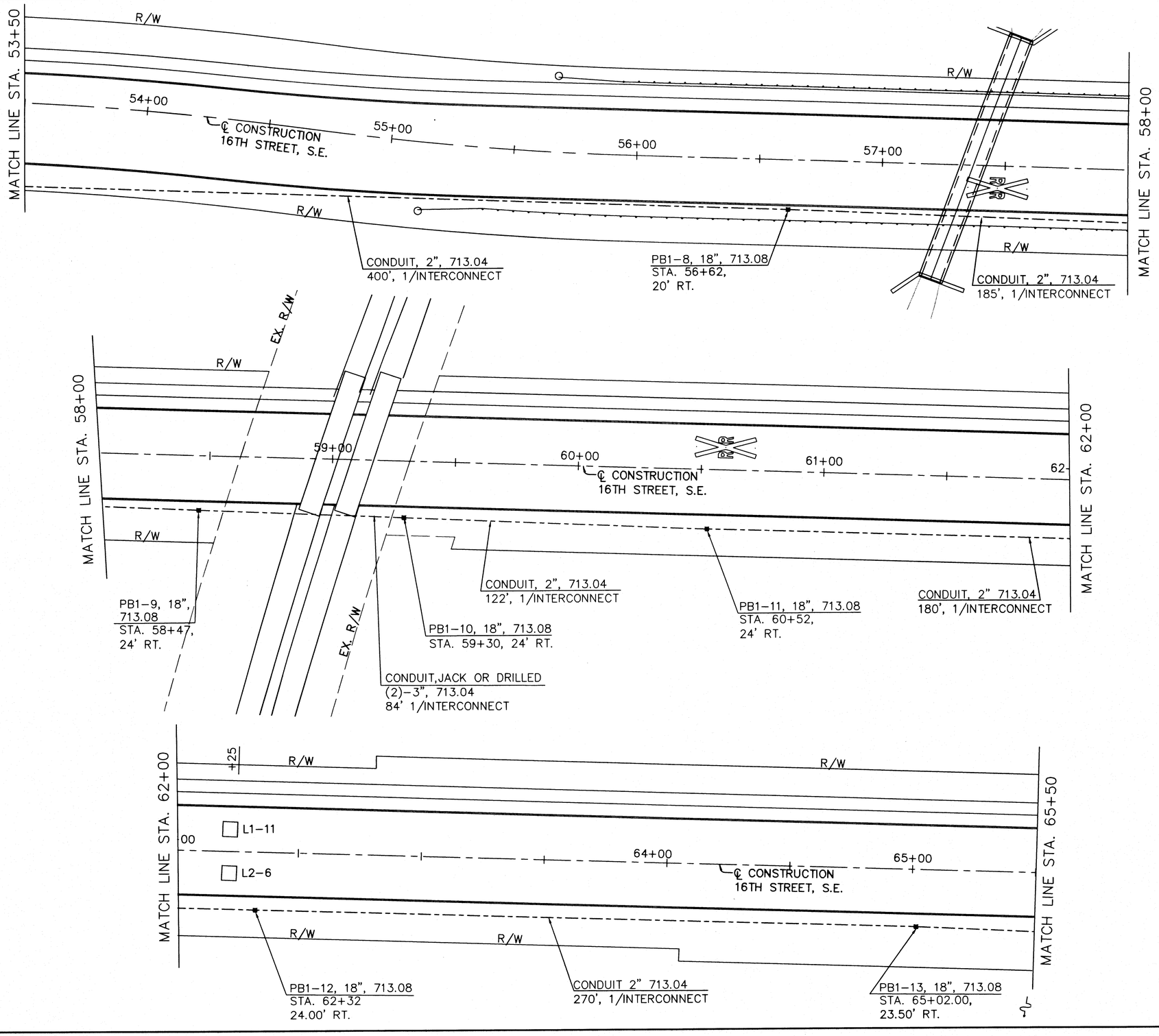


(1) BELDEN 82/81 COAXLE CABLE (REFER TO VIDEO DETECTION NOTE)
(2) POWER CABLE, 3 CONDUTOR # 6 AWG
(IC) INTERCONNECT CABLE, 6 PAIR, NO. 19 AWG, SOLID, REA (PE-39)
(7) 7 CONDUCTOR, #14 AWG. SIGNAL CABLE
(P_x) PEDESTRIAN PUSHBUTTON
PEDESTRIAN SIGNAL HEAD
DS DISCONNECT SWITCH
SPLICE LOCATION

16TH STREET AND HARSH AVENUE – WIRING DIAGRAM

WIRING DIAGRAM - 16TH STREET AND HARSH AVENUE

16TH STREET



N

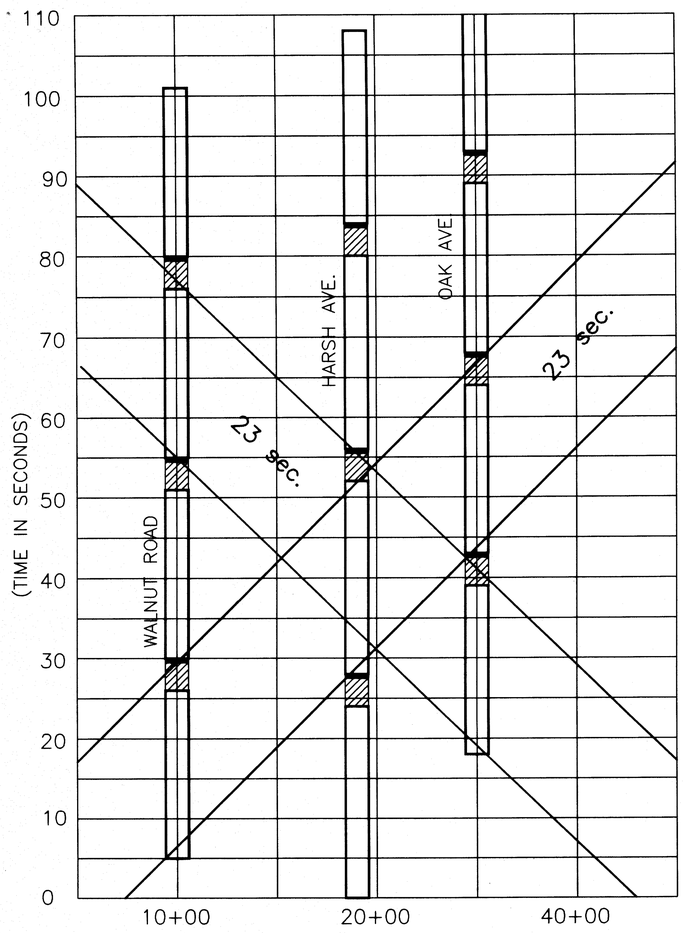
0 10 20 40
HORIZONTAL
SCALE IN FEET

STA. 53+50 TO STA. 65+00 INTERCONNECT
PLAN - 16 TH STREET

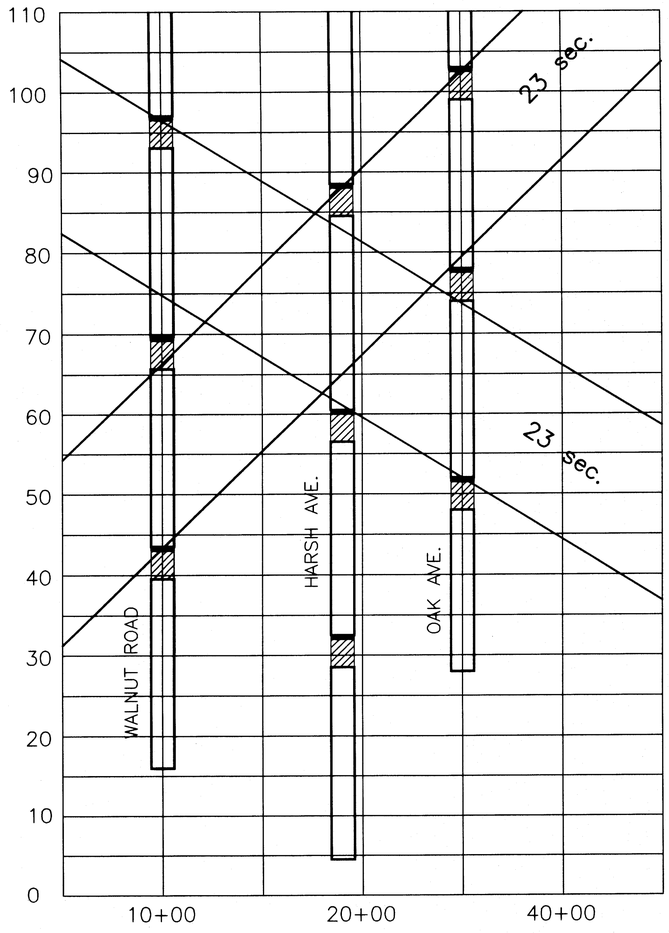
16TH STREET

126
162

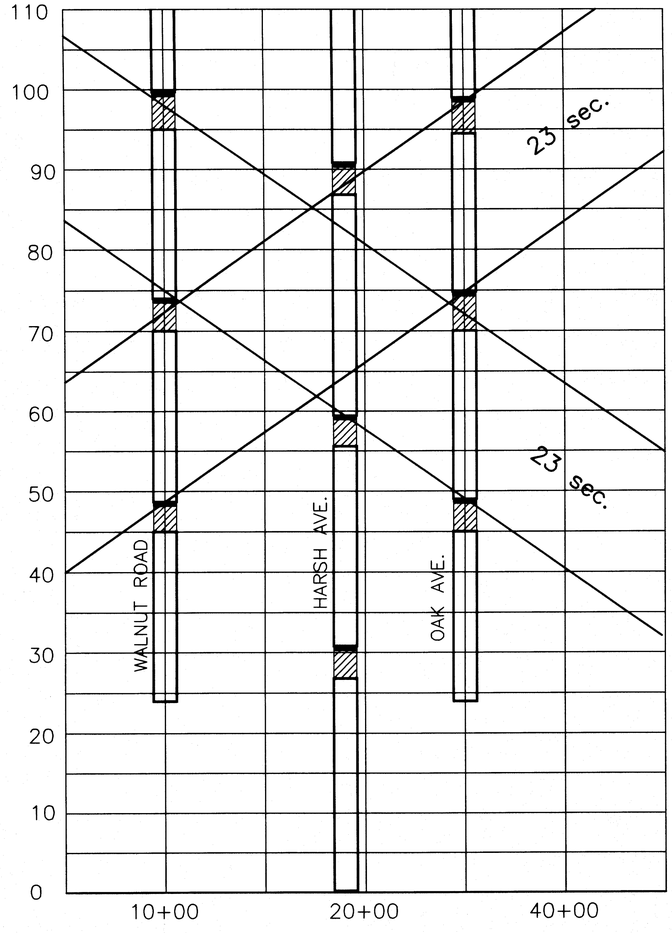
OFF—PEAK



AM—PEAK



PM—PEAK



TIME SPACE DIAGRAM

16TH STREET

126A
162

625.03 – GENERAL

THE POWER SUPPLYING AGENCY FOR THIS PROJECT IS:

OHIO EDISON
2600 S. ERIE STREET
MASSILLON, OHIO 44648
(330) 821–9130

THIS PROJECT HAS BEEN DESIGNED ON THE BASIS OF 5% VOLTAGE DROP WITH A MAXIMUM UNIFORMITY RATIO OF 4.0 TO 1 FOR CONVENTIONAL UNITS.

UTILITIES NOTIFICATION:

AT LEAST TWO (2) WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION OPERATIONS IN ANY AREA WHICH MAY INVOLVE UNDERGROUND FACILITIES, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER, THE REGISTERED UNDERGROUND UTILITY PROTECTION SERVICES AND THE OWNERS OF ALL UNDERGROUND UTILITY FACILITIES SHOWN IN THE PLANS.

AFTER NOTIFICATION, THE OWNER OF ANY UNDERGROUND UTILITY FACILITY THAT IS TO REMAIN IN SERVICE DURING AND OR AFTER CONSTRUCTION SHALL WITHIN FORTY–EIGHT (48) HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL HOLIDAYS, STAKE MARK OR OTHERWISE DESIGNATE THE LOCATION OF THE UNDERGROUND FACILITIES IN THE CONSTRUCTION AREA IN SUCH A MANNER AS TO INDICATE THEIR COURSE TOGETHER WITH THE APPROXIMATE DEPTH AT WHICH THEY WERE INSTALLED. THE MARKING OR LOCATING SHALL BE COORDINATED TO STAY APPROXIMATELY TWO (2) DAYS AHEAD OF THE PLANNED CONSTRUCTION.

STANDARD CONSTRUCTION DRAWINGS:

THE FOLLOWING STANDARD CONSTRUCTION DRAWINGS ARE TO BE USED FOR THE CONSTRUCTION OF THIS PROJECT:

HL–10.11, 05/01/95, LIGHT POLE STYLES
HL–10.12, 05/01/95, LIGHT POLE DETAILS
HL–10.13, 05/01/95, POLE BASE DETAILS
HL–20.11, 03/31/95, FOUNDATION AND TRENCH DETAILS
HL–30.11, 03/31/95, PULL BOX DETAILS I
HL–30.21/.22 05/01/95, ROADWAY CONDUIT DETAILS
HL–40.10, 03/31/95, CONTROL CENTERS
HL–60.11, 05/01/95, POLE WIRING I
HL–60.12, 03/31/95, POLE WIRING II
HL–60.31, 03/31/95, CONTROL CENTER WIRING

ITEM SPECIAL – MAINTAIN EXISTING LIGHTING:

THIS ITEM SHALL CONSIST OF MAINTAINING EXISTING LIGHTING AS FURTHER DESCRIBED BELOW:

EXISTING LIGHTING ON ALL EXISTING ROADWAYS REMAINING OPEN TO
TRAFFIC THROUGH THE PROJECT AREA SHALL BE MAINTAINED.

THE CITY OF MASSILLON WILL PAY FOR ELECTRICAL ENERGY AND MAINTENANCE OF UNDISTURBED LIGHTING ON EXISTING ROADWAYS AND FOR PERMANENT LIGHTING PLACED IN OPERATION. THE CONTRACTOR WILL PAY FOR ELECTRICAL ENERGY, INSTALLATION, REMOVAL AND MAINTENANCE OF ANY TEMPORARY LIGHTING REQUIRED.

THE LUMP SUM PRICE BID FOR "ITEM SPECIAL – MAINTAIN EXISTING LIGHTING" SHALL INCLUDE PAYMENT FOR ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS NECESSARY.

LIGHTING POLE, ITEM 713:

LIGHT POLES SHALL BE ODOT STYLE II.

LUMINAIRES:

LUMINAIRES SHALL BE STYLE 1, TYPE II 480 VOLT, 250 WATT, HIGH PRESSURE SODIUM.

UNDERDRAINS FOR PULL BOXES:

REFERENCE IS MADE TO STANDARD DRAWING HL–30.11 FOR DETAILS OF DRAINING PULL BOXES. UNDERDRAINS FOR PULL BOXES SHALL BE USED AS DIRECTED BY THE ENGINEER AND SHALL BE PROVIDED WHERE THE LENGTH REQUIRED FOR A SATISFACTORY OUTLET DOES NOT EXCEED APPROXIMATELY 20 FEET. AN ESTIMATED QUANTITY OF 60 LINEAR FEET OF ITEM 603, 4" CONDUIT TYPE E IS INCLUDED IN THE LIGHTING GENERAL SUMMARY FOR THIS PURPOSE.

REMOVAL OF EXISTING LIGHT POLES, LUMINAIRES, AND FOUNDATIONS:

EXISTING LIGHT POLES, LUMINAIRES, AND FOUNDATIONS WILL BE REMOVED BY OHIO EDISON. CONTRACTOR SHALL COORDINATE WITH REMOVAL EFFORT.

WALL THICKNESS OF 3" CONDUIT, 713.07:

3" CONDUIT, 713.07, SHALL BE OF PVC WITH A MINIMUM WALL THICKNESS OF 1/4".

ITEM SPECIAL – DISCONNECT EXISTING CIRCUIT:

THE ITEM OF WORK SHALL CONSIST OF THE DISCONNECTION OF EXISTING LIGHT CIRCUITS.

PAYMENT SHALL BE MADE AT THE UNIT BID PRICE FOR EACH ITEM SPECIAL "DISCONNECT EXISTING AND RECONNECT" AND SHALL BE FULL COMPENSATION FOR ALL LABOR, MATERIALS, AND INCIDENTALS REQUIRED TO COMPLETE THE DISCONNECTION IN A SATISFACTORY WORKMANLIKE MANNER.

ITEM – POWER SUPPLY

A QUANTITY OF 305 FEET OF 2" CONDUIT HAS BEEN CARRIED TO THE GENERAL SUMMARY TO PROVIDE FOR THE UNDERGROUND CONNECTION OF THE 400 V. POWER SUPPLY FROM LOCATION SPECIFIED BY OHIO EDISON TO THE CONTROL CENTERS C1 AND C2.

CONTROL CENTER DATA

CONTROL CENTER	TYPE OF SERVICE	CONNECTED LOAD (KVA)	SERVICE ENTRANCE ENCLOSURE SIZE (AWG)	ENCLOSURE RATING	CIRCUIT NUMBER	CIRCUIT LOAD (AMPS)	CIRCUIT FUSE SIZE (AMPS)
CC–1	480V 2–WIRE UNGROUNDED	10	4	60	A	3	30
CC–1					B	4	30
CC–2					C	5	30
CC–2					D	3	30

CALCULATED JHE 03/02
CHECKED MEM 09/02

LIGHTING GENERAL NOTES

16TH STREET, SE

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REFERENCE NO.	SHEET No.	SIDE	ROADWAY	STATION TO STATION	625																202	
					CONNECTOR KIT, TYPE II	CONNECTOR KIT, TYPE III	CABLE SPLICING KIT	LIGHT POLE, DESIGN A4B40	LIGHT POLE, DESIGN AT4B41.7	LIGHT POLE FOUNDATION 24" X 8' DEEP	BRACKET ARM, MISC.: 4' MOUNTED ON SIGNAL POLE	BRACKET ARM, MISC.: 8' MOUNTED ON SIGNAL POLE	NO. 10 AWG POLE AND BRACKET CABLE	1-1/2" DUCT CABLE WITH TWO NO. 4 AWG 5000 VOLT CABLES	CONDUIT, 2", 713.04	LUMINAIRE, MISC.: STYLE I, TYPE II, 250 W H.P.S., 480 VOLTS	TRENCH	GROUND ROD	POWER SERVICE	LUMINAIRE REMOVED	
					EACH	EACH	EACH	EACH	EACH	EACH	EACH	EACH	LIN FT	LIN FT	LIN FT	EACH	LIN FT	EACH	EACH	EACH	
				SHEET 129																	
1	129	LT	16TH ST SE	44+60	1	1		1		1			78			1		1			
2	129	LT	16TH ST SE	44+60 TO 46+10			1							150			150		1		
3	129	LT	16TH ST SE	46+10	1	1		1		1			78			1		1			
4	129	LT	16TH ST SE	46+10 TO 47+60										150			150				
5	129	LT	16TH ST SE	47+60	1	1		1		1			78			1		1			
6	129	LT	16TH ST SE	47+60 TO 52+15										455			455				
TOTALS SHEET 129					3	3	1	3		3			234	755		3	755	3	1		
				SHEET 130																	
7	130	RT	16TH ST SE	49+31							1		78					1			
8	130	RT/LT	16TH ST SE	49+31 TO 50+67										162			162				
R106	130	RT	16TH ST SE	50+09.33																1	
9	130	LT	16TH ST SE	50+67								1	78					1			
10	130	LT	16TH ST SE	50+67 TO 52+15										153			153				
11	130	LT	16TH ST SE	50+67 TO 52+15											153		153				
12	130	LT	16TH ST SE	52+15					1	1			78			1		1			
13	130	LT	16TH ST SE	52+15 TO 53+76										161			161				
R107	130	LT	16TH ST SE	53+06.19																1	
14	130	LT	16TH ST SE	53+76				1		1			78			1		1			
15	130	LT	16TH ST SE	53+76 TO 55+15										139			139				
16	130	LT	16TH ST SE	55+15				1		1			78			1		1			
17	130	LT	16TH ST SE	55+15 TO 56+65										150			150				
18	130	LT	16TH ST SE	56+65				1		1			78			1		1			
19	130	LT	16TH ST SE	56+65 TO 58+15										150			150				
R108	130	LT	16TH ST SE	57+14.37																1	
20	130	LT	16TH ST SE	58+15				1		1			78			1		1			
21	130	LT	16TH ST SE	59+66				1		1			78			1		1			
TOTALS SHEET 130					8	8		5	1	6	1	1	624	915	153	6	1068	8		3	
				SHEET 131																	
22	131	LT	16TH ST SE	59+66 TO 61+15										149			149				
23	131	LT	16TH ST SE	61+15				1		1			78			1		1			
24	131	LT	16TH ST SE	61+15 TO 62+65										150			150				
25	131	LT	16TH ST SE	62+65				1		1			78			1		1			
26	131	LT	16TH ST SE	62+65 TO 64+15										150			150				
27	131	LT	16TH ST SE	64+15				1		1			78			1		1			
28	131	LT	16TH ST SE	64+15 TO 65+65										150			150				
29	131	LT	16TH ST SE	65+65				1		1			78			1		1			
30	131	LT	16TH ST SE	65+65 TO 67+15										150			150				
31	131	LT	16TH ST SE	67+15					1	1			78			1		1			
32	131	LT	16TH ST SE	67+15 TO 70+15										300			300				
33	131	LT	16TH ST SE	67+15 TO 68+67											152		152				
R109	131	RT	16TH ST SE	68+57.19																1	
34	131	LT	16TH ST SE	68+67			1					1	78					1	1		
35	131	LT	16TH ST SE	70+15				1		1			78			1		1			
TOTALS SHEET 131					7	7	1	5	1	6		1	546	1049	152	6	1201	7	1	1	
				SHEET 132																	
36	132	LT	16TH ST SE	70+15 TO 71+65										150			150				
R110	132	LT	16TH ST SE	70+28.78																1	
37	132	LT	16TH ST SE	71+65	1	1		1		1			78			1		1			
38	132	LT	16TH ST SE	71+65 TO 73+15										150			150				
39	132	LT	16TH ST SE	73+15	1	1		1		1			78			1		1			
40	132	LT	16TH ST SE	73+15 TO 74+65										150			150				
41	132	LT	16TH ST SE	74+65	1	1		1		1			78			1		1			
TOTALS SHEET 132					3	3		3		3			234	450		3	450	3		1	
TOTALS CARRIED TO LIGHTING GENERAL SUMMARY * TOTAL CARRIED TO GENERAL SUMMARY					21	21	2	16	2	18	1	2	1638	3169	305	18	3474	21	2	5*	

CALCULATED JHE 03/02
CHECKED JSK 04/02

LIGHTING PLAN SUBSUMMARY

16TH STREET, SE

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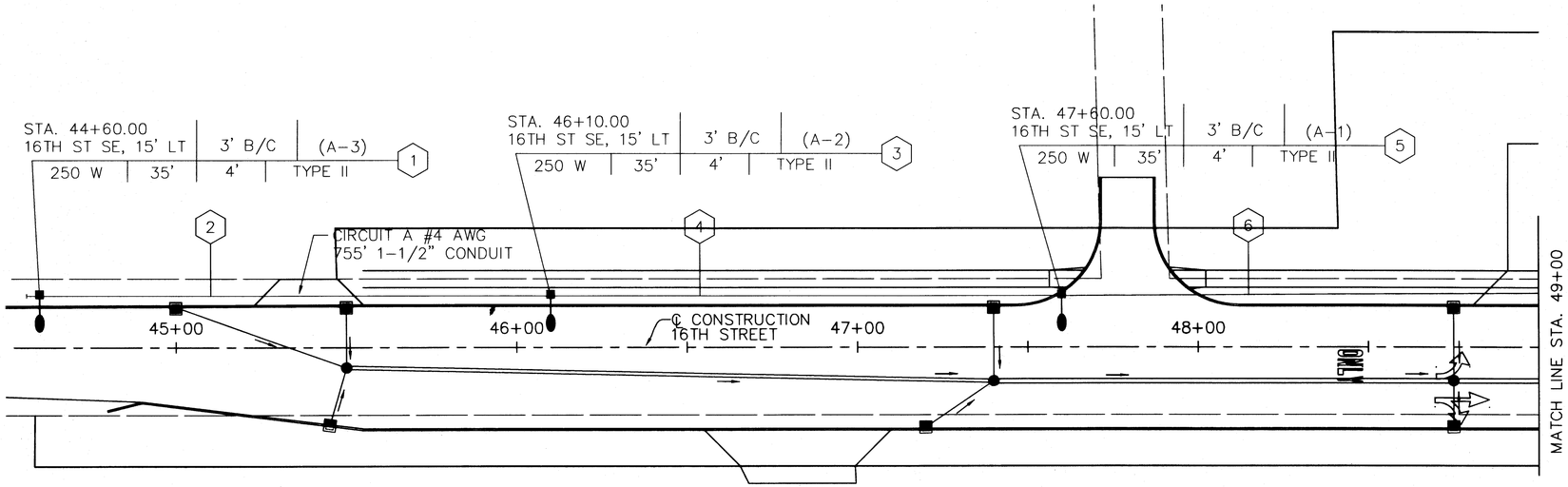

LEGEND

- (1) SUB-SUMMARY REFERENCE NUMBER
- PROPOSED MAST ARM AND LUMINAIRE
- 1-1/2" CONDUIT
- 2" CONDUIT
- ▲ CONTROL CENTER

POLE LEGEND

STATION	OFFSET FROM BACK OF CURB	CIRCUIT NUMBER — POLE NUMBER		— REF NO.
WATTAGE OF LUMINAIRE	MOUNTING HEIGHT	BRACKET ARM LENGTH	TYPE OF LUMINAIRE	

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED | CHECKED

LIGHTING PLAN
STA. 44+50 TO STA. 49+00
16TH STREET SE

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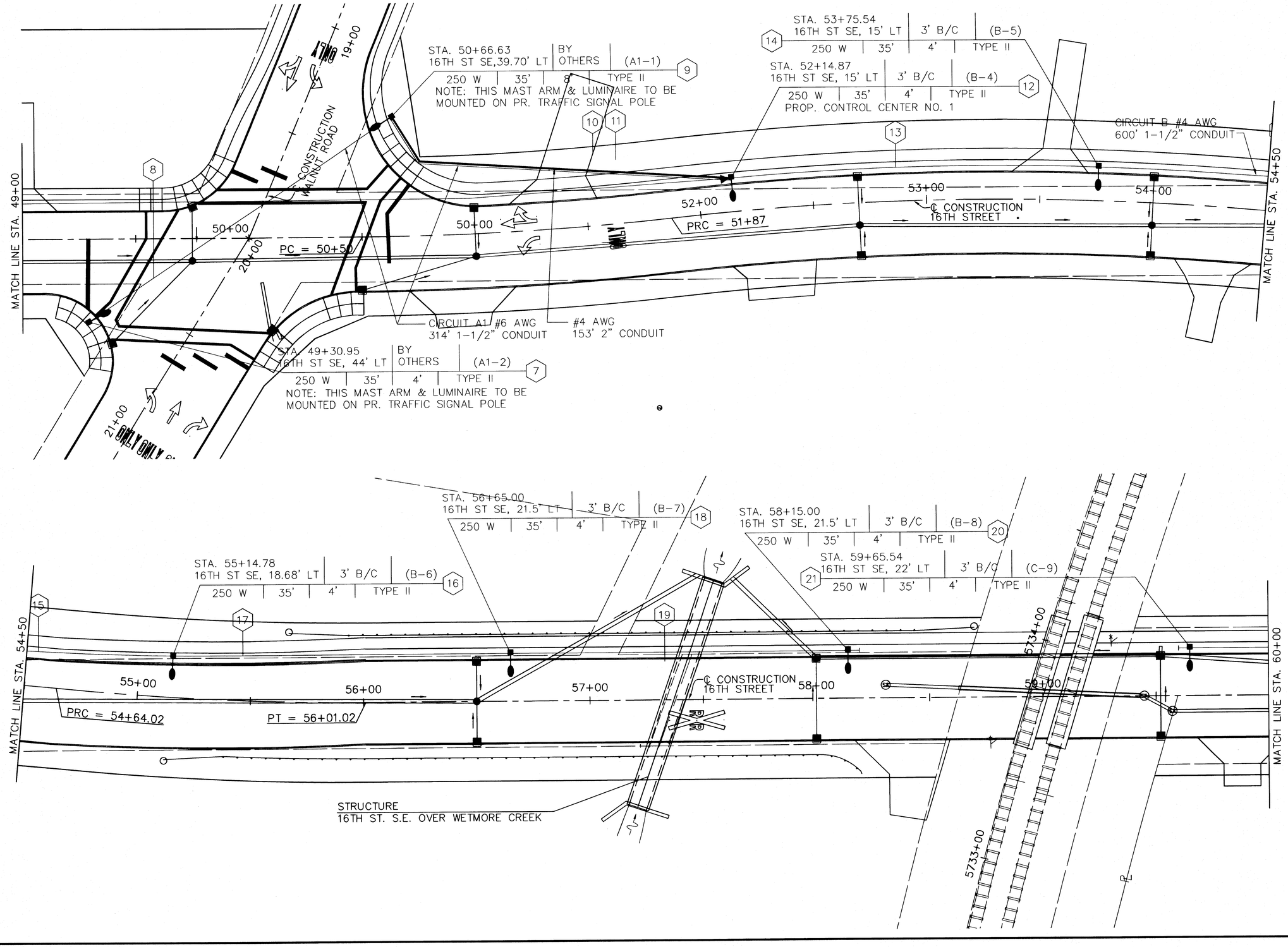

LIGHTING PLAN
STA. 49+00 TO STA. 60+00
16TH STREET SE

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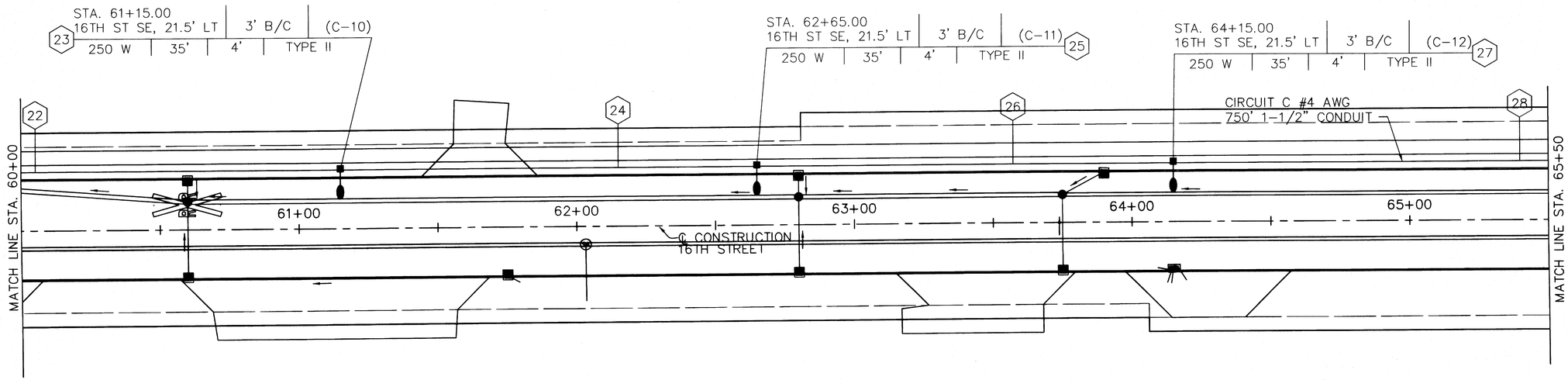

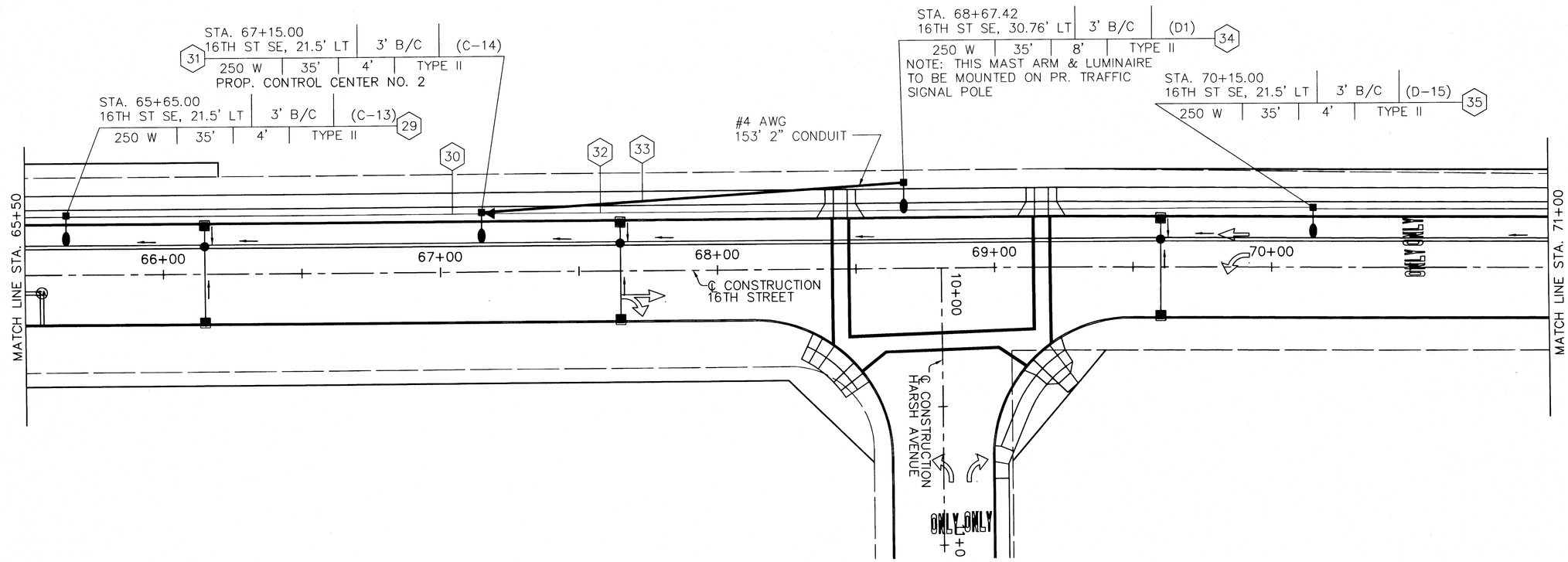

N

HORIZONTAL
SCALE IN FEET
0 10 20 40

CALCULATED

CHECKED

LIGHTING PLAN
STA. 60+00 TO STA. 71+00

16TH STREET SE

131
162

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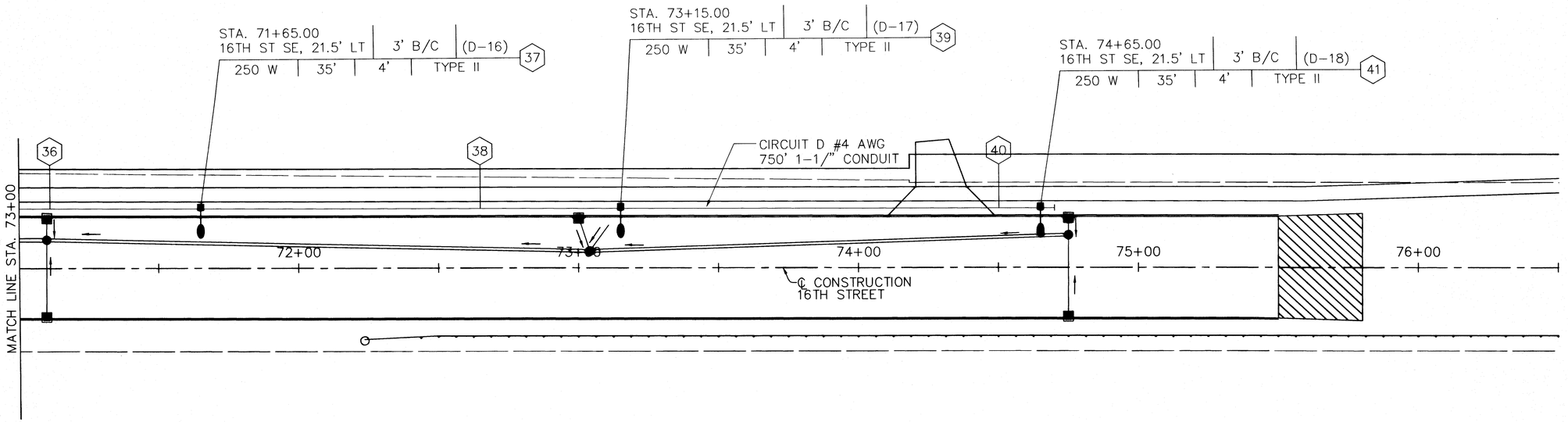

N

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED

CHECKED

LIGHTING PLAN

STA. 73+00 TO STA. 76+50

16TH STREET SE

132
162

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16TH STREET, SE

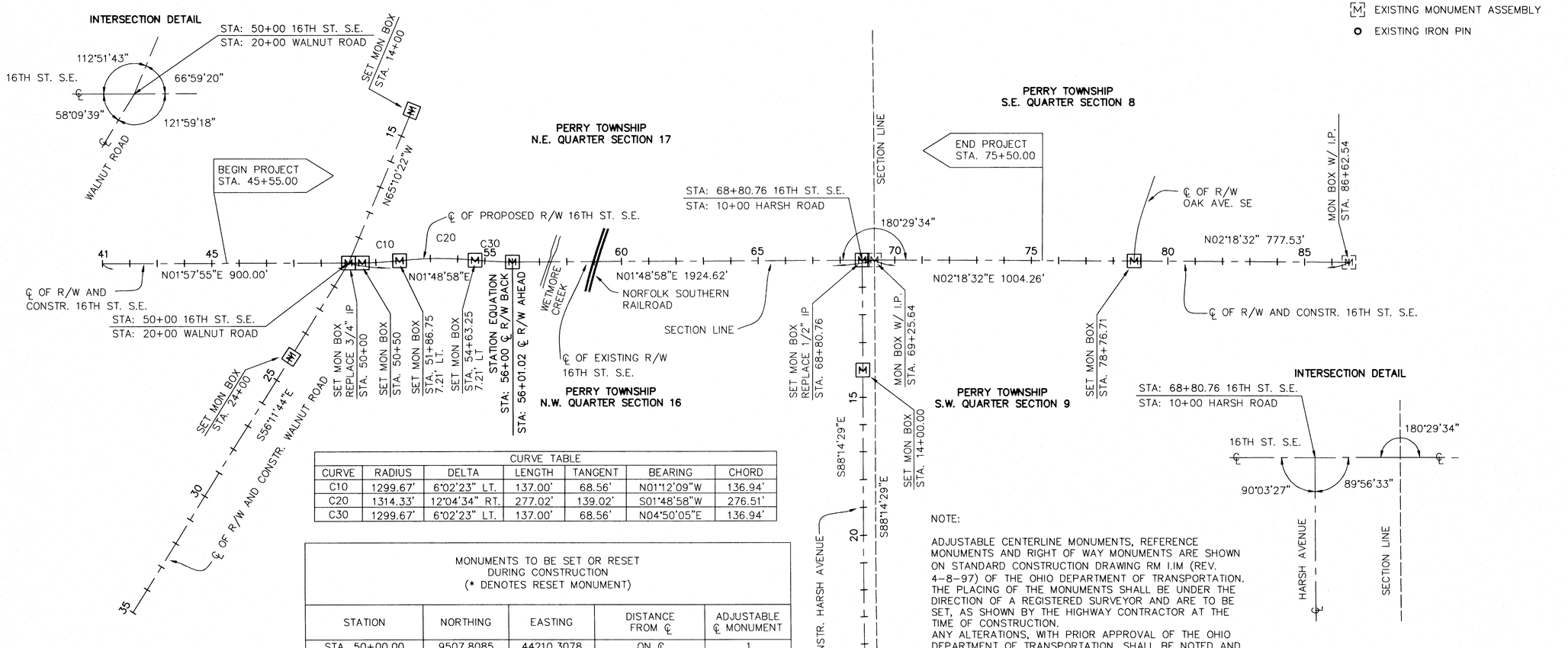
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO

BASIS FOR BEARINGS:

ALL BEARINGS SHOWN ARE BASED ON OHIO STATE PLANE NORTH ZONE NAD83 (1995)

MONUMENT LEGEND

- [M] PROPOSED MONUMENT ASSEMBLY
- [M] EXISTING MONUMENT ASSEMBLY
- O EXISTING IRON PIN



CURVE TABLE						
CURVE	RADIUS	DELTA	LENGTH	TANGENT	BEARING	CHORD
C10	1299.67'	6°02'23" LT.	137.00'	68.56'	N01°12'09"W	136.94'
C20	1314.33'	12°04'34" RT.	277.02'	139.02'	S01°48'58"W	276.51'
C30	1299.67'	6°02'23" LT.	137.00'	68.56'	N04°50'05"E	136.94'

MONUMENTS TO BE SET OR RESET DURING CONSTRUCTION
(* DENOTES RESET MONUMENT)

STATION	NORTHING	EASTING	DISTANCE FROM ℄	ADJUSTABLE ℄ MONUMENT
STA. 50+00.00	9507.8085	44210.3078	ON ℄	1
PC STA. 50+50.00	9557.7834	44211.8924	ON C	1
PRC STA. 51+86.75	9694.6898	44209.0187	7.21' LT	1
PRC STA. 54+63.25	9971.0578	44217.7821	7.21' LT	1
PT STA. 56+00.00	10107.4547	44229.3220	ON ℄	1
STA. 68+80.76	11386.6038	44269.8826	ON ℄	1
*STA. 69+25.64	11431.4630	44271.3050	ON ℄	1
STA. 78+76.71	12305.1124	44306.5323	ON ℄	1
*STA. 86+62.54	13166.9569	44341.2835	ON ℄	1
STA. 14+00.00	9759.7385	43665.7609	ON ℄ WALNUT RD.	1
STA. 24+00.00	9285.2645	44542.6843	ON ℄ WALNUT RD.	1
STA. 14+00.00	11374.3283	44669.6942	ON ℄ HARSH AVE.	1
TOTAL				12

NOTE:

ADJUSTABLE CENTERLINE MONUMENTS, REFERENCE MONUMENTS AND RIGHT OF WAY MONUMENTS ARE SHOWN ON STANDARD CONSTRUCTION DRAWING RM I.1M (REV. 4-8-97) OF THE OHIO DEPARTMENT OF TRANSPORTATION. THE PLACING OF THE MONUMENTS SHALL BE UNDER THE DIRECTION OF A REGISTERED SURVEYOR AND ARE TO BE SET, AS SHOWN BY THE HIGHWAY CONTRACTOR AT THE TIME OF CONSTRUCTION.
ANY ALTERATIONS, WITH PRIOR APPROVAL OF THE OHIO DEPARTMENT OF TRANSPORTATION, SHALL BE NOTED AND O.D.O.T. SHALL BE NOTIFIED OF THE NEW LOCATIONS.

NOTE:
THE EXISTING R/W WIDTH AND LOCATION WERE DETERMINED BY:
STARK COUNTY TAX MAPS,
FIELD LOCATION OF R/W MONUMENTS,
WALNUT HILLS ALLOTMENT P.B. 36 P. 157,
ANNEXATION MAP P.B. 36 P. 156,
T.B. GEORGE'S ADITION TO MASSILLON P.B. 2 P. 79,
WALNUT STREET ADDITION P.B. 17 P. 89,
BELLEVUE TERRACE ADDITION P.B. 4 P.52,
D.V. 1206 P. 110, D.V. 3751 P. 434, INST #97053532

SURVEYOR'S CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAT IS A TRUE DELINEATION OF A SURVEY MADE FOR THE CITY OF MASSILLON IN..... BY.....

THE ESTABLISHMENT OF THE PROPERTY LINES AND EXISTING RIGHT OF WAY LINES SHOWN ON THIS PLAN AS OF THIS DATE WERE PERFORMED BY ME OR UNDER MY DIRECT SUPERVISION.

BY _____

SURVEYOR NO. _____ DATE _____

RECEIVED _____, 20 _____

RECORDED _____, 20 _____

BOOK _____ PAGE _____

_____
COUNTY RECORDER

N

0 100 200 400
HORIZONTAL SCALE IN FEET

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

CENTERLINE PLAT

16TH STREET, SE

1 / 30

133 / 162

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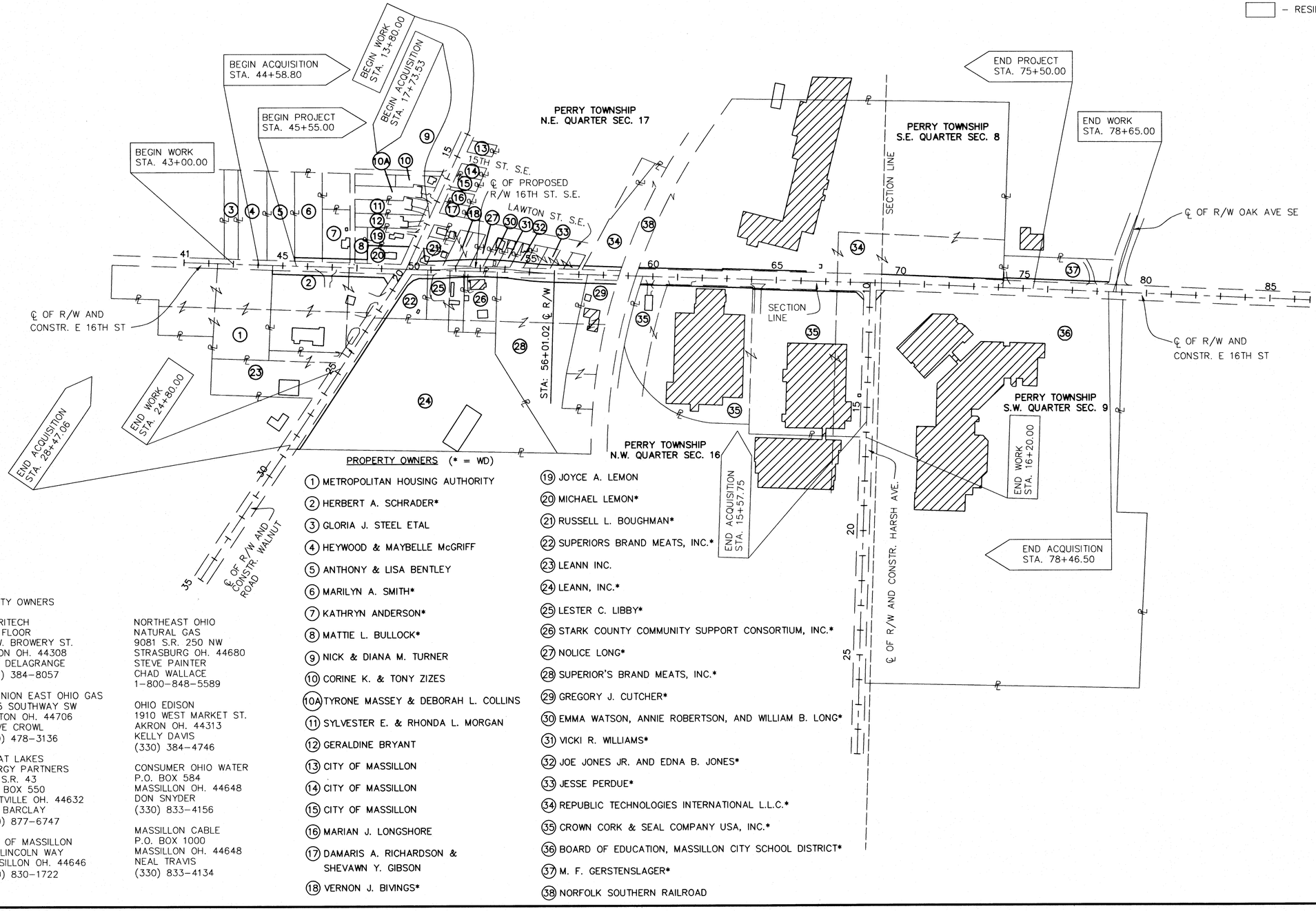
16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



PROPERTY OWNERS (* = WD)

1. METROPOLITAN HOUSING AUTHORITY
2. HERBERT A. SCHRADER*
3. GLORIA J. STEEL ETAL
4. HEYWOOD & MAYBELLE McGRIFF
5. ANTHONY & LISA BENTLEY
6. MARILYN A. SMITH*
7. KATHRYN ANDERSON*
8. MATTIE L. BULLOCK*
9. NICK & DIANA M. TURNER
10. CORINE K. & TONY ZIZES
10A. TYRONE MASSEY & DEBORAH L. COLLINS
11. SYLVESTER E. & RHONDA L. MORGAN
12. GERALDINE BRYANT
13. CITY OF MASSILLON
14. CITY OF MASSILLON
15. CITY OF MASSILLON
16. MARIAN J. LONGSHORE
17. DAMARIS A. RICHARDSON & SHEVAWN Y. GIBSON
18. VERNON J. BIVINGS*
19. JOYCE A. LEMON
20. MICHAEL LEMON*
21. RUSSELL L. BOUGHMAN*
22. SUPERIORS BRAND MEATS, INC.*
23. LEANN INC.
24. LEANN, INC.*
25. LESTER C. LIBBY*
26. STARK COUNTY COMMUNITY SUPPORT CONSORTIUM, INC.*
27. NOLICE LONG*
28. SUPERIOR'S BRAND MEATS, INC.*
29. GREGORY J. CUTCHER*
30. EMMA WATSON, ANNIE ROBERTSON, AND WILLIAM B. LONG*
31. VICKI R. WILLIAMS*
32. JOE JONES JR. AND EDNA B. JONES*
33. JESSE PERDUE*
34. REPUBLIC TECHNOLOGIES INTERNATIONAL L.L.C.*
35. CROWN CORK & SEAL COMPANY USA, INC.*
36. BOARD OF EDUCATION, MASSILLON CITY SCHOOL DISTRICT*
37. M. F. GERSTENSLAGER*
38. NORFOLK SOUTHERN RAILROAD

UTILITY OWNERS

AMERITECH
4TH FLOOR
15 W. BROWERY ST.
AKRON OH. 44308
RICK DELAGRANGE
(330) 384-8057

DOMINION EAST OHIO GAS
4725 SOUTHWAY SW
CANTON OH. 44706
STEVE CROWL
(330) 478-3136

GREAT LAKES
ENERGY PARTNERS
125 S.R. 43
P.O. BOX 550
HARTVILLE OH. 44632
SUE BARCLAY
(330) 877-6747

CITY OF MASSILLON
151 LINCOLN WAY
MASSILLON OH. 44646
(330) 830-1722

NORTHEAST OHIO
NATURAL GAS
9081 S.R. 250 NW
STRASBURG OH. 44680
STEVE PAINTER
CHAD WALLACE
1-800-848-5589

OHIO EDISON
1910 WEST MARKET ST.
AKRON OH. 44313
KELLY DAVIS
(330) 384-4746

CONSUMER OHIO WATER
P.O. BOX 584
MASSILLON OH. 44648
DON SNYDER
(330) 833-4156

MASSILLON CABLE
P.O. BOX 1000
MASSILLON OH. 44648
NEAL TRAVIS
(330) 833-4134

HORIZONTAL SCALE IN FEET
0 100 200 400

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

PROPERTY MAP

16TH STREET, SE

2 / 30

134 / 162

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TOTAL NUMBER OF:

39 OWNERSHIPS 2 OWNERSHIPS WITH STRUCTURES INVOLVED

1 TOTAL TAKES 0 OWNERSHIPS WITH "P" ITEMS

NET RESIDUE = RECORD AREA – TOTAL PRO – NET TAKE

ALL AREAS IN ACRES

* DENOTES CALCULATED AREA

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
1	STARK METROPOLITAN HOUSING	8	3714	715	0680364						NO						
	AUTHORITY				0680377												
					0680365												
					0780002												
	GRAND TOTAL					3.9490											
2–WD	HERBERT A. SCHRADER II	8,10,24	IM–98086367		0615285	1.28	0.1423	0.2491	0.1423	0.1068	NO		1.0309				
					0610295	2.175	0.3728	0.2141	0.1427	0.0714			1.7308				
	GRAND TOTAL					3.455	0.5151	0.4632		0.1782			2.7617				
2–T		8,10						0.2868		0.2868	NO				RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
		24,26															
3	GLORIA J. STEELE ETAL	8	IM–95058256		0611308	0.463*									NO TAKE		
4	HEYWOOD & MAYBELLE McGRIFF	8	3196	181	0607216	0.958*									NO TAKE		
5	ANTHONY & LISA BENTLEY	8	IM–95058109		0604550	0.922*									NO TAKE		
6–WD	MARILYN A. SMITH ETAL.	8	4259	279,280	0603411	0.922*		0.0386		0.0386	NO	0.8834					
7–WD	KATHRYN ANDERSON	8	IM–98011745		0601358	0.544*		0.0386		0.0386	NO	0.5054					
7–T		8						0.0014		0.0014	NO				RECONSTRUCT DRIVE		
8–WD	MATTIE L. BULLOCK	8,10	2362	587	0601357	0.165*		0.0172		0.0172	NO	0.1478					
9	NICK & DIANNA M. TURNER	22	IM–1999031600		0602420										NO TAKE		
10	CORINE K. & TONY ZIZES	22	IM–97007702		0617711	0.748*					NO				NO TAKE		
10A	TYRONE MASSEY & DEBORAH L. COLLINS	22	IM–2001030984		0617714	0.390*					NO				NO TAKE		
11	SYLVESTER E. & RHONDA L. MORGAN	21	IM–2000063057		0617713	0.389					NO				NO TAKE		
12–T	GERALDINE BRYANT	22,24	IM–96061362		0617647	0.335		0.0258		0.0258	NO				RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
13	CITY OF MASSILLON	22	3930	506	0680622	0.118*									NO TAKE		
14	CITY OF MASSILLON	22	1765	796	0606720	0.118*									NO TAKE		
15	CITY OF MASSILLON	22	1765	796	0606719	0.123*					NO				NO TAKE		
16	MARIAN J. LONGSHORE	22	3483	441	0608306	0.118*					NO				NO TAKE		
17	DAMARIS A. RICHARDSON & SHEVAWN Y. GIBSON	22	778	331	0602121	0.118*					NO				NO TAKE		
18–WD	VERNON J. BIVINGS	10	IM–98027178		0601093	0.125*					NO	0.4038					
			IM–96042227		0601096	0.175*				0.0277							
			IM–99081076		0609761	0.165*				0.0335							
	GRAND TOTAL					0.465*		0.0612		0.0612							

NOTES:
ALL TEMPORARY PARCELS TO
BE OF 12 MONTH DURATION

REV. BY	DATE	DESCRIPTION

FIELD REVIEW BY DATE:

OWNERSHIP VERIFIED BY DATE:

DATE COMPLETED

FEDERAL PROJECT NO.

PID NO. 9527

STATE JOB NO.

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

SUMMARY OF ADDITIONAL RIGHT OF WAY

16TH STREET, SE

R:\00000\00120\Vdot\MASSILLON\dwg\RW-SUMMARY.dwg 11/6/2002 08:21:09 AM EST

TOTAL NUMBER OF:

39 OWNERSHIPS 2 OWNERSHIPS WITH STRUCTURES INVOLVED

1 TOTAL TAKES 0 OWNERSHIPS WITH "P" ITEMS

NET RESIDUE = RECORD AREA – TOTAL PRO – NET TAKE

ALL AREAS IN ACRES

* DENOTES CALCULATED AREA

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUC-TURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
18–T	VERNON J. BIVINGS	10						0.0196		0.0196	NO				ROAD IMPROVEMENTS		
18–T1		22,24						0.0071		0.0071	NO				ROAD IMPROVEMENTS		
19–T	JOYCE A. LEMON	24	1160	236	0606718	0.303*		0.0201		0.0201	NO				RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
20–WD	MICHAEL LEMON	10,24	IM–97055289		0606717	0.253*		0.2525		0.2525	YES	0.0000			REMOVE STRUCTURE		
21–WD	RUSSELL L. BOUGHMAN	10,24	IM–98013956		0600431	0.149*		0.0596		0.0596	YES	0.0894			REMOVE STRUCTURE		
					0600432	0.121*											
	GRAND TOTAL					0.270*											
21–T		24						0.1119		0.1119					ROAD IMPROVEMENTS		
22–WD	SUPERIORS BRAND MEATS, INC.	10,24,26	4183	466	0614710	0.687	0.1891	0.2638	0.1891	0.0747	NO		0.4232				
22–T		10,24,26						0.0451		0.0451					RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
23	LEANN INC.	26	2720	396	0700108	1.51									NO TAKE		
24–WD	LEANN, INC.	26	3122	197	0700109	9.008	0.4341	0.5787	0.4341	0.1446	NO	8.4293					
25–WD	LESTER C. LIBBY	10	1415	802	0700067	0.413	0.041	0.0666	0.041	0.0256	NO		0.3464				
					0615853	0.275	0.028	0.0358	0.028	0.0078			0.2392				
	GRAND TOTAL					0.688	0.069	0.1024	0.069	0.0334			0.5856				
25–T		10						0.0333		0.0333					RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
26–WD	STARK COUNTY COMMUNITY SUPPORT CONSORTIUM, INC.	10,12	1315	269	0680900	0.606	0.0606	0.0644	0.0606	0.0038	NO		0.5416				
26–T		10						0.0050		0.0050					RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
27–WD	NOLICE LONG	10,12	4005	493	0606938	0.154*		0.0363		0.0363	NO	0.1177					
27–T		10,12						0.0083		0.0083					ROAD IMPROVEMENTS		
28–WD	SUPERIOR'S BRAND MEATS, INC.	12	3543	664	0603782	4.345	0.167	0.2605	0.167	0.0935	NO		4.0845				
28–T		12						0.2693		0.2693					RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
29–WD	GREGORY J. CUTCHER	12,14	861	80	0604404	0.533	0.0574	0.0999	0.0574	0.0425	NO		1.3341				
					0700095	0.901											
	GRAND TOTAL					1.434											
29–T		12,14						0.0746		0.0746					ROAD IMPROVEMENTS		
30–WD	EMMA WATSON. ANNIE ROBERTSON, & WILLIAM B. LONG	12	3999	467	0606939	0.143*		0.0364		0.0364	NO	0.1066					
30–T		12						0.0419		0.0419					RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
31–WD	VICKI R. WILLIAMS	12	IM–95042428		0663630	0.133*		0.0338		0.0338	NO	0.0992					
32–WD	JOE JONES, JR. & EDNA B. JONES	12	3712	895	0607410	0.122*		0.0286		0.0286	NO	0.0934					

NOTES:
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REV. BY	DATE	DESCRIPTION

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DATE COMPLETED

FEDERAL PROJECT NO.

PID NO. 9527

STATE JOB NO.

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

SUMMARY OF ADDITIONAL RIGHT OF WAY

16TH STREET, SE

R:\00000\00120\Vol1\MASSILLON\dwg\RW-SUMMARY.dwg 11/6/2002 08:21:09 AM EST

TOTAL NUMBER OF:

39 OWNERSHIPS 2 OWNERSHIPS WITH STRUCTURES INVOLVED

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ALL AREAS IN ACRES

* DENOTES CALCULATED AREA

PARCEL NO.	OWNER	SHEET NO.	OWNERS RECORD BOOK	OWNERS RECORD PAGE	AUDITOR'S PARCEL	RECORD AREA	TOTAL P.R.O.	GROSS TAKE	P.R.O. IN TAKE	NET TAKE	STRUCTURE	NET RESIDUE LEFT	NET RESIDUE RIGHT	TYPE FUND	REMARKS AND PERSONALTY	AS ACQUIRED BOOK	AS ACQUIRED PAGE
33–WD	JESSE PERDUE	12	3952	508	0609017	0.111*				0.0229	NO	0.3027					
					0609018	0.100*				0.0195							
					0609019	0.090*				0.0187							
					0609020	0.083*				0.0202					NO GUARDRAIL/SLOPE		
	GRAND TOTAL					0.384*		0.0813		0.0813							
33–T		12						0.1463		0.1463					ROAD IMPROVEMENTS		
34–WD	REPUBLIC TECHNOLOGIES	12,14	IM–99065005		0614327	2.70*		0.0532		0.0532	NO	2.6468					
	INTERNATIONAL L.L.C.																
34–WD1	REPUBLIC TECHNOLOGIES	14,28	IM–99065005		0616547	18.62*		0.0389		0.0389	NO						
	INTERNATIONAL L.L.C.																
34–WD2		14,16						0.0389		0.0389	NO						
34–WD3		18,20						0.0237		0.0237	NO						
	GRAND TOTAL							0.1015		0.1015		18.5185					
34–T		12,14						0.1053		0.1053					ROAD IMPROVEMENTS		
34–T1		14						0.0162		0.0162					ROAD IMPROVEMENTS		
34–T2		14						0.0147		0.0147					RECONSTRUCT DRIVE		
34–T3		16,18,28						0.3455		0.3455					ROAD IMPROVEMENTS		
35–WD	CROWN CORK & SEAL CO. USA, INC.	14,16	IM–97053532		0700079	0.74				0.0126	NO		10.6217				
					0700118	4.79				0.0397							
	GRAND TOTAL							0.0523		0.0523							
35–WD1		16,18,28	IM–97053532		0700225	5.144				0.0391	NO		10.5639				
					0614383					0.0187							
	GRAND TOTAL					10.674		0.0578		0.0578							
35–T		14						0.0186		0.0186					RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
35–T1		14						0.0350		0.0350					RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
35–T2		16						0.0284		0.0284					RECONSTRUCT DRIVE AND ROAD IMPROVEMENTS		
35–T3															NOT USED		
35–T4		18,28,30						0.1123		0.1123					ROAD IMPROVEMENTS		
~~36–WD~~ 36–SH	BOARD OF EDUCATION, MASSILLON CITY SCHOOL DISTRICT	18	1231	41	0680011	35.560		0.0156		0.0156	NO		35.5444				
36–T		18,20, 28,30						0.5215		0.5215					RECONSTRUCT WALK AND ROAD IMPROVEMENTS		
37–WD	M.F. GERSTENSLAGER	20	3743	67	0608982	1.39		0.0972		0.0972	NO	1.2928					
37–T		20						0.0091		0.0091					RECONSTRUCT DRIVE		

NOTES:
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REV. BY	DATE	DESCRIPTION

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PID NO. 9527

STATE JOB NO.

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

SUMMARY OF ADDITIONAL RIGHT OF WAY

16TH STREET, SE

R:\00001\00125\Dist1\MASSILON\Rw-SUMMARY.dwg 11/16/2002 08:21:09 AM EST

TOTAL NUMBER OF:

39 OWNERSHIPS 2 OWNERSHIPS WITH STRUCTURES INVOLVED

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38–T	NORFOLK SOUTHERN RAILROAD	12															
38–SH		12															

GRANTEE:

NOTES:
ALL TEMPORARY PARCELS TO BE OF 12 MONTH DURATION

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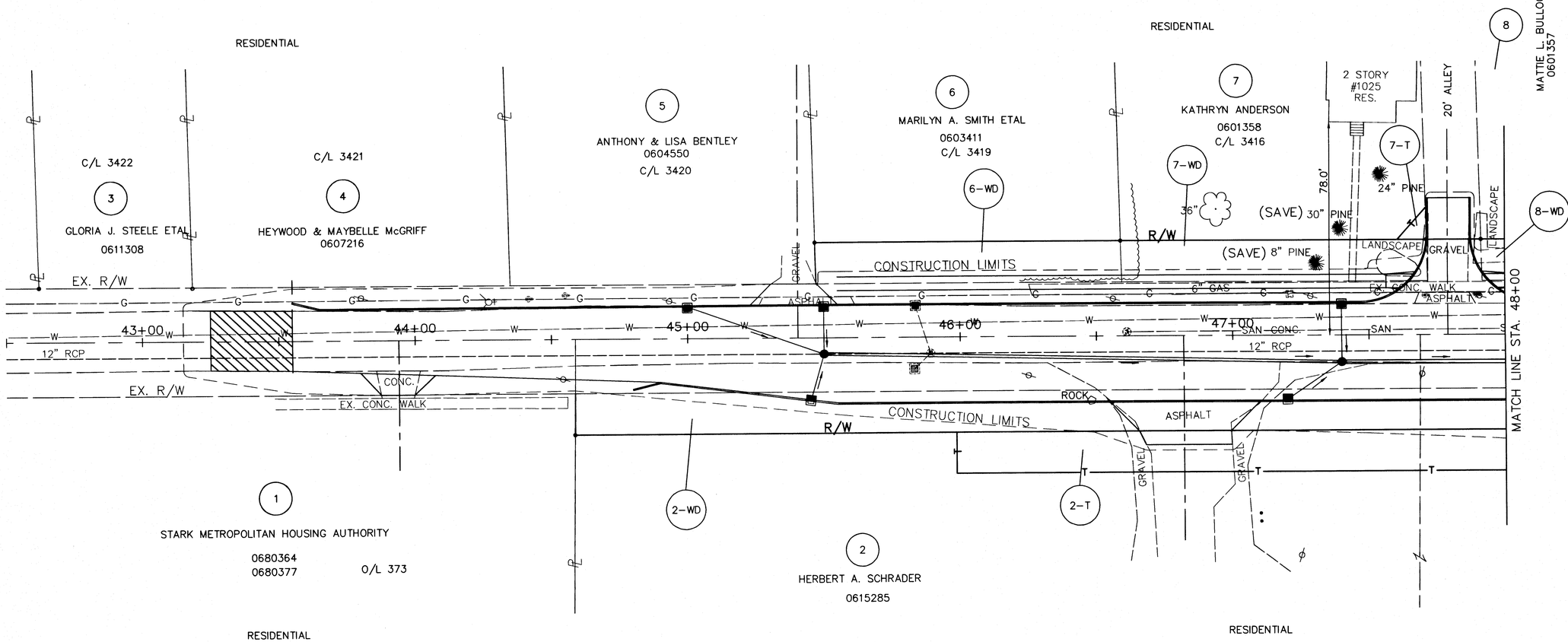
R/W REVIEWER MAY 01/02

SUMMARY OF ADDITIONAL RIGHT OF WAY

16TH STREET, SE

R:\00000\00120\Dist1\VASSILLON\dwg\RW-SUMMARY.dwg 11/6/2002 08:21:09 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



NOTE: FOR R/W DETAIL SEE PAGE 8 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

0 10 20 40 SCALE IN FEET

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 43+00 TO STA. 48+00

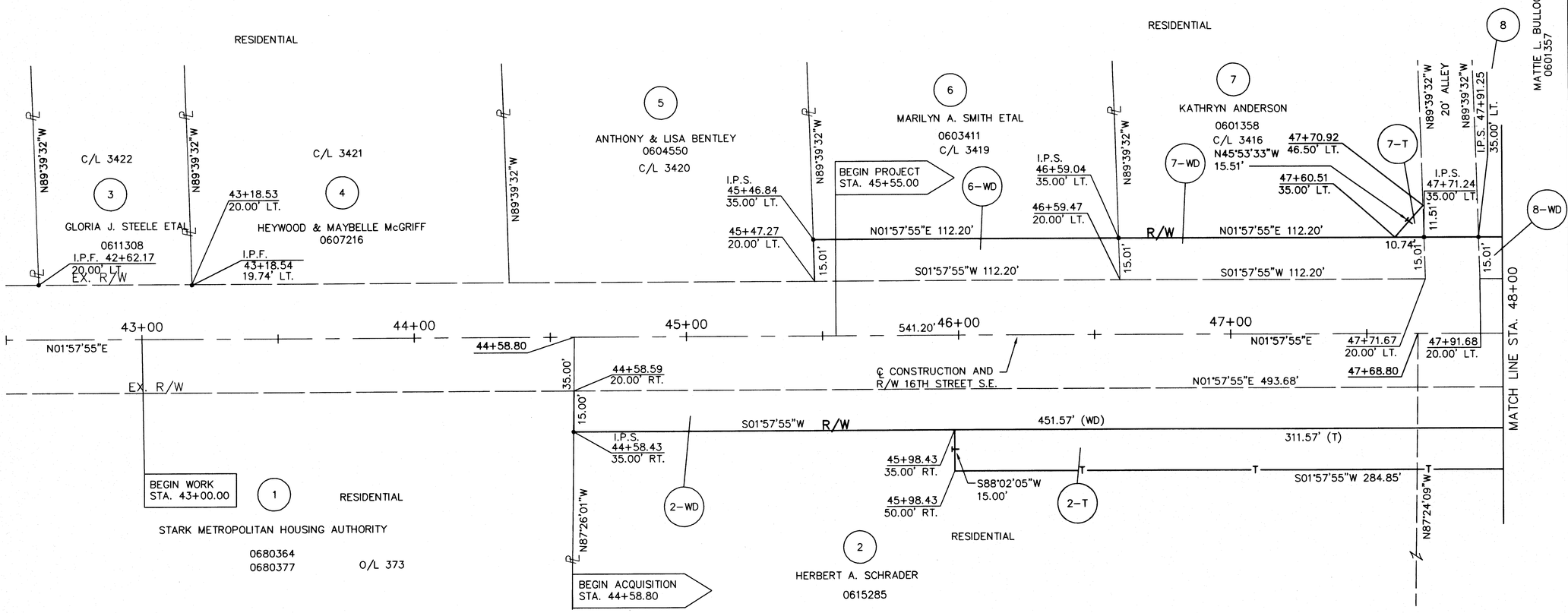
16TH STREET, SE

7 / 30

139 / 162

R:\00000\00120\Vol1\MASSILLON\dwg\RW-18.dwg 11/16/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

N

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 43+00 TO STA. 48+00

16TH STREET, SE

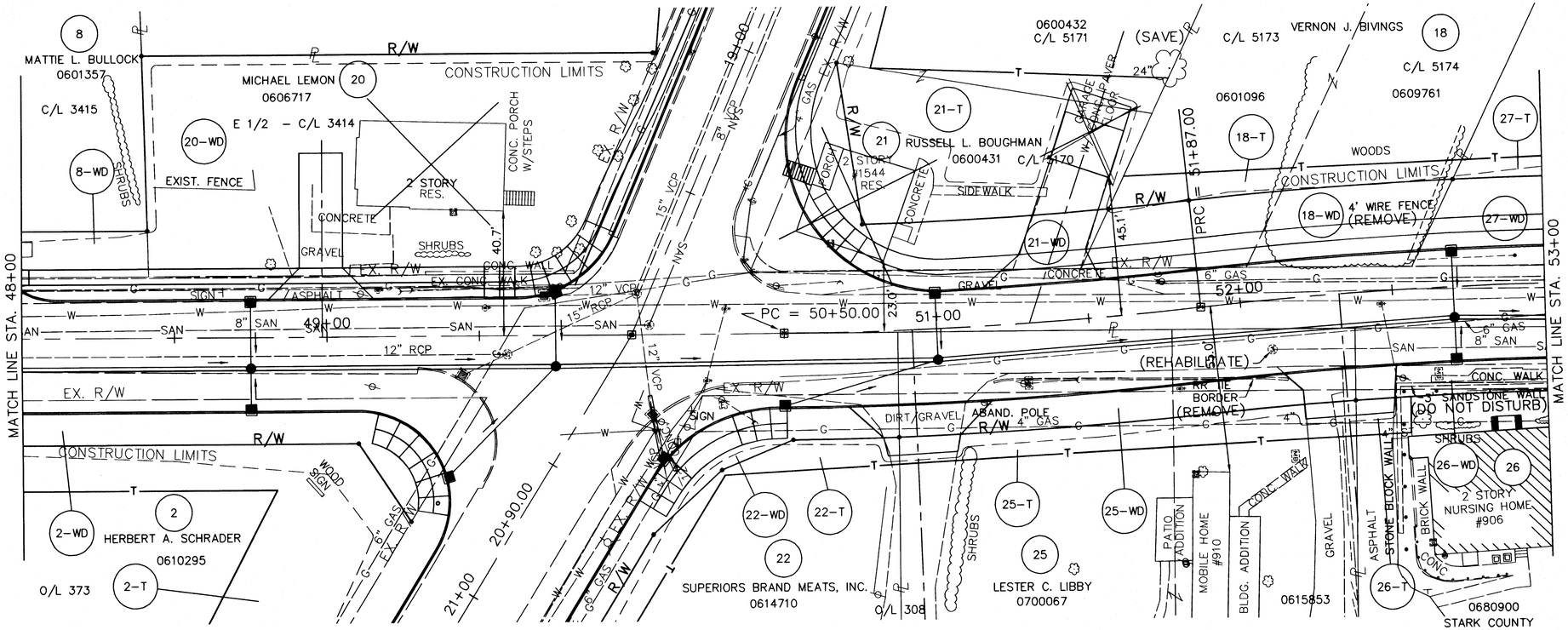
8 / 30

140 / 162

P:\00001\00120\dgn\MASSILLON\dwg\RW-15.dwg 11/16/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO

SEE PAGE 23 OF 30 FOR CONTINUATION



SEE PAGE 23 OF 30 FOR CONTINUATION

NOTE: FOR R/W DETAIL SEE PAGE 10 OF 30

LEGEND

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REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 48+00 TO STA. 53+00

16TH STREET, SE

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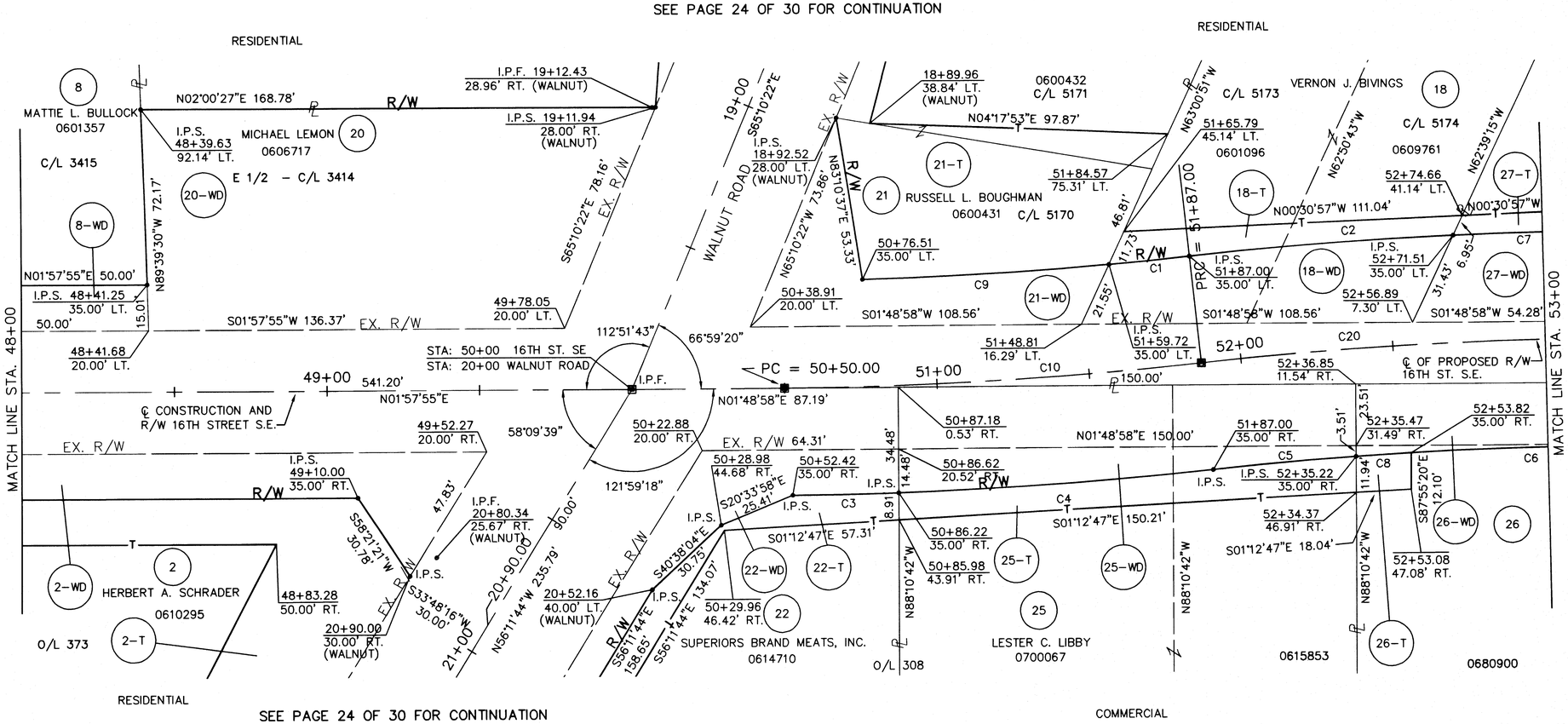
16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO

SEE PAGE 24 OF 30 FOR CONTINUATION



SEE PAGE 24 OF 30 FOR CONTINUATION

CURVE TABLE						
CURVE	RADIUS	DELTA	LENGTH	TANGENT	BEARING	CHORD
C1	1264.67'	1°12'10"	26.55'	13.27'	N03°37'15"W	26.55'
C2	1349.33'	3°41'03"	86.76'	43.40'	S02°22'47"E	86.75'
C3	1334.67'	1°29'24"	34.71'	17.36'	N00°57'57"E	34.71'
C4	1334.67'	4°26'35"	103.50'	51.77'	N02°00'03"W	103.47'
C5	1279.33'	2°06'08"	46.94'	23.47'	S03°10'15"E	46.94'
C6	1279.33'	5°54'55"	132.08'	66.10'	N00°50'17"E	132.02'
C7	1349.33'	2°20'04"	54.98'	27.49'	S00°37'46"W	54.97'
C8	1279.33'	0°48'38"	18.10'	9.05'	N01°42'52"W	18.10'
C9	1264.67'	3°40'06"	80.97'	40.50'	N01°11'08"W	80.95'
C10	1299.67'	6°02'23"	137.00'	68.56'	N01°12'09"W	136.94'
C20	1314.33'	12°04'34"	277.02'	139.02'	S01°48'58"W	276.51'

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
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STRUCTURES KEY

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REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

N

0 10 20 40 SCALE IN FEET

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 48+00 TO STA. 53+00

16TH STREET, SE

10 / 30

142 / 162

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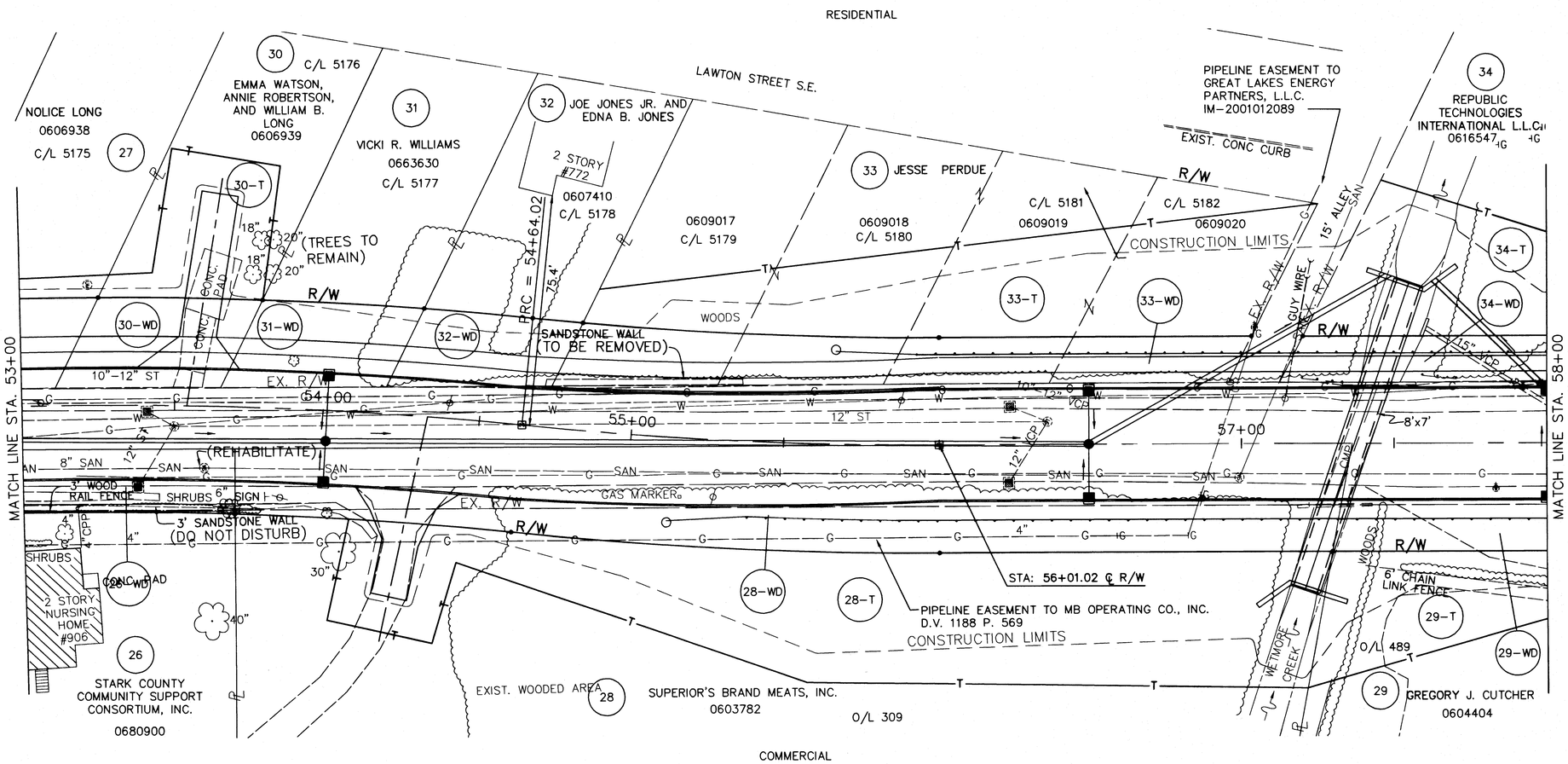
16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



NOTE: FOR R/W DETAIL SEE PAGE 12 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

N

SCALE IN FEET
0 10 20 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 53+00 TO STA. 58+00

16TH STREET, SE

11/30

143/162

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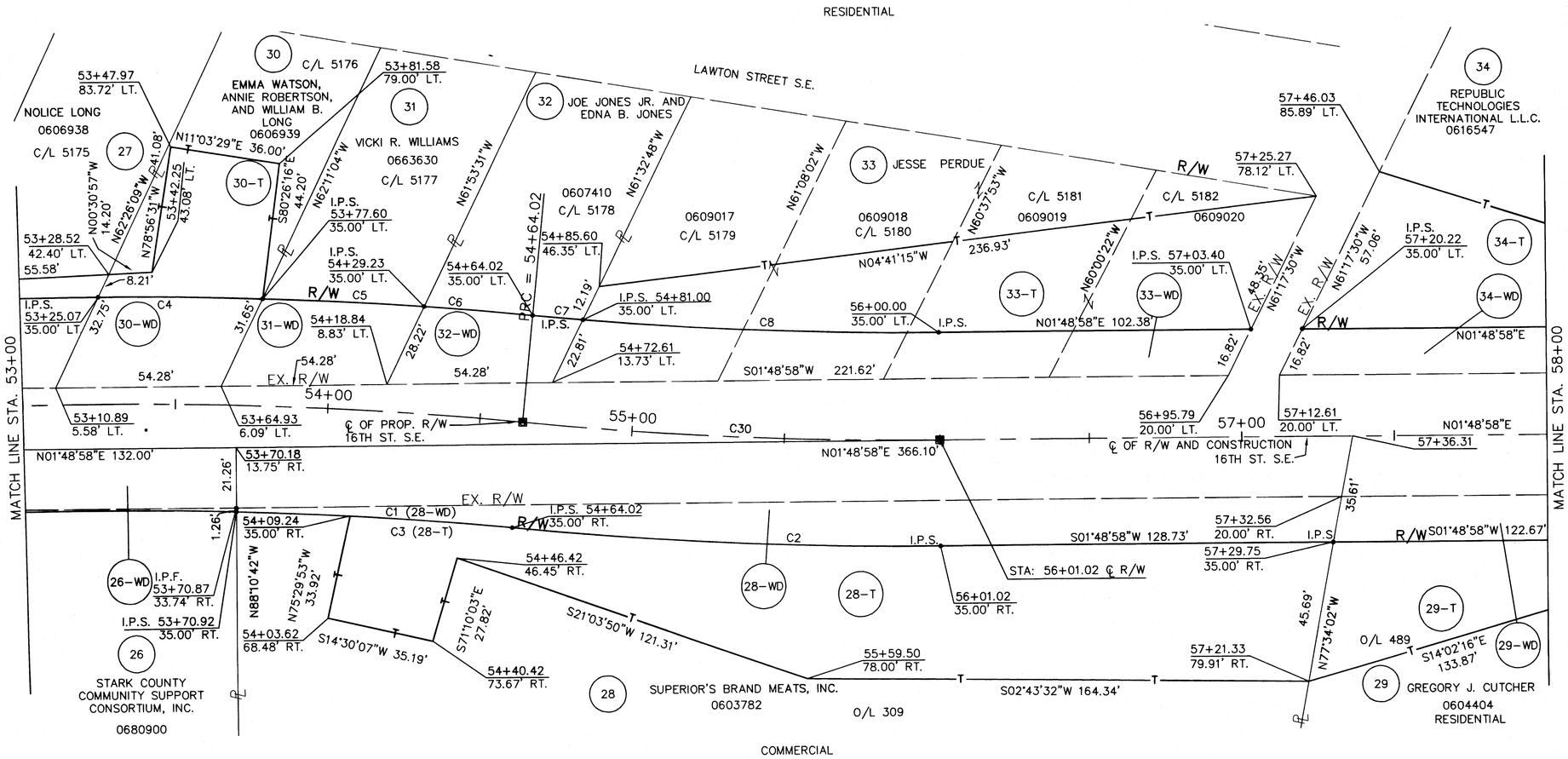
16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



CURVE TABLE						
CURVE	RADIUS	DELTA	LENGTH	TANGENT	BEARING	CHORD
C1	1279.33'	4°03'31"	90.62'	45.33'	S05°49'30"W	90.61'
C2	1334.67'	6°02'23"	140.69'	70.41'	N04°50'05"E	140.62'
C3	1279.33'	2°23'17"	53.32'	26.66'	N06°39'37"E	53.32'
C4	1349.33'	2°17'25"	53.94'	26.97'	N02°56'31"E	53.93'
C5	1349.33'	2°15'03"	53.01'	26.51'	S05°12'45"W	53.00'
C6	1349.33'	1°30'59"	35.71'	17.86'	S07°05'46"W	35.71'
C7	1264.67'	0°44'55"	16.52'	8.26'	N07°28'49"E	16.52'
C8	1264.67'	5°17'28"	116.79'	58.43'	N04°27'38"E	116.75'
C30	1299.67'	6°02'23"	137.00'	68.56'	N04°50'05"E	136.94'

LEGEND

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SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 53+00 TO STA. 58+00

16TH STREET, SE

12/30

144/162

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16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
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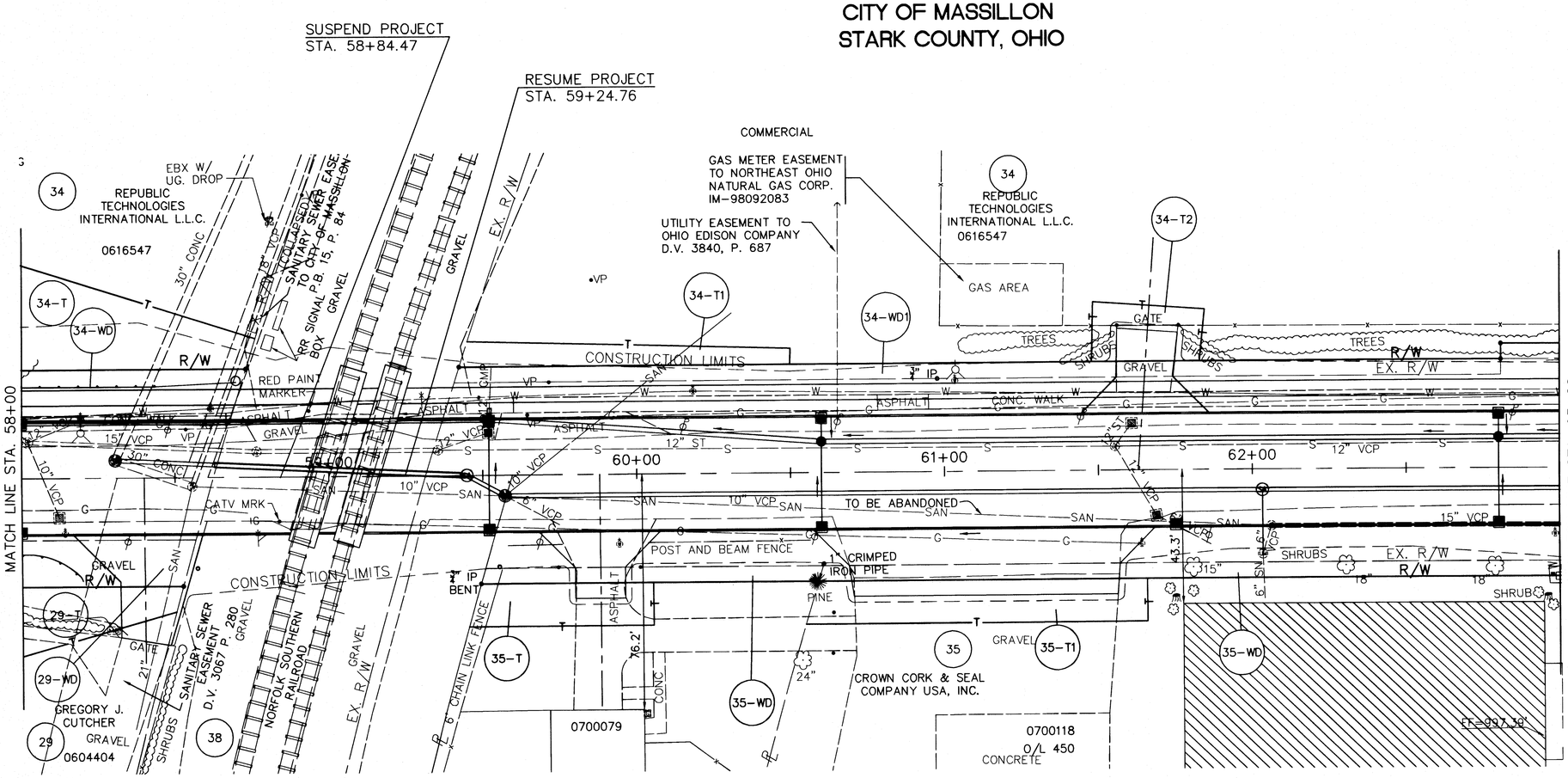
STARK COUNTY, OHIO



NOTE: FOR R/W DETAIL SEE PAGE 14 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

N

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

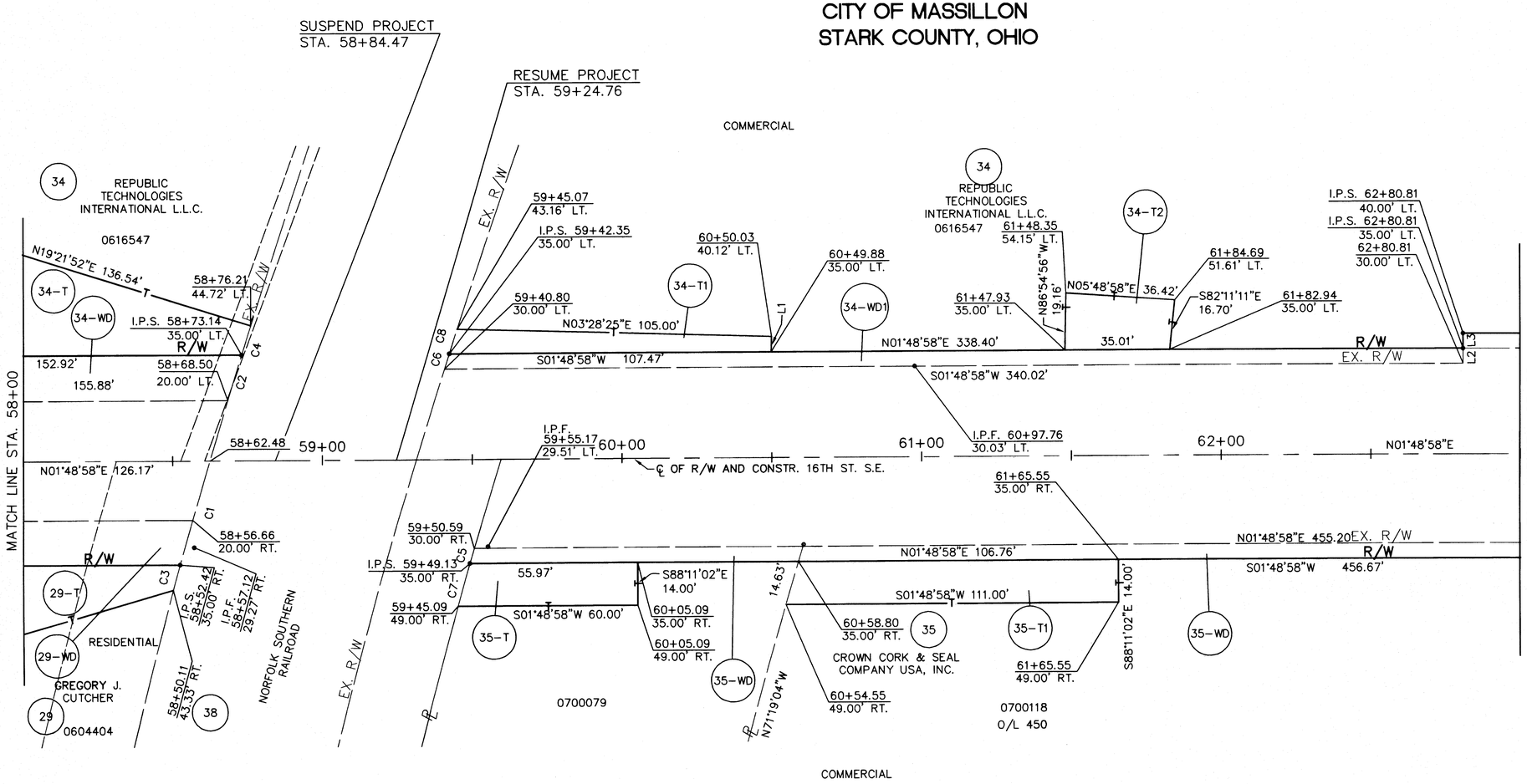
RIGHT OF WAY PLAN
STA. 58+00 TO STA. 63+00
16TH STREET, SE

13/30

145/162

R:\00020\00120\dist\MASSILLON\dwg\RW-16.dwg 11/16/2002 08:15:22 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



CURVE TABLE						
CURVE	RADIUS	DELTA	LENGTH	TANGENT	BEARING	CHORD
C1	2284.88'	0°54'47"	36.41'	18.21'	N72°09'03"W	36.41'
C2	2284.88'	0°23'38"	15.70'	7.85'	S70°58'25"E	15.70'
C3	2284.88'	0°13'01"	8.65'	4.32'	S72°42'57"E	8.65'
C4	2284.88'	0°15'20"	10.19'	5.10'	S70°38'56"E	10.19'
C5	2191.88'	0°08'10"	5.21'	2.61'	S71°51'38"E	5.21'
C6	2218.88'	0°08'09"	5.26'	2.63'	S70°18'34"E	5.25'
C7	2191.88'	0°22'51"	14.57'	7.28'	S72°07'09"E	14.57'
C8	2218.88'	0°13'18"	8.58'	4.29'	S70°07'51"E	8.58'

LINE TABLE		
LINE	BEARING	LENGTH
L1	S86°31'35"E	5.13'
L2	S88°13'28"E	5.00'
L3	N88°13'28"W	5.00'

LEGEND

- I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- I.P.S. – IRON PIN SET

STRUCTURES KEY

▨ – COMMERCIAL BUILDING

▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

N

SCALE IN FEET
0 10 20 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 58+00 TO STA. 63+00

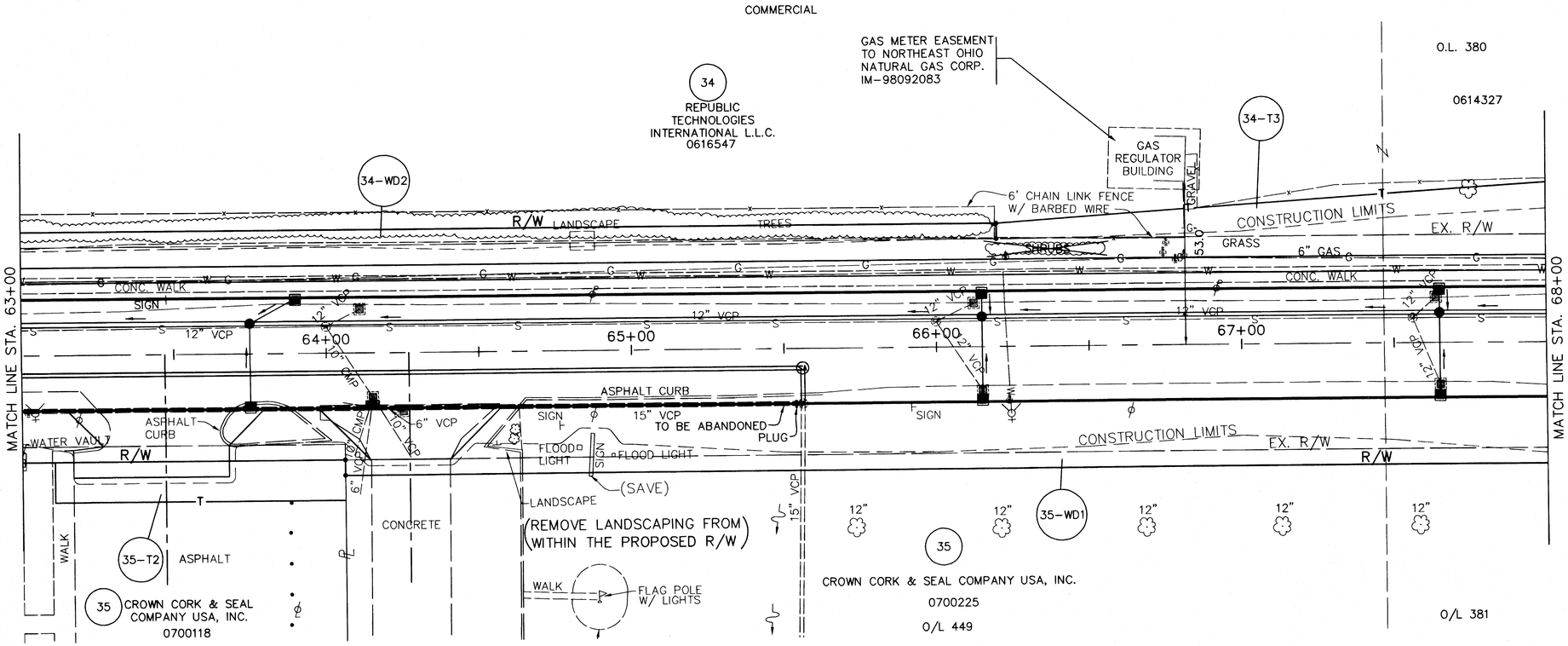
16TH STREET, SE

14 / 30

146 / 162

R:\000001\001201\dgn\MASSILLON\dwg\RW-16.dwg 11/16/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



LINE TABLE		
LINE	BEARING	LENGTH
L1	N88°14'29"W	2.00'
L2	N88°14'29"W	5.00'
L3	S88°11'02"E	2.00'
L4	N88°11'02"W	5.00'

NOTE: FOR R/W DETAIL SEE PAGE 16 OF 30

LEGEND

- I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 63+00 TO STA. 68+00

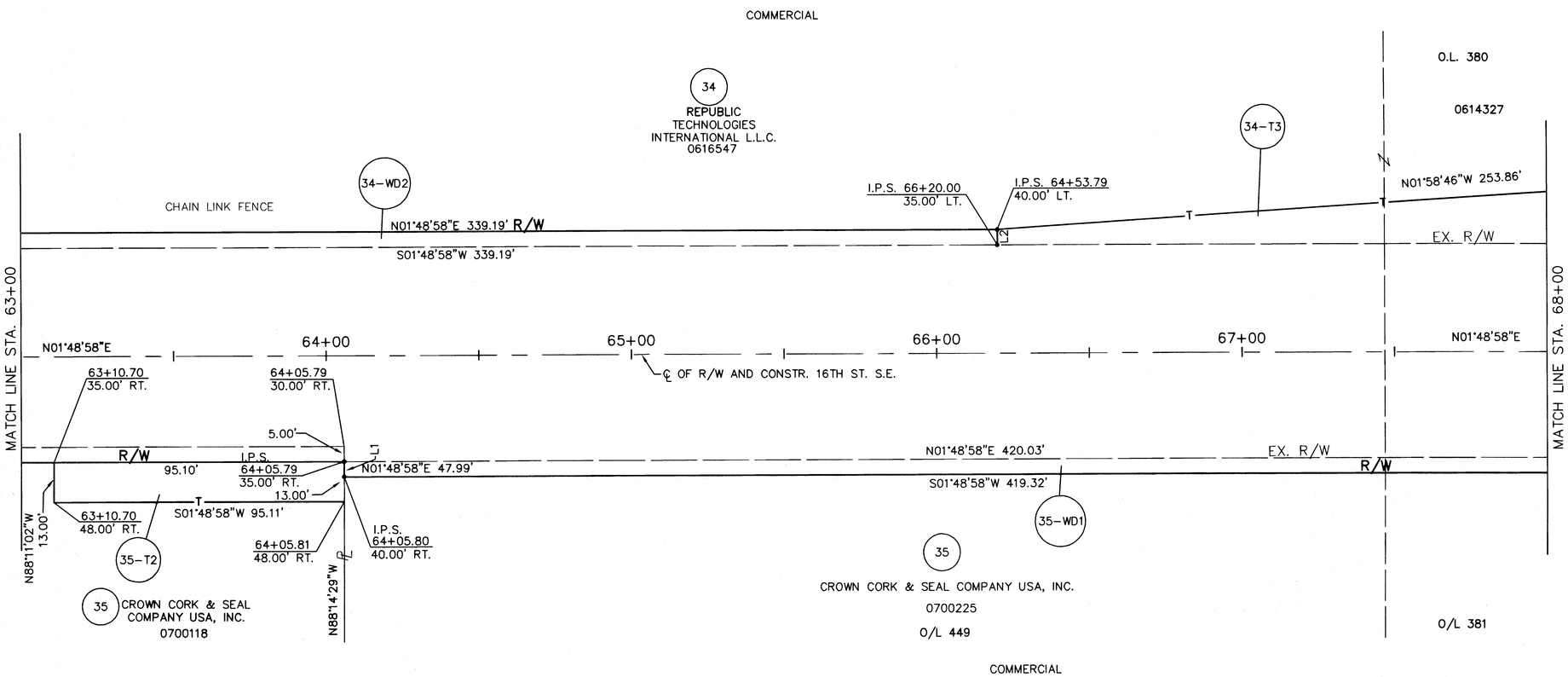
16TH STREET, SE

15 / 30

147 / 162

R:\000001\001201\dat\MASSILLON\dwg\RW-16.dwg 11/16/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



LINE TABLE		
LINE	BEARING	LENGTH
L1	N88°14'29"W	5.00'
L2	N88°11'02"W	5.00'

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

▨ – COMMERCIAL BUILDING

▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

0 10 20 40 SCALE IN FEET

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 63+00 TO STA. 68+00

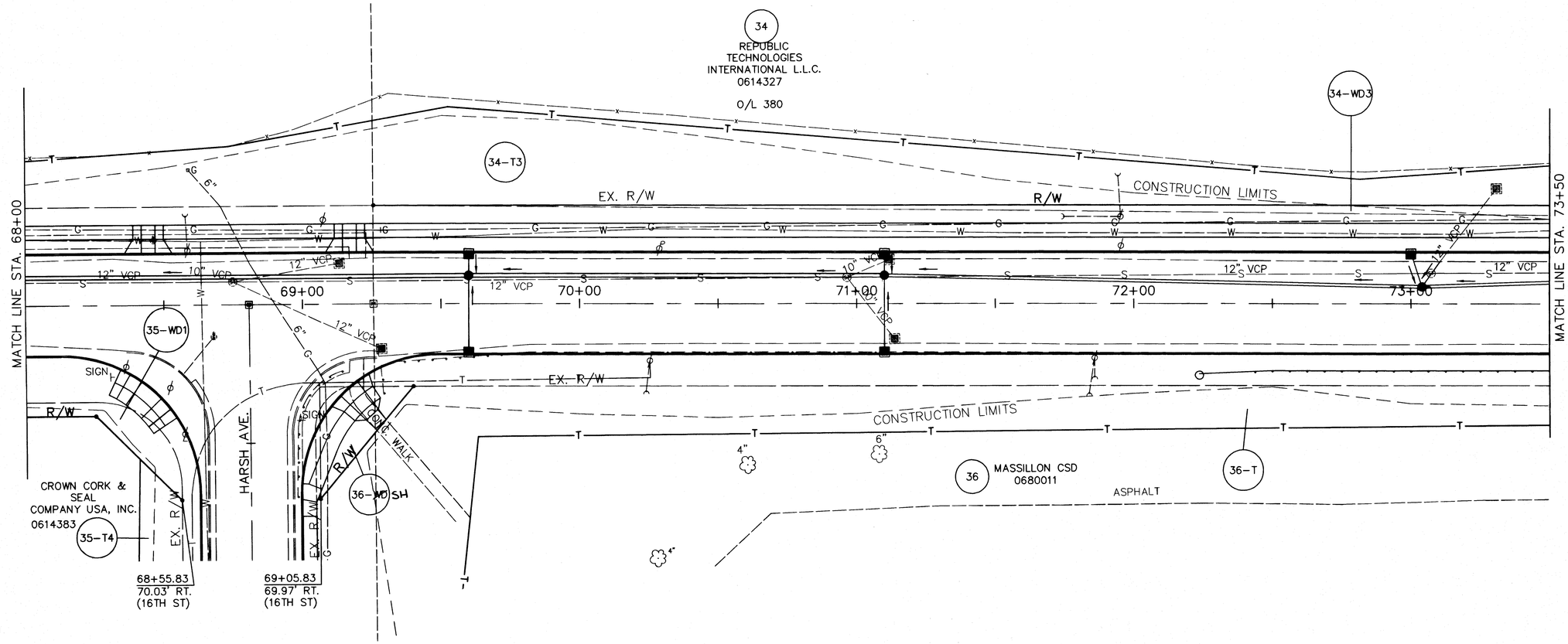
16TH STREET, SE

16 / 30

148 / 162

R:\000000\001201\dwt\MASSILLON\dwg\RW-15.dwg 11/16/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



SEE PAGE 27 OF 30 FOR CONTINUATION

NOTE: FOR R/W DETAIL SEE PAGE 18 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

N

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02

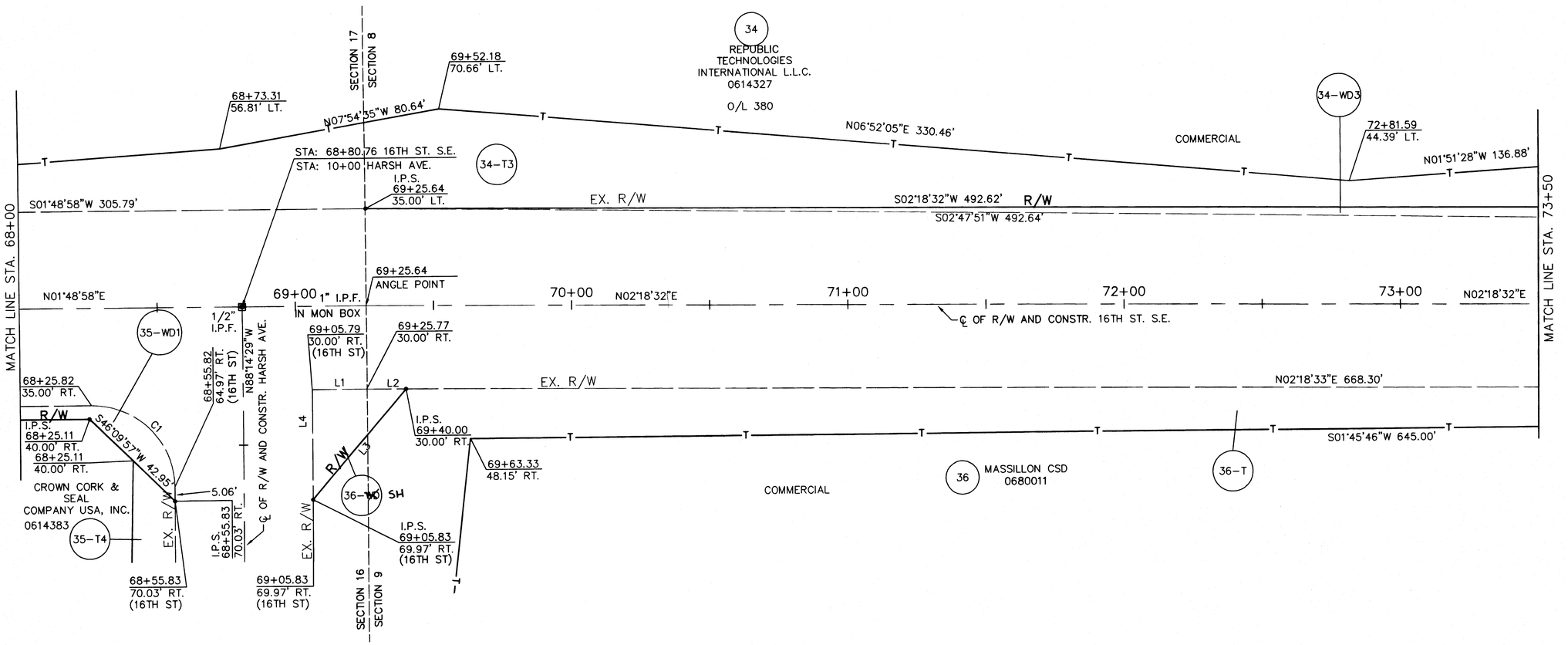
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 68+00 TO STA. 73+50

16TH STREET, SE

R:\D0000\D0120\Civil\MASSILLON\dwg\RW-16.dwg 11/15/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



SEE PAGE 28 OF 30 FOR CONTINUATION

LINE TABLE		
LINE	BEARING	LENGTH
L1	N01°48'58"E	19.72'
L2	N02°18'32"E	14.23'
L3	S47°47'16"E	52.33'
L4	N88°14'29"W	39.97'

CURVE TABLE						
CURVE	RADIUS	DELTA	LENGTH	TANGENT	BEARING	CHORD
C1	30.00'	89°56'33"	47.09'	29.97'	S46°47'15"W	42.41'

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

▨ – COMMERCIAL BUILDING

▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

N

0 10 20 40 SCALE IN FEET

PID NO. 9527

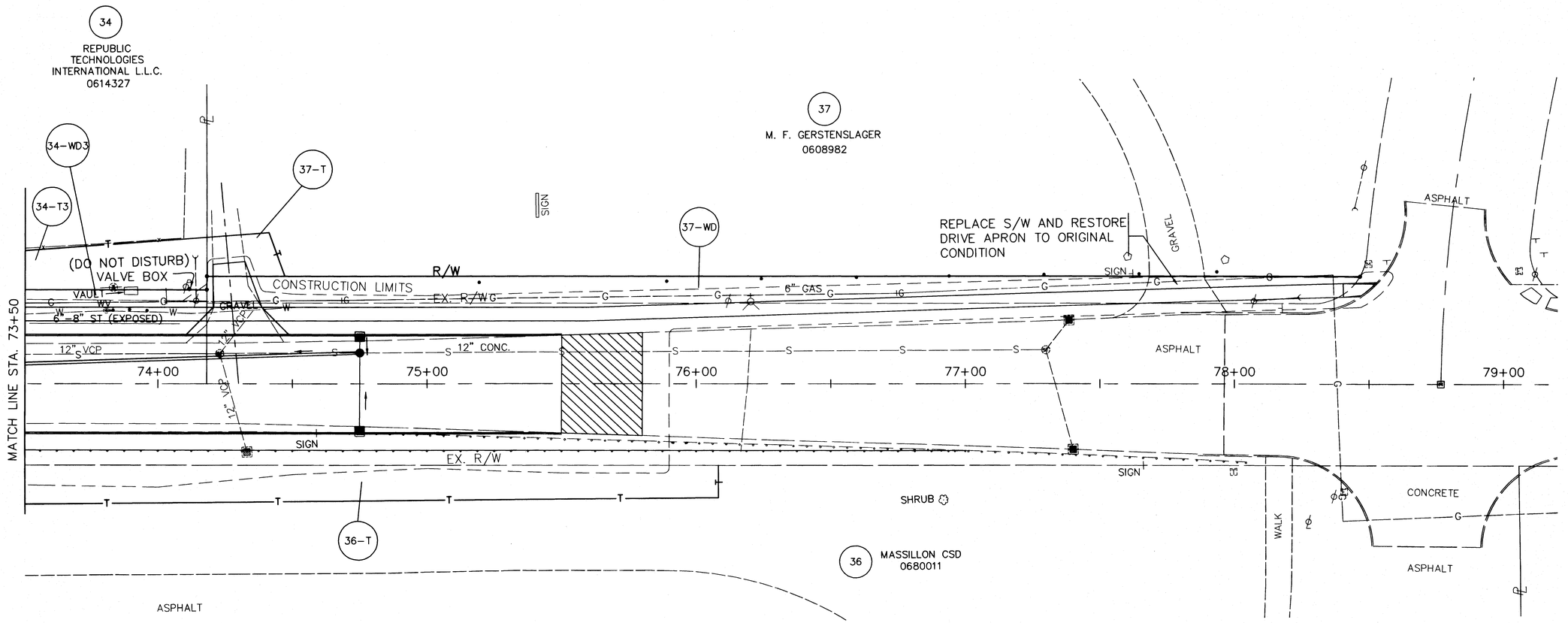
R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 68+00 TO STA. 73+50
16TH STREET, SE

R:\00000\00120\Vdot\MASSILLON\dwg\RW-16.dwg 11/15/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



NOTE: FOR R/W DETAIL SEE PAGE 20 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

SCALE IN FEET (0, 10, 20, 40)

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 73+50 TO STA. 79+00

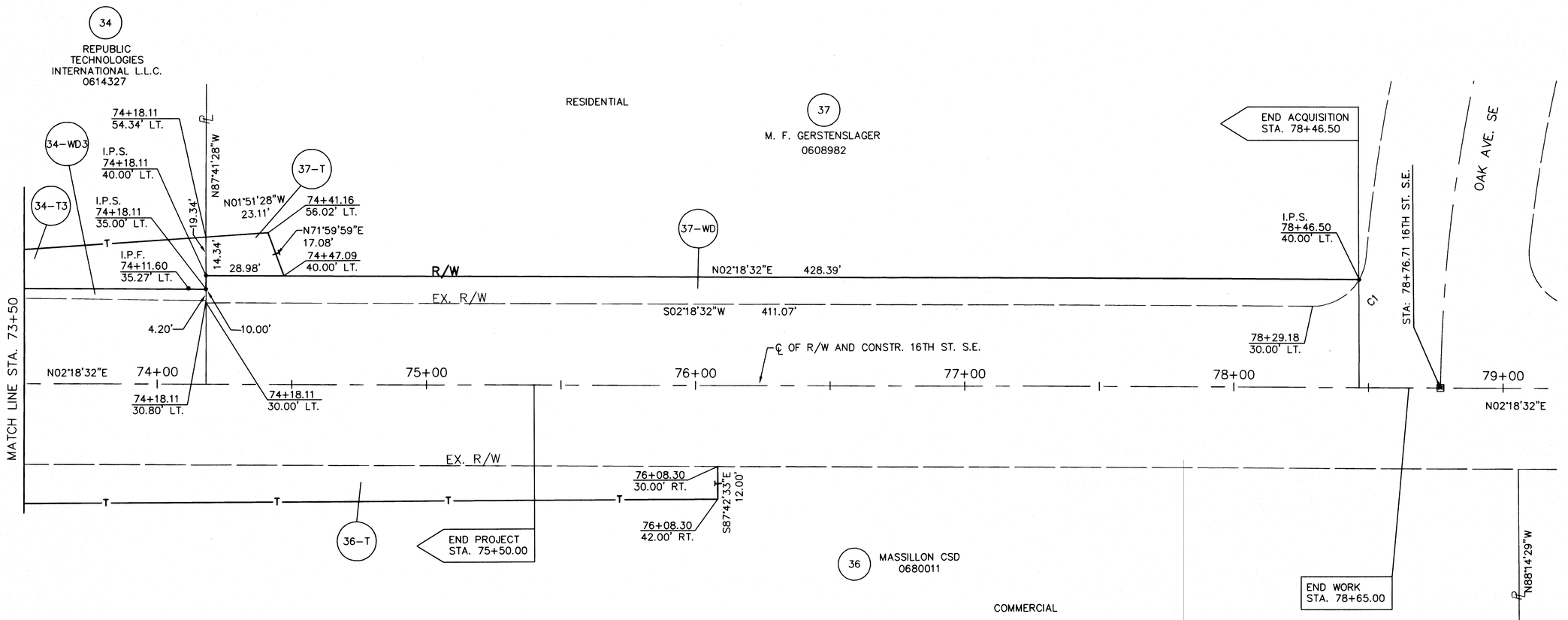
16TH STREET, SE

19/30

151/162

R:\00000\00120\dgn\MASSILLON\brwy16r-16.dwg 11/16/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



CURVE TABLE						
CURVE	RADIUS	DELTA	LENGTH	TANGENT	BEARING	CHORD
C1	20.00'	60°00'00"	20.94'	11.55'	N27°41'28"W	20.00'

LEGEND

- I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- □ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN
STA. 73+50 TO STA. 79+00

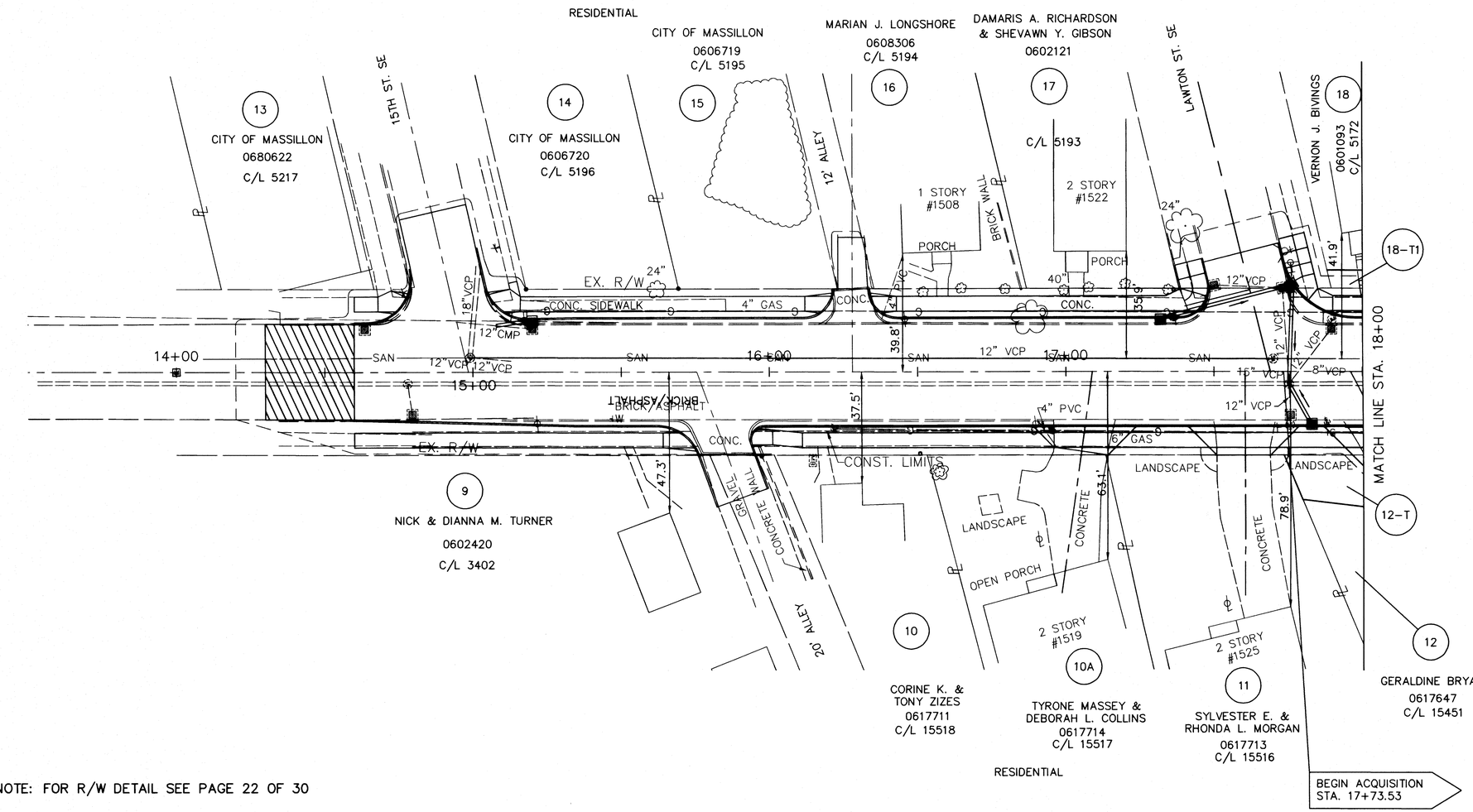
16TH STREET, SE

20/30

152/162

R:\00000\00120\dwt\MASSILLON\dwg\RW-16.dwg 11/16/2002 08:15:32 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



NOTE: FOR R/W DETAIL SEE PAGE 22 OF 30

LEGEND

- I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN WALNUT RD.
STA. 13+50.00 TO STA. 18+00.00

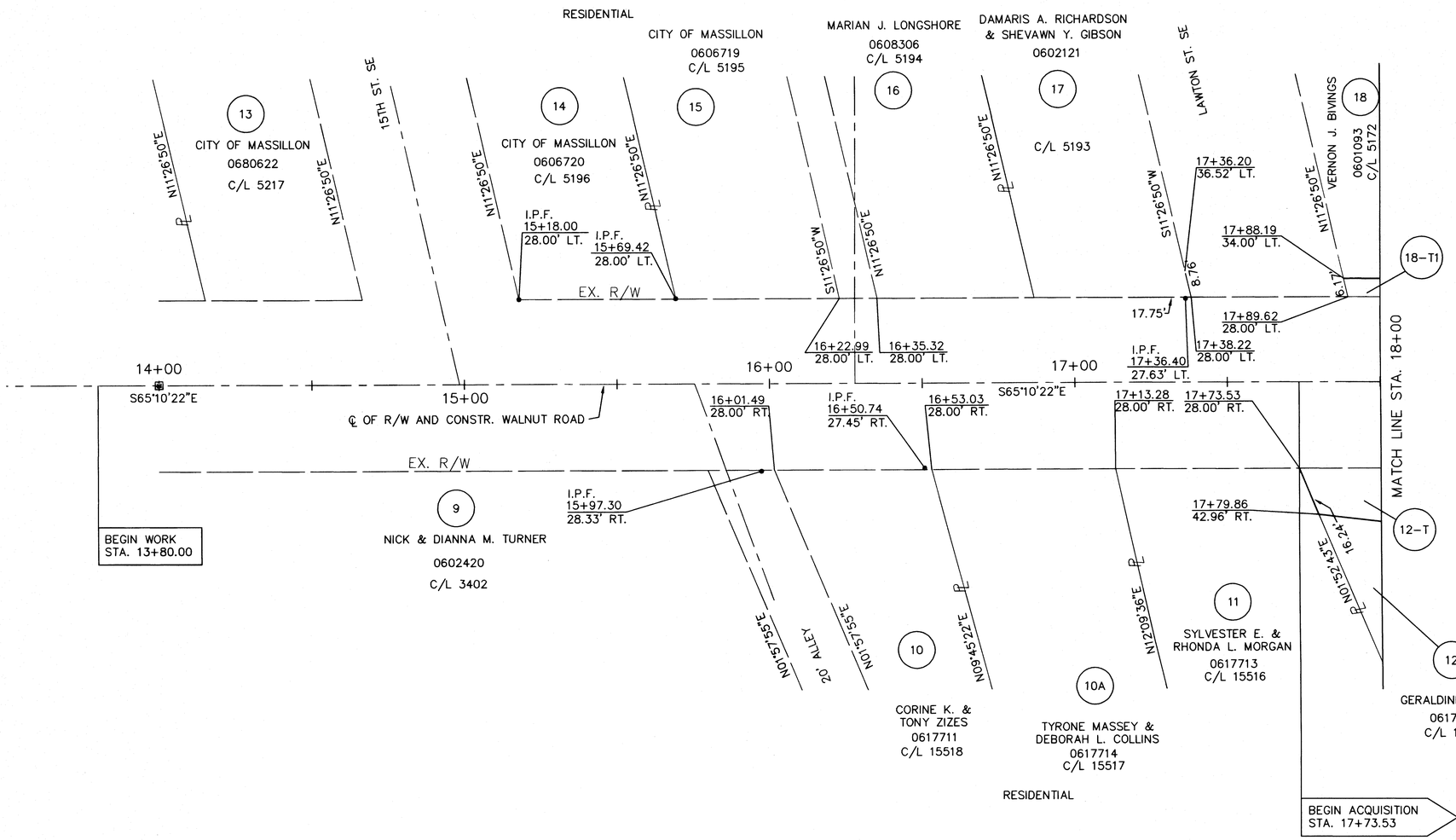
16TH STREET, SE

21/30

153/162

R:\00000\00120\dist\MASSILLON\dwg\RW-WALNUT.dwg 11/16/2002 08:12:29 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN WALNUT RD.
STA. 13+50.00 TO STA. 18+00.00

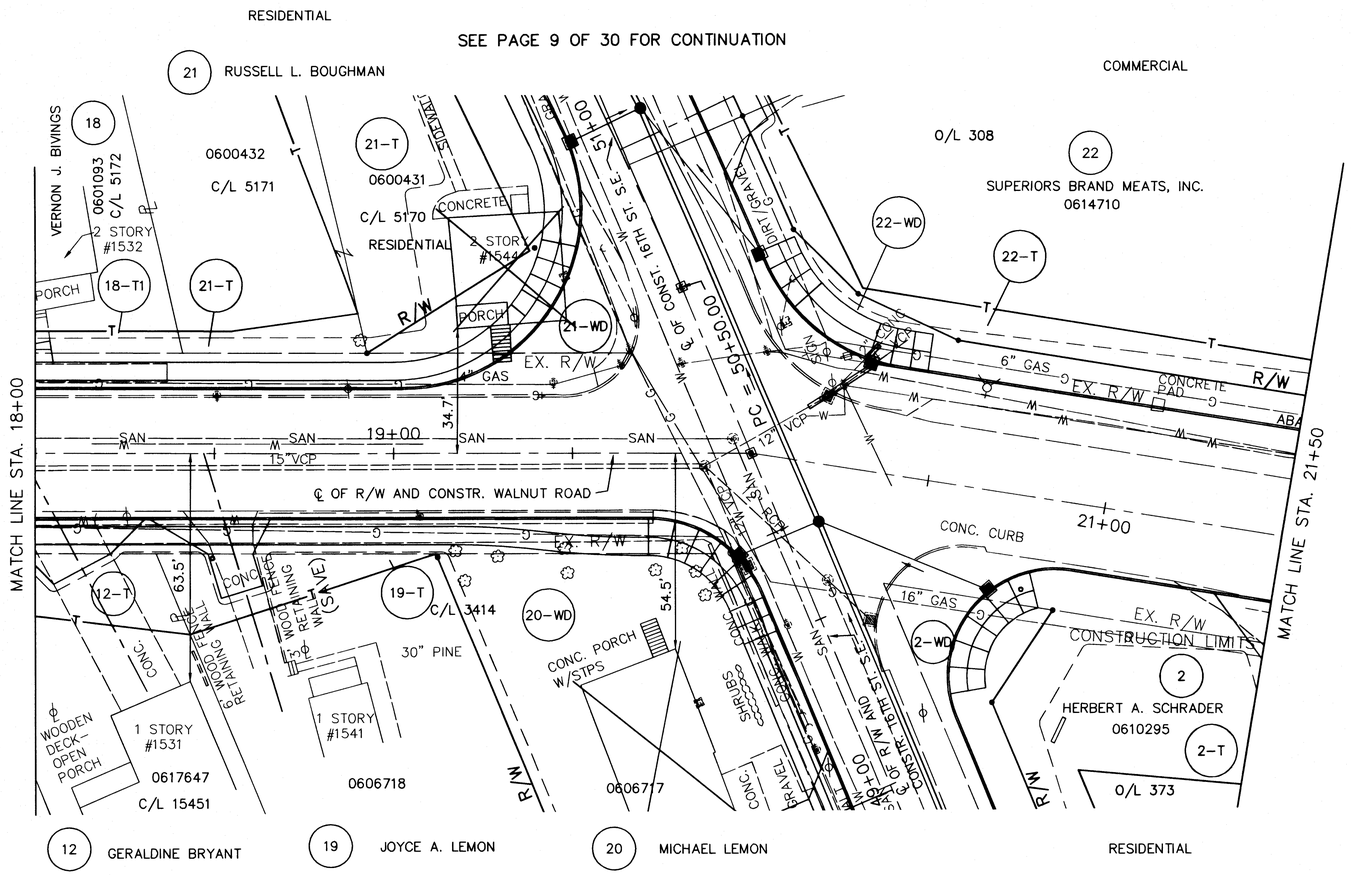
16TH STREET, SE

22/30

154
162

R:\00001\00120\Vol1\MASSILLON\dwg\RW-WALNUT.dwg 11/6/2002 08:12:29 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



NOTE: FOR R/W DETAIL SEE PAGE 24 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

0 10 20 40 HORIZONTAL SCALE IN FEET

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN WALNUT RD.
STA. 18+00.00 TO STA. 21+50.00

16TH STREET, SE

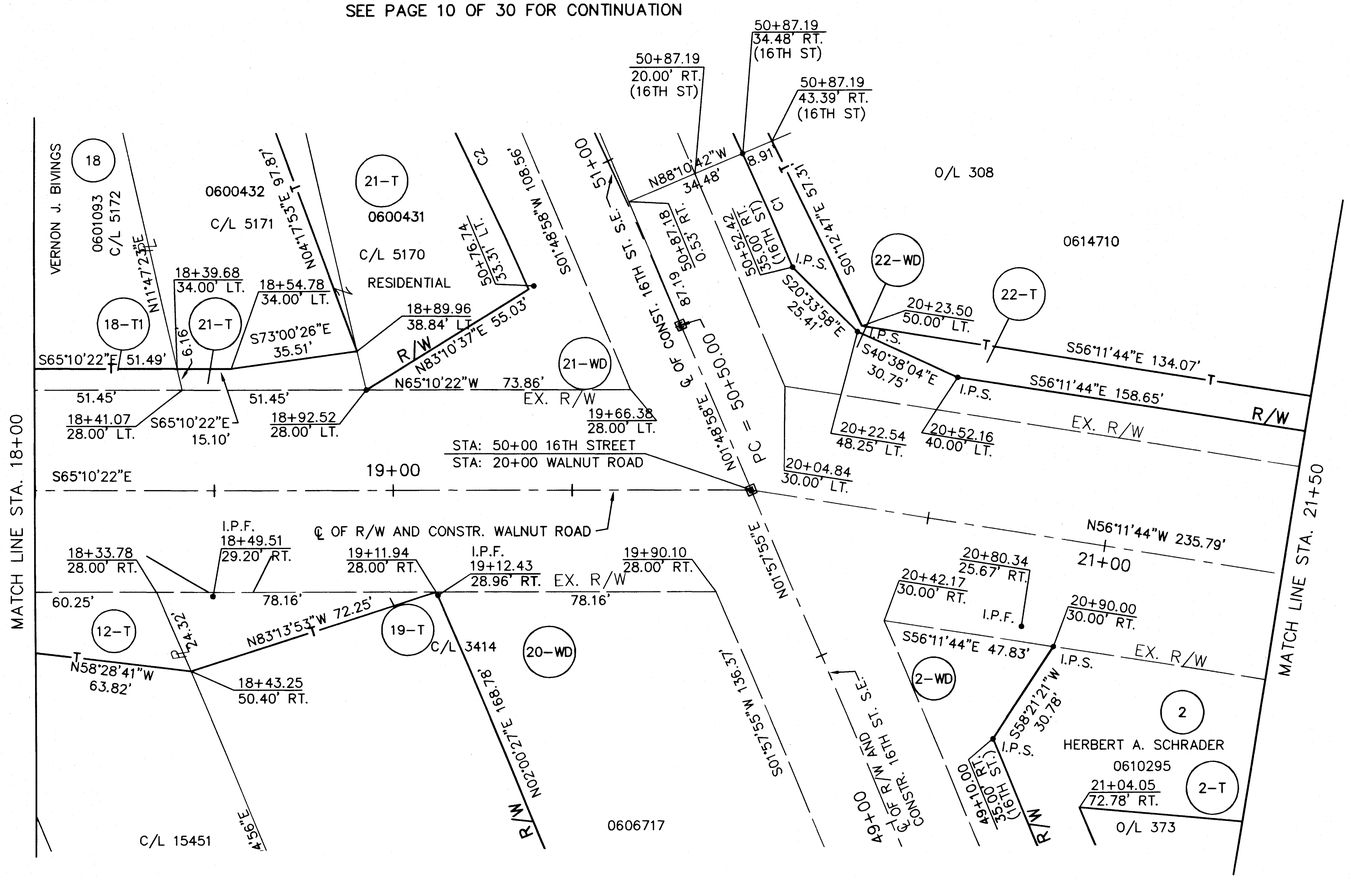
23/30

155/162

R:\00000\00120\Vdot\MASSILLON\dwg\RW-WALNUT.dwg 11/16/2002 08:12:29 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO

SEE PAGE 10 OF 30 FOR CONTINUATION



SEE PAGE 10 OF 30 FOR CONTINUATION

CURVE TABLE						
CURVE	RADIUS	DELTA	LENGTH	TANGENT	BEARING	CHORD
C1	1334.67'	1°29'24"	34.71'	17.36'	N00°57'57"E	34.71'
C2	1264.67'	3°39'41"	80.82'	40.42'	N02°23'30"W	80.80'

LEGEND

- I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

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

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN WALNUT RD.
STA. 18+00.00 TO STA. 21+50.00

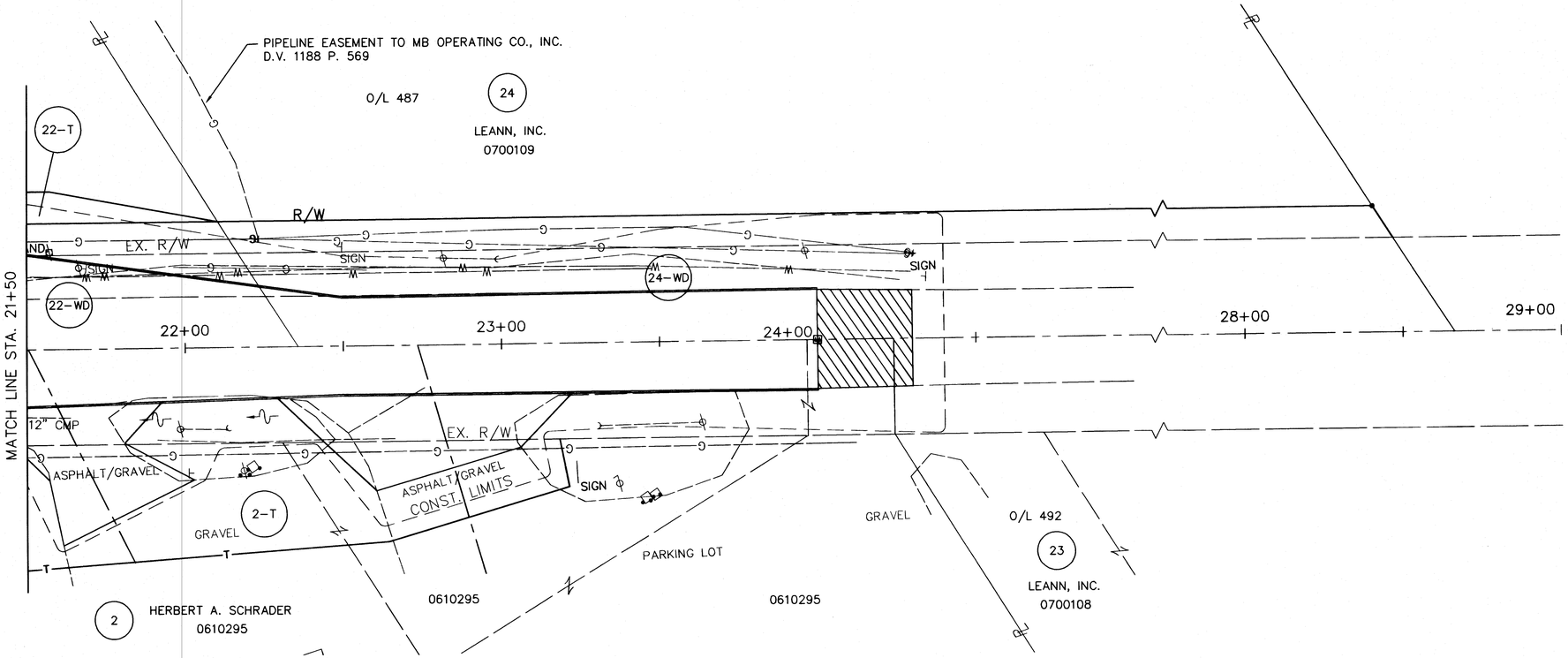
16TH STREET, SE

24 / 30

156 / 162

R:\00000\00120\cd1\MASSILLON\dwg\RW-WALNUT.dwg 11/16/2022 08:12:29 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



NOTE: FOR R/W DETAIL SEE PAGE 26 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN WALNUT RD.
STA. 21+50.00 TO STA. 29+00.00

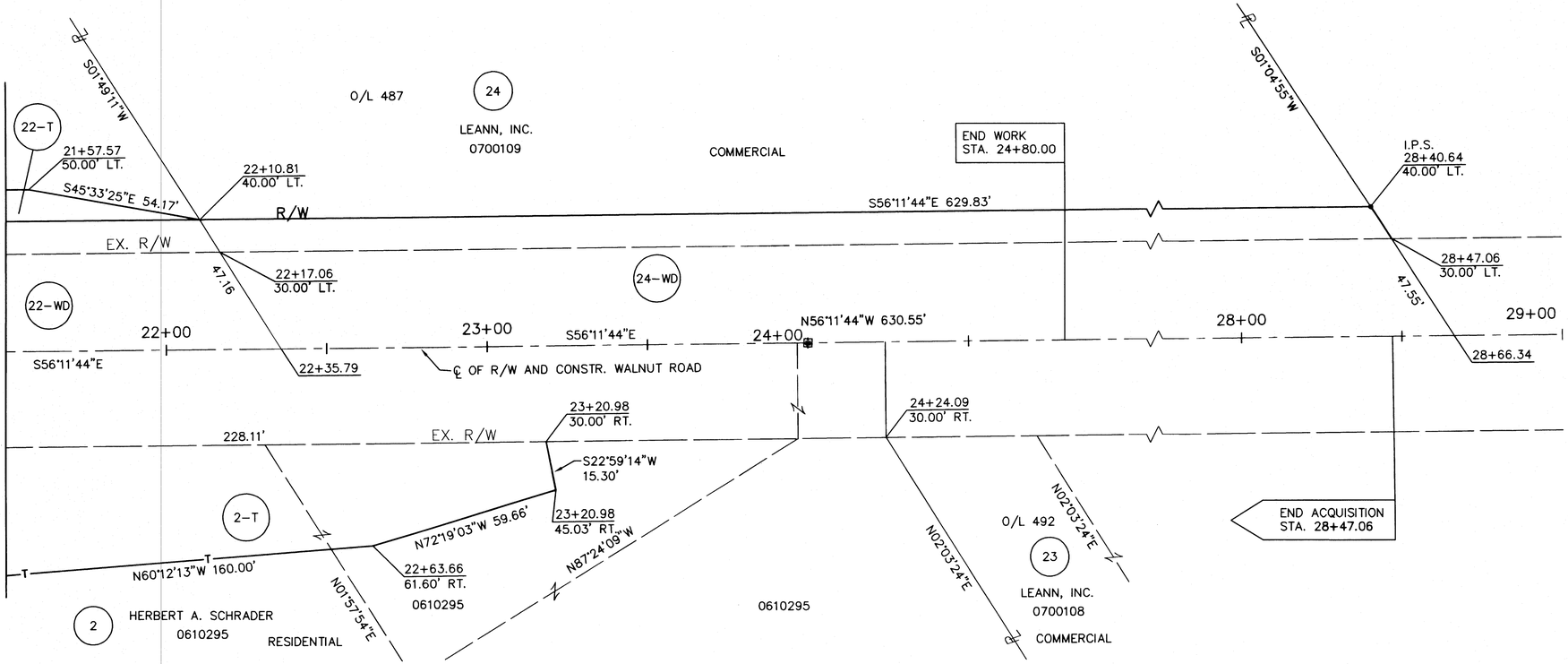
16TH STREET, SE

25 / 30

157 / 162

R:\00000\00120\dot\MASSILLON\dwg\RW-WALNUT.dwg 11/16/2002 08:12:29 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

HORIZONTAL SCALE IN FEET
0 10 20 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN WALNUT RD.
STA. 21+50.00 TO STA. 29+00.00

16TH STREET, SE

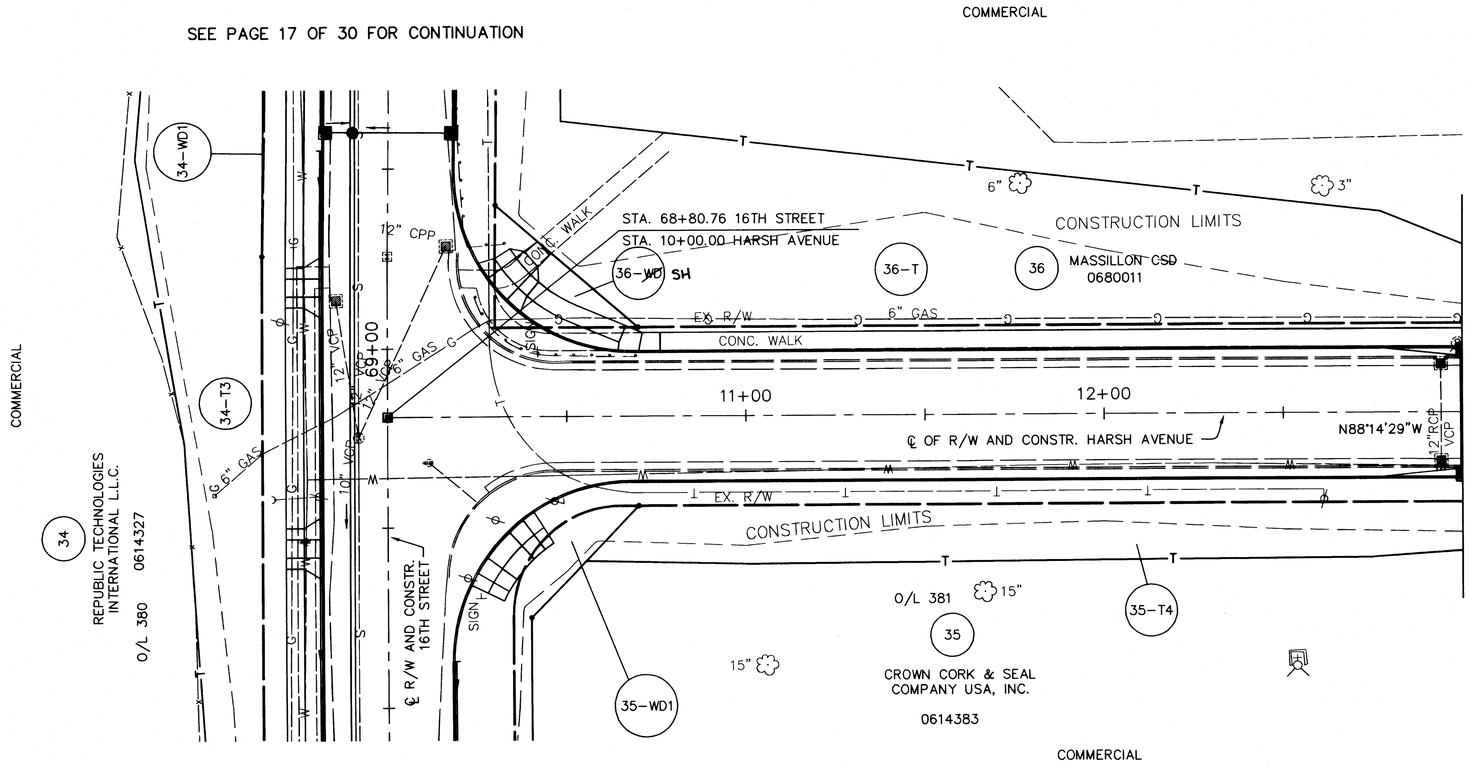
26 / 30

158 / 162

R:\00000\00720\dgn\MASSILLON\dwg\RW-WALNUT.dwg 11/18/2002 08:12:29 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO

SEE PAGE 17 OF 30 FOR CONTINUATION



SEE PAGE 17 OF 30 FOR CONTINUATION

NOTE: FOR R/W DETAIL SEE PAGE 28 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN HARSH AVE.
STA. 10+00 TO STA. 13+00

16TH STREET, SE

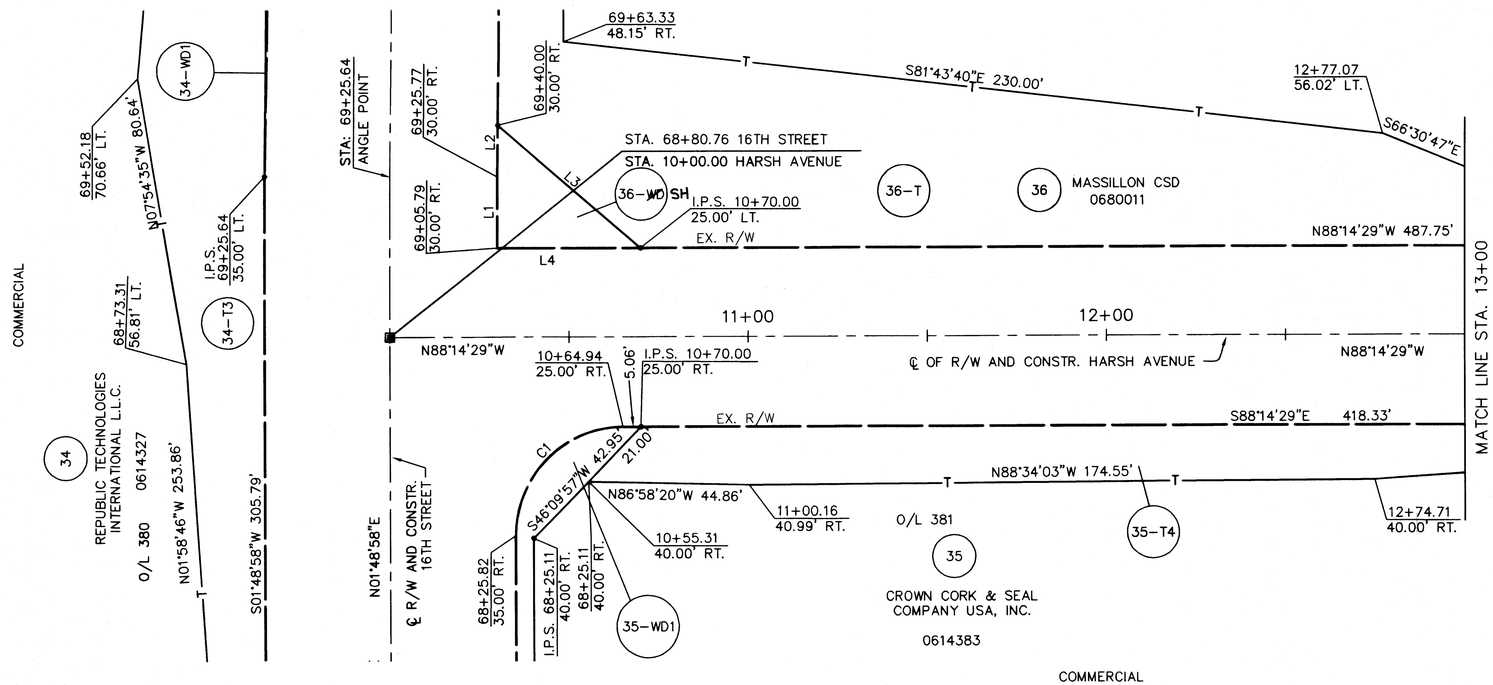
27 / 30

159 / 162

R:\00000\00020\dst\MASSILLON\dwg\RW-HARSH.dwg 11/18/2002 08:05:46 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO

SEE PAGE 18 OF 30 FOR CONTINUATION



SEE PAGE 18 OF 30 FOR CONTINUATION

LINE TABLE		
LINE	BEARING	LENGTH
L1	N01°48'58"E	19.72'
L2	N02°18'32"E	14.23'
L3	S47°47'16"E	52.33'
L4	N88°14'29"W	39.97'

CURVE TABLE						
CURVE	RADIUS	DELTA	LENGTH	TANGENT	BEARING	CHORD
C1	30.00'	89°56'33"	47.09'	29.97'	S46°47'15"W	42.41'

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

▨ – COMMERCIAL BUILDING

□ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

N

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02

R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN HARSH AVE. STA. 10+00 TO STA. 13+00

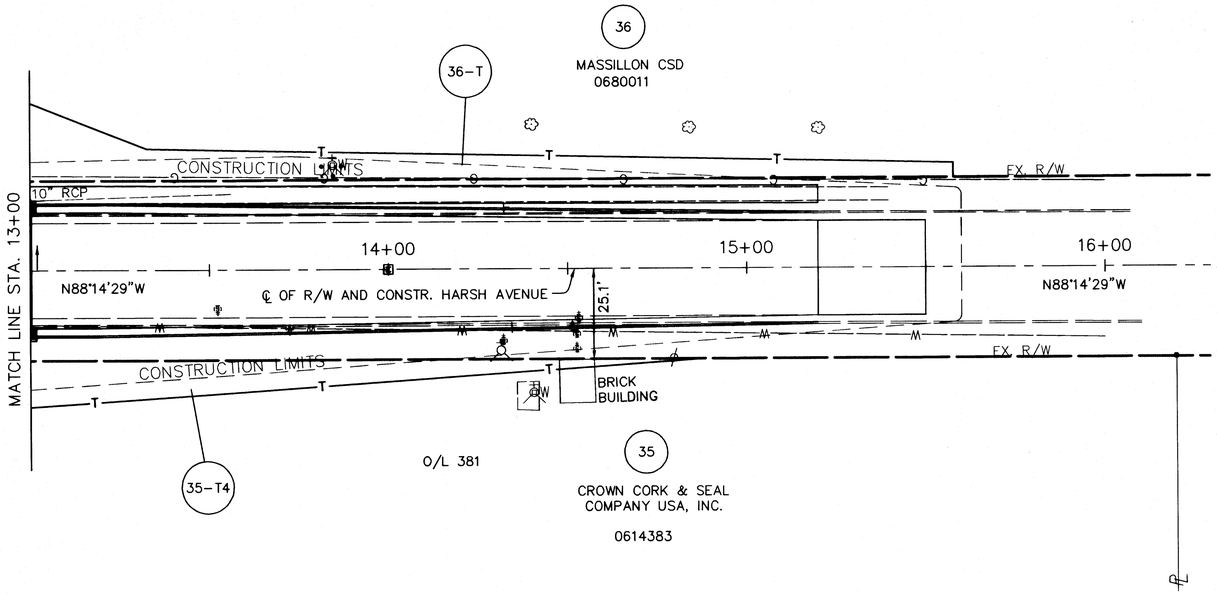
16TH STREET, SE

28/30

160/162

R:\00000\00120\dist\MASSILLON\dwg\RW-HARSH.dwg 11/6/2002 08:05:46 AM EST

16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



NOTE: FOR R/W DETAIL SEE PAGE 30 OF 30

LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION

DATE COMPLETED:

N

SCALE IN FEET
0 10 20 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN HARSH AVE.
STA. 13+00 TO STA. 16+00

16TH STREET, SE

29/30

161/162

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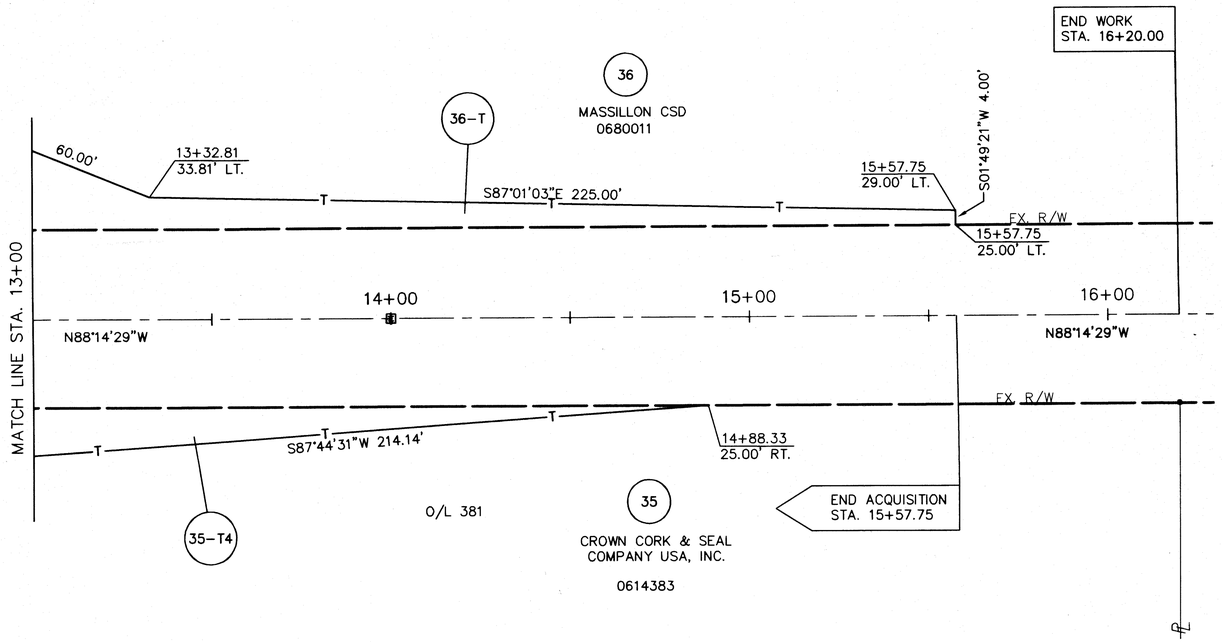
16TH STREET, SE
T-10-N, R-9-W
PERRY TOWNSHIP, SECTION 8, 9, 17, 16
CITY OF MASSILLON
STARK COUNTY, OHIO



LEGEND

- ∘ I.P.F. – IRON PIN FOUND (IRON PIN/REBAR/PIPE)
- • I.P.S. – IRON PIN SET

STRUCTURES KEY

- ▨ – COMMERCIAL BUILDING
- ▭ – RESIDENTIAL BUILDING

REV. BY	DATE	DESCRIPTION
DATE COMPLETED:		

SCALE IN FEET: 0, 10, 20, 40

PID NO. 9527

R/W DESIGNER DLR 01/02
R/W REVIEWER MAY 01/02

RIGHT OF WAY PLAN HARSH AVE.
STA. 13+00 TO STA. 16+00

16TH STREET, SE

30 / 30

162 / 162

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